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BENJAMIN CRUZ <speaker@senatorbjcruz.com>

MC Fwd: CCU MEETING 27 FEB / MEETING MATERIALS

1 message

BENJAMIN CRUZ <speaker@senatorbjcruz.com> Tue, Feb 27, 2018 at 12:51 PM
To: 34th Guam Legislature Clerks <clerks@guamlegislature.org>
Cc: Rennae Meno <rennae@guamlegislature.org>

02/27/18	02/27/18	Consolidated Commission on Utilities	Agenda for CCU Meeting TueSday February 27, 2018 Materials. *	34-18-1577

---------- Forwarded message ----------
From: **Bernadette Lou Sablan** <l.sablan@gpagwa.com>
Date: Tue, Feb 27, 2018 at 11:05 AM
Subject: CCU MEETING 27 FEB / MEETING MATERIALS
To: "Andy Niven (ndynvn@yahoo.com)" <ndynvn@yahoo.com>, Angelica Perez <aperez@amibrokers.com>, Ann Borja - GWA <annborja@guamwaterworks.org>, "Annmarie Muna (amuna@ambrokers.com)" <amuna@ambrokers.com>, Artemio S Perez <aperez@gpagwa.com>, BENJAMIN CRUZ <speaker@senatorbjcruz.com>, "Cameron Mulka (cimiculka@guampdn.com)" <cimiculka@guampdn.com>, "Charlene Calvo (charlene.calvo@ipehq.com)" <charlene.calvo@ipehq.com>, Chilang F Unpingco <cfejeran@gpagwa.com>, "Fred Horecky (horeckylaw@teleguam.net)" <horeckylaw@teleguam.net>, "Gaynor Delano (gdumat-ol@guam.gannett.com)" <gdumat-ol@guam.gannett.com>, Gilda Mafnas <gildam@guamwaterworks.org>, Governor's Office <joy.unpingco@guam.gov>, "Greg P. Cruz" <gpcruz@guamwaterworks.org>, Heidi Ballendorf <heidi@guamwaterworks.org>, "Jams Y Kim (pacguam@gmail.com)" <pacguam@gmail.com>, "Jeff Johnson (jeffcharjohnson@hotmail.com)" <jeffcharjohnson@hotmail.com>, Jennifer G Sablan <jsablan@gpagwa.com>, "Jessica Peterson (webmaster@theguamguide.com)" <webmaster@theguamguide.com>, "Jessy Gogue (ocp.mayor@gmail.com)" <ocp.mayor@gmail.com>, "Joe John Mantanona (joejohnmantanona@gmail.com)" <joejohnmantanona@gmail.com>, "John O'Connor (john@postguam.com)" <john@postguam.com>, "John Reigel (jriegel@brwncald.com)" <jriegel@brwncald.com>, Joyce N Sayama <jsayama@gpagwa.com>, Karla Tydingco <ktydingco@guamwaterworks.org>, "Louella Losinio (louella@postguam.com)" <louella@postguam.com>, Manny Apuron <mapuron@guamwaterworks.org>, "Maripaz N. Perez" <mnperez@gpagwa.com>, "Michael White (whitema@cdmsmith.com)" <whitema@cdmsmith.com>, "Nestor Licanto (nestor@kuam.com)" <nestor@kuam.com>, "PDN Newsroom (news@guampdn.com)" <news@guampdn.com>, "Peter Montinola (peter@isuguam.com)" <peter@isuguam.com>, Selma HG Blas <sblas@gpagwa.com>, "Telena Nelson (senatortcnelson@gmail.com)" <senatortcnelson@gmail.com>, "Therese Terlaje (senatorterlajeguam@gmail.com)" <senatorterlajeguam@gmail.com>

Dear CCU Stakeholders,

Attached is the pdf file for today's CCU meeting materials. See you then...

GL#34-18-1577
Speaker Benjamin J.F. Cruz

Show time is 5 p.m.; Go time is 5:30 p.m.

Best,

FEB 27 2018
Time: 1251 [ ] AM [ ] PM File No. _____
Received By: _____

2018 FEB 27 PM 1:01

B. Lou Sablan

Board Secretary

Consolidated Commission on Utilities

Admin Asst., Legal Counsel, GPA

GLORIA B. NELSON PUBLIC SERVICE BLDG.

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http://guampowerauthority.com/home.html

http://guamwaterworks.org/

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OFFICE OF SPEAKER BENJAMIN J.F. CRUZ

Committee on Appropriations and Adjudication

I Mina'trentai Kuattro na Liheslaturan Guahan

Guam Congress Building | 163 Chalan Santo Papa | Hagatna, GU 96910

1577

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

Regular Board Meeting
CCU Conference Room, Gloria B. Nelson Public Service Building
5:30 p.m., February 27, 2018

AGENDA

1. CALL TO ORDER

2. APPROVAL OF MINUTES

3. COMMUNICATIONS
   - 3.1 Public Comments (2 min. per person)

4. NEW BUSINESS
   - 4.1 GWA
   - 4.1.1 GM Report Update
   - 4.1.2 Financials
   - 4.1.3 Resolution 17-FY2018 Change Order No. 4 for the Agat-Santa Rita WWTP Upgrade Construction Management Contract
   - 4.1.4 Resolution 18-FY2018 2010 Bond Proceeds Reallocation
   - 4.1.5 Resolution 19-FY2018 Contract for the NDWWTP Outfall Effluent Diffuser Installation Project

   - 4.2 GPA
   - 4.2.1 GM Report Update
   - 4.2.2 Financials
   - 4.2.3 Resolution 2018-02 Bond Refinancing Utilization
   - 4.2.4 Resolution 2018-04 Power Purchase Agreement Phase II Renewables - HANWHA
   - 4.2.5 Resolution 2018-05 Increase of Engineering, Procurement & Construction Mgmt Contract

5. OLD BUSINESS

6. ANNOUNCEMENTS
   - 6.1 Next CCU Meetings: GWA Work Session - Mar 20; GPA Work Session -Mar 22; CCU Meeting – Mar 27

7. EXECUTIVE SESSION
   - 7.1 Personnel Matter
   - 7.2 Litigation Matter

8. ADJOURNMENT

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

Regular Board Meeting
CCU Conference Room, Gloria B. Nelson Public Service Building
5:30 p.m., January 23, 2018

MINUTES

1. CALL TO ORDER

The Chairman called the regular meeting of January 23, 2018 to order at 4:40 p.m. He announced that all five (5) Commissioners were present & the quorum is met.

Those present included:

Commissioners:

Joseph T. Duenas	CCU Chairman
Francis Santos	CCU Vice Chairman
George Bamba	CCU Secretary
Judith P. Guthertz	CCU Treasurer
Simon A. Sanchez	CCU Member

Executive Mgmt.:

John Benavente	GM / GPA
Miguel Bordallo	GM / GWA
Melinda Mafnas	GM (A) / GPA
John Cruz	AGMET / GPA
Tricee Limtiaco	AGMA / GPA
John Kim	CFO / GPA
Greg Cruz	CFO / GWA
Graham Botha	Staff Attorney / GPA
Kelly Clark	Staff Attorney / GWA

Management & Staff:

Paul Kemp	AGM Compliance&Safety / GWA
Lisa San Agustin	Utility Services Admin / GWA
Zina Charfaurous	Personnel Admin / GWA
Karen Grape	GWA
Vincent Pangelinan	GWA
Dave Fletcher	Waste Water Operations / GWA
Ron Topasna	GWA
Vangie Lujan	Compliance & Safety / GWA
Joyce Sayama	Mgmt. Analyst / GPA Ex. Office
Lou Sablan	Board Secretary / CCU

Guest:

Charlene Calvo	IP&E
Bill Gilman	Brown & Caldwell
John Riez	Brown & Caldwell
Annmarie Muna	AM Insurance
Angela Perez	AM Insurance
Juhyang Kim	Hanwha

2. APPROVAL OF MINUTES

The Minutes of December 7, 2017 was presented for approval.

Comm. Bamba motioned to approve the Minutes subject to verification & written correction; Comm. Sanchez seconded. There was no further discussion or objection and the motion carried.

3. COMMUNICATIONS

3.1 Public Comments (2 min. per person)

Ms. Sandra Pablo - GWA granted a claim due to raw sewage damage to her home. She shared timetable and seeking continued lodging and storage for her household. GM Bordallo recently sent letter her a letter stopping any further lodging expenses. Chairman said they would talk to management and get back to Ms. Pablo. She thanked he Commission for their time.

4. NEW BUSINESS

4.1 GPA

4.1.1 GM Report Update

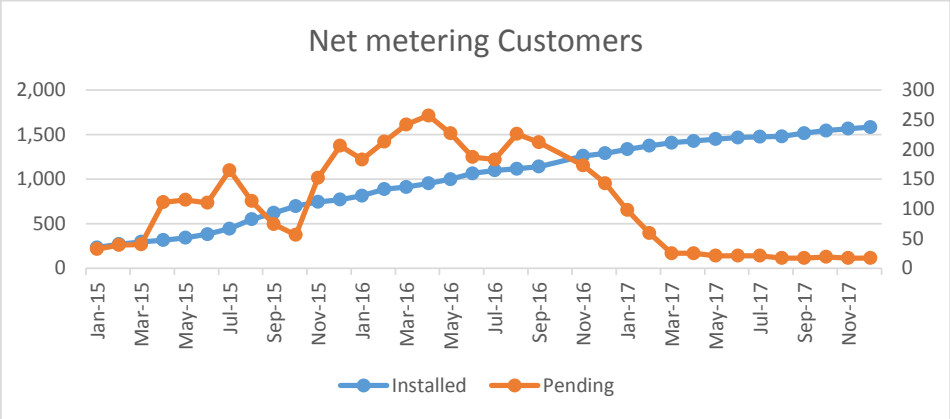
Discussion on the GM report was deferred but a copy was submitted – please see below.

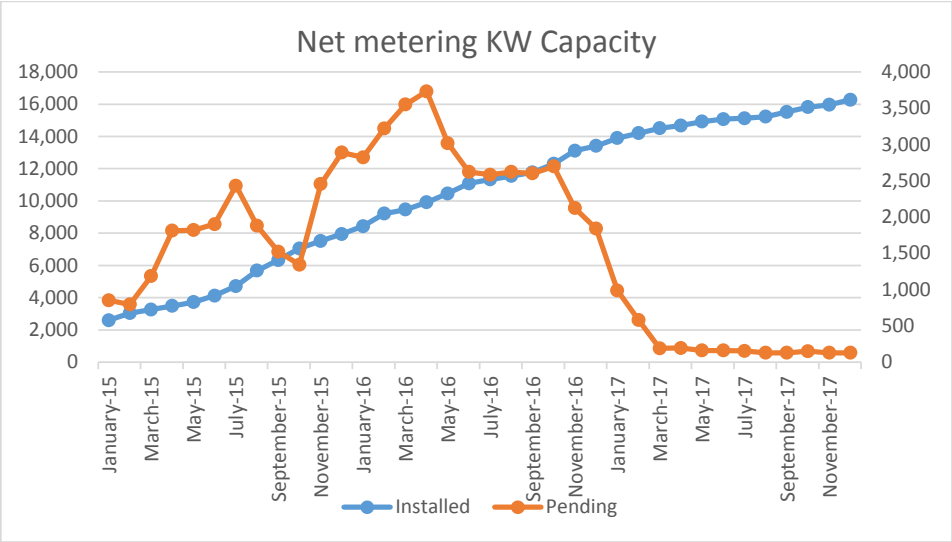
1. Generation System Update:

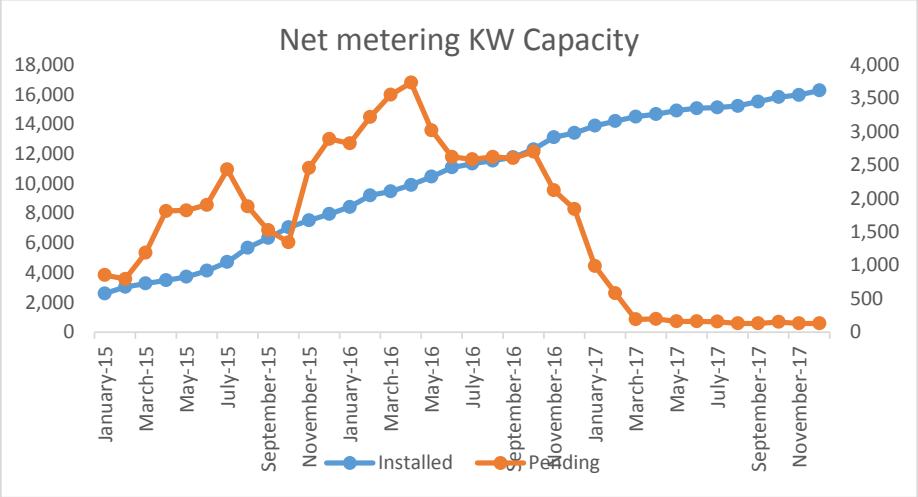
- The following summarizes the expected situation for January 2018. The peak demand in January 2018 has been 240MW compared to the highest peak demand in January 2017 of 232MW. This increase seems to indicate the system peak demand and therefore its energy sales will continue to increase in 2018.
  - **January 2018 Capacity Available: 384 MW**
  - **January 2018 Projected Demand 242 MW**
  - **Available Reserve Margin 142 MW**
  - **Two Largest Units Capacity 117 MW**
  - **Reserve Less 2 largest units 25 MW**

					With New
Summary of System Generating Capacity With No New Baseload:					**180MW**
Description	**FY 2015**	**FY2017**	**FY2018**	**FY2021**	**FY2022**
Baseload MW Capacity	299	208	208	208	268
Emergency/Standby Capacity	120	200	200	200	200
Total MW Capacity	**419**	**408**	**408**	**408**	**468**
Peak MW Demand	249	261	266	283	283
Reserve Margin	170	147	142	125	185
Total Two Largest Units	132	120	120	120	88
Reserve Less Two Largest Units	**38**	**27**	**22**	**5**	**97**
% Baseload Capacity	**71.4%**	**51.0%**	**51.0%**	**51.0%**	**57.3%**
% Energy from Baseload	98.0%	80.0%	62.2%	62.2%	72.6%
% Energy from Renewables	0.0%	3.5%	3.5%	26.4%	26.4%
% Energy from Emergency/Peaker	**2.0%**	**16.5%**	**16.5%**	**11.4%**	**1.0%**

This table is provided to show that without a new power plant, GPA will not be able to meet load growth by 2022. Furthermore, as shown, because we lack adequate base load capacity, GPA's fuel related cost to provide additional energy to new customers will continue to drive its total energy cost higher because energy production would come from costlier less efficient standby units. The lack of new units which could work with intermittent renewables will result in limited solar PV additions into the grid thereby limiting cost saving opportunities.







Estimated Net Metering Impact FY2009 to FY2017:

Fiscal Year	**Amount**
FY 2009	$1,657
FY 2010	$8,483
FY 2011	$18,177
FY 2012	$58,546
FY 2013	$278,025
FY 2014	$352,157
FY 2015	$856,921
FY 2016	$2,200,795
FY2017	$2,828,835
Total:	**$6,603,596**

The continued growth in sales from non-net metering customers has mitigated revenue decline due to net metering customers

2. Renewable Energy Production Summary Thru December 2017:

Energy Production Source:	Kwh Production	Oil Barrels Avoided	Fuel Cost Avoided
NRG Total Production beginning Oct 2015	107,114,628	179,097	$9,850,362
Net Metering Estimated Production beginning Jan 2015	50,302,831	84,107	$4,625,896
Wind Power Production beginning Jan 2016	790,121	1,321	$72,660
Renewables Total:	**158,207,580**	**264,526**	**$14,548,918**
System Heat Rate Kwh/Gal	14.2		
System Fuel $/Bbl	$55.00		

3. Demand Side Management (DSM) Program Expenses Thru December 31, 2017:



3. **Phase II Renewables:** The OPA has upheld GPA's decision for the award of 120MW of solar PV to KEPCO and Hanwha. A subsequent protest filed in the Superior Court of Guam was subsequently withdrawn. GPA can now proceed obtaining CCU and PUC approvals for the two 60 MW contracts. I ask the CCU and the PUC to expedite their awards in consideration of the substantial delays that have occurred. These two renewable contracts will provide substantial savings to the ratepayers through LEAC.

4. **Phase III Renewables Bid**: The bid has been issued. The bid request is for about 40MW of solar PV renewables to be constructed on Navy leased land. The energy produced would be stored in batteries during the day and released at nighttime to meet peak time load. The bid price opening date for acceptable proposals is set for April 17, 2018.

5. **USEPA Consent Decree:** We met with the USEPA Region 9 Acting Administrator on December 18th. The meeting was an opportunity for us to update the administrator on progress made towards compliance. Work continues towards a consent decree which may be completed within the next six months.

6. **2010 Bonds Re-financed:** The 2010 bonds were successfully re-financed in December and has resulted in an annual debt service payment reduction of $501,236.00. We would like to thank everyone for their work in achieving the savings for our ratepayers. GPA would like to inform the Legislature of the intended use of the debt service reduction within 60 days after refinancing.

    - Final Par Amount of Refunding Bonds: $148,670,000
    - Final Par Amount of Refunded Bonds: $150,440,000 (i.e., all outstanding)
    - Total Cash Flow Savings: $11,528,439
    - Average Annual Cash Flow Savings: $501,236 (PUC minimum: $300,000)
    - Net Present Value Savings: $7,777,917
    - NPV Savings / Refunded Par Amount: 5.17% (Legislative minimum: 2%)
    - All-In True Interest Cost: 4.12% (PUC maximum 4.32%)
    - All thresholds required by the various approvals of the various agencies have been met.

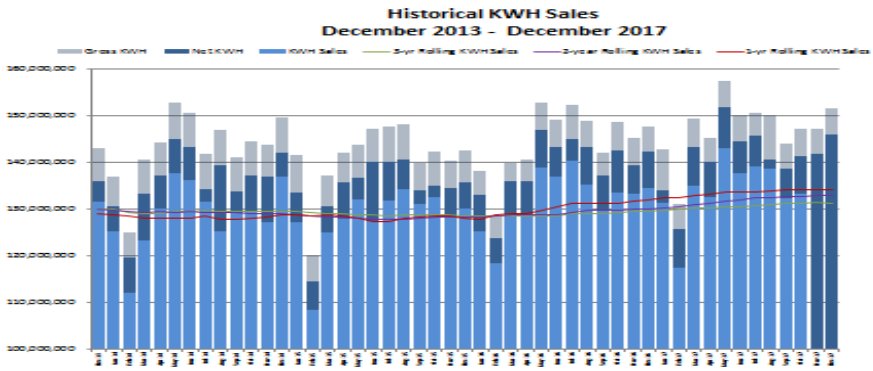
7. **January 2018 PUC Agenda:**

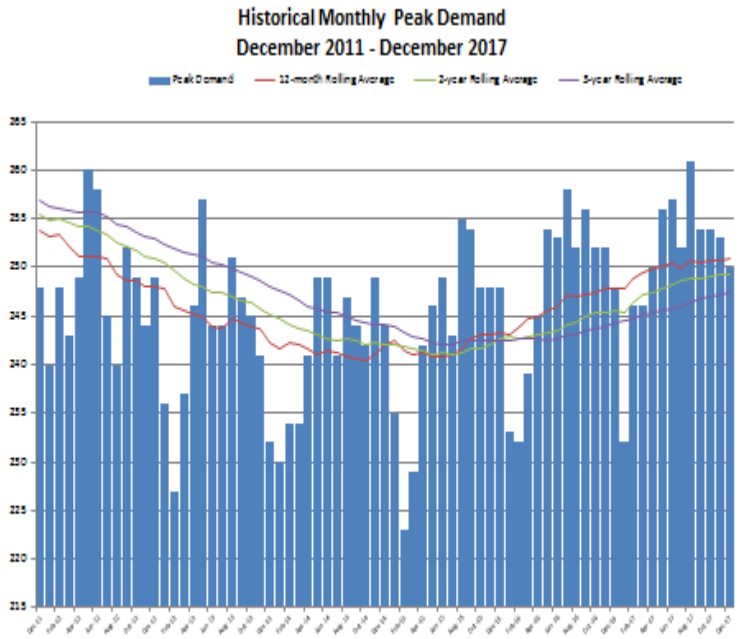
- GPA Docket, LEAC adjustment for February 2018 thru July 2018 period

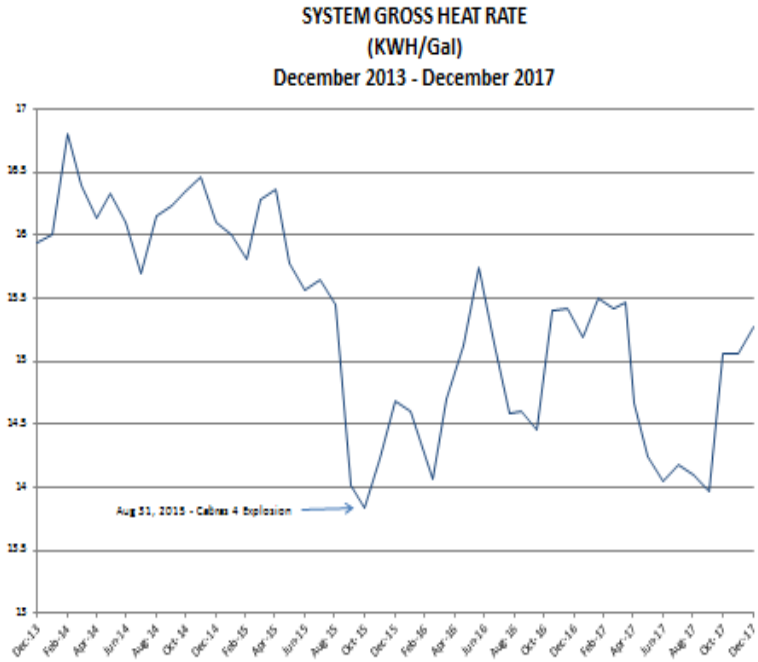
8. **New Power Plant Procurement:**
    a. GPA has issued the multi-step bid for the new power plant. GPA plans to have a short list of qualified bidders by early April. The successful short list will then be provided the technical specifications of the new plant for them to submit their proposal and price by this summer.

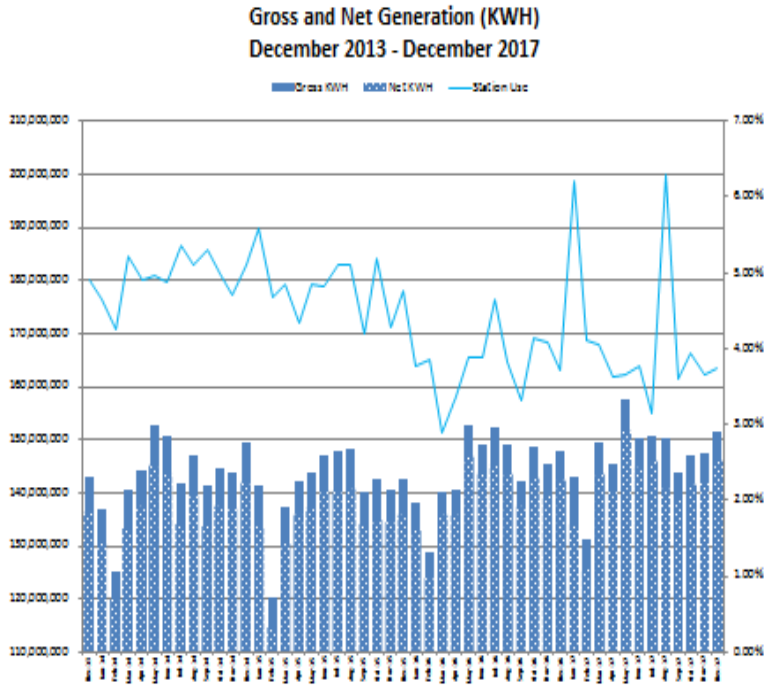
    b. The rezoning efforts for the land for the new power plant will continue. Senator Ada has introduced Bill-223-34 for this re-zoning which may have a public hearing at the end of January. GPA held a public meeting on January 5th at the Astumbo Senior Citizen Center and received some input from landowners in the vicinity of the proposed plant. The latest public meeting held was on January 17, 2018 at the Tamuning Senior Center. And just this morning we had a media briefing and Q& A, addressing our rezoning efforts for our proposed new 180 MW power plant.

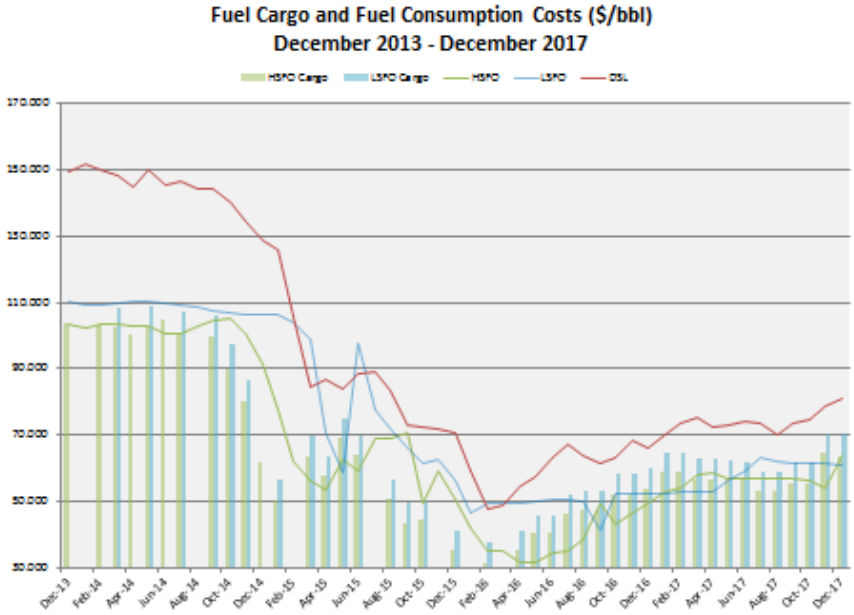
9. **Key Performance Indicators:** The following pages provide updated information thru December 2017.




Historical Monthly Peak Demand
December 2011 - December 2017
Peak Demand
12-month Rolling Average
2-year Rolling Average
5-year Rolling Average


SYSTEM GROSS HEAT RATE
(KWH/Gal)
December 2013 - December 2017
Aug 31, 2015 - Calpine 4 Explosion





4.1.2 <u>Financials</u>

The financial report was deferred.

4.1.3 Resolution 2018-01 Power Purchase Agreement Phase II Renewables

GPA initiated the Phase II renewable projects under the Renewable Portfolio Standards (RPS) as mandated by law. In January 2017 GPA obtained the price bids for 60MW of Renewable Energy Resource capacity with ESS for ramp control. KEPCO-LG CNS Mangilao Solar, LLC., is one of the two (2) lowest responsive bidders (Hanwha Energy Corporation is the other one) with having two proposals for 30MW solar PV projects totaling 60 MW of solar PV capacity with ESS for ramp control. Both solar projects are located in Sasaiyan, Mangilao and the funding source is LEAC. GPA and KEPCO-LG CNS Mangilao Solar, LLC have completed and agreed to commercial terms and conditions of the Power Purchase Agreements (PPA) with a 25-year term. Anticipated cost is noted below. GPA seeks approval to submit KEPCO-LG CNS Mangilao Solar, LLC's PPA to the PUC for their approval. With this resolution GPA will achieve 20% renewable production by 2020.

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)	Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)
1	85.50	74,542.29	6,373,301.30	16	99.26	68,788.84	6,828,106.93
2	86.35	73,974.68	6,388,018.45	17	100.25	68,601.94	6,877,649.88
3	87.22	73,604.26	6,419,591.74	18	101.26	68,048.01	6,890,337.29
4	88.09	73,233.84	6,451,157.70	19	102.27	67,677.59	6,921,358.30
5	88.97	73,058.88	6,500,102.43	20	103.29	67,307.18	6,952,310.69
6	89.86	72,493.01	6,514,254.33	21	104.33	67,116.29	7,001,919.62
7	90.76	72,122.59	6,545,778.20	22	105.37	66,566.34	7,013,991.65
8	91.67	71,752.18	6,577,281.12	23	106.42	66,195.92	7,044,711.02
9	92.58	71,573.23	6,626,486.53	24	107.49	65,825.51	7,075,343.38
10	93.51	71,011.34	6,640,209.75	25	108.56	65,630.64	7,124,941.98
11	94.44	70,640.93	6,671,628.12				
12	95.39	70,270.51	6,703,010.83				
13	96.34	70,087.58	6,752,417.40				
14	97.31	69,529.68	6,765,653.80				

Comm. Bamba motioned to approve Resolution 2018-01; Comm. Sanchez seconded. There was no further discussion or objection and the motion passed.

4.1.4 Resolution 2018-02 Bond Refinancing Savings Utilization

Guam Power Authority's (GPA) Bond Refinancing Program will result in a 2018 to 2021 cumulative debt service reduction of $1,482,326, a savings of $501,236.00 per year, and as per Guam PL 34-69, Section 2(h), GPA must notify I Liheslatura within sixty (60) days of refinancing of its intent and plan regarding the savings achieved from refinancing. GPA desires to reserve these savings for the benefit of the community by making a strategic investment assisting the Guam Department of Education's (GDOE) with its Legislative mandate for renewable energy.

GPA desires to ensure GDOE continues to contribute to the O&M and capital investments for the GPA Power System. GPA desires to act as an economic catalyst for the local renewable energy economy and the businesses it support. GPA proposes to use the Bond Refinancing Program savings towards installation, commissioning, and operations and maintenance of solar PV + energy storage systems on GDOE facility rooftops or parking areas. GPA will supplement the funding of this program with federal grants. The installed solar PV system energy production shall offset GDOE electricity billing on a kilowatt-hour generated for kilowatt-hour consumed basis at the LEAC rate This proposed program benefits GDOE, GPA, renewable energy system providers, and Guam students and residents. GPA designates this proposed DSM program as the *Bringing Energy Savings to (BEST) Schools Program*.

After some discussion, it was decided to table this resolution and bring it back to the table at the CCU meeting in February. The CCU is leaning toward the DSM Program and DOE PV program.

4.1.5 Resolution 2018-03 Piti Substation 115kV GIS Major Maintenance

The purpose of this resolution is to perform an overdue detailed 12-year maintenance and inspection for the Piti 115KV Gas Insulated Switchgear (GIS). The maintenance work is necessary for compliance with the manufacturer's recommendations. The insulating medium for the switchgear is SF6 gas, and under certain conditions such as breaker operations (trip/close), sulfuric acid may be produced which may lead to severe deterioration of internal parts.

The Piti 115 kV GIS is a critical substation interconnecting the MEC Plant Units 8 and 9 to the power grid and this maintenance service will cost $2,507,300 – details below.

Basic Bid		
A1	Mobilization / Demobilization	436,800
A2	GIS - Initial Testing, Assessing, and Reporting	381,000
A3	GIS - Inspection, Servicing, Replace, Maintenance, Gauge Calibration	1,061,000
A4	Reuse and Recycling of Removed SF6 Gas	21,000
A5	Crane Repair	13,000
A6	Training Course - Operation and Maintenance	72,000
A7	Final Testing, Commissioning, Reporting, and Re-Certification	212,000
	Total Basic Bid Cost	$ 2,196,800
Additive Bid		
B1	New SF6 Gas	39,000
B2	Disposal of Removed SF6 Gas	12,500
B3	GIS OEM Spare Parts, Consumables, and Special Tools	165,000
B5	New Fixed Cage Ladder and Landing Platform	94,000
	Total Additive Bid Cost	$ 310,500

Total Bid Cost	**$ 2,507,300**
Construction Management Cost/ T&D Support	$ 130,000
Total Requested Cost	**$ 2,637,300**

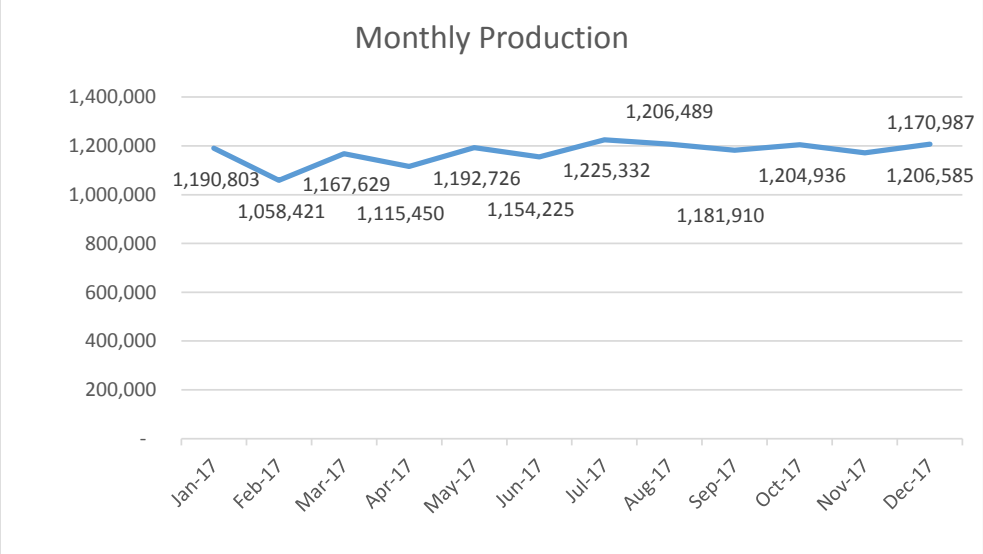
Time delivery to complete work is 10 months upon receipt of PO and the funding source is GPA's 2014 Revenue Bond Funds. AYM International Inc., the only bidder, submitted quote for GPA's consideration under Multi-Step Re-Bid Invitation No. GPA-027-17. The initial bid had no bidders and after review, the committee determined that AYM International was determined to be a technically qualified and responsive bidder.

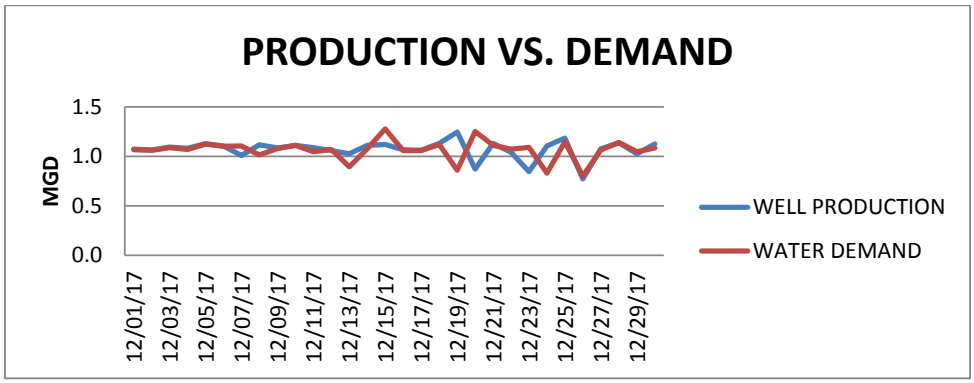
Comm. Bamba motioned to approve the resolution, seconded by Comm. Guthertz. There was no further discussion or objection and the motion passed.

4.2 GWA

4.2.1 GM Report Update

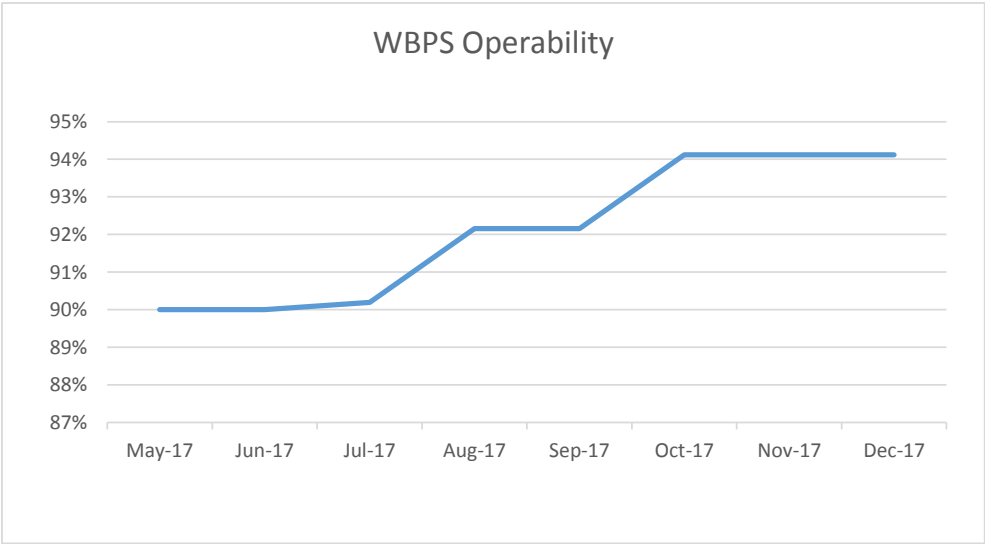
Monthly Production Summary - December 2017					
Deep Wells				35.7	MGD
	Active wells =	97	of 120		
	Avg days in operation =	28.54	days		
	Total Production =	1,107,166	Kgals		
Springs				0.00	MGD
	Avg days in operation =	0	days	*placed on standby	
	Total Production =	0	Kgals		
Ugum Surface Water Plant				2.1	MGD
	Avg days in operation =	31	days		
	Total Production =	66,278	Kgals	*data pending	
Tumon Maui Well				1.07	MGD
	Avg days in operation =	31	days		
	Total Production =	33,141	Kgals	*data pending	
		1,206,585	Kgals	38.9	MGD

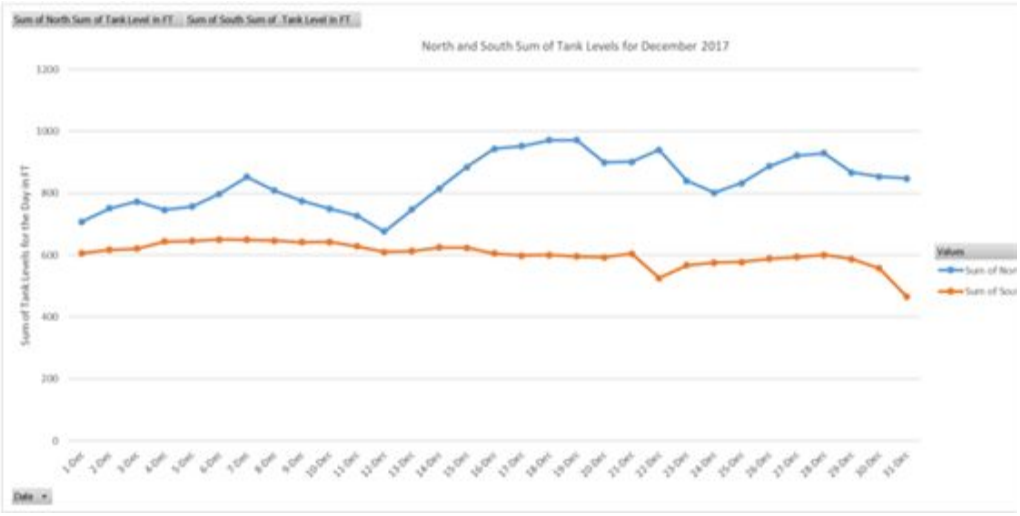




Distribution

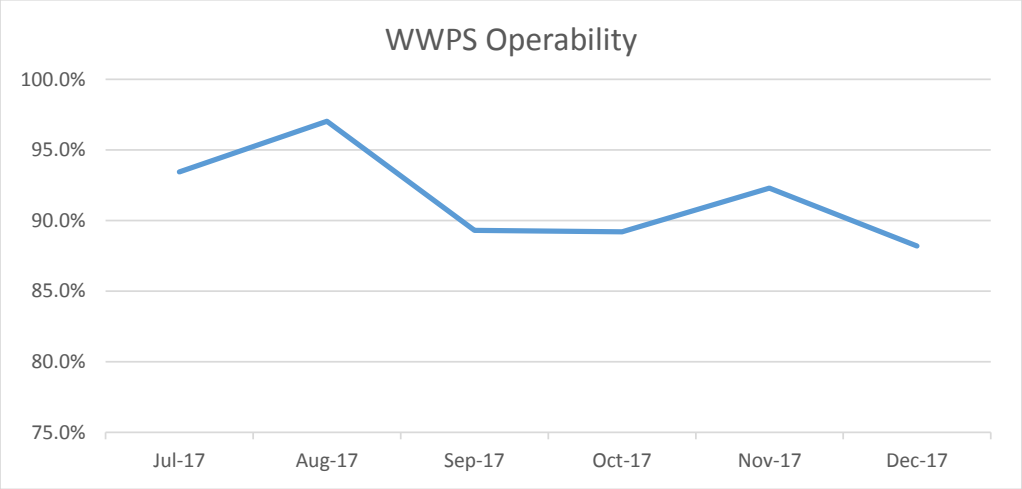
Monthly Distribution Summary - December 2017					
Water Booster Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	11	21	20	95.2%
	Central	7	15	13	86.7%
	Southern	7	15	15	100.0%
		25	51	48	94.1%





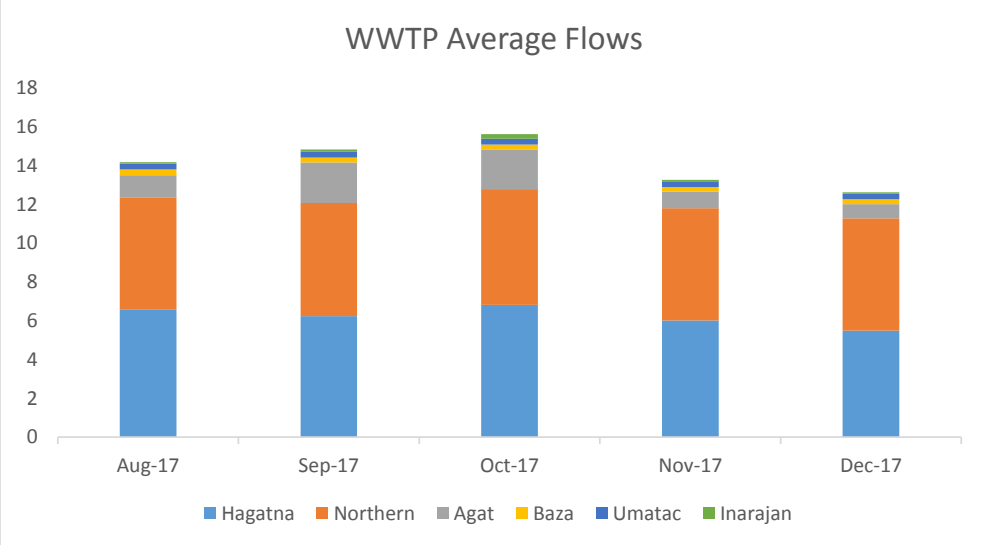
Wastewater Collections

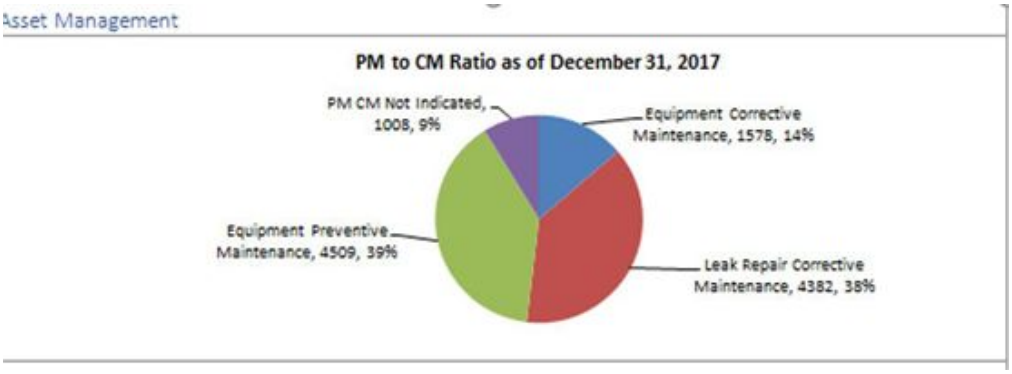
Monthly Collections Summary -December 2017				
Wastewater Pump Stations				
District	No. of Stations	Total Pumps	Pumps Operating	% Operational
Northern	22	52	48	92.3%
Central	31	65	54	83.1%
Southern	25	52	47	90.4%
	78	169	149	88.2%



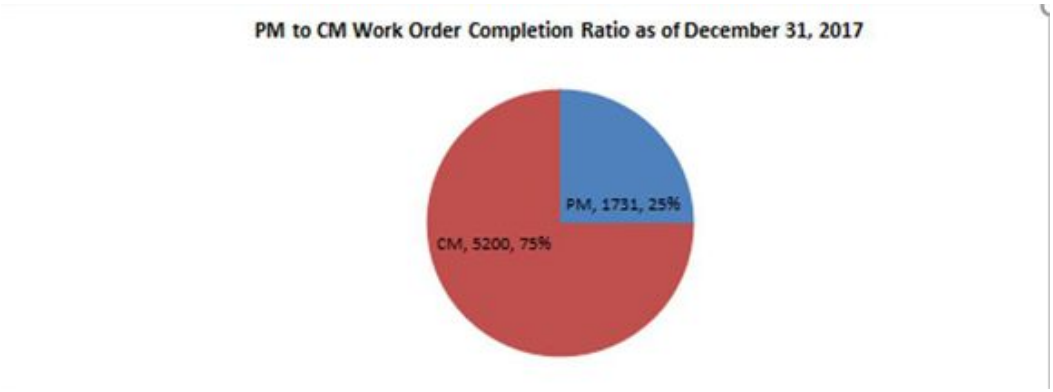
Wastewater Treatment

Monthly Wastewater Treatment Summary - December 2017				
WW Treatment Plants - Flows				
	Facility	**Avg. Daily Flows**	**Sludge (lbs)**	**Sludge Disp. ($)**
	Hagatna	5.49	584,809	$ 34,524
	Northern	5.79	810,960	$ 71,000
	Agat	0.73		
	Baza	0.25		
	Umatac	0.30		
	Inarajan	0.06		
		12.62	1,395,769	$ 105,524





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Operational Issues

- GWA Employees have participated in Operator Certification training, and first ever computer-based certification testing has been conducted as a joint effort between GEPA, GWA, UoG and the Western Pacific Subsection of AWWA. Several GWA employees who passed their certification exams at the first testing event will receive certificates this Thursday.

Production & Distribution

- GAC Treatment Systems for wells affected by PFOS
  - NAS-1
    - Permanent modifications to NAS-1 GAC Treatment System pending – confirmed for summer break;
    - Replacement Carbon being ordered
  - A-23/A-25: Inspection of existing GAC vessels complete; planning on-going for removal, repair and relocation
  - GIAA System: GIAA advised to provide replacement GAC
- 2018 Pump/Motor order – pending release by CFO
- Valve Exercise Trailer – received, manufacturer training has been conducted.
- GWA Crane Repair – manufacturer technician completed repair assessment and diagnostics; parts on order, repairs pending.

Wastewater Collection & Treatment

- After completion of the Asan/Adelup gravity sewer breaks, WW Collections crews worked extra shifts in December to catch up on sewer cleaning and CCTV inspections, exceeding December's target miles by 20%
- Sewer connection program – initial pilot program on-going
  - Field verification of established GWA connections vs. septic systems in sample population completed
  - Data validation and correction pending review
  - Program analysis and recommendations – future action
- FOG Program
  - Draft Program Manual Completed and submitted for USEPA Comments
- WW Treatment Operator Training Workshop Conducted this month

Meters

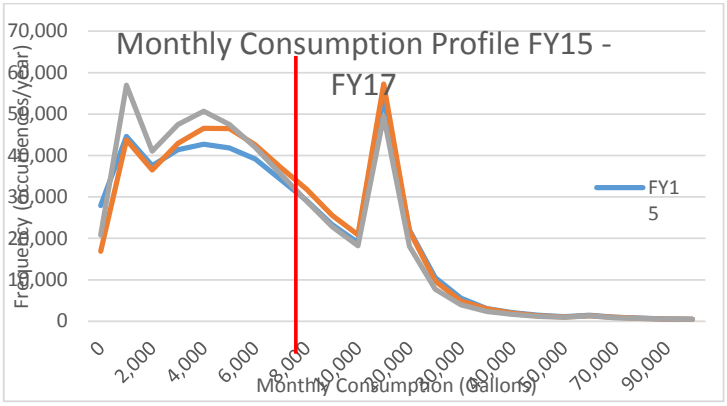
COMPLETED FIELD ACTIVITY JAN THRU DEC 2017 (POSTED IN CIS)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	TOTAL:	DEC 2017 COMPLETED FIELD ACTIVITIES (IN PROCESS) TO BE POSTED IN CIS
GWA - Test Meter	30	9	9	371	745	87	393	743	1000	1007	434	378	5206	732
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	452	259	6487	299
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	82	169	2210	763
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	127	612	2357	61
TOTAL:	453	312	343	743	1360	878	1351	2237	3733	2337	1095	1418	16260	1855

# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	927	704	6079	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	77	4	746	$ 498,982.91

# OF FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28	28 *	28 *
# OF ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15	13	13
# OF SUPPLY STAFF TO ISSUE MATERIALS AND PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2	2	2
# OF TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3	3	3
# OF ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2	2	2
TOTAL:	30	18	22	22	38	37	31	45	58	50	48	48

Based on preliminary analysis of all dat available to date:

Monthly Average	
541	Meter Changeouts
184	Field Verify Zero Reports
196	Field Verify Low Reports
75	Accts Backbilled (First 2 mos excl)
374	Additional NC/LC Accounts ID'd



Marbo (Andy-South) Wells – Status

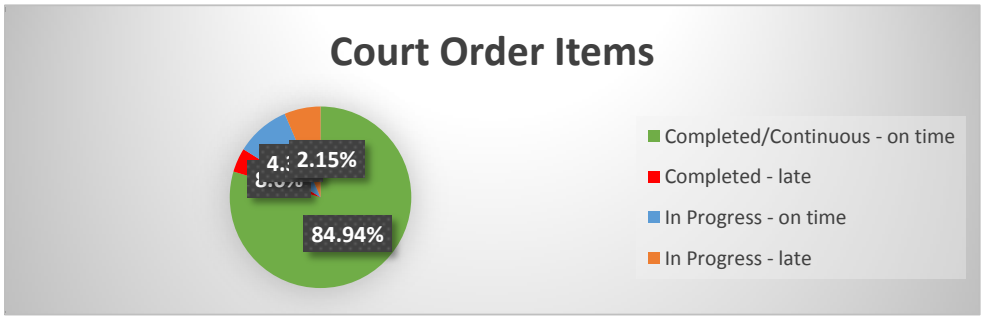
- GWA management met with Governor's Counsel to discuss re-conveyance with reserved easement
- GSA draft document provided – comments being prepared for submission in 2 weeks
- GovGuam and GWA cooperating to advance the issue

One Guam Update

- Tumon Maui Well:
  - Leaks from the vent shaft were observed during inspection – identified as a "Repair" for which Navy is responsible
  - GWA & Navy to conduct joint inspection;
  - GWA engaged PMO for repair recommendations
- Santa Rosa Tank:
  - MOU for Santa Rosa Tank – in progress – incorporating SOP for operation of the intertie
  - B&C Modeler to meet with One-Guam group this week.
- Agat Santa Rita WWTP: easement for new waterline to WWTP is pending confirmation of in-kind consideration in lieu of cash payment; Navy is evaluating GWA proposal. Building permit for the construction of waterline is in progress.

Court Order

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	80	1	9	3	98.9%



The chlorine monitoring [22(c)] goes from late to completed late and the [3(a)(2)] goes from on schedule to complete because of the NDWWTP upgrade by OEA

Status Information

- **1 item delayed**
  - **Meters**
- **Final Date to complete all Court Order items is December 31, 2020.**

- Overflow or Bypass events reported to USEPA:
  - Nov. 26, 2017, Fujita Pump Station failure – burned out control
  - Dec. 15, 2017, Hyundai Subdivision Santa Rita, sewer rehab bypass line spill (**Contractor spill** – reported by GWA)

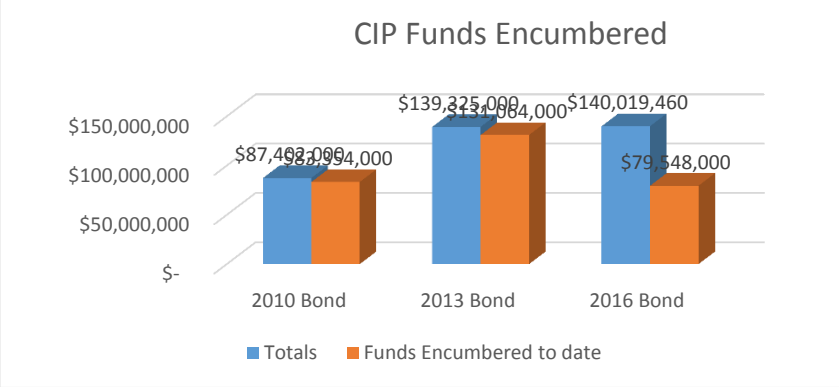
CIP Summary

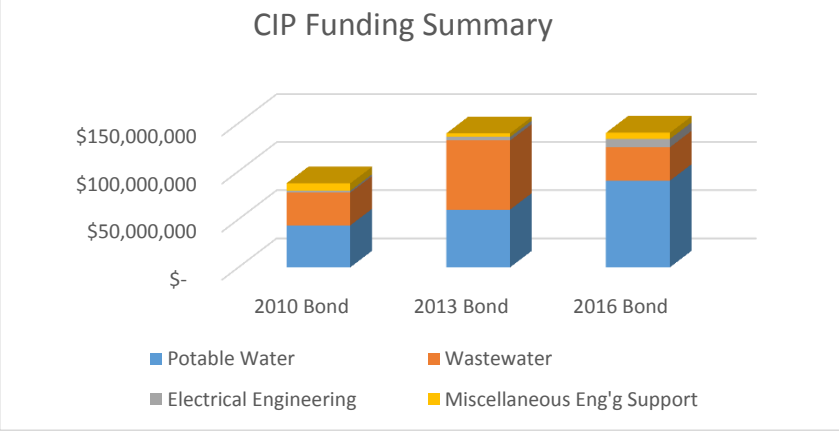
CIP Summary - Project Encumbrance

	2010 Bond		2013 Bond		2016 Bond			
	Funded	Complete	Funded	Complete	Funded	Complete	Total CIP Projects	%
Potable Water	28	17	21	7	20	0	35	49%
Wastewater	16	13	7	3	8	1	22	31%
Electrical Engineering	5	5	6	1	5	0	10	14%
Miscellaneous Eng'g Support	2	0	3	1	4	1	4	6%
Totals	51	35	37	12	37	2	71	100%
% of Total CIP by Fund Source	72%		52%		52%			

CIP Summary - Project Amounts

	2010 Bond		2013 Bond		2016 Bond			
	Funded	%	Funded	%	Funded	%	Total CIP Projects	%
Potable Water	$ 41,903,305	48%	$ 58,317,117	42%	$ 64,647,830	46%	$ 164,868,252	45%
Wastewater	$ 36,009,577	41%	$ 73,837,883	53%	$ 60,227,170	43%	$ 170,074,630	46%
Electrical Engineering	$ 1,748,118	2%	$ 3,395,000	2%	$ 8,750,000	6%	$ 13,893,118	4%
Miscellaneous Eng'g Support	$ 7,741,000	9%	$ 3,775,000	3%	$ 6,394,460	5%	$ 17,910,460	5%
Totals	$ 87,402,000	100%	$ 139,325,000	100%	$ 140,019,460	100%	$ 366,746,460	100%
Funds Encumbered to date	$ 83,354,000	95%	$ 131,064,000	94%	$ 79,548,000	57%		
% of Total CIP Funding	23.8%		38.0%		38.2%			





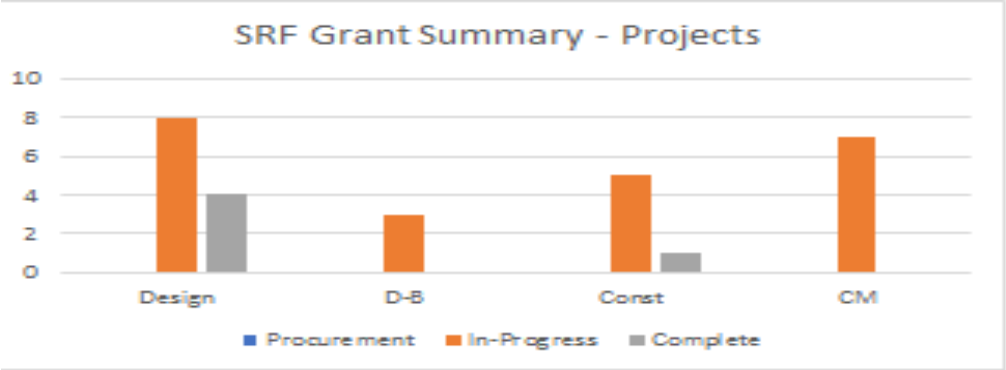
SRF Grant Summary

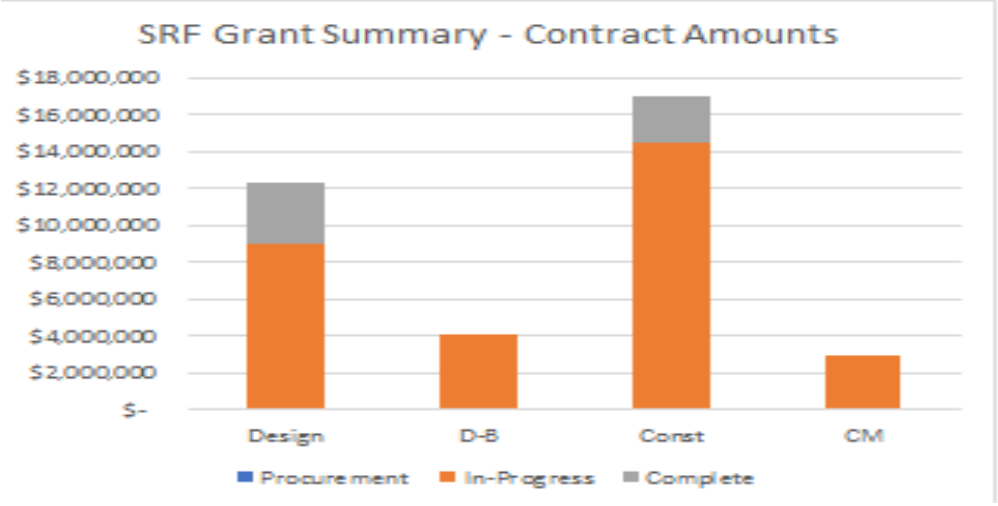
SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	8	4	12	43%
D-B	0	3	0	3	11%
Const	0	5	1	6	21%
CM	0	7	0	7	25%
Totals	0	23	5	28	
%	0%	82%	18%		

SRF Grant Summary - Contract Amounts

	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 9,025,796	$ 3,279,629	$ 12,305,425	34%
D-B	$ -	$ 4,096,694		$ 4,096,694	11%
Const	$ -	$ 14,480,091	$ 2,470,658	$ 16,950,749	47%
CM	$ -	$ 2,977,793	$ -	$ 2,977,793	8%
Totals	$ -	$ 30,580,374	$ 5,750,287	$ 36,330,661	
%	0%	84%	16%		





OEA Grant Summary

- NDWWTP Upgrades
  - Technical memoranda / design workshops conducted last week
  - USEPA NEPA Document preparation on-going
- Outfall Diffuser:
  - IFB has been issued (1/16/18);
  - Pre-bid meeting 1/26/18;
  - Bids due 2/16/18
- Sewer Line Interceptor Design-Build
  - Multi-Step IFB has been issued today.
  - Technical Proposal Due 3/8/18
  - Price Proposal Due 4/12/18
- NGLA Observation wells – Design work on-going

Action Item	Date (Target)	Date (Actual)	Status	Remarks
Project Funds Available	July-16	AUG-30-16	Completed	
Land Acquisition	Jan-17	Jan-17 (Compensation Pending)	Pending	Survey complete, appraisals complete – under review
Procure PM/CM Firm	Jan-17	Jan-17 (NTP Issued Feb 10th)	Completed	
Procure Design Firm	Jul-17		Completed	Contract issued; kickoff pending
Design – 30/60/90/Final – Review	Jun-18		On-target	Project design schedule under review by PM/CM
NEPA Analysis and Determination	Feb-17		Delayed	USEPA work on-going; procurement of contractor completed
Procure Construction Firm	Dec-18		On-target	
Construction Complete/Commence Operations	Nov-21		On-target	
Sewer line connection from MCB to GWA infrastructure	Jul-19		On-target	
MCB Initial Operating Capability	Jul-22		On-target	

Land Acquisition Summary

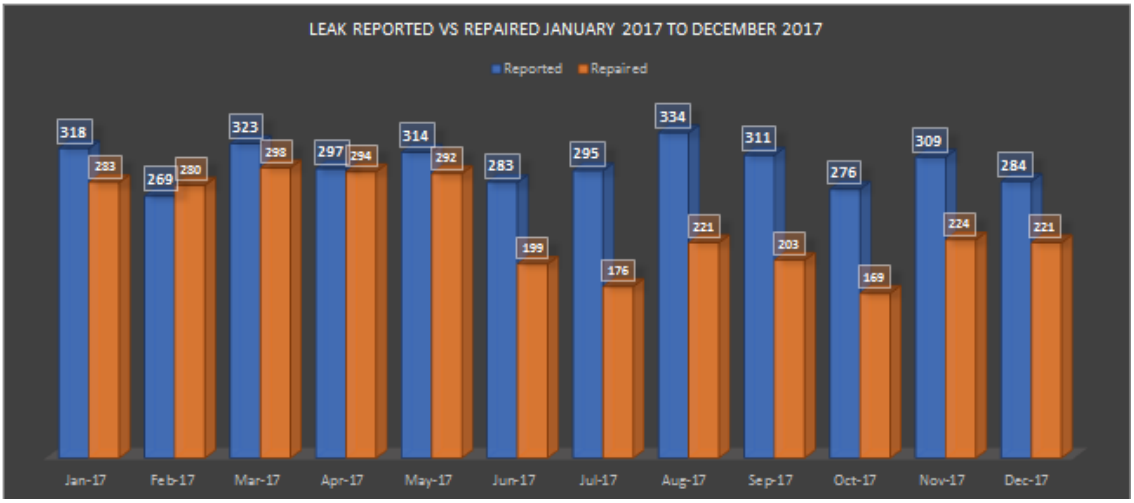
GWA Facility	Location	Gov. or Private Property	Land Acquisition Status
Tanks	Ugum	Private	TGE to draft Letter of Decision for private property owners 11/09/17
	Astumbo	Gov't. - CLTC	GWA and DLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DLM
	Piti	Private	Letter of Intent for private property owners submitted to GHC for revisions 12/12/17
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't - GALC	Funding Approval Request Sent to Finance 11/30/17; Title & Escrow Open 12/28/17
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17
	AG-12	Dept. of Agriculture/Manhita Farms	DCA to submit revised Land Registration map to DLM for review and comments 01/16/18
	Y-8	Gov't. - CLTC	Parceling Map submitted to DLM for final approval 12/01/17.
Booster Pump Station	Agfayan	Private	GWA started land acquisition inquiry process on 11/18/16; 2nd follow up Letter of Intent sent out 11/16/17; 2nd LOI Letter returned (unclaimed) 12/7/17; 2nd follow up Letter of Intent sent out to 12/29/17
Sewer Pump Stations	Property adjacent to Southern Link	Private	GWA started acquisition process on 12/23/2016. Property ownership vested in GWA 08/11/2017

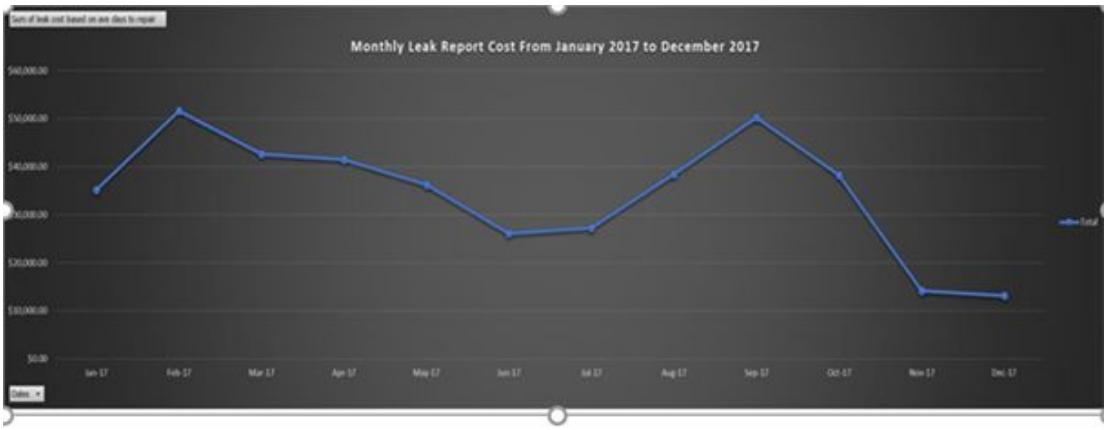
NRW – Update

- Water Audit update on-going
  - Production rates are being reviewed for accuracy and refined
  - Unmetered, Authorized uses are being quantified
  - Meter and billing inaccuracies are being reviewed and refine

Leak Repair Summary







Assumptions:

1. Leak rate = 4 gpm
2. Cost per kgal = $4.00

GM Bordallo mentioned that the information on meter change out project is not complete with the analytics yet and may need more resources with change out of meters. He will have discussion with Lisa and Zina.

4.2.2 Financials

This matter was not discussed.

4.2.3 Resolution 11-FY2018 Creation of Leak Detection Series of Positions

The GM said this resolution is relative to the Approval of the Creation of the Leak Detection Technician I, Leak Detection Technician II, Leak Detection Technician Leader and Leak Detection Technician Supervisor positions at the Guam Waterworks Authority. These series of positions will be organizationally located within the Water Operations (Distribution) Division under the direct supervision and management of the Operations & Maintenance Manager for Water Distribution.

The Guam Waterworks Authority (GWA) has determined a need to create the Leak Detection Technician I, Leak Detection Technician II, Leak Detection Technician Leader and Leak Detection Technician Supervisor to identify and reduce non-revenue water through minimizing water leaks affecting services to the community thus increasing revenues. These positions will allow the Water Operations Divisions to efficiently locate and repair all water leaks within the distribution system island-wide.

Currently, employees from the Pressure Line (leak repair) Unit are assigned to leak detection duties in addition to their normal repair responsibilities. There are no dedicated employees assigned to perform water leak detection on a full-time basis. This results in more focus given to reported/observable leaks, and less focus on pro-active background leak detection. Further, the smaller number of leak detections with accompanying repairs as may be required, are addressed only by requests made through other sections via customer reports/complaints of low pressure, and not systematically using a full-time leak detection crew based on system-generated data from the Systems Control Center or Engineering. This work is currently an ancillary responsibility performed by Water Sewer Maintenance Workers, Pumping Stations Operators, or Trades Helpers within the Water Operations Divisions.

Guam's drinking water supply and delivery is dependent on the agency's distribution system and our ability to properly maintain it to provide safe drinking water throughout the community. Undetected leaks within the distribution system pose a threat to the continued supply and delivery of Guam's safe drinking water to the community and contribute significantly to GWA's water loss: It is the agency's

goal to identify, and repair these leaks through the creation of these positions as a key component of GWA's water loss control program.

Public Law 28-159, Section 7.0.3 (c) requires GWA to post a petition on their websites for ten (10) days (not including Saturdays, Sundays and government of Guam holidays). After the 10 days posting, the petition can then be forwarded to the CCU for their disposition at any regularly scheduled meeting. GWA has met the posting requirements.

Additionally, Guam law requires notice of such posting to each newspaper of general circulation and broadcasting station which airs regular news programs within Guam.

GWA will certify funding for the position available for the filling and retention of its certified, technical and professional newly created position. The funding of this position does not have an impact on the General Fund.

Comm. Bamba motioned to approve Resolution11-FY2018 and second by Comm. Sanchez. There was no further discussion or objection and the motion carried.

4.2.4 Resolution 12.FY2018 Change Order #4 Northern/Southern Guam Reservoir Design Services

This project is part of the 2011 Court Order Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program. As a Court Order project, it is necessary and urgent to work towards meeting the Court Order deadlines. The project's objective is to provide design services for the Northern and Southern reservoirs, which include the Santa Rosa, Santa Rita, Sinifa, Ugum, and Inarajan. The fee proposal is for $537,880.25 and will be funded from PW09-11 Water System Reservoirs 2005 Improvement Fund

The Change Order proposal is for the following work:

(1) Santa Rosa: design of new 4,120 LF of 12-inch pipe along Route No. 1 in Yigo.
(2) Santa Rosa: Identification and survey of easements for agreements with DoD.
(3) Agfayan Booster Pump Station: design of pressure reducing valve near original bps site.
(4) Agfayan Booster Pump Station: Investigate 4 lots as new alternatives for the new booster pump station location.
(5) Ugum Reservoir: Investigate a new alternative for the reservoir location. The new alternative involves consolidating 2 lots adjacent and south of the existing plant to provide the site needed for the new reservoir and facilities.
(6) Ugum Reservoir: Existing water treatment plant drainage will be corrected in the new design and plans.
(7) Santa Rita: Incorporate roadway repair in the design. New design to replace existing culvert.
(8) Sinifa: Prepare construction easements and construction support documents for 2 lots.

Santa Rosa reservoir: located off Route 15 in Yigo and will be completed in 90 days.
Santa Rita reservoir: located off Obispo Olaiz Street in Santa Rita and will be completed in 30 days.
Sinifa reservoir: located off Cross Island Road in Santa Rita and completion estimated in 60 days.
Ugum: located off Paulino Street in Inarajan and completion is dependent on outcome of land owner responses.
Inarajan: located off Belen Avenue in Inarajan and completion is dependent on outcome of investigations.

Comm. Sanchez motioned to approve the Resolution 12-FY2018 and Comm. Guthertz seconded. There was no further discussion or objection and the motion passed.

GM Bordallo mentioned that after this approval, there are 10 more court ordered items pending completion.

4.2.5 Resolution 13-FY2018 ConstrMgmt Contract for Sta.Rosa, Sinifa and Sta Rita Tank Upgrade

The project is part of the 2011 Court Order Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program. As a Court Order project, it is necessary and urgent to work towards meeting the Court Order deadlines. The project's objective is to provide construction management services for the construction of the Santa Rosa, Sinifa, and Santa Rita Tank and System Upgrade project, which includes new PRV's. These tanks are located at Santa Rosa, Yigo, and Sinifa, and Santa Rita tanks are in Santa Rita.

The fee proposal is for Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-Four Dollars and Sixty-Nine Cents ($2,977,234.69) and funded from PW 09-11: Water System Reservoirs 2005 Improvements. GWA management further seeks CCU approval of a 10% contingency or Two Hundred Ninety-Seven Thousand Seven Hundred Twenty-Three Dollars and Forty-Seven Cents ($297,723.47) which would bring the total authorized funding requested to Three Million Two Hundred Seventy-Four Thousand Nine Hundred Fifty-Eight Dollars and Sixteen Cents ($3,274,958.16).

The anticipated completion dates are Santa Rosa site: 365 calendar days, Sinifa site: 365 calendar days and the Santa Rita site: 410 calendar days. CM start is dependent on the construction NTP.

The GM reported that in reference to the bid, 19 firms picked up packets and 8 firms submitted bids. GHD was recommended for the award.

Comm. Bamba motioned to approve Resolution 13-FY2018; Comm. Guthertz seconded. There was no further discussion or objection and the motion carried.

4.2.6 Resolution 14-FY2018 Change Order for Design Svcs Agat-Sta Rita WaterTreatment Plant

This project is part of the of critical Court Order ("CO") projects that GWA is required to complete at the new Agat-Santa Rita Wastewater Treatment Plant located in Agat. The construction activities for WWTP are in the second phase of the project and critical process work is slated to be completed in March 2018 however the expectation of actual final completion, including non-process work and landscaping, etc., is May or June 2018. GWA management desires to continue designer services during construction until overall project completion. Services include A/E designer review and comment for any issues that arise during construction.

A portion of the scope and fee from the proposal submitted by Duenas Camacho and Associates was effectuated through Change Order #2 which is pending final signature and which exhausted all the contingency fund therefore GWA Management seeks CCU approval of additional funding for an additional Change Order at a cost of Three Hundred Ninety-Eight Thousand Six Hundred Ninety-Two Dollars and Thirty-Two Cents ($398,692.32). The source of funding for the change order will be from the Bond proceeds under CIP WW 11-08 "Agat/Sta Rita STP Replacement"

The total authorized contract value will be Five Million One Hundred Twenty-Seven Thousand Four Hundred Ninety-Seven Dollars and Twenty-Five Cents ($5,127,497.25)

The WWTP construction is in the second phase of the project and is slated to be completed in March 2018 however the expectation of actual final completion is May or June 2018.

Comm. Bamba motioned to approve the resolution; Comm. Guthertz seconded. There was no further discussion or objection and the motion passed.

4.2.7 Resolution 15-FY2019 Change Order Line Replacement Phase IV Project

This project is part of the continuing waterline replacement program to reduce water loss in the water distribution system throughout the island. The Change Order proposal is to increase the 6-inch diameter water main currently under contract to be installed to a larger 12-inch diameter water main so as to handle the volume of water that will be pumped from the soon to be completed AG-10 production well which is located adjacent to Chalan Koda. The AG-10 production well construction project is slated to start within 2018 therefore it would be incumbent upon GWA to address the watermain along Chalan Koda given the current waterline replacement scope along this stretch of roadway.

The change order involves increasing the 6-inch diameter water main to be installed to a 12-inches diameter watermain along Chalan Koda in Dededo, along with changes to appurtenant fittings, valves and hydrant locations.

The fee proposal for the change order is One Million Fifty-Six Thousand Nine Hundred Thirty-Seven Dollars ($1,056,937.00) to increase the watermain to 12-inch diameter which would then bring the total authorized contract value to Eight Million Nine Hundred Forty-Two Thousand Nine Hundred Eighty-Three Dollars and Fifty Cents ($8,942,983.50). GWA management further seeks CCU approval of the total authorized funding of Nine Million Three Hundred Thirty-Eight Thousand Three Hundred Thirty-Five Dollars and Eighty-Three Cents ($9,338,335.83) which still includes the original contingency fund of Three Hundred Ninety-Four Thousand Three Hundred Fifty-Two Dollars and Thirty-Three Cents ($394,352.33). The source of funding for the change order will be from the Bond proceeds under CIP PW 09-03 “Water Distribution System Pipe Replacement” and funds from the System Development Charge fund. The contractor is expected to complete the waterline installation by March 2019.

Comm. Bamba motioned to approve Resolution 15-FY2018; Comm. Guthertz seconded. There was no further discussion or objection and the motion passed.

5. OLD BUSINESS - None

6. ANNOUNCEMENTS

6.1 Next CCU Meetings

The Chairman announced that the next CCU meetings would be a GWA work session on Feb. 20, a GPA work session on Feb. 22 and a CCU meeting on Feb. 27.

At this time he announced that per Legal Counsel’s advice there is an item for discussion in Executive Session pertaining to litigation and submitted the related affidavit for the record. He called for a recess before executive session; it was 6:48 p.m.

The Chairman called the meeting back to order at 6:54 with Executive Session

7. EXECTUVE SESSION

7.1 Litigation Matter

This matter was discussed.

After executive session discussions, the Chairman moved the meeting back to regular session; It was 7:10 p.m. He asked if there was any further action for discussion.

Comm. Sanchez said he would like to move to approve as discussed in Ex. Session the settlement for customer Anna Castro in the amount $6,222.37; Comm. Guthertz seconded. There was no further discussion or objection and the motion passed.

For the record, the claim and CCU action noted above is documented in GWA Resolution 16-FY2018. This resolution, while not listed on the Agenda, was part of Executive Session discussion and publicly ratified by the Commission per above notation, making it an official GWA resolution and part of the record of the CCU meeting of January 23, 2018.

8. ADJOURNMENT

There was no further business to bring before the Commission and the meeting was adjourned at 7:15 p.m.

\\s\\
bls

Attested:

_____	_____
JOSEPH T. DUENAS, Chairman	J. GEORGE BAMBA, Secretary

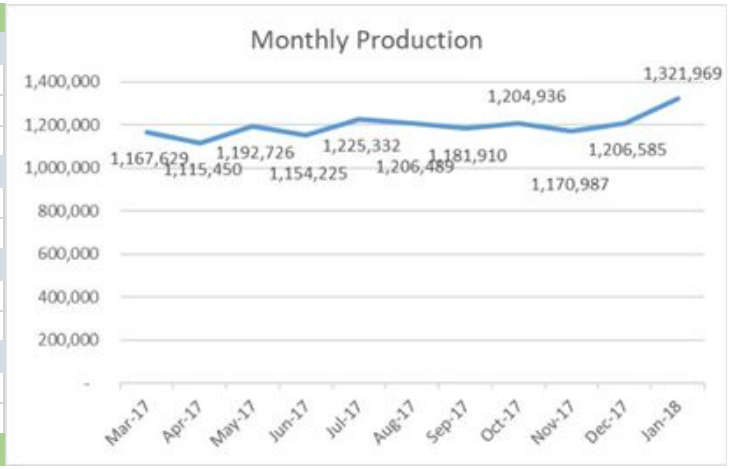
GUAM WATERWORKS AUTHORITY

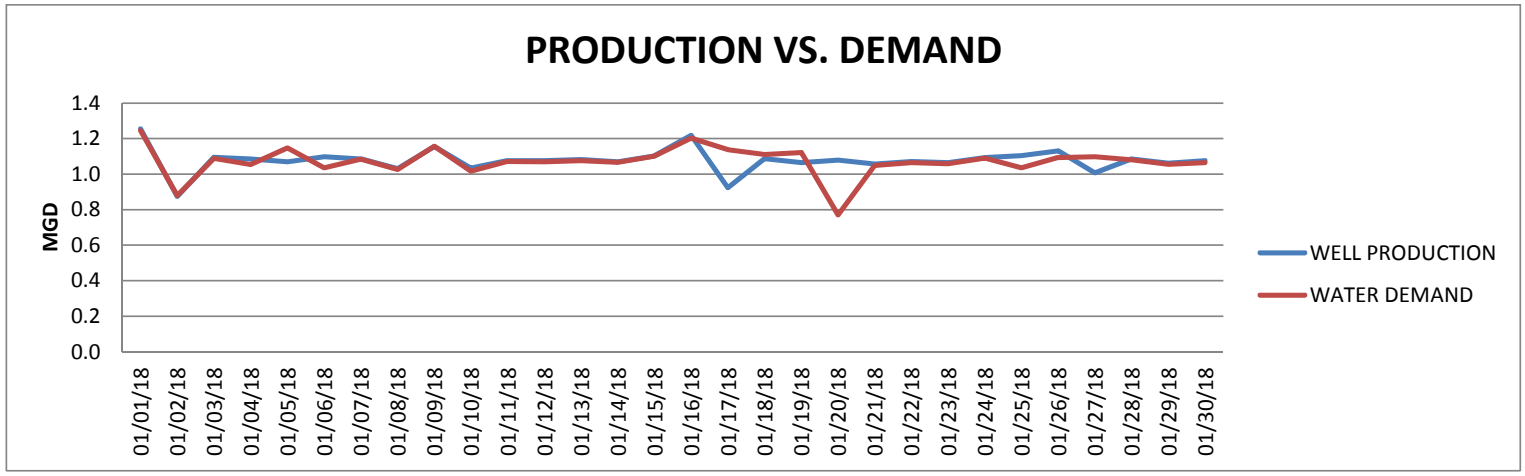
General Manager's Report
GPWA CCU Board Meeting, February 27, 2018

Operations Update

Production

Monthly Production Summary - January 2018					
Deep Wells				39.3	MGD
	Active wells =	96	of 120		
	Avg days in operation =	31.00	days		
	Total Production =	1,219,375	Kgals		
Springs				0.00	MGD
	Avg days in operation =	0	days	*placed on standby	
	Total Production =	0	Kgals		
Ugum Surface Water Plant				2.2	MGD
	Avg days in operation =	31	days		
	Total Production =	69,183	Kgals		
Tumon Maui Well				1.08	MGD
	Avg days in operation =	31	days		
	Total Production =	33,411	Kgals		
		1,321,969	Kgals	42.6	MGD

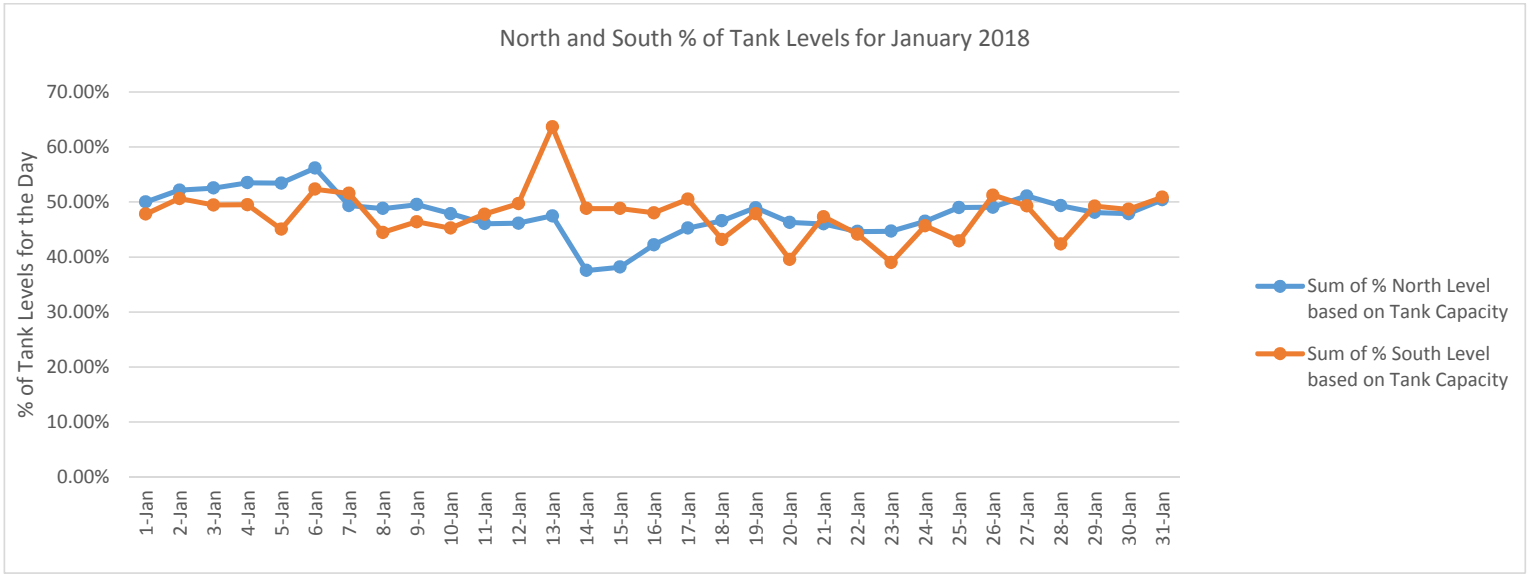




Distribution

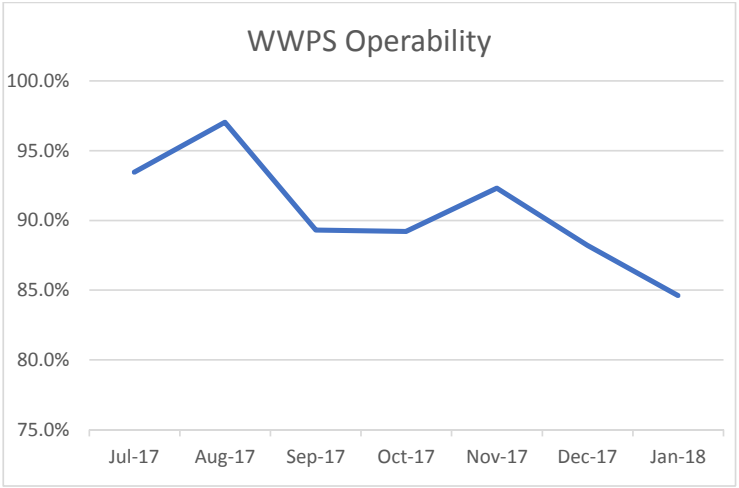
Monthly Distribution Summary - January 2018					
Water Booster Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	11	21	20	95.2%
	Central	7	15	14	93.3%
	Southern	7	15	15	100.0%
		25	51	49	96.1%




North and South % of Tank Levels for January 2018
% of Tank Levels for the Day
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
1-Jan
2-Jan
3-Jan
4-Jan
5-Jan
6-Jan
7-Jan
8-Jan
9-Jan
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
22-Jan
23-Jan
24-Jan
25-Jan
26-Jan
27-Jan
28-Jan
29-Jan
30-Jan
31-Jan
Sum of % North Level based on Tank Capacity
Sum of % South Level based on Tank Capacity

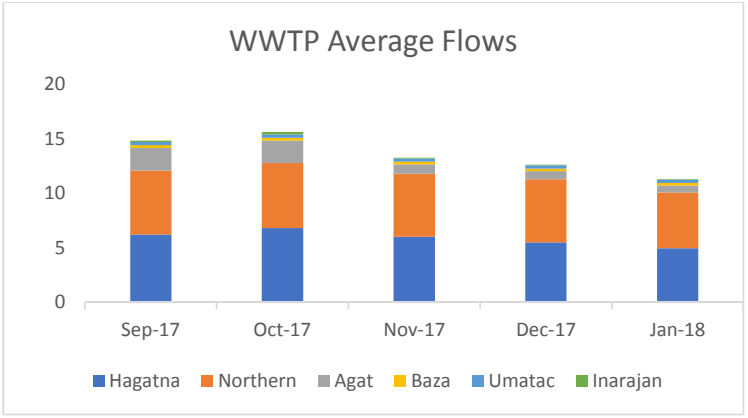
Wastewater Collections

Monthly Collections Summary -January 2018					
Wastewater Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	22	52	46	88.5%
	Central	29	63	56	88.9%
	Southern	27	54	41	75.9%
		78	169	143	84.6%

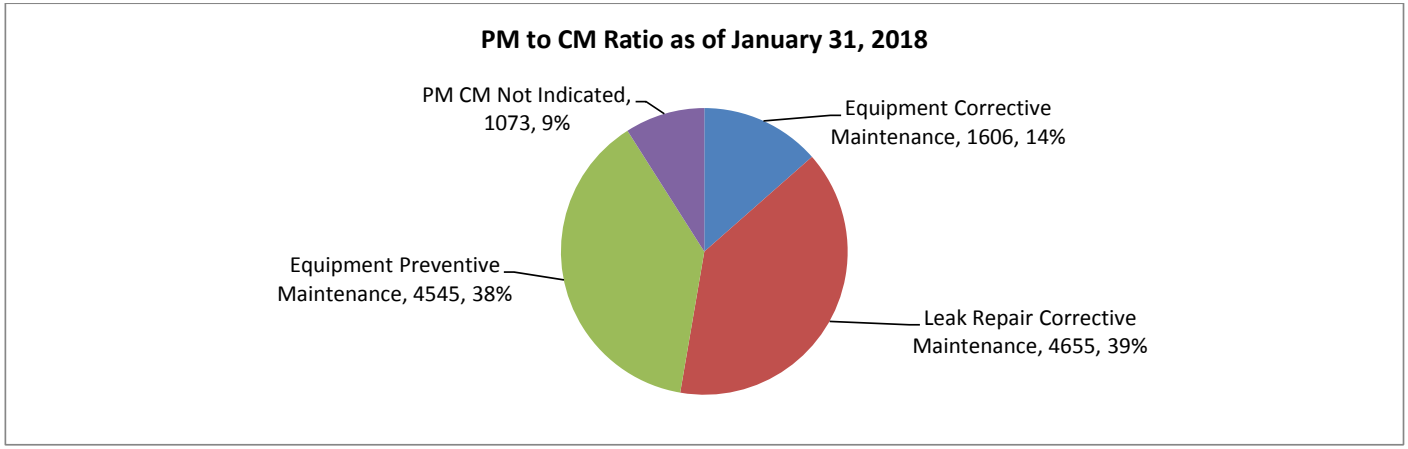


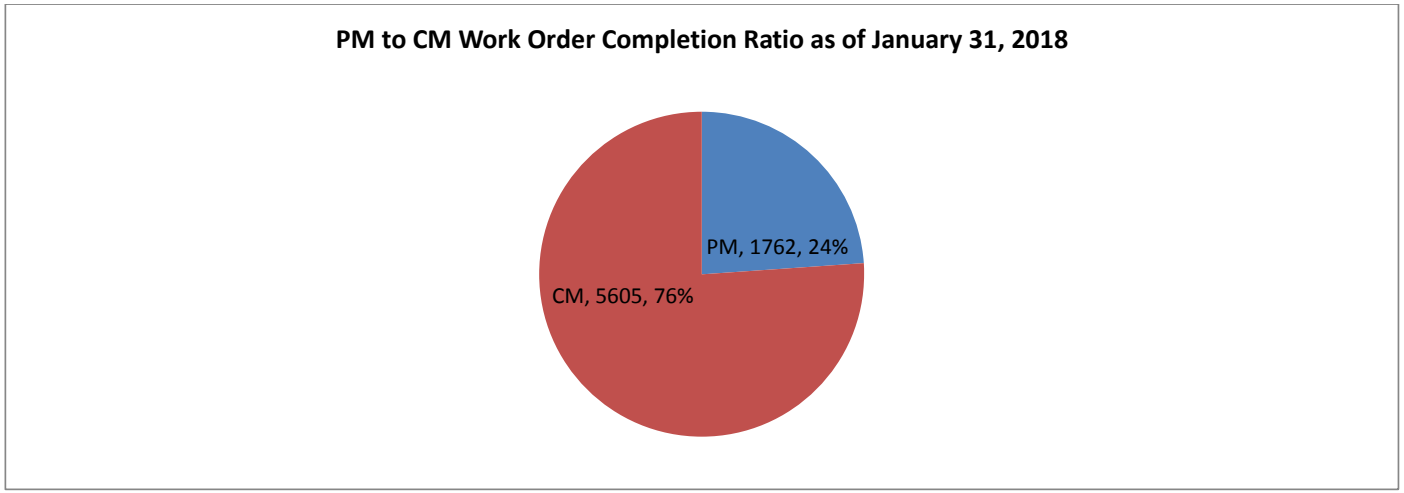
Wastewater Treatment

Monthly Wastewater Treatment Summary - January 2018				
WW Treatment Plants - Flows				
	Facility	**Avg. Daily Flows**	**Sludge (lbs)**	**Sludge Disp. ($)**
	Hagatna	4.96	373,140	$ 33,583
	Northern	5.1	1,227,040	$ 110,434
	Agat	0.64		
	Baza	0.25		
	Umatac	0.30		
	Inarajan	0.05		
		11.3	1,600,180	$ 144,016



Asset Management





Operational Issues

- 28 additional trades helpers started work this month:
  - Production – 9
  - Distribution – 8
  - WW Collection – 10
  - WW Treatment - 1
- GWA Employees continue to apply for and take computer-based certification testing conducted as a joint effort between GEPA, GWA, UOG and the Western Pacific Subsection of AWWA. So far, over 40 individuals have participated in the certification testing at various certification levels, with 10 receiving passing scores.
- Deployment of new light and medium duty fleet this month

Production & Distribution

- Leak repair
  - backlog has been significantly cleared; less than 60 pending repairs
  - pending IFB for leak repair services
  - pending for advanced remote leak detection services pending
- General Counsel working on letter to chlorine supply vendor regarding maintenance of minimum inventory levels per our contract.
- Ugum WTP – assessment of existing SCADA system completed; report and recommendations pending.
- GAC Treatment Systems for wells affected by PFOS
  - NAS-1
    - Permanent modifications to NAS-1 GAC Treatment System pending – confirmed for summer break;
    - Replacement Carbon being ordered
  - A-23/A-25:
    - existing GAC canisters for re-use have been isolated from the system and are being cleaned;
    - GWA evaluating potential to re-program DOI grant funding to expedite this work.
  - GIAA System: GIAA advised to provide replacement GAC
- 2018 Pump/Motor order – released on February 16, 2018
- GWA Crane Repair –parts have arrived, installation completed but error codes persist; vendor consulting manufacturers technician.

Wastewater Collection & Treatment

- CCTV:
  - Crews completed approximately 3 miles in January; work schedule impacted by smoke testing and inspections for I&I affecting Barrigada/Mangilao area, and maintenance of critical lines serving Route 16 SPS
  - Planning and Ops have initiated conversion of older (2012) CCTV data for compatibility with current condition assessment protocols
- Pump station facility maintenance efforts to begin shortly
- FOG Program
  - Comments received from US EPA, Program Manual being finalized
  - 2nd Residential Collection Program being coordinated for Central service area
- Agana WWTP outfall pump repairs being prioritized
- Northern District WWTP drying beds and digesters being cleared to facilitate design work for plant upgrades

Meters

COMPLETED FIELD ACTIVITY JAN THRU JAN 2018 (POSTED IN CIS)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	TOTAL:	JAN 2018 COMPLETED FIELD ACTIVITIES (IN PROCESS) TO BE POSTED IN CIS
GWA - Test Meter	30	9	9	371	745	87	393	743	1000	1007	434	378	750	5956	368
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	452	259	239	6726	222
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	82	169	356	2566	10
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	127	612	858	3215	173
TOTAL:	453	312	343	743	1360	878	1351	2237	3733	2337	1095	1418	2203	18463	773

# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	927	704	721	6800	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	77	4	136	882	$ 594,860.44

# OF FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28	28 *	28 *	5
# OF ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15	13	13	8
# OF SUPPLY STAFF TO ISSUE MATERIALS AND PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2	2	2	2
# OF TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3	3	3	3
# OF ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2	2	2	2
TOTAL:	30	18	22	22	38	37	31	45	58	50	48	48	20

*Project overtime on hold Nov 18, 2017 thru Dec 16, 2017. During this period, 4 personnel performed work on this project during the regular work day with a majority of the work completed during Nov and Dec month occuring before and after the OT moratorium.

Marbo (Andy-South) Wells – Status

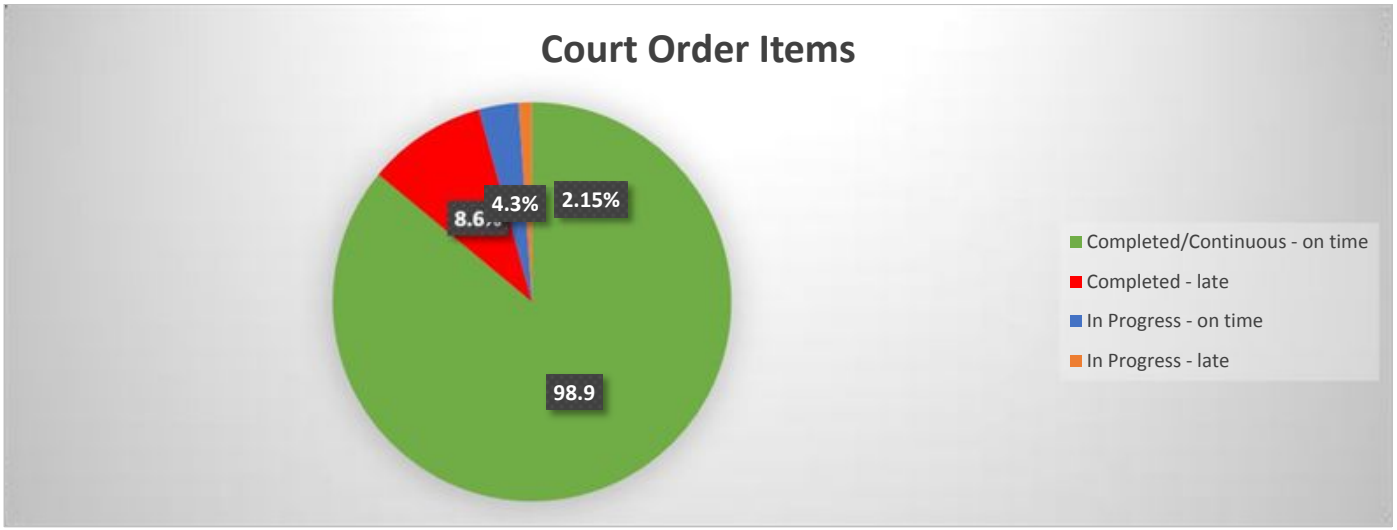
- Governor's Counsel provided recommended modifications to re-conveyance document to GSA
- GSA has not accepted the proposed changes
- GWA waiting for feedback from GSA

One Guam Update

- Tumon Maui Well:
  - GWA's Consultant B& C are working to develop a plan to address the Leaks from the vent shaft. GWA will determine the course of action to remedy the problem.
- Santa Rosa Tank:
  - MOU for Santa Rosa Tank – in progress. Changes are being made to the location of the valves.
  - B&C did a presentation on the modelling results on the appropriate levels for the tanks to ensure that neither party will be negatively impacted.
- Agat Santa Rita WWTP:
  - For the in-kind, Cynthia Blas is waiting on the final the response from NBG PWD on the easement will be transferred to GWA. The letter will be finalized on 2/16/18.
  - The DOD's Real Estate office determined that the value of the easement is $16,700. The in-kind contribution needs to match that amount.
- Distribution Systems:
  - GWA continues to work with DOD to resolve wastewater line issues in the Leon Guerrero area.
- DOD determined that they will not be able to connect to the new sewer line. However, they are interested in looking at future projects for further collaboration.

Court Order

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	80	1	9	3	98.9%



Status Information

- 1 item delayed
  - Meters
- Final Date to complete all Court Order items is December 31, 2020.
- Overflow or Bypass events reported to USEPA:
  - Jan. 26, 2018, Bishop Olano St., Santa Rita – Rocks, Rags, etc. (Non-FOG)
  - Jan. 30, 2018, East Obrien Dr., Hagåtña - Gravel and FOG
  - Feb. 4, 2018, Astumbo Lift Station 1, Dededo - Rag caught in pump impeller.

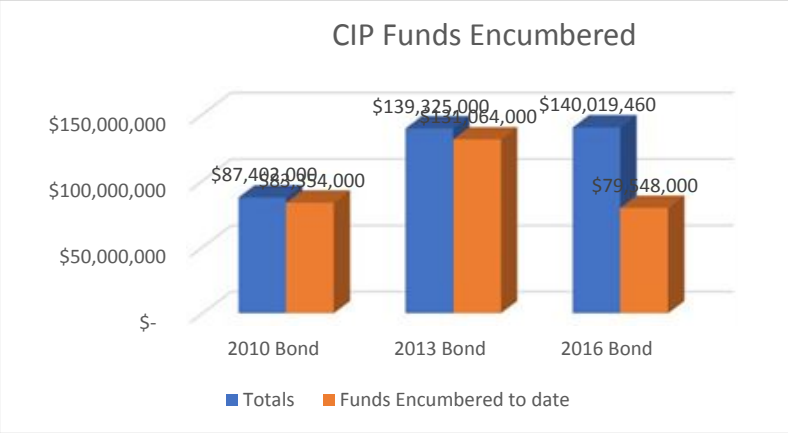
CIP Summary

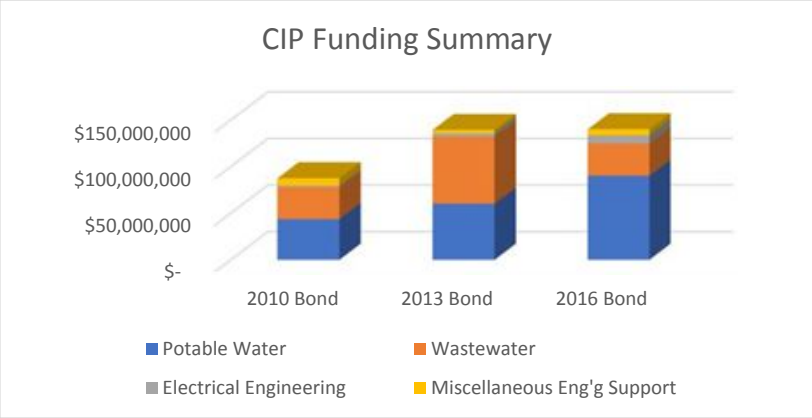
CIP Summary - Project Encumbrance

	2010 Bond		2013 Bond		2016 Bond			
	Funded	Complete	Funded	Complete	Funded	Complete	Total CIP Projects	%
Potable Water	28	17	21	7	20	0	35	49%
Wastewater	16	13	7	3	8	1	22	31%
Electrical Engineering	5	5	6	1	5	0	10	14%
Miscellaneous Eng'g Support	2	0	3	1	4	1	4	6%
Totals	51	35	37	12	37	2	71	100%
% of Total CIP by Fund Source	72%		52%		52%			

CIP Summary - Project Amounts

	2010 Bond		2013 Bond		2016 Bond			
	Funded	%	Funded	%	Funded	%	Total CIP Projects	%
Potable Water	$ 41,903,305	48%	$ 58,317,117	42%	$ 64,647,830	46%	$ 164,868,252	45%
Wastewater	$ 36,009,577	41%	$ 73,837,883	53%	$ 60,227,170	43%	$ 170,074,630	46%
Electrical Engineering	$ 1,748,118	2%	$ 3,395,000	2%	$ 8,750,000	6%	$ 13,893,118	4%
Miscellaneous Eng'g Support	$ 7,741,000	9%	$ 3,775,000	3%	$ 6,394,460	5%	$ 17,910,460	5%
Totals	$ 87,402,000	100%	$ 139,325,000	100%	$ 140,019,460	100%	$ 366,746,460	100%
Funds Encumbered to date	$ 83,354,000	95%	$ 131,064,000	94%	$ 79,548,000	57%		
% of Total CIP Funding	23.8%		38.0%		38.2%			

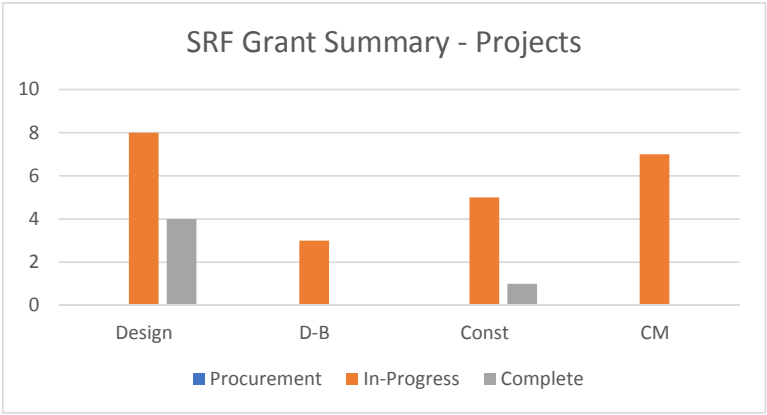




SRF Grant Summary

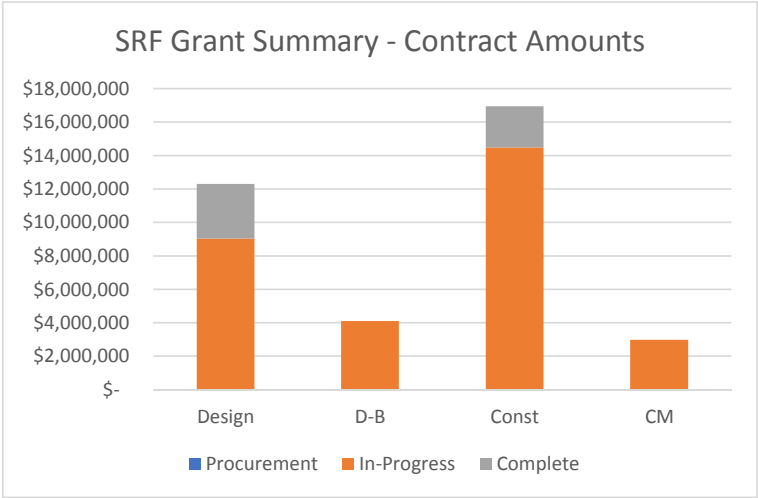
SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	8	4	12	43%
D-B	0	3	0	3	11%
Const	0	5	1	6	21%
CM	0	7	0	7	25%
Totals	0	23	5	28	
%	0%	82%	18%		



SRF Grant Summary - Contract Amounts

	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 9,025,796	$ 3,279,629	$ 12,305,425	34%
D-B	$ -	$ 4,096,694		$ 4,096,694	11%
Const	$ -	$ 14,480,091	$ 2,470,658	$ 16,950,749	47%
CM	$ -	$ 2,977,793	$ -	$ 2,977,793	8%
Totals	$ -	$ 30,580,374	$ 5,750,287	$ 36,330,661	
%	0%	84%	16%		



OEA Grant Summary

- NDWWTP Upgrades
  - Technical memoranda / design workshops for solids processes expected in March
  - USEPA NEPA Document preparation on-going; 30% Design Submittal is next major milestone
- Outfall Diffuser:
  - IFB has been issued (1/16/18);
  - Pre-bid meeting 1/26/18;
  - Bids due 2/23/18 (extended)
- Sewer Line Interceptor Design-Build
  - Multi-Step IFB has been issued.
  - Technical Proposal Due 3/8/18
  - Price Proposal Due 4/12/18
- NGLA Observation wells – Design work on-going

Action Item	Date (Target)	Date (Actual)	Status	Remarks
Project Funds Available	July-16	AUG-30-16	Completed	
Land Acquisition	Jan-17	Jan-17 (Compensation Pending)	Pending	Survey complete, appraisals complete – under review
Procure PM/CM Firm	Jan-17	Jan-17 (NTP Issued Feb 10th)	Completed	
Procure Design Firm	Jul-17		Completed	Contract issued; kickoff pending
Design -- 30/60/90/Final -- Review	Jun-18		On-target	Project design schedule under review by PM/CM
NEPA Analysis and Determination	Feb-17		Delayed	USEPA work on-going; procurement of contractor completed
Procure Construction Firm	Dec-18		On-target	
Construction Complete/Commence Operations	Nov-21		On-target	
Sewer line connection from MCB to GWA infrastructure	Jul-19		On-target	
MCB Initial Operating Capability	Jul-22		On-target	

Land Acquisition Summary

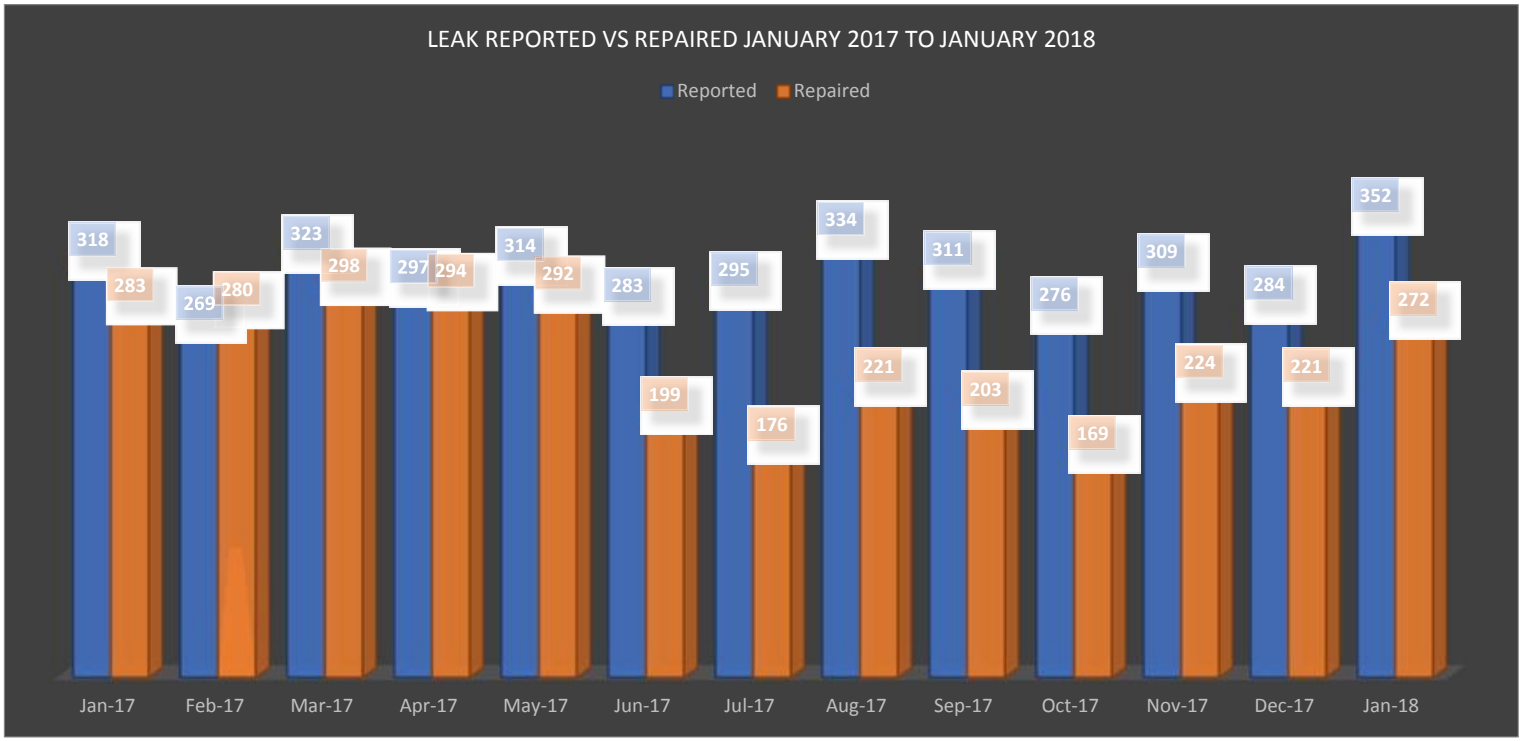
GWA Facility	Location	Gov. or Private Property	Land Acquisition Status
Tanks	Ugum	Private	TGE to draft Letter of Decision for private property owners 11/09/17
	Astumbo	Gov't. - CLTC	GWA and DLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DLM
	Piti	Private	Letter of Intent sent out to private property owners on 01/29/2018
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't - GALC	Funding Approval Request Sent to Finance 11/30/17; Title & Escrow Open 12/28/17
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17
	AG-12	Dept. of Agriculture/Manhita Farms	DCA to submit revised Land Registration map to DLM for review and comments 01/16/18
	Y-8	Gov't. - CLTC	Parceling Map submitted to Governor's Office for signature on 01/31/2018
Booster Pump Station	Agfayan	Private	GWA started land acquisition inquiry process on 11/18/16; 2nd follow up Letter of Intent sent out 11/16/17; 2nd LOI Letter returned (unclaimed) 12/7/17; 2nd follow up Letter of Intent sent out to 12/29/17
Sewer Pump Stations	Property adjacent to Southern Link	Private	GWA started acquisition process on 12/23/2016. Property ownership vested in GWA 08/11/2017

NRW – Update

- Water Audit update on-going
  - Production rates are being reviewed for accuracy and refined
  - Unmetered, Authorized uses are being quantified
  - Meter and billing inaccuracies are being reviewed and refined

Leak Repair Summary




LEAK REPORTED VS REPAIRED JANUARY 2017 TO JANUARY 2018
Reported
Repaired
318
283
269
280
323
298
297
294
314
292
283
199
295
176
334
221
311
203
276
169
309
224
284
221
352
272
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18



Assumptions:

1. Leak rate = 4 gpm
2. Cost per kgal = $4.00

DASHBOARD

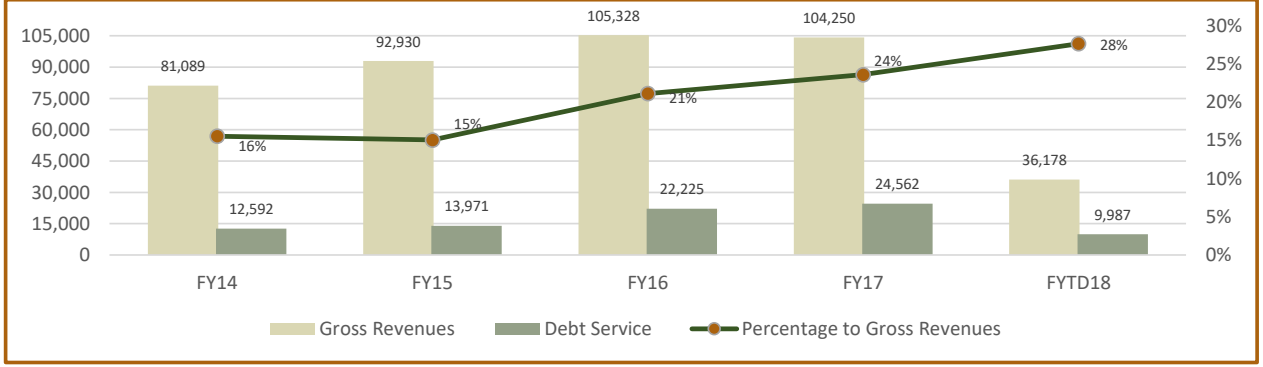
FYTD January 2018 Budget vs Actual ($000)

Category	Description	Budget FYTD18	Actual FYTD18	Variance
Rate Based Revenues	Water	$23,766	$22,913	($853)
	Wastewater	13,287	13,131	(156)
	Total	37,053	36,044	(1,009)
Operations & Maintenance	Salaries & Benefits	8,838	7,744	(1,094)
	Power	4,232	4,649	417
	Water Purchases	2,884	2,846	(39)
	A&G	4,289	3,129	(1,160)
	Contractual	1,493	1,340	(153)
	Total	$28,174	$26,134	($2,040)

Key Financial Ratios ($000)

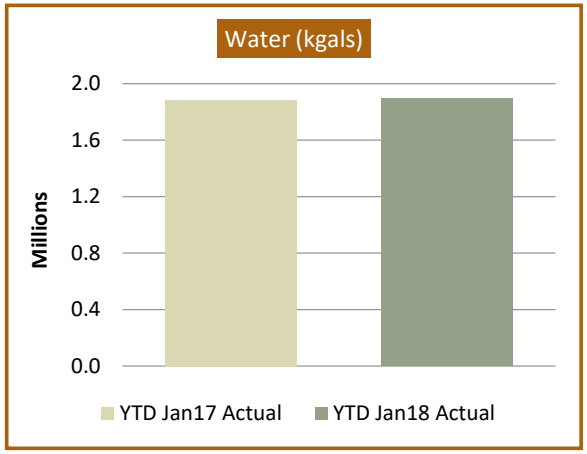
Category	FY18	FY17
Accounts Payable $$/Days	$4,960 / 53 days	$5,390 / 59 days
Accounts Receivable $$/Days	$16,676 / 68 days	$15,451 / 51 days
Days Cash On Hand	172 days	184 days
Annual Debt Service (Revenue Bonds)	$29,961	$24,563
Debt Service Coverage (Bond/PUC)	1.65 / 2.02	1.99 / 2.44

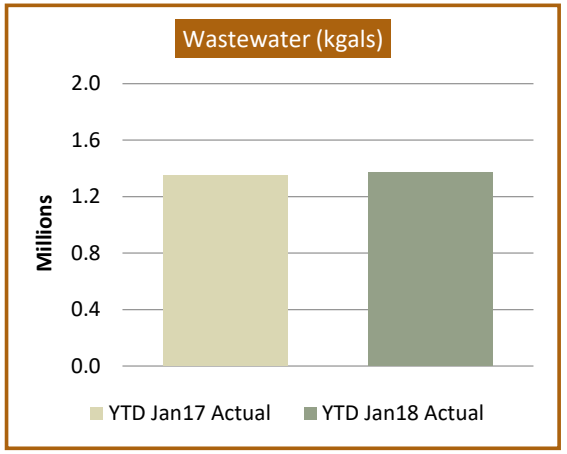
Debt as a Percent to Gross Revenue

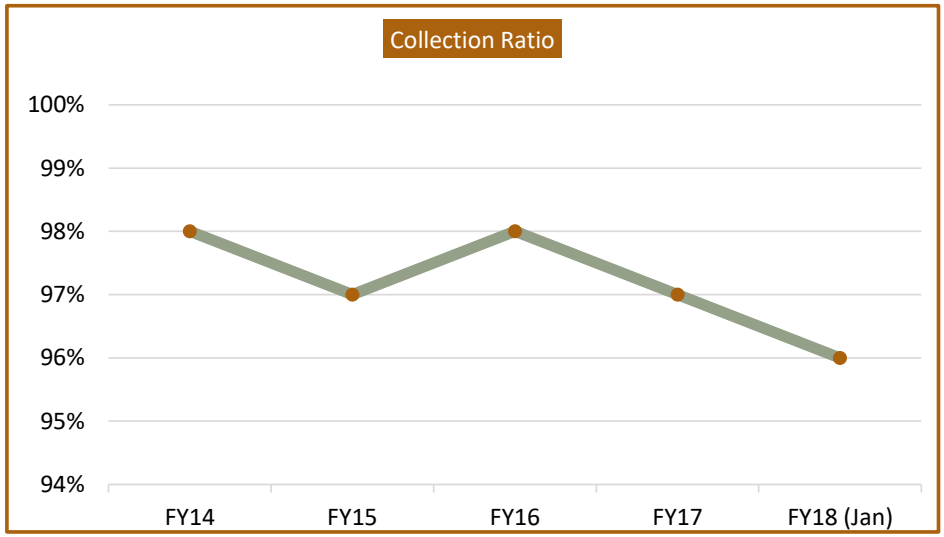


(1) Gross Revenues excludes SDC
(2) Debt Service Excludes Cap I

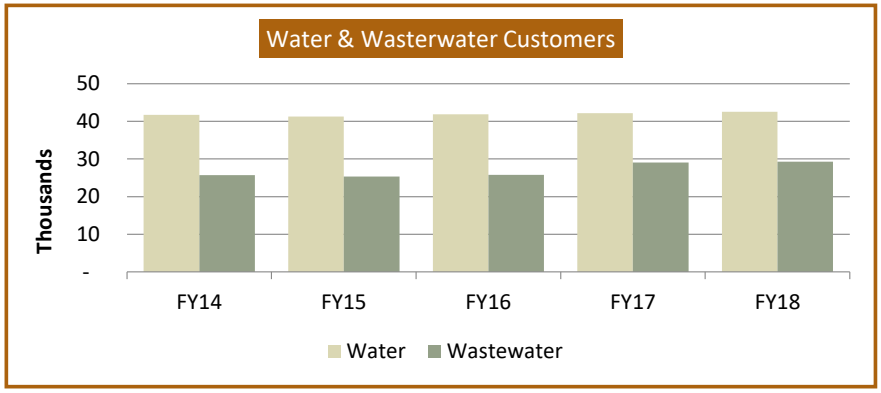
Water & Wastewater Analytics

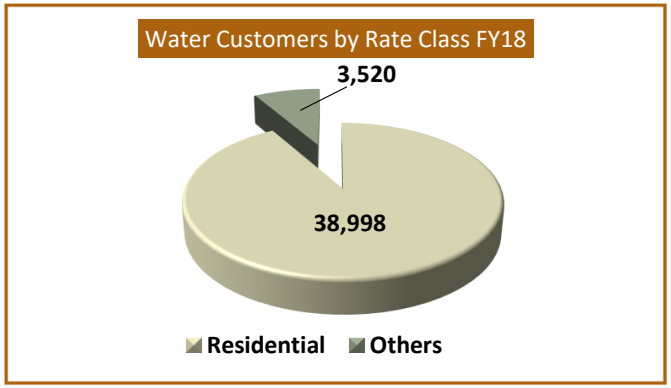


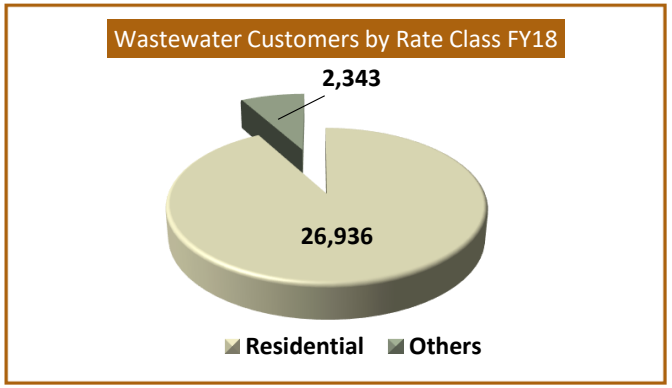


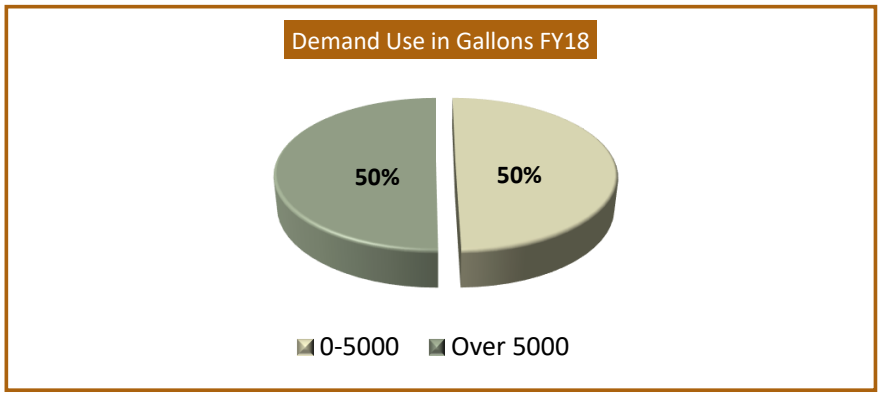


Water & Wastewater Customers





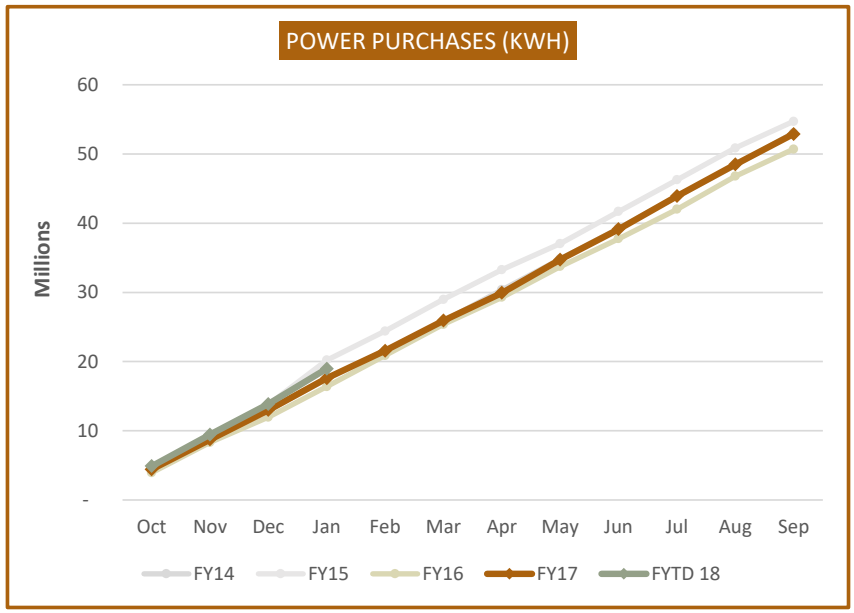


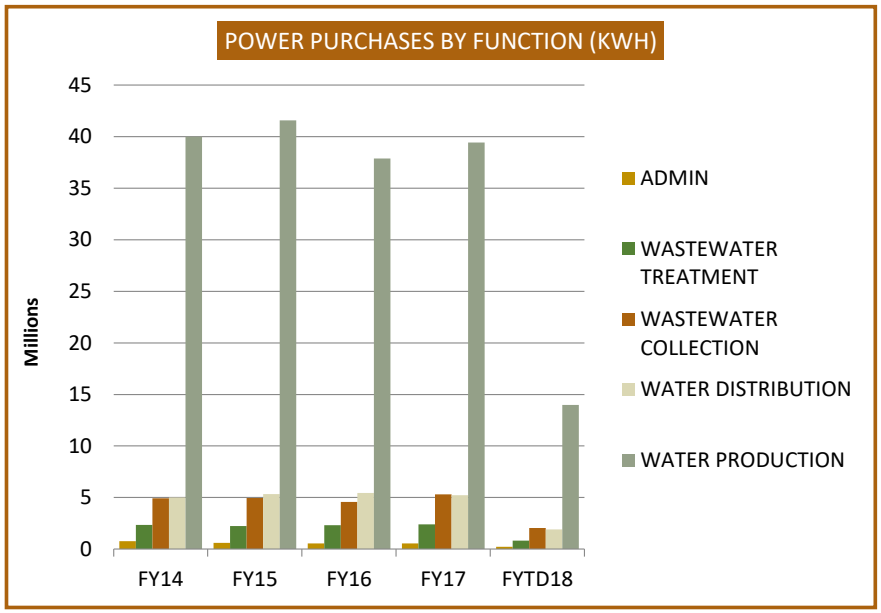


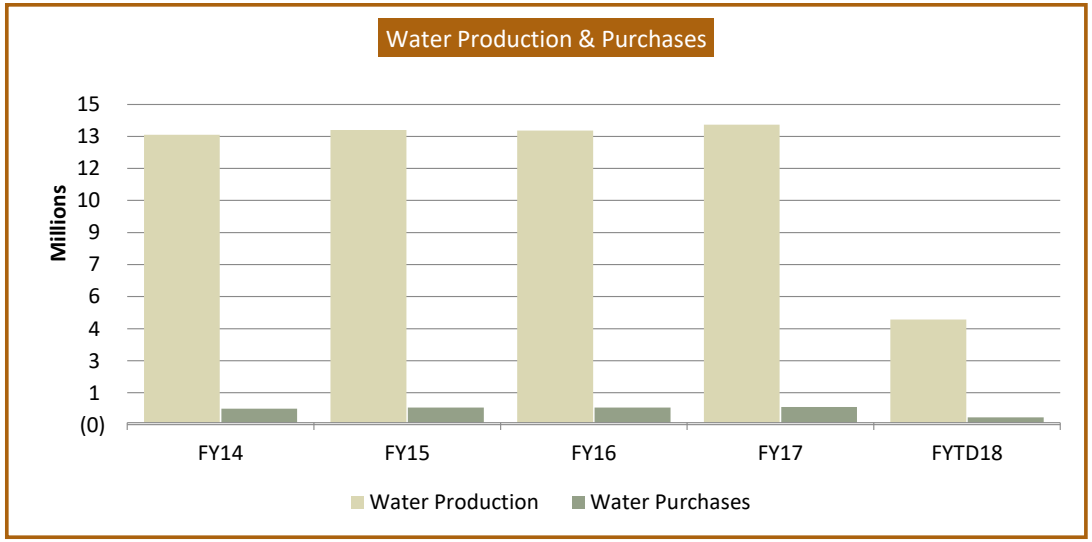
Top Ten Largest Water and Wastewater Customers – January 2018

Water			Wastewater		
Customer Name	FYTD18 Revenues	% of Total	Customer Name	FYTD18 Revenues	% of Total
1) MDI GUAM CORPORATION/LEOPALACE	$470,203	2.05%	1) AIR FORCE DOD	$1,158,536	8.83%
2) PACIFIC ISLANDS CLUB	378,673	1.65%	2) NAVY DOD	789,931	6.02%
3) HOTELS OF THE MARIANAS INC	337,091	1.47%	3) HOTELS OF THE MARIANAS INC	360,504	2.75%
4) HYATT	319,130	1.39%	4) HYATT	341,713	2.60%
5) HOTEL NIKKO GUAM	302,236	1.32%	5) HOTEL NIKKO GUAM	323,063	2.46%
6) GUAM REEF HOTEL INC	285,451	1.25%	6) GUAM REEF HOTEL INC	305,535	2.33%
7) SHERATON LAGUNA GUAM RESORT	263,178	1.15%	7) SHERATON LAGUNA GUAM RESORT	281,611	2.15%
8) MDI GUAM CORPORATION/WESTIN	218,024	0.95%	8) MDI GUAM CORPORATION/WESTIN	233,107	1.78%
9) TANOTA DEVELOPMENT LLC	212,245	0.93%	9) TANOTA DEVELOPMENT LLC	227,754	1.74%
10) OUTRIGGER GUAM RESORT	209,533	0.91%	10) OUTRIGGER GUAM RESORT	224,490	1.71%
Total	**$2,995,764**	**13.07%**	**Total**	**$4,246,244**	**32.35%**

Power, Water Purchases and Water Production

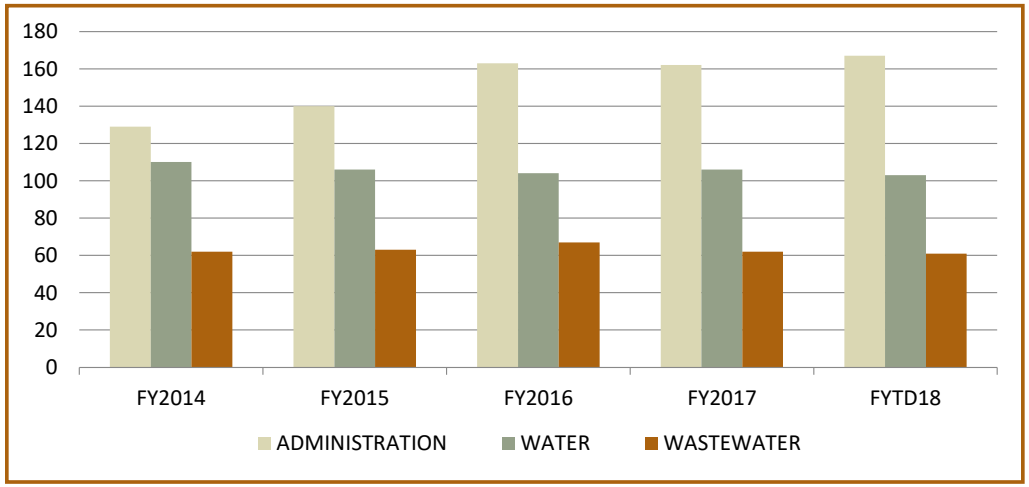




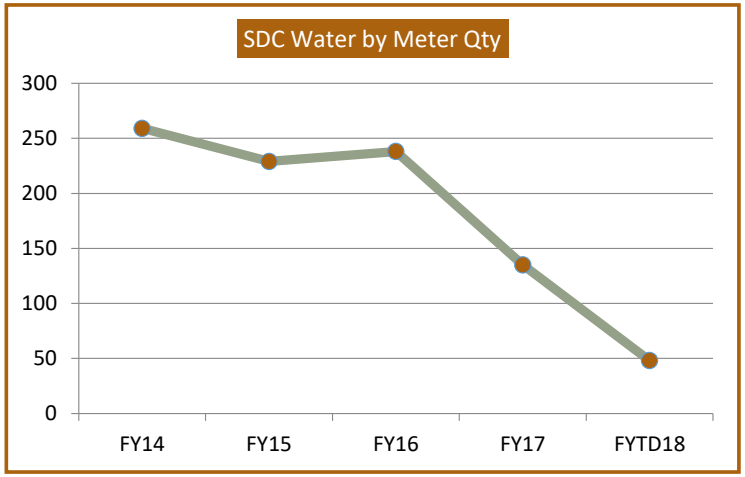


FTE by Major Division

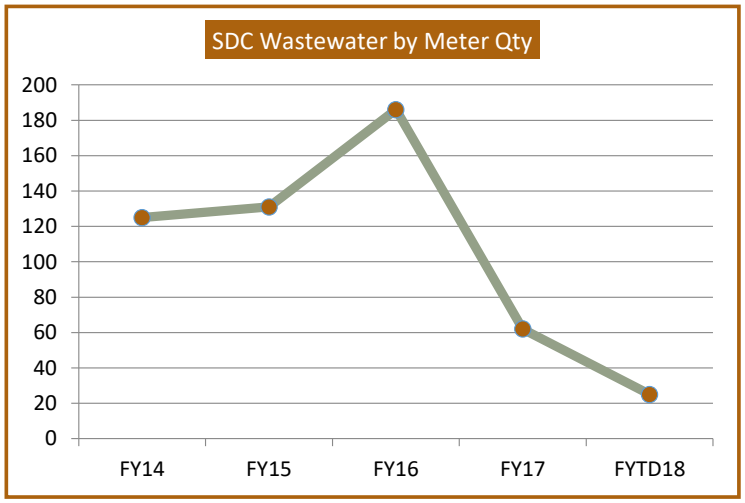
DIVISION	FY2014	FY2015	FY2016	FY2017	FYTD18
ADMINISTRATION	129	140	163	162	167
WATER	110	106	104	106	103
WASTEWATER	62	63	67	62	61
TOTAL NUMBER OF STAFF	301	309	334	330	331
Gross Salaries & Wages ($000)	15,532	15,805	16,442	17,210	5,811
Water Customers	41,702	41,274	41,858	42,181	42,518
Staff to Customers Ratio	0.72%	0.75%	0.80%	0.78%	0.78%



SDC Water & Wastewater (Meter Quantity)



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	248	220	239	129	42
1	5	5	7	2	1
1 1/2	1	1	1	1	3
2	3	2	4	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Water	259	229	252	135	48



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	115	124	179	58	19
1	4	3	2	-	1
1 1/2	1	1	1	1	3
2	3	2	3	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Wastewater	125	131	186	62	25

GUAM WATERWORKS AUTHORITY
JANUARY 31, 2018
FINANCIAL AND RELATED REPORTS
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GUAM WATERWORKS AUTHORITY
Balance Sheet
January 31, 2018

SCHEDULE A

ASSETS	Unaudited January 31, 2018	Unaudited September 30, 2017	Increase (Decrease)
Current Assets:			
Cash:			
Unrestricted (Schedule G)	3,301,196	4,873,275	(1,572,079)
Restricted Funds (Schedule G)	67,311,563	65,124,400	2,187,163
Accounts Receivable Trade, Net of Allowance for Doubtful Receivables of $12,847,445 at Jan 31, 2018 and $12,619,034 at Sep 30, 2017	16,675,949	15,450,733	1,225,216
Other Receivable	4,894,597	8,433,446	(3,538,849)
Materials & Supplies Inventory, Net of Allowance for Obsolescence of $457,370 at Jan 31, 2018 and Sep 30, 2017	2,127,929	2,166,557	(38,629)
Total Current Assets	94,311,233	96,048,411	(1,737,178)
Property, Plant and Equipment			
Utility plant in service:			
Water system	328,128,709	327,484,191	644,517
Wastewater system	286,418,021	286,394,940	23,082
Non-utility property	19,282,203	18,938,255	343,948
Total property	633,828,934	632,817,387	1,011,547
Less Accumulated Depreciation	(292,156,280)	(286,043,580)	(6,112,700)
Land	1,163,298	1,110,998	52,300
Construction Work in Progress	132,774,252	111,695,887	21,078,366
Property, Plant and Equipment, net	475,610,204	459,580,691	16,029,513
Other noncurrent assets			
Restricted cash (Schedule G)	218,026,315	236,550,002	(18,523,687)
Investments (Schedule G)	40,534,905	41,042,038	(507,134)
Other Prepaid Expenses	487,518	551,128	(63,610)
Total other noncurrent assets	259,048,738	278,143,169	(19,094,431)
TOTAL ASSETS	828,970,175	833,772,271	(4,802,096)
Deferred outflows of resources:			
Debt defeasance loss on refunding	11,124,478	1,695,981	9,428,498
Deferred outflows from pension	3,222,202	3,414,242	(192,040)
Total Assets and Deferred Outflows of Resources	**843,316,856**	**838,882,494**	**4,434,362**
LIABILITIES AND NET ASSETS			
Current Liabilities:			
Current maturities of long-term debt			
-Series 2010 Bond	-	1,655,000	(1,655,000)
-Series 2014 Refunding	3,475,000	3,385,000	90,000
-Notes Payable	3,038,469	2,873,988	164,481
Accounts Payable -Trade	4,960,010	5,390,256	(430,246)
Interest Payable	5,197,610	6,656,499	(1,458,889)
Accrued Payroll and Employee Benefits	1,869,929	2,604,471	(734,542)
Accrued Annual Leave	1,729,291	1,729,291	-
Current portion of employee annual leave	567,057	567,057	-
Contractors' Payable	7,813,984	13,950,287	(6,136,303)
Customer and Other Deposits	2,075,441	2,087,207	(11,767)
Total Current Liabilities	30,726,790	40,899,057	(10,172,267)
Long Term Debt, less current maturities			
Series 2010 Revenue Bond	-	112,870,000	(112,870,000)
Series 2013 Revenue Bond	172,630,000	172,630,000	-
Series 2014 Refunding	72,520,000	72,610,000	(90,000)
Series 2016 Revenue Bond	143,310,000	143,310,000	-
Series 2017 Refunding Bond	107,660,000	-	107,660,000
Unamortized Discount - 2010/2013 Series Bonds	(1,321,718)	(3,206,276)	1,884,558
Unamortized Premium - 2014/2016/2017 Series Bonds	34,002,001	22,067,669	11,934,332
Notes Payable	4,560,309	5,697,499	(1,137,190)
Unfunded Ret Liability (GASB 67/68)	38,195,938	38,195,938	-
Employee Annual Leave, Less Current Portion	783,992	783,992	-
TOTAL LIABILITIES	603,067,313	605,857,879	(2,790,566)
Net Assets	**240,249,543**	**233,024,615**	**7,224,928**
Total Liabilities and Net Assets	**843,316,856**	**838,882,494**	**4,434,362**

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited) **SCHEDULE B**
Comparative Budget vs. Actual for the period ending January 31, 2018

	Month to Date			Variance
	Budget January-18	Encumbered January-18	Actual (Unaudited) January-18	Increase / (Decrease)
OPERATING REVENUES				
Water Revenues	5,743,160		5,810,437	67,277
Wastewater Revenues	3,228,257		3,273,365	45,107
Legislative Surcharge	291,896		296,936	5,040
Other Revenues	57,638		26,724	(30,914)
System Development Charge	46,136		47,669	1,533
Total Operating Revenues	9,367,087		9,455,130	88,043
OPERATING AND MAINTENANCE EXPENSES				
Water Purchases	721,113		757,801	36,688
Power Purchases	1,057,997		1,237,130	179,133
Total Utility Costs	1,779,110		1,994,931	215,821
Salaries and Wages	1,625,056		1,518,692	(106,364)
Pension and Benefits	584,558		510,368	(74,190)
Total Salaries and Benefits	2,209,614		2,029,060	(180,554)
Capitalized Labor and Benefits	(208,333)		(208,333)	0
Net Salaries and Benefits	2,001,281		1,820,727	(180,554)
Administrative and General Expenses				
Sludge removal	174,514	-	141,826	(32,688)
Chemicals	229,997	18,565	242,974	31,542
Materials & Supplies	237,400	32,843	179,328	(25,230)
Transportation	61,370	17,243	53,871	9,743
Communications	16,182	4,758	15,334	3,910
Claims	17,600	-	25,547	7,947
Insurance	97,757	-	77,181	(20,576)
Training & Travel	21,814	-	38,568	16,754
Advertising	13,910	2,918	1,990	(9,003)
Miscellaneous	115,515	1,550	81,003	(32,963)
Total Administrative and General Expense	986,059	77,876	857,622	(50,562)
Regulatory Expense	29,086	-	27,902	(1,184)
Bad Debts Provision	57,103	-	57,096	(6)
Depreciation Expense	1,528,175	-	1,528,175	0
Contractual Expense				
Audit & Computer Maint.	78,630	27,869	39,373	(11,389)
Building rental	37,955	-	34,791	(3,164)
Equipment rental	57,375	10,267	84,789	37,681
Legal	4,167	-	600	(3,567)
Laboratory	64,752	34,567	10,654	(19,530)
Other	130,363	6,667	162,352	38,656
Total Contractual Expense	373,241	79,370	332,560	38,688
Retiree Supp. Annuities and health care costs	240,008		236,940	(3,068)
Contribution to Government of Guam	49,500		49,833	333
Total Retiree Benefits	289,508		286,774	(2,735)
Total Operating Expenses	7,043,563	157,245	6,905,787	19,469
Earnings (Loss) from Operations	2,323,524	(157,245)	2,549,343	68,574
Interest Income-2010/13/14/16 Series Bond	15,727		191,783	176,056
Interest Income-Other Funds	2,935		29,503	26,569
Interest Income-SDC	2,414		2,175	(239)
Interest Expense- 2010/13/14/16 Series Bond	(2,625,587)		(2,158,666)	466,921
Interest Expense- ST BOG	(33,288)		(39,394)	(6,106)
Federal Expenditures	(51,332)		(34,665)	16,667
Loss on Asset Disposal	-		-	-
AFUDC	625,000		625,000	-
Amortization of Discount, Premium and Issuance Costs	(61,861)		(77,542)	(15,681)
Loss on Defeasance Bond05 Refunding	(15,218)		(12,444)	2,775
Deferred outflows from pension	(105,281)		(48,010)	57,271
Prior Year Adjustment	-		-	-
Total non-operating revenues (expenses)	(2,246,492)	-	(1,522,260)	724,232
Net Income (Loss) before capital contributions	77,032	(157,245)	1,027,084	792,806
Capital Contributions				
Grants from US Government	873,108		2,102,130	1,229,022
Grants from GovGuam & Others	-		79,781	79,781
Other Contributions	-		-	-
Total Capital Contributions	873,108	-	2,181,911	1,308,802
Change in Net Assets	950,140	(157,245)	3,208,994	2,101,609
Debt Service Calculation				
Earnings From Operations	2,323,524		2,549,343	
System Development Charge	(46,136)		(47,669)	
Retiree COLA	49,500		49,833	
Interest/Investment Income	2,935		29,503	
Depreciation	1,528,175		1,528,175	
Balance Available for Debt Service per Section 6.12	3,857,998		4,109,186	
Working Capital Reserve Available for Debt Service	935,321		935,321	
Transfer to Working Capital- Debt Service Reserve	(150,000)		-	
Transfer to Working Capital- O&M Reserve	(266,667)		-	
Balance Available for Debt Service inclusive of reserves	4,376,652		5,044,507	
Debt Service				
Principal	433,333		433,333	
Interest	2,063,402		2,063,402	
Total	2,496,736		2,496,736	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55		1.65	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75		2.02	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited) **SCHEDULE C**
Comparative for the period ending January 31, 2018 and 2017

	Month to Date		Variance
	Actual (Unaudited) January-18	Actual (Unaudited) January-17	Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	5,810,437	5,331,404	479,033
Wastewater Revenues	3,273,365	3,099,528	173,837
Legislative Surcharge	296,936	267,269	29,667
Other Revenues	26,724	36,293	(9,569)
System Development Charge	47,669	72,662	(24,993)
Total Operating Revenues	9,455,130	8,807,155	647,975
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	757,801	609,094	148,707
Power Purchases	1,237,130	1,006,355	230,775
Total Utility Costs	1,994,931	1,615,449	379,482
Salaries and Wages	1,518,692	1,413,608	105,083
Pension and Benefits	510,368	477,546	32,823
Total Salaries and Benefits	2,029,060	1,891,154	137,906
Capitalized Labor and Benefits	(208,333)	(262,516)	54,183
Net Salaries and Benefits	1,820,727	1,628,638	192,089
Administrative and General Expenses			
Sludge removal	141,826	140,487	1,340
Chemicals	242,974	174,001	68,973
Materials & Supplies	179,328	128,788	50,540
Transportation	53,871	53,744	127
Communications	15,334	10,884	4,450
Claims	25,547	22,151	3,396
Insurance	77,181	90,603	(13,422)
Training & Travel	38,568	23,055	15,514
Advertising	1,990	8,988	(6,998)
Miscellaneous	81,003	71,997	9,006
Total Administrative and General Expense	857,622	724,696	132,925
Regulatory Expense	27,902	24,134	3,768
Bad Debts Provision	57,096	109,700	(52,604)
Depreciation Expense	1,528,175	1,402,038	126,137
Contractual Expense			
Audit & Computer Maint.	39,373	76,901	(37,528)
Building rental	34,791	36,557	(1,765)
Equipment rental	84,789	59,374	25,415
Legal	600	414	186
Laboratory	10,654	10,627	28
Other	162,352	156,747	5,605
Total Contractual Expense	332,560	340,619	(8,059)
Retiree Supp. Annuities and health care costs	236,940	231,895	5,045
Contribution to Government of Guam	49,833	49,500	333
Total Retiree Benefits	286,774	281,395	5,378
Total Operating Expenses	6,905,787	6,126,670	779,116
Earnings (Loss) from Operations	2,549,343	2,680,485	(131,142)
Interest Income-2010/13/14/16 Series Bond	191,783	65,354	126,428
Interest Income-Other Funds	29,503	10,032	19,472
Interest Income-SDC	2,175	1,060	1,115
Interest Expense- 2010/13/14/16 Series Bond	(2,158,666)	(2,220,744)	62,077
Interest Expense- ST BOG	(39,394)	(43,736)	4,342
Federal Expenditures	(34,665)	(42,501)	7,836
Loss on Asset Disposal	-	(81,105)	81,105
AFUDC	625,000	1,172,241	(547,241)
Amortization of Discount, Premium and Issuance Costs	(77,542)	61,861	(139,403)
Loss on Defeasance Bond05 Refunding	(12,444)	(15,218)	2,775
Deferred outflows from pension	(48,010)	(104,481)	56,471
Prior Year Adjustment	-	(26,756)	26,756
Total non-operating revenues (expenses)	(1,522,260)	(1,223,993)	(298,267)
Net Income (Loss) before capital contributions	1,027,084	1,456,492	(429,408)
Capital Contributions			
Grants from US Government	2,102,130	1,815,921	286,209
Grants from GovGuam & Others	79,781	1,664	78,116
Other Contributions	-	-	-
Total Capital Contributions	2,181,911	1,817,586	364,325
Change in Net Assets	3,208,994	3,274,078	(65,083)
Debt Service Calculation			
Earnings From Operations	2,549,343	2,680,485	
System Development Charge	(47,669)	(72,662)	
Retiree COLA	49,833	49,500	
Interest/Investment Income	29,503	10,032	
Depreciation	1,528,175	1,402,038	
Balance Available for Debt Service per Section 6.12	4,109,186	4,069,392	
Working Capital Reserve Available for Debt Service	935,321	932,134	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	5,044,507	5,001,527	
Debt Service			
Principal	433,333	420,000	
Interest	2,063,402	1,626,858	
Total	2,496,736	2,046,858	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.65	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.02	2.44	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative Budget vs. Actual for the period ending January 31, 2018

SCHEDULE D

	Year to Date			Variance
	Budget January-18	Encumbered January-18	Actual (Unaudited) January-18	Increase / (Decrease)
OPERATING REVENUES				
Water Revenues	22,972,640		22,156,341	(816,299)
Wastewater Revenues	12,913,029		12,774,185	(138,845)
Legislative Surcharge	1,167,584		1,113,659	(53,925)
Other Revenues	230,552		133,504	(97,048)
System Development Charge	184,543		382,250	197,707
Total Operating Revenues	37,468,349		36,559,939	(908,410)
OPERATING AND MAINTENANCE EXPENSES				
Water Purchases	2,884,453		2,845,650	(38,803)
Power Purchases	4,231,988		4,649,102	417,115
Total Utility Costs	7,116,440		7,494,752	378,312
Salaries and Wages	6,500,224		5,810,805	(689,419)
Pension and Benefits	2,338,233		1,933,535	(404,698)
Total Salaries and Benefits	8,838,457		7,744,341	(1,094,116)
Capitalized Labor and Benefits	(833,333)		(833,333)	0
Net Salaries and Benefits	8,005,124		6,911,008	(1,094,116)
Administrative and General Expenses				
Sludge removal	698,056	-	505,267	(192,788)
Chemicals	819,987	222,778	740,263	143,053
Materials & Supplies	1,111,599	394,112	680,372	(37,115)
Transportation	209,482	206,911	127,742	125,172
Communications	64,728	57,098	60,187	52,557
Claims	44,400	9,000	21,781	(13,619)
Insurance	419,026	-	303,621	(115,405)
Training & Travel	87,257	13,315	53,048	(20,893)
Advertising	55,640	35,010	22,335	1,705
Miscellaneous	462,062	18,600	317,479	(125,983)
Total Administrative and General Expense	3,972,237	956,824	2,832,096	(183,317)
Regulatory Expense	88,345	-	68,709	(19,636)
Bad Debts Provision	228,410	-	228,390	(20)
Depreciation Expense	6,112,699	-	6,112,700	1
Contractual Expense				
Audit & Computer Maint.	329,521	86,100	274,970	31,549
Building rental	151,820	-	143,638	(8,182)
Equipment rental	229,498	123,200	311,476	205,178
Legal	16,667	-	2,400	(14,267)
Laboratory	244,006	414,810	171,639	342,443
Other	521,452	80,000	436,330	(5,122)
Total Contractual Expense	1,492,965	704,110	1,340,454	551,599
Retiree Supp. Annuities and health care costs	960,033		946,790	(13,243)
Contribution to Government of Guam	198,000		199,333	1,333
Total Retiree Benefits	1,158,033	-	1,146,124	(11,910)
Total Operating Expenses	28,174,253	1,660,934	26,134,233	(379,087)
Earnings (Loss) from Operations	9,294,096	(1,660,934)	10,425,706	(529,324)
Interest Income-2010/13/14/16 Series Bond	62,906		656,571	593,665
Interest Income-Other Funds	11,739		101,502	89,763
Interest Income-SDC	9,657		27,711	18,053
Interest Expense- 2010/13/14/16 Series Bond	(10,502,349)		(8,791,740)	1,710,609
Interest Expense- ST BOG	(133,153)		(143,866)	(10,713)
Federal Expenditures	(205,329)		(152,952)	52,377
Loss on Asset Disposal	-		-	-
AFUDC	2,500,000		2,500,000	-
Amortization of Discount, Premium and Issuance Costs	(247,443)		108,040	355,483
Loss on Defeasance Bond05 Refunding	(60,874)		(49,774)	11,099
Deferred outflows from pension	(421,122)		(192,040)	229,083
Prior Year Adjustment	-		22,201	22,201
Total non-operating revenues (expenses)	(8,985,967)	-	(5,914,348)	3,071,619
Net Income (Loss) before capital contributions	308,129	(1,660,934)	4,511,358	2,542,295
Capital Contributions				
Grants from US Government	3,492,433		2,633,789	(858,643)
Grants from GovGuam & Others	-		79,781	79,781
Other Contributions	-		-	-
Total Capital Contributions	3,492,433	-	2,713,570	(778,863)
Change in Net Assets	3,800,561	(1,660,934)	7,224,928	1,763,433
Debt Service Calculation				
Earnings From Operations	9,294,096		10,425,706	
System Development Charge	(184,543)		(382,250)	
Retiree COLA	198,000		199,333	
Interest/Investment Income	11,739		101,502	
Depreciation	6,112,699		6,112,700	
Balance Available for Debt Service per Section 6.12	15,431,990		16,456,991	
Working Capital Reserve Available for Debt Service	3,741,284		3,728,537	
Transfer to Working Capital- Debt Service Reserve	(600,000)		-	
Transfer to Working Capital- O&M Reserve	(1,066,667)		-	
Balance Available for Debt Service inclusive of reserves	17,506,608		20,185,528	
Debt Service				
Principal	1,733,333		1,733,333	
Interest	8,253,609		8,253,609	
Total	9,986,942		9,986,942	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55		1.65	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75		2.02	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative for the period ending January 31, 2018 and 2017

SCHEDULE E

	Year to Date ACTUAL (Unaudited) January-18	ACTUAL (Unaudited) January-17	Variance Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	22,156,341	21,325,614	830,727
Wastewater Revenues	12,774,185	12,398,111	376,074
Legislative Surcharge	1,113,659	1,069,075	44,584
Other Revenues	133,504	145,171	(11,668)
System Development Charge	382,250	290,649	91,601
Total Operating Revenues	36,559,939	35,228,620	1,331,318
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	2,845,650	2,436,375	409,275
Power Purchases	4,649,102	4,025,421	623,682
Total Utility Costs	7,494,752	6,461,796	1,032,957
Salaries and Wages	5,810,805	5,654,434	156,371
Pension and Benefits	1,933,535	1,910,183	23,353
Total Salaries and Benefits	7,744,341	7,564,617	179,724
Capitalized Labor and Benefits	(833,333)	(1,050,063)	216,730
Net Salaries and Benefits	6,911,008	6,514,554	396,454
Administrative and General Expenses			
Sludge removal	505,267	561,947	(56,680)
Chemicals	740,263	696,004	44,258
Materials & Supplies	680,372	515,151	165,221
Transportation	127,742	214,978	(87,235)
Communications	60,187	43,535	16,651
Claims	21,781	88,604	(66,823)
Insurance	303,621	362,411	(58,790)
Training & Travel	53,048	92,218	(39,170)
Advertising	22,335	35,951	(13,616)
Miscellaneous	317,479	287,986	29,493
Total Administrative and General Expense	2,832,096	2,898,785	(66,689)
Regulatory Expense	68,709	96,538	(27,829)
Bad Debts Provision	228,390	438,799	(210,409)
Depreciation Expense	6,112,700	5,608,152	504,548
Contractual Expense			
Audit & Computer Maint.	274,970	307,604	(32,634)
Building rental	143,638	146,226	(2,588)
Equipment rental	311,476	237,496	73,981
Legal	2,400	1,656	744
Laboratory	171,639	42,506	129,133
Other	436,330	626,989	(190,658)
Total Contractual Expense	1,340,454	1,362,476	(22,022)
Retiree Supp. Annuities and health care costs	946,790	927,582	19,209
Contribution to Government of Guam	199,333	198,000	1,333
Total Retiree Benefits	1,146,124	1,125,582	20,542
Total Operating Expenses	26,134,233	24,506,681	1,627,552
Earnings (Loss) from Operations	10,425,706	10,721,940	(296,234)
Interest Income-2010/13/14/16 Series Bond	656,571	261,417	395,154
Interest Income-Other Funds	101,502	40,127	61,374
Interest Income-SDC	27,711	4,239	23,471
Interest Expense- 2010/13/14/16 Series Bond	(8,791,740)	(8,882,975)	91,235
Interest Expense- ST BOG	(143,866)	(174,945)	31,079
Federal Expenditures	(152,952)	(170,006)	17,054
Loss on Asset Disposal	-	(324,418)	324,418
AFUDC	2,500,000	4,688,964	(2,188,964)
Amortization of Discount, Premium and Issuance Costs	108,040	247,443	(139,403)
Loss on Defeasance Bond05 Refunding	(49,774)	(60,874)	11,099
Deferred outflows from pension	(192,040)	(417,923)	225,883
Prior Year Adjustment	22,201	(107,023)	129,223
Total non-operating revenues (expenses)	(5,914,348)	(4,895,973)	(1,018,376)
Net Income (Loss) before capital contributions	4,511,358	5,825,967	(1,314,609)
Capital Contributions			
Grants from US Government	2,633,789	7,263,686	(4,629,897)
Grants from GovGuam & Others	79,781	6,657	73,123
Other Contributions	-	-	-
Total Capital Contributions	2,713,570	7,270,343	(4,556,773)
Change in Net Assets	7,224,928	13,096,310	(5,871,383)
Debt Service Calculation			
Earnings From Operations	10,425,706	10,721,940	
System Development Charge	(382,250)	(290,649)	
Retiree COLA	199,333	198,000	
Interest/Investment Income	101,502	40,127	
Depreciation	6,112,700	5,608,152	
Balance Available for Debt Service per Section 6.12	16,456,991	16,277,570	
Working Capital Reserve Available for Debt Service	3,728,537	3,728,537	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	20,185,528	20,006,106	
Debt Service			
Principal	1,733,333	1,680,000	
Interest	8,253,609	6,507,434	
Total	9,986,942	8,187,434	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.65	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.02	2.44	

SCHEDULE F

Bond Compliance

		($$$) Per Indenture	As of 1/31/18 ($$$) Bond 2013/2014/2016/2017
• Operation and Maintenance Fund-BOG	*Equivalent to 55 days of the annual O&M budget less depreciation*	$10.5M	$10.5M
• Bond Reserve Fund - US Bank	*Fully funded- Principal and Interest (Bond Series 2013, 2014 Refunding 2016 and 2017 Refunding)*	$34.9M	$34.9M
• Operation, Maintenance, Renewal and Replacement Reserve Fund-BOG Trust	*Equivalent to 1/4 of the annual O&M budget & CIP budget to be funded in 5 years ($2M/year)*	$17.4M	$17.4M
• Capital Improvement Fund	*Balance remaining in the Revenue Fund after the foregoing deposits*	$3.9K	$5.6K
• Capitalized Interest Fund			$2.9K

GUAM WATERWORKS AUTHORITY
Restricted and Unrestricted Cash Summary
FY 2018

SCHEDULE G

Description	Unaudited January 31, 2018	Unaudited September 30, 2017	Increase (Decrease)
UNRESTRICTED			
Change Fund	2,000	2,000	0
Petty Cash	5,000	5,000	0
BOG - General Fund	3,264,157	4,836,236	(1,572,079)
BOG - PRN Payroll	30,039	30,039	0
Sub-total Unrestricted	3,301,196	4,873,275	(1,572,079)
RESTRICTED			
BOG - On Line Payment	-	-	0
BOG - Sweep Account	-	-	0
Bank of Hawaii	80,447	133,931	(53,485)
ANZ Bank	-	-	0
First Hawaiian Bank	8,139	10,261	(2,122)
Bank Pacific	22,440	15,825	6,615
Community First FCU	5,153	3,448	1,705
BOG - Customer Refunds	1,841,492	1,831,426	10,066
Bank Pacific - Surcharge	601,836	278,142	323,694
Bank Pacific - Escrow Deposit	666,222	666,140	82
BOG Emergency Reserve Fund	6,124	6,122	2
BOG - Revenue Trust	69,709	201,614	(131,905)
BOG Revenue Trust Fund	7,945,816	7,782,227	163,589
BOG Capital Improvement Fund-Bond	5,598	5,598	0
BOG Capital Improvement Revenue Fund	1,351,928	-	1,351,928
BOG-O & M Reserve	13,548,868	13,516,540	32,328
BOG-Debt Service Reserve	11,244,664	11,217,733	26,931
BOG-CAPEX Reserve	15,498,322	15,462,869	35,453
BOG Sewer Hookup Revolving Fund	64,341	63,590	751
BOG Subord. Sec. Fund	859,233	859,233	0
BOG Operation and Maintenance Fund	3,083,482	3,083,482	0
	56,903,815	55,138,182	1,765,633
BOG - SDC Deposit	3,157,748	1,486,219	1,671,530
BOG - SDC CDs	7,250,000	8,500,000	(1,250,000)
Total Restricted	67,311,563	65,124,400	2,187,163
Reserve Funds			
BOG Series 05 OMRRRF Fund	17,423,213	17,423,213	-
BOG Series 13 Construction Fund	64,149,060	74,461,765	(10,312,706)
BOG Series 14 Refunding Construction Fund	762,683	771,281	(8,598)
BOG Series 16 Construction Fund	126,752,323	132,811,449	(6,059,126)
BOG Series 16 Cap Int Fund	2,975	1,782,982	(1,780,008)
BOG Series 17 Refunding Construction Fund	8,888,638	9,299,311	(410,674)
BOG Series 17 Refunding COI Fund	47,424	-	47,424
Total Restricted - Held by Trustee	218,026,315	236,550,002	(18,523,687)
USB Series 2013 Debt Service Fund	787,869	2,336,754	(1,548,885)
USB Series 2013 Debt Service Reserve Fund	12,031,688	12,031,688	-
USB Series 2014 Refunding Debt Service Fund	2,344,001	1,796,559	547,442
USB Series 2014 Refunding Debt Service Reserve Fund	7,758,497	7,707,602	50,895
USB Series 2016 Debt Service Fund	598,108	130	597,978
USB Series 2016 Debt Service Reserve Fund	7,594,584	7,582,725	11,859
USB Series 2010 Debt Service Fund	1,377,700	2,020,121	(642,421)
USB Series 2017 Refunding Debt Service Reserve Fund	7,566,460	7,566,460	-
USB Series 2017 Debt Service Fund	475,997	-	475,997
Total Investments	40,534,905	41,042,038	(507,134)
Total Restricted and Unrestricted Cash	329,173,979	347,589,716	(18,415,737)

SCHEDULE H

Guam Waterworks Authority **Statement of Cash Flows (Unaudited)** **FY 2018**	**YTD** **Jan-18**
Increase (decrease) in cash	
Cash flows from operating activities:	
Cash received from trade and others	34,758,036
Cash payments to suppliers/contractors for goods and services	(12,111,215)
Cash payments to employees for services	(8,400,300)
Net cash provided by operating activities	14,246,521
Cash flows from capital and related financing activities:	
Contributed capital received (grants)	6,483,193
Acquisition of utility plant	(25,778,516)
Repayment of Long Term Debt	6,953,891
Interest expense	(11,478,777)
Net cash provided by (used in) capital and related financing activities	(23,820,209)
Cash flows from investing activities:	
Transfers from (to) restricted fund	7,215,826
Interest income received	785,783
Net cash provided by investing activities	8,001,609
Net increase (decrease) in cash	(1,572,079)
Unrestricted cash at beginning of the period	4,873,275
Unrestricted cash at end of period	3,301,196
Reconciliation of operating loss to net cash provided by operating activities:	
Operating Income (loss)	12,072,015
Adjustments to reconcile to net cash provided by operating activities:	
Depreciation expense	6,112,700
Other Expense/income	420,430
(Increase) decrease in assets:	
Accounts receivable	(1,790,137)
Materials and supplies inventory	38,628
Other Assets	63,610
Increase (decrease) in liabilities:	
Accounts payable, Contractors, Retention & Escrow Deposit	(1,924,417)
Accrued payroll	(734,541)
Customer deposits	(11,767)
Net cash provided by operating activities	14,246,521

Guam Waterworks Authority
Accounts Receivable - Government
As of January 31, 2018

SCHEDULE I

			AGING				
Customer Name	**No of Accounts**	**Current Balance**	**31-60 days**	**61-90 days**	**91-120 days**	**Over 120 days**	**Outstanding Bal.**
GUAM INT'L AIRPORT AUTHORITY	10	47,433	37,492	38,570	31,237	161,181	315,913
GUAM POWER AUTHORITY	25	19,293	15,880	17,450	598	142,291	195,510
GUAM MEMORIAL HOSPITAL AUTHORITY	2	38,031	32,516	37,847	-	-	108,394
PORT AUTHORITY OF GUAM	1	54,109	34,514	-	-	-	88,623
GUAM COMMUNITY COLLEGE	3	8,994	9,307	5,159	-	-	23,459
UNIVERSITY OF GUAM	2	9,009	-	-	-	-	9,009
GUAM HOUSING & URBAN RENEWAL AUTHORITY	4	1,140	-	-	-	92	1,232
GUAM HOUSING CORPORATION	1	30	-	-	-	-	30
AUTONOMOUS AGENCIES	**48**	**178,039**	**129,709**	**99,025**	**31,834**	**303,564**	**742,171**
DEPT OF EDUCATION	51	213,202	219,782	38,880	12,658	117,414	601,934
DEPT OF PARKS & RECREATION	20	33,313	28,007	27,726	193,110	167,584	449,741
DEPT OF CORRECTIONS	8	167,613	53	-	-	-	167,667
DEPT OF PUBLIC HEALTH & SOCIAL SERVICES	5	1,351	1,058	626	454	103,673	107,162
DEPT OF CHAMORRO AFFAIRS	2	4,057	3,589	2,409	-	-	10,055
MAYORS' COUNCIL OF GUAM	40	9,867	113	12	-	-	9,991
DEPT OF MENTAL HEALTH AND SUBTANCE	2	8,977	-	-	-	-	8,977
GUAM FIRE DEPARTMENT	8	6,361	-	-	-	-	6,361
DEPT OF YOUTH AFFAIRS	4	1,291	25	25	154	3,847	5,342
OFFICE OF THE GOVERNOR	2	4,769	-	-	-	-	4,769
DEPT OF AGRICULTURE	7	4,217	-	-	-	-	4,217
DEPT OF PUBLIC WORKS	9	3,622	-	-	-	-	3,622
SANCTUARY INC	1	3,001	-	-	-	-	3,001
DEPT OF ADMINISTRATION	2	676	161	146	137	598	1,718
GUAM POLICE DEPARTMENT	2	1,037	-	-	-	-	1,037
GHURA-AGAFU GUMAS PARK	1	42	26	38	28	803	937
DIVISION OF SENIOR CITIZENS, DPH&SS	2	355	139	151	61	-	705
GUAM PUBLIC LIBRARY	3	134	-	-	-	-	134
GUAM VETERANS AFFAIRS OFFICE	1	127	-	-	-	-	127
GUAM LEGISLATURE	2	109	-	-	-	-	109
GUAM ENERGY OFFICE	1	79	-	-	-	-	79
MERIZO MAYOR	1	28	25	-	-	-	52
THE OFFICE OF THE DEDEDO MAYOR	1	44	-	-	-	-	44
GUAM SOLID WASTE AUTHORITY	1	23	-	-	-	-	23
LINE AGENCIES	**176**	**464,294**	**252,977**	**70,013**	**206,603**	**393,918**	**1,387,804**
TOTAL January 31, 2018	**224**	**642,333**	**382,686**	**169,037**	**238,437**	**697,482**	**2,129,976**
TOTAL September 30, 2017	**253**	**715,578**	**442,522**	**169,120**	**72,476**	**396,347**	**1,796,043**
% INCREASE/ (DECREASE)	**-11%**	**-10%**	**-14%**	**0%**	**229%**	**76%**	**19%**

GUAM WATERWORKS AUTHORITY
2013 Series Bond Project Status
As of January 31, 2018

SCHEDULE J

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Santa Rita Springs Booster Pump Rehab Phase II	$ 100,000	$ 100,000	$ 61,482	$ 38,518	$ 100,000	$ -	$ 38,518
"A" Series Well Transmission Line	$ 400,000	$ 400,000	$ 314,479	$ 55,367	$ 369,846	$ 30,154	$ 85,521
Water Booster Pump Station	$ 6,000,000	$ 1,861,000	$ 1,656,428	$ 23,536	$ 1,679,964	$ 181,036	$ 204,572
Meter Replacement Program		$ 999,000	$ 996,532	$ -	$ 996,532	$ 2,468	$ 2,468
Barrigada Tank Repair/Replacement	$ 6,000,000	$ 4,987,000	$ 4,924,959	$ 62,041	$ 4,987,000	$ 0	$ 62,041
Leak Detection	$ 100,000	$ 20,000	$ 16,916	$ -	$ 16,916	$ 3,084	$ 3,084
Potable Water System Planning	$ 800,000	$ 624,000	$ 598,825	$ 25,175	$ 624,000	$ -	$ 25,175
Implement Ground Water Rule	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ -	$ 1,000,000	$ -	$ -
Deep Well Rehabilitation	$ 800,000	$ 200,000	$ 189,930	$ 10,071	$ 200,000	$ (0)	$ 10,070
New Deep Wells at Down Hard	$ 2,000,000	$ 810,000			$ -	$ 810,000	$ 810,000
Master Meters	$ 4,000,000	$ 784,000	$ 531,188	$ 180,872	$ 712,060	$ 71,940	$ 252,812
Ugum Water Treatment Plant Intake	$ 1,000,000	$ 982,000	$ 578,858	$ 280,943	$ 859,801	$ 122,199	$ 403,142
Water Wells	$ 4,200,000	$ 4,200,000	$ 2,284,474	$ 745,555	$ 3,030,029	$ 1,169,971	$ 1,915,527
Water Distribution System	$ 12,000,000	$ 11,151,000	$ 4,946,582	$ 4,908,934	$ 9,855,516	$ 1,295,484	$ 6,204,418
Pressure Zone Realignment /	$ 1,000,000	$ 431,000	$ 336,036	$ 1,074	$ 337,110	$ 93,890	$ 94,964
Mechanical/Electrical Equipment	$ 430,000	$ 430,000	$ 328,686	$ 98,112	$ 426,798	$ 3,202	$ 101,314
Water Reservoir Internal/External	$ 800,000	$ -			$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 21,000,000	$ 13,878,000	$ 10,597,654	$ 3,280,346	$ 13,878,000	$ (0)	$ 3,280,346
Ugum Water Treatment Plant Reservoir	$ 7,000,000	$ 90,000			$ -	$ 90,000	$ 90,000
Agana Heights & Chaot Tanks	$ 4,500,000	$ 3,280,000	$ 233,265	$ 1,097,022	$ 1,330,287	$ 1,949,713	$ 3,046,735
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 13,500,000	$ 11,605,000	$ 1,167,648	$ 10,437,352	$ 11,605,000	$ 0	$ 10,437,353
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 8,000,000	$ -			$ -	$ -	$ -
Assessment of maloiloi Elevetad & Yigo Elevated	$ 500,000	$ 485,117	$ 461,813	$ 23,304	$ 485,117	$ -	$ 23,304
Fire Hydrant Replacement Program	$ -	$ -			$ -	$ -	$ -
		$ -					
Wastewater System Planning	$ 800,000	$ 651,000	$ 550,480	$ 100,520	$ 651,000	$ (0)	$ 100,520
Lift Station Upgrades	$ 5,000,000	$ 946,000	$ 562,785	$ 363	$ 563,149	$ 382,852	$ 383,215
Wastewater Collection System Repl/Rehab	$ 6,500,000	$ 780,000	$ 476,682	$ 168,631	$ 645,314	$ 134,687	$ 303,318
Baza Gardens STP Replacement		$ 3,114,883	$ 969,594	$ 2,145,275	$ 3,114,869	$ 15	$ 2,145,290
Facilities Plan/Design for Umatac-Merizo WWTP		$ 473,000	$ 335,000	$ 36,699	$ 371,699	$ 101,301	$ 138,000
Agat/Santa Rita STP Replacement	$ 19,000,000	$ 67,200,000	$ 36,744,222	$ 30,455,778	$ 67,200,000	$ 0	$ 30,455,778
Agana WWTP Interim Measures		$ 673,000	$ 548,597	$ 124,403	$ 673,000	$ (0)	$ 124,403
Umatac Merizo Replacement	$ 2,000,000	$ -			$ -	$ -	$ -
		$ -					
Wastewater Pump Station Electrical Upgrade	$ 620,000	$ 620,000	$ 91,348	$ 8,513	$ 99,861	$ 520,139	$ 528,652
Electrical Upgrade - Water Wells	$ 1,500,000	$ 1,500,000	$ 1,480,769	$ 19,230	$ 1,500,000	$ 0	$ 19,231
Electrical Upgrade - Water Booster	$ 325,000	$ 2,000			$ -	$ 2,000	$ 2,000
Electrical Upgrade -Water Booster	$ 350,000	$ 200,000	$ 977	$ -	$ 977	$ 199,023	$ 199,023
Electrical Upgrade - Other Water	$ 250,000	$ 150,000	$ 60,700	$ -	$ 60,700	$ 89,300	$ 89,300
SCADA Improvements – Phase 3	$ 1,850,000	$ 923,000	$ 427,949	$ 294,410	$ 722,359	$ 200,641	$ 495,051
SCADA Improvements – Phase 4	$ 500,000	$ -			$ -	$ -	$ -
		$ -					$ -
Laboratory Modernization	$ 1,500,000	$ 1,173,000	$ 1,155,875	$ 15,590	$ 1,171,465	$ 1,535	$ 17,125
Land Survey	$ 2,000,000	$ 2,000	$ 1,038	$ 15	$ 1,053	$ 948	$ 963
General Plant Improvements / Water	$ 2,000,000	$ 2,600,000	$ 1,265,043	$ 1,176,695	$ 2,441,737	$ 158,263	$ 1,334,957
Allowance for COI							$ 275,005
Interest Earned							$ 445,868
Total Construction Fund (2013 Series Revenue Bond)	**$ 139,325,000**	**$ 139,325,000**	**$ 75,896,813**	**$ 55,814,344**	**$ 131,711,157**	**$ 7,613,843**	**$ 64,149,059**

PUC's Docket 14-04 dated February 25, 2014

GUAM WATERWORKS AUTHORITY
2014 Series Refunded Bond Project Status
As of January 31, 2018

SCHEDULE K

PROJECT NAME	ORIGINAL APPROVED PROJECT	ADJUSTED PROJECT COST	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	20% PUC AS OF 01/31/18	Construction fund balance AS OF 01/31/18
Agana Treatment Plant	$ 10,475,000	$ 11,065,512	$ 11,065,512	$ -	$ 11,065,512	$ (0)	$ 2,095,000	$ (0)
								$ -
Agana Outfall	$ 5,030,000	$ 10,127,198	$ 10,127,198	$ -	$ 10,127,198	$ 0	$ 1,006,000	$ 0
								$ -
								$ -
Northern District (Outfall)	$ 4,700,000	$ 10,251,423	$ 10,251,423	$ -	$ 10,251,423	$ 0	$ 940,000	$ 0
Northern District WWTP Upgrade		$ 173,681	$ 173,681		$ 173,681	$ -		$ -
Northern Treatment Plant		$ -	$ -		$ -	$ -		$ -
Baza Gardens Wastewater Treatment Plant	$ 500,000	$ 297,177	$ 297,177	$ -	$ 297,177	$ (0)	$ 100,000	$ (0)
Interim Disinfection Facilities	$ 581,000	$ 3,437,311	$ 3,408,599	$ 28,712	$ 3,437,311	$ (0)	$ 116,200	$ 28,712
						$ -		$ -
Electrical Protection	$ 1,000,000	$ 1,512,483	$ 1,512,483	$ -	$ 1,512,483	$ (0)	$ 200,000	$ (0)
Well Vulnerability Reduction	$ 600,000	$ 185,522	$ 185,522	$ -	$ 185,522	$ 0	$ 120,000	$ 0
Old Agat Wastewater Collection (I/I Reductic	$ 2,155,000	$ 1,931,659	$ 1,931,659	$ -	$ 1,931,659	$ (0)	$ 431,000	$ (0)
				$ -		$ -		$ -
Chaot WW Pump Station/Collection System	$ 410,000	$ 399,120	$ 399,120	$ -	$ 399,120	$ -	$ 82,000	$ -
Lift Station Upgrades	$ 230,000	$ 149,895	$ 149,895	$ -	$ 149,895	$ 0	$ 46,000	$ 0
Collection Line Upgrades	$ 200,000	$ 62,755	$ 62,755	$ -	$ 62,755	$ 0	$ 40,000	$ 0
"A" Well Transmission Line	$ 2,413,000	$ 3,833,175	$ 3,790,888	$ 42,287	$ 3,833,175	$ (0)	$ 482,600	$ 42,287
					$ -	$ -		$ -
Santa Rita Springs - Booster Pump Rehab.	$ 648,000	$ 306,841	$ 306,841	$ -	$ 306,841	$ (0)	$ 129,600	$ (0)
						$ -	$ -	$ -
Fena Bypass Transmission line		$ 160,913	$ 160,913	$ -	$ 160,913	$ (0)	$ -	$ (0)
Storage Additions	$ 950,000	$ -			$ -	$ -	$ 190,000	$ -
Booster Station Upgrades	$ 390,000	$ 66,734	$ 66,734	$ -	$ 66,734	$ -	$ 78,000	$ -
Mangilao Tank Repair	$ 800,000	$ 398,367	$ 397,933	$ 434	$ 398,367	$ (0)	$ 160,000	$ 434
Ugum Tank Replacement	$ 2,500,000	$ -			$ -	$ -	$ 500,000	$ -
Ugum WTPlant Refurbishment ($1.724,970EPA)		$ 6,588,473	$ 6,531,525	$ 56,949	$ 6,588,473	$ (0)		$ 56,948
Barrigada Tank Repair/Replacement	$ 3,000,000	$ 65,019	$ 65,019	$ -	$ 65,019	$ 0	$ 600,000	$ 0
						$ -		$ -
Water Reservoir Condition Assessment		$ 1,250,000	$ 1,249,227	$ 772	$ 1,250,000	$ 0	$ -	$ 773
EarthTech Well Buyout	$ 5,000,000	$ 5,975,000	$ 5,975,000	$ -	$ 5,975,000	$ -	$ 1,000,000	$ -
Water Wastewater Master Plan	$ 4,900,000	$ 4,881,308	$ 4,881,308	$ -	$ 4,881,308	$ 0	$ 980,000	$ 0
Laboratory Modernization	$ 800,000	$ 135,055	$ 135,055	$ -	$ 135,055	$ 0	$ 160,000	$ 0
Land Survey	$ 800,000	$ 577,836	$ 576,134	$ 1,702	$ 577,836	$ 0	$ 160,000	$ 1,702
Ground Water Disinfection		$ -				$ -		$ -
GWUDI Study		$ 262,234	$ 260,430	$ 1,804	$ 262,234	$ -		$ 1,804
						$ -		$ -
Contingency	$ 12,276,023	$ 154	$ -	$ -	$ -	$ -		$ 732
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
Vehicles	$ 1,100,000	$ 1,280,000	$ 2,130,305	$ (850,305)	$ 1,280,000	$ -	$ 220,000	$ -
Generation Equipment	$ 700,000	$ 880,000	$ 2,712	$ 877,288	$ 880,000	$ 0		$ 27,033
Leak Detection/Line Replacement	$ 8,200,000	$ 5,988,494	$ 5,988,494	$ -	$ 5,988,494	$ -	$ 1,640,000	$ -
						$ -		$ -
						$ -		$ -
Automated Meter Reading	$ 12,572,063	$ 17,468,359	$ 16,870,522	$ 537,157	$ 17,468,359	$ 0	$ 2,514,413	$ 597,837
Total Construction Fund (2014 Series Refu	$ 82,930,086	$ 89,711,698	$ 88,891,990	$ 758,873	$ 89,711,543	$ 1	$ 13,990,813	$ 758,263
Interest Earned	$ 6,781,612	$ (0)				$ (0)		$ 4,421
Total Project Cost Funding	**$ 89,711,698**	**$ 89,711,698**	**88,891,990**	**$ 758,873.38**	**$ 89,711,543**	**$ 1**	**$ 13,990,813**	**$ 762,683**

GUAM WATERWORKS AUTHORITY
2016 Series Bond Project Status
As of January 31, 2018

SCHEDULE L

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Water Booster Pump Station	$ 4,139,000	$ 4,139,000			$ -	$ 4,139,000	$ 4,139,000
Meter Replacement Program	$ 4,501,000	$ 4,501,000		$ 150,000	$ 150,000	$ 4,351,000	$ 4,501,000
Barrigada Tank Repair/Replacement	$ 1,013,000	$ 1,013,000		$ -	$ -	$ 1,013,000	$ 1,013,000
Leak Detection	$ 1,180,000	$ 1,180,000		$ -	$ -	$ 1,180,000	$ 1,180,000
Potable Water System Planning	$ 2,276,000	$ 2,276,000	$ 159,105	$ 261,340	$ 420,445	$ 1,855,555	$ 2,116,895
Deep Well Rehabilitation	$ 250,000	$ 250,000		$ 110,013	$ 110,013	$ 139,987	$ 250,000
New Deep Wells at Down Hard	$ 1,190,000	$ 1,190,000			$ -	$ 1,190,000	$ 1,190,000
Master Meters	$ 3,616,000	$ 3,616,000		$ 39,340	$ 39,340	$ 3,576,660	$ 3,616,000
Ugum Water Treatment Plant Intake	$ 18,000	$ 18,000			$ -	$ 18,000	$ 18,000
Water Wells	$ 2,500,000	$ 2,500,000			$ -	$ 2,500,000	$ 2,500,000
Water Distribution System	$ 2,049,000	$ 49,000			$ -	$ 49,000	$ 49,000
Pressure Zone Realignment /	$ 1,141,000	$ 1,141,000		$ 668,355	$ 668,355	$ 472,645	$ 1,141,000
Mechanical/Electrical Equipment	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Water Reservoir Internal/External	$ 800,000	$ 800,000			$ -	$ 800,000	$ 800,000
Water System Reservoirs 2005 Improvements	$ 42,350,000	$ 28,350,000	$ 1,820,465	$ 8,635,484	$ 10,455,949	$ 17,894,051	$ 26,529,535
Ugum Water Treatment Plant Reservoir	$ 6,410,000	$ -			$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan	$ 1,000,000	$ 1,000,000				$ 1,000,000	$ 1,000,000
Agana Heights & Chaot Tanks	$ 1,220,000	$ 1,220,000		$ 500,000	$ 500,000	$ 720,000	$ 1,220,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 1,895,000	$ 1,895,000		$ 1,822,133	$ 1,822,133	$ 72,867	$ 1,895,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 10,500,000	$ 7,409,830		$ 7,300,000	$ 7,300,000	$ 109,830	$ 7,409,830
Fire Hydrant Replacement Program	$ 2,000,000	$ 2,000,000			$ -	$ 2,000,000	$ 2,000,000
						$ -	
Wastewater System Planning	$ 349,000	$ 349,000	$ 30,708	$ 263,223	$ 293,931	$ 55,069	$ 318,292
Lift Station Upgrades	$ 2,404,000	$ 2,404,000	$ 64,755	$ 166,039	$ 230,794	$ 2,173,206	$ 2,339,245
Wastewater Collection System Repl/Rehab	$ 2,920,000	$ 2,920,000		$ 224,923	$ 224,923	$ 2,695,077	$ 2,920,000
Baza Gardens STP Replacement	$ 16,700,000	$ 29,400,170	$ 7,244,707	$ 21,874,943	$ 29,119,650	$ 280,520	$ 22,155,463
Facilities Plan/Design for Umatac-Merizo WWTP	$ 527,000	$ 527,000	$ 190,947	$ 59,839	$ 250,786	$ 276,214	$ 336,053
Agat/Santa Rita STP Replacement	$ 3,000,000	$ 3,000,000	$ 510,092	$ 607,248	$ 1,117,339	$ 1,882,661	$ 2,489,908
Agana WWTP Interim Measures	$ 827,000	$ 827,000			$ -	$ 827,000	$ 827,000
Umatac Merizo Replacement	$ 8,000,000	$ 20,800,000	$ 2,301,795	$ 18,295,086	$ 20,596,882	$ 203,118	$ 18,498,205
						$ -	
Wastewater Pump Station Electrical Upgrade	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Electrical Upgrade - Water Wells	$ 650,000	$ 650,000			$ -	$ 650,000	$ 650,000
Electrical Upgrade - Water Booster	$ 323,000	$ 323,000			$ -	$ 323,000	$ 323,000
SCADA Improvements – Phase 3	$ 1,177,000	$ 1,177,000	$ 18,000	$ 599,497	$ 617,497	$ 559,503	$ 1,159,000
SCADA Improvements – Phase 4	$ 6,500,000	$ 6,500,000			$ -	$ 6,500,000	$ 6,500,000
						$ -	
Laboratory Modernization	$ 1,127,000	$ 1,127,000	$ 1,127,000	$ -	$ 1,127,000	$ -	$ -
Land Survey	$ 1,998,000	$ 1,998,000	$ 14,147	$ 1,246,376	$ 1,260,524	$ 737,476	$ 1,983,853
General Plant Improvements / Water	$ 2,769,463	$ 2,769,463	$ 231,546	$ 1,143,966	$ 1,375,512	$ 1,393,951	$ 2,537,917
Information Technology Integration Improvements	$ 500,000	$ 500,000	$ 244,068	$ -		$ 500,000	$ 255,932
Interest Earned		$ -					$ 690,196
		$ -					
Total Construction Fund (2016 Series Revenue Bond)	**$ 140,019,463**	**$ 140,019,463**	**$ 13,957,336**	**$ 63,967,804**	**$ 77,681,072**	**$ 62,338,391**	**$ 126,752,323**

GUAM WATERWORKS AUTHORITY
2010 Series Bond Project Status
As of January 31, 2018

SCHEDULE M

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Ground Water Disinfection	$ -	$ 500,000	$ 438,141	$ 61,859	$ 500,000	$ 0	$ 61,859
"A" Series Well Transmission Line	$ 600,000	$ 518,144	$ 474,434	$ 1,274	$ 475,709	$ 42,435	$ 43,710
Water Booster Pump Station	$ 500,000	$ 500,000	$ 418,844	$ 81,156	$ 500,000	$ (0)	$ 81,156
Meter Replacement Program	$ 2,500,000	$ 10,300,000	$ 10,254,220	$ 19,409	$ 10,273,628	$ 26,372	$ 45,780
Barrigada Tank Repair/Replacement	$ -	$ 5,450,000	$ 5,442,302	$ 7,698	$ 5,450,000	$ 0	$ 7,698
Leak Detection		$ 200,000	$ -	$ 200,000	$ 200,000	$ -	$ 200,000
Potable Water System Planning	$ 200,000	$ 200,000	$ 179,638	$ 20,362	$ 200,000	$ -	$ 20,362
Implement Ground Water Rule		$ 1,700,000	$ 1,499,464	$ 200,535	$ 1,700,000	$ 1	$ 200,536
Brigade II (Ugum Lift) BPS Upgrade	$ 1,200,000	$ 1,700,000	$ 135,695	$ 202,199	$ 337,895	$ 1,362,105	$ 1,564,305
Deep Well Rehabilitation	$ 548,000	$ 548,000	$ 548,000	$ -	$ 548,000	$ -	$ -
New Deep Wells at Down Hard	$ 3,773,000	$ 638,252	$ 485,743	$ -	$ 485,743	$ 152,509	$ 152,509
Rehabilitation of Asan Springs	$ 900,000	$ 900,000	$ 188,771	$ 152,068	$ 340,838	$ 559,162	$ 711,229
Master Meters	$ 1,600,000	$ 1,600,000	$ 1,421,267	$ 68,690	$ 1,489,957	$ 110,043	$ 178,733
Ugum Water Treatment Plant Intake	$ 3,670,000	$ 700,000	$ 543,615	$ 156,385	$ 700,000	$ -	$ 156,385
Water Wells	$ 2,000,000	$ -	$ -		$ -	$ -	$ -
Water Distribution System	$ 384,000	$ 3,174,748	$ 3,174,748	$ -	$ 3,174,748	$ (0)	$ (0)
Pressure Zone Realignment /	$ 3,550,000	$ -	$ -		$ -	$ -	$ -
Northern System Water Distribution	$ 2,725,000	$ -	$ -	$ -	$ -	$ -	$ -
Central Water Distribution System 2005	$ 1,200,000	$ 900,000	$ 692,926	$ 82,076	$ 775,002	$ 124,998	$ 207,074
Southern Water Distribution System	$ 1,800,000	$ -	$ -		$ -	$ -	$ -
Mechanical/Electrical Equipment	$ 1,360,000	$ 1,200,000	$ 1,079,495	$ 120,505	$ 1,200,000	$ (0)	$ 120,505
Water Reservoir Internal/External	$ 500,000	$ 2,000,000	$ 1,033,356	$ 476,027	$ 1,509,384	$ 490,616	$ 966,644
Water Reservoir Internal/External	$ 2,400,000	$ -	$ -		$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 11,697,000	$ 1,050,000	$ 1,050,000		$ 1,050,000	$ 0	$ 0
Distribution System Upgrades	$ 3,182,000	$ 474,160	$ 451,462	$ 22,698	$ 474,160	$ 0	$ 22,698
Ugum Water Treatment Plant Reservoir	$ 3,672,000	$ -	$ -		$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan		$ 100,000	$ 15,031	$ 63,428	$ 78,459	$ 21,541	$ 84,970
Production Plan / Reduce Navy Purchases		$ 100,000	$ 94,286	$ 5,714	$ 100,000	$ -	$ 5,714
Hydraulic Asessment of Tank		$ 500,000	$ 497,004	$ 2,996	$ 500,000	$ -	$ 2,996
Agana Heights & Chaot Tanks		$ 4,700,000	$ 4,327,370	$ 372,630	$ 4,700,000	$ -	$ 372,630
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 1,900,000	$ 1,750,355	$ 97,659	$ 1,848,013	$ 51,987	$ 149,645
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ -			$ -	$ -	$ -
Assessment of malojloj Elevetad & Yigo Elevated		$ 200,000	$ 200,000	$ -	$ 200,000	$ -	$ -
Public Water System Asser Inventory/Condition Assesment		$ 100,000	$ 96,554	$ 3,446	$ 100,000	$ -	$ 3,446
Public Water System GIS & Mapping		$ 50,000	$ 50,000	$ -	$ 50,000	$ -	$ -
		$ -			$ -	$ -	$ -
Wastewater System Planning	$ 1,500,000	$ 1,500,000	$ 1,465,858	$ 8,142	$ 1,474,000	$ 26,000	$ 34,142
Wastewater Vehicles	$ 235,000	$ 235,000	$ 209,795	$ 25,205	$ 235,000	$ 0	$ 25,205
NDWWTP - Chlorine Tanks	$ 250,000	$ 250,000	$ 250,000		$ 250,000	$ -	$ -
Tumon Bay Sewer Upgrades	$ 100,000	$ -	$ -		$ -	$ -	$ -
Wastewater Collection System Repl/Rehab		$ 1,105,000	$ 718,036	$ 283,287	$ 1,001,323	$ 103,677	$ 386,964
Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000	$ 1,250,000	$ 1,239,250	$ 10,750	$ 1,250,000	$ -	$ 10,750
Facilities Plan/Design for Agat-Santa Rita WWTP	$ 900,000	$ 899,630	$ 881,749	$ 17,881	$ 899,630	$ -	$ 17,881
Priority 1 Sewer Upgrades – Baza Gardens WWTP	$ 650,000	$ -	$ -		$ -	$ -	$ -
Baza Gardens STP Replacement	$ 3,567,000	$ 1,301,947	$ 316,686	$ 314	$ 317,000	$ 984,947	$ 985,261
Facilities Plan/Design for Umatac Merizo WWTP		$ 900,000	$ 693,161	$ 160,696	$ 853,858	$ 46,142	$ 206,839
Agat/Santa Rita STP Replacement	$ 2,968,000	$ 2,218,000	$ 2,217,314	$ 387	$ 2,217,701	$ 300	$ 686
Northern District WWTP Primary Treatment Upgrades	$ -	$ 11,750,000	$ 11,532,253	$ 211,261	$ 11,743,514	$ 6,486	$ 217,747
Biosolids Management Plan		$ 200,000	$ 196,414	$ 3,586	$ 200,000	$ -	$ 3,586
Agana WWTP Interim Measures	$ -	$ 11,500,000	$ 11,242,386	$ 57,614	$ 11,300,000	$ 200,000	$ 257,614
I&I SSES Southern		$ 800,000	$ 733,872	$ 66,129	$ 800,000	$ (0)	$ 66,128
I&I SSES Central		$ 850,000	$ 794,325	$ 55,675	$ 850,000	$ -	$ 55,675
I&I SSES Northern		$ -			$ -	$ -	$ -
Umatac Merizo Replacement		$ 250,000	$ 247,431	$ 2,569	$ 250,000	$ -	$ 2,569
Northern District WWTP Secondary Treatment Upgrades		$ 1,000,000					$ 1,000,000
		$ -					
Well Electrical Protection	$ 26,000	$ -	$ -		$ -	$ -	$ -
SCADA Pilot Project	$ 300,000	$ 61,950	$ 19,812	$ 42,138	$ 61,950	$ (0)	$ 42,138
Electrical Upgrade - Water Wells	$ 3,000,000	$ 354,227	$ 335,378	$ 18,849	$ 354,227	$ 0	$ 18,849
Electrical Upgrade - Water Booster	$ 325,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade -Water Booster	$ 350,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade - Other Water	$ 250,000	$ -			$ -	$ -	$ -
SCADA Improvements – Phase 1	$ 250,000	$ 250,000	$ 193,989	$ 56,011	$ 250,000	$ -	$ 56,011
SCADA Improvements – Phase 2	$ 1,100,000	$ 1,056,986	$ 1,027,424	$ 29,562	$ 1,056,986	$ -	$ 29,562
SCADA Improvements – Phase 3	$ 2,500,000	$ 24,956	$ 24,956	$ -	$ 24,956	$ 0	$ 0
SCADA Improvements – Phase 4	$ 850,000	$ -	$ -		$ -	$ -	$ -
		$ -					
Laboratory Modernization	$ 1,200,000	$ -	$ -		$ -	$ -	$ -
Land Survey	$ 1,500,000	$ 500,000	$ 470,590	$ 29,097	$ 499,687	$ 313	$ 29,410
General Plant Improvements / Water	$ 14,370,000	$ 7,241,000	$ 7,241,000	$ 0	$ 7,241,000	$ 0	$ 0
Interest Earned							$ 81,037
Total Construction Fund (2010 Series Revenue Bond)	**$ 87,402,000**	**$ 87,402,000**	**$ 78,594,399**	**$ 3,497,966**	**$ 82,092,366**	**$ 4,309,634**	**$ 8,888,637**

1.) PUC's Docket 11-01 $29,000,000.00 dated
09/19/11authorized GWA for reallocation
2) PUC's Docket 11-01 Reallocation of $23,246,000.00 dated 07/30/12
3) PUC's Dockect Reallocation dated February 2013

GUAM WATERWORKS AUTHORITY
Schedule of Series 2013, 2014 Refunding, 2016 and 2017 Refunding Bond Bank Accounts
As of January 31, 2018

SCHEDULE N

	1/31/2018
BANK OF GUAM	
BOG - Revenue Account	7,945,816
BOG - Operations and Maintenance Reserve	3,083,482
BOG - Operations, Maintenance, Renewal and Replacement Reserve Fund	17,423,213
BOG - Capital Improvement Fund	1,357,526
BOG - O & M Reserve	13,548,868
BOG - Debt Service Reserve	11,244,664
BOG - CAPEX Reserve	15,498,322
Total BOG Bank Account Balance	**70,101,891**
Series 2013 Bond:	
BOG - Construction Fund	64,149,060
USB - Debt Service Fund	787,869
USB - Debt Service Reserve Fund	12,031,688
Total Series 2013 Bond Bank Balance	**76,968,617**
Series 2014 Refunding Bond:	
BOG - Construction Fund	762,683
USB - Debt Service Fund	2,344,001
USB - Debt Service Reserve Fund	7,758,497
Total Series 2014 Refunding Bond Bank Balance	**10,865,181**
Series 2016 Bond:	
BOG - Construction Account	126,752,323
BOG - Capitalized Interest Fund	2,975
USB - Debt Service Fund	598,108
USB - Debt Service Reserve Fund	7,594,584
Total Series 2016 Bond Bank Balance	**134,947,990**
Series 2017 Refunding Bond:	
BOG - Construction Account	8,888,638
BOG - Cost of Issuance Fund	47,424
USB - Debt Service Fund	1,853,697
USB - Debt Service Reserve Fund	7,566,460
Total Series 2017 Refunding Bond Bank Balance	**18,356,219**

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 17-FY2018
Relative to Approval of Change Order No. 4 for the Agat Santa Rita Wastewater Treatment Plant Upgrade Construction Management Contract

What is the project's objective and is it necessary and urgent?
The objective of the Change Order is to continue construction management services at the Agat Santa Rita WWTP construction project until such time the contractor has completed all required work. GWA has executed an extension to the contractor's contract completion date to March 2018, and has adjusted the CM's contract accordingly. The contractor, Sumitomo Mitsui Construction Corp (SMCC), recently presented a proposed construction schedule that extends the current contract completion date. GWA is currently assessing the contractual implications of the Contractor's failure to meet the current construction schedule that notwithstanding, CM services will be required on the project until all work is completed. The completion of the construction work is the responsibility of SMCC however, GWA must ensure that CM services also continues, and thus the resolution before the CCU is to approve a Change Order that will extend the required CM services possibly to July or August of 2018 and will necessarily increase the authorized CM contract amount.

The Change order would also cover work related to construction activities associated with the installation of the 21-inch diameter gravity sewer line on the A-SR WWTP site that is part of the Baza Gardens Pumping and Conveyance project but which is not currently contracted out for installation.

Where is the location?
New Agat Santa Rita WWTP

How much will it cost?
GWA management seeks CCU approval of Change Order No. 4 with GHD, Inc. in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00). The change order will be negotiated to an appropriate amount and expended on a Time and Materials basis.

When will it be completed?
The anticipated completion of the construction activities by the contractor is May 2018 however the Change Order covers additional services up unto August 2018.

What is the funding source?
Funding for the Change Order will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds derived from Liquidated Damages assessed the Contractor and will be applied to pay CM services.

The RFP/BID responses (if applicable):
Not Applicable

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

RESOLUTION NO. 17–FY2018

RELATIVE TO CHANGE ORDER NO. 4 FOR THE AGAT SANTA RITA WASTEWATER TREATMENT PLANT UPGRADES CONSTRUCTION MANAGEMENTCONTRACT

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities ("CCU") has plenary authority over financial, contractual and policy matters relative to the Guam Waterworks Authority ("GWA"); and

WHEREAS, the Guam Waterworks Authority ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA currently has a number of critical Court Order ("CO") projects including construction of the new Agat Santa Rita Wastewater Treatment Plant that is necessary for the plant to achieve compliance with the GWA's NDPES permit, eliminate by-passes at the old Agat wastewater treatment plant, ensure that solids generated by the WWTP are adequately stabilized and dewatered, and to comply with sludge and biosolids requirements 40 C.F.R. Part 503 as stated in Paragraph 11 of the 2011 Court Order; and

WHEREAS, GWA executed contracts with Sumitomo Mitsui Construction Company (SMCC) to construct the new WWTP and GHD, Inc. to provide construction management services as a means to work towards achieving the Court Order requirements; and

WHEREAS, GWA has executed a few Change Orders to the SMCC contract with the latest one extending the phase II construction completion deadline to March 25, 2018 to address SMCC's claims related to rain delays; and

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WHEREAS, via CCU Resolution No. 48-FY2017 executed in July of 2017, the CCU also authorized the continuation of CM services with GHD. Inc. from August 15, 2017 through the then anticipated March 31, 2018 construction completion date, after which GWA executed Change Orders 2 and 3 in the total amount of One Million Fourteen Thousand Four Hundred Twelve Dollars ($1,014,412.00); and

WHEREAS, while SMCC has maintained its staffing levels and construction effort, they recently submitted an updated project schedule that shows completion of all critical process facilities by March 2018 and all remaining construction activities by May 2018. SMCC claims additional delays due to adverse weather and work force shortages as a result of the H2-B visa program; and

WHEREAS, GWA management has not agreed to accept this claim and if, after further investigation, GWA denies the additional delay claims, the current construction contract completion date of March 25, 2018 will stand; after which Liquidated Damages will be assessed against the Contractor; and

WHEREAS, notwithstanding the final disposition of any SMCC claims for an extension of schedule, construction work will continue until the facility is completed. This means GWA will still require continuity of construction management services and has therefore requested that GHD provide a fee proposal for CM services related to the potential extension of the contract completion date; and

WHEREAS, the fee proposal submitted by GHD is being evaluated and GWA intends to negotiate a reasonable not-to-exceed amount to cover the anticipated services needed until construction completion; and

WHEREAS, GWA management may also request that GHD, Inc submit a fee proposal for additional construction management services on the Agat Santa Rita WWTP site related to the installation of the 21-inch diameter gravity line that ties in the Baza Gardens Pumping and Conveyance project which is not currently contracted out for installation; and

WHEREAS, GWA management seeks CCU approval to execute Change Order No. 4 with GHD, Inc. on a Time and Materials basis related to the above described additional work in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00); and

WHEREAS, funding for this project will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds derived from the Liquidated Damages that may be assessed the contractor and will be applied to pay the additional CM services; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the scope of additional work requested of GHD is reasonable and necessary.
3. The CCU finds that the fee proposal submitted by GHD, subject to final negotiation by GWA Management, to be fair and reasonable, and the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby approves GWA management to execute Change Order No. 4 on a Time and Materials basis in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00) (EXHIBIT A) which would cover CM services through final construction completion and close-out.
5. The source of funding for the additional CM services will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds withheld from the construction contract with SMCC as Liquidated Damages assessed to the contractor.

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 27th day of February 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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Exhibit A

Date: February 16, 2018

Reference No.: GHD/GWA – LTR-04

To: Mr. John Davis, P.E., Project Manager
Guam Waterworks Authority
Gloria B. Nelson Public Utilities Complex
Route 15, Mangilao, Guam

Project: Agat-Santa Rita WWTP Replacement Project - Phase II
Project No. S14-002-BND

Subject: MOD 004, 005, & 006 – Additional Construction Management Services Scope of Work and Fee Proposal

Dear Mr. Davis:

We are pleased to submit this proposal for additional CM support services as described below.

SCOPE OF WORK:

In follow up to our meeting with yourself and Mr. Tom Cruz on February 07, 2018 at the GWA Multi-Purpose Room following our Monthly Managers Meeting, we have prepared three (3) cost proposals to extend our Construction Management Services from April 01, 2018 through June 30, 2018, July 01, 2018 through August 31, 2018, and CM services for the on-site installation of the sanitary sewer line from Baza Gardens. Each has been detailed below.

1. **MOD 04** has been prepared to provide additional CM services from April 01, 2018 to June 30, 2018 per **Table 1**. This modification is needed due to an increase in the overall construction schedule. Additional support services and expenses associated with this effort is detailed below.

    - **Item 01: Clearing & Grading QA Testing and Survey Services**
      Our original SOW provides concrete testing, material testing, and field verification survey services as a budgetary amount with the understanding that should additional services be needed, they can be brought to GWA's attention for additional compensation.

      No budget for these services was allocated in the Clearing and Grading (C&G) phase of work. GHD provided these services using the available Waste Water Treatment Plant Replacement budget with the intent of revisiting the need for additional budget at a later date only if required. The cost to provide compaction testing during the C&G phase was $6,757.40, concrete testing was $2,580.60, and survey was $6,900.00. We request the QA Services budgets be restored by these amounts to allow us to maintain the same level of QA testing and survey for the duration of the project. See attached **Exhibit A.**

- **Item 02: Construction Site Camera**
  Our original Contract duration for this project was September 08, 2015 through June 07, 2017. MOD's 01, 02, 03, 04, & 05 extend the Contract Completion date to the end of August 2018. The monthly cost for the site camera fully hosted website is $325.00 per month. The extension of the contract through August 2018 will require an additional 13 months at a cost of $4,225.00. Please see attached Work Zone Cam Invoice #ZC0306175169 for the prorated monthly cost. Currently the services are through April 05, 2018 and they will be extended by GHD through June 2018. See attached **Exhibit B.**

- **Item 03: Additional Survey for Hyundai Line Permit Issue**
  GHD provided a survey of the centerline of Hyundai Construction Access Road from station 16+51.44 to 24+11.88 to advance the work of the Archaeologist for the permitting of the Hyundai Waterline. Obtaining access for the easement from the Navy and processing of the Building Permit with DPW took in excess of one (1) year. At the time of the survey, DCA's surveyor was not available and the Contractor declined to do the work. GHD took action to advance the work. See attached **Exhibit C.**

2. **MOD 05** has been prepared to provide GWA with advanced notice of anticipated additional CM services that may be required from July 01 to August 31, 2018 per **Table 2**. It is our opinion that the Phase 2 System Priority Work will not ramp down by the end of March 2018 and the project will extend through August of 2018. We base this on field observation and our review of the most recent percent completes provided in the Contractor's updated January 2018 Progress Schedule as follows:

   - Process 08 Effluent Pump Station – 45% complete
   - Process 10 Aerobic Digester – 64% complete
   - Process 11 Dewatering Centrifuge Building – 59%
   - Process 13 Plant Water System – 74%
   - Process 14 On-site sewer system and collection – 66%
   - Process 15 Administrative Building – 45%

   We estimate the Phase 2 System Priority Work to be approximately 58% complete in aggregate and this does not include the Equalization Tank which is currently at 5% complete. The contractor's January 2018 progress schedule indicates that Priority Structures will be completed on April 2, 2018 and Non-Priority Structures will be completed on August 10, 2018.

3. **MOD 06** has been prepared to provide additional CM services for the proposed 21-inch Baza Gardens Sanitary Sewer extension from Route 2A to the new ASRWWTP lift station. We have spoken with the Contractor and their current estimated duration for this work is four (4) months per **Table 3.** Our estimate assumes the same duration and also includes the associated QA testing and surveying services. See attached **Exhibit E.**

CLARIFICATIONS AND ASSUMPTIONS:

1. The CM's staffing shall consist of the following: one (1) Project Manager, one (1) Assistant PM, one (1) Civil/General Inspector, one (1) Special Inspector, one (1) RFI/Submittal Manager, and one (1) Scheduler. The onsite staffing will vary based on the Contractor's level of the work in progress. The CM will coordinate staffing based on the requirements for a particular day or week. No time has been provided for the Principal or any other staff position although they will be participating as needed on the project.

2. Additional budget has been requested for Quality Assurance Compaction Testing, Concrete Strength Testing, Material Testing and Survey Verification for the balance of the work. The execution of MOD 05 assumes the QA services budget requested via MOD 04 have been accepted and approved by GWA. If additional QA services are required it will be brought to GWA's attention and negotiated.

3. The Construction contract will include requirements that the Construction Contractor pay for overtime inspection outside of the normal 40 hour work week and this requirement will be strictly enforced and supported by GWA with payment coming out of the Contractor's Pay Request and then distributed to GHD by GWA or by other acceptable terms to GHD and GWA.

4. GWA agrees to negotiate with GHD for change orders for additional construction phase services due to construction delays, additional work, adverse weather delays, or any other reason not due to the negligent acts of GHD until final acceptance of the project is achieved.

The following tables show the summary of hours and cost for **MOD 04, MOD 05,** and **MOD 06** and the totals for all three (3)

TABLE 1. SUMMARY OF MOD 04 COSTS (April 01, 2018 through June 30, 2018)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost 04/01/18 to 06/30/18
Project Manager	520	$100,360	$4,182	$104,542
Special Inspector	130	$28,730	$1,197	$29,927
Civil Inspector	520	$62,920	$2,622	$65,542
Assistant PM	520	$62,920	$2,622	$65,542
Special Inspector	520	$65,520	$2,730	$68,250
Submittal/ RFI Manager	520	$52,520	$2,189	$54,709
Scheduler	30	$4,500	$188	$4,688
Expenses				$32,189
Total	**2760**	**$377,470**	**$15,729**	**$425,388**

TABLE 2. SUMMARY OF MOD 05 COSTS (July 01, 2018 through August 31, 2018)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost 07/01/18 to 08/31/18
Project Manager	360	$69,480	$2,895	$72,375
Special Inspector	90	$19,890	$829	$20,719
Civil Inspector	360	$43,560	$1,815	$45,375
Assistant PM	360	$43,560	$1,815	$45,375
Special Inspector	360	$45,360	$1,890	$47,250
Submittal/ RFI Manager	360	$36,360	$1,515	$37,875
Scheduler	20	$3,000	$125	$3,125
Expenses				$3,260
Total	**1910**	**$261,210**	**$10,885**	**$275,355**

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  Our original Contract duration for this project was September 08, 2015 through June 07, 2017. MOD's 01, 02, 03, 04, & 05 extend the Contract Completion date to the end of August 2018. The monthly cost for the site camera fully hosted website is $325.00 per month. The extension of the contract through August 2018 will require an additional 13 months at a cost of $4,225.00. Please see attached Work Zone Cam Invoice #ZC0306175169 for the prorated monthly cost. Currently the services are through April 05, 2018 and they will be extended by GHD through June 2018. See attached **Exhibit B.**

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Expenses				$32,189
Total	**2760**	**$377,470**	**$15,729**	**$425,388**

TABLE 2. SUMMARY OF MOD 05 COSTS (July 01, 2018 through August 31, 2018)

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Scheduler	20	$3,000	$125	$3,125
Expenses				$3,260
Total	**1910**	**$261,210**	**$10,885**	**$275,355**

TABLE 3. SUMMARY OF MOD 06 COSTS (Baza Gardens – Four (4) Months)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost (Four Months)
Project Manager	84	$15,708	$655	$16,363
Civil Inspector	672	$77,280	$3,220	$80,500
Expenses				$25,026
Total	**756**	**$92,988**	**$3,875**	**$121,889**

TABLE 4. SUMMARY OF MOD 04, MOD 05, & MOD 06 TOTAL COSTS

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost MOD 04, 05, & 06
Project Manager	964	$185,548	$7,732	$193,280
Special Inspector	220	$48,620	$2,026	$50,646
Civil Inspector	1552	$183,760	$7,657	$191,417
Assistant PM	880	$106,480	$4,437	$110,917
Special Inspector	880	$110,880	$4,620	$115,500
Submittal/ RFI Manager	880	$88,880	$3,704	$92,584
Scheduler	50	$7,500	$313	$7,813
Expenses				$60,475
			GRAND TOTAL	**$822,631**

We look forward to your favourable and expeditious response to this proposal. If you have any questions or concerns please do not hesitate to contact me directly.

Yours sincerely,



Paul K. Baron
Principal

Attachments:

- Exhibit A - QA Services Summary
- Exhibit B - Work Zone Camera Invoices
- Exhibit C - Survey Invoices
- Exhibit D – EarthCam Invoices
- Exhibit E – Baza Gardens Sanitary Sewer Documents

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Expenses				$60,475
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EXHIBIT A - QA SERVICES SUMMARY

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 04** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (3 vehicles x 24 miles x 65 days)	4,680	$ 0.52	$ 2,433.60	$ 365.04	$ 2,798.64
Report Reproduction, misc	1	$ 1,500.00	$ 1,500.00	$ 225.00	$ 1,725.00
Live video feed, website access & maintenance (month)	13	$ 325.00	$ 4,225.00	$ 633.75	$ 4,858.75
CQA Compaction Testing	1	$ 6,757.40	$ 6,757.40	$ 1,013.61	$ 7,771.01
CQA Concrete Testing	1	$ 2,580.60	$ 2,580.60	$ 387.09	$ 2,967.69
CQA Survey Verification	1	$ 10,493.76	$ 10,493.76	$ 1,574.06	$ 12,067.82
SUBTOTAL			**$ 27,990.36**	**$ 4,198.55**	**$ 32,188.91**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 27,990.36**	**$ 4,198.55**	**$ 32,188.91**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 05** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (3 vehicles x 24 miles x 45 days)	3,240	$ 0.52	$ 1,684.80	$ 252.72	$ 1,937.52
Report Reproduction, misc	1	$ 500.00	$ 500.00	$ 75.00	$ 575.00
Live video feed, website access & maintenance (month)	2	$ 325.00	$ 650.00	$ 97.50	$ 747.50
CQA Compaction Testing		$ -	$ -	$ -	$ -
CQA Concrete Testing		$ -	$ -	$ -	$ -
CQA Survey Verification		$ -	$ -	$ -	$ -
SUBTOTAL			**$ 2,834.80**	**$ 425.22**	**$ 3,260.02**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 2,834.80**	**$ 425.22**	**$ 3,260.02**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 06** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (1.5 vehicles x 24 miles x 84 days)	3,024	$ 0.52	$ 1,572.48	$ 235.87	$ 1,808.35
Report Reproduction, misc	1	$ 500.00	$ 500.00	$ 75.00	$ 575.00
Live video feed, website access & maintenance (month)	4	$ 325.00	$ 1,300.00	$ 195.00	$ 1,495.00
CQA Compaction Testing	1	$ 2,289.08	$ 2,289.08	$ 343.36	$ 2,632.44
CQA Concrete Testing	0	$ -	$ -	$ -	$ -
CQA Survey Verification	1	$ 16,100.00	$ 16,100.00	$ 2,415.00	$ 18,515.00
SUBTOTAL			**$ 21,761.56**	**$ 3,264.23**	**$ 25,025.79**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 21,761.56**	**$ 3,264.23**	**$ 25,025.79**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: GWA Construction Agat-Santa Rita WWTP - **QA Services for MOD 06** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared By: Bryan J. Ryley **Checked By:** Paul K. Baron
Date: **Date:**

QA SURVEY ESTIMATE

Sanitary Sewer Manholes	Quantity	Quantity	Cost
Base Section	4	$800	$3,200
Sanitary Sewer Pipeline			
Vertical Alignment (at 100 Ft. Stations)	8	$1,200	$9,600
Bench Marks:			
Establish/Verify project bench	1	$1,200	$1,200
		Subtotal	$14,000

Rate			
Half Day	$800	Contingency **15%**	$2,100
Full Day	$1,200		
Hourly	$150	**TOTAL ESTIMATED BUDGET**	**$16,100**

CQA TESTING ESTIMATE

Material Labratory Testing:

Procotor & Seive Analysis:	Quantity	Quantity	Cost
Base Course	$234.50	1	$234.50
Fill Material	$234.50	1	$234.50
Bedding Material	$234.50	1	$234.50

Compaction Testing:

Sanitary Sewer Pipeline			
Manhole Base Course	$99.00	4	$396.00
Sand Bedding	$99.00	2	$198.00
Backfill	$99.00	5	$495.00
Pavement Base Course	$99.00	2	$198.00
		Contingency **15%**	$298.58
		TOTAL ESTIMATED BUDGET:	**$2,289.08**

DESCRIPTION OF TESTS:

Modified Proctor Test		$115.00
Sieve Analysis		$50.00
Soil Classification		$38.50
Amount of Material in Soils Finer than No. 200 Sieve		$31.00
	SUBTOTAL:	**$234.50**
Compaction Test - First Test $49.50		$49.50
Compaction Tests - Subsequent Tests $16.50 (Assume 3 subsequent tests)		$49.50
	SUBTOTAL:	**$99.00**
	GRAND TOTAL ESTIMATED QA TESTING BUDGET:	**$18,389**

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
Quality Assurance Services Summary

A	B	C	D	E	F
Item No.	Description of Work	Value	Total Amount to Date	Percent Complete	Remaining
1	QA Material Testing	$ 28,871.00	$ 20,819.60	72%	$ 8,051.40
2	QA Concrete Testing	$ 28,551.00	$ 51,403.28	180%	$ (22,852.28)
3	QA Survey	$ 102,718.00	$ 105,570.00	103%	$ (2,852.00)
	SubTotal	$ 160,140.00	$ 177,792.88	111%	$ (17,652.88)

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
Quality Assurance Material Testing Summary

Invoice Date	Invoice Number	Sub-consultant	Description	Invoice Amount	Invoice Amount With Mark Up	Running Total Invoice Amount	Remaining Balance
							$28,871.00
1/11/2016	1	PSET	Phase I QA Material Testing Services	$ 1,603.50	$ 1,844.03	$ 1,844.03	$27,026.98
2/10/2016	2	PSET	Phase I QA Material Testing Services	$ 709.50	$ 815.93	$ 2,659.95	$26,211.05
3/10/2016	3	PSET	Phase I QA Material Testing Services	$ 1,835.00	$ 2,110.25	$ 4,770.20	$24,100.80
4/10/2016	4	PSET	Phase I QA Material Testing Services	$ 985.50	$ 1,133.33	$ 5,903.53	$22,967.48
5/10/2016	5	PSET	Phase I QA Material Testing Services	$ 742.50	$ 853.88	$ 6,757.40	$22,113.60
8/22/2016	155-365.68	GEO	Phase II QA Material Testing Services	$ 200.00	$ 230.00	$ 6,987.40	$21,883.60
8/22/2016	156-365.68	GEO	Phase II QA Material Testing Services	$ 720.00	$ 828.00	$ 7,815.40	$21,055.60
8/22/2016	158-365.68	GEO	Phase II QA Material Testing Services	$ 300.00	$ 345.00	$ 8,160.40	$20,710.60
8/22/2016	159-365.68	GEO	Phase II QA Material Testing Services	$ 95.00	$ 109.25	$ 8,269.65	$20,601.35
9/21/2016	162-365.68	GEO	Phase II QA Material Testing Services	$ 182.50	$ 209.88	$ 8,479.53	$20,391.48
9/21/2016	163-365.68	GEO	Phase II QA Material Testing Services	$ 808.00	$ 929.20	$ 9,408.73	$19,462.28
9/21/2016	166-365.68	GEO	Phase II QA Material Testing Services	$ 285.00	$ 327.75	$ 9,736.48	$19,134.53
9/21/2016	167-365.68	GEO	Phase II QA Material Testing Services	$ 170.00	$ 195.50	$ 9,931.98	$18,939.03
5/31/2016	147-365.68	GEO	Phase II QA Material Testing Services	$ 739.00	$ 849.85	$ 10,781.83	$18,089.18
6/30/2016	151-365.68	GEO	Phase II QA Material Testing Services	$ 750.00	$ 862.50	$ 11,644.33	$17,226.68
10/18/2016	170-365.68	GEO	Phase II QA Material Testing Services	$ 402.00	$ 462.30	$ 12,106.63	$16,764.38
10/21/2016	173-365.68	GEO	Phase II QA Material Testing Services	$ 234.00	$ 269.10	$ 12,375.73	$16,495.28
10/21/2016	174-365.68	GEO	Phase II QA Material Testing Services	$ 274.00	$ 315.10	$ 12,690.83	$16,180.18
10/28/2016	178-365.68	GEO	Phase II QA Material Testing Services	$ 75.00	$ 86.25	$ 12,777.08	$16,093.93
11/11/2016	180-365.68	GEO	Phase II QA Material Testing Services	$ 130.00	$ 149.50	$ 12,926.58	$15,944.43
11/17/2016	182-365.68	GEO	Phase II QA Material Testing Services	$ 95.00	$ 109.25	$ 13,035.83	$15,835.18
11/18/2019	183-365.68	GEO	Phase II QA Material Testing Services	$ 233.00	$ 267.95	$ 13,303.78	$15,567.23
11/23/2016	184-365.68	GEO	Phase II QA Material Testing Services	$ 194.00	$ 223.10	$ 13,526.88	$15,344.13
11/28/2016	187-365.68	GEO	Phase II QA Material Testing Services	$ 370.00	$ 425.50	$ 13,952.38	$14,918.63
11/28/2016	188-365.69	GEO	Phase II QA Material Testing Services	$ 190.00	$ 218.50	$ 14,170.88	$14,700.13
11/28/2016	189-365.68	GEO	Phase II QA Material Testing Services	$ 275.00	$ 316.25	$ 14,487.13	$14,383.88
12/16/2016	194-365.68	GEO	Phase II QA Material Testing Services	$ 170.00	$ 195.50	$ 14,682.63	$14,188.38
12/30/2016	200-365.68	GEO	Phase II QA Material Testing Services	$ 75.00	$ 86.25	$ 14,768.88	$14,102.13
1/24/2017	208-365.68	GEO	Phase II QA Material Testing Services	$ 210.00	$ 241.50	$ 15,010.38	$13,860.63
3/31/2017	218-365.68	GEO	Phase II QA Material Testing Services	$ 305.00	$ 350.75	$ 15,361.13	$13,509.88
3/31/2017	219-365.68	GEO	Phase II QA Material Testing Services	$ 174.00	$ 200.10	$ 15,561.23	$13,309.78
3/31/2017	220-365.68	GEO	Phase II QA Material Testing Services	$ 131.00	$ 150.65	$ 15,711.88	$13,159.13
3/31/2017	224-365.68	GEO	Phase II QA Material Testing Services	$ 192.00	$ 220.80	$ 15,932.68	$12,938.33
4/28/2017	229-365.68	GEO	Phase II QA Material Testing Services	$ 142.00	$ 163.30	$ 16,095.98	$12,775.03
4/28/2017	231-365.68	GEO	Phase II QA Material Testing Services	$ 218.00	$ 250.70	$ 16,346.68	$12,524.33
5/11/2017	235-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 16,472.03	$12,398.98
6/16/2017	246-365.67	GEO	Phase II QA Material Testing Services	$ 349.00	$ 401.35	$ 16,873.38	$11,997.63
6/19/2017	248-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 16,998.73	$11,872.28
6/30/2017	254-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,098.78	$11,772.23
7/10/2017	257-365.68	GEO	Phase II QA Material Testing Services	$ 135.00	$ 155.25	$ 17,254.03	$11,616.98
7/27/2017	264-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,354.08	$11,516.93
8/31/2017	276-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,454.13	$11,416.88
9/27/2017	287-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 17,579.48	$11,291.53
10/31/2017	301-365.68	GEO	Phase II QA Material Testing Services	$ 371.00	$ 426.65	$ 18,006.13	$10,864.88
11/30/2017	323-365.68	GEO	Phase II QA Material Testing Services	$ 176.00	$ 202.40	$ 18,208.53	$10,662.48
12/29/2017	330-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 18,333.88	$10,537.13
12/29/2017	337-365.68	GEO	Phase II QA Material Testing Services	$ 395.00	$ 454.25	$ 18,788.13	$10,082.88
12/29/2017	339-365.68	GEO	Phase II QA Material Testing Services	$ 278.00	$ 319.70	$ 19,107.83	$9,763.18
1/31/2018	342-365.68	GEO	Phase II QA Material Testing Services	$ 403.00	$ 463.45	$ 19,571.28	$9,299.73
1/31/2018	343-365.68	GEO	Phase II QA Material Testing Services	$ 239.00	$ 274.85	$ 19,846.13	$9,024.88
1/31/2018	344-365.68	GEO	Phase II QA Material Testing Services	$ 162.00	$ 186.30	$ 20,032.43	$8,838.58
1/31/2018	372-365.68	GEO	Phase II QA Material Testing Services	$ 422.50	$ 485.88	$ 20,518.30	$8,352.70
1/31/2018	373-365.68	GEO	Phase II QA Material Testing Services	$ 262.00	$ 301.30	$ 20,819.60	$8,051.40

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
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Invoice Date	Invoice Number	Sub-consultant	Description	Invoice Amount	Invoice Amount With Mark Up	Running Total Invoice Amount	Remaining Balance $28,551.00
2/10/2016	2	PSET	Phase I QA Testing Services	$ 405.00	$ 465.75	$ 465.75	$28,085.25
3/10/2016	3	PSET	Phase I QA Testing Services	$ 433.50	$ 498.53	$ 964.28	$27,586.73
4/10/2016	4	PSET	Phase I QA Testing Services	$ 495.00	$ 569.25	$ 1,533.53	$27,017.48
5/10/2016	5	PSET	Phase I QA Testing Services	$ 910.50	$ 1,047.08	$ 2,580.60	$25,970.40
8/22/2016	157-365.68	GEO	Phase II QA Testing Services	$ 606.50	$ 697.48	$ 3,278.08	$25,272.93
8/30/2016	160-365.68	GEO	Phase II QA Testing Services	$ 444.00	$ 510.60	$ 3,788.68	$24,762.33
8/30/2016	161-365.68	GEO	Phase II QA Testing Services	$ 569.00	$ 654.35	$ 4,443.03	$24,107.98
9/21/2016	164-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 4,773.08	$23,777.93
9/21/2016	165-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 5,103.13	$23,447.88
9/29/2016	168-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 5,498.73	$23,052.28
9/29/2016	169-365.68	GEO	Phase II QA Testing Services	$ 264.00	$ 303.60	$ 5,802.33	$22,748.68
10/18/2016	170-365.68	GEO	Phase II QA Testing Services	$ 110.00	$ 126.50	$ 5,928.83	$22,622.18
10/21/2016	171-365.68	GEO	Phase II QA Testing Services	$ 241.00	$ 277.15	$ 6,205.98	$22,345.03
10/21/2016	172-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 6,536.03	$22,014.98
10/24/2016	175-365.68	GEO	Phase II QA Testing Services	$ 252.50	$ 290.38	$ 6,826.40	$21,724.60
10/27/2016	176-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,156.45	$21,394.55
10/28/2016	177-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,486.50	$21,064.50
11/11/2016	179-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,816.55	$20,734.45
11/11/2016	180-365.68	GEO	Phase II QA Testing Services	$ 224.00	$ 257.60	$ 8,074.15	$20,476.85
11/11/2016	181-365.68	GEO	Phase II QA Testing Services	$ 379.00	$ 435.85	$ 8,510.00	$20,041.00
11/17/2016	182-365.68	GEO	Phase II QA Testing Services	$ 275.50	$ 316.83	$ 8,826.83	$19,724.18
11/18/2016	183-365.68	GEO	Phase II QA Testing Services	$ 132.00	$ 151.80	$ 8,978.63	$19,572.38
11/28/2016	185-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 9,308.68	$19,242.33
11/28/2016	186-365.68	GEO	Phase II QA Testing Services	$ 264.00	$ 303.60	$ 9,612.28	$18,938.73
12/16/2016	190-365.68	GEO	Phase II QA Testing Services	$ 346.00	$ 397.90	$ 10,010.18	$18,540.83
12/16/2016	191-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 10,366.68	$18,184.33
12/16/2016	192-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 10,723.18	$17,827.83
12/16/2016	193-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 11,079.68	$17,471.33
12/20/2016	195-365.68	GEO	Phase II QA Testing Services	$ 288.00	$ 331.20	$ 11,410.88	$17,140.13
12/21/2016	196-365.68	GEO	Phase II QA Testing Services	$ 631.50	$ 726.23	$ 12,137.10	$16,413.90
12/30/2016	197-365.68	GEO	Phase II QA Testing Services	$ 677.50	$ 779.13	$ 12,916.23	$15,634.78
12/30/2016	198-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 13,272.73	$15,278.28
12/30/2016	199-365.68	GEO	Phase II QA Testing Services	$ 331.50	$ 381.23	$ 13,653.95	$14,897.05
12/30/2016	200-365.68	GEO	Phase II QA Testing Services	$ 346.00	$ 397.90	$ 14,051.85	$14,499.15
1/20/2017	201-365.68	GEO	Phase II QA Testing Services	$ 356.50	$ 409.98	$ 14,461.83	$14,089.18
1/20/2017	202-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 14,828.68	$13,722.33
1/20/2017	203-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 15,166.78	$13,384.23
1/20/2017	204-365.68	GEO	Phase II QA Testing Services	$ 283.50	$ 326.03	$ 15,492.80	$13,058.20
1/20/2017	205-365.68	GEO	Phase II QA Testing Services	$ 291.50	$ 335.23	$ 15,828.03	$12,722.98
1/20/2017	206-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 16,252.38	$12,298.63
1/20/2017	207-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 16,619.23	$11,931.78
1/24/2017	208-365.68	GEO	Phase II QA Testing Services	$ 356.50	$ 409.98	$ 17,029.20	$11,521.80
2/13/2017	209-365.68	GEO	Phase II QA Testing Services	$ 495.50	$ 569.83	$ 17,599.03	$10,951.98
2/13/2017	210-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 18,023.38	$10,527.63
2/22/2017	211-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 18,476.48	$10,074.53
2/22/2017	212-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 18,843.33	$9,707.68
2/28/2017	213-365.68	GEO	Phase II QA Testing Services	$ 473.00	$ 543.95	$ 19,387.28	$9,163.73
2/28/2017	214-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 20,034.73	$8,516.28
2/28/2017	215-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 20,344.08	$8,206.93
3/31/2017	216-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 20,739.68	$7,811.33
3/31/2017	217-365.68	GEO	Phase II QA Testing Services	$ 272.00	$ 312.80	$ 21,052.48	$7,498.53
3/31/2017	221-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 21,419.33	$7,131.68
3/31/2017	222-365.68	GEO	Phase II QA Testing Services	$ 381.50	$ 438.73	$ 21,858.05	$6,692.95
3/31/2017	223-365.68	GEO	Phase II QA Testing Services	$ 442.00	$ 508.30	$ 22,366.35	$6,184.65
4/7/2017	225-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 22,819.45	$5,731.55
4/17/2017	227-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 23,186.30	$5,364.70
4/28/2017	228-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 23,524.40	$5,026.60
5/11/2017	232-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 23,862.50	$4,688.50
5/11/2017	233-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 24,200.60	$4,350.40
5/11/2017	234-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 24,538.70	$4,012.30
5/11/2017	237.365.67	GEO	Phase II QA Testing Services	$ 337.50	$ 388.13	$ 24,926.83	$3,624.18
5/31/2017	238-365.68	GEO	Phase II QA Testing Services	$ 281.50	$ 323.73	$ 25,250.55	$3,300.45
5/31/2017	239-365.67	GEO	Phase II QA Testing Services	$ 307.50	$ 353.63	$ 25,604.18	$2,946.83
5/31/2017	240-365.67	GEO	Phase II QA Testing Services	$ 131.00	$ 150.65	$ 25,754.83	$2,796.18
6/16/2017	241-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 26,207.93	$2,343.08
6/16/2017	243-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 26,574.78	$1,976.23
6/16/2017	244-365.68	GEO	Phase II QA Testing Services	$ 331.50	$ 381.23	$ 26,956.00	$1,595.00
6/16/2017	245-365.68	GEO	Phase II QA Testing Services	$ 381.50	$ 438.73	$ 27,394.73	$1,156.28

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6/16/2017	246-365.68	GEO	Phase II QA Testing Services	$ 349.00	$ 401.35	$ 27,796.08	$754.93
6/16/2017	247-365.68	GEO	Phase II QA Testing Services	$ 236.00	$ 271.40	$ 28,067.48	$483.53
6/19/2017	248-365.68	GEO	Phase II QA Testing Services	$ 109.00	$ 125.35	$ 28,192.83	$358.18
6/22/2017	249-365.68	GEO	Phase II QA Testing Services	$ 592.00	$ 680.80	$ 28,873.63	-$322.62
6/30/2017	250-365.67	GEO	Phase II QA Testing Services	$ 488.00	$ 561.20	$ 29,434.83	-$883.82
6/30/2017	251-365.67	GEO	Phase II QA Testing Services	$ 481.50	$ 553.73	$ 29,988.55	-$1,437.55
6/30/2017	252-365.67	GEO	Phase II QA Testing Services	$ 231.50	$ 266.23	$ 30,254.78	-$1,703.77
6/30/2017	253-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 30,564.13	-$2,013.12
7/10/2017	255-365.68	GEO	Phase II QA Testing Services	$ 306.00	$ 351.90	$ 30,916.03	-$2,365.02
7/10/2017	257-365.68	GEO	Phase II QA Testing Services	$ 100.00	$ 115.00	$ 31,031.03	-$2,480.02
7/14/2017	261-365.68	GEO	Phase II QA Testing Services	$ 513.00	$ 589.95	$ 31,620.98	-$3,069.97
7/27/2017	264-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 31,959.08	-$3,408.07
7/31/2017	265-365.69	GEO	Phase II QA Testing Services	$ 225.00	$ 258.75	$ 32,217.83	-$3,666.82
8/24/2017	266-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 32,555.93	-$4,004.92
8/24/2017	267-365.68	GEO	Phase II QA Testing Services	$ 613.00	$ 704.95	$ 33,260.88	-$4,709.87
8/24/2017	268-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 33,598.98	-$5,047.97
9/21/2017	281-365.68	GEO	Phase II QA Testing Services	$ 583.00	$ 670.45	$ 34,269.43	-$5,718.42
9/21/2017	282-365.68	GEO	Phase II QA Testing Services	$ 299.00	$ 343.85	$ 34,613.28	-$6,062.27
9/21/2017	283-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 34,951.38	-$6,400.37
9/27/2017	285-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 35,318.23	-$6,767.22
9/27/2017	286-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 35,685.08	-$7,134.07
9/27/2017	287-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 35,994.43	-$7,443.42
9/29/2017	288-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 36,303.78	-$7,752.77
10/17/2017	296-365.68	GEO	Phase II QA Testing Services	$ 760.00	$ 874.00	$ 37,177.78	-$8,626.77
10/17/2017	297-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 37,515.88	-$8,964.87
10/17/2017	298-365.68	GEO	Phase II QA Testing Services	$ 516.00	$ 593.40	$ 38,109.28	-$9,558.27
10/31/2017	305-365.68	GEO	Phase II QA Testing Services	$ 588.00	$ 676.20	$ 38,785.48	-$10,234.48
10/31/2017	299-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,152.32	-$10,601.32
10/31/2017	300-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,519.18	-$10,968.18
10/31/2017	306-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,886.03	-$11,335.03
11/24/2017	307-365.68	GEO	Phase II QA Testing Services	$ 309.50	$ 355.93	$ 40,241.95	-$11,690.95
11/24/2017	308-365.68	GEO	Phase II QA Testing Services	$ 380.00	$ 437.00	$ 40,678.95	-$12,127.95
11/24/2017	309-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 41,045.80	-$12,494.80
11/24/2017	310-365.68	GEO	Phase II QA Testing Services	$ 297.00	$ 341.55	$ 41,387.35	-$12,836.35
11/24/2017	311-365.68	GEO	Phase II QA Testing Services	$ 247.00	$ 284.05	$ 41,671.40	-$13,120.40
11/30/2017	323-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 42,067.00	-$13,516.00
11/30/2017	324-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 42,462.60	-$13,911.60
12/29/2017	325-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 42,829.45	-$14,278.45
12/29/2017	326-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 43,196.30	-$14,645.30
12/29/2017	327-365.68	GEO	Phase II QA Testing Services	$ 860.00	$ 989.00	$ 44,185.30	-$15,634.30
12/29/2017	328-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 44,832.75	-$16,281.75
12/29/2017	329-365.68	GEO	Phase II QA Testing Services	$ 525.50	$ 604.33	$ 45,437.07	-$16,886.07
12/29/2017	338-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 45,746.42	-$17,195.42
1/31/2017	345-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 46,113.27	-$17,562.27
1/31/2017	346-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 46,480.12	-$17,929.12
1/31/2017	347-365.68	GEO	Phase II QA Testing Services	$ 306.50	$ 352.48	$ 46,832.60	-$18,281.60
1/31/2017	348-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 47,256.95	-$18,705.95
1/31/2017	363-365.68	GEO	Phase II QA Testing Services	$ 473.00	$ 543.95	$ 47,800.90	-$19,249.90
1/31/2017	364-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 48,139.00	-$19,588.00
1/31/2017	365-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 48,786.45	-$20,235.45
1/31/2017	366-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 49,124.55	-$20,573.55
1/31/2017	367-365.68	GEO	Phase II QA Testing Services	$ 349.00	$ 401.35	$ 49,525.90	-$20,974.90
1/31/2017	368-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 49,864.00	-$21,313.00
1/31/2017	369-365.68	GEO	Phase II QA Testing Services	$ 419.00	$ 481.85	$ 50,345.85	-$21,794.85
1/31/2017	370-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 50,683.95	-$22,132.95
1/31/2017	371-365.68	GEO	Phase II QA Testing Services	$ 625.50	$ 719.33	$ 51,403.27	-$22,852.27

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
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Date	Invoice Number	Description	Invoice Amount	Invoice amount with 15% Mark Up	Running Total Invoice Amount	Remaining Balance
						$102,718.00
04/05/16	2016-054	Ed, 2016-054 Pattrick	$ 1,200.00	$ 1,380.00	$ 1,380.00	$101,338.00
04/06/16	2016-054	3MFD, Retrace boundary points and establish vertical points. Completed. Ed, Pattrick, Gerard	$ 1,200.00	$ 1,380.00	$ 2,760.00	$99,958.00
04/11/16	2016-054	2MFD, Verification of Gambion Wall. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 4,140.00	$98,578.00
04/26/16	2016-054	2MFD, Layout of Centerline of Road "A" Sta, 2+0, 6+00, 10+00, 14+00. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 5,520.00	$97,198.00
05/10/16	2016-054	2MFD, Elevation verification of all Spillway, Storm Drain invert and pipe elevation. Vertical and Horizontal datum of trapezoidal concrete swale. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 6,900.00	$95,818.00
05/23/16	2016-054	2MHD, Verify project site survey control points; vertical and horizontal. Completed. Ed, Pattrick	$ 900.00	$ 1,035.00	$ 7,935.00	$94,783.00
05/25/16	2016-054	2MFD, Vertical verification of Oxidation Ditches. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 9,315.00	$93,403.00
05/31/16	2016-054	2MHD, Vertical verification of Oxidation Ditch	$ 900.00	$ 1,035.00	$ 10,350.00	$92,368.00
06/01/16	2016-054	2MHD, Verify horizontal Oxidation Ditch corner	$ 900.00	$ 1,035.00	$ 11,385.00	$91,333.00
06/28/16	2016-054	2MHD, Verification of Oxidation Ditch layout	$ 900.00	$ 1,035.00	$ 12,420.00	$90,298.00
07/20/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuild of top of slab; Area 4 set, traverse, & set elevation	$ 1,200.00	$ 1,380.00	$ 13,800.00	$88,918.00
07/22/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuilt area 4 completed; Area 2 completed partially	$ 1,200.00	$ 1,380.00	$ 15,180.00	$87,538.00
07/25/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuild completed	$ 1,200.00	$ 1,380.00	$ 16,560.00	$86,158.00
07/29/16	2016-054	2MFD, Asbuilt of Oxidation Ditch 1 & 2 area 3 & 1 top of slab- grid of 10x10- Area 3 completed and portion of Area 1	$ 1,200.00	$ 1,380.00	$ 17,940.00	$84,778.00
08/01/16	2016-054.02	2MHD, Asbuilt Oxidation Ditch 1 & 2 area 1 - Top of Slab 10' X 10' interval-portion of area 1 completed.	$ 900.00	$ 1,035.00	$ 18,975.00	$83,743.00
08/08/16	2016-054.02	2MFD, Asbuilt of Oxidation Ditch 1 & 2 area 1-top of slab 10' X 10' grid-completed	$ 1,200.00	$ 1,380.00	$ 20,355.00	$82,363.00
08/13/16	2016-054.02	2MFD, Asbuilt of clarifier No. 1 by 8 section; Crew: Ed, Pat	$ 1,200.00	$ 1,380.00	$ 21,735.00	$80,983.00
09/28/16	2016-054.02	2MHD, Horizontal & Vertical check on sludge piping of Tipalas substation: work completed	$ 900.00	$ 1,035.00	$ 22,770.00	$79,948.00
10/13/16	2016-054.03	2MHD, Asbuilt of ultra violet disinfection and sludge piping to clarifier (Ed, Pattric k)	$ 900.00	$ 1,035.00	$ 23,805.00	$78,913.00
10/18/16	2016-054.03	2MHD, Asbullt of sludge pipin g various area (Ed, Pattric k)	$ 900.00	$ 1,035.00	$ 24,840.00	$77,878.00
10/21/16	2016-054.03	2MHD, As built of sludge piping various area - UV Inlet & Outlet pipe ; Secondary clarifier - Supply pipe to Oxidation Ditc h and effluent pipe elbow/pipe deflection @ sta . 1+37.39 (Ed , Pattrick)	$ 900.00	$ 1,035.00	$ 25,875.00	$76,843.00
10/28/16	2016-054.03	3MHD,Asbullt of UV inlet. clarifier 2 piping to Oxidation Ditch and process drainage- pipe force main (Ed , Raughly , Pattrick)	$ 900.00	$ 1,035.00	$ 26,910.00	$75,808.00
10/31/16	2016-054.03	2MFD, Oxidation Ditch out to secondary clarifier as built , Oxidation Ditch Inlet structure spot elevation, 30 • effluent pipe as built and Oxidation Ditch roof spot elevation . (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 28,290.00	$74,428.00
11/03/16	2016-054.04	2MFD, Asbullt of oxidation Inlet structure, elevation check on oxidation ditch Inlet pipe, oxidation outlet pipe to secondary clarifier elevation check and process dralnage pipe force main asbullt, Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 29,670.00	$73,048.00
11/16/16	2016-054.04	2MFD, Verify elevation of Influent, onslte lift station & process dralnage pipe force main, Ultraviolet Inlet pipe to secondary clarlflers, Secondary clarifying I pipe to Ultraviolet, Oxidation ditch I floor elevation- roof,	$ 1,200.00	$ 1,380.00	$ 31,050.00	$71,668.00
11/23/16	2016-054.04	2MFD, Rae/Was pump station pipe, Manifold elevation check, Force main pipe check, Oxidation ditch Inlet structure- Inlet and outlet pipe vertical elevation check, Portion of secondary clarifier 2-base and sub-base	$ 1,200.00	$ 1,380.00	$ 32,430.00	$70,288.00
11/30/16	2016-054.04	2MFD, Rechecked oxidation ditch Inlet structure piping, Effluent pipe, Force main piping Influent pipe; Onslte lift station; Process dralnage piping, Equalization overflow pipe and draln pipe, Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 33,810.00	$68,908.00
12/05/16	2016-054.05	2MHD, Second Clarifier No. 2 Sludge Pipe elevation check@ deflection and end; Scum Pump Station foundation and elevation check: Influent Pipe elevation check@	$ 900.00	$ 1,035.00	$ 34,845.00	$67,873.00
12/09/16	2016-054.05	2MFD, As-built of Sludge Piping to Clarifier 1 & 2; Scum Pump Station foundation -054.05 vertical check: 3- 12" Sludae Pioina (cf) RAS/ WAS vertical check: Re-survey	$ 1,200.00	$ 1,380.00	$ 36,225.00	$66,493.00
12/20/16	2016-054.05	2MFD, Secondary Clarifier Sludge pipe@ RAS/WAS pump station-resurvey; -054.05 Ultraviolet Inlet pipe elbow: Oxidation Ditch 1 Influent Flow: RAS/WAS pump station	$ 1,200.00	$ 1,380.00	$ 37,605.00	$65,113.00
12/21/16	2016-054.05	2MFD, RAS/WAS pump station manhole; Oxidation Ditch 1 Influent Flow-resurvey -054.05 (Crew: Ed and Pattrick)	$ 1,200.00	$ 1,380.00	$ 38,985.00	$63,733.00
01/03/17	2016-054.06	3MFD, see attachment (Ed, Pat, Raughly)	$ 1,200.00	$ 1,380.00	$ 40,365.00	$62,353.00
01/04/17	2016-054.06	2MFD, SMHvertical check-resurvey; Weir Gate Oxidation Ditch 1 & 2; RAS pipe from OXfdation Ditch 1 & 2; Recalculate elevation of Secondary Clarifier based on	$ 1,200.00	$ 1,380.00	$ 41,745.00	$60,973.00

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01/12/17	2016-054.06	2MFD, As-built of: Sludge piplng: Oxidatfon Ditch 1 Influent flow pipe 24"; 30" Secondary Clarifier 3 piping; Oxidation Ditch Influent flow slab & inlet; Secondary	$ 1,200.00	$ 1,380.00	$ 43,125.00	$59,593.00
01/13/17	2016-054.06	2MHD, As-built of: 30" Effluent pipe at Station 0+00 & Station 0+14.17; 24" pipe thimble at Influent flow control gate-Oxidation Ditch 1 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 44,160.00	$58,558.00
01/20/17	2016-054.06	2MFDt As-built 0+00 & 0+14.17 for yard piping 30" effluent pipe, resurvey; As-built 0+00, 0+06.49, 0+58.8, & 0+77 .85 for Secondary Clarifier, Resurvey (Gerard, Allan)	$ 1,200.00	$ 1,380.00	$ 45,540.00	$57,178.00
01/23/17	2016-054.06	2MHD, As-built of Secondary Clarifier No. 2 form work-vertical and horizontal check (see field book no. 1061 p. 20-21), S5.41, Sheet 320 of634 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 46,575.00	$56,143.00
01/26/17	2016-054.06	2MHD, As-built of 30" Effluent pipe at station 3+10.33 and station 3+31.20; As-built of Influent box finish slab; As-built of weir gate at Oxidation Ditch inlet structure (Ed,	$ 900.00	$ 1,035.00	$ 47,610.00	$55,108.00
01/30/17	2016-054.06	2MFD, As-built of Secondary Clarifier 2 pipe; As-built of Ultraviolet Disinfection slab (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 48,990.00	$53,728.00
12/28/16	2016-054.07	3MHD, Resurveyed Secondary Clarifier Sludge Piping at Tipalao Pump Station: Force Main piping vertical and horizontal check: Secondary Clarifier 2 base course	$ 900.00	$ 1,035.00	$ 50,025.00	$52,693.00
02/09/17	2016-054.07	2MFD, As-built of 24" pipe thimble @ Oxidation Ditch 2: Influent flow pipe: As-built of yard piping-Eq.drainpipe and Eq. overflow pipe: As-built of R.A.S. flow meter	$ 1,200.00	$ 1,380.00	$ 51,405.00	$51,313.00
02/15/17	2016-054.07	2MFD, As-built of Secondary Clarifier 1 Weir Plate; Yard piping = Influent line, On-site lift station and processd draingae pipe: Yard piping=Equalization Drain Pipe	$ 1,200.00	$ 1,380.00	$ 52,785.00	$49,933.00
02/20/17	2016-054.07	2MHD, Yard Piping - Ultra violet Supply Pipe to Secondary Clarifier No. 2 24": Ultra violet Disinfection Weir (Ed, Pattrick)	$ 900.00	$ 1,035.00	$ 53,820.00	$48,898.00
03/01/17	2016-054.08	2MFD, As built of Headworks-sub-base course (Ed, Pat)	$ 1,200.00	$ 1,380.00	$ 55,200.00	$47,518.00
03/03/17	2016-054.08	2M D, As-built of Oxidation Ditch Inlet Structure-Lower evel Plan 16" 24" and 30" pipes: As-built of Tipalao (Effluent) Pump Station force main 16" and 6" As built of	$ 1,200.00	$ 1,380.00	$ 56,580.00	$46,138.00
03/09/17	2016-054.08	2MHD, Oxidation Ditch Inlet piping 24" (resurvey); Secondary Clarifier No 1 Weir and Baffle·Manhole at Tipalao (Ed, Allan)	$ 900.00	$ 1,035.00	$ 57,615.00	$45,103.00
03/16/17	2016-054.08	2MHD, Headworks sub-grade as-built (Ed, Allan)	$ 900.00	$ 1,035.00	$ 58,650.00	$44,068.00
03/28/16	2016-054.08	2MFD, As built of Headworks top of slab form work, As-built of Secondary Clarifier 2 lander channels: Asbuit of Digester Tank Subbase course (Ed, Raughly)	$ 1,200.00	$ 1,380.00	$ 60,030.00	$42,688.00
03/31/16	2016-054.08	3MFD, Secondary Clarifier No 2 Lander Channel as-built; Horizontal as-built of Headworks-Lower Level, As-built of Aerobic Digester Sludge Digester No 1 and 2 sub	$ 1,200.00	$ 1,380.00	$ 61,410.00	$41,308.00
04/04/17	2016-054.09	3MFD, As-built of Aerobic Digester Tank 1 & 2 Top of base course: Return Activated Sludge pipe as-built at Sta. +281.38: As-built of Sludge Digester Tank pipe Co":	$ 1,200.00	$ 1,380.00	$ 62,790.00	$39,928.00
04/10/17	2016-054.09	2MFD, As-built of Aerobic Digester top of base course; As-built of Return Activated Sludge pipe at Station 2+42.65 and at Station 2+22.65: Station 0+35 and 0+72; As-	$ 1,200.00	$ 1,380.00	$ 64,170.00	$38,548.00
04/12/17	2016-054.09	2MFD, Return Activated Sludge piping: As-built of Secondary Clarifier 2 Lauder Channel: As-built of Aerobic Digester top of base course (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 65,550.00	$37,168.00
04/18/17	2016-054.09	2MHD 12" Sludge Pipe at 4+2 and Sta 4+50 from Secondary Clarifier 1 & 2: As-built of Secondary Clarifier 2 Lauder Channel top of slab	$ 900.00	$ 1,035.00	$ 66,585.00	$36,133.00
05/04/17	2016-054.10	2MFD, As-built of Hyundai Waterline Sta. 13+60 to Sta. 16+31.44; Set control stations/ bench mark; Oxidation Ditch 2 topo of slab/ form work (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 67,965.00	$34,753.00
05/10/17	2016-054.10	3MHD, Sewer line at Agat Treatment Plant (Ga'an) site relief sewer line man hole; Sewer line from SMH3 to SMH4 (Ed, Gerard, Joseph)	$ 900.00	$ 1,035.00	$ 69,000.00	$33,718.00
05/12/17	2016-054.10	3MHD, 30" sewer ine at Ga'an Sewer Treatment Plant; Head works; TOS as-built (Ed, Allan, Patrick)	$ 900.00	$ 1,035.00	$ 70,035.00	$32,683.00
05/15/17	2016-054.10	2MFD, Ga'an 30" sewer ine as-built; Headwork foundation at wet well as-built and pipe; Digestion Tank 1 and 2 foundation TOS as-built (Ed, Virgilio)	$ 1,200.00	$ 1,380.00	$ 71,415.00	$31,303.00
05/17/17	2016-054.10	2MHD, Ga'an 30" sewer line as-built; 8" sewer line between M H3 and M H4 as-built; 12" sludge pipe at 4+11.92 Secondary Clarifier B (Ed, Allan)	$ 900.00	$ 1,035.00	$ 72,450.00	$30,268.00
05/25/17	2016-054.10	2MFD, Ga'an 30" sewer line at1 +01.82 and 1 +29.82 as-built (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 73,830.00	$28,888.00
05/26/17	2016-054.10	2MFD, Sewer manhole 2, 3, 4, 6, 7; Return activated sludge piping at Sta. 0+72.53 to 1 +21.22; Sewer line between sewer manhole 2 and sewer manhole 3	$ 1,200.00	$ 1,380.00	$ 75,210.00	$27,508.00
05/30/17	2016-054.10	2MHD, As-built of sewer line between SMH3 and SMH2 and sewer line between SMH6 and SMH7 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 76,245.00	$26,473.00
06/01/17	2016-054.11	3MHD, As-built of sewer line between SMH 5 and SMH6; As-built of Return Activated Sludge Pipe (Ed, Raughly, Allan)	$ 900.00	$ 1,035.00	$ 77,280.00	$25,438.00

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06/09/17	2016-054.11	2MHD, Dewatering Centrifuge Building As-built-top of base course and location; Ga'an 30' sewer line @ Sta o+oo (Ed, Allan	$ 900.00	$ 1,035.00	$ 78,315.00	$24,403.00
06/12/17	2016-054.11	2MFD, As-built@ Ga'an 30" Sewerline; As-built Aerobic Digestion Tank no. 2; As-built Sewerline between SMH 2 and SMH 5; As-built Dewatering Centrifuge building	$ 1,200.00	$ 1,380.00	$ 79,695.00	$23,023.00
06/26/17	2016-054.11	2 MFD, As-built of 16" force main sewer pipe- Equalization tank to head works; As-built of 6" scum pump to sludge thickening line; As-built of sewer line "C" between	$ 1,200.00	$ 1,380.00	$ 81,075.00	$21,643.00
07/05/17	2016-054.12	2MFD, Aerobic Digester Influent Line 6"; Sewer line between SMH1 and SMH 2; 6" Waste Activated Sludge Pipe; Retaining Wall at Secondary Clarifier 2 (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 82,455.00	$20,263.00
07/10/17	2016-054.12	2MFD, Aerobic Digester Tank 6" Thimble page 28; Water Line- A 12" page 28; 8" Sewer Line between SMH 7 and SMH 8 page 27; 6" Waste Activated Sludge pipe*	$ 1,200.00	$ 1,380.00	$ 83,835.00	$18,883.00
07/14/17	2016-054.12	2MFD, Dewatering Centrifuge-Drilled Pier; Sewer Line between SMH 7 and SMH B; s 1,200.00 Aerobic Digester Tank 1 6" pipe thimble; Dewatering Centrifuge base course and top	$ 1,200.00	$ 1,380.00	$ 85,215.00	$17,503.00
07/18/17	2016-054.12	2MFD, Aerobic Digester-Drilled Pier- Horizontal check; Sewer line between SMH 8 and SMH 9; Dewatering Centrifuge Top of base course (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 86,595.00	$16,123.00
08/08/17	2016-054.13	2MFD, Deawtering Centrifuge Building drilled pier foundation layout; Hyundai Water Valve Vault (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 87,975.00	$14,743.00
08/25/17	2016-054.13	2MHD, Check and verify locatin of four corners of building frame work of Dewatering Centrifuge; Check elevation 32.50 around frame work of Dewatering Centrifuge	$ 900.00	$ 1,035.00	$ 89,010.00	$13,708.00
09/07/17	2016-054.14	2MFD, Aerobic Digester Drilled Pier, 1-20,27,33,39; Aerobic Digester Tank 2 6" Pipe Thimble; Headworks- top of footing; Headworks- Weir Wall, Flow Channel 2 and	$ 1,200.00	$ 1,380.00	$ 90,390.00	$12,328.00
09/15/17	2016-054.14	2 MFD, Check elevation for finish grade of Tipalao Effluent Valve Pit; Check elevation of Oxidation Ditch Supply Pipe 30"; Locate & check elevation of end section for Pipe	$ 1,200.00	$ 1,380.00	$ 91,770.00	$10,948.00
09/18/17	2016-054.14	2MFD, Fire Hydrant at Sta. 7+82.21; 30" Oxidation Ditch Supply Line; Aerobic Digester 8" riser pipe (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 93,150.00	$9,568.00
09/25/17	2016-054.14	2MHD, As-built of Administration Building drilled pier foundation; Sewer line between sewer manhole 1 and sewer manhole 2 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 94,185.00	$8,533.00
09/27/17	2016-054.14	2MFD, Check horizontal location of Administration Building drilled pier foundation; Check horizontal and vertical location of Digester 1 OVF-DIP 6" Pipe (Darius, Allan)	$ 1,200.00	$ 1,380.00	$ 95,565.00	$7,153.00
10/02/17	2016-054.15	3MFD, Layout of Hyundai water line from Sta. 16+51.44 to Sta. 24+11.88, Work completed: Sta. 16+51.44 to Sta. 24+11.88 (Ed, Allan, Stephen)	$ 1,200.00	$ 1,380.00	$ 96,945.00	$5,773.00
10/04/17	2016-054.15	3MFD, Layout of stations for Hyundai water line from Sta. 16+51.44 to Sta. 24+11.88, Work completed: Sta. 16+51.44 to Sta. 22+04.71 and Sta. 23+25.56	$ 900.00	$ 1,035.00	$ 97,980.00	$4,738.00
10/05/17	2016-054.15	3MFD, Layout of station for Hyundai water line from Sta. 16+51.44 to Sta. 24+01.44, Work completed (Ed, Aaron, Stephen)	$ 900.00	$ 1,035.00	$ 99,015.00	$3,703.00
10/06/17	2016-054.15	2MFD, As-built of portion of Administration Building - drilled pier, As-built of portion of Aerobic Digester-drilled pier, Work completed (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 100,395.00	$2,323.00
10/19/17	2016-054.15	2MFD, As-built of 6" perforated drain pipe at Headworks; As-built of reflected ceiling plan - Mezzanine of Dewatering Centrifuge	$ 900.00	$ 1,035.00	$ 101,430.00	$1,288.00
11/07/17	2016-054.15	2MFD, Aerobic Digester Blower Digester Bldg. Base Course, Headworks Channel Weir Slab; RAS/WAS Flow Meter MH-Top of form work; End of trapezoidal concrete	$ 1,200.00	$ 1,380.00	$ 102,810.00	-$92.00
11/20/17	2016-054.15	2MFD, Invert elevation of sewer manhole no. 7, 8, 9 and 10 (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 104,190.00	-$1,472.00
11/27/17	2016-054.15	2MFD, Sewer line at SMH10 resurvey; Aerobic Digester Sludge thickening pipe 6"; Aerobic Digester-6" pipe thimble; Yard piping force main; process drain, lift station	$ 1,200.00	$ 1,380.00	$ 105,570.00	-$2,852.00

EXHIBIT B - WORK ZONE CAMERA INVOICES

(QSF-024G)
Goods (Standard)

GHD Inc.
☒ 2235 Mercury Way Suite 150 Santa Rosa California 95407 T 707 523 1010 F 707 527 8679

Send invoice to above address, attn.: Accounts Payable
(Show Purchase order no. and Project no.)

PO date: (mm/dd/yyyy)	04/20/2017	**Purchase order no.:**			38000925		
Project no.:	11109000	**Phase:**	10	**Task:** DEFAULT		**Project Manager:**	BRYAN RYLEY

Vendor to provide and deliver all items set out or otherwise described below subject to the governing Terms and Conditions below. This PO expressly limits acceptance to such Terms and Conditions. Any additional or different terms proposed by Vendor are rejected unless expressly agreed to in writing by GHD Inc. ("GHD"). Show Project no. on all correspondence, invoices, and delivery papers.

(authorized GHD signature) Bryan J. Ryley (printed name of issuer) 04/20/2017 (date signed)

Shipping the goods listed on this PO constitutes acceptance of the Terms and Conditions below

Issued to (Vendor):
Work Zone Cam
650 East Crescent Avenue
Upper Saddle River, NJ 07458

Attention: Raymond Kutter
Tel: (201) 488-1111 **Fax:** ( )
Email: rkuttner@earthcam.com

Currency: U.S
Name of Client: Guam Waterworks Authority

Deliver to:
GHD Inc
865 South Marine Corps Drive, Suite 202
Tamuning, Guam 96913

Attention: Bryan Ryley
Tel: (671) 472-6792 **Fax:** (671) 477-6229
Email: bryan.ryley@ghd.com

☐ **F.O.B. destination** ☐ **F.O.B. origin**
☐ **Freight collect** ☐ **Freight prepaid**
Delivery date required: N/A
Delivery method: N/A

Terms and Conditions - Goods (Standard) GHD

1. **Definitions:** "PO" means the Purchase Order, these Terms and Conditions, and any other Exhibits listed in the PO, all of which are to be construed as one document; "Goods" shall mean all tangible property required to be furnished to GHD by Vendor under this PO; "Laws" shall mean any and all applicable statutes, laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction; "Client" shall mean the individual or entity named in the PO with whom GHD has entered into an agreement; "GHD" shall mean the party issuing the PO
2. **Conforming Goods:** Acceptance of all or any part of the Goods shall not be deemed to be a waiver of GHD's right either to cancel or return all or any portion of the Goods because of failure to conform to this PO, or by reason of defects, latent or patent, or other breach of warranty, or to make any claim for damages, including construction costs and loss of profits or other special damages incurred by GHD. Such rights shall be in addition to any other remedies provided by Laws. GHD reserves the right to refuse any Goods and to cancel all or any part of the Goods not conforming to applicable specifications, drawings, samples, or descriptions. Acceptance of any part of the Goods shall not bind GHD to accept future shipments, nor deprive it of the right to return Goods already accepted. Partial shipments are not permitted unless specifically authorized.
3. **Risk of Loss:** Unless otherwise provided in the PO, Vendor shall assume all risk of loss or damage to the Goods prior to acceptance of delivery by GHD at the point of delivery. Delivery shall not be deemed to be complete until the Goods have been actually received and accepted by GHD.
4. **Warranty:** Vendor expressly warrants that the Goods covered by this PO are of merchantable quality and satisfactory and safe for consumer use. Acceptance of this PO shall constitute an agreement upon Vendor's part to indemnify and hold GHD harmless from liability, loss, damage, and expense, including reasonable attorneys' fees, incurred or sustained by GHD by reason of the failure of the Goods to conform to such warranties.
5. **Taxes:** Vendor shall pay ~~all fees or taxes, including sales, use, consumer~~ all taxes for employment insurance, pensions, or any similar purpose, ~~and other taxes mandated by Laws~~. No liability shall accrue to GHD for any such taxes.
6. **Packing:** All Goods, wrappers, and containers must bear markings and labels required by Laws for the protection and safety of persons and property, and Vendor warrants that prices include all charges for packing, crating, and transportation to specified F.O.B. point. Vendor shall include packing list with all shipments.
7. **Payment:** Vendor shall submit an invoice for Goods furnished in a form and with such documentation as GHD may require. Payment of an invoice approved by GHD, including final payment, will be made within 30 days after GHD's receipt of an acceptable invoice. No payment made by GHD, including final payment, shall be construed as evidence of the proper furnishing of the Goods, nor of acceptance of defective or nonconforming Goods. Acceptance of final payment by Vendor shall constitute a waiver of all claims by Vendor against GHD and Client.
8. **Schedule:** Unless stated otherwise in the PO, time is of the essence for delivery of the Goods.
9. **Rights and Remedies:** The rights and remedies of the parties hereunder are cumulative, and in addition to, not in lieu of, those which the parties have at law or in equity. Waiver of a breach of any provision of this PO shall not constitute a waiver of any other or future breach of the same provision or any other provision or of the entire PO. Failure of GHD to insist upon strict performance of any provision of this PO shall not be deemed a waiver of any rights GHD may have.
10. **Governing Law:** This PO shall be governed by and construed in accordance with the laws of the state/province in which the Goods are received by GHD.
11. **Entire Agreement:** This PO constitutes the entire agreement between the parties concerning the Goods, and supersedes all prior written and oral negotiations, agreements, and representations. This PO may only be modified by a change order issued by GHD.

Line no.	Description/item no.	Quantity	Unit	Unit price	Amount
1	Work Zone Cam - 6MP Fully Hosted Service (12 months @ $325/mounth)	12	month	3,900.00	3,900.00
				Subtotal:	
				~~Tax:~~	~~3,900.00~~
				Shipping and handling:	
				Other:	
				Total:	3,900.00

cc: **Project Manager; GHD Regional Purchasing Coordinator**
Filing: **Vendor project file; GHD Equipment Manager (if applicable)**

Continuation sheet	PO date: (mm/dd/yyyy)		Purchase order no.:	
			Project no.:	

Line no.	Description/item no.	Quantity	Unit	Unit price	Amount

Work Zone Cam, LLC.

650 E. Crescent Avenue
Upper Saddle River, NJ, 07458
www.workzonecam.com
Phone: (201) 488-1111
Fax: (201) 488-1119

Invoice

WORK ZONE CAM

Date	Page
Mar 10, 2017	1
Invoice Number	
ZC0306175169	

Sold To:
Mark Pachkoski
GHD Guam
865 S Marine Corps Dr
Suite 202B '96931
GU

Ship To:
Mark Pachkoski
GHD Guam
865 S Marine Corps Dr
Suite 202B '96931
GU

Order No.	Order Date	Customer No.	Salesperson	PO Number	Ship Via	Terms
ZC0306175169	Mar 6, 2017	32539	BC			NET10

Qty. Ord.	Qty. Shp.	Item Number	Description	Unit Price	UOM	Extended Price
1.00	1.00	ZCPS02011	Work Zone Cam - 6MP Fully Hosted Service Server: Agat-Santa Rita WWTP Project: Agat-Santa Rita WWTP Location: Suite 202B GU Duration: 04/05/17 - 04/05/18	3,900.00	Ea.	3,900.00

GHD Inc. - GUA - 14
Vendor _____ PO 38000925
GL _____
Project / Phase 1110900 0/10
Subconsultant Agreement (Y) N # _____
Terms: PWP ☐ Other _____
Date: 04/13/17 Approver: BRIAN RYKER GROOM

Tax summary:	**Subtotal**	3,900.00
NT 0.00	**Total sales tax**	0.00
	Total amount	3,900.00
ALL PRICING IN U.S. DOLLARS	**Less payment**	
	Amount due	3,900.00

WORK ZONE CAM

650 E. Crescent Avenue
Upper Saddle River, NJ 07458

Contact:

Raymond Kuttner
Senior Accounting Manager
rkuttner@earthcam.com
201-403-2917 Direct
201-488-1119 Fax

PLEASE SEND WIRE/ACH PAYMENTS TO:

PNC Bank
141 Franklin Turnpike
Mahwah, NJ 07430

ABA: 031207607

ACCOUNT #: 8039896576

SWIFT: PNCCUS33

EXHIBIT C - SURVEY INVOICES

GUAM SURVEYOR, LLC
STREET: 171 CHALAN PALE RAMON HAYA RT. 1 (MARINE DRIVE), YIGO, GUAM 96929
MAIL: P.O. BOX 6216, TAMUNING, GUAM 96931
P.671-637-2042/1 F.671-637-2041 M.688-0184
WWW.GUAMSURVEYOR.COM
SURVEYOR@GUAMSURVEYOR.COM

INVOICE # 2016-054.15 - 11-01-2017

To: Mr. Bryan Ryley, Construction Manager
GHD
865 South Marine Corps Drive, Suite 202
Tamuning, Guam 96913
472-6792 / 477-6229 / m: 797-3336
Bryan.Ryley@ghd.com

Project: 2016-054.15
Project Name: GWA Agat-Santa Rita WWTP Replacement Project
Village: Agat-Santa Rita **State:** Guam
Type of Survey: Construction Quality Assurance Survey
Project Status: Completed **Finan. Stat** Unpaid
Date of Invoice: 11/01/2017

Proj. #	Date:	Task	Survey description	Amount
2016-054.15	10/2/2017	87	3MFD, Layout of Hyundai water line from Sta 16+ 51.44 to Sta. 24+ 11.88; Work completed: Sta. 16+ 51.44 to Sta 24+ 11.88 (Ed, Allan, Stephen)	$ 1,200.00
2016-054.15	10/4/2017	88	3MHD, Layout of stations for Hyundai water line from Station 16 + 51.44 to Station 24 + 11.88; Work completed: Stations 16 + 51.44 to 22 + 04.71 and Stations 23 + 25.56	$ 900.00
2016-054.15	10/5/2017	89	3MHD, Layout of station for Hyundai water line from Station 16 + 51.44 to Station 24 + 01.44; Work completed (Ed, Aaron, Stephen)	$ 900.00
2016-054.15	10/16/2017	90	2MFD, As-built of portion of Administration Building- drilled pier; As-built of portion of Aerobic Digester- drilled pier; Work completed (Ed, Allan)	$ 1,200.00
2016-054.15	10/19/2017	91	2MHD, As-built of 6" perforated drain pipe at Headworks; As-built of reflected ceiling plan- Mezzanine of Dewatering Centrifuge	$ 900.00
			*Total due this invoice:	$ 5,100.00

GHD Inc. - GUA - 14
Vendor 380 GU SURV PO 38000407
GL 5710080
Project / Phase 11109000/09
Subconsultant Argement? Y N # 6
Terms: PWP ☒ Other
Date: 11/03/17 Approver: BRYAN T. RYLEY
JEFF GROOM
PAUL K. BARON

NOTE: **All invoices are due upon receipt. To ensure proper credit, please indicate project number and lot name (or project name) on your payment. If paying by check, make check payable to Guam Surveyor, LLC.** For your convenience, we also accept credit card payments on our website at **http://www.guamsurveyor.com**. If you need help with paying by credit card, instructions are online at **http://www.youtube.com/watch?v=h7D4E6Ptt0A** or you can give us a call at **671-637-2042** or **671-688-9868**.

By: _____
Name: Dennis S. Balagtas, P.L.S. No. 75

This Phase 09 can be carried forthcoming Oct 2017 invoice

EXHIBIT D - EARTHCAM INVOICES

EarthCam.net
The Webcam Technology Experts

-INVOICE-

Invoice Number:
WS0207182170

Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96913

671 472-6792
671 797-3336 (Mobile)
bryan.ryley@ghd.com

Ship to: Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96913

671 472-6792
bryan.ryley@ghd.com

Invoice Date: February 12, 2018
Payment Terms:
NET 30

Make all checks payable to EarthCam Inc.
650 East Crescent Avenue, Upper Saddle River, NJ 07458

*** Please include your client ID on your check: 32539**

MANAGED SERVICES		Quantity	Price	Total
Platinum Service *Agat-Santa Rita WWTP PTZ / Agat-Santa Rita WWTP PTZ [03/09/18 - 03/09/19] Tamuning GU*	(1 year)	**1**	$6900	$6900
Robotic Camera Software Support Package *Agat-Santa Rita WWTP PTZ / Agat-Santa Rita WWTP PTZ [03/09/18 - 03/09/19] Tamuning GU*	(1 year)	**1**		$0

Thank you for choosing EarthCam!
We appreciate your purchase and look forward to supporting your project needs.

Amount Due **$6,900**

Our Accounting Department:
Raymond Kuttner (201) 403-2917
rkuttner@earthcam.com

*Date Generated: 02/12/18. This invoice is confidential. All prices are quoted in US Dollars. While EarthCam, Inc. will endeavor to meet the customer's desired delivery date, no shipment date can be scheduled until after order is accepted by EarthCam, Inc. Payment in full must precede acceptance, which may be made by cash, cleared check, Fed wire, ACH or major credit card. All sales are final. All orders and services are subject to force majeure. All services shall automatically renew for successive one (1) month periods and continue until customer shall provide thirty (30) days written notice of termination to EarthCam, Inc. Any and all liability arising out of products or services included in the order, however or whenever arising, shall not, under any and all circumstances, exceed the actual payments received by EarthCam, Inc. in connection therewith or one month's service fee, whichever is less. In no event shall EarthCam, Inc. be liable for any special, incidental or consequential damages. Lifetime camera warranty for active software subscribers. Additional parts covered under standard 1 year manufacturer warranty.

EarthCam.net
The Webcam Technology Experts

-INVOICE-

Invoice Number:
WS0825165158

Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96931

671 472-6792
671 797-3336 (Mobile)
bryan.ryley@ghd.com

Ship to: Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96931

671 472-6792
bryan.ryley@ghd.com

Invoice Date: August 25, 2016
Purchase Order: TBA
Payment Terms:
PREPAY

Make all checks payable to EarthCam Inc.
650 East Crescent Avenue, Upper Saddle River, NJ 07458

		Quantity	Price	Total
CAMERA SYSTEMS				
Mobile TrailerCam Lite		1	$24,995	$24,995
Mobile Trailer Handling		1	$750	$750
MANAGED SERVICES				
Platinum Service *Archive every 5 minutes*	(1 year)	1	$6,900	$6,900
Robotic Camera Software Support Package *(TrailerCam Lite)*	(1 year)	1		Included
EarthCam Consulting Services		1		Included

Thank you for choosing EarthCam!
We appreciate your purchase and look forward to supporting your project needs.

Amount Due **$32,645**

Our Accounting Department:
Raymond Kuttner **(201) 403-2917**
rkuttner@earthcam.com

GHD Inc. - GUA - 14
Vendor 280ecn **PO** _____
GL _____
Project / Phase 11109000 / 10
Subconsultant Argement? Y N # _____
Terms: PWP ☐ **Other** _____
Date: 9/28/16 **Approver:** Jeff Gloom

Notes

Shipping FOB Upper Saddle River, NJ
GHD Guam Can Provide Freight Forwarder - $750 Handling Fee Will Apply

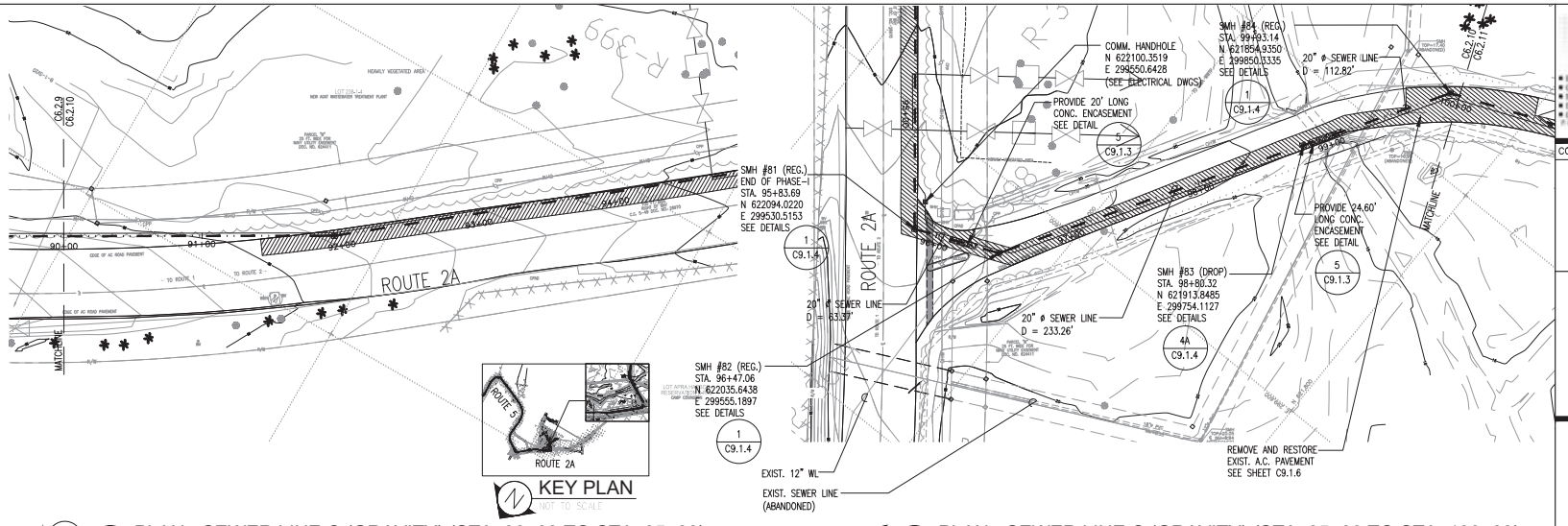
*Date Generated: 08/25/16. This invoice is confidential. All prices are quoted in US Dollars. While EarthCam, Inc. will endeavor to meet the customer's desired delivery date, no shipment date can be scheduled until after order is accepted by EarthCam, Inc. Payment in full must precede acceptance, which may be made by cash, cleared check, Fed wire, ACH or major credit card. All sales are final. All orders and services are subject to force majeure. All services shall automatically renew for successive one (1) month periods and continue until customer shall provide thirty (30) days written notice of termination to EarthCam, Inc. Any and all liability arising out of products or services included in the order, however or whenever arising, shall not, under any and all circumstances, exceed the actual payments received by EarthCam, Inc. in connection therewith or one month's service fee, whichever is less. In no event shall EarthCam, Inc. be liable for any special, incidental or consequential damages. Lifetime camera warranty for active software subscribers. Additional parts covered under standard 1 year manufacturer warranty.

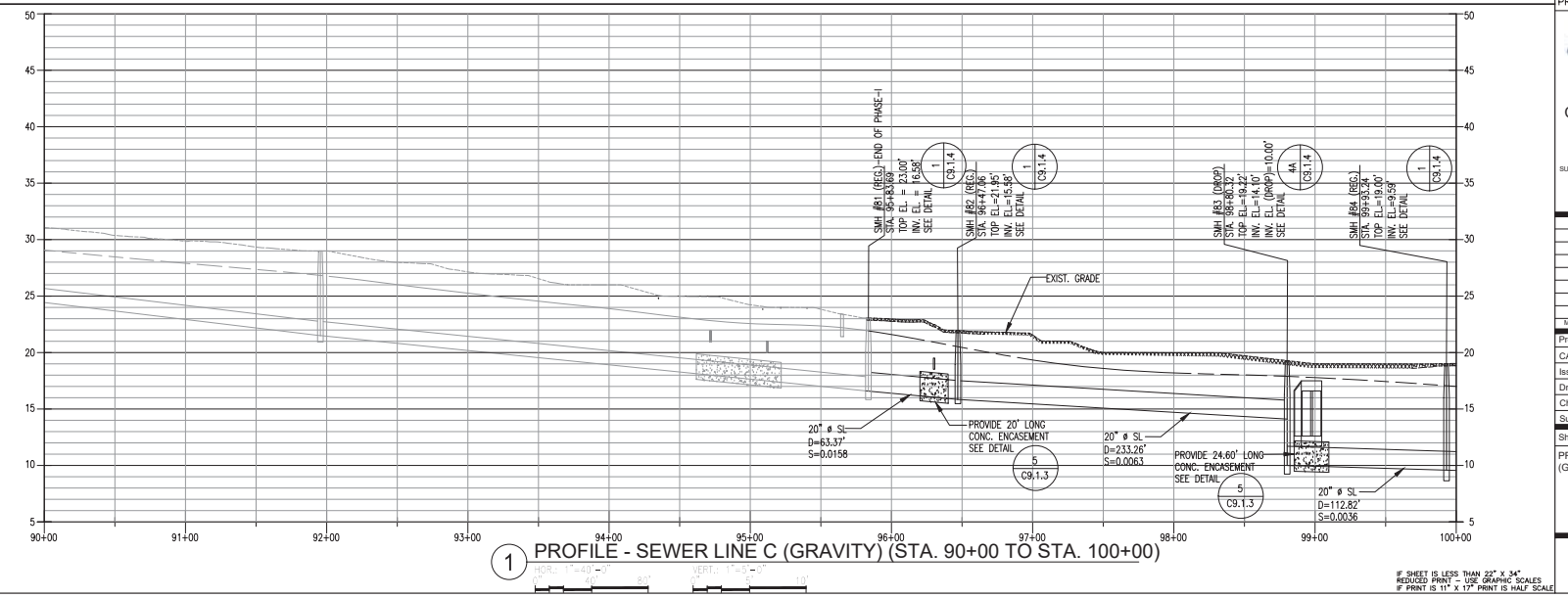
Your Account Manager: Brian Cury
brian@earthcam.com

1-800-EARTHCAM
- 1 of 1 -

650 East Crescent Avenue, Upper Saddle River, NJ 07458
201-488-1111

EXHIBIT E - BAZA GARDENS SANITARY SEWER DOCUMENTS





IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT – USE GRAPHIC SCALES
IF PRINT IS 11" X 17" PRINT IS HALF SCALE

DCA
DUEÑAS · CAMACHO
ENGINEERING (CIVIL/STRUCTURAL)
CONSTRUCTION MANAGEMENT • PLANNING
ENVIRONMENTAL SERVICES • SURVEYING
DEVELOPMENT CONSULTATION
GEOGRAPHIC INFORMATION SYSTEMS

CONSULTANTS

COFFMAN ENGINEERS
414 West Soledad Avenue, Suite 903
Hagatña, Guam 96910
671.989.7920 | www.coffman.com

TRMA
Taniguchi Ruth Makio Architects
Architecture
Planning
Interior Design

KENNETH M. REASNER
CERTIFICATE NO. 12823
EXPIRATION DATE: EXP 04/30/19
GUAM
PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. DATE: 2-6-2018

PROJECT TITLE

GUAM WATERWORKS AUTHORITY

BAZA GARDENS
WASTEWATER
CROSS-ISLAND PUMPING
AND
CONVEYANCE SYSTEM
(PHASE-I)

SUBMITTAL:
BID SET

Mark	Date	Description

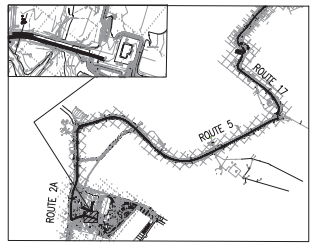
Project No.:	GG15-06
CAD Dwg File:	GG1506-C6.2.10.DWG
Issue Date:	SEPTEMBER 6, 2016
Drawn By:	JMC/HJ/CP
Checked By:	JMC/EMS
Supv. By:	EMS/KR

Sheet Title:

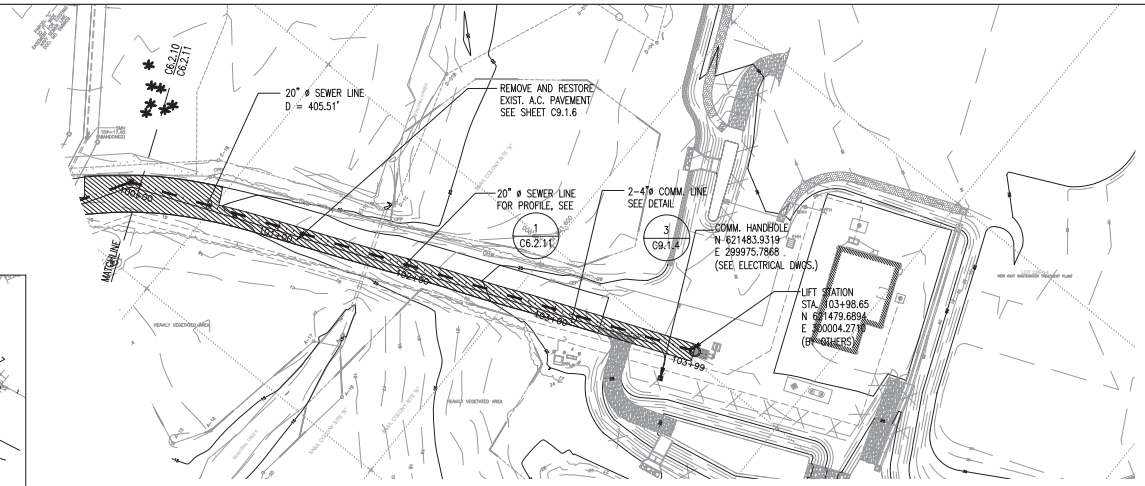
PROFILE & PLAN - SEWER LINE C (GRAVITY) (STA. 90+00 TO STA 100+00)

C6.2.10

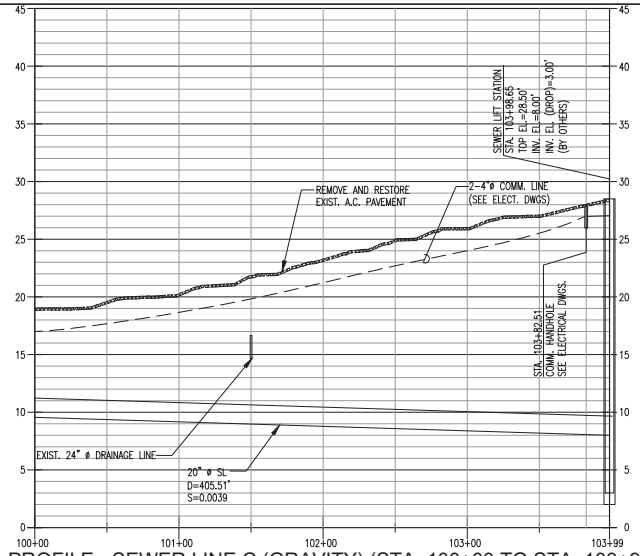
Sheet 32 of 117



KEY PLAN
NOT TO SCALE



2 PLAN - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA. 103+98.65)
1" = 40'-0"



1 PROFILE - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA. 103+98.65)
HOR. 1"=40'-0"
VERT. 1"=5'-0"

NOTE:

PHASE I CONTRACTORS SHALL PROVIDE GRAVITY CONNECTION TO AGAT WWTP LIFT STATION

IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT – USE GRAPHIC SCALES
IF PRINT IS 11" X 17" PRINT IS HALF SCALE

DCA
DUEÑAS · CAMACHO
■ ENGINEERING (CIVIL/STRUCTURAL)
■ CONSTRUCTION MANAGEMENT ■ PLANNING
■ ENVIRONMENTAL SERVICES ■ SURVEYING
■ DEVELOPMENT CONSULTATION
■ GEOGRAPHIC INFORMATION SYSTEMS

CONSULTANTS

COFFMAN ENGINEERS

TRMA
Taniguchi Ruth Makio Architects
Architecture
Planning
Interior Design

KENNETH M. REDDEN
CERTIFICATE NO. 12825 (CIVIL)
EXP: 04/30/17
GUAM
PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. DATE: 3-8-2016

PROJECT TITLE

GUAM WATERWORKS AUTHORITY

BAZA GARDENS
WASTEWATER
CROSS-ISLAND PUMPING
AND
CONVEYANCE SYSTEM
SUBMITTAL: (PHASE-I)
BID SET

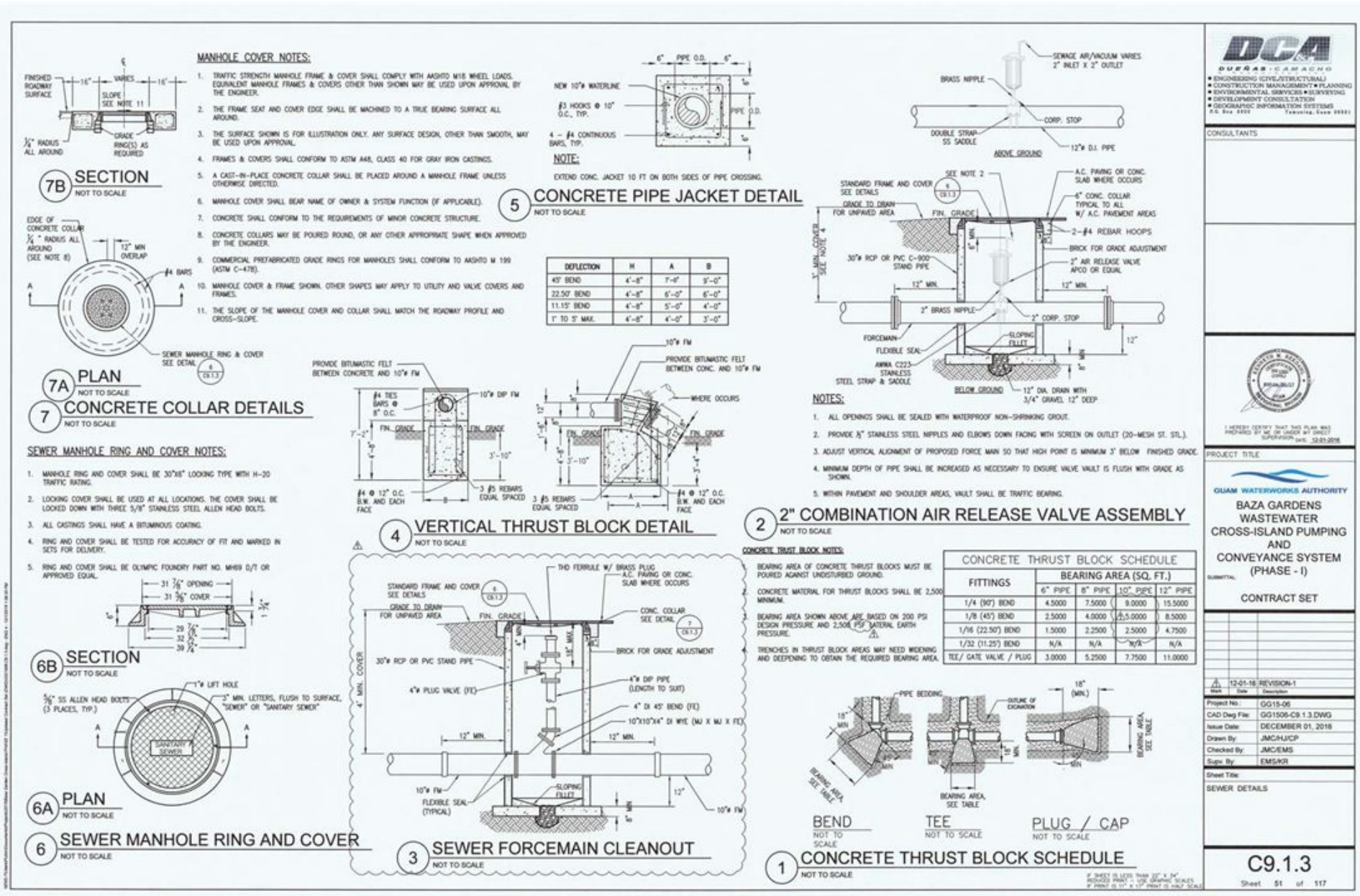
Mark	Date	Description

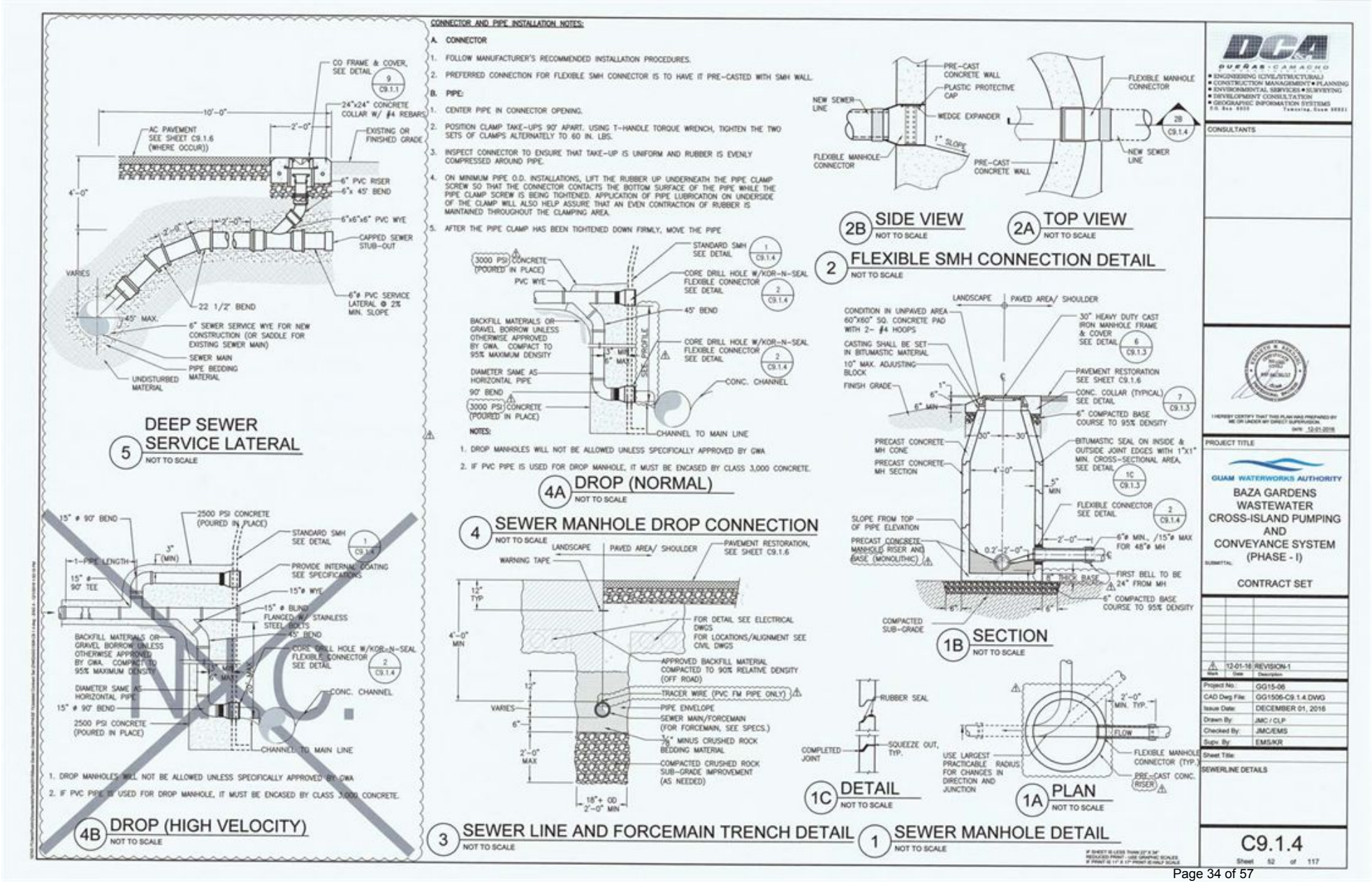
Project No.:	GG15-06
CAD Dwg File:	GG1506-C6.2.11.DWG
Issue Date:	SEPTEMBER 6, 2016
Drawn By:	JMC/HJ/CP
Checked By:	JMC/EMS
Supv. By:	EMS/KR

Sheet Title:

PROFILE & PLAN - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA 103+98.65)

C6.2.11
Sheet 33 of 117


MANHOLE COVER NOTES:
1. TRAFFIC STRENGTH MANHOLE FRAME & COVER SHALL COMPLY WITH AASHTO M18 WHEEL LOADS. EQUIVALENT MANHOLE FRAMES & COVERS OTHER THAN SHOWN MAY BE USED UPON APPROVAL BY THE ENGINEER.
2. THE FRAME SEAT AND COVER EDGE SHALL BE MACHINED TO A TRUE BEARING SURFACE ALL AROUND.
3. THE SURFACE SHOWN IS FOR ILLUSTRATION ONLY. ANY SURFACE DESIGN, OTHER THAN SMOOTH, MAY BE USED UPON APPROVAL.
4. FRAMES & COVERS SHALL CONFORM TO ASTM A48, CLASS 40 FOR GRAY IRON CASTINGS.
5. A CAST-IN-PLACE CONCRETE COLLAR SHALL BE PLACED AROUND A MANHOLE FRAME UNLESS OTHERWISE DIRECTED.
6. MANHOLE COVER SHALL BEAR NAME OF OWNER & SYSTEM FUNCTION (IF APPLICABLE).
7. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF MINOR CONCRETE STRUCTURE.
8. CONCRETE COLLARS MAY BE POURED ROUND, OR ANY OTHER APPROPRIATE SHAPE WHEN APPROVED BY THE ENGINEER.
9. COMMERCIAL PREFABRICATED GRADE RINGS FOR MANHOLES SHALL CONFORM TO AASHTO M 199 (ASTM C-478).
10. MANHOLE COVER & FRAME SHOWN. OTHER SHAPES MAY APPLY TO UTILITY AND VALVE COVERS AND FRAMES.
11. THE SLOPE OF THE MANHOLE COVER AND COLLAR SHALL MATCH THE ROADWAY PROFILE AND CROSS-SLOPE.
7B SECTION NOT TO SCALE
7A PLAN NOT TO SCALE
7 CONCRETE COLLAR DETAILS NOT TO SCALE
SEWER MANHOLE RING AND COVER NOTES:
1. MANHOLE RING AND COVER SHALL BE 30"X6" LOCKING TYPE WITH H-20 TRAFFIC RATING.
2. LOCKING COVER SHALL BE USED AT ALL LOCATIONS. THE COVER SHALL BE LOCKED DOWN WITH THREE 5/8" STAINLESS STEEL ALLEN HEAD BOLTS.
3. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.
4. RING AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND MARKED IN SETS FOR DELIVERY.
5. RING AND COVER SHALL BE OLYMPIC FOUNDRY PART NO. MH69 D/T OR APPROVED EQUAL.
6B SECTION NOT TO SCALE
6A PLAN NOT TO SCALE
6 SEWER MANHOLE RING AND COVER NOT TO SCALE
NOTE:
EXTEND CONC. JACKET 10 FT ON BOTH SIDES OF PIPE CROSSING.
5 CONCRETE PIPE JACKET DETAIL NOT TO SCALE
DEFLECTION H A B
45° BEND 4'-8" 7'-6" 9'-0"
22.50° BEND 4'-8" 6'-0" 6'-0"
11.15° BEND 4'-8" 5'-0" 4'-0"
1° TO 5° MAX. 4'-8" 4'-0" 3'-0"
4 VERTICAL THRUST BLOCK DETAIL NOT TO SCALE
3 SEWER FORCEMAIN CLEANOUT NOT TO SCALE
NOTES:
1. ALL OPENINGS SHALL BE SEALED WITH WATERPROOF NON-SHRINKING GROUT.
2. PROVIDE ¾" STAINLESS STEEL NIPPLES AND ELBOWS DOWN FACING WITH SCREEN ON OUTLET (20-MESH ST. STL.).
3. ADJUST VERTICAL ALIGNMENT OF PROPOSED FORCE MAIN SO THAT HIGH POINT IS MINIMUM 3' BELOW FINISHED GRADE.
4. MINIMUM DEPTH OF PIPE SHALL BE INCREASED AS NECESSARY TO ENSURE VALVE VAULT IS FLUSH WITH GRADE AS SHOWN.
5. WITHIN PAVEMENT AND SHOULDER AREAS, VAULT SHALL BE TRAFFIC BEARING.
2 2" COMBINATION AIR RELEASE VALVE ASSEMBLY NOT TO SCALE
CONCRETE THRUST BLOCK NOTES:
1. BEARING AREA OF CONCRETE THRUST BLOCKS MUST BE POURED AGAINST UNDISTURBED GROUND.
2. CONCRETE MATERIAL FOR THRUST BLOCKS SHALL BE 2,500 MINIMUM.
3. BEARING AREA SHOWN ABOVE ARE BASED ON 200 PSI DESIGN PRESSURE AND 2,500 PSF LATERAL EARTH PRESSURE.
4. TRENCHES IN THRUST BLOCK AREAS MAY NEED WIDENING AND DEEPENING TO OBTAIN THE REQUIRED BEARING AREA.
CONCRETE THRUST BLOCK SCHEDULE
FITTINGS | BEARING AREA (SQ. FT.) 6" PIPE | 8" PIPE | 10" PIPE | 12" PIPE
1/4 (90°) BEND 4.5000 7.5000 9.0000 15.5000
1/8 (45°) BEND 2.5000 4.0000 5.0000 8.5000
1/16 (22.50°) BEND 1.5000 2.2500 2.5000 4.7500
1/32 (11.25°) BEND N/A N/A N/A N/A
TEE/ GATE VALVE / PLUG 3.0000 5.2500 7.7500 11.0000
BEND NOT TO SCALE
TEE NOT TO SCALE
PLUG / CAP NOT TO SCALE
1 CONCRETE THRUST BLOCK SCHEDULE NOT TO SCALE
DCA
CONSULTANTS
PROJECT TITLE
GUAM WATERWORKS AUTHORITY
BAZA GARDENS WASTEWATER CROSS-ISLAND PUMPING AND CONVEYANCE SYSTEM (PHASE - I)
CONTRACT SET
12-01-16 REVISION-1
Project No.: GG15-06
CAD Dwg File: GG1506-C9.1.3.DWG
Issue Date: DECEMBER 01, 2016
Drawn By: JMC/HJ/CP
Checked By: JMC/EMS
Supv. By: EMS/KR
Sheet Title: SEWER DETAILS
C9.1.3
Sheet 51 of 117


CONNECTOR AND PIPE INSTALLATION NOTES:
A. CONNECTOR
1. FOLLOW MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. PREFERRED CONNECTION FOR FLEXIBLE SMH CONNECTOR IS TO HAVE IT PRE-CASTED WITH SMH WALL.
B. PIPE:
1. CENTER PIPE IN CONNECTOR OPENING.
2. POSITION CLAMP TAKE-UPS 90° APART. USING T-HANDLE TORQUE WRENCH, TIGHTEN THE TWO SETS OF CLAMPS ALTERNATELY TO 60 IN. LBS.
3. INSPECT CONNECTOR TO ENSURE THAT TAKE-UP IS UNIFORM AND RUBBER IS EVENLY COMPRESSED AROUND PIPE.
4. ON MINIMUM PIPE O.D. INSTALLATIONS, LIFT THE RUBBER UP UNDERNEATH THE PIPE CLAMP SCREW SO THAT THE CONNECTOR CONTACTS THE BOTTOM SURFACE OF THE PIPE WHILE THE PIPE CLAMP SCREW IS BEING TIGHTENED. APPLICATION OF PIPE LUBRICATION ON UNDERSIDE OF THE CLAMP WILL ALSO HELP ASSURE THAT AN EVEN CONTRACTION OF RUBBER IS MAINTAINED THROUGHOUT THE CLAMPING AREA.
5. AFTER THE PIPE CLAMP HAS BEEN TIGHTENED DOWN FIRMLY, MOVE THE PIPE
CO FRAME & COVER, SEE DETAIL 9 C9.1.1
24"x24" CONCRETE COLLAR W/ #4 REBARS
AC PAVEMENT SEE SHEET C9.1.6 (WHERE OCCUR))
EXISTING OR FINISHED GRADE
6" PVC RISER
6"x 45° BEND
6"x6"x6" PVC WYE
CAPPED SEWER STUB-OUT
6"ø PVC SERVICE LATERAL @ 2% MIN. SLOPE
22 1/2° BEND
45° MAX.
6" SEWER SERVICE WYE FOR NEW CONSTRUCTION (OR SADDLE FOR EXISTING SEWER MAIN)
SEWER MAIN
PIPE BEDDING MATERIAL
UNDISTURBED MATERIAL
VARIES
10'-0"
2'-0"
4'-0"
5 DEEP SEWER SERVICE LATERAL
NOT TO SCALE
PRE-CAST CONCRETE WALL
PLASTIC PROTECTIVE CAP
WEDGE EXPANDER
1" SLOPE
FLEXIBLE MANHOLE CONNECTOR
NEW SEWER LINE
2B SIDE VIEW
NOT TO SCALE
2A TOP VIEW
NOT TO SCALE
2 FLEXIBLE SMH CONNECTION DETAIL
NOT TO SCALE
3000 PSI CONCRETE (POURED IN PLACE)
PVC WYE
BACKFILL MATERIALS OR GRAVEL BORROW UNLESS OTHERWISE APPROVED BY GWA. COMPACT TO 95% MAXIMUM DENSITY
DIAMETER SAME AS HORIZONTAL PIPE
90° BEND
STANDARD SMH SEE DETAIL 1 C9.1.4
CORE DRILL HOLE W/KOR-N-SEAL FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
45° BEND
CONC. CHANNEL
CHANNEL TO MAIN LINE
NOTES:
1. DROP MANHOLES WILL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED BY GWA
2. IF PVC PIPE IS USED FOR DROP MANHOLE, IT MUST BE ENCASED BY CLASS 3,000 CONCRETE.
4A DROP (NORMAL)
NOT TO SCALE
4 SEWER MANHOLE DROP CONNECTION
NOT TO SCALE
15" ø 90° BEND
2500 PSI CONCRETE (POURED IN PLACE)
1-PIPE LENGTH
15" ø 90° TEE
PROVIDE INTERNAL COATING SEE SPECIFICATIONS
15"ø WYE
15" ø BLIND FLANGED W/ STAINLESS STEEL BOLTS
4B DROP (HIGH VELOCITY)
NOT TO SCALE
LANDSCAPE
PAVED AREA/ SHOULDER
PAVEMENT RESTORATION, SEE SHEET C9.1.6
WARNING TAPE
FOR DETAIL SEE ELECTRICAL DWGS FOR LOCATIONS/ALIGNMENT SEE CIVIL DWGS
APPROVED BACKFILL MATERIAL COMPACTED TO 90% RELATIVE DENSITY (OFF ROAD)
TRACER WIRE (PVC FM PIPE ONLY)
PIPE ENVELOPE
SEWER MAIN/FORCEMAIN (FOR FORCEMAIN, SEE SPECS.)
¾" MINUS CRUSHED ROCK BEDDING MATERIAL
COMPACTED CRUSHED ROCK SUB-GRADE IMPROVEMENT (AS NEEDED)
18"+ OD
2'-0" MIN
3 SEWER LINE AND FORCEMAIN TRENCH DETAIL
NOT TO SCALE
CONDITION IN UNPAVED AREA 60"X60" SQ. CONCRETE PAD WITH 2- #4 HOOPS
CASTING SHALL BE SET IN BITUMASTIC MATERIAL
10" MAX. ADJUSTING BLOCK
FINISH GRADE
30" HEAVY DUTY CAST IRON MANHOLE FRAME & COVER SEE DETAIL 6 C9.1.3
PAVEMENT RESTORATION SEE SHEET C9.1.6
CONC. COLLAR (TYPICAL) SEE DETAIL 7 C9.1.3
6" COMPACTED BASE COURSE TO 95% DENSITY
PRECAST CONCRETE MH CONE
PRECAST CONCRETE MH SECTION
BITUMASTIC SEAL ON INSIDE & OUTSIDE JOINT EDGES WITH 1"x1" MIN. CROSS-SECTIONAL AREA, SEE DETAIL 1C C9.1.3
FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
SLOPE FROM TOP OF PIPE ELEVATION
PRECAST CONCRETE MANHOLE RISER AND BASE (MONOLITHIC)
6"ø MIN., /15"ø MAX FOR 48"ø MH
8" THICK BASE
FIRST BELL TO BE 24" FROM MH
COMPACTED SUB-GRADE
1B SECTION
NOT TO SCALE
RUBBER SEAL
COMPLETED JOINT
SQUEEZE OUT, TYP.
1C DETAIL
NOT TO SCALE
2'-0" MIN. TYP.
FLOW
USE LARGEST PRACTICABLE RADIUS FOR CHANGES IN DIRECTION AND JUNCTION
FLEXIBLE MANHOLE CONNECTOR (TYP.)
PRE-CAST CONC. RISER
1A PLAN
NOT TO SCALE
1 SEWER MANHOLE DETAIL
NOT TO SCALE
DCA
DUEÑAS · CAMACHO
ENGINEERING (CIVIL/STRUCTURAL)
CONSTRUCTION MANAGEMENT
PLANNING
ENVIRONMENTAL SERVICES
SURVEYING
DEVELOPMENT CONSULTATION
GEOGRAPHIC INFORMATION SYSTEMS
Tamuning, Guam 96921
CONSULTANTS
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.
DATE: 12-01-2016
PROJECT TITLE
GUAM WATERWORKS AUTHORITY
BAZA GARDENS WASTEWATER CROSS-ISLAND PUMPING AND CONVEYANCE SYSTEM (PHASE - I)
SUBMITTAL
CONTRACT SET
12-01-16 REVISION-1
Project No.: GG15-06
CAD Dwg File: GG1506-C9.1.4.DWG
Issue Date: DECEMBER 01, 2016
Drawn By: JMC / CLP
Checked By: JMC/EMS
Supv. By: EMS/KR
Sheet Title:
SEWERLINE DETAILS
C9.1.4
Sheet 52 of 117

SECTION 330130.13 - SEWER AND MANHOLE TESTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing of Gravity Sewer Piping:

   a. Low pressure air testing.
   b. Exfiltration testing.
   c. Infiltration testing.

2. Testing of pressure piping.
3. Deflection testing of plastic sewer piping.
4. Testing of Manholes:

   a. Vacuum testing.
   b. Exfiltration testing.

B. Related Requirements:

1. Section 333400 - Sanitary Utility Sewerage Force Mains: Pipe materials and accessories normally encountered with municipal sanitary sewage force mains.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM C1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
2. ASTM D2122 - Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

B. American Water Works Association:

1. AWWA C600 - Installation of Ductile Iron Mains and Their Appurtenances.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Submit following items prior to start of testing:

1. Testing procedures.
2. List of test equipment.
3. Testing sequence schedule.

4. Provisions for disposal of flushing and test water.
5. Certification of test gage calibration.
6. Deflection mandrel drawings and calculations.

C. Test and Evaluation Reports: Indicate results of manhole and piping tests.

PART 2 - PRODUCTS

2.1 VACUUM TESTING

A. Equipment:

1. Vacuum pump.
2. Vacuum line.
3. Vacuum Tester Base:

    a. Compression band seal.
    b. Outlet port.

4. Shutoff valve.
5. Stopwatch.
6. Plugs.
7. Vacuum Gage: Calibrated to 0.1 in. Hg

2.2 EXFILTRATION TESTING

A. Equipment:

1. Plugs.
2. Pump.
3. Measuring device.

2.3 AIR TESTING

A. Equipment:

1. Air compressor.
2. Air supply line.
3. Shutoff valves.
4. Pressure regulator.
5. Pressure relief valve.
6. Stopwatch.
7. Plugs.
8. Pressure Gage: Calibrated to 0.1 psi

2.4 INFILTRATION TESTING

A. Equipment: Weirs.

2.5 HYDROSTATIC TESTING

A. Equipment:

1. Hydro pump.
2. Pressure hose.
3. Water meter.
4. Test connections.
5. Pressure relief valve.
6. Pressure Gage: Calibrated to 0.1 psi (0.69 kPa).

2.6 DEFLECTION TESTING

A. Equipment:

1. "Go, no go" mandrels.
2. Pull/retrieval ropes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that manholes and piping are ready for testing.

C. Verify that trenches are backfilled.

D. Verify that pressure piping thrust restraint system is installed.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for preparation.

B. Lamping:

1. Lamp gravity piping after flushing and cleaning.
2. Perform lamping operation by shining light at one end of each pipe section between manholes.
3. Observe light at other end.
4. Pipe not installed with uniform line and grade will be rejected.
5. Remove and reinstall rejected pipe sections.

6. Reclean and lamp until pipe section is installed to uniform line and grade.

C. Plugs:

1. Plug outlets, wye branches, and laterals.
2. Brace plugs to resist test pressures.

3.3 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Low-Pressure Air Testing:

1. Test each reach of gravity sewer piping between manholes.
2. Introduce air pressure slowly to approximately 4
3. Determine ground water elevation above spring line of piping.
4. For every foot of ground water above spring line of piping, increase starting air test pressure by 0.43 psi
5. Do not increase pressure above 10 psig
6. Allow pressure to stabilize for at least five minutes.
7. Adjust pressure to 3.5 psig or to increased test pressure as determined above when ground water is present.
8. Do not make allowance for laterals.
9. Minimum Testing Duration in Minutes per 100 feet
   a. Pipe Size 10 Inches : 1.5.
   b. Pipe Size 12 Inches : 1.8.
   c. .
10. Record drop in pressure during testing period.
11. If air pressure drops more than 1.0 psi during testing period, piping has failed.
12. If 1.0 psi air pressure drop has not occurred during testing period, piping is acceptable; discontinue testing.
13. If piping fails, test reach of piping in incremental stages until leaks are isolated, repair leaks, and retest entire reach between manholes.

C. Testing of Pressure Piping:

1. Test system according to AWWA C600 and following:

   a. Hydrostatically test each portion of pressure piping, including valved section, at 1.5 times working pressure of piping, based on elevation of lowest point in piping corrected to elevation of test gage.
   b. Conduct hydrostatic testing for at least two hours.
   c. Slowly fill with water portion of piping to be tested, expelling air from piping at high points.
   d. Install corporation cocks at high points.
   e. Close air vents and corporation cocks after air is expelled.
   f. Raise pressure to specified test pressure.
   g. Observe joints, fittings, and valves undergoing testing.

h. Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.
i. Retest.
j. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
k. Maintain pressure within plus or minus 5.0 psi of test pressure.
l. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of testing.
m. Compute maximum allowable leakage using following formula:

1) L = [SD x sqrt(P)]/C.
2) L = testing allowance, gph
3) S = length of pipe tested, feet
4) D = nominal diameter of pipe, inches
5) P = average test pressure during hydrostatic testing,.
6) C = 148,000
7) If pipe undergoing testing contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each pipe size.

2. If testing of piping indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within acceptable limits.
3. Correct visible leaks regardless of quantity of leakage.

D. Deflection Testing of Plastic Sewer Piping:

1. Perform vertical ring deflection testing on PVC and acrylonitrile butadiene styrene sewer piping after backfilling has been in place for at least 30 days but not longer than 12 months.
2. Allowable maximum deflection for installed plastic sewer pipe is no greater than five percent of original vertical internal diameter.
3. Perform deflection testing using properly sized rigid ball or "go, no go" mandrel.
4. Furnish rigid ball or mandrel with diameter not less than 95 percent of base or average inside diameter of pipe, as determined by ASTM standard to which pipe is manufactured; measure pipe diameter in compliance with ASTM D2122.
5. Perform testing without mechanical pulling devices.
6. Locate, excavate, replace, and retest piping that exceeds allowable deflection.

E. Manhole Testing:

1. If air testing, test whenever possible prior to backfilling in order to more easily locate leaks.
2. Repair both outside and inside of joint to ensure permanent seal.
3. Test manholes with manhole frame set in place.
4. Vacuum Testing:

a. Comply with ASTM C1244
b. Plug pipe openings; securely brace plugs and pipe.
c. Inflate compression band to create seal between vacuum base and structure.
d. Connect vacuum pump to outlet port with valve open, then draw vacuum to 10 in. Hg
e. Close valve.

f. Manhole Test Duration in Seconds:

1) Diameter 4 Feet :60.

g. Record vacuum drop during test period.
h. If vacuum drop is greater than 1 in. Hg during testing period, repair and retest manhole.
i. If vacuum drop of 1 in. Hg does not occur during test period, manhole is acceptable; discontinue testing.
j. If vacuum test fails to meet 1 in. Hg drop in specified time after repair, repair and retest manhole.

5. If unsatisfactory testing results are achieved, repair manhole and retest until result meets criteria.
6. Repair visible leaks regardless of quantity of leakage.

END OF SECTION 330130.13

SECTION 330513 - MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete manholes and structures with transition to cover frame, covers, anchorage, and accessories.
2. Modular precast concrete manholes and structures with tongue-and-groove joints and transition to cover frame, covers, anchorage, and accessories.
3. Masonry manhole and structure sections with masonry transition to cover frame, covers, anchorage, and accessories.
4. Doghouse manhole connections to existing sewer lines.
5. Bedding and cover materials.
6. Pile support systems.

B. Related Requirements:

1. Section 031000 - Concrete Forming and Accessories: Erection and bracing of forms.
2. Section 032000 - Concrete Reinforcing: Execution requirements for reinforcing steel as required by this Section.
3. Section 033000 - Cast-in-Place Concrete: Concrete type for manhole and structure foundation slab construction.
4. Section 040514 - Masonry Mortaring and Grouting: Mortar and grout.
5. Section 042000 - Unit Masonry: Product requirements for clay brick units for use in manhole and structure construction.
6. Section 310513 - Soils for Earthwork: Soils for backfill in trenches.
7. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
8. Section 312316 - Excavation: Excavating for manholes, structures, and foundation slabs.
9. Section 312323 - Fill: Backfilling after manhole and structure installation.
10. Section 330130.13 - Sewer and Manhole Testing: Testing requirements for manholes.

1.2 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:

1. AASHTO M91 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
2. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
3. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.

C. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).
4. ASTM C55 - Standard Specification for Concrete Building Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
9. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for manhole covers, component construction, features, configuration, dimensions

C. Shop Drawings:

1. Indicate structure locations and elevations.
2. Indicate sizes and elevations of piping and penetrations

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements

E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Comply with precast concrete manufacturer's instructions and ASTM C913 for unloading, storing, and moving precast manholes and drainage structures.

D. Storage:

1. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property.
2. Repair property damaged from materials storage.

PART 2 - PRODUCTS

2.1 MANHOLES AND STRUCTURES

A. Standard Precast Concrete Manholes:

1. Description: ASTM C 478 precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Diameter: 48 inches minimum unless otherwise indicated.
3. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section; with separate base slab or base section with integral floor.
5. Riser Sections: 4-inch minimum thickness, of length to provide depth indicated.
6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated; with top of cone of size that matches grade rings.
7. Joint Sealant: ASTM C 990 bitumen or butyl rubber.
8. Resilient Pipe Connectors: ASTM C 923 cast or fitted into manhole walls, for each pipe connection.

B. High Velocity Protection

1. Each manhole and force-main receiving structure shall be coated with an epoxy based liner to protect against high velocities and corrosion. The entire structure from the bottom to the top including rungs ,rings and channel shall be coated. The coating shall be applied after the concrete in the structures has completely cured. Acceptable coating manufactures include:
   a. Raven Lining systems
   b. Sika
   c. Approved Equal

C. Manhole Frames and Covers:

1. Description: Ferrous; 30-inch ID by 6- to 9-inch riser, with 4-inch- minimum-width flange and 31-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."
2. Material: ASTM A 48, Class 40 gray iron unless otherwise indicated.

2.2 CONCRETE

A. General: Cast-in-place concrete complying with ACI 318, ACI 350/350R and the following:

1. Cement: ASTM C 150, Type II or JIS R5210.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615, Grade 60 deformed steel.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

a. Invert Slope: 1 percent through manhole.

2. Benches: Concrete, sloped to drain into channel.

a. Slope: 4 percent.

D. Ballast and Pipe Supports: Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615, Grade 60 deformed steel.

2.3 FRAMES AND COVERS

A. Description:

1. Construction: ASTM, Class 30B, cast iron.
2. Lid:

a. Machined flat bearing surface.
b. Removable.

3. Cover Design: Closed

4. Live Load Rating: H20-44
5. Sealing gasket.

2.4 RISER RINGS

A. Riser Rings:

1. 4 Inches to 6 Inches Thick:

   a. Material: Precast concrete.
   b. Comply with ASTM C478

2. Less than 4 Inches Thick:

   a. Material: Cast iron.
   b. Comply with AASHTO M306.

3. Rubber Seal Wraps:

   a. Wraps and Band Widths: Conform to ASTM C877 Type III.
   b. Cone/Riser Ring Joint: Minimum 3 inches overlap.
   c. Frame/Riser Ring Joint: 2 inches overlap.
   d. Additional Bands: Overlap upper band by 2 inches

B. Accessories:

1. Joint Sealant: Comply with ASTM C990
2. Bolts:

   a. Stainless Steel: Comply with ASTM F593.
   b. Galvanized: Comply with ASTM F1554.

2.5 ACCESSORIES

A. Foundation Slab:

1. Cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete
2. Top Surface: Level.Indicate type of anchorage required to anchor to other structural elements.

B. Concrete: As specified in Section 033000 - Cast-in-Place Concrete

C. Grout: As specified in Section 036000 - Grout

D. Odor Control Polyethylene Manhole Insert:

1. Contractor shall supply odor reducing manhole inserts made from high density Polyethylene Copolymer material that meets ASTM Specification Designation D-1248 Class A, Category 5, Type III. Filter shall make use of non-hazardous, according to the

definition for “health hazard” and “physical hazard” provided in the OSHA Hazard Communication Law (29 CFR Part 1910), activated carbon filter media. Insert shall be manufactured to fit the manhole frame rim upon which the manhole cover rests.

2. Contractor shall supply odor reducing manhole inserts for all manholes locates along Sewerline B

3. Manufactures

   a. Parson Environmental Products
   b. Simple Solutions Dist
   c. Approved Equal

2.6 FINISHES

A. Steel Galvanizing:

1. ASTM A123
2. Hot dip galvanize after fabrication.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that items provided by other Sections of Work are properly sized and located.

C. Verify that built-in items are in proper location and are ready for roughing into Work.

D. Verify correct size of manhole and structure excavation.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.

C. Coordinate placement of inlet and outlet pipe or duct sleeves required by other Sections.

D. Do not install manholes and structures where Site conditions induce loads exceeding structural capacity of manholes or structures.

E. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

A. Excavation and Backfill:

1. Excavate for manholes and structures as specified in Section 312316 - Excavation and in indicated locations and depths.
2. Provide clearance around sidewalls of manhole or structure for construction operations granular backfill
3. If groundwater is encountered, prevent accumulation of water in excavations; place manhole or structure in dry trench.
4. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation, as approved by Architect/Engineer.

B. Foundation Slab:

C. Install manholes and structures supported at proper grade and alignment as indicated on Drawings.

D. Backfill excavations for manholes and structures as specified in Section 312316 - Excavationand312323 - Fill.

E. Form and place manhole or structure cylinder plumb and level, to correct dimensions and elevations.

F. As Work progresses, build fabricated metal items

G. Cut and fit for pipe and sleeves

H. Grout base of shaft sections to achieve slope to exit piping, trowel smooth, and contour to form continuous drainage channel

I. Paint interior with two coats of bituminous interior coating at rate of 120sq. ft. per for each coat.

J. Set cover frames and covers level to correct elevations without tipping.

K. Precast Concrete Manholes and Structures:

1. Lift precast components at lifting points designated by manufacturer.
2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
3. Set precast structures, bearing firmly and fully on crushed stone bedding, compacted as specified in Section 312316 – Excavation and 312323 - Fill or on other support system as indicated on Drawings.
4. Assembly:

a. Assemble multi-section manholes and structures by lowering each section into excavation.
b. Install rubber gasket joints between precast sections according to manufacturer's recommendations.
c. Lower, set level, and firmly position base section before placing additional sections.

5. Remove foreign materials from joint surfaces and verify sealing materials are placed properly.
6. Maintain alignment between sections by using guide devices affixed to lower section.
7. Joint sealing materials may be installed on Site or at manufacturer's plant.
8. Verify that installed manholes meet required alignment and grade.
9. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
10. Cut pipe flush with interior of structure.
11. Shape inverts through manhole as indicated on Drawings.

L. Cast-in-Place Concrete Manholes and Structures:

1. Prepare crushed stone bedding or other support system as indicated on Drawings to receive base slab as specified for precast structures.
2. Erect and brace forms against movement as specified in Section 031000 - Concrete Forming and Accessories.
3. Install reinforcing steel as indicated on Drawings and as specified in Section 032000 - Concrete Reinforcing.
4. Place and cure concrete as specified in Section 033000 - Cast-in-Place Concrete.
5. Frames and Covers:

a. Set frames using mortar and masonry.
b. Install radially laid concrete brick with 1/4 inch thick vertical joints at inside perimeter.
c. Lay concrete brick in full bed of mortar and completely fill joints.
d. If more than one course of concrete brick is required, stagger vertical joints.
e. Set frame and cover 2 inches above finished grade for manholes [and structures] with covers located within unpaved areas, to allow area to be graded away from cover beginning 1 inch below top surface of frame.

M. Sanitary Manhole Drop Connections:

1. Concrete Encasement: Minimum [2] feet outside of manhole upto top of upstream pipe.
2. Form channel from pipe drop to sweep into main channel at maximum angle of 30 degrees.

N. Castings:

1. Set frames using mortar and masonry as indicated on Drawings.
2. Install radially-laid concrete brick with [1/4] inch thick vertical joints at inside perimeter.
3. Lay concrete brick in full bed of mortar and completely fill joints.
4. If more than one course of concrete brick is required, stagger vertical joints.

5. Set frame and cover [2] inches) above finished grade for manholes and other structures with covers located within unpaved areas to allow area to be graded away from cover beginning [1] inch below top surface of frame.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Test cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete

C. Test concrete manhole and structure sections as specified in Section 330130.13 - Sewer and Manhole Testing.

D. Vertical Adjustment of Existing Manholes and Structures:
   1. If required, adjust top elevation of existing manholes and structures to finished grades as indicated on Drawings.
   2. Frames, Grates, and Covers:
      a. Carefully remove frames, grates, and covers cleaned of mortar fragments.
      b. Reset to required elevation according to requirements specified for installation of castings.
   3. Reinforcing Bars:
      a. Remove concrete without damaging existing vertical reinforcing bars if removal of existing concrete wall is required.
      b. Clean vertical bars of concrete and bend into new concrete top slab or splice to required vertical reinforcement as indicated on Drawings.
   4. Clean and apply sand-cement bonding compound on existing concrete surfaces to receive cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete

END OF SECTION 330513

SECTION 333113 - PUBLIC SANITARY UTILITY SEWERAGE PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sanitary sewerage pipe and fittings.
2. Pipe markers.
3. Connection to existing manholes.
4. Manholes.
5. Wye branches and tees.
6. Sanitary laterals.
7. Bedding and cover materials.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C14 - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe.
4. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
5. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
6. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
7. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
8. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
9. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3).
10. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
11. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.

12. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
13. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
14. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.
15. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
16. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
17. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
18. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
19. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
20. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.

1.3 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Notify affected utility companies at least 72hours prior to construction.

1.4 PREINSTALLATION MEETINGS

A. Section 013000 - Administrative Requirements: Requirements for preinstallation meeting.

B. Convene minimum 2 weeks prior to commencing Work of this Section.

C. Attendance Roster: Include affected utility companies and appropriate local officials.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer catalog cuts and other information indicating proposed materials, accessories, details, , and construction information.

C. Shop Drawings:

1. Indicate layout of sewer system and appurtenances
2. Show size, materials, components of system, and burial depth.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Test and Evaluation Reports: Submit reports indicating field tests made and results obtained.

F. Manufacturer Instructions:

1. Indicate special procedures required to install specified products.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.
2. Submit manufacturer's approval of installer.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record invert elevations and actual locations of pipe runs, connections , manholes and cleanouts.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 20 years' documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.
2. Store valves in shipping containers with labeling in place.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Provide additional protection according to manufacturer instructions.

E. Deliver and store valves in shipping containers with labeling in place.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SANITARY SEWERAGE PIPE AND FITTINGS

A. Ductile-Iron Pipe for use at all fittings and drop structures:

B. Plastic pipe alternative may be used, refer to plans for details

1. Comply with AWWA C151
2. Minimum Pressure Class: 150
3. End Connections: Bell and spigot
4. Outside Coating:

a. Type: Asphaltic coating, minimum 2 mil uniform thickness.

5. Lining:

a. Type: Asphaltic sealcoat, minimum [1] mil uniform thickness.
b. Comply with AWWA C104.

6. Polyethylene encasement: Comply with AWWA C105.
7. Fittings:

a. Material: Ductile iron, Class 50
b. Comply with AWWA C110.
c. Lining: Cement-mortar lined according to AWWA C104 Seal coat lined and coated with bituminous paint

8. Coating:

a. Coat pipe and fittings exposed inside of structures with two coats of bituminous
b. As specified in Section 099000 - Painting and Coating.

9. Joints:

    a. Rubber gasket joint devices.
    b. Comply with AWWA C111.

C. Plastic Pipe:

1. Material: Polyvinyl chloride (PVC), Schedule 80
2. Comply with ASTM D1785.
3. Inside Nominal Diameter: 12 inches End Connections: Bell and spigot style, with solvent-sealed ends.
4. Fittings:

    a. Material: PVC.
    b. Comply with ASTM D2466.

5. Joints:

    a. Solvent welded with solvent cement conforming to ASTM D2564.
    b. Comply with ASTM D2855.

D. Plastic Pipe (alternative):

1. Material: Polyvinyl chloride (PVC).
2. Comply with ASTM D3034, SDR-35
3. Inside Nominal Diameter: 12 - 15 inches
4. End Connections: Bell and spigot style, with rubber-ring-sealed gasket joint.
5. Fittings: PVC.
6. Joints:

    a. Elastomeric gaskets.
    b. Comply with ASTM F477.

2.2 FLEXIBLE COUPLINGS

A. Description:

1. Resilient chemical-resistant elastomeric polyvinyl chloride (PVC) coupling.
2. Attachment: Two stainless-steel clamps, screws, and housings.

2.3 FLEXIBLE PIPE BOOT FOR MANHOLE PIPE ENTRANCES

A. Description:

1. Material: Ethylene propylene rubber (EPDM).
2. Comply with ASTM C923 (C923M).
3. Attachment: stainless-steel clamp and hardware.

2.4 CONCRETE ENCASEMENT AND CRADLES

A. Concrete:

1. As specified in Section 033000 - Cast-in-Place Concrete.
2. Strength: 4000 psi at 28 days.
3. Finish: Rough troweled.

2.5 MANHOLES

A. Description: As specified in Section 330513.16 - Public Manholes and Structures.

B. Description:

1. As specified in Section 330513.16 - Public Manholes and Structures.
2. Material: Precast concrete.
3. Diameter: 48 inches
4. Frames and Covers: Watertight cast iron.
5. Cover Inscription: SANITARY SEWER

2.6 MIXES

A. Grout: As specified in Section 036000 - Grouting

2.7 FINISHES

A. Galvanizing:

1. Hot-dip galvanize after fabrication.
2. Comply with ASTM A123 (A123M).

2.8 ACCESSORIES

A. Pipe Supports:

1. Metal for pipe support brackets: Galvanized structural steel, thoroughly coated with bituminous paint.

B. Pipe Markers: As specified in Section 330526 - Utility Identification.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that excavation base is ready to receive Work.

C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Correct over-excavation with coarse aggregate.

C. Remove large stones or other hard materials that could damage pipe or impede consistent backfilling or compaction.

D. Protect and support existing sewer lines, utilities, and appurtenances.

E. Utilities:

1. Maintain profiles of utilities.
2. Coordinate with other utilities to eliminate interference.
3. Notify Architect/Engineer if crossing conflicts occur.

3.3 INSTALLATION

A. Bedding:

1. Excavate pipe trench as specified in Section 312317 - Trenching.
2. Excavate to lines and grades as indicated on Drawings or as required to accommodate installation of encasement.
3. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
4. Provide sheeting and shoring as specified in Section 312317 - Trenching .
5. Placement:
    a. Place bedding material at trench bottom.
    b. Level materials in continuous layer not exceeding 6 inches compacted depth.
    c. Compact to 95 percent of maximum density.

B. Piping:

1. Install pipe, fittings, and accessories according to ASTM D2321and seal joints watertight.
2. Lay pipe to slope gradients as indicated on Drawings
3. Maximum Variation from Indicated Slope: [1/8] inch in [10] feet
4. Begin at downstream end and progress upstream.
5. Assemble and handle pipe according to manufacturer's instructions, except as may be modified on Drawings or by Construction Manager.
6. Keep pipe and fittings clean until Work has been completed and accepted by Architect/Engineer.

7. Cap open ends during periods of Work stoppage.
8. Lay bell and spigot pipe with bells upstream.

C. Manholes:

1. Install manholes as specified in Section 330513.16 - Public Manholes and Structures

D. Wye Branches and Tees:

1. Concurrent with pipe-laying operations, install wye branches and pipe tees at locations indicated on Drawings.
2. Use standard fittings of same material and joint type as sewer main.
3. Maintain minimum 5ft separation distance between wye connection and manhole.
4. Use saddle wye or tee with stainless-steel clamps for taps into existing piping.
5. Mount saddles with solvent cement or gasket and secure with metal bands.
6. Lay out holes with template, and cut holes with mechanical cutter.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Request inspection by Construction Manager prior to and immediately after placing bedding.

C. Testing:

1. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.
2. Pipe Testing:

a. Pressure Test: As specified in Section 330130.13 - Sewer and Manhole Testing.
b. Infiltration Test: As specified in Section 330130.13 - Sewer and Manhole Testing
c. Deflection Test: As specified in Section 330130.13 - Sewer and Manhole Testing

3. Compaction Testing:

a. Comply with ASTM D1557 or ASTM D698 and ASTM D6938.
b. Testing Frequency: 1 per 600 linear feet/2,000 sq. ft..

3.5 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION 330130.13

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 18-FY2018
Relative to Approval of the 2010 Bond Proceeds Reallocation

What is the project's objective and is it necessary and urgent?
The objective of the resolution is to give GWA management the authority to reallocate unspent or unused monies from completed CIP projects funded by the 2010 bond proceeds (such as unused contingencies, or negotiated cost savings) to other CIP line items that are on-going and for which there exists a current and greater need for funding, thereby improving management's ability to encumber the fund balance.

The on-going CIP line items that would have unobligated 2010 Bond proceeds reallocated to them are PW 05-07 "Meter Replacement Program", PW 05-12 "Brigade II (Ugum Lift) BPS Upgrade", PW 05-15 "Rehabilitation of Asan Springs", PW 09-09 "Water "Reservoir Internal/External" and WW 11-03 "Baza Gardens STP Replacement".

Where is the location?
NOT APPLICABLE

How much will it cost?
The bond proceeds that will be affected by the reallocation is Eight Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars ($886,431.00)

When will it be completed?
The goal of reallocating the 2010 bond proceeds is to encumber all bond proceeds by December 2018.

What is the funding source?
NOT APPLICABLE

The RFP/BID responses (if applicable):
NOT APPLICABLE

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 18–FY2018

RELATIVE TO APPROVAL OF THE 2010 BOND PROCEEDS REALLOCATION

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities ("CCU") has plenary authority over financial, contractual and policy matters relative to the Guam Waterworks Authority ("GWA"); and

WHEREAS, the Guam Waterworks Authority ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA accounting completed its reconciliation of all 2010 Bond Capital Improvements Project (CIP) accounts and determined there are several CIP line items with a remaining balance under "Unobligated Project Cost" in the amount of Four Million Three Hundred Nine Thousand Six Hundred Thirty-Four Dollars ($4,309,634.00) (See Exhibit A); and

WHEREAS, GWA engineering has determined the remaining balance for CIP line items shown in the Unobligated Project Cost, with the exception of five (5) CIP line items, specifically PW 05-07 "Meter Replacement Program", PW 05-12 "Brigade II (Ugum Lift) BPS Upgrade", PW 05-15 "Rehabilitation of Asan Springs", PW 09-09 "Water "Reservoir Internal/External" and WW 11-03 "Baza Gardens STP Replacement," are unspent amounts resulting from negotiated cost savings or unused contingencies and are insufficient to fund additional capital projects specific to each of those CIP line items; and

WHEREAS, the five GWA CIP projects noted above have existing 2010 Bond funding allotments however, these five projects will require additional funding to complete the project as currently anticipated; and

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WHEREAS, GWA management seeks CCU approval to reallocate all unobligated funds from certain CIP line items as shown on Exhibit B under the "Reduction Funds (x1000)" column in the amount of Eight Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars ($886,431.00) to fund five CIP line items noted above which are under the "Additional Funds (x1000)" column which correspond to the CIP projects that require additional funding to complete as anticipated; and

WHEREAS, GWA believes the reallocation of the funds to the five CIP line item projects will expedite the 2010 Bond fund balance encumbrance given these five CIP line items involve ongoing projects or projects that are expected to be procured within calendar year 2018; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the reallocation presented by GWA management is fair and reasonable.
3. The CCU hereby approves the 2010 bond reallocation request of all unobligated funds from CIP line items shown in Exhibit B under the "Reduction Funds (x1000)" column to be allotted to CIP line item PW 05-07, PW 05-12, PW 05-15, PW 09-09 and WW 11-03 in the amount of One Hundred Fifty Thousand Dollars ($150,000.00), Two Hundred Thousand Dollars ($200,000.00), Two Hundred Thousand Dollars ($200,000.00), One Hundred Fifty Thousand Dollars ($150,000.00) and One Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars ($186,431.00), respectively .
4. The CCU further hereby authorizes GWA management to seek PUC approval of the 2010 bond reallocation as presented herein.

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RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 27th day of February, 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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GUAM WATERWORKS AUTHORITY
2010 Series Bond Project Status
As of Jan. 31, 2018

SCHEDULE M

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Ground Water Disinfection	$ -	$ 500,000	$ 438,141	$ 61,859	$ 500,000	$ 0	$ 61,859
"A" Series Well Transmission Line	$ 600,000	$ 518,144	$ 474,434	$ 1,274	$ 475,709	$ 42,435.15	$ 43,710
Water Booster Pump Station	$ 500,000	$ 500,000	$ 418,844	$ 81,156	$ 500,000	$ (0)	$ 81,156
Meter Replacement Program	$ 2,500,000	$ 10,300,000	$ 10,254,220	$ 19,409	$ 10,273,628	$ 26,371.65	$ 45,780
Barrigada Tank Repair/Replacement	$ -	$ 5,450,000	$ 5,442,302	$ 7,698	$ 5,450,000	$ 0	$ 7,698
Leak Detection		$ 200,000	$ -	$ 200,000	$ 200,000	$ -	$ 200,000
Potable Water System Planning	$ 200,000	$ 200,000	$ 179,638	$ 20,362	$ 200,000	$ -	$ 20,362
Implement Ground Water Rule		$ 1,700,000	$ 1,499,464	$ 200,535	$ 1,700,000	$ 0.50	$ 200,536
Brigade II (Ugum Lift) BPS Upgrade	$ 1,200,000	$ 1,700,000	$ 135,695	$ 202,199	$ 337,895	$ 1,362,105	$ 1,564,305
Deep Well Rehabilitation	$ 548,000	$ 548,000	$ 548,000	$ -	$ 548,000	$ -	$ -
New Deep Wells at Down Hard	$ 3,773,000	$ 638,252	$ 485,743	$ -	$ 485,743	$ 152,509.31	$ 152,509
Rehabilitation of Asan Springs	$ 900,000	$ 900,000	$ 188,771	$ 152,068	$ 340,838	$ 559,162	$ 711,229
Master Meters	$ 1,600,000	$ 1,600,000	$ 1,421,267	$ 68,690	$ 1,489,957	$ 110,042.85	$ 178,733
Ugum Water Treatment Plant Intake	$ 3,670,000	$ 700,000	$ 543,615	$ 156,385	$ 700,000	$ -	$ 156,385
Water Wells	$ 2,000,000	$ -	$ -		$ -	$ -	$ -
Water Distribution System	$ 384,000	$ 3,174,748	$ 3,174,748	$ -	$ 3,174,748	$ (0)	$ (0)
Pressure Zone Realignment /	$ 3,550,000	$ -	$ -		$ -	$ -	$ -
Northern System Water Distribution	$ 2,725,000	$ -	$ -	$ -	$ -	$ -	$ -
Central Water Distribution System 2005	$ 1,200,000	$ 900,000	$ 692,926	$ 82,076	$ 775,002	$ 124,997.80	$ 207,074
Southern Water Distribution System	$ 1,800,000	$ -	$ -		$ -	$ -	$ -
Mechanical/Electrical Equipment	$ 1,360,000	$ 1,200,000	$ 1,079,495	$ 120,505	$ 1,200,000	$ (0)	$ 120,505
Water Reservoir Internal/External	$ 500,000	$ 2,000,000	$ 1,033,356	$ 476,027	$ 1,509,384	$ 490,616	$ 966,644
Water Reservoir Internal/External	$ 2,400,000	$ -	$ -		$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 11,697,000	$ 1,050,000	$ 1,050,000		$ 1,050,000	$ 0	$ 0
Distribution System Upgrades	$ 3,182,000	$ 474,160	$ 451,462	$ 22,698	$ 474,160	$ 0	$ 22,698
Ugum Water Treatment Plant Reservoir	$ 3,672,000	$ -	$ -		$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan		$ 100,000	$ 15,031	$ 63,428	$ 78,459	$ 21,541.49	$ 84,970
Production Plan / Reduce Navy Purchases		$ 100,000	$ 94,286	$ 5,714	$ 100,000	$ -	$ 5,714
Hydraulic Asessment of Tank		$ 500,000	$ 497,004	$ 2,996	$ 500,000	$ -	$ 2,996
Agana Heights & Chaot Tanks		$ 4,700,000	$ 4,327,370	$ 372,630	$ 4,700,000	$ -	$ 372,630
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 1,900,000	$ 1,750,355	$ 97,659	$ 1,848,013	$ 51,986.58	$ 149,645
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ -			$ -	$ -	$ -
Assessment of malojloj Elevetad & Yigo Elevated		$ 200,000	$ 200,000	$ -	$ 200,000	$ -	$ -
Public Water System Asser Inventory/Condition Assesment		$ 100,000	$ 96,554	$ 3,446	$ 100,000	$ -	$ 3,446
Public Water System GIS & Mapping		$ 50,000	$ 50,000	$ -	$ 50,000	$ -	$ -
		$ -			$ -	$ -	$ -
Wastewater System Planning	$ 1,500,000	$ 1,500,000	$ 1,465,858	$ 8,142	$ 1,474,000	$ 26,000.00	$ 34,142
Wastewater Vehicles	$ 235,000	$ 235,000	$ 209,795	$ 25,205	$ 235,000	$ 0	$ 25,205
NDWWTP - Chlorine Tanks	$ 250,000	$ 250,000	$ 250,000		$ 250,000	$ -	$ -
Tumon Bay Sewer Upgrades	$ 100,000	$ -	$ -		$ -	$ -	$ -
Wastewater Collection System Repl/Rehab		$ 1,105,000	$ 718,036	$ 283,287	$ 1,001,323	$ 103,676.99	$ 386,964
Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000	$ 1,250,000	$ 1,239,250	$ 10,750	$ 1,250,000	$ -	$ 10,750
Facilities Plan/Design for Agat-Santa Rita WWTP	$ 900,000	$ 899,630	$ 881,749	$ 17,881	$ 899,630	$ -	$ 17,881
Priority 1 Sewer Upgrades – Baza Gardens WWTP	$ 650,000	$ -	$ -		$ -	$ -	$ -
Baza Gardens STP Replacement	$ 3,567,000	$ 1,301,947	$ 316,686	$ 314	$ 317,000	$ 984,947	$ 985,261
Facilities Plan/Design for Umatac Merizo WWTP		$ 900,000	$ 693,161	$ 160,696	$ 853,858	$ 46,142.15	$ 206,839
Agat/Santa Rita STP Replacement	$ 2,968,000	$ 2,218,000	$ 2,217,314	$ 387	$ 2,217,701	$ 299.50	$ 686
Northern District WWTP Primary Treatment Upgrades	$ -	$ 11,750,000	$ 11,532,253	$ 211,261	$ 11,743,514	$ 6,486.06	$ 217,747
Biosolids Management Plan		$ 200,000	$ 196,414	$ 3,586	$ 200,000	$ -	$ 3,586
Agana WWTP Interim Measures	$ -	$ 11,500,000	$ 11,242,386	$ 57,614	$ 11,300,000	$ 200,000.00	$ 257,614
I&I SSES Southern		$ 800,000	$ 733,872	$ 66,129	$ 800,000	$ (0)	$ 66,128
I&I SSES Central		$ 850,000	$ 794,325	$ 55,675	$ 850,000	$ -	$ 55,675
I&I SSES Northern		$ -			$ -	$ -	$ -
Umatac Merizo Replacement		$ 250,000	$ 247,431	$ 2,569	$ 250,000	$ -	$ 2,569
Northern District WWTP Secondary Treatment Upgrades		$ 1,000,000					$ 1,000,000
		$ -					
Well Electrical Protection	$ 26,000	$ -	$ -		$ -	$ -	$ -
SCADA Pilot Project	$ 300,000	$ 61,950	$ 19,812	$ 42,138	$ 61,950	$ (0)	$ 42,138
Electrical Upgrade - Water Wells	$ 3,000,000	$ 354,227	$ 335,378	$ 18,849	$ 354,227	$ 0	$ 18,849
Electrical Upgrade - Water Booster	$ 325,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade -Water Booster	$ 350,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade - Other Water	$ 250,000	$ -			$ -	$ -	$ -
SCADA Improvements – Phase 1	$ 250,000	$ 250,000	$ 193,989	$ 56,011	$ 250,000	$ -	$ 56,011
SCADA Improvements – Phase 2	$ 1,100,000	$ 1,056,986	$ 1,027,424	$ 29,562	$ 1,056,986	$ -	$ 29,562
SCADA Improvements – Phase 3	$ 2,500,000	$ 24,956	$ 24,956	$ -	$ 24,956	$ 0	$ 0
SCADA Improvements – Phase 4	$ 850,000	$ -	$ -		$ -	$ -	$ -
		$ -					
Laboratory Modernization	$ 1,200,000	$ -	$ -		$ -	$ -	$ -
Land Survey	$ 1,500,000	$ 500,000	$ 470,590	$ 29,097	$ 499,687	$ 312.68	$ 29,410
General Plant Improvements / Water	$ 14,370,000	$ 7,241,000	$ 7,241,000	$ 0	$ 7,241,000	$ 0	$ 0
Interest Earned							$ 81,037
Total Construction Fund (2010 Series Revenue Bond)	**$ 87,402,000**	**$ 87,402,000**	**$ 78,594,399**	**$ 3,497,966**	**$ 82,092,366**	**$ 4,309,634**	**$ 8,888,637**

1.) PUC's Docket 11-01 $29,000,000.00 dated
09/19/11authorized GWA for reallocation
2) PUC's Docket 11-01 Reallocation of $23,246,000.00 dated 07/30/12
3) PUC's Dockect Reallocation dated February 2013

Exhibit A (1 of 1)

Exhibit B (1 of 1)

2010 Bond Reallocation			
CIP No.	Name	Additional Funds (x1000)	Reduction Funds (x1000)
PW 05-05	"A" Series Well Transmission Line		$ 42,435
PW 05-07	Meter Replacement Program	$ 150,000	
PW 05-11	Implement Ground Water Rule		$ 1
PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	$ 200,000	
PW 05-14	New Deep Wells at Down Hard		$ 152,509
PW 05-15	Rehabilitation of Asan Springs	$ 200,000	
PW 05-16	Master Meters		$ 110,043
PW 09-06	Central Water Distribution System 2005		$ 124,998
PW 09-09	Water Reservoir Internal/External	$ 150,000	
PW 12-01	Water Audit Program & Water Loss Control Plan		$ 21,541
PW 12-05	Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 51,987
WW 05-04	Wastewater System Planning		$ 26,000
WW 09-06	Wastewater Collection System Repl/Rehab		$ 103,677
WW 11-03	Baza Gardens STP Replacement	$ 186,431	
WW 11-04	Facilities Plan/Design for Umatac Merizo WWTP		$ 46,142
WW 11-08	Agat/Santa Rita STP Replacement		$ 300
WW 12-01	Northern District WWTP Primary Treatment Upgrades		$ 6,486
WW 12-03	Agana WWTP Interim Measures		$ 200,000
MC 05-02	Land Survey		$ 312.68
		$ 886,431	$ 886,431

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
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TO: **Consolidated Commission on Utilities**

FROM: **General Manager**

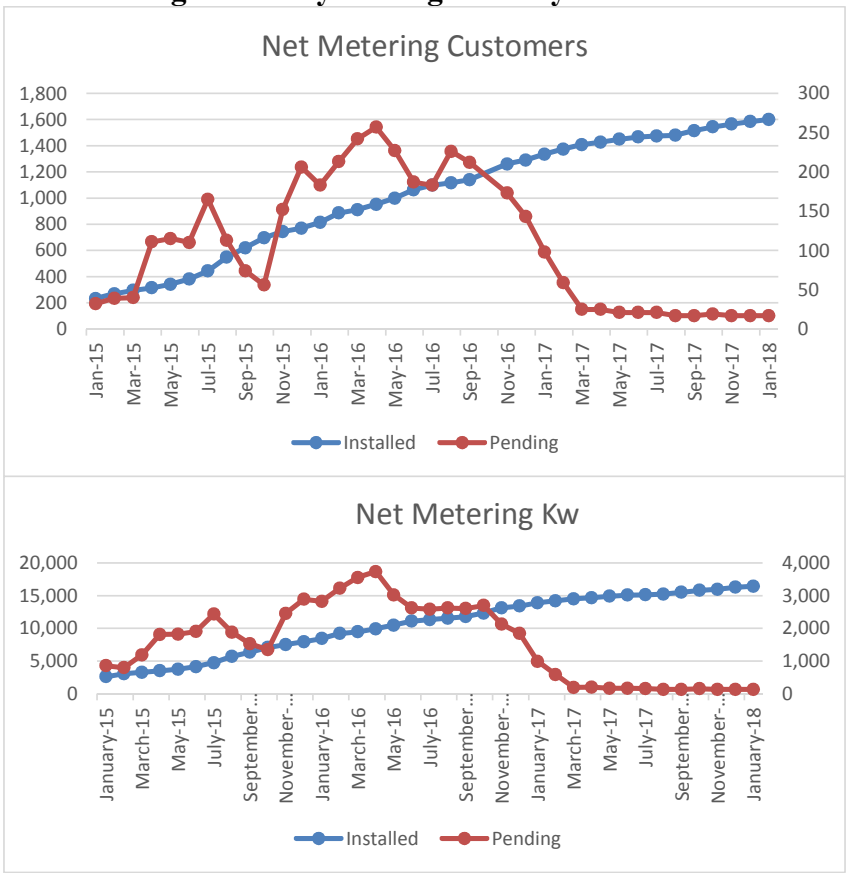
DATE: **February 27, 2018**

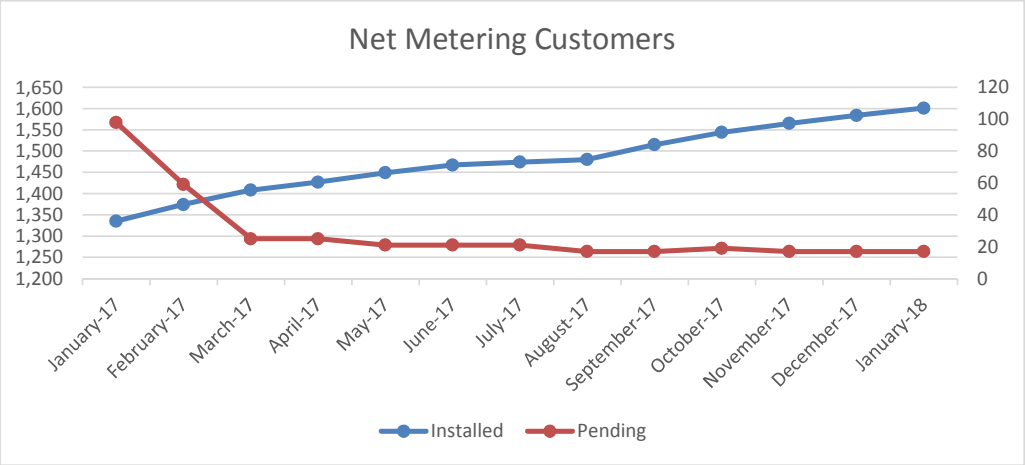
SUBJECT: **General Manager's Report**

1. **Generation System Update:** The following summarizes the expected generation capacity situation for March 2018. The peak demand for March is estimated at 248 MW. GPA plans to do chemical cleaning of both Cabras 1 & 2 steam units in March thru early April. The cleaning is necessary in order to improve plant availability and reliability.

March 2018 Capacity Available:	**332 MW**
March 2018 Projected Demand	**248 MW**
Available Reserve Margin	**84 M**

2. Net metering Summary Ending January 2018:



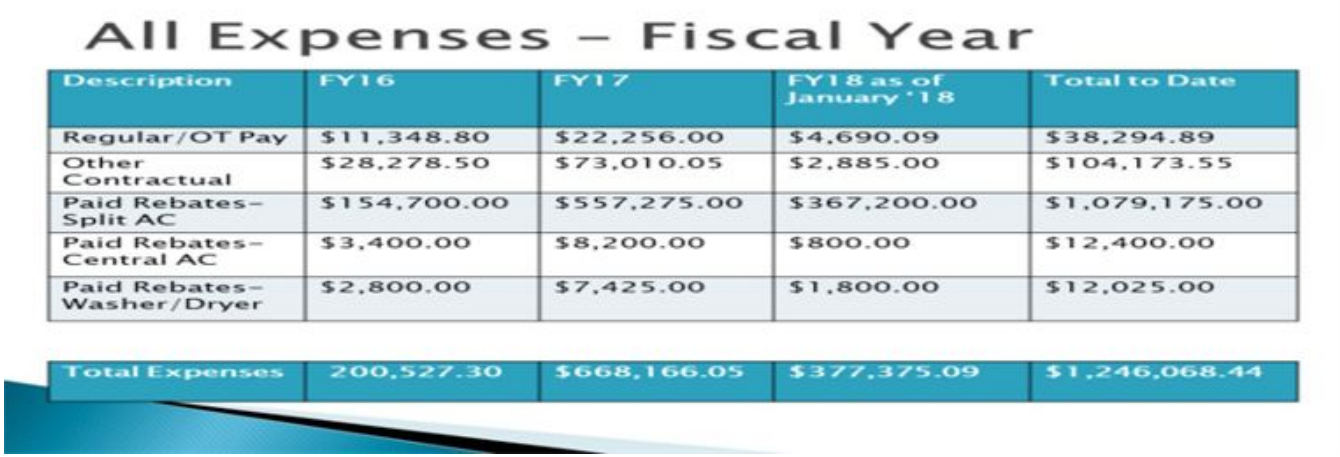


Description: Net Metering Ending January 2018	**Count**	**Kw**	
Active	**1,601**	**16,430**	
Pending	17	129	
Totals:	1,618	16,559	
Service:	**Count**	**KW**	**Kw/Customer**
Residential	1,519	13,689	9.0
Others	82	2,741	33.4
Total:	1,601	16,430	10.3
% Residential	**94.9%**	**83.3%**	
Estimated 12 Months Revenue Impact:	**$3,056,023**		

3. **Renewable Energy Production Summary Thru January 2018:**

Energy Production Source:	Kwh	Oil Barrels Avoided	Fuel Cost Avoided
NRG Total Production beginning Oct 2015	111,336,380	186,156	$10,238,598
Net Metering Estimated Production beginning Jan 2015	53,077,366	88,746	$4,881,045
Wind Power Production beginning Jan 2016	828,109	1,385	$76,154
Renewables Total:	**165,241,855**	**276,287**	**$15,195,797**

4. **Demand Side Management (DSM) Program Expenses Thru January 2018:**



5. **Phase II Renewables:** The PUC is expected to deliberate the approval of the KEPCO-LG 60 MW Power Purchase Agreement at its February 22nd Meeting. The HANWHA 60 MW PPA contract is before the CCU for approval this month. If CCU approves, the PUC may approve the project in their March 2018 meeting.

6. **Phase III Renewables Bid**: The bid has been issued. The bid request is for about 40MW of solar PV renewables to be constructed on Navy leased land. The energy produced would be stored in batteries during the day and released at nighttime to meet peak time load. The bid price opening date for acceptable proposals is set for April 17, 2018.

7. **PUC Agenda :**
    - **GPA Docket 18-06, Petition to Approve Phase II Renewable Award to KEPCO-LG CNS Consortium**
    - **GPA Docket 18-07, Petition to Approve Piti Substation GIS Maintenance Award to AYM International**
    - **Both were passed and approved by PUC on February 22, 2018**

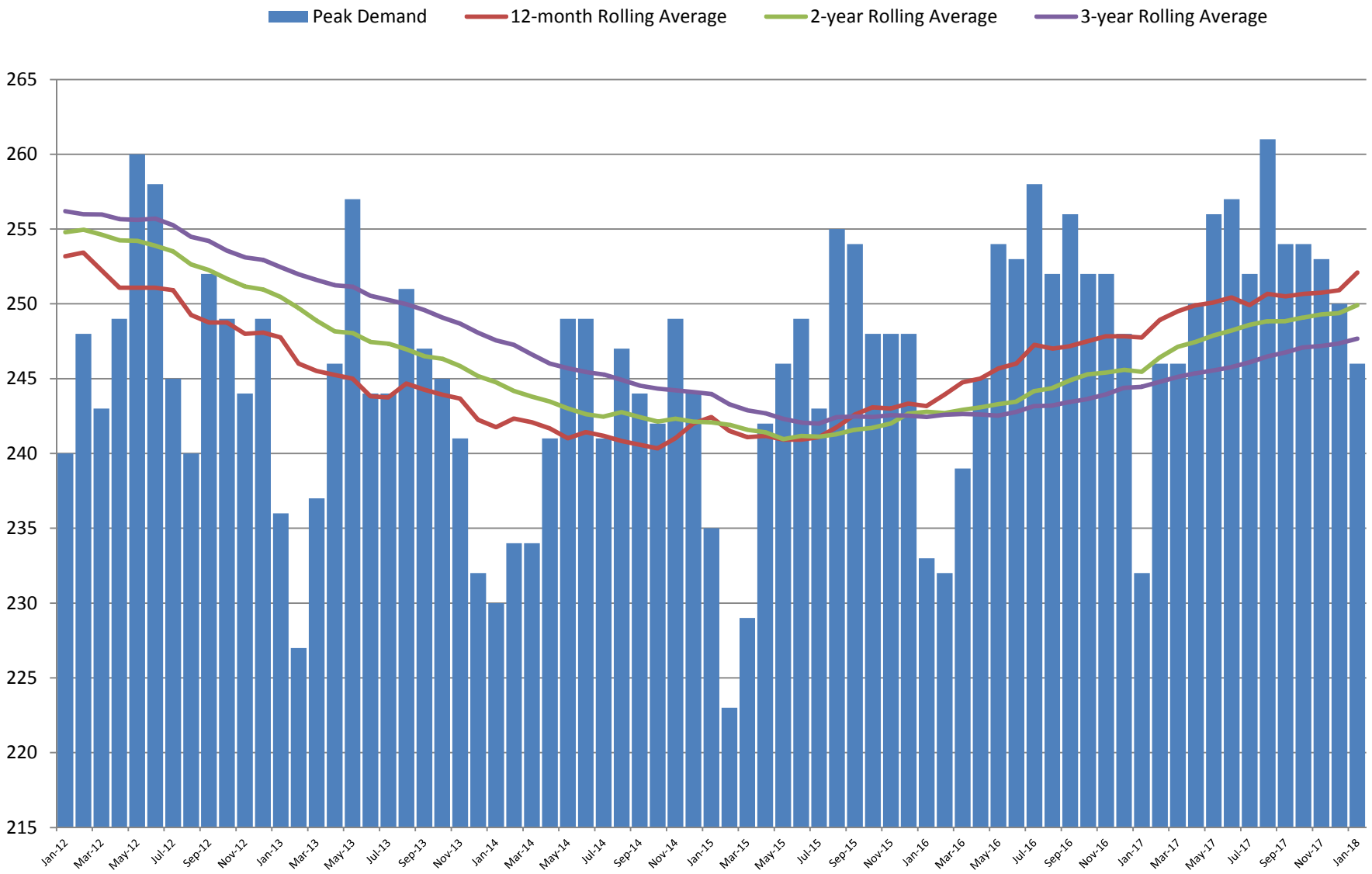
8. **New Power Plant Procurement:**
    - The rezoning effort for the land for the new power plant continues. Senator Ada held a public hearing on Bill-223-34 on February 9th. He has noted he will introduce the bill to be deliberated in the Legislature's February session.

9. **Employees Briefings:** We conducted employee briefings on February 19th and 20th. Twice a year we update our employees/team on the progress of the utility and where we are heading.

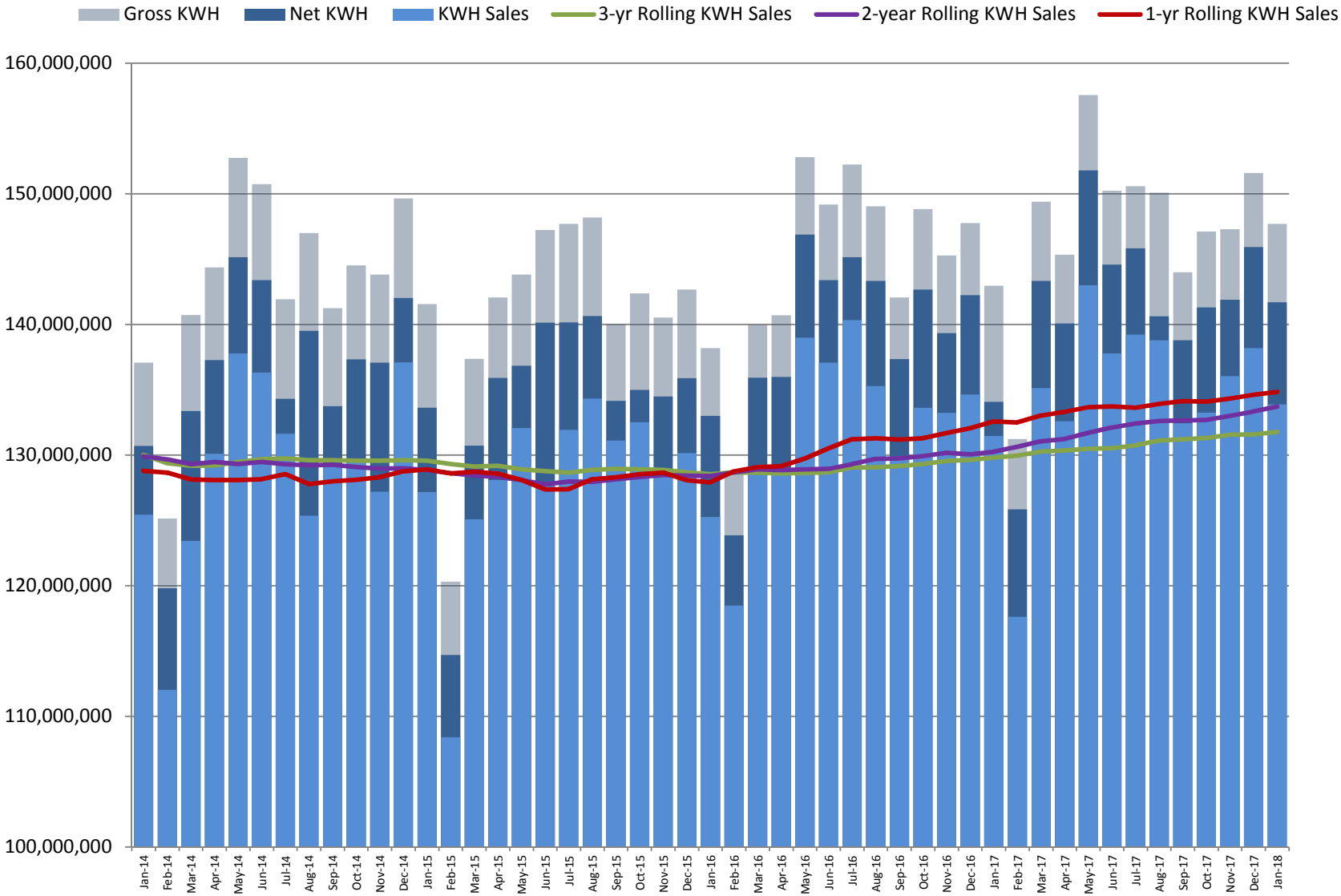
10. **Key Performance Indicators:** The following pages provide updated information thru January 2018.

John M. Benavente, P.E.

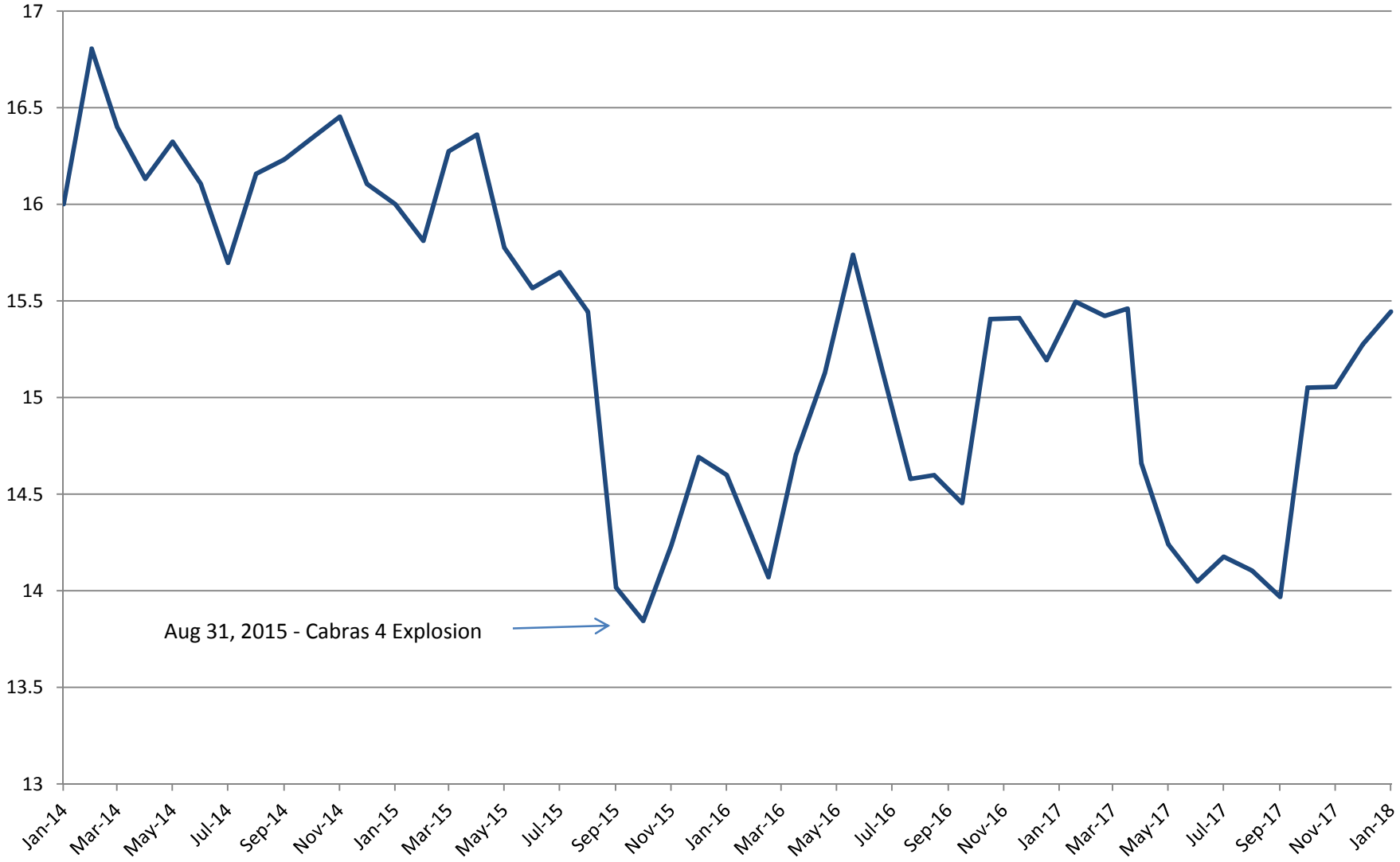
Historical Monthly Peak Demand
January 2012 - January 2018



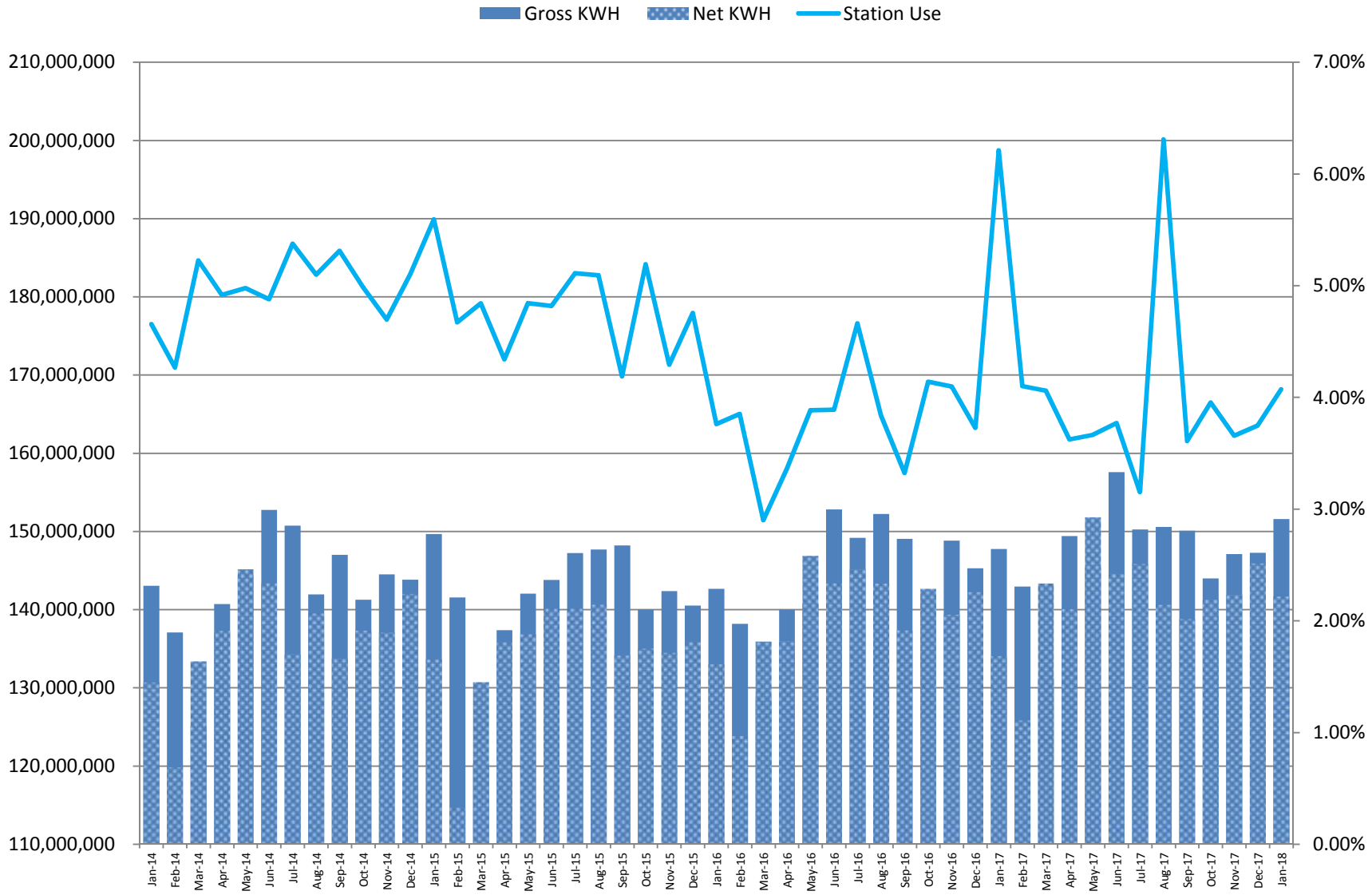
Historical KWH Sales
January 2014 - January 2018



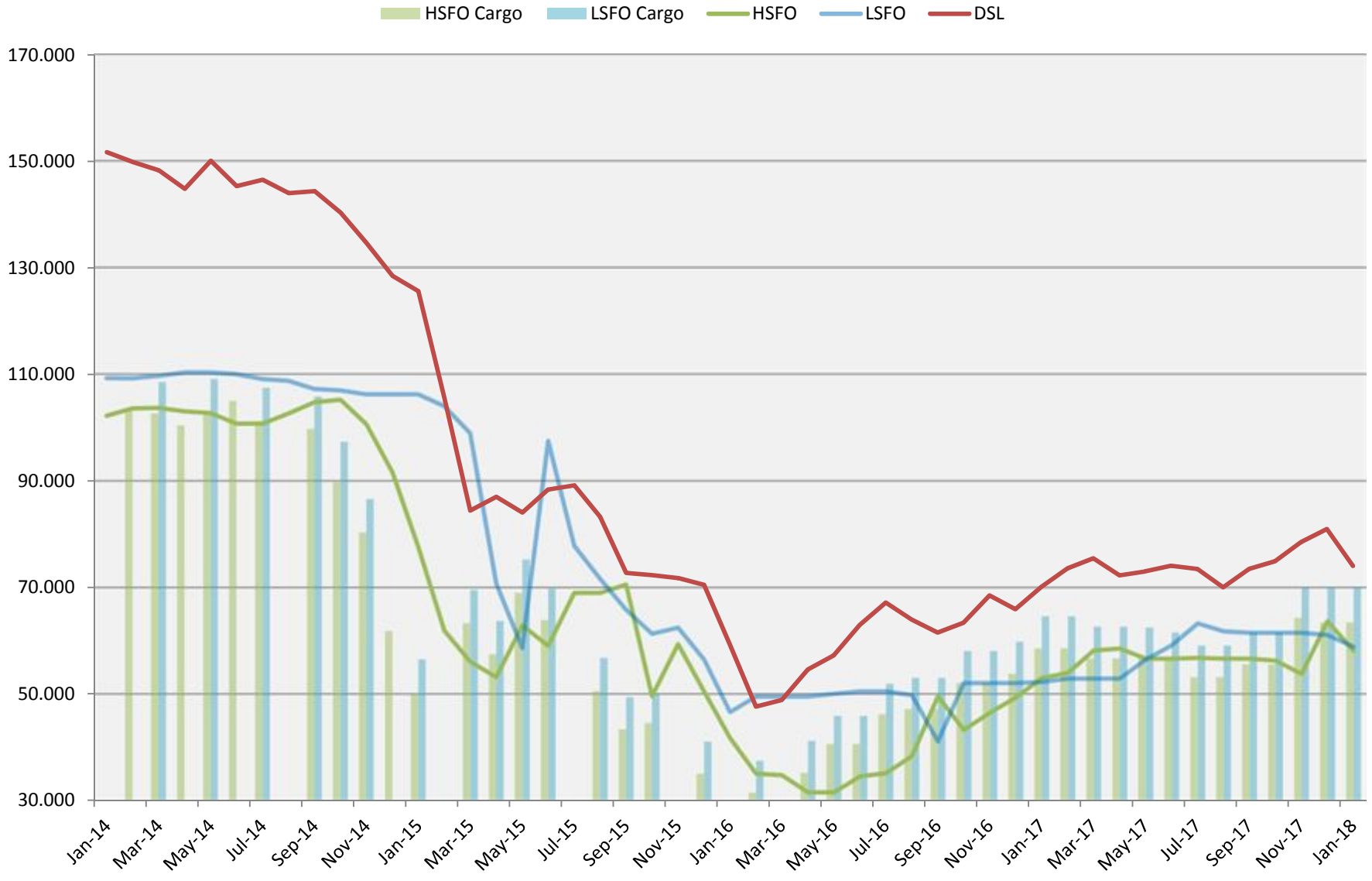
SYSTEM GROSS HEAT RATE
(KWH/Gal)
January 2014 - January 2017



Gross and Net Generation (KWH)
January 2014- January 2018



Fuel Cargo and Fuel Consumption Costs ($/bbl)
January 2014 - January 2018

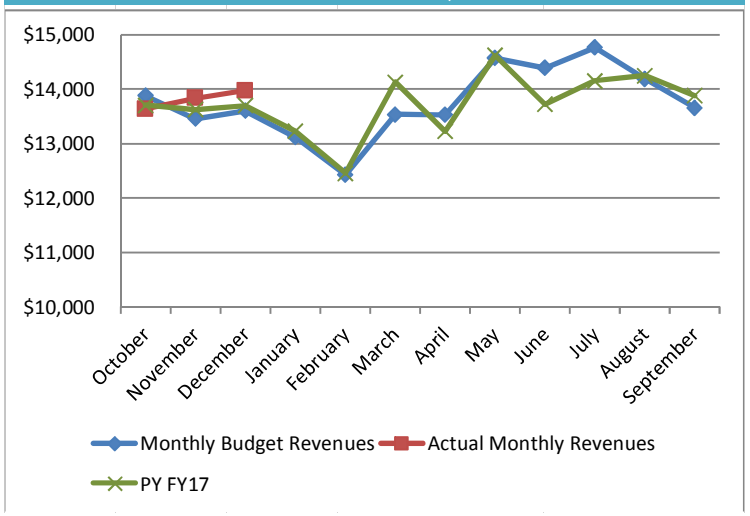


December 2017 Monthly Financial Highlight

Base Revenue Through December 31, 2017

$000	Monthly Budget Revenues	Actual Monthly Revenues	Variance		PY FY17	CY vs PY Variance	
October	$ 13,873	$ 13,625	$ (248)	↓	$ 13,702	$ (77)	↓
November	13,451	13,827	$ 376	↑	13,622	$ 205	↑
December	13,599	13,968	$ 369	↑	13,695	$ 273	↑
January	13,114				13,220		
February	12,422				12,454		
March	13,534				14,123		
April	13,525				13,224		
May	14,568				14,617		
June	14,386				13,722		
July	14,759				14,151		
August	14,183				14,244		
September	13,651				13,874		
Total	**$ 165,064**	**$ 41,420**	**$ 497**		**$ 164,649**	**$ 401**	

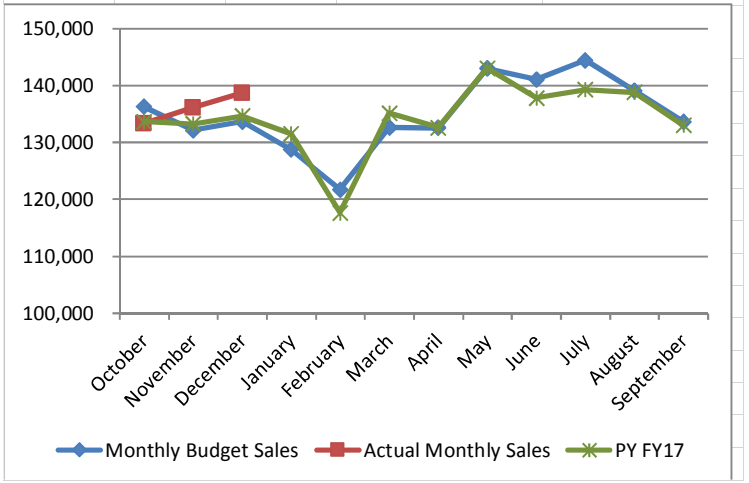
Base Rate Revenue $000



MWH Sales Through December 31, 2017

mwh	Monthly Budget Sales	Actual Monthly Sales	Variance		PY FY17	CY vs PY Variance	
October	136,219	133,262	(2,957)	↓	133,620	(358)	↓
November	132,132	136,044	3,912	↑	133,235	2,809	↑
December	133,625	138,587	4,962	↑	134,634	3,953	↑
January	128,711				131,461		
February	121,668				117,617		
March	132,587				135,131		
April	132,532				132,587		
May	142,956				143,013		
June	141,064				137,777		
July	144,404				139,227		
August	139,093				138,797		
September	133,658				132,993		
Total	**1,618,650**	**407,893**	**5,917**		**1,610,093**	**6,404**	

MWh Sales

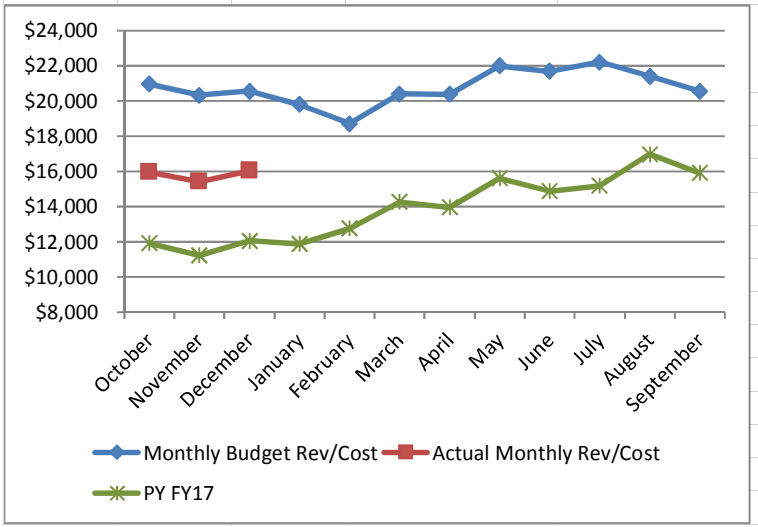


December Monthly Financial Highlight (Continued)

Fuel Revenue Through December 31, 2017

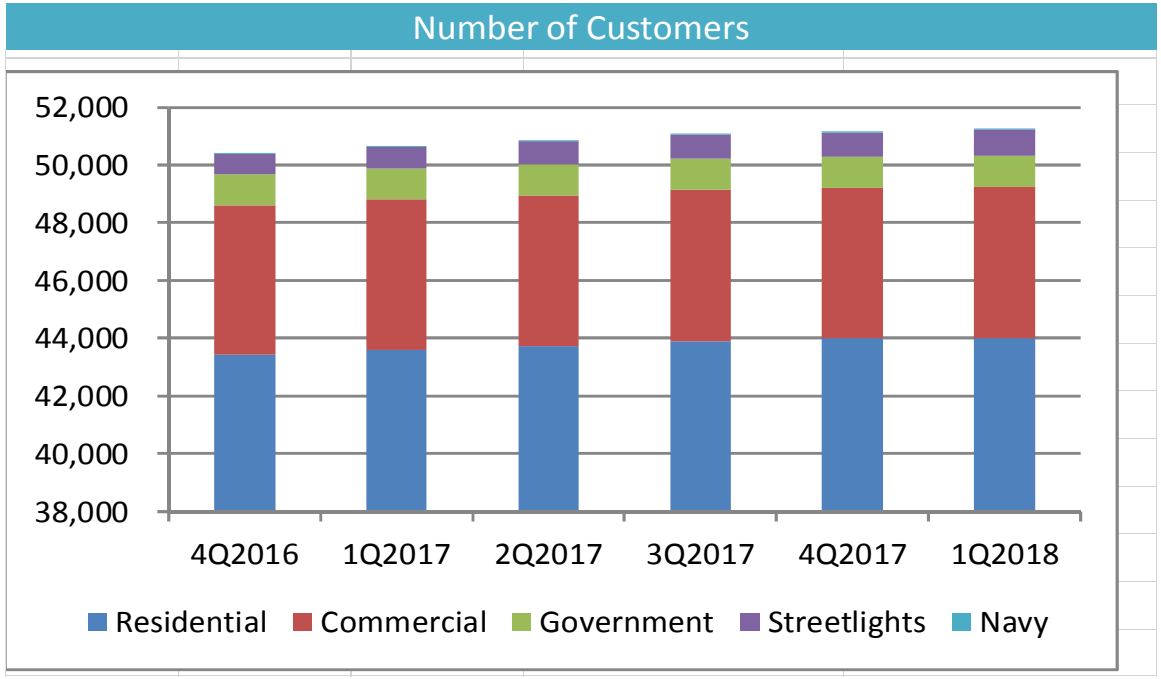
$000	Monthly Budget Rev/Cost	Actual Monthly Rev/Cost	Variance		PY FY17	CY vs PY Variance	
October	$ 20,928	$ 15,936	$ (4,992)	↓	$ 11,894	$ 4,042	↑
November	20,300	15,400	$ (4,899)	↓	11,215	$ 4,185	↑
December	20,529	16,007	$ (4,522)	↓	12,036	$ 3,971	↑
January	19,774				11,867		
February	18,692				12,751		
March	20,370				14,248		
April	20,361				13,940		
May	21,963				15,596		
June	21,672				14,859		
July	22,185				15,175		
August	21,369				16,947		
September	20,534				15,895		
Total	**$ 248,677**	**$ 47,343**	**$ (14,413)**		**$ 166,425**	**$ 12,198**	

Fuel Revenue/ Cost $000



December 2017 Monthly Financial Highlight (Continued)

Number of Customers						
	4Q2016	1Q2017	2Q2017	3Q2017	4Q2017	1Q2018
Residential	43,408	43,582	43,718	43,902	43,991	43,996
Commercial	5,198	5,235	5,236	5,252	5,226	5,233
Government	1,089	1,071	1,077	1,071	1,073	1,079
Streetlights	688	722	800	824	823	905
Navy	1	1	1	1	1	1
	50,384	50,611	50,832	51,050	51,114	51,214

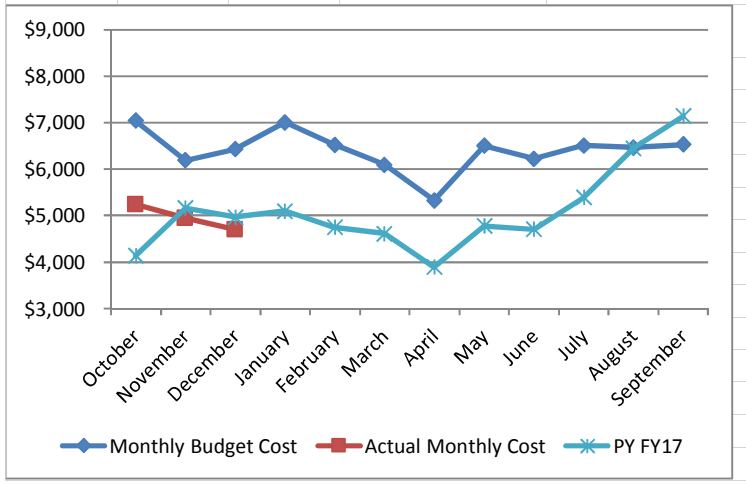


December 2017 Monthly Financial Highlight (Continued)

O&M Cost Through December 31, 2017

$000	Monthly Budget Cost	Actual Monthly Cost	Variance		PY FY17	CY vs PY Variance	
October	$ 7,040	5,239	1,801	↑	4,135	(1,103)	↓
November	6,182	4,941	1,240	↑	5,158	217	↑
December	6,428	4,694	1,735	↑	4,966	273	↑
January	7,001				5,092		
February	6,522				4,748		
March	6,091				4,612		
April	5,320				3,892		
May	6,495				4,772		
June	6,221				4,702		
July	6,508				5,385		
August	6,462				6,445		
September	6,526				7,138		
Total	**$ 76,796**	**$ 14,874**	**$ 4,776**		**$ 61,045**	**$ (614)**	

O&M Cost $000



- DSC greater than target of 1.75

Debt service coverage (DSC) calculation-indenture	2012	2013	2014	2015	2016	2017	YTD Dec. 2017
Senior lien coverage	2.13	3.36	3.16	3.62	3.35	2.81	3.12
Aggregate debt service coverage	1.35	1.88	1.98	2.62	3.35	2.81	3.12
Debt service coverage (DSC) calculation-IPP as O&M							
Senior lien coverage	1.29	2.16	2.25	2.56	2.52	1.95	2.19
Aggregate debt service coverage	0.82	1.21	1.41	1.85	2.52	1.95	2.19

- Under recovery of LEAC - $16.8 million

GUAM POWER AUTHORITY
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GUAM POWER AUTHORITY
FINANCIAL STATEMENT OVERVIEW
December 2017

Attached are the financial statements and supporting schedules for the month and fiscal year ended December 31, 2017.

Summary
The increase in net assets for the month ended was $0.1 million as compared to the anticipated net decrease of $0.3 million projected at the beginning of the year. The total kWh sales for the month were 3.71% more than projected and non-fuel revenues were $0.4 million more than the estimated amount. O & M expenses for the month were $4.6 million which was $1.7 million under our projections for the month. Other expenses for the month such as interest expense, IPP costs, (net of interest income and other income) totaled to $3.1 million, which was $0.9 million less than the projected amount. There were no other significant departures from the budget during the period.

Analysis

Description	Previous Month	Current Month	Target
Quick Ratio	2.03	1.74	2
Days in Receivables	41	41	52
Days in Payables	24	35	30
LEAC (Over)/Under Recovery Balance -YTD	$15,977,766	$16,797,412	$9,021,347
T&D Losses	4.91%	4.90%	7.00%
Debt Service Coverage	2.03	2.19	1.75
Long-term equity ratio	13%	13%	30 – 40%
Days in Cash	136	154	60

The Quick Ratio has been a challenge for GPA historically. However, over the last two fiscal years, the influx of cash has continued to improve this ratio. GPA has current obligations of approximately $86 million and approximately $150 million in cash and current receivables. Debt Service Coverage ratio is calculated using the methodology in use before the Fiscal Year 2002 change in accounting practice.

Financial Statement
December 2017
Significant Assumptions

The significant assumptions in the financial statements are as follows:

- Accrual cutoff procedures were performed at month end
- An inventory valuation is performed at year-end only
- Accounts Receivable includes accruals based on prior months' usage.

Prepared by:	Reviewed by:	Approved by:
Lenora M. Sanz	John J.E. Kim	John M. Benavente, P.E.
Controller	Chief Financial Officer	General Manager

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Net Position
December 31, 2017 and September 30, 2017

	Unaudited December 2017	Unaudited September 2017	Change from Sept 30 2017
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES			
Current assets:			
Cash and cash equivalents:			
Held by trustee for restricted purposes:			
Interest and principal funds	$ 7,449,683	$ 18,061,879	$ (10,612,196)
Bond indenture funds	54,749,314	56,907,535	(2,158,221)
Held by Guam Power Authority:			
Bond indenture funds	112,063,892	132,579,889	(20,515,997)
Self insurance fund-restricted	19,253,131	19,251,372	1,759
Energy sense fund	736,812	1,074,491	(337,679)
Total cash and cash equivalents	194,252,832	227,875,166	(33,622,334)
Accounts receivable, net	37,184,729	35,603,289	1,581,440
Total current receivables	37,184,729	35,603,289	1,581,440
Materials and supplies inventory	12,745,964	11,989,745	756,219
Fuel inventory	54,963,684	52,387,369	2,576,315
Prepaid expenses	7,603,268	682,814	6,920,454
Total current assets	306,750,477	328,538,383	(21,787,906)
Utility plant, at cost:			
Electric plant in service	1,039,123,386	1,037,419,517	1,703,869
Construction work in progress	21,948,641	18,382,414	3,566,227
Total	1,061,072,027	1,055,801,931	5,270,096
Less: Accumulated depreciation	(575,852,774)	(565,144,900)	(10,707,874)
Total utility plant	485,219,253	490,657,031	(5,437,778)
Other non-current assets:			
Investment - bond reserve funds held by trustee	48,480,037	48,576,863	(96,826)
Unamortized debt issuance costs	23,106,020	4,267,305	18,838,715
Total other non-current assets	71,586,057	52,844,168	18,741,889
Total assets	863,555,787	872,039,582	(8,483,795)
Deferred outflow of resources:			
Deferred fuel revenue	16,797,412	16,751,048	46,364
Unamortized loss on debt refunding	10,763,980	11,076,064	(312,084)
Pension	8,168,718	8,168,718	0
Unamortized forward delivery contract costs	597,518	637,358	(39,840)
Total deferred outflows of resources	36,327,628	36,633,188	(305,560)
	$ 899,883,415	$ 908,672,770	$ (8,789,355)

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statement of Net Position, Continued
December 31, 2017 and September 30, 2017

	Unaudited December 2017	Unaudited September 2017	Change from Sept 30 2017
LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION			
Current liabilities:			
Current maturities of long-term debt	$ 1,495,000	$ 1,780,000	$ (285,000)
Current obligations under capital leases	16,949,416	16,949,416	0
Accounts payable			
Operations	44,281,925	56,671,898	(12,389,973)
Others	4,316,635	5,425,336	(1,108,701)
Accrued payroll and employees' benefits	859,987	1,546,860	(686,873)
Current portion of employees' annual leave	2,445,747	2,324,895	120,852
Interest payable	7,839,450	15,065,830	(7,226,380)
Customer deposits	8,429,092	8,503,783	(74,691)
Total current liabilities	86,617,252	108,268,018	(21,650,766)
Regulatory liabilities:			
Provision for self insurance	19,550,977	19,550,977	0
Total regulatory liabilities	19,550,977	19,550,977	0
Long term debt, net of current maturities	607,868,768	590,568,862	17,299,906
Obligations under capital leases, net of current portion	24,413,404	30,343,708	(5,930,304)
Net Pension liability	63,091,097	64,596,253	(1,505,156)
DCRS sick leave liability	4,008,397	4,008,397	0
Employees' annual leave net of current portion	806,762	806,762	0
Customer advances for construction	372,489	369,180	3,309
Total liabilities	806,729,146	818,512,157	(11,783,011)
Deferred inflows of resources:			
Unearned forward delivery contract revenue	2,190,066	2,336,071	(146,005)
Pension	732,788	732,788	0
Total deferred inflows of resources	2,922,854	3,068,859	(146,005)
Commitments and contigencies			
Net Position:			
Net investment in capital assets	(63,016,539)	(43,869,737)	(19,146,802)
Restricted	16,817,689	15,232,832	1,584,857
Unrestricted	136,430,264	115,728,658	20,701,606
Total net position	90,231,414	87,091,754	3,139,660
	$ 899,883,415	$ 908,672,770	$ (8,789,355)

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM
Statement of Revenues, Expenses and Changes in Net Assets

	December 31			Three Months Ending December 31		
	Unaudited 2017	Unaudited 2016	% of change Inc (dec)	Unaudited 2017	Unaudited 2016	% of change Inc (dec)
Revenues						
Sales of electricity	$ 29,975,334	$ 25,731,231	16	$ 88,763,807	$ 76,164,617	17
Miscellaneous	122,242	149,309	(18)	407,052	529,904	(23)
Total	30,097,576	25,880,540	16	89,170,859	76,694,521	16
Bad debt expense	(86,583)	(83,333)	4	(259,750)	(250,000)	4
Total revenues	30,010,993	25,797,207	16	88,911,109	76,444,521	16
Operating and maintenance expenses						
Production fuel	16,007,336	12,036,465	33	47,343,365	35,145,493	35
Other production	936,410	1,044,858	(10)	3,525,714	3,552,823	(1)
	16,943,746	13,081,323	30	50,869,079	38,698,316	31
Depreciation	3,567,508	3,621,422	(1)	10,740,759	10,745,217	(0)
Energy conversion cost	1,432,452	1,455,463	(2)	4,941,972	4,370,630	13
Transmission & distribution	1,108,137	984,711	13	2,959,860	2,913,696	2
Customer accounting	432,690	292,768	48	1,267,214	969,219	31
Administrative & general	2,129,750	2,277,938	(7)	6,861,300	6,291,524	9
Total operating and maintenance expenses	25,614,283	21,713,625	18	77,640,184	63,988,602	21
Operating income	4,396,710	4,083,582	8	11,270,925	12,455,919	(10)
Other income (expenses)						
Interest income	741,024	74,400	896	1,751,460	227,803	669
Interest expense and amortization	(2,729,985)	(2,783,224)	(2)	(8,168,390)	(8,390,260)	(3)
Bond issuance costs	(2,487,564)	76,827	(3,338)	(2,333,910)	230,481	(1,113)
Allowance for funds used during construction	273,336	322,071	(15)	819,921	968,537	(15)
Other expense	(82,834)	(4,291)	1,830	(205,147)	(12,873)	1,494
Total other income (expenses)	(4,286,023)	(2,314,217)	85	(8,136,066)	(6,976,312)	17
Income (loss) before capital contributions	110,687	1,769,365	(94)	3,134,859	5,479,607	(43)
Capital contributions	0	0	0	4,795	11,488	(58)
Increase (decrease) in net assets	110,687	1,769,365	(94)	3,139,654	5,491,095	(43)
Total net assets at beginning of period (restated)	90,120,721	80,782,059	12	87,091,754	77,060,329	13
Total net assets at end of period	$ 90,231,408	$ 82,551,424	9	$ 90,231,408	$ 82,551,424	9

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Cash Flows
Period Ended December 31, 2017

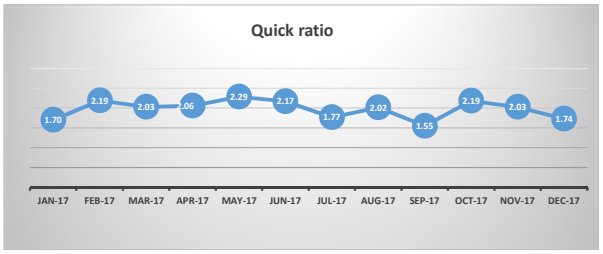
	Month Ended 12/31/2017	YTD Ended 12/31/2017
Increase(decrease) in cash and cash equivalents		
Cash flows from operating activities:		
Cash received from customers	$30,797,532	$ 87,323,839
Cash payments to suppliers and employees for goods and services	34,596,841	113,668,354
Net cash provided by operating activities	($3,799,309)	(26,344,515)
Cash flows from investing activities:		
Interest and dividends on investments and bank accounts	741,024	1,751,460
Net cash provided by investing activities	741,024	1,751,460
Cash flows from non-capital financing activities		
Interest paid on short term debt	(5,977)	(18,380)
Provision for self insurance funds	(1,759)	(1,759)
Net cash provided by noncapital financing activities	(7,736)	(20,139)
Cash flows from capital and related financing activities		
Acquisition of utility plant	(1,976,197)	(5,302,974)
Principal paid on bonds and other long-term debt	(1,770,000)	(3,550,000)
Interest paid on bonds(net of capitalized interest)	273,336	(13,556,279)
Interest paid on capital lease obligations	(340,585)	(1,000,190)
Interest & principal funds held by trustee	(515,158)	10,612,196
Reserve funds held by trustee	40,572	96,826
Bond funds held by trustee	386,103	2,158,221
Principal payment on capital lease obligations	(1,894,000)	(5,930,304)
Grant from DOI/FEMA	-	4,795
Debt issuance costs/loss on defeasance	21,016,392	20,564,906
Net cash provided by (used in) capital and related financing activities	15,220,463	4,097,197
Net (decrease) increase in cash and cash equivalents	12,154,441.28	(20,515,997)
Cash and cash equivalents, beginning	99,909,451	132,579,889
Cash and cash equivalents-Funds held by GPA, December 31, 2017	**$ 112,063,892**	**$ 112,063,892**

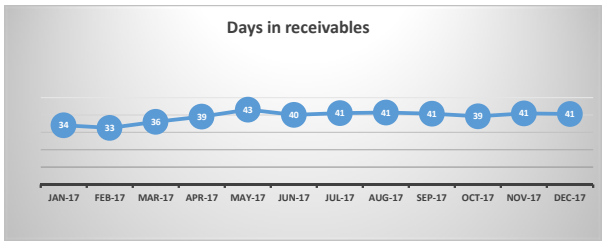
GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Cash Flows, continued
Period Ended December 31, 2017

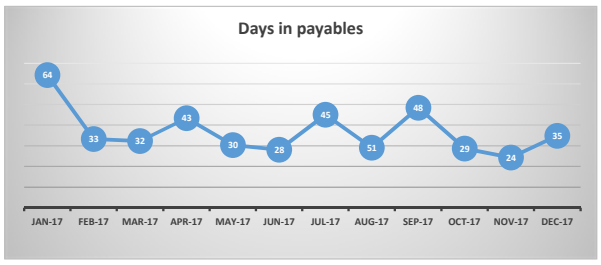
	Month Ended 12/31/2017	YTD Ended 12/31/2017
Reconciliation of operating earnings to net cash provided by operating activities:		
Operating earnings net of depreciation expense and excluding interest income	$4,396,710	$11,270,925
Adjustments to reconcile operating earnings to net cash provided by operating activities:		
Depreciation and amortization	3,567,508	10,740,759
Other expense	(2,570,398)	(2,539,057)
(Increase) decrease in assets:		
Accounts receivable	784,516	(1,581,440)
Materials and inventory	(24,008)	(756,219)
Fuel inventory	(6,992,429)	(2,576,315)
Prepaid expenses	934,201	(6,920,454)
Unamortized debt issuance cost	(18,901,931)	(18,838,715)
Deferred fuel revenue	(819,646)	(46,364)
Unamortized loss on debt refunding	104,028	312,084
Unamortized forward delivery contract costs	13,280	39,840
Increase (decrease) in liabilities:		
Accounts payable-operations	16,032,782	(12,389,973)
Accounts payable-others	349,053	(771,022)
Accrued payroll and employees' benefits	163,316	(686,873)
Net pension liability	(520,208)	(1,505,156)
Employees' annual leave	(5,015)	120,852
Customers deposits	(262,400)	(74,691)
Customer advances for construction	-	3,309
Unearned forward delivery contract revenue	(48,668)	(146,005)
Net cash provided by operating activities	**($3,799,309)**	**$ (26,344,515)**

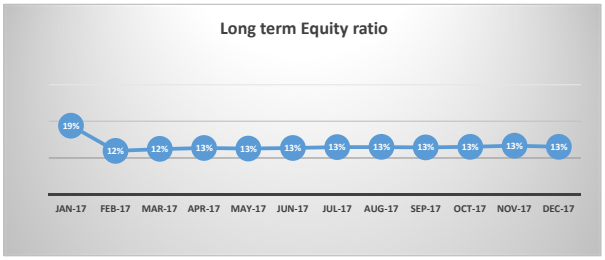
Guam Power Authority
Financial Analysis
12/31/2017

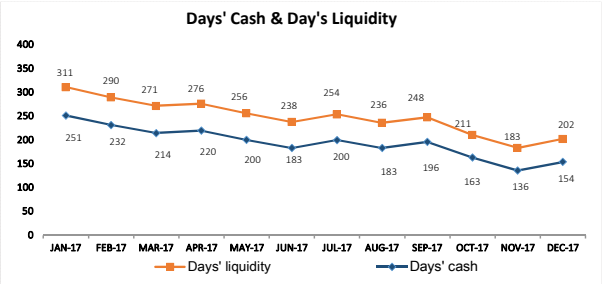
	Quick Ratio		
A	Reserve Funds Held by GPA		112,063,892
B	Current Accounts Receivable		38,242,089
C	Total Cash and A/R (A+B)		150,305,981
D	Total Current Liabilities		86,617,252
E	**Quick Ratio (F/G)**		**1.74**
	Days in Receivables		
A	FY 18 Moving 12 Mos.-Actual		343,673,245
B	No. of Days		365
C	Average Revenues per day (A/B)		941,571
D	Current Accounts Receivable		38,242,089
E	**Days in Receivables (D/C)**		**41**
	Days in Payables		
A	FY 18 Moving 12 Months-Actual		509,492,667
B	No. of Days		365
C	Average Payables per day (A/B)		1,395,870
D	Current Accounts Payables		48,598,561
E	**Days in Payables (D/C)**		**35**
	Long term equity ratio		
A	Equity	$	90,231,414.00
B	Total Long term Liability	$	602,636,318.00
C	Total Equity and liability	$	692,867,732.00
D	**Long term equity ratio (A/C)**		**13%**
	Days cash on hand		
A	Unresctricted cash & cash equivalents		112,064
B	No. of Days -YTD		92
C	A x B		10,309,878
D	Total Operating expenses excluding depreciatior		66,899
E	**Days cash on hand**		**154**
	Days' Liquidity		
A	Unresctricted cash , cash equivalents & revolvin		147,064
B	No. of Days -YTD		92
C	A x B		13,529,878
D	Total Operating expenses excluding depreciatior		66,899
E	**Days liquidity**		**202**











GPA 302
1/17/2018

GUAM POWER AUTHORITY
ACCRUED REVENUE
DECEMBER 2017

	FOR THE MONTH ENDED DECEMBER		THREE MONTHS ENDED DECEMBER	
	2017	2016	2017	2016
KWH SALES:				
Residential	43,307,944	41,105,614	128,376,797	124,298,783
Small Gen. Non Demand	6,956,278	6,987,253	21,083,461	20,681,755
Small Gen. Demand	15,848,505	16,033,983	47,430,029	47,579,490
Large General	27,485,887	26,487,608	80,336,690	79,179,733
Independent Power Producer	40,140	96,065	226,207	273,909
Private St. Lights	35,129	39,997	104,022	141,553
Sub-total	93,673,883	90,750,519	277,557,205	272,155,222
Government Service:				
Small Non Demand	1,272,026	1,121,641	3,778,769	3,442,048
Small Demand	8,063,549	8,060,205	24,445,741	24,987,539
Large	6,812,255	6,238,617	19,781,131	18,735,314
Street Lighting	697,921	994,072	2,179,335	2,888,990
Sub-total	16,845,750	16,414,534	50,184,976	50,053,891
Total	110,519,633	107,165,053	327,742,181	322,209,113
U. S. Navy	28,067,673	27,468,943	80,150,976	79,280,394
GRAND TOTAL	138,587,306	134,633,996	407,893,157	401,489,507
REVENUE:				
Residential	$ 9,238,911	$ 7,527,553	$ 27,421,418	$ 22,756,049
Small Gen. Non Demand	$ 1,765,223	$ 1,572,329	$ 5,347,367	$ 4,642,333
Small Gen. Demand	$ 3,769,415	$ 3,341,792	$ 11,226,738	$ 9,834,497
Large General	$ 6,067,740	$ 5,049,240	$ 17,662,933	$ 15,034,002
Independent Power Producer	$ 9,249	$ 19,759	$ 49,046	$ 55,029
Private St. Lights	$ 25,553	$ 25,575	$ 76,274	$ 81,280
Sub-total	$ 20,876,091	$ 17,536,247	$ 61,783,776	$ 52,403,189
Government Service:				
Small Non Demand	$ 341,017	$ 268,979	$ 1,009,458	$ 821,871
Small Demand	$ 2,046,340	$ 1,798,184	$ 6,157,492	$ 5,506,709
Large	$ 1,652,805	$ 1,334,239	$ 4,783,239	$ 3,993,317
Street Lighting	$ 416,951	$ 548,266	$ 1,281,753	$ 1,498,104
Sub-total	$ 4,457,113	$ 3,949,668	$ 13,231,943	$ 11,820,000
Total	$ 25,333,204	$ 21,485,915	$ 75,015,719	$ 64,223,190
U. S. Navy	$ 4,642,130	$ 4,245,316	$ 13,748,089	$ 11,941,428
GRAND TOTAL	$ 29,975,334	$ 25,731,231	$ 88,763,807	$ 76,164,617
NUMBER OF CUSTOMERS:				
Residential	43,898	43,582	43,948	43,376
Small Gen. Non Demand	4,129	4,125	4,131	4,088
Small Gen. Demand	981	991	982	994
Large General	118	116	118	115
Independent Power Producer	3	3	3	3
Private St. Lights	530	517	529	528
Sub-total	49,659	49,334	49,711	49,103
Government Service:				
Small Non Demand	679	680	678	689
Small Demand	350	346	352	343
Large	47	45	47	45
Street Lighting	378	205	378	164
Sub-total	1,454	1,276	1,454	1,240
Total	51,113	50,610	51,165	50,343
US Navy	1	1	1	1
GRAND TOTAL	51,114	50,611	51,166	50,344

GPA403
1/17/2018

GUAM POWER AUTHORITY
ACCRUED REVENUE

	TWELVE MONTHS ENDING	DECEMBER 2017	NOVEMBER 2017	OCTOBER 2017	SEPTEMBER 2017	AUGUST 2017	JULY 2017	JUNE 2017	MAY 2017	APRIL 2017	MARCH 2017	FEBRUARY 2017	JANUARY 2017
KWH SALES:													
Residential	510,413,616	43,307,944	43,386,853	41,682,000	41,491,015	44,434,719	45,094,364	45,699,553	46,940,445	42,105,054	40,911,781	35,936,337	39,423,550
Small General Non Demand	84,301,405	6,956,278	7,060,041	7,067,142	7,022,092	7,347,440	7,087,373	7,546,692	7,375,238	6,926,353	6,767,505	6,497,885	6,647,367
Small General Demand	189,901,464	15,848,505	15,789,397	15,792,127	15,509,408	16,488,257	15,839,125	16,853,701	16,415,592	15,638,177	16,300,307	13,890,958	15,535,910
Large General	315,730,188	27,485,887	26,267,661	26,583,141	25,432,034	27,038,013	27,119,633	26,399,095	27,209,329	25,771,823	26,173,462	23,699,969	26,550,140
Private Outdoor Lighting	454,876	35,129	35,042	33,851	76,532	33,324	35,412	36,199	31,956	34,275	34,097	32,325	36,736
Independent Power Producer	914,121	40,140	93,823	92,244	34,586	57,754	82,800	93,447	97,039	78,158	83,841	67,797	92,493
Sub-Total	1,101,715,671	93,673,883	92,632,817	91,250,505	89,565,666	95,399,508	95,258,706	96,628,687	98,069,599	90,553,840	90,270,993	80,125,270	88,286,197
Government Service:													
Small Non Demand	14,238,967	1,272,026	1,255,131	1,251,612	1,246,106	1,243,487	1,254,979	1,154,625	1,242,514	1,118,738	1,123,675	996,603	1,079,470
Small Demand	96,336,804	8,063,549	8,098,974	8,283,218	8,084,368	8,147,386	7,962,644	7,847,651	8,507,100	7,890,703	8,171,598	7,382,544	7,897,069
Large	75,943,786	6,812,255	6,550,623	6,418,254	6,493,449	6,520,699	6,219,351	6,043,966	6,712,069	6,145,212	6,340,287	5,654,767	6,032,854
Street Lighting (Agencies)	8,804,951	697,921	668,464	812,949	697,002	877,130	638,971	843,815	771,506	720,057	829,968	707,509	539,658
Sub-Total	195,324,508	16,845,750	16,573,193	16,766,033	16,520,925	16,788,702	16,075,944	15,890,058	17,233,190	15,874,710	16,465,529	14,741,423	15,549,052
Total	1,297,040,178	110,519,633	109,206,010	108,016,537	106,086,591	112,188,210	111,334,651	112,518,745	115,302,789	106,428,550	106,736,522	94,866,692	103,835,249
U.S. Navy	319,456,483	28,067,673	26,837,883	25,245,420	26,906,320	26,608,721	27,892,205	25,258,344	27,710,121	26,158,807	28,394,970	22,750,741	27,625,278
Grand Total	1,616,496,661	138,587,306	136,043,893	133,261,957	132,992,911	138,796,930	139,226,856	137,777,089	143,012,910	132,587,357	135,131,492	117,617,433	131,460,526
REVENUE:													
Residential	$ 105,267,346	$ 9,238,911	$ 9,263,463	$ 8,919,044	$ 8,887,320	$ 9,762,810	$ 9,056,344	$ 9,109,920	$ 9,464,539	$ 8,447,732	$ 8,255,658	$ 7,648,484	$ 7,213,121
Small General Non Demand	$ 20,745,767	$ 1,765,223	$ 1,789,263	$ 1,792,881	$ 1,783,997	$ 1,902,660	$ 1,709,931	$ 1,790,832	$ 1,782,557	$ 1,661,818	$ 1,647,869	$ 1,650,380	$ 1,468,355
Small General Demand	$ 43,461,759	$ 3,769,415	$ 3,699,298	$ 3,758,026	$ 3,692,273	$ 3,964,157	$ 3,527,191	$ 3,704,661	$ 3,828,208	$ 3,333,389	$ 3,674,304	$ 3,310,305	$ 3,200,532
Large General	$ 66,806,991	$ 6,067,740	$ 5,793,817	$ 5,801,375	$ 5,643,059	$ 6,028,539	$ 5,589,484	$ 5,443,855	$ 5,621,797	$ 5,382,999	$ 5,370,285	$ 5,066,026	$ 4,998,015
Private Outdoor Lighting	$ 301,951	$ 25,553	$ 25,471	$ 25,250	$ 25,361	$ 25,094	$ 25,099	$ 25,329	$ 24,432	$ 25,014	$ 25,012	$ 24,793	$ 25,546
Independent Power Producer	$ 205,048	$ 9,249	$ 20,053	$ 19,744	$ 17,076	$ 14,804	$ 17,270	$ 19,157	$ 20,386	$ 16,006	$ 17,451	$ 15,045	$ 18,807
Sub-Total	$ 236,788,861	$ 20,876,091	$ 20,591,366	$ 20,316,320	$ 20,049,087	$ 21,698,063	$ 19,925,320	$ 20,093,753	$ 20,741,919	$ 18,866,957	$ 18,990,578	$ 17,715,032	$ 16,924,376
Government Service:													
Small Non Demand	$ 3,700,596	$ 341,017	$ 334,963	$ 333,478	$ 333,079	$ 332,325	$ 319,135	$ 297,031	$ 313,817	$ 289,279	$ 289,226	$ 258,835	$ 258,411
Small Demand	$ 23,480,862	$ 2,046,340	$ 2,043,720	$ 2,067,433	$ 2,050,292	$ 2,052,253	$ 1,907,628	$ 1,885,990	$ 1,985,615	$ 1,919,140	$ 1,956,670	$ 1,819,228	$ 1,746,554
Large	$ 17,769,287	$ 1,652,805	$ 1,583,988	$ 1,546,446	$ 1,575,080	$ 1,573,445	$ 1,424,292	$ 1,393,449	$ 1,572,201	$ 1,374,482	$ 1,454,690	$ 1,331,459	$ 1,286,951
Street Lighting (Agencies)	$ 5,222,345	$ 416,951	$ 419,351	$ 445,451	$ 436,808	$ 516,047	$ 418,012	$ 451,933	$ 439,403	$ 431,759	$ 447,332	$ 447,721	$ 351,576
Sub-Total	$ 50,173,090	$ 4,457,113	$ 4,382,022	$ 4,392,807	$ 4,395,259	$ 4,474,070	$ 4,069,066	$ 4,028,403	$ 4,311,036	$ 4,014,660	$ 4,147,918	$ 3,857,244	$ 3,643,492
Total	$ 286,961,951	$ 25,333,204	$ 24,973,388	$ 24,709,127	$ 24,444,346	$ 26,172,133	$ 23,994,386	$ 24,122,156	$ 25,052,955	$ 22,881,617	$ 23,138,496	$ 21,572,276	$ 20,567,868
U.S. Navy	$ 56,711,294	$ 4,642,130	$ 4,254,065	$ 4,851,893	$ 5,325,383	$ 5,019,382	$ 5,331,702	$ 4,458,411	$ 5,160,265	$ 4,283,028	$ 5,232,508	$ 3,632,683	$ 4,519,844
Grand Total	$ 343,673,245	$ 29,975,334	$ 29,227,453	$ 29,561,020	$ 29,769,728	$ 31,191,516	$ 29,326,087	$ 28,580,567	$ 30,213,220	$ 27,164,645	$ 28,371,004	$ 25,204,958	$ 25,087,712
NUMBER OF CUSTOMERS:													
Residential	43,855	43,898	43,996	43,950	43,991	43,969	43,866	43,902	43,803	43,807	43,718	43,647	43,710
Small General Non Demand	4,131	4,129	4,131	4,134	4,127	4,134	4,131	4,145	4,130	4,137	4,128	4,119	4,127
Small General Demand	986	981	982	982	980	981	984	988	988	988	989	992	994
Large General	116	118	117	119	116	115	116	116	117	115	116	116	116
Private Outdoor Lighting	528	530	527	530	526	527	526	527	530	528	528	527	525
Independent Power Producer	3	3	3	3	3	3	3	3	3	3	3	3	3
Sub-Total	49,619	49,659	49,756	49,718	49,743	49,729	49,626	49,681	49,571	49,578	49,482	49,404	49,475
Government Service:													
Small Non Demand	680	679	678	676	675	678	678	677	684	684	684	682	684
Small Demand	350	350	354	351	353	351	352	349	346	347	348	347	347
Large	45	47	47	46	45	45	45	45	45	45	45	45	45
Street Lighting (Agencies)	305	378	378	377	297	297	297	297	293	290	272	271	211
Sub-Total	1,380	1,454	1,457	1,450	1,370	1,371	1,372	1,368	1,368	1,366	1,349	1,345	1,287
Total	50,998	51,113	51,213	51,168	51,113	51,100	50,998	51,049	50,939	50,944	50,831	50,749	50,762
U.S. Navy	1	1	1	1	1	1	1	1	1	1	1	1	1
Grand Total	50,999	51,114	51,214	51,169	51,114	51,101	50,999	51,050	50,940	50,945	50,832	50,750	50,763

GPA303

GUAM POWER AUTHORITY
ACCRUED REVENUE
DECEMBER 2017

RATE	NUMBER OF CUSTOMERS	KWH SALES	TOTAL REVENUE AMOUNT	TOTAL REVENUE C/KWH	BASE RATE REVENUE C/KWH	BASE RATE REVENUE AMOUNT	AVERAGE PER CUSTOMER KWH	AVERAGE PER CUSTOMER REVENUE	NON-FUEL C/KWH	NON-FUEL AMOUNT	FUEL C/KWH	FUEL AMOUNT
Month												
R Residential	43,898	43,307,944	$ 9,238,911	$ 21.33	$ 21.33	$ 9,238,911	986.56	$ 210.46	$ 9.5613	$ 4,140,786	$ 11.7718	$ 5,098,125
G Small Gen. Non Demand	4,129	6,956,278	$ 1,765,223	$ 25.38	$ 25.38	$ 1,765,223	1,684.74	$ 427.52	$ 13.6042	$ 946,344	$ 11.7718	$ 818,879
J Small Gen. Demand	981	15,848,505	$ 3,769,415	$ 23.78	$ 23.78	$ 3,769,415	16,155.46	$ 3,842.42	$ 12.0159	$ 1,904,339	$ 11.7681	$ 1,865,075
P Large General	118	27,485,887	$ 6,067,740	$ 22.08	$ 22.08	$ 6,067,740	232,931.25	$ 51,421.52	$ 10.3598	$ 2,847,494	$ 11.7160	$ 3,220,246
I Independent Power Producer	3	40,140	$ 9,249	$ 23.04	$ 23.04	$ 9,249	13,379.97	$ 3,082.98	$ 11.6410	$ 4,673	$ 11.4008	$ 4,576
H Private St. Lights	530	35,129	$ 25,553	$ 72.74	$ 72.74	$ 25,553	66.28	$ 48.21	$ 60.9688	$ 21,417	$ 11.7718	$ 4,135
Sub-Total	49,659	93,673,883	$ 20,876,091	$ 22.29	$ 22.29	$ 20,876,091	1,886.34	$ 420.39	$ 10.5313	$ 9,865,054	$ 11.7546	$ 11,011,036
Government Service:												
S Small Non Demand	679	1,272,026	$ 341,017	$ 26.81	$ 26.81	$ 341,017	1,873.38	$ 502.23	$ 15.0372	$ 191,277	$ 11.7718	$ 149,740
K Small Demand	350	8,063,549	$ 2,046,340	$ 25.38	$ 25.38	$ 2,046,340	23,038.71	$ 5,846.68	$ 13.6059	$ 1,097,115	$ 11.7718	$ 949,225
L Large	47	6,812,255	$ 1,652,805	$ 24.26	$ 24.26	$ 1,652,805	144,941.59	$ 35,166.07	$ 12.6298	$ 860,372	$ 11.6325	$ 792,433
F Street Lighting (Agencies)	378	697,921	$ 416,951	$ 59.74	$ 59.74	$ 416,951	1,846.35	$ 1,103.05	$ 47.9701	$ 334,793	$ 11.7718	$ 82,158
Sub-Total	1,454	16,845,750	$ 4,457,113	$ 26.46	$ 26.46	$ 4,457,113	11,585.80	$ 3,065.41	$ 14.7429	$ 2,483,557	$ 11.7155	$ 1,973,556
	51,113	110,519,633	$ 25,333,204	$ 48.74	$ 48.74	$ 25,333,204	2,162.26	$ 495.63	$ 36.9956	$ 12,348,611	$ 11.7487	$ 12,984,593
U.S. Navy	1	28,067,673	$ 4,642,130	$ 16.54	$ 16.54	$ 4,642,130			$ 5.7230	$ 1,606,307	$ 10.8161	$ 3,035,823
TOTAL	51,114	138,587,306	$ 29,975,334	$ 21.63	$ 21.63	$ 29,975,334	2,711.34	$ 586.44	$ 10.0694	$ 13,954,918	$ 11.5598	$ 16,020,416
Three Months Ended December 2017												
R Residential	43,948	128,376,797	$ 27,421,418	$ 21.36	$ 21.36	$ 27,421,418	2,921.11	$ 623.95	$ 9.5883	$ 12,309,158	$ 11.7718	$ 15,112,260
G Small Gen. Non Demand	4,131	21,083,461	$ 5,347,367	$ 25.36	$ 25.36	$ 5,347,367	5,103.31	$ 1,294.34	$ 13.5911	$ 2,865,464	$ 11.7718	$ 2,481,903
J Small Gen. Demand	982	47,430,029	$ 11,226,738	$ 23.67	$ 23.67	$ 11,226,738	48,315.82	$ 11,436.41	$ 11.9022	$ 5,645,216	$ 11.7679	$ 5,581,522
P Large General	118	80,336,690	$ 17,662,933	$ 21.99	$ 21.99	$ 17,662,933	680,819.41	$ 149,685.87	$ 10.2733	$ 8,253,260	$ 11.7128	$ 9,409,673
I Independent Power Producer	529	226,207	$ 49,046	$ 21.68	$ 21.68	$ 49,046	427.61	$ 92.71	$ 10.3021	$ 23,304	$ 11.3799	$ 25,742
H Private St. Lights	3	104,022	$ 76,274	$ 73.33	$ 73.33	$ 76,274	34,673.84	$ 25,424.60	$ 61.5532	$ 64,029	$ 11.7718	$ 12,245
Sub-Total	49,711	277,557,205	$ 61,783,776	$ 22.26	$ 22.26	$ 61,783,776	5,583.42	$ 1,242.86	$ 10.5061	$ 29,160,431	$ 11.7537	$ 32,623,345
Government Service:												
S Small Non Demand	678	3,778,769	$ 1,009,458	$ 26.71	$ 26.71	$ 1,009,458	5,576.15	$ 1,489.61	$ 14.9421	$ 564,629	$ 11.7718	$ 444,829
K Small Demand	352	24,445,741	$ 6,157,492	$ 25.19	$ 25.19	$ 6,157,492	69,513.96	$ 17,509.46	$ 13.4166	$ 3,279,789	$ 11.7718	$ 2,877,704
L Large	47	19,781,131	$ 4,783,239	$ 24.18	$ 24.18	$ 4,783,239	423,881.39	$ 102,497.98	$ 12.5503	$ 2,482,592	$ 11.6305	$ 2,300,647
F Street Lighting (Agencies)	378	2,179,335	$ 1,281,753	$ 58.81	$ 58.81	$ 1,281,753	5,770.52	$ 3,393.87	$ 47.0422	$ 1,025,206	$ 11.7718	$ 256,547
Sub-Total	1,454	50,184,976	$ 13,231,943	$ 26.37	$ 26.37	$ 13,231,943	34,523.03	$ 9,102.46	$ 14.6502	$ 7,352,215	$ 11.7161	$ 5,879,727
U.S. Navy	1	80,150,976	$ 13,748,089	$ 17.15	$ 17.15	$ 13,748,089			$ 6.1069	$ 4,894,717	$ 11.0459	$ 8,853,372
TOTAL	51,166	407,893,157	$ 88,763,807	$ 21.76	$ 21.76	$ 88,763,807	7,972.01	$ 1,734.83	$ 10.1515	$ 41,407,364	$ 11.6100	$ 47,356,444
Twelve Months Ended December 2017												
R Residential	43,855	510,413,616	$ 105,267,346	$ 20.62	$ 20.62	$ 105,267,346	11,638.73	$ 2,400.36	$ 9.6098	$ 49,049,503	$ 11.0142	$ 56,217,843
G Small Gen. Non Demand	4,131	84,301,405	$ 20,745,767	$ 24.61	$ 24.61	$ 20,745,767	20,407.02	$ 5,021.97	$ 13.5961	$ 11,461,675	$ 11.0130	$ 9,284,092
J Small Gen. Demand	986	189,901,464	$ 43,461,759	$ 22.89	$ 22.89	$ 43,461,759	192,646.68	$ 44,090.04	$ 11.9048	$ 22,607,388	$ 10.9817	$ 20,854,370
P Large General	116	315,730,188	$ 66,806,991	$ 21.16	$ 21.16	$ 66,806,991	2,712,070.33	$ 573,861.05	$ 10.3080	$ 32,545,392	$ 10.8515	$ 34,261,598
I Independent Power Producer	3	914,121	$ 205,048	$ 22.43	$ 22.43	$ 205,048	296,471.77	$ 66,502.05	$ 11.5110	$ 105,224	$ 10.9202	$ 99,824
H Private St. Lights	528	454,876	$ 301,951	$ 66.38	$ 66.38	$ 301,951	862.19	$ 572.33	$ 56.5147	$ 257,072	$ 9.8663	$ 44,879
Sub-Total	49,619	1,101,715,671	$ 236,788,861	$ 21.49	$ 21.49	$ 236,788,861	22,203.69	$ 4,772.18	$ 10.5314	$ 116,026,255	$ 10.9613	$ 120,762,606
Government Service:												
S Small Non Demand	680	14,238,967	$ 3,700,596	$ 25.99	$ 25.99	$ 3,700,596	20,942.22	$ 5,442.72	$ 15.0663	$ 2,145,280	$ 10.9230	$ 1,555,316
K Small Demand	350	96,336,804	$ 23,480,862	$ 24.37	$ 24.37	$ 23,480,862	275,576.08	$ 67,168.14	$ 13.4849	$ 12,990,929	$ 10.8888	$ 10,489,933
L Large	45	75,943,786	$ 17,769,287	$ 23.40	$ 23.40	$ 17,769,287	1,672,156.76	$ 391,250.36	$ 12.6228	$ 9,586,235	$ 10.7751	$ 8,183,052
F Street Lighting (Agencies)	305	8,804,951	$ 5,222,345	$ 59.31	$ 59.31	$ 5,222,345	28,884.48	$ 17,131.80	$ 48.3794	$ 4,259,781	$ 10.9321	$ 962,564
Sub-Total	1,380	195,324,508	$ 50,173,090	$ 25.69	$ 25.69	$ 50,173,090	141,565.14	$ 36,363.90	$ 14.8380	$ 28,982,225	$ 10.8491	$ 21,190,865
	50,998	1,297,040,178	$ 286,961,951	$ 22.12	$ 22.12	$ 286,961,951	25,432.99	$ 41,136.08	$ 11.1800	$ 145,008,480	$ 10.9444	$ 141,953,471
U.S. Navy	1	319,456,483	$ 56,711,294	$ 17.75	$ 17.75	$ 56,711,294			$ 6.2698	$ 20,029,165	$ 11.4827	$ 36,682,129
TOTAL	50,999	1,616,496,661	$ 343,673,245	$ 21.26	$ 21.26	$ 343,673,245	31,696.43	$ 6,738.78	$ 10.2096	$ 165,037,645	$ 11.0508	$ 178,635,601

GPA-318
318Dec17

ENERGY ACCOUNT
FY 2018 Versus FY 2017

FOR INTERNAL USE ONLY

	December 2017		December 2016		Y T D 2018		Y T D 2017		MOVING TWELVE MONTHS	
Gross Generation										
Number of days in Period	**31**		**31**		**92**		**31**		**365**	
Peak demand	**250**		**248**		**254**		**252**		**261**	
Date	**12/11/17**		**12/06/16**		**10/30/17**		**11/29/16**		**08/01/17**	
	KWH	**% change**	**KWH**	**% change**	**KWH**	**% change**	**KWH**	**% change**	**KWH**	**% change**
Energy Account:										
Kilowatt hours GPA:										
Cabras 1 & 2	64,178,000		55,471,000		183,204,000		204,518,000		673,679,000	
Cabras No. 3	0		0		0		0		0	
Cabras No. 4	0		0		0		0		0	
MEC (ENRON) Piti 8 (IPP)	27,889,800		25,998,400		78,809,700		83,296,400		315,147,000	
MEC (ENRON) Piti 9 (IPP)	29,520,800		29,761,700		87,270,400		78,489,200		316,843,500	
TEMES Piti 7 (IPP)	666,966		919,270		5,310,865		1,254,376		51,037,857	
Tanguisson 2	0		0		0		0		0	
Tanguisson 1	0		0		0		0		0	
Diesels/CT's & Others:							0			
MDI 10MW	0		795,695		21,414		1,036,394		1,242,647	
NRG Solar Dandan	3,677,204		3,451,729		10,596,596		10,362,279		43,425,119	
Dededo CT #1	22,510		0		384,400		0		7,507,700	
Dededo CT #2	26,690		0		77,300		0		5,909,892	
Macheche CT	3,097,673		1,908,647		12,928,470		2,594,025		65,902,002	
Yigo CT (Leased)	3,215,066		3,595,542		9,487,126		9,609,686		41,253,387	
Tenjo	3,664,320		3,617,980		10,604,530		5,348,950		50,713,060	
Talofofo 10 MW	1,575,840		1,306,090		2,443,230		1,677,710		19,536,910	
Aggreko	14,059,832		20,488,166		45,451,269		43,103,463		175,794,346	
Wind Turbine*	64,423		76,703		102,802		154,867		335,130	
Orote	0		0		0		0		0	
Marbo	0		0		0		0		0	
	151,659,124		**147,390,923**		**446,692,102**		**441,445,349**		**1,768,327,550**	
Ratio to last year		102.90		103.41		101.19		**102.43**		**102.42**
Station use	5,691,120		5,502,422		16,855,339		17,622,071		65,128,264	
Ratio to Gross generation		3.75		3.73		3.77		3.99		**3.68**
Net send out	145,968,003		141,888,501		429,836,763		423,823,277		1,703,199,286	
Ratio to last year		102.88		103.99		101.42		**102.72**		**102.50**
KWH deliveries:										
Sales to Navy (@34.5kv)	**28,067,673**		**27,468,943**		**80,150,976**		**79,280,395**		**319,456,484**	
Ratio to last year		102.18		100.88		101.10		**98.72**		**100.83**
GPA-metered	**117,900,330**		**114,419,558**		**349,685,787**		**344,542,882**		**1,383,742,802**	
Ratio to last year		103.04		104.76		101.49		**103.69**		**103.66**
Power factor adj.	0		0		0		0		0	
Adjusted	117,900,330		114,419,558		349,685,787		344,542,882		1,383,742,802	
GPA KWH Accountability:										
Sales to civilian customers-accrual basis	**110,519,633**		**107,165,053**		**327,742,180**		**322,209,113**		**1,297,040,179**	
Ratio to last year		103.13		104.12		101.72		**103.66**		**102.66**
GPA use-KWH	323,091		250,441		864,992		776,193		3,233,037	
Unaccounted For	7,057,606		7,004,064		21,078,614		21,557,576		83,469,586	
Ratio to deliveries		5.99		6.12		6.03		6.26		6.03
Ratio to Gross Generation		4.65		4.75		4.72		4.88		4.72
Ratio to Net Send Out		4.84		4.94		4.90		5.09		4.90

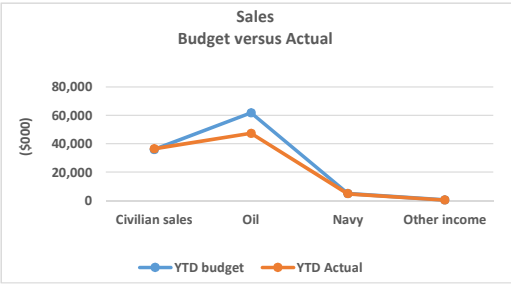
GPA-317Dec17

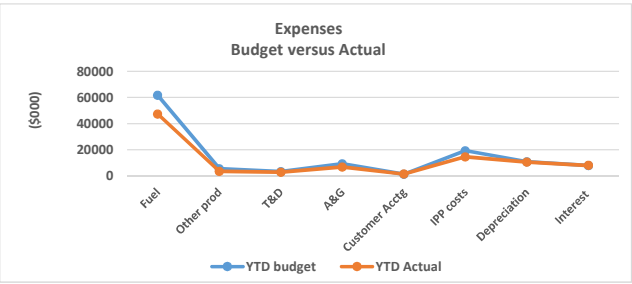
Guam Power Authority
Fuel Consumption
FY 2018

Description	December 2017 BARRELS	December 2017 AMOUNT	YEAR-TO-DATE BARRELS	YEAR-TO-DATE AMOUNT	MOVING 12 MONTHS BARREL S	MOVING 12 MONTHS AMOUNT
FUEL FURNISHED:						
NAVY:						
Diesel	0	0	0	0	0	0
Low Sulfur	0	0	0	0	0	0
	0	**0**	**0**	**0**	**0**	**0**
GPA:						
RFO	178,415	$11,360,279	460,485	$ 26,826,678	1,505,636	$ 85,489,504
Diesel	51,274	$4,102,382	169,217	$ 13,157,971	845,518	$ 62,158,528
Low Sulfur	2,834	$173,022	63,342	$ 3,892,421	475,026	$ 27,823,884
Deferred Fuel Costs	0	-$819,646	0	$ (46,364)	0	$ (12,719,855)
Fuel Adjustments	0	$0		$ (9,121)	0	$ (212,502)
Fuel Handling Costs	0	$1,191,299	0	$ 3,521,780	0	$ 16,083,094
	232,523	**$16,007,336**	**693,044**	**$ 47,343,365**	**2,826,179**	**$ 178,622,654**
IWPS:						
GPA RFO	178,415	$11,360,279	460,485	$ 26,826,678	1,505,636	$ 85,489,504
Diesel	51,274	$4,102,382	169,217	$ 13,157,971	845,518	$ 62,158,528
Low Sulfur	2,834	$173,022	63,342	$ 3,892,421	475,026	$ 27,823,884
Deferred Fuel Costs	0	-$819,646	0	$ (46,364)	0	$ (12,719,855)
Fuel Variance	0	$0	0	$ (9,121)		$ (212,502)
Fuel Handling Costs	0	$1,191,299	0	$ 3,521,780	0	$ 16,083,094
	232,523	**$16,007,336**	**693,044**	**$ 47,343,365**	**2,826,179**	**$ 178,622,654**
AVERAGE COST/Bbl.						
GPA RFO		**$63.67**		**$58.26**		**$56.78**
Diesel		**$80.01**		**$77.76**		**$73.52**
Low Sulfur		**$61.05**		**$61.45**		**$58.57**
AS BURNED						
Cabras 1 & 2						
RFO	101,116	$ 6,477,191	259,491	$ 15,162,083	940,364	$ 53,460,561
Low Sulfur	2,464	$ 150,264	40,020	$ 2,459,039	190,628	$ 11,151,672
Diesel	166	$ 12,424	258	$ 19,196	2,777	$ 187,106
	103,746	$ 6,639,878	299,770	$ 17,640,317	1,133,768	$ 64,799,339
Cabras 3 & 4						
RFO	0	$ -	0	$ -	0	$ -
Low Sulfur	0	$ -	0	$ -	0	$ -
Diesel	0	$ -	0	$ -	0	$ -
	0	$ -	0	$ -	0	$ -
MEC (Piti Units 8&9)						
RFO	77,299	$ 4,883,088	200,994	$ 11,664,595	565,272	$ 32,028,943
Low Sulfur	370	$ 22,758	23,321	$ 1,433,383	284,398	$ 16,672,212
Diesel	0	$ -	0	$ -	40	$ 2,194
	77,669	$ 4,905,846	224,315	$ 13,097,978	849,710	$ 48,703,349
Diesel & CT's - GPA:						
MDI Dsl	0	$ -	31	$ 2,013	1,981	$ 128,213
Macheche CT	6,674	$ 529,513	27,744	$ 2,133,448	142,773	$ 10,499,278
Yigo CT	6,529	$ 520,056	19,175	$ 1,499,377	84,999	$ 6,246,310
Talofofo 10 MW	2,738	$ 220,773	4,173	$ 329,650	32,977	$ 2,407,937
Aggreko	25,838	$ 2,070,344	83,202	$ 6,450,163	319,499	$ 23,451,392
Tenjo	6,232	$ 520,200	18,241	$ 1,473,800	88,217	$ 6,669,792
TEMES (IPP)	2,949	$ 217,648	14,660	$ 1,107,961	129,764	$ 9,451,403
GWA Generators	4	$ 415	240	$ 28,204	709	$ 83,470
	51,108	$ 4,089,958	168,959	$ 13,138,775	842,701	$ 61,969,228
Deferred Fuel Costs	0	$ (819,646)		$ (46,364)		$ (12,719,855)
Adjustment		$ -		$ (9,121)		$ (212,502)
Fuel Handling Costs	0	$ 1,191,299		$ 3,521,780		$ 16,083,094
TOTAL	**232,523**	**$ 16,007,336**	**693,044**	**$ 47,343,365**	**2,826,179**	**$ 178,622,654**

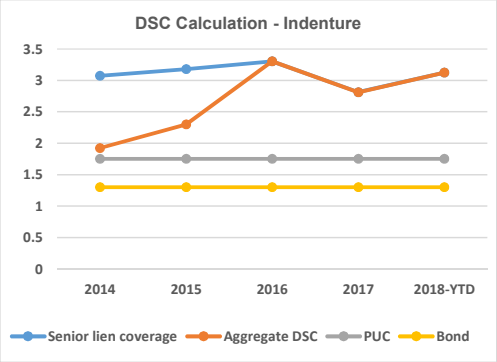
Statement of operations
Comparison-Budget versus Actual
For the month and year to date ended December 31, 2017

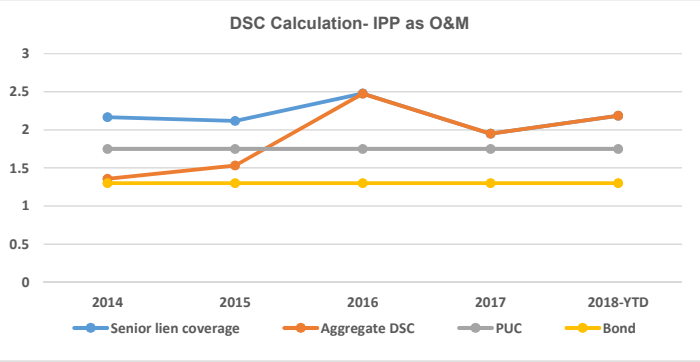
	Budget	Actual December-17	Variance	YTD Budget	YTD Actual	Variance
KwH Sales-Civilian	106,555	110,538	-3,983	322,135	327,761	-5,626
Non-fuel yield	$ 0.105708	$ 0.111717	$ (0.006009)	$ 0.111726	$ 0.111401	$ 0.000325
KwH Sales-Navy	27,070	27,657	-587	79,840	79,740	100
Non-fuel yield	$ 0.061774	$ 0.058068	$ 0.003705	$ 0.061774	$ 0.061374	$ 0.000400
Operating revenue						
Civilian sales	11,927	12,349	(422)	35,991	36,513	(522)
Oil	20,529	16,020	4,509	61,757	47,356	14,401
Navy	1,672	1,606	66	4,932	4,894	38
Other income	169	122	47	508	407	100
	34,297	30,097	4,200	103,187	89,170	14,017
Bad debts expense	87	87	0	260	260	0
Total operating revenues	34,211	30,011	4,200	102,927	88,910	14,017
Operating expenses:						
Production fuel	20,529	16,007	4,522	61,757	47,343	14,413
O & M expenses:						
Other production	1,850	936	913	5,553	3,526	2,028
Transmission distribution	1,074	1,108	(34)	3,316	2,960	356
Administrative expense	3,063	2,130	933	9,437	6,861	2,576
Customer accounting	355	433	(78)	1,084	1,267	(183)
	6,342	4,607	1,735	19,390	14,614	4,776
IPP costs	1,635	1,432	203	4,905	4,942	(37)
Depreciation	3,635	3,568	67	10,905	10,741	164
	32,141	25,614	6,526	96,957	77,640	19,317
Operating income	2,070	4,396	(2,326)	5,970	11,270	(5,300)
Other revenue (expenses):						
Investment income	99	741	(642)	296	1,751	(1,455)
Interest expense	(2,657)	(2,730)	73	(7,971)	(8,168)	198
AFUDC	61	273	(213)	183	820	(637)
Bond issuance costs/Other expen	135	(2,570)	2,705	404	(2,539)	2,943
Net income before capital contributic	(293)	110	(404)	(1,118)	3,134	(4,253)
Grants from the U.S. Government	-	-	-	-	5	(5)
Increase (decrease) in net assets	(293)	110	(404)	(1,118)	3,139	(4,258)





Guam Power Authority Debt service coverage December 31, 2017	2014	2015	2016	2017	YTD 12/31/2017
Operating revenues					
Sales	434,462	366,185	306,896	331,071	88,763
Miscellaneous	2,156	4,775	2,294	2,245	407
Total revenues	436,618	370,960	309,190	333,316	89,170
Bad debts expense	178	959	990	472	260
Total operating revenues	436,440	370,001	308,200	332,844	88,910
Operating expenses					
Production fuel	271,175	204,136	146,340	166,425	47,343
Other production	19,305	20,079	15,789	17,784	3,526
Energy conversion costs	20,632	18,404	16,800	19,935	4,942
Transmission and distribution	12,950	11,170	10,721	11,704	2,960
Customer accounting	3,821	3,780	4,502	4,284	1,267
Admin and General	28,393	21,908	28,846	26,798	6,861
Total Expenses	356,276	279,477	222,998	246,930	66,899
Operating income	80,164	90,524	85,202	85,914	22,011
Interest/Other income (expenses)	157	256	-1,188	-32	1,546
Debt service and lease payments					
IPP lease payments	23,084	26,622	20,790	20,796	5,198
Capital lease payments-Aggreko	0	0	0	5,609	1,870
2017 bonds	0	0	0	0	0
2014 bonds	0	0	10	5,084	1,271
2012 bonds	17,455	17,096	17,098	17,449	4,272
2010 senior bonds	7,999	7,999	7,999	7,999	2,000
2010 subordinate	15,193	9,605	0	0	0
Total Debt service-bonds	40,647	34,700	25,106	30,532	7,543
Total Debt service and capital lease	63,731	61,322	45,896	56,937	14,610
Debt service coverage (DSC) calculation-indenture					
Senior lien coverage	3.16	3.62	3.35	2.81	3.12
Aggregate debt service coverage	1.98	2.62	3.35	2.81	3.12
Debt service coverage (DSC) calculation-IPP as O&M					
Senior lien coverage	2.55	2.56	2.52	1.95	2.19
Aggregate debt service coverage	1.41	1.85	2.52	1.95	2.19

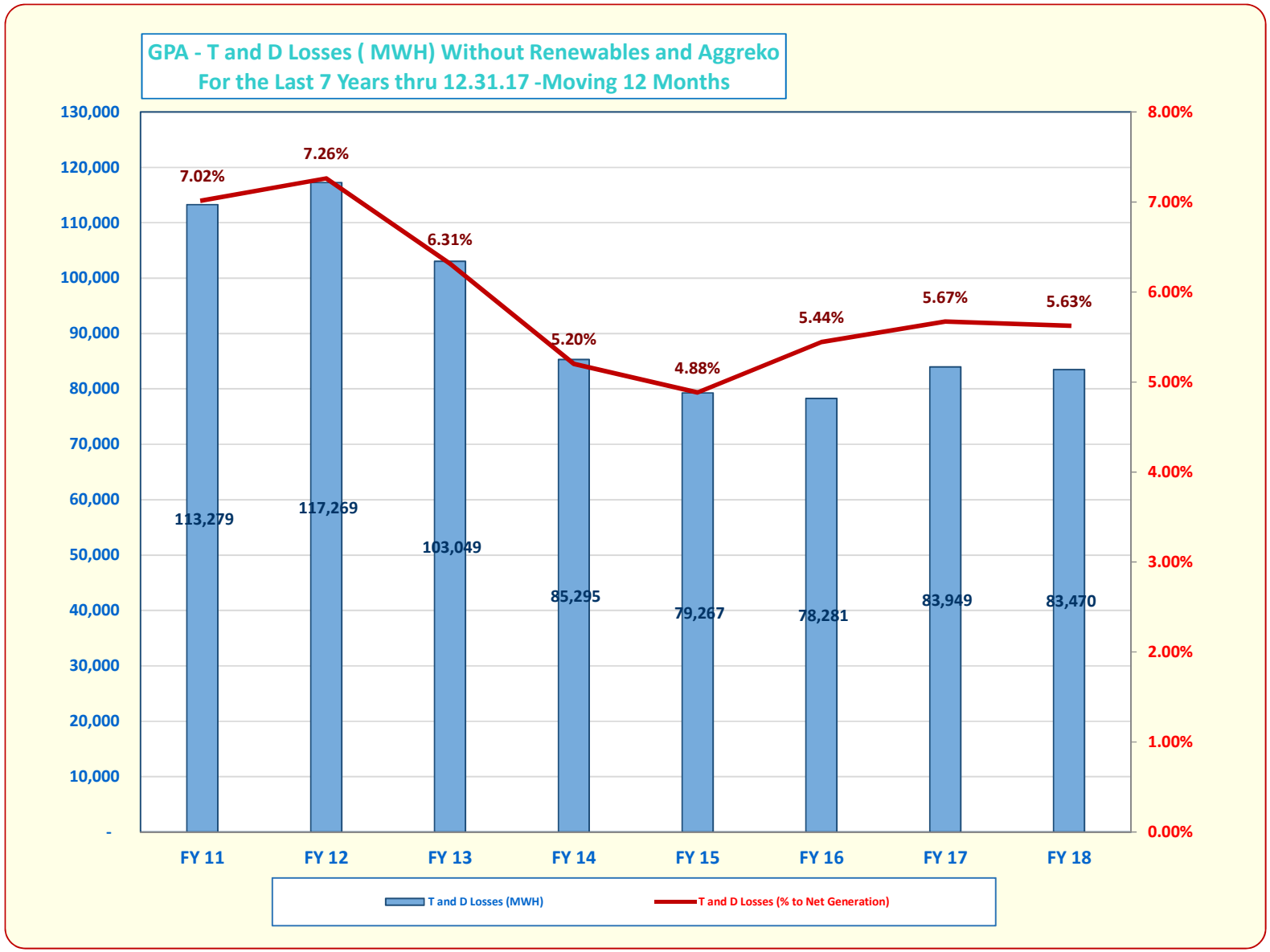


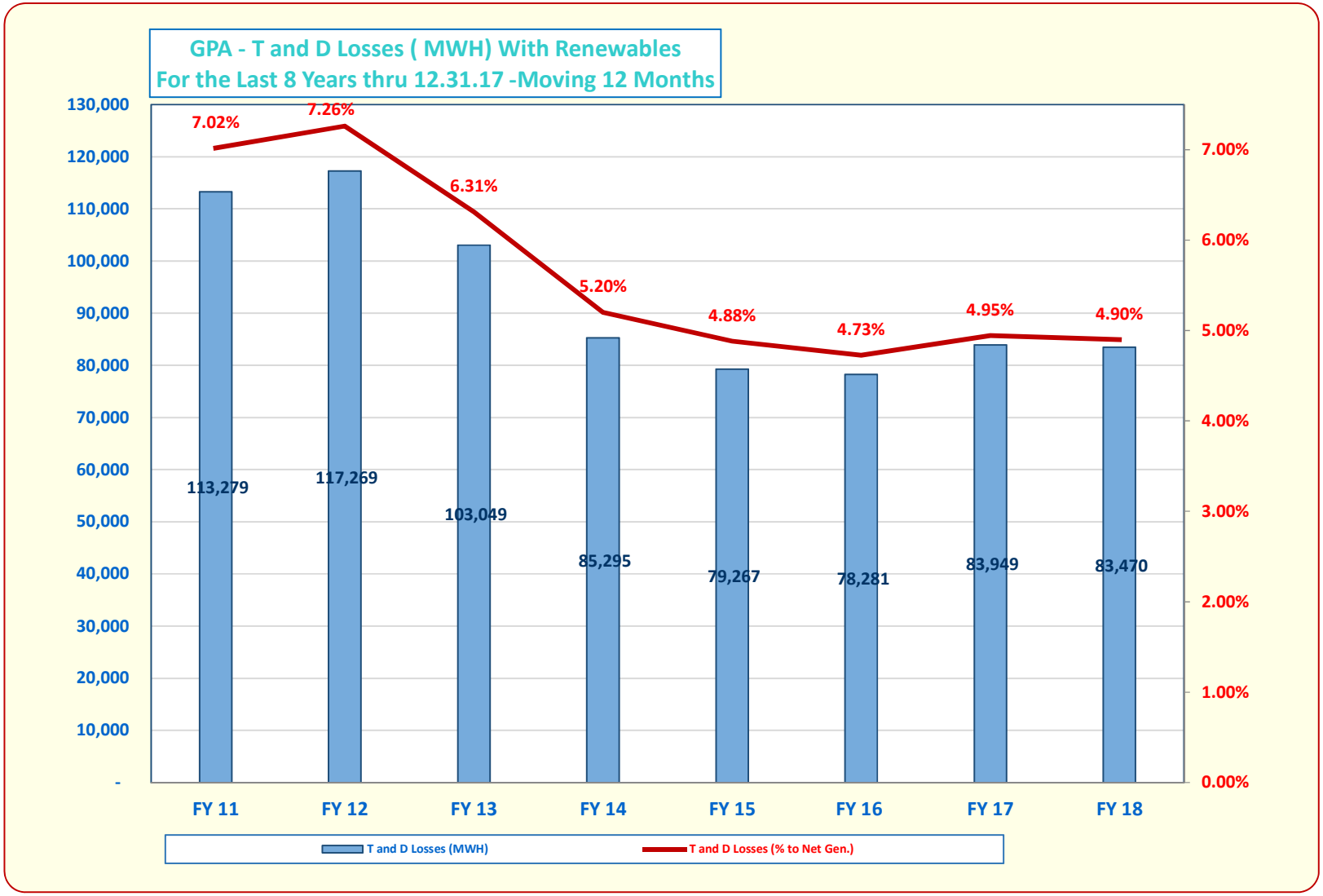


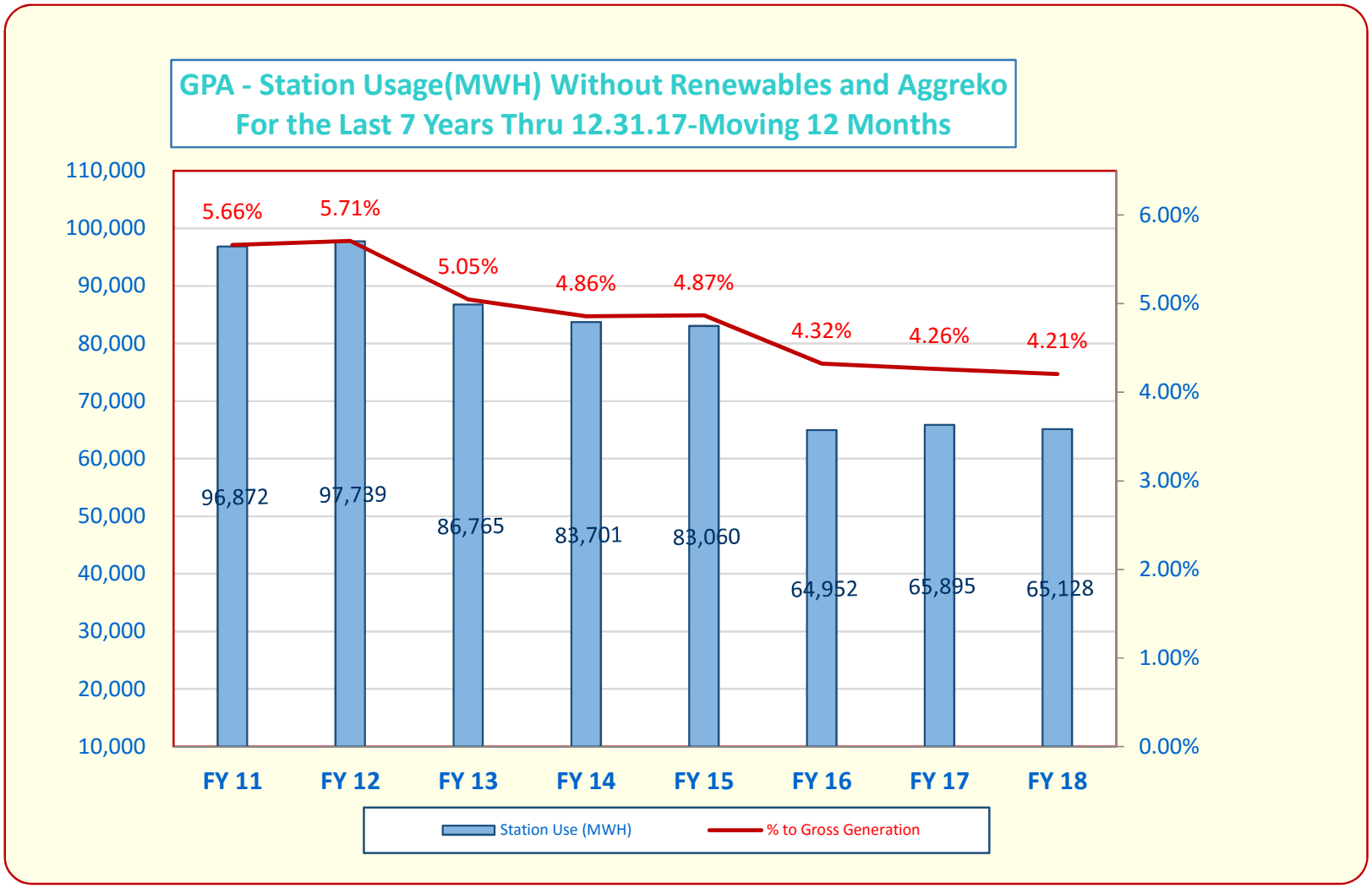
REVENUES-ACTUAL VS PROJECTIONS

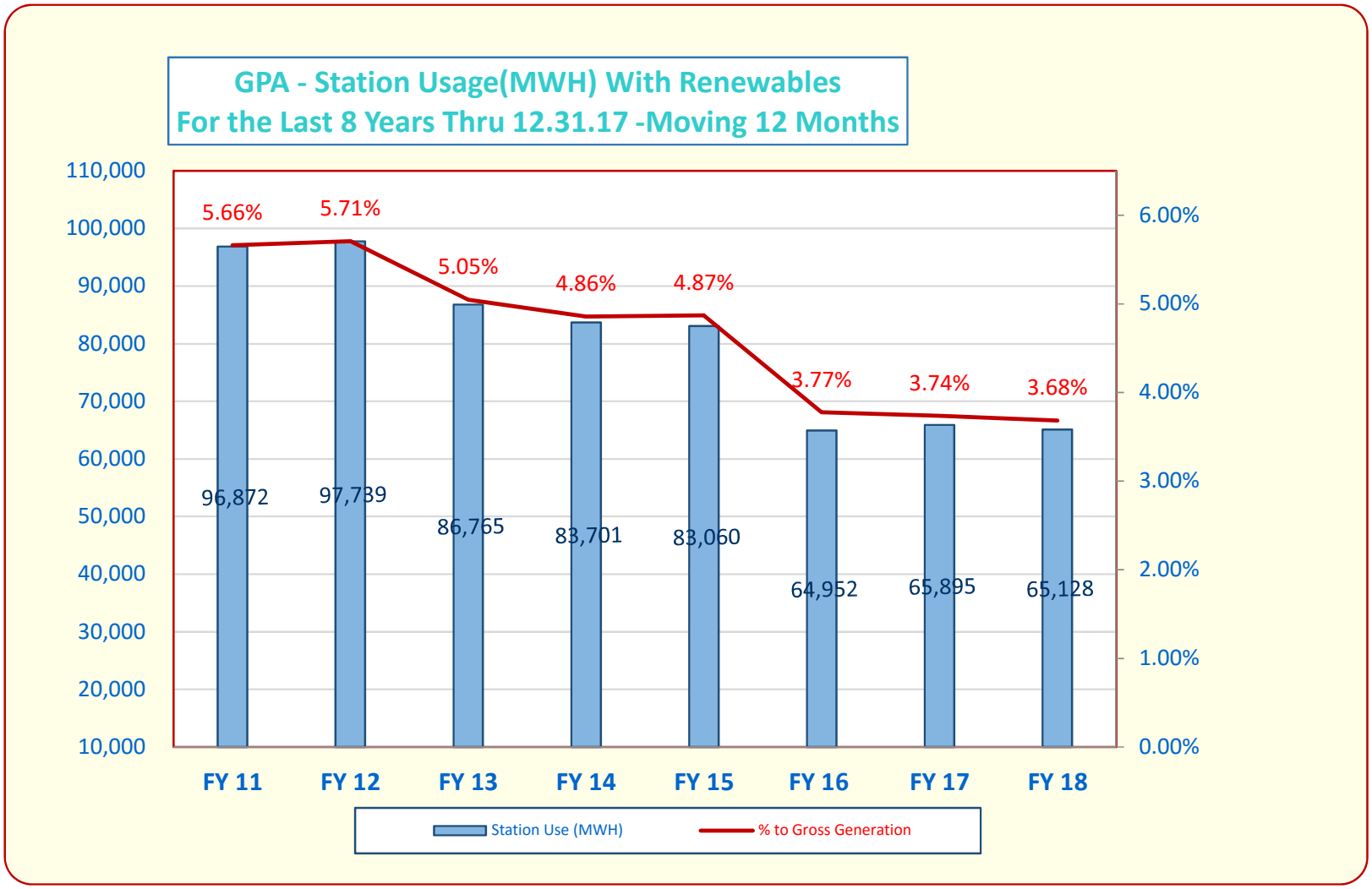
	MONTHLY - DECEMBER 2017				YTD THRU 12/31/2017			
	PROJECTIONS	ACTUAL	VARIANCE	% VARIANCE	PROJECTIONS	ACTUAL	VARIANCE	% VARIANCE
KWH								
Residential	41,481,456	43,307,944	1,826,488	4.40%	125,284,593	128,376,797	3,092,204	2.47%
Small General-Non-Demand	6,991,667	6,956,278	(35,390)	-0.51%	20,702,164	21,083,461	381,296	1.84%
Small General-Demand	15,629,003	15,848,505	219,503	1.40%	47,615,727	47,430,029	(185,698)	-0.39%
Large	26,731,694	27,485,887	754,193	2.82%	80,673,432	80,336,690	(336,742)	-0.42%
Independent Power Producers	33,439	40,140	6,701	20.04%	100,914	226,207	125,293	124.16%
Private St. Lites	53,736	35,129	(18,608)	-34.63%	167,522	104,022	(63,500)	-37.91%
Sub-total	**90,920,995**	**93,673,883**	**2,752,888**	**3.03%**	**274,544,352**	**277,557,205**	**3,012,853**	**1.10%**
Government								
Small_Non Demand	1,124,232	1,272,026	147,794	13.15%	3,327,399	3,778,769	451,370	13.57%
Small-Demand	7,717,751	8,063,549	345,798	4.48%	23,647,447	24,445,741	798,294	3.38%
Large	5,874,329	6,812,255	937,925	15.97%	18,113,051	19,781,131	1,668,081	9.21%
Public St. Lites	917,576	697,921	(219,654)	-23.94%	2,503,121	2,179,335	(323,787)	-12.94%
Sub-total	**15,633,887**	**16,845,750**	**1,211,863**	**7.75%**	**47,591,018**	**50,184,976**	**2,593,958**	**5.45%**
Total-Civilian	**106,554,882**	**110,519,633**	**3,964,752**	**3.72%**	**322,135,370**	**327,742,181**	**5,606,811**	**1.74%**
USN	27,070,271	28,067,673	997,402	3.68%	79,840,743	80,150,976	310,233	0.39%
Grand Total	**133,625,152**	**138,587,306**	**4,962,154**	**3.71%**	**401,976,113**	**407,893,157**	**5,917,044**	**1.47%**
					-	-		
Non-Oil Yield								
Residential	0.096203	0.095613	(0.000591)	-0.61%	0.096203	0.095883	(0.000320)	-0.33%
Small General-Non-Demand	0.136364	0.136042	(0.000322)	-0.24%	0.136364	0.135911	(0.000454)	-0.33%
Small General-Demand	0.119423	0.120159	0.000736	0.62%	0.119423	0.119022	(0.000401)	-0.34%
Large	0.103705	0.103598	(0.000106)	-0.10%	0.103705	0.102733	(0.000971)	-0.94%
Independent Power Producers	0.117983	0.116410	(0.001573)	0.00%	0.117983	0.103021	(0.014962)	0.00%
Private St. Lites	0.454278	0.609688	0.155410	34.21%	0.454278	0.615532	0.161254	35.50%
Sub-total	**0.105708**	**0.105313**	**(0.000395)**	**-0.37%**	**0.105690**	**0.105061**	**(0.000629)**	**-0.59%**
Government					-			
Small_Non Demand	0.152255	0.150372	(0.001883)	-1.24%	0.152255	0.149421	(0.002833)	-1.86%
Small-Demand	0.135082	0.136059	0.000977	0.72%	0.135082	0.134166	(0.000916)	-0.68%
Large	0.128102	0.126298	(0.001804)	-1.41%	0.128102	0.125503	(0.002599)	-2.03%
Public St. Lites	0.380746	0.479701	0.098954	25.99%	0.380746	0.470422	0.089675	23.55%
Sub-total	**0.148112**	**0.147429**	**(0.000683)**	**-0.46%**	**0.146547**	**0.146502**	**(0.000045)**	**-0.03%**
Total-Civilian	**0.111930**	**0.111732**	**(0.000198)**	**-0.18%**	**0.111726**	**0.111407**	**(0.000319)**	**-0.29%**
USN	0.061774	0.057230	(0.004544)	-7.36%	0.061774	0.061069	(0.000705)	-1.14%
Grand Total	**0.101769**	**0.100694**	**(0.001075)**	**-1.06%**	**0.101804**	**0.101515**	**(0.000289)**	**-0.28%**
Non-Oil Revenues								
Residential	3,990,657	4,140,786	150,130	3.76%	12,052,802	12,309,158	256,356	2.13%
Small General-Non-Demand	953,413	946,344	(7,069)	-0.74%	2,823,035	2,865,464	42,429	1.50%
Small General-Demand	1,866,465	1,904,339	37,875	2.03%	5,686,420	5,645,216	(41,204)	-0.72%
Large	2,772,201	2,847,494	75,293	2.72%	8,366,209	8,253,260	(112,949)	-1.35%
Independent Power Producers	3,945	4,673	727	18.44%	11,906	23,304	11,398	95.73%
Private St. Lites	24,411	21,417	(2,994)	-12.26%	76,101	64,029	(12,073)	-15.86%
Sub-total	**9,611,092**	**9,865,054**	**253,963**	**2.64%**	**29,016,474**	**29,160,431**	**143,958**	**0.50%**
Government								
Small_Non Demand	171,169	191,277	20,108	11.75%	506,612	564,629	58,018	11.45%
Small-Demand	1,042,528	1,097,115	54,587	5.24%	3,194,340	3,279,789	85,449	2.68%
Large	752,514	860,372	107,858	14.33%	2,320,319	2,482,592	162,273	6.99%
Public St. Lites	349,363	334,793	(14,570)	-4.17%	953,054	1,025,206	72,152	7.57%
Sub-total	**2,315,574**	**2,483,557**	**167,983**	**7.25%**	**6,974,324**	**7,352,215**	**377,892**	**5.42%**
Total-Civilian	**11,926,666**	**12,348,611**	**421,945**	**3.54%**	**35,990,798**	**36,512,647**	**521,849**	**1.45%**
USN	1,672,238	1,606,307	(65,930)	-3.94%	4,932,079	4,894,717	(37,362)	-0.76%
Grand Total	**13,598,903**	**13,954,918**	**356,015**	**2.62%**	**40,922,876**	**41,407,364**	**484,487**	**1.18%**
% of Total Revenues	39.85%	46.55%			39.86%	46.65%		
Oil Revenues								
Residential	6,372,890	5,098,125	(1,274,765)	-20.00%	19,247,756	15,112,260	(4,135,496)	-21.49%
Small General-Non-Demand	1,074,146	818,879	(255,267)	-23.76%	3,180,520	2,481,903	(698,618)	-21.97%
Small General-Demand	2,401,119	1,865,075	(536,044)	-22.32%	7,315,312	5,581,522	(1,733,790)	-23.70%
Large	4,106,851	3,220,246	(886,605)	-21.59%	12,394,042	9,409,673	(2,984,369)	-24.08%
Independent Power Producers	5,137	4,576	(561)	-10.92%	15,504	25,742	10,238	66.04%
Private St. Lites	8,256	4,135	(4,120)	-49.91%	25,737	12,245	(13,492)	-52.42%
Sub-total	**13,968,398**	**11,011,036**	**(2,957,362)**	**-21.17%**	**42,178,871**	**32,623,345**	**(9,555,526)**	**-22.65%**
Government								
Small_Non Demand	172,718	149,740	(22,978)	-13.30%	511,196	444,829	(66,367)	-12.98%
Small-Demand	1,185,696	949,225	(236,471)	-19.94%	3,633,011	2,877,704	(755,307)	-20.79%
Large	902,487	792,433	(110,053)	-12.19%	2,782,749	2,300,647	(482,102)	-17.32%
Public St. Lites	140,969	82,158	(58,811)	-41.72%	384,560	256,547	(128,013)	-33.29%
Sub-total	**2,401,869**	**1,973,556**	**(428,313)**	**-17.83%**	**7,311,516**	**5,879,727**	**(1,431,789)**	**-19.58%**
Total-Civilian	**16,370,268**	**12,984,593**	**(3,385,675)**	**-20.68%**	**49,490,387**	**38,503,072**	**(10,987,315)**	**-22.20%**
USN	4,158,867	3,035,823	(1,123,044)	-27.00%	12,266,114	8,853,372	(3,412,742)	-27.82%
Grand Total	**20,529,135**	**16,020,416**	**(4,508,719)**	**-21.96%**	**61,756,501**	**47,356,444**	**(14,400,057)**	**-23.32%**
% of Total Revenues	60.15%	53.45%			60.14%	53.35%		
Grand Total								
Residential	10,363,547	9,238,911	(1,124,636)	-10.85%	31,300,558	27,421,418	(3,879,140)	-12.39%
Small General-Non-Demand	2,027,559	1,765,223	(262,336)	-12.94%	6,003,555	5,347,367	(656,188)	-10.93%
Small General-Demand	4,267,584	3,769,415	(498,169)	-11.67%	13,001,732	11,226,738	(1,774,993)	-13.65%
Large	6,879,051	6,067,740	(811,311)	-11.79%	20,760,251	17,662,933	(3,097,318)	-14.92%
Independent Power Producers	9,082	9,249	167	1.83%	27,410	49,046	21,636	78.94%
Private St. Lites	32,667	25,553	(7,114)	-21.78%	101,838	76,274	(25,564)	-25.10%
Sub-total	**23,579,490**	**20,876,091**	**(2,703,399)**	**-11.47%**	**71,195,344**	**61,783,776**	**(9,411,568)**	**-13.22%**
Government					-			
Small_Non Demand	343,888	341,017	(2,870)	-0.83%	1,017,807	1,009,458	(8,349)	-0.82%
Small-Demand	2,228,223	2,046,340	(181,884)	-8.16%	6,827,350	6,157,492	(669,858)	-9.81%
Large	1,655,000	1,652,805	(2,195)	-0.13%	5,103,068	4,783,239	(319,829)	-6.27%
Public St. Lites	490,333	416,951	(73,382)	-14.97%	1,337,614	1,281,753	(55,861)	-4.18%
Sub-total	**4,717,443**	**4,457,113**	**(260,330)**	**-5.52%**	**14,285,840**	**13,231,943**	**(1,053,897)**	**-7.38%**
Total-Civilian	**28,296,933**	**25,333,204**	**(2,963,730)**	**-10.47%**	**85,481,184**	**75,015,719**	**(10,465,465)**	**-12.24%**
USN	5,831,105	4,642,130	(1,188,975)	-20.39%	17,198,193	13,748,089	(3,450,104)	-20.06%
Grand Total	**34,128,038**	**29,975,334**	**(4,152,704)**	**-12.17%**	**102,679,377**	**88,763,807**	**(13,915,570)**	**-13.55%**
	-	-	-					

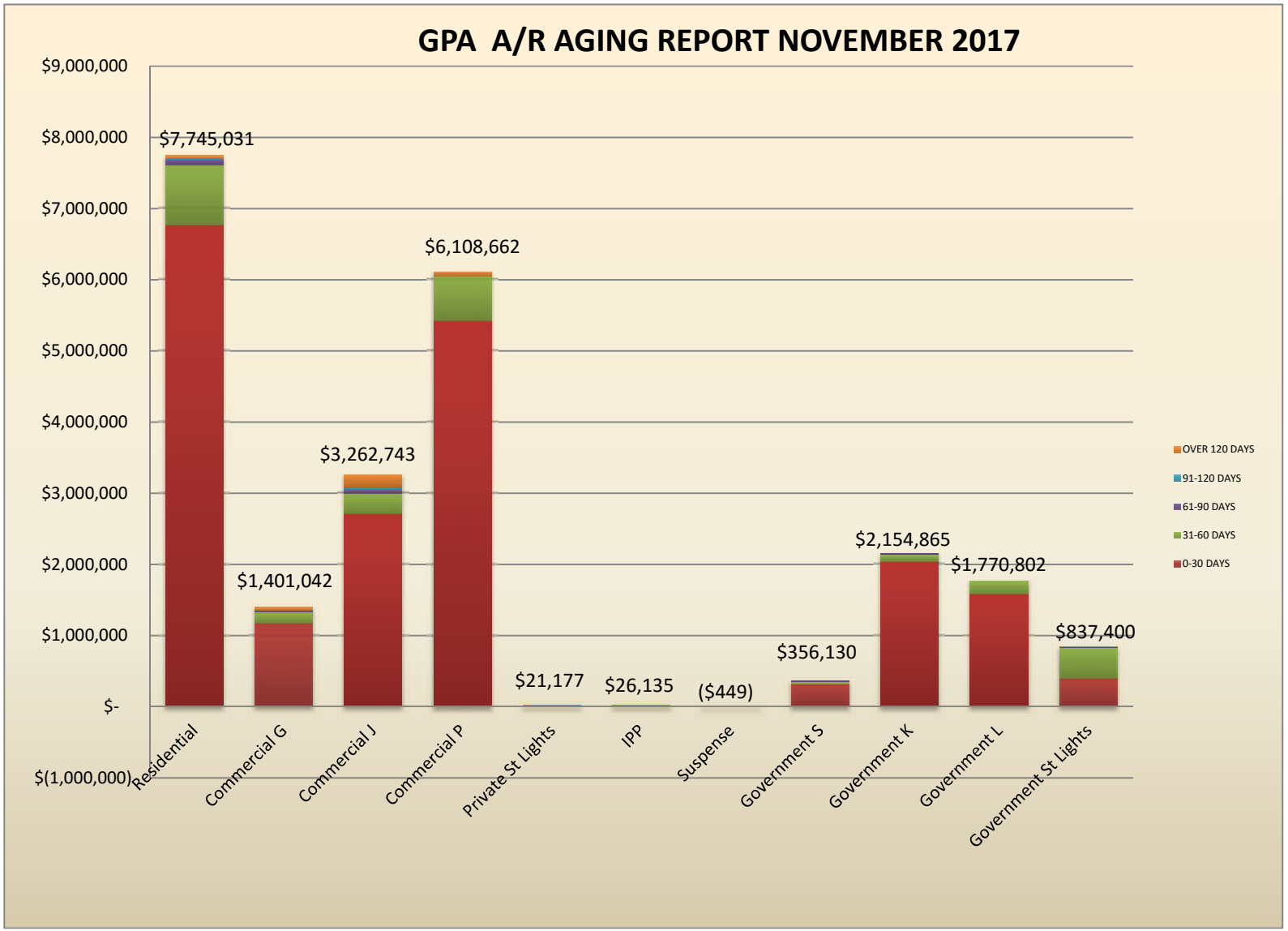
	YTD REVENUES - CURRENT YEAR VS PRIOR YEAR				MTD REVENUES - CURRENT YEAR VS PRIOR YEAR			
	ACTUALS - 3 MONTHS ENDED DECEMBER 31				ACTUALS - MONTH ENDED DECEMBER 31			
	2017	2016	VARIANCE	% VARIANCE	2017	2016	VARIANCE	% VARIANCE
KWH								
Residential	128,376,797	124,298,783	4,078,014	3.28%	43,307,944	41,105,614	2,202,330	5.36%
Small General-Non-Demand	21,083,461	20,681,755	401,705	1.94%	6,956,278	6,987,253	(30,975)	-0.44%
Small General-Demand	47,430,029	47,579,490	(149,461)	-0.31%	15,848,505	16,033,983	(185,477)	-1.16%
Large	80,336,690	79,179,733	1,156,957	1.46%	27,485,887	26,487,608	998,280	3.77%
Independent Power Producers	226,207	273,909	(47,702)	-17.42%	40,140	96,065	(55,925)	-58.22%
Private St. Lites	104,022	141,553	(37,531)	-26.51%	35,129	39,997	(4,868)	-12.17%
Sub-total	**277,557,205**	**272,155,222**	**5,401,982**	**1.98%**	**93,673,883**	**90,750,519**	**2,923,365**	**3.22%**
Government								
Small_Non Demand	3,778,769	3,442,048	336,721	9.78%	1,272,026	1,121,641	150,385	13.41%
Small-Demand	24,445,741	24,987,539	(541,798)	-2.17%	8,063,549	8,060,205	3,343	0.04%
Large	19,781,131	18,735,314	1,045,818	5.58%	6,812,255	6,238,617	573,638	9.19%
Public St. Lites	2,179,335	2,888,990	(709,656)	-24.56%	697,921	994,072	(296,151)	-29.79%
Sub-total	**50,184,976**	**50,053,891**	**131,085**	**0.26%**	**16,845,750**	**16,414,534**	**431,216**	**2.63%**
Total-Civilian	**327,742,181**	**322,209,113**	**5,533,068**	**1.72%**	**110,519,633**	**107,165,053**	**3,354,580**	**3.13%**
USN	80,150,976	79,280,394	870,581	1.10%	28,067,673	27,468,943	598,730	2.18%
Grand Total	**407,893,157**	**401,489,507**	**6,403,649**	**1.59%**	**138,587,306**	**134,633,996**	**3,953,311**	**2.94%**
Non-Oil Yield								
Residential	0.095883	0.096462	-0.000579	-0.60%	0.095613	0.096514	-0.000902	-0.93%
Small General-Non-Demand	0.135911	0.137852	-0.001942	-1.41%	0.136042	0.138415	-0.002373	-1.71%
Small General-Demand	0.119022	0.120037	-0.001015	-0.85%	0.120159	0.121613	-0.001454	-1.20%
Large	0.102733	0.102585	0.000148	0.14%	0.103598	0.101153	0.002445	2.42%
Independent Power Producers	0.000000	0.109998	-0.109998	-100.00%	0.116410	0.101502	0.014907	14.69%
Private St. Lites	0.615532	0.487587	0.127945	26.24%	0.609688	0.552808	0.056880	10.29%
Sub-total	**0.105061**	**0.105728**	**-0.000667**	**-0.63%**	**0.105313**	**0.105735**	**-0.000423**	**-0.40%**
Government								
Small_Non Demand	0.149421	0.152161	-0.002739	-1.80%	0.150372	0.153196	-0.002824	-1.84%
Small-Demand	0.134166	0.133765	0.000401	0.30%	0.136059	0.136481	-0.000422	-0.31%
Large	0.125503	0.124992	0.000511	0.41%	0.126298	0.120568	0.005729	4.75%
Public St. Lites	0.470422	0.431943	0.038478	8.91%	0.479701	0.464923	0.014778	3.18%
Sub-total	**0.146502**	**0.148957**	**-0.002454**	**-1.65%**	**0.147429**	**0.151466**	**-0.004037**	**-2.67%**
Total-Civilian	**0.111407**	**0.112443**	**-0.001036**	**-0.92%**	**0.111732**	**0.112740**	**-0.001008**	**-0.89%**
USN	0.061069	0.060405	0.000664	1.10%	0.057230	0.058721	-0.001491	-2.54%
Grand Total	**0.101515**	**0.102167**	**-0.000652**	**-0.64%**	**0.100694**	**0.101718**	**-0.001024**	**-1.01%**
Non-Oil Revenues								
Residential	12,309,158	11,990,159	318,999	2.66%	4,140,786	3,967,273	173,514	4.37%
Small General-Non-Demand	2,865,464	2,851,024	14,441	0.51%	946,344	967,142	(20,798)	-2.15%
Small General-Demand	5,645,216	5,711,317	(66,101)	-1.16%	1,904,339	1,949,946	(45,607)	-2.34%
Large	8,253,260	8,122,679	130,581	1.61%	2,847,494	2,679,312	168,182	6.28%
Independent Power Producers	23,304	30,129	(6,825)	-22.65%	4,673	9,751	(5,078)	-52.08%
Private St. Lites	64,029	69,019	(4,991)	-7.23%	21,417	22,111	(693)	-3.14%
Sub-total	**29,160,431**	**28,774,327**	**386,104**	**1.34%**	**9,865,054**	**9,595,534**	**269,520**	**2.81%**
Government								
Small_Non Demand	564,629	523,745	40,884	7.81%	191,277	171,831	19,446	11.32%
Small-Demand	3,279,789	3,342,463	(62,675)	-1.88%	1,097,115	1,100,065	(2,950)	-0.27%
Large	2,482,592	2,341,770	140,821	6.01%	860,372	752,180	108,192	14.38%
Public St. Lites	1,025,206	1,247,880	(222,673)	-17.84%	334,793	462,167	(127,374)	-27.56%
Sub-total	**7,352,215**	**7,455,858**	**(103,642)**	**-1.39%**	**2,483,557**	**2,486,242**	**(2,686)**	**-0.11%**
Total-Civilian	**36,512,647**	**36,230,185**	**282,462**	**0.78%**	**12,348,611**	**12,081,777**	**266,834**	**2.21%**
USN	4,894,717	4,788,939	105,778	2.21%	1,606,307	1,612,990	(6,683)	-0.41%
Grand Total	**41,407,364**	**41,019,124**	**388,239**	**0.95%**	**13,954,918**	**13,694,767**	**260,152**	**1.90%**
% of Total Revenues								
Oil Revenues								
Residential	15,112,260	10,765,890	4,346,369	40.37%	5,098,125	3,560,281	1,537,844	43.19%
Small General-Non-Demand	2,481,903	1,791,309	690,594	38.55%	818,879	605,187	213,692	35.31%
Small General-Demand	5,581,522	4,123,180	1,458,342	35.37%	1,865,075	1,391,846	473,230	34.00%
Large	9,409,673	6,911,323	2,498,350	36.15%	3,220,246	2,369,928	850,318	35.88%
Independent Power Producers	25,742	24,900	842	3.38%	4,576	10,008	(5,432)	-54.27%
Private St. Lites	12,245	12,260	(15)	-0.12%	4,135	3,464	671	19.37%
Sub-total	**32,623,345**	**23,628,862**	**8,994,483**	**38.07%**	**11,011,036**	**7,940,713**	**3,070,323**	**38.67%**
Government								
Small_Non Demand	444,829	298,126	146,703	49.21%	149,740	97,149	52,592	54.14%
Small-Demand	2,877,704	2,164,246	713,458	32.97%	949,225	698,119	251,106	35.97%
Large	2,300,647	1,651,546	649,101	39.30%	792,433	582,059	210,374	36.14%
Public St. Lites	256,547	250,224	6,323	2.53%	82,158	86,100	(3,942)	-4.58%
Sub-total	**5,879,727**	**4,364,142**	**1,515,585**	**34.73%**	**1,973,556**	**1,463,426**	**510,131**	**34.86%**
Total-Civilian	**38,503,072**	**27,993,004**	**10,510,068**	**37.55%**	**12,984,593**	**9,404,139**	**3,580,454**	**38.07%**
USN	8,853,372	7,152,489	1,700,883	23.78%	3,035,823	2,632,326	403,497	15.33%
Grand Total	**47,356,444**	**35,145,493**	**12,210,951**	**34.74%**	**16,020,416**	**12,036,464**	**3,983,951**	**33.10%**
% of Total Revenues								
Grand Total								
Residential	27,421,418	22,756,049	4,665,369	20.50%	9,238,911	7,527,553	1,711,358	22.73%
Small General-Non-Demand	5,347,367	4,642,333	705,035	15.19%	1,765,223	1,572,329	192,894	12.27%
Small General-Demand	11,226,738	9,834,497	1,392,242	14.16%	3,769,415	3,341,792	427,623	12.80%
Large	17,662,933	15,034,002	2,628,931	17.49%	6,067,740	5,049,240	1,018,500	20.17%
Independent Power Producers	49,046	55,029	(5,983)	-10.87%	9,249	19,759	(10,510)	-53.19%
Private St. Lites	76,274	81,280	(5,006)	-6.16%	25,553	25,575	(22)	-0.09%
Sub-total	**61,783,776**	**52,403,189**	**9,380,587**	**17.90%**	**20,876,091**	**17,536,247**	**3,339,843**	**19.05%**
Government								
Small_Non Demand	1,009,458	821,871	187,587	22.82%	341,017	268,979	72,038	26.78%
Small-Demand	6,157,492	5,506,709	650,784	11.82%	2,046,340	1,798,184	248,156	13.80%
Large	4,783,239	3,993,317	789,922	19.78%	1,652,805	1,334,239	318,567	23.88%
Public St. Lites	1,281,753	1,498,104	(216,351)	-14.44%	416,951	548,266	(131,315)	-23.95%
Sub-total	**13,231,943**	**11,820,000**	**1,411,942**	**11.95%**	**4,457,113**	**3,949,668**	**507,445**	**12.85%**
Total-Civilian	**75,015,719**	**64,223,190**	**10,792,529**	**16.80%**	**25,333,204**	**21,485,915**	**3,847,288**	**17.91%**
USN	13,748,089	11,941,428	1,806,661	15.13%	4,642,130	4,245,316	396,814	9.35%
Grand Total	**88,763,807**	**76,164,617**	**12,599,190**	**16.54%**	**29,975,334**	**25,731,231**	**4,244,103**	**16.49%**


GPA - T and D Losses (MWH) Without Renewables and Aggreko
For the Last 7 Years thru 12.31.17 -Moving 12 Months
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
7.02%
7.26%
6.31%
5.20%
4.88%
5.44%
5.67%
5.63%
113,279
117,269
103,049
85,295
79,267
78,281
83,949
83,470
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
T and D Losses (MWH)
T and D Losses (% to Net Generation)


GPA - T and D Losses (MWH) With Renewables
For the Last 8 Years thru 12.31.17 -Moving 12 Months
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
7.02%
7.26%
6.31%
5.20%
4.88%
4.73%
4.95%
4.90%
113,279
117,269
103,049
85,295
79,267
78,281
83,949
83,470
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
T and D Losses (MWH)
T and D Losses (% to Net Gen.)


GPA - Station Usage(MWH) Without Renewables and Aggreko
For the Last 7 Years Thru 12.31.17-Moving 12 Months
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
5.66%
5.71%
5.05%
4.86%
4.87%
4.32%
4.26%
4.21%
96,872
97,739
86,765
83,701
83,060
64,952
65,895
65,128
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
Station Use (MWH)
% to Gross Generation


GPA - Station Usage(MWH) With Renewables
For the Last 8 Years Thru 12.31.17 -Moving 12 Months
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
5.66%
5.71%
5.05%
4.86%
4.87%
3.77%
3.74%
3.68%
96,872
97,739
86,765
83,701
83,060
64,952
65,895
65,128
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
Station Use (MWH)
% to Gross Generation


GPA A/R AGING REPORT NOVEMBER 2017
$9,000,000
$8,000,000
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
$(1,000,000)
$7,745,031
$1,401,042
$3,262,743
$6,108,662
$21,177
$26,135
($449)
$356,130
$2,154,865
$1,770,802
$837,400
Residential
Commercial G
Commercial J
Commercial P
Private St Lights
IPP
Suspense
Government S
Government K
Government L
Government St Lights
OVER 120 DAYS
91-120 DAYS
61-90 DAYS
31-60 DAYS
0-30 DAYS

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-02:

What is the project's objective and is it necessary and urgent?

Guam Power Authority's (GPA) Bond Refinancing Program will result in a 2018 to 2021 cumulative debt service reduction of $1,482,326 and as per Guam PL 34-69, Section 2(h), GPA must notify I Liheslatura within sixty (60) days of refinancing of its intent and plan regarding the savings achieved from refinancing. GPA desires to reserve these savings for the benefit of the community by assisting the Guam Department of Education (GDOE) with its energy goals. GPA proposes to use the Bond Refinancing Program savings towards replenishing GPA's DSM rebate program funding and developing and executing GPA's proposed DSM program: *Bringing Energy Savings to (BEST) Schools Program.*

The BEST Schools Program goals include:

- Supporting GDOE to achieve their legislative mandate to deploy and utilize renewable energy systems;
- Incentivizing GDOE to reduce their energy use and expenditures;
- Modernizing GDOE facilities infrastructure and extending GDOE equipment life with enhanced, proactive maintenance;
- Partnering up with GDOE under the UESC Program to execute the above;
- Ensuring GDOE continues to contribute to the O&M and capital investments for the GPA Power System; and

GPA will supplement the funding of this program with federal grants. The BEST Schools Program may increase GDOE's use of renewable energy, decrease GDOE's energy consumption and GHG footprint, and improve GDOE's facilities maintenance. This proposed program benefits GDOE, GPA, renewable energy system providers, and Guam students and residents.

How much is the savings?

Average Annual Cash Savings: $501,236.00 (Strategic Investments Option)

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

RESOLUTION NO. 2018-02

RESOLUTION RELATIVE TO BOND FINANCING SAVINGS UTILIZATION

WHEREAS, Guam Power Authority's (GPA) Bond Refinancing Program will result in a 2018 to 2021 cumulative debt service reduction of $1,482,326; and

WHEREAS, as per Guam PL 34-69, Section 2(h), GPA must notify I Liheslatura within sixty (60) days of refinancing of its intent and plan regarding the savings achieved from refinancing; and

WHEREAS, GPA desires to reserve these savings for the benefit of the community by making a strategic investment assisting the Guam Department of Education's (GDOE) with its Legislative mandate for renewable energy; and

WHEREAS, GPA proposes to use the Bond Refinancing Program savings towards GPA's ***Bringing Energy Savings to (BEST) Schools Program;*** and

WHEREAS, the BEST Schools Program goals include:

- Supporting GDOE to achieve their legislative mandate to deploy and utilize renewable energy systems;
- Incentivizing GDOE to reduce their energy use and expenditures;
- Modernizing GDOE facilities infrastructure and extending GDOE equipment life with enhanced, proactive maintenance;
- Partnering up with GDOE under the UESC Program to execute the above;
- Ensuring GDOE continues to contribute to the O&M and capital investments for the GPA Power System; and

WHEREAS, GPA will supplement the funding of this program with federal grants; and

RESOLUTION NO: 2018-02

WHEREAS, any installed solar PV system energy production shall offset GDOE electricity billing on a kilowatt-hour generated for kilowatt-hour consumed basis at the LEAC or below the rate; and

WHEREAS, this proposed program benefits GDOE, GPA, renewable energy system providers, and Guam students and residents; and

WHEREAS, additionally, GPA will use the remainder of the Bond Refinancing Program savings towards replenishing GPA's Demand-Side Management (DSM) Rebate Program; and

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES, the GOVERNING BODY of the GUAM POWER AUTHORITY as FOLLOWS:

1. The CCU authorizes GPA to petition the PUC for approval of the BEST Schools Program and for replenishing the funding for GPA's DSM Rebate Program.
2. Upon program approval by the PUC, the CCU authorizes the GPA General Manager to implement the BEST Schools Program and fund GPA's DSM Rebate Program.

RESOLVED, that the Chairman certifies and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED AND APPROVED THIS 27th DAY OF FEBRUARY 2018.

Certified by:

JOSEPH T. DUENAS
Chairperson
Consolidated Commission on Utilities

Attested by:

J. GEORGE BAMBA
Secretary
Consolidated Commission on Utilities

RESOLUTION NO: 2018-02

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-04:

RELATIVE TO APPROVAL OF THE PHASE II RENEWABLE ENERGY ACQUISITION POWER PURCHASE AGREEMENT FOR HANWHA ENERGY CORPORATION

What is the project's objective? Is it necessary and urgent?

GPA intends to meet its 2008 IRP goals and comply with Public Law 29-62 which sets renewable goals under the Renewable Portfolio Standards (RPS) with the Phase II projects. In January 2017 GPA obtained the price bids for GPA Multi-Step Bid No: GPA-070-16 for 60MW of Renewable Energy Resource capacity with ESS for ramp control. Hanwha Energy Corporation is one of the two (2) lowest responsive bidders (KEPCO-LG CNS Mangilao Solar, LLC., is the other one) with having two proposals for 30MW solar PV projects totaling 60 MW of solar PV capacity with ESS for ramp control. GPA and Hanwha Energy Corporation have completed and agreed to commercial terms and conditions of the Power Purchase Agreements (PPA). GPA seeks approval to submit Hanwha Energy Corporation's PPA to the PUC for their approval.

Where is the location?

The Hanwha Energy Corporation 2x30MW solar projects are located at Dandan, Inarajan.

How much will it cost?

Please see attached table.

When will it be completed?

The Agreement is for 25 year term.

What is its funding source?

Funding source is LEAC.

HANWHA ENERGY CORPORATION Price Proposals

Contract Year	Proposal 1			Proposal 2		
	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	MicroGrid Operations Fixed Annual Fee	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	MicroGrid Operations Fixed Annual Fee
1	$ 62.45	72,005.00	$ 1,287,082	$ 65.99	72,005.00	$ 1,287,082
2	$ 63.08	71,831.00	$ 1,264,710	$ 66.65	71,831.00	$ 1,264,710
3	$ 63.71	71,245.00	$ 1,244,969	$ 67.32	71,245.00	$ 1,244,969
4	$ 64.35	70,865.00	$ 1,225,229	$ 67.99	70,865.00	$ 1,225,229
5	$ 64.99	70,485.00	$ 1,206,804	$ 68.67	70,485.00	$ 1,206,804
6	$ 65.64	70,306.00	$ 1,188,380	$ 69.36	70,306.00	$ 1,188,380
7	$ 66.30	69,724.00	$ 1,171,271	$ 70.05	69,724.00	$ 1,171,271
8	$ 66.96	69,344.00	$ 1,155,479	$ 70.75	69,344.00	$ 1,155,479
9	$ 67.63	68,693.00	$ 1,139,686	$ 71.46	68,693.00	$ 1,139,686
10	$ 68.31	68,780.00	$ 1,123,894	$ 72.17	68,780.00	$ 1,123,894
11	$ 68.99	68,202.00	$ 1,108,101	$ 72.89	68,202.00	$ 1,108,101
12	$ 69.68	67,821.00	$ 1,093,625	$ 73.62	67,821.00	$ 1,093,625
13	$ 70.37	67,440.00	$ 1,079,149	$ 74.36	67,440.00	$ 1,079,149
14	$ 71.08	67,252.00	$ 1,064,672	$ 75.10	67,252.00	$ 1,064,672
15	$ 71.79	66,678.00	$ 1,051,512	$ 75.85	66,678.00	$ 1,051,512
16	$ 72.51	66,296.00	$ 1,038,352	$ 76.61	66,296.00	$ 1,038,352
17	$ 73.23	65,915.00	$ 1,025,191	$ 77.38	65,915.00	$ 1,025,191
18	$ 73.96	65,722.00	$ 1,012,031	$ 78.15	65,722.00	$ 1,012,031
19	$ 74.70	65,151.00	$ 998,871	$ 78.93	65,151.00	$ 998,871
20	$ 75.45	64,770.00	$ 987,026	$ 79.72	64,770.00	$ 987,026
21	$ 76.21	64,388.00	$ 975,182	$ 80.52	64,388.00	$ 975,182
22	$ 76.97	64,190.00	$ 963,338	$ 81.33	64,190.00	$ 963,338
23	$ 77.74	63,623.00	$ 951,493	$ 82.14	63,623.00	$ 951,493
24	$ 78.52	63,241.00	$ 939,649	$ 82.96	63,241.00	$ 939,649
25	$ 79.30	62,859.00	$ 927,805	$ 83.79	62,859.00	$ 927,805

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

RESOLUTION NO. 2018 – 04

RELATIVE TO APPROVAL OF THE PHASE II RENEWABLE ENERGY ACQUISITION AWARD TO HANWHA ENERGY CORPORATION FOR 60 MW OF RENEWABLE ENERGY CAPACITY

WHEREAS, in May 2016 GPA announced GPA Multi-Step Bid No: GPA- 070-16 for 60MW of Renewable Energy Resource capacity with ESS for ramp control; and

WHEREAS, in January 2017 GPA obtained the price bids and Hanwha Energy Corporation is one of the two (2) lowest responsive bidders with having two proposals for 30MW solar PV projects totaling 60 MW of solar PV capacity with ESS for ramp control; and

WHEREAS, Hanwha Energy Corporation provided $62.45/MWH & $65.99/MWH price proposals (first year) for the energy and ramp controls to include interconnection costs. **Exhibit A** provides a summary of the energy price proposals; and

WHEREAS, GPA evaluates bidder's price proposal against GPA's variable operating costs primarily made up of fuel costs; and

WHEREAS, GPA has determined that Hanwha Energy Corporation proposals would provide substantial savings to GPA over the term of the contracts based on current and projected LEAC rates (**Exhibit B**)**;** and

WHEREAS, GPA considers renewable energy as an effective hedge against rising fuel oil prices; and

WHEREAS, the bid prices proposed are an excellent fuel hedge as the bidders' energy prices are fixed with escalations no more than 1% annually for all proposals. **Exhibit C** summarizes GPA historical LEAC; and

WHEREAS, renewable energy is sustainable energy and good for the island; and

WHEREAS, Public Law 29-62 sets renewable goals under the Renewable Portfolio Standards (RPS); and

RESOLUTION NO: 2018-xx

WHEREAS, the award of 120MW contracts including KEPCO-LG CNS Mangilao Solar, LLC 60 MW project is projected to increase GPA's ratio of renewable energy to sales up to 26% by 2020. **Exhibit D & E** is a projected RPS outlook; and

WHEREAS, Hanwha Energy Corporation has concurred with GPA recommendations from the system impact study which is incorporated in the contract documents; and

WHEREAS, GPA would like to proceed with an approval to award Hanwha Energy Corporation a total of 60MW of renewable energy capacity contract subject (the "Agreement") to PUC approval.

WHEREAS, the Agreement, in the unexecuted form attached hereto as **Exhibit F,** has been reviewed by the CCU.

WHEREAS, this (Agreement shall be effective on the Effective Date as defined therein provided that the obligations of the parties thereunder shall be subject to the satisfaction of the following conditions precedent:

(i) Receipt by GPA of a final, non-appealable approval of this Agreement by the Guam Public Utilities Commission ("PPA Approval");

(ii) Execution of the Interconnection Agreement by the Parties;

(iii) Receipt by GPA of a final, non-appealable approval of the Interconnection Agreement (ICA) by the Guam Public Utilities Commission ("ICA Approval"); and

WHEREAS, Title 12 of the Guam Code Annotated, Chapter 8, Section 8306 provides that the Guam Power Authority may enter into alternate energy agreements to develop alternate energy or to purchase alternate energy only if all of the following conditions are met:

(a) Local funds of the government of Guam or the Guam Power Authority Funds may be used to develop alternate energy sources (including power generated from windmills, solar ponds and Ocean Thermal Energy Conversion) as may be later, appropriated by the Legislature or approved by law for that specific purpose.

(b) Any power produced or sold from alternate energy sources (including power generated from windmills, solar ponds and Ocean Thermal Energy Conversion (OTEC) cannot be purchased by Guam Power Authority or the government of Guam at a cost greater than the average cost of producing power found in the Islandwide Power System (not inclusive of backup diesel generators), specifically the two Cabras Units, the two Tanguisson Units, and the Piti Power Plant.

RESOLUTION NO: 2018-xx

(c) No contract may be signed by the government of Guam or the Guam Power Authority to develop or purchase power from alternate energy sources (including power generated from windmills, solar ponds and Ocean Thermal Energy Conversion), if such contract will result in increased expenses and costs for the Guam Power Authority. No such alternate energy contract may be signed until the board of directors of the Guam Power Authority has so certified that the agreement is consistent with all bond covenants and that the price paid for electricity pursuant to the agreement does not exceed actual current avoided cost.

(d) For so long as the Navy Power Pool Agreement is in effect, neither the Guam Power Authority nor the government of Guam may contract to purchase any power generated from alternate energy source (including power generated from windmills and solar ponds and Ocean Thermal Energy Conversion) without giving the United States Navy prior written notification.

(e) Any contract to purchase alternate energy (including power generated from windmills and solar ponds and Ocean Thermal Energy Conversion) must provide that any loss or damage to the Islandwide Power System, Guam Power Authority and the U.S. Navy or to consumers as a result of or proximately caused by the negligence of alternate energy supplier or by the quality of alternate energy supplied will be borne solely by the alternate energy supplier who will hold Guam Power Authority and the government of Guam harmless.

(f) All interface facilities to provide usable alternate energy (including power generated from windmills, solar ponds and Ocean Thermal Energy Conversion) shall be installed and maintained at the expense of the supplier of alternate energy. Any such interconnections shall be at existing lines owned and operated by the Islandwide Power System, and such interfaces shall be subject to the engineering standards and approval set by the Guam Power Authority.

(g) Any contract to purchase alternate energy (including power generated from windmills, solar ponds and Ocean Thermal Energy Technology) must provide that neither the government of Guam nor the Guam Power Authority shall be obligated to purchase electrical power not needed by the Guam Power Authority.

RESOLUTION NO: 2018-xx

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES, the GOVERNING BODY of the GUAM POWER AUTHORITY as FOLLOWS:

1. The CCU authorizes GPA to petition the PUC for approval to award Phase II Renewable Acquisition Bid of two 30MW proposals totaling 60MW to Hanwha Energy Corporation as required under the PUC Procurement Protocol.
2. The CCU authorizes GPA to contract Hanwha Energy Corporation for renewable energy subject to PUC approval.
3. The CCU certifies and confirms that the requirements of 12 GCA Section 8306 as set forth above are met and satisfied in connection with the Agreement as follows:
    a. The requirements of 12 GCA Section 8306(a) are satisfied in connection with the Agreement in that GPA, pursuant to the provisions of Public Law 30-66 (as codified in Title 12 of the Guam Code Annotated, Section 8104(n)) and other applicable laws, is authorized to enter into the Agreement, together with any other agreement to be entered into by the parties in connection therewith, and perform all the obligations imposed upon GPA as set forth therein, including, without limitation, the obligation to purchase Renewable Energy as defined in the Agreement and pay all amounts due and owing under the terms of the Agreement. No separate and specific appropriation or approval by *Liheslaturan Guahan* is required for such purpose.
    b. The requirements of 12 GCA Section 8306(b) and (c) are satisfied in connection with the Agreement in that the CCU hereby certifies that the Agreement and the purchase of Renewable Energy by GPA at the time of the execution of the Agreement pursuant to the terms therein will not result in (A) costs to GPA which exceed the average cost of producing power under the Islandwide Power System owned and operated by GPA not inclusive of energy production from any backup diesel generators or other renewable energy sources, or (B) increased expenses and costs for GPA. Further, the CCU hereby certifies that the Agreement is consistent with and does not violate any and all bond covenants applicable to and imposed upon GPA and that the price to be paid by GPA for Renewable Energy as provided therein does not exceed GPA's actual current avoided cost.
    c. The requirements of 12 GCA 8306(d) are not applicable with regard to the Agreement since GPA is not a party to a pooling agreement or any other agreement with the United States Department of Navy or any other federal agency, department or instrumentality ("Federal Government) which requires GPA to notify or obtain the approval of the Federal Government of this Agreement as contemplated.

RESOLUTION NO: 2018-xx

d. The requirements of 12 GCA Section 8306(e) are satisfied as the Agreement contemplates that the Hanwha entity executing the Agreement is obligated to indemnify and hold harmless GPA from any loss or damage to the Islandwide Power System as a result of or proximately caused by such entity or by the quality of alternate energy supplied.

e. The requirements of 12 GCA Section 8306(f) are satisfied as the Agreement and any interconnection agreements executed in connection therewith provide that all interface facilities to provide the Renewable Energy shall be installed and maintained at the expense of the Hanwha entity thereunder and that any such interconnections shall be at existing lines owned and operated by the Islandwide Power System, and such interfaces shall be subject to the engineering standards and approval set by GPA.

f. The requirements of 12 GCA Section 8306(g) are satisfied in connection with the Agreement as any and all Renewable Energy to be purchased by GPA pursuant to the terms of the Agreement constitute electrical power needed and required by GPA in connection with the operation and stability of the Islandwide Power System and in order to meet renewable energy portfolio standards which GPA is mandated to achieve and satisfy by law including without limitation, the mandates as set forth in Public Law 29-062 as codified in Title 12 of the Guam Code Annotated, Section 8311.

RESOLVED, that the Chairman certifies and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED AND APPROVED THIS 27TH DAY OF FEBRUARY 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS
Chairperson
Consolidated Commission on Utilities

J. GEORGE BAMBA
Secretary
Consolidated Commission on Utilities

RESOLUTION NO: 2018-xx

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

EXHIBIT A

Summary of Bid Proposals

Contract Year	Proposal 1			Proposal 2		
	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	MicroGrid Operations Fixed Annual Fee	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	MicroGrid Operations Fixed Annual Fee
1	$ 62.45	72,005.00	$ 1,287,082	$ 65.99	72,005.00	$ 1,287,082
2	$ 63.08	71,831.00	$ 1,264,710	$ 66.65	71,831.00	$ 1,264,710
3	$ 63.71	71,245.00	$ 1,244,969	$ 67.32	71,245.00	$ 1,244,969
4	$ 64.35	70,865.00	$ 1,225,229	$ 67.99	70,865.00	$ 1,225,229
5	$ 64.99	70,485.00	$ 1,206,804	$ 68.67	70,485.00	$ 1,206,804
6	$ 65.64	70,306.00	$ 1,188,380	$ 69.36	70,306.00	$ 1,188,380
7	$ 66.30	69,724.00	$ 1,171,271	$ 70.05	69,724.00	$ 1,171,271
8	$ 66.96	69,344.00	$ 1,155,479	$ 70.75	69,344.00	$ 1,155,479
9	$ 67.63	68,693.00	$ 1,139,686	$ 71.46	68,693.00	$ 1,139,686
10	$ 68.31	68,780.00	$ 1,123,894	$ 72.17	68,780.00	$ 1,123,894
11	$ 68.99	68,202.00	$ 1,108,101	$ 72.89	68,202.00	$ 1,108,101
12	$ 69.68	67,821.00	$ 1,093,625	$ 73.62	67,821.00	$ 1,093,625
13	$ 70.37	67,440.00	$ 1,079,149	$ 74.36	67,440.00	$ 1,079,149
14	$ 71.08	67,252.00	$ 1,064,672	$ 75.10	67,252.00	$ 1,064,672
15	$ 71.79	66,678.00	$ 1,051,512	$ 75.85	66,678.00	$ 1,051,512
16	$ 72.51	66,296.00	$ 1,038,352	$ 76.61	66,296.00	$ 1,038,352
17	$ 73.23	65,915.00	$ 1,025,191	$ 77.38	65,915.00	$ 1,025,191
18	$ 73.96	65,722.00	$ 1,012,031	$ 78.15	65,722.00	$ 1,012,031
19	$ 74.70	65,151.00	$ 998,871	$ 78.93	65,151.00	$ 998,871
20	$ 75.45	64,770.00	$ 987,026	$ 79.72	64,770.00	$ 987,026
21	$ 76.21	64,388.00	$ 975,182	$ 80.52	64,388.00	$ 975,182
22	$ 76.97	64,190.00	$ 963,338	$ 81.33	64,190.00	$ 963,338
23	$ 77.74	63,623.00	$ 951,493	$ 82.14	63,623.00	$ 951,493
24	$ 78.52	63,241.00	$ 939,649	$ 82.96	63,241.00	$ 939,649
25	$ 79.30	62,859.00	$ 927,805	$ 83.79	62,859.00	$ 927,805

EXHIBIT B

Proposal Evaluation Summary

CASE	Description	Project Size	5 Year Projected Savings On Current LEAC ($115/MWH)	5 Year Projected Savings on Projected LEAC
1	Hanwha Energy Corporation Proposal 1&2 (60MW)	60 MW	$ 22,820,053	$ 44,934,650

Contract Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTALS
Hanwha Proposal 1 Energy Rate ($/MWH)	62.45	63.08	63.71	64.35	64.99	
Energy Guarantee (MWH)	72,005	71,831	71,245	70,865	70,485	
Hanwha Proposal 2 Energy Rate ($/MWH)	65.99	66.65	67.32	67.99	68.67	
Energy Guarantee (MWH)	72,005	71,831	71,245	70,865	70,485	
Hanwha Microgrid Operations Option	$ 2,574,164	$ 2,529,420	$ 2,489,938	$ 2,450,458	$ 2,413,608	
Phase II Energy Costs	**$ 11,822,486**	**$ 11,848,056**	**$ 11,825,170**	**$ 11,828,732**	**$ 11,834,633**	**$ 59,159,077**
Current LEAC Rate ($/MWH)	115	115	115	115	115	
Current Energy Costs	$ 16,561,150	$ 16,521,130	$ 16,386,350	$ 16,298,950	$ 16,211,550	$ 81,979,130
Proposed Savings	**$ 4,738,664**	**$ 4,673,074**	**$ 4,561,180**	**$ 4,470,218**	**$ 4,376,917**	**$ 22,820,053**

Year	2019	2020	2021	2022	2023	TOTALS
Projected LEAC Rate* ($/MWH)	122.27	140.02	154.63	154.03	159.65	
Current Energy Costs	$ 17,608,221	$ 20,115,743	$ 22,033,092	$ 21,830,945	$ 22,505,726	$ 104,093,728
Proposed Savings	**$ 5,785,735**	**$ 8,267,687**	**$ 10,207,922**	**$ 10,002,213**	**$ 10,671,093**	**$ 44,934,650**

STRATEGIST CASE SUMMARY

	Base Case (No Phase II)	Case 1 (60MW)	SAVINGS
Present Value Utility Cost[3] ($000)	6,896,417	6,662,844	233,572

Notes:
1. The Currrent LEAC is used in this case evaluation to demonstrate minimum savings potential with $115/MWH LEAC rate presently proposed for next LEAC period.
2. Projected LEAC is based on STRATEGIST software output that analyzes genernation costs for various generation resources and its operating characteristics. This LEAC is based on load and fuel forecasts done by LEIDOS in 2016.
3. Present Value Utility Cost is an evaluation of generation operating costs in the STRATEGIST software. This is used to determine cost impact of generation resources and their operation variables (efficiency, fuel costs, capacity, etc.) based on energy requirements.

EXHIBIT C
Historical LEAC Summary

EFFECTIVE DATES	FUEL RECOVERY RATE ($ per Kwh)
10/01/00	0.053613
04/01/01	0.053613
10/01/01	0.048625
04/01/02	0.042901
10/01/02	0.048831
04/01/03	0.048831
10/01/03	0.062333
04/01/04	0.059753
10/01/04	0.059753
01/01/00	0.073010
01/01/00	0.088918
01/01/00	0.098589
02/01/07	0.108893
08/13/07	0.123957
03/01/08	0.150467
06/01/08	0.170440
10/01/08	0.187750
12/01/08	0.171050
02/01/09	0.157630
05/01/09	0.136450
08/01/09	0.129670
02/01/10	0.150460
08/31/10	0.124650
02/01/11	0.161530
08/01/11	0.192220
02/01/12	0.191980
04/01/12	0.192310
02/01/13	0.209271
08/01/13	0.182054
02/01/14	0.172986
08/01/14	0.176441
11/01/14	0.146666
02/01/15	0.102054
08/01/15	0.104871
02/01/16	0.086613
08/01/16	0.086613
02/01/17	0.105051
08/01/17	0.115725

EXHIBIT D

Projected Renewable Energy & Renewable Portfolio Standards (RPS) for 120 MW Phase II Award

	Net Metering Renewable Energy (MWH)	NRG Renewable Energy (MWH)	GPA Wind Turbine (MWH)	Phase II - Hanwha, 60MW (MWH)	Phase II - KEPCO, 60MW (MWH)	Phase III, 40MW (MWH)	Total Renewable Production (MWH)	GPA Total Sales (MWH)	% Projected Renewable Production vs. Sales	RPS % (By End of Year)
2015	8,034	17,597					25,630	1,536,927	2%	5%
2016	19,559	48,221	474				68,253	1,584,685	4%	5%
2017	25,271	51,627	482				77,380	1,546,044	5%	5%
2018	40,393	51,412	482				92,287	1,554,108	6%	5%
2019	57,629	51,133	482				109,244	1,557,331	7%	5%
2020	*57,629*	50,992	482	144,010	149,085		402,198	1,558,272	26%	8%
2021	*57,629*	50,601	482	143,662	147,949	80,510	480,834	1,547,800	31%	8%
2022	*57,629*	50,393	482	142,490	147,209	80,175	478,377	1,544,574	31%	8%
2023	*57,629*	50,083	482	141,730	146,468	79,740	476,131	1,544,540	31%	8%
2024	*57,629*	49,781	482	140,970	146,118	79,520	474,499	1,550,854	31%	8%
2025	*57,629*	49,599	482	140,612	144,986	78,911	472,219	1,566,472	30%	10%
2026	*57,629*	49,391	482	139,448	144,245	78,585	469,780	1,577,646	30%	10%
2027	*57,629*	49,122	482	138,688	143,504	78,102	467,527	1,597,005	29%	10%
2028	*57,629*	48,987	482	137,386	143,146	77,631	465,262	1,614,448	29%	10%
2029	*57,629*	48,612	482	137,560	142,023	77,348	463,654	1,620,517	29%	10%
2030	*57,629*	48,411	482	136,404	141,282	77,023	461,230	1,631,977	28%	15%
2031	*57,629*	48,147	482	135,642	140,541	76,604	459,045	1,644,069	28%	15%
2032	*57,629*	48,017	482	134,880	140,175	76,393	457,577	1,661,486	28%	15%
2033	*57,629*	47,649	482	134,504	139,059	75,808	455,131	1,670,464	27%	15%
2034	*57,629*	47,451	482	133,356	138,319	75,495	452,731	1,684,195	27%	15%
2035	*57,629*	47,191	482	132,592	137,578	75,083	450,555	1,698,373	27%	25%

Notes:

1. Sales is from 2016 forecast for 2017-2035 (LEIDOS Jan. 2016 Forecast)
2. Net Metering projection is from LEIDOS Forecast for 2017 thru 2019 and fixed thereafter
3. NRG (Phase I) production is based on contract guarantees from 2017 thru 2035
4. Phase II is based on Project Guarantees **for 120MW**. Phase III renewable projections are based NRG contract guarantees.
5. GPA wind turbine assumes average capacity factor since commissioning (20%) from 2017 thru 2035
6. DSM values are not included.

EXHIBIT E

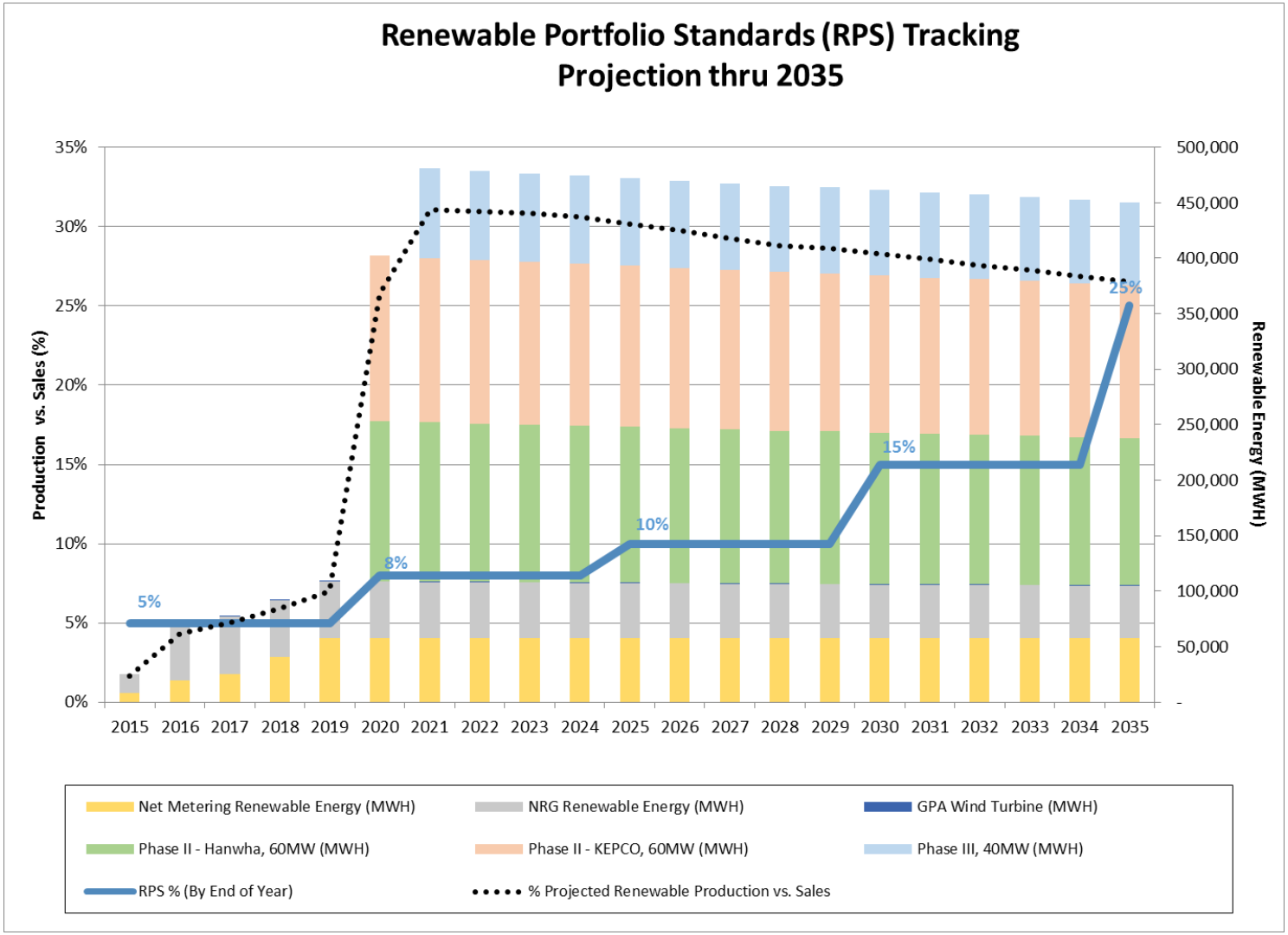

Renewable Portfolio Standards (RPS) Tracking
Projection thru 2035
Production vs. Sales (%)
Renewable Energy (MWH)
35%
30%
25%
20%
15%
10%
5%
0%
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
-
5%
8%
10%
15%
25%
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035
Net Metering Renewable Energy (MWH)
NRG Renewable Energy (MWH)
GPA Wind Turbine (MWH)
Phase II - Hanwha, 60MW (MWH)
Phase II - KEPCO, 60MW (MWH)
Phase III, 40MW (MWH)
RPS % (By End of Year)
% Projected Renewable Production vs. Sales

Exhibit F

GPA Contract No. _____

RENEWABLE ENERGY
PURCHASE AGREEMENT

BETWEEN
GUAM POWER AUTHORITY
AND

[HANWHA ENERGY CORPORATION][1]

[1] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

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RENEWABLE ENERGY
PURCHASE AGREEMENT
BETWEEN
GUAM POWER AUTHORITY
AND
[HANWHA ENERGY CORPORATION][2]

THIS RENEWABLE ENERGY PURCHASE AGREEMENT (the "Agreement"), effective as of last date set forth on the signature page hereto (the "Effective Date"), is entered into by and between and Guam Power Authority, ("GPA" or "Buyer") and [Hanwha Energy Corporation] [3], a _____ ("Seller"). The purpose of this Agreement is to establish the terms and conditions under which Seller shall sell and GPA shall purchase Renewable Energy and associated Renewable Energy Credits, as defined herein. In this Agreement, Seller and GPA may be individually referred to as a "Party" or collectively as "Parties."

Recitals

WHEREAS, Seller desires to sell to GPA at the Delivery Point a portion of the Renewable Energy and associated RECs from the Facility and GPA desires to buy the same from the Seller at the Delivery Point.

WHEREAS, on the date hereof, Seller and GPA have entered into a Renewable Energy Purchase Agreement as to the remaining capacity of the Facility (the "Additional PPA").

Therefore, for good and valuable consideration, including, without limitation, the covenants and agreements of the Parties contained in this Agreement, the receipt and sufficiency of which consideration is acknowledged, the Parties agree as follows:

ARTICLE ONE: DEFINITIONS

The following definitions apply to this Agreement:

1.1 "Actual Renewable Energy" means the actual output of the Facility (expressed in MWhs), measured at the Delivery Point, including all Renewable Energy and all Stored Energy, over any Production Measurement Period. Actual Renewable Energy shall be measured by the Seller Metering Equipment, and adjusted as applicable in accordance with Section 7.4.

1.2 "Affiliate" means, with respect to any party, any other party (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such party. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.3 "Annual Facility Test" has the meaning set forth in Section 4.9.

1.4 "Annual Microgrid Payment" means, as to each Contract Year, the amount set forth in Appendix A.

1.5 "Appraisal Price" means the average of three (3) appraisals of the market value of the Facility at the end of the Delivery Term, delivered by three (3) independent appraisers qualified by experience and expertise to

[2] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

[3] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

determine the arm's length market value of the Facility. If the Parties do not agree on the independent appraisers then they shall be determined by arbitration in accordance with Section 12.9.

1.6 "Bankrupt" means with respect to any entity, such entity (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such valid petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due.

1.7 "Bid Security" or "Bid Bond" means the $150,000.00, which is the amount of the security provided by Seller in connection with its initial bid to GPA for the Project.

1.8 "Business Day" means any day except a Saturday, Sunday, a Federal Reserve Bank holiday or an official Guam holiday. A Business Day shall open at 8:00 a.m. and close at 5:00 p.m. local time for the relevant Party's principal place of business. The relevant Party, in each instance unless otherwise specified, shall be the Party by whom the Notice or payment or delivery is to be received.

1.9 "Buyout Payment" means, with respect to Seller's election not to re-build the Facility pursuant to Section 12.2, an amount equal to: Minimum Production x the number of Contract Years (or portion thereof) remaining in the Delivery Period x Incremental Price

1.10 "Change Event" has the meaning set forth in Section 4.16(c).

1.11 "Charging Energy" means Renewable Energy generated by the Facility and used to charge the Microgrid Unit as contemplated in Appendix C.

1.12 "Claiming Party" has the meaning set forth in Section 4.9.

1.13 "Claims" means all claims or actions, threatened or filed and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of an indemnity, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise.

1.14 "COD Extension" has the meaning set forth in Section 4.2(a).

1.15 "COD Extension Payment" has the meaning set forth in Section 4.2(a).

1.16 "Commercially Reasonable" or "Commercially Reasonable Efforts" means, with respect to any purchase, sale, decision, or other action made, attempted or taken by a Party, such efforts as a reasonably prudent business would undertake for the protection of its own interest under the conditions affecting such purchase, sale, decision or other action, consistent with Good Utility Practices, including, without limitation, electric system reliability and stability or other regulatory mandates relating to renewable energy portfolio requirements, the cost of such action (including whether such cost is reasonable), the amount of notice of the need to take a particular action, the duration and type of purchase or sale or other action, and the commercial environment in which such purchase, sale, decision or other action occurs. "Commercially Reasonable" or "Commercially Reasonable Efforts" shall be reviewed and determined based upon the facts and circumstances known, or which could have been known with the exercise of reasonable efforts, at the time that a sale, purchase, or other action is taken and shall not be based upon a retroactive review of what would have been optimal at such time.

1.17 "Commercial Operation" has the meaning set forth in Section 4.1.

1.18 "Commercial Operation Date" or "COD" means the date that Commercial Operation of the Project has been achieved in accordance with Section 4.1.

1.19 "Confidential Information" means all information, whether written or oral, that is disclosed or otherwise available in connection with this Agreement or the performance by either Party of any of its duties hereunder, except any information which: (i) at the time of disclosure or thereafter is generally available to the public (other than as a result of a disclosure by any Party in violation of this Agreement); (ii) was available to any Party on a non-confidential basis from a source other than the Party hereto providing the Confidential Information, provided that such source is not bound by a confidentiality agreement that protected the Confidential Information; or (iii) has been independently acquired or developed by any Party without violating any of its obligations under this Agreement.

1.20 "Contract Price" means the price in U.S. Dollars (unless otherwise provided for) rounded to the nearest $0.01, to be paid by GPA to Seller for the purchase of the Renewable Energy, as described in Appendix A.

1.21 "Contract Year" means the annual period, beginning on the Commercial Operation Date, and renewing thereafter on each anniversary of the Commercial Operation Date.

1.22 "Conventional Energy Resource" is an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy resources.

1.23 "Credit Rating" means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P, Moody's or any other rating agency agreed by the Parties.

1.24 "Cure Plan" has the meaning set forth in Section 4.7.

1.25 "Daily Delay Liquidated Damages" has the meaning set forth in Section 4.2(b).

1.26 "Defaulting Party" has the meaning set forth in Section 6.1.

1.27 "Deficiency Amount" has the meaning set forth in Section 4.8

1.28 "Delivery Period" means the period of delivery under this Agreement, commencing on the Commercial Operation Date and continuing for the Term, as such period may be extended in accordance with this Agreement.

1.29 "Delivery Point" means the point at which the Renewable Energy (including Stored Energy) will be delivered and received, as specified in Section 2.1 herein, or such other delivery point as may be agreed to by the Parties in writing.

1.30 "Development Security" means the security deposit during construction of the renewable project or facility prior to Commercial Operation Date. The Development Security shall be 50% of the total projected payment for the 1st contract year based on the contractor's 1st Contract Year energy rate and the guaranteed energy production. Refer to Section 9.1 for additional requirements.

1.31 "Dispatch Down" means any curtailment is initiated by GPA for reasons other than Force Majeure or Seller Event of Default.

1.32 "Early Termination Date" has the meaning set forth in Section 6.2.

1.33 "Effective Date" means the date first set forth above.

1.34 "Eligible Renewable Energy Resources" are applications of the following defined technologies that displace Conventional Energy Resources that would otherwise be used to provide electricity to GPA's customers: biogas electricity generator, biomass electricity generator, fuel cell that use only renewable fuels, geothermal

generator, hybrid wind and solar electric generator, landfill gas generator, solar electricity resources, wind generator and such other generally accepted renewable energy resources.

1.35 "Emergency" means any abnormal interconnection or system condition (including, without limitation, equipment or transmission limitations and constraints caused by thermal limits, stability, voltage, or loop flows) that Buyer determines in accordance with Good Utility Practices): (a) requires automatic or immediate manual operation to prevent or limit loss of Buyer's system or generation supply; (b) could adversely affect the reliability of the Buyer system or generation supply; (c) could adversely affect the reliability of any interconnected electric system; or (d) could otherwise pose a threat to public safety.

1.36 "End Date" has the meaning given in Section 12.1(b).

1.37 "Environmental Attributes" means environmental characteristics that are attributable to Renewable Energy, including credits; credits towards achieving local, national or international renewable portfolio standards; green tags; Renewable Energy Credits; greenhouse gas or emissions reductions, credits, offsets, allowances or benefits; actual SO2, NOx, CO2, CO, Carbon, VOC, PM_{10}, mercury, and other emissions avoided; and any and all other green energy or other environmental benefits associated with the generation of Renewable Energy (regardless of how any present or future law or regulation attributes or allocates such characteristics). Such Environmental Attributes shall be expressed in kWh or, as applicable in the case of emissions credits, in tonne equivalent or other allowance measurement. Environmental Attributes does not include Tax Benefits, or any energy, capacity, reliability, or other power attributes used by Seller to provide electricity services.

1.38 "EPC Contractor" means the contractor(s) under the engineering, procurement and construction contract for the Project.

1.39 "Equitable Defenses" means any bankruptcy, insolvency, reorganization and other laws affecting creditors' rights generally, and with regard to equitable remedies, the discretion of the court before which proceedings to obtain same may be pending.

1.40 "Event of Default" has the meaning set forth in Section 6.1.

1.41 "Excused Hours" means the hours in the applicable Production Measurement Period (i) in which Seller has declared Force Majeure, (ii) during any Planned Outage or Forced Outage but subject to an aggregate maximum of six hours per Contract Year; (ii) in which Seller has initiated a Dispatch Down or (iii) in which Seller's delivery to GPA of Renewable Energy is adversely affected as a result of failure by GPA to perform its obligations under this Agreement or the Interconnection Agreement or in which GPA does not accept delivery of Renewable Energy for any reason.

1.42 "Facility" means all of the following: the Project, as defined in Section 2.1 of this Agreement, the purpose of which is to produce Renewable Energy including the Microgrid Unit, Seller's Interconnection Facilities and all equipment and other tangible assets, land rights and contract rights reasonably necessary for the construction, operation, and maintenance of the electric generating facility that produces the Renewable Energy being sold under this Agreement.

1.43 "Facility Capacity" has the meaning set forth in Section 2.1.

1.44 "Facility Test" has the meaning set forth in Section 4.1(e).

1.45 "Facility Debt" means the obligations of Seller or its Affiliates to any Facility lender, tax equity investor or other financing party pursuant to the Financing Documents, including without limitation, principal of, premium and interest on indebtedness, reimbursement obligations regarding letters of credit, obligations under financing leases, fees, expenses or penalties, amounts due upon acceleration, prepayment or restructuring, swap or interest rate hedging obligations and breakage costs and any claims or interest due with respect to any of the foregoing. Facility Debt does not include trade debt or obligations incurred in the ordinary course of business.

1.46 "FERC" means the Federal Energy Regulatory Commission or any successor government agency.

1.47 “Financing Documents” means the loan and credit agreements, notes, bonds, indentures, security agreements, lease financing agreements, mortgages, deeds of trust, interest rate exchanges, swap agreements and other documents relating to the development, bridge, construction and/or permanent debt financing or a tax equity investment for the Facility (including any portfolio debt financing of which the Facility is included), including any credit enhancement, credit support, working capital financing, or refinancing documents, and any and all amendments, modifications, or supplements to the foregoing that may be entered into from time to time at the discretion of Seller and/or its Affiliates in connection with development, construction, ownership, leasing, operation or maintenance of the Facility.

1.48 “Forced Outage” means the shutdown or unavailability of the Facility, or a portion thereof other than as a Planned Outage, for reasons including, but not limited to, unanticipated equipment breakdown, human error, or Emergency conditions. A Forced Outage shall not include any Outage that may be deferred consistent with Good Utility Practices and without causing safety risk damage to equipment or additional costs.

1.49 “Forced Outage Notice” has the meaning set forth in Section 4.12(b).

1.50 Force Majeure” means an event or circumstance which prevents one Party from performing its obligations under this Transaction, which event or circumstance was not anticipated as of the date the Transaction was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. So long as the requirements of the preceding sentence are met, a “Force Majeure” event may include, but shall not be limited to, any act of God, an act or threatened act of the public enemy, blockade, accidents of navigation or breakdown or injury of vessels, accidents to harbors, docks, canals or other assistances to, or adjuncts of, shipping or navigation, perils of the sea, air crash, shipwreck, train wrecks or other failures or delays of transportation, nuclear emergency, radioactive contamination, ionizing radiation, release of hazardous waste or materials, sabotage, invasion, riot, civil disturbance or disobedience, flood, drought, military ordinances or archaeological discoveries at the Project site, change in applicable law or interpretation or application thereof, failure or delay by any Governmental Authority in issuing or granting any required clearance, approval, arrangement, or permit, an earthquake, storm, fire, flood, tidal wave, storm, wind, explosion or any similar cataclysmic occurrence, lightning, epidemic, war (imminent, declared or otherwise), terrorism or riot. Notwithstanding the foregoing, Force Majeure shall not be based on (i) the loss of Buyer's markets; (ii) Buyer's inability economically to use or resell the Renewable Energy purchased hereunder; (iii) the loss or failure of Seller's supply, including materials or equipment, unless such loss or failure is caused by a Force Majeure event (iv) the delay in or inability of Seller to obtain financing or economic hardship of any kind; or (v) Seller's ability to sell the Renewable Energy at a price greater than the Contract Price or Buyer’s ability to purchase the Renewable Energy at a price less than the Contract Price; or (vi) strike or other labor dispute. Neither Party may raise a claim of Force Majeure based in whole or in part on curtailment by a transmission provider unless (i) such Party has contracted for firm transmission with a transmission provider for the Renewable Energy to be delivered to or received at the Delivery Point and (ii) such curtailment is due to "force majeure" or "uncontrollable force" or a similar term as defined under the transmission provider's tariff.

1.51 “Force Majeure Extension” has the meaning set forth in Section 4.2(c).

1.52 “Good Utility Practices” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result of the lowest reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be generally accepted and consistently adhered to acceptable practices, methods, or acts.

1.53 “Governmental Authority” means any federal, territorial or local government body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

1.54 “Governmental Charges” has the meaning set forth in Section 10.2.

1.55 “GPA Delay” means any delay by GPA in performing an obligation under this Agreement or under the Interconnection Agreement which results in a delay to Seller achieving COD. A GPA Delay is not an Event of Default unless it is otherwise so designated in this Agreement.

1.56 “Guaranteed Output” has the meaning given in Section 4.8.

1.57 “Incremental Price” means, at the time of its calculation, the LEAC Rate minus the Contract Price, provided, however, if the LEAC Rate is less than the Contract Price then the Incremental Price shall be deemed to be zero. Sample calculations of the Incremental Price are shown in Schedule III to Appendix K.

1.58 “Independent Engineer” shall mean one of the engineering firms set forth in Appendix D hereto, and any other independent engineer or engineering firm, nationally recognized in the United States and having knowledge and expertise in the United States generation industry (including specifically the design and construction of utility scale solar photovoltaic power projects), and which is mutually agreed to by the Parties.

1.59 “Interconnection Agreement” means the agreement for interconnection service relating to the Facility between GPA and Seller, executed and delivered as of the Effective Date in the form attached hereto as Appendix J.

1.60 “Interest Rate” means, for any date, the lesser of (a) the per annum rate of interest equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law.

1.61 “kWh” means kilowatt hour.

1.62 “LEAC Rate” means the “Fuel Recovery Charge” (expressed in US$/MWh) as set forth in GPA’s most recent approved tariff in effect as of any date of determination of the LEAC Rate under this Agreement.

1.63 “Letter(s) of Credit” means one or more irrevocable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in substantially the form set forth in Appendix [F-1] hereto; provided, however that such form may be modified by the issuing bank as long as such modifications are acceptable to the beneficiary in its sole discretion. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.64 “Merger Event” means, with respect to a Party, that such Party consolidates or amalgamates with, or merges into or with, or transfers substantially all of its assets to another entity and (i) the resulting entity fails to assume all of the obligations of such Party hereunder or (ii) the benefits of any credit support provided pursuant to this Agreement fail to extend to the performance by such resulting, surviving or transferee entity of its obligations hereunder unless such credit support is replaced by the resulting, surviving or transferee entity in accordance with this Agreement.

1.65 “Minimum Production” has the meaning set forth in Section 4.8.

1.66 “Month” means a calendar Month. The term “Monthly” shall have a meaning correlative to a Month.

1.67 “Moody's” means Moody's Investor Services, Inc. or its successor.

1.68 “MW” or “MWh” means megawatt or megawatt hour, in each case rounded to the nearest whole MW or MWh.

1.69 “NAR” means the North American Renewables Registry.

1.70 “NAR Operating Procedures” means any and all guidelines, procedures, requirements and obligations established by the NAR, including the terms of use, operating procedures, and fee schedules, as such may be amended from time to time.

1.71 “Non-Defaulting Party” has the meaning set forth in Section 6.

1.72 "Notice” has the meaning set forth in Section 12.7.

1.73 “Outage” means the period during which the Facility or a portion thereof is out of service.

1.74 “Outside Commercial Operation Date” has the meaning set forth in Section 4.2(b).

1.75 “Payment and Performance Bond” means one or more payment and performance bonds issued by an insurance company or other institution having an investment grade Credit Rating from S&P, Moody’s or Fitch, in substantially the form set forth in Appendix [F-2] hereto; provided, however that such form may be modified by the issuing entity as long as such modifications are acceptable to the beneficiary in its sole discretion.

1.76 “Planned Outage” means any Outage that is not a Forced Outage, and refers to the shutdown or unavailability of the Facility or a portion thereof for inspection or maintenance in accordance with an advance schedule.

1.77 “Production Measurement Period” has the meaning set forth in Section 4.8.

1.78 “Project” has the meaning set forth in Section 2.1.

1.79 “QRE” means the Qualified Reporting Entity as such term is defined in the NAR Operating Procedures.

1.80 “Quantity” means the actual quantity of Renewable Energy (including Stored Energy) sold by Seller and purchased by and delivered to GPA pursuant to this Agreement. The Quantity shall be measured based on the metered data from the Seller Metering Equipment at the Delivery Point.

1.81 “Renewable Energy” means energy derived from a Renewable Energy Resource.

1.82 “Renewable Energy Credit” or “REC” means the unit created to track kWh derived from an Eligible Renewable Energy Resource or kWh equivalent of Conventional Energy Resources displaced by distributed renewable energy resources if and to the extent recognized under applicable law.

1.83 “Renewable Energy Resource” means an energy resource that is replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel.

1.84 “Replacement Price” means the price at which GPA, acting in a Commercially Reasonable Manner, purchases electricity in place of Renewable Energy.

1.85 “S&P” means the Standard & Poor's Rating Group (a division of McGraw-Hill, Inc.) or its successor.

1.86 “SCADA” means “supervisory control and data acquisition” and shall refer to that category of software application program that can be used to gather data from the Facility remotely in real time in order to monitor Facility equipment and conditions.

1.87 “Schedule,” "Scheduled” or "Scheduling” means the actions of Seller, Buyer and/or their designated representatives, of notifying, requesting and confirming to each other the quantity and type of Renewable Energy (including Stored Energy) to be delivered on any given day or days during the Delivery Period at a specified Delivery Point.

1.88 "Scheduled Commercial Operation Date" has the meaning set forth in Section 4.2(a).

1.89 "Seller Failure" has the meaning set forth in Section 5.1.

1.90 "Seller Failure Damages" has the meaning set forth in Section 5.1.

1.91 "Seller's Interconnection Facilities" means Seller's equipment as specified in the Interconnection Agreement.

1.92 "Seller Metering Equipment" means all metering equipment and data processing equipment used to measure the Quantity delivered to the Delivery Point.

1.93 "Shortfall Damages" has the meaning set forth in Section 4.8.

1.94 "Sponsor Interest" means an upstream ownership interest held by an entity that is an Affiliate of the Seller as of the Effective Date which represents a partial indirect ownership interest in Seller and which is established in connection with a tax equity financing.

1.95 "Microgrid Unit" means the energy storage unit to be installed by Seller as part of the Facility, as contemplated in Appendix C.

1.96 "Stored Energy" means Charging Energy stored in the Microgrid Unit which is later delivered to the Delivery Point as contemplated in Appendix C.

1.97 "Tax Benefits" means any and all tax benefits arising from the ownership and operation of the Facility, including without limitation Renewable Energy related tax credits or other benefits established under Section 45 and Section 48 of the Internal Revenue Code, as amended, or any similar or successor provision of the Internal Revenue Code, or any other applicable tax law, regulation, or code.

1.98 "Tax Equity Investor Interest" means an upstream ownership interest held by a financing party (including a financial institution, insurance company or other third party not affiliated with the Seller except based on the applicable tax equity investment or other similar investments or financings) as of the Effective Date which represents a partial indirect ownership interest in Seller and which is established in connection with a tax equity financing.

1.99 "Term" has the meaning set forth in Section 12.1.

1.100 "Termination Damages" has the meaning set forth in Section 4.4.

1.101 "Test Energy" means non-firm Renewable Energy generated prior to the Commercial Operation Date, subject to immediate interruption, fluctuations or reduction/increase with no prior Notice, due to unit performance.

1.102 "Transaction" means the transaction relating to the purchase or sale of Renewable Energy as contemplated in this Agreement.

1.103 "Unit Contingent" means that the Renewable Energy (excluding Charging Energy but including Stored Energy) is intended to be supplied from the Facility as it is produced.

1.104 "Weather Hours" means the total hours in any Production Measurement Period, as applicable, in which the Facility is derated as a result of cumulative weather conditions which are outside historical average conditions for any applicable Month during the Production Measurement Period in which the deration occurs, calculated in accordance with Appendix K.

ARTICLE TWO: COMMERCIAL TERMS

2.1 Commercial Terms.

The following commercial terms apply to the Transaction that is the subject of this Agreement, each as more fully described herein:

Buyer: GPA	**Seller:** Hanwha Energy Corporation
Project: Hanwha Project A	
Delivery Point: The "Point of Interconnection" as defined in the Interconnection Agreement	
Guaranteed Annual Production (MWhs): As set forth in Appendix A	**Estimated Annual Production: (MWhs):** NOT APPLICABLE
Guaranteed Availability (%): NOT APPLICABLE	**Guaranteed Capacity (MWs):** NOT APPLICABLE
Delivery Period: Twenty-five (25) years from the Commercial Operation Date	**Contract Price ($/MWh):** See Appendix A
Renewable Energy Type: Unit Contingent (solar) and associated RECs	**Development Security:** As contemplated in Section 9.1
Day(s) of week: Monday through Sunday, including NERC holidays	**Hours:** Hour Ending 0100 – Hour Ending 2400, Monday through Sunday Chamorro Standard Time (CHST), Guam time
Commercial Operation Date: No later than 36 months after Effective Date.	
Test Energy: Seller agrees to sell and Buyer agrees to purchase all Test Energy from the Facility. The test period shall be up to six (6) months. . The price of such Test Energy for the first thirty days shall be the current LEAC Rate. The price thereafter shall be the Year 1 Contract Price set out in Appendix A. Test Energy shall be delivered in accordance with the Scheduling provisions contained herein. Both Parties agree that Seller will use Commercially Reasonable Efforts to pre-schedule the Test Energy, but Buyer shall nonetheless be obligated to accept all Test Energy up to 22.5 MW per hour of Test Energy for the period set forth above. Seller shall provide to Buyer all RECs associated with the Test Energy sold hereunder in accordance with Section 4.16.	

ARTICLE THREE: REPRESENTATIONS AND WARRANTIES

3.1 Mutual Representations and Warranties.

On the Effective Date of this Agreement, each Party represents and warrants to the other Party that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(b) It has all regulatory authorizations necessary for it to legally perform its obligations under this Agreement (other than permits or regulatory authorizations to be obtained by Seller for the construction, operation or maintenance of the Facility, which Seller reasonably anticipates it will be able to obtain in due course);

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it, and the Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, subject to any Equitable Defenses.

(d) It is not Bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result in it being or becoming Bankrupt;

(e) There is not pending or, to its knowledge, threatened against it or any of its Affiliates any legal proceedings that could materially adversely affect its ability to perform its obligations under this Agreement;

(f) No Event of Default or potential Event of Default with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement; and

(g) It is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement;

3.2 Seller Representations and Warranties.

Seller affirmatively represents and warrants to GPA that:

(a) On the Effective Date of this Agreement, or in due course as required in accordance with the Financing Arrangement Deadline (as may be extended as provided in Section 4.3), Seller has (or reasonably expects to have in due course), good defensible title, or valid and effective leasehold rights in the case of leased property, to the Facility, free and clear of all liens, charges, claims, pledges, security interests, equities and encumbrances of any nature whatsoever other than the lien of current taxes not delinquent, liens, charges, claims, pledges, security, interests, equities and encumbrances relating to Facility Debt as provided for herein, or liens that in the aggregate do not materially detract from or interfere with the ability of Seller to deliver the Quantity of the Renewable Energy;

(b) All acts necessary to the valid execution, delivery and performance of this Agreement by Seller have or will be taken and performed as required under Seller's ordinances, bylaws, or other regulations including, but not limited to (i) the valid authority of the person

executing this Agreement to bind Seller and (ii) the Term of this Agreement does not extend beyond any limitation applicable to Seller imposed by relevant governing documents and applicable law; and

(c) Seller will have at the time of sale, title to and ownership of the RECs sold hereunder.

3.3 GPA Representations and Warranties.

GPA represents and warrants that:

(a) The Commission on Consolidated Utilities has made all certifications required by the Guam Public Utilities Commission and the Guam legislature in order for the valid execution, delivery and performance of this Agreement by GPA copies of which are attached hereto as Appendix L.

(b) Each of the PPA Approval and the ICA Approval is final, non-appealable and not subject to rehearing or other proceedings challenging its validity or enforceability.

(c) No authorizations, approvals or consents of any governmental or regulatory authority or agency or any other person, and no filings or registrations with any governmental authority or agency, are necessary for the execution, delivery or performance by GPA of this Agreement, or for the validity or enforceability thereof, except for any authorizations, approvals, consents or filings which have been made or obtained prior to the date hereof and are in full force and effect and are conclusive, binding and final.

(d) During the entire Term of the Agreement, all terms and conditions set forth in this Agreement shall be valid and enforceable against GPA.

(e) All legal, statutory and regulatory requirements and conditions necessary for the validity and enforceability of this Agreement and the obligations of GPA hereunder to purchase Renewable Energy, including, without limitation, the conditions and requirements as set forth in Title 12 of the Guam Code Annotated, Section 8306, have been satisfied, and at the time of the execution of the Agreement GPA further represents and warrants specifically as to the following: **NOTE TO GPA: GPA IS TO ENSURE THE RESOLUTIONS OF THE CCU ATTEST TO THE MATTERS SET FORTH BELOW**.

(i) Pursuant to the provisions of Public Law 30-66 (as codified in Title 12 of the Guam Code Annotated, Section 8104(n)), GPA is authorized to enter into this Agreement, together with any other agreement to be entered into by GPA and Seller as provided herein, and perform all the obligations imposed upon GPA as set forth herein, including, without limitation, the obligation to purchase Renewable Energy and pay all amounts due and owing to the Seller under the terms of this Agreement, and that no separate and specific appropriation or approval by *Liheslaturan Guahan* is required for such purpose.

(ii) This Agreement and the purchase of Renewable Energy by GPA at the time of the execution of the Agreement pursuant to the terms herein will not result in (A) costs to GPA which exceed the average cost of producing power under the islandwide power system owned and operated by GPA not inclusive of energy production from any backup diesel generators or other renewable energy sources, and (B) increased expenses and costs for GPA.

(iii) As set forth in the resolutions attached hereto as Appendix L, the Consolidated Commission on Utilities has certified that this Agreement is consistent with and does not violate any and all bond covenants applicable to and imposed upon

GPA and that the price to be paid by GPA for Renewable Energy as provided herein does not exceed GPA's actual current avoided cost.

GPA is not a party to a pooling agreement or any other agreement with the United States Department of Navy or any other federal agency, department or instrumentality ("Federal Government) which requires GPA to notify or obtain the approval of the Federal Government of this Agreement.

(iv) Any and all Renewable Energy to be purchased by GPA pursuant to the terms of this Agreement constitutes electrical power needed and required by GPA in connection with the operation and stability of the islandwide power system and to meet renewable energy portfolio standards which GPA is mandated to achieve and satisfy by law including without limitation, the mandates as set forth in Public Law 29-062 as codified in Title 12 of the Guam Code Annotated, Section 8311.

ARTICLE FOUR: PERFORMANCE REQUIREMENTS

4.1 Commercial Operation.

Seller shall achieve Commercial Operation of the Project no later than the Scheduled Commercial Operation Date except to the extent such date is extended pursuant to Section 4.2, in which case Commercial Operation shall occur on or prior to the Outside Commercial Operation Date. Commercial Operation shall be achieved as of the date on which each of the following conditions precedent has been satisfied or waived in writing by the Parties, as applicable ("Commercial Operation"):

(a) Seller shall have obtained all governmental and regulatory authorizations, including any applicable permits, required for the construction, ownership, operation and maintenance of the Project and for the sale of the Renewable Energy therefrom;

(b) Seller and Buyer shall have entered into the Interconnection Agreement;

(c) Seller shall have established SCADA information and real time data feed to enable GPA to view parameters or data points that relate to Renewable Energy data and other actual resource data for the Facility;

(d) The Microgrid Unit shall be capable of charging and discharging Renewable Energy;

(e) The Project shall in all other respects be capable of delivering the Renewable Energy to GPA at the Delivery Point;

(f) Seller shall perform at its cost a capacity test in accordance with the protocol outlined in Appendix I to determine the capacity of the Project ("Facility Test"). GPA shall receive the entire Renewable Energy from the Facility during such test. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

GPA shall use all available Commercially Reasonable Efforts to assist Seller in achieving the Scheduled Commercial Operation Date. Seller shall present to GPA a certificate executed by its duly executed officer, and by an Independent Engineer as to items (c), (d) and (e), verifying that each of the foregoing conditions has been satisfied or waived in writing by the Parties and Commercial Operation shall be deemed to have occurred upon the delivery of such certificate to GPA unless GPA objects to such certificate within ten (10) Business Days of delivery thereof and such objections are either agreed by Seller or resolved in favor of GPA pursuant to Section 12.9 hereof. Upon any acceptance or deemed acceptance of Seller's certificate by GPA, all conditions, set forth above shall no longer be a condition precedent to Commercial Operation of the Project. If the Commercial Operation Date does not occur on or before the Outside Commercial Operation Date, as such date may be extended in accordance with Section 4.2 herein; either Party shall have the right to terminate the Agreement upon written Notice to the other Party. In the event of such termination by either Party, GPA shall be entitled to Termination Damages set forth in Section 4.4; provided, however, that in accordance with Section 4.2(c), GPA shall not be entitled to such Termination Damages if the Outside Commercial Operation Date is not achieved due to a Force Majeure event or a GPA Delay.

4.2 Extension of Commercial Operation Date.

(a) Planned Extension. The Parties agree that the Commercial Operation Date is expected to be No later than 36 months after Effective Date. (as extended pursuant to the terms of this Agreement, the "Scheduled Commercial Operation Date"). Seller may elect to extend the Commercial Operation Date beyond such date (the "COD Extension") by paying GPA for such extension (the "COD Extension Payment"). The COD Extension Payment shall be in the amount of fifty percent (50%) of the Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year per day for

each day (or portion thereof) after but not including the date of the COD Extension until, but not including, the date on which the Project actually achieves Commercial Operation]. To extend the Commercial Operation Date, Seller must, as early as reasonably possible, but in no event later than fourteen (14) days prior to the first day of the proposed extension, provide GPA with Notice of its election to extend the Commercial Operation Date along with an estimate of the duration of the extension. The COD Extension Payment is in addition to and not to be considered part of the Development Security, and shall be paid to GPA at the time of the Notice hereunder. Seller's request to extend the Commercial Operation Date shall not be valid unless proper Notice and payment are timely received by GPA. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein, and GPA shall not have the right to terminate the Agreement or to receive Termination Damages with respect to such extension so long as Seller has provided the Notice, estimation and payment as provided in this Section 4.2(a). Seller may further extend the Commercial Operation Date beyond the original COD Extension, subject to the foregoing Notice, estimation and payment terms applicable to the original COD Extension.

Seller shall be entitled to a prompt refund, without interest, of any portion of the COD Extension Payment held by GPA which exceeds the amount required to cover the number of days by which the Commercial Operation Date was actually extended. In no event may Seller extend the Commercial Operation Date by more than ninety (90) days through the payment of the COD Extension Payment, except as provided in Section 4.2(b). In the event that the Project does not achieve Commercial Operation on or before the expiration of any COD Extension period as provided herein, either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights pursuant to Sections 4.2(b) or (c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(b) Unplanned Extension/Additional Planned Extension. In the event that (i) the Project does not achieve Commercial Operation by the Scheduled Commercial Operation Date and Seller fails to provide sufficient Notice and/or payment in order to extend the Commercial Operation Date as provided in Section 4.2(a), or (ii) the Commercial Operation Date shall not have occurred within the ninety (90) day planned extension period provided under Section 4.2(a), then Seller may further extend the Commercial Operation Date by paying GPA damages ("Daily Delay Liquidated Damages"). The Daily Delay Liquidated Damages shall be in the amount of one hundred percent (100%) of the Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year) per day for each day (or portion thereof) after but not including the earlier of the dates set forth in sub-clauses (i) or (ii) above, or until, but not including, the date on which the Project actually achieves Commercial Operation, and shall be payable within ten (10) Business Days following receipt of an invoice from GPA for any such Daily Delay Liquidated Damages. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein and GPA shall not have the right to terminate the Agreement with respect to such extension or to receive Termination Damages so long as Seller has extended the Commercial Operation Date and pays the Daily Delay Liquidated Damages as provided in this Section 4.2(b).

In no event may the Commercial Operation Date be extended more than one hundred and eighty (180) days through the payment of Daily Delay Liquidated Damages, without the express written consent of GPA. In the event that the Project does not achieve Commercial Operation on or before three hundred and sixty-five (365) days from the Scheduled Commercial Operation Date (as extended pursuant to this Agreement, the "Outside Commercial Operation Date"), then either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights

pursuant to Section 4.2(c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(c) Additional Extension. The Scheduled Commercial Operation Date and the Outside Commercial Operation Date shall also be extended, without payment or other penalty, on a day-for-day basis for each day of delay caused by reason of Force Majeure (a "Force Majeure Extension") or by reason of GPA Delay. Any Force Majeure Extension or GPA Delay shall also extend the period of any planned or unplanned extensions pursuant to Sections 4.2(a) or (b) on a day-for-day basis for each day during the Force Majeure Extension or GPA Delay, and Seller shall not be required to pay any COD Extension Payments or Daily Delay Liquidated Damages, as applicable, for any days during the Force Majeure Extension or GPA Delay. Notwithstanding any other provision in this Agreement, if, due solely to a Force Majeure Extension and/or a GPA Delay, the Project does not achieve Commercial Operation on or before the Outside Commercial Operation Date, then the Parties by mutual agreement may terminate this Agreement without penalty or further obligation to either Party, and after one hundred and eighty 180 days following the Outside Commercial Operation Date, either Party may unilaterally terminate this Agreement without penalty or further obligation to either Party. For the sake of clarityin the event of any such termination, GPA shall not be entitled to Termination Damages.

4.3 Financing Arrangement Deadline.

Seller shall make Commercially Reasonable Efforts to secure a financing sufficient for the successful completion of the Project as and when required and procure a preliminary agreement customary for such financing (such as an engagement letter) no later than one (1) year after the Effective Date as extended day-for-day for any Force Majeure Extension or GPA Delay (the "Financing Arrangement Deadline"). After the execution of the preliminary agreement, Seller shall provide GPA with a copy of such agreement within three (3) Business Days. In the event that Seller fails to procure the execution of a preliminary agreement by the Financing Arrangement Deadline, GPA may terminate the Agreement and shall be entitled to Termination Damages set forth in Section 4.4 as its sole and exclusive remedy.

4.4 Termination Damages.

Prior to the Commercial Operation Date, Seller may terminate this Agreement at any time for its convenience. GPA shall be entitled to termination damages, payable solely from the Bid Security or the Development Security established in Section 9.1 ("Termination Damages"), in the amounts set forth in the table below, if: (a) subject to the last sentence of this Section 4.4, Seller terminates the Agreement prior to the Commercial Operation Date for any reason other than: (i) a Force Majeure event or (ii) an Event of Default by GPA; [(b) GPA terminates the Agreement as a result of Seller failing to meet any Financing Arrangement Deadline after the passage of a grace period of thirty (30) days (as extended day-for-day for any Force Majeure Extension or GPA Delay);] and/or (c) GPA terminates the Agreement as a result of Seller failing to achieve the Commercial Operation Date on or prior to the Scheduled Commercial Operation Date, as the same may have been extended pursuant to Section 4.2. The Termination Damages are designed to help compensate GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements and do not constitute a penalty payment. Accordingly, Seller shall pay to GPA, from the Development Security, Termination Damages in the following amounts, based upon when the termination occurs:

Prior to Posting Date of Development Security pursuant to Section 9.1:	$0.00

[Up to Financing Arrangement Deadline]	100% of the Bid Security
[Up to six months following Financing Arrangement Deadline]	50% of Development Security
[From six months to twelve months following Financing Arrangement Deadline]	75% of Development Security
[From twelve months following Financing Arrangement Deadline]	100% of Development Security

No later than five (5) Business Days following the Financing Arrangement Deadline, GPA shall return the Bid Security to Seller, to the extent GPA has not validly claimed the Bid Security in respect of Termination Damages on or prior to such date. Notwithstanding the foregoing, in the event that Seller terminates this Agreement for any reason prior to the posting date for the Development Security as set forth in Section 9.1 herein, then Seller shall owe GPA no Termination Damages and such termination shall be without penalty to Seller.

4.5 Seller's and Buyer's Obligations.

Subject to Appendix H and Appendix C, Seller shall sell and deliver, or cause to be delivered, and GPA shall purchase and receive, or cause to be received, all Renewable Energy generated by the Facility (excluding Charging Energy but including Stored Energy when delivered, in each case, as set forth in Appendix C), at the Delivery Point, and GPA shall pay Seller the Contract Price for such Quantity of Renewable Energy (including Stored Energy) as measured by the Seller's Metering Equipment at the Delivery Point; provided that for quantities of Renewable Energy (including Stored Energy) in excess of the Estimated Annual Renewable Energy Amount, as shown in the third column of Appendix A, which are not make-up quantities for delivery deficiencies in prior Production Measurement Periods, the price payable by GPA shall be the lower of the Contract Price and the LEAC Rate.

For Seller's failure to deliver Renewable Energy as required hereunder, GPA's remedies shall be as set forth in Section 4.8. For GPA's failure to purchase and receive Renewable Energy (including Stored Energy) as required hereunder, Seller shall in addition have all other remedies available at law or in equity. Seller shall be responsible for any costs or charges imposed on or associated with the Renewable Energy (including Stored Energy) or its delivery up to the Delivery Point. GPA shall be responsible for any costs or charges imposed on or associated with Renewable Energy (including Stored Energy) or its receipt at and from the Delivery Point. Title to and risk of loss of Renewable Energy (including Stored Energy) from the Facility delivered to the Delivery Point shall transfer to GPA at the Delivery Point. Seller warrants that it will deliver to Buyer Renewable Energy (including Stored Energy) free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point.

4.6 Operation of Facility.

Seller shall operate and maintain the Facility in accordance with Good Utility Practices and in accordance with the Agreed Ramp Rate as set forth in Appendix C.

4.7 Not Used.

4.8 Minimum Production.

The Facility is expected to produce a minimum number of MWhs of Renewable Energy (including Stored Energy) each Contract Year as set forth in the third column of Appendix A (such annual MWh production is the "Minimum Production"). Seller during the Delivery Period shall (i) during any Contract Year, deliver to GPA at least ninety percent (90%) of the Minimum Production (which calculated amounts are set forth in the fourth column

of Appendix A), and (ii) for any consecutive six (6) Contract Years during the Delivery Period, deliver to GPA at least ninety-five percent (95%) of the aggregate Minimum Production during such period (which shall include make-up amounts generated and delivered in any years in excess of one hundred percent (100%) of the Minimum Production for such year) (any such time period a "Production Measurement Period" and each such guaranteed amount of delivered Renewable Energy during any Production Measurement Period, the "Guaranteed Output"). Any shortfall of Renewable Energy (expressed in MWhs/year) from the applicable Guaranteed Output during a Production Measurement Period shall be deemed a "Deficiency Amount." For the avoidance of doubt, (i) Stored Energy delivered to the Delivery Point shall count towards Seller's achievement of the Minimum Production during each Production Measurement Period, and (ii) Charging Energy shall not be delivered by Seller and shall not count towards any Deficiency Amount as it is used to charge the Microgrid Unit as contemplated in Appendix C.

GPA shall be entitled to receive damages for any Deficiency Amount ("Shortfall Damages") which are not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below). Shortfall Damages shall be calculated as follows on an annual basis at the end of each Contract Year (and [in accordance with the example set forth in Schedule I to Appendix K].):

Shortfall Damages = Deficiency Amount x Incremental Price.

For purposes of clarity, if Actual Renewable Energy (including Stored Energy) for any given Contract Year is less than the Minimum Production for that year (even if due to Excused Hours or Weather Hours), there shall be a "Shortfall," and Seller shall be entitled to deliver to GPA Renewable Energy in the amount of such Shortfall in subsequent time periods (even if such make-up amounts are in excess of the Minimum Production for such subsequent year), and this Agreement may be extended as necessary for a period of up to six (6) months to allow Seller to make up any Shortfalls; however, there shall be no Shortfall Damages owing to GPA for such individual Contract Year unless such Actual Renewable Energy is less than the Guaranteed Output for the applicable Production Measurement Period, and such shortfall is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below).

In the event Shortfall Damages are due for a Production Measurement Period of six (6) rolling Contract Years, then such Shortfall Damages shall be reduced by the amount of any Shortfall Damages paid for any Contract Year during such six (6) year Production Measurement Period. Seller's payment of Shortfall Damages shall be Seller's sole liability and obligation, and GPA's sole right and remedy, with respect to Seller's failure to deliver the Guaranteed Output during any Production Measurement Period.

To the extent any Deficiency Amount is due to Weather Hours, Seller's sole liability and GPA's sole remedy shall be to deliver thereafter Renewable Energy equal to such Deficiency Amount attributable to Weather Hours, calculated in accordance with Appendix K (which includes a sample calculation for a hypothetical Production Measurement Period). If any portion of a Deficiency Amount due to Weather Hours is not made up in the five (5) Contract Years beginning in the first Contract Year following the Contract Year in which the Weather Hours Deficiency Amount occurred, then Seller shall pay Shortfall Damages for the remaining Deficiency Amount. Notwithstanding the foregoing, with respect to any Deficiency Amount that is due to Weather Hours, Seller shall have the option, at any time prior to the expiration of the five (5) Contract Year make-up period, to pay any remaining associated Shortfall Damages in their entirety. If the Deficiency Amount arising as a result of Weather Hours occurs in the last five (5) years of the Delivery Period, then unless Seller exercises its option to pay the Deficiency Amount early, the Delivery Period shall be extended as necessary, for a period of up to six (6) months, to achieve a make-up period of five (5) Contract Years as described above. The Contract Price for such Renewable Energy shall be the Contract Price in effect in the Contract Year in which the Deficiency Amount due to Weather Hours accrued.

Seller shall be entitled to sell, and GPA shall purchase, quantities of Renewable Energy for which Shortfall Damages are paid hereunder, during any remaining Production Measurement Period during the Delivery Period. The price therefore shall be the Contract Price in effect at the time the Shortfall Damages accrued. During any Contract Year, all Renewable Energy delivered by Seller to GPA in excess of the Minimum Production shall be credited against makeup of any outstanding Deficiency Amounts, with oldest Deficiency Amounts made up first.

To the extent any Deficiency Amount is due to Excused Hours, Seller shall be excused from any liability with respect thereto.

Notwithstanding the foregoing, in the event that the Delivery Point is unavailable for any reason other than due to GPA's electric system, Seller's obligation to supply and sell, and GPA's obligation to accept and purchase, Renewable Energy shall be limited to such Renewable Energy that is actually deliverable from the Facility to the Delivery Point during such period except this paragraph shall not apply in the case of Excused Hours or an Event of Default by either Party.

4.9 Facility Testing.

In addition to the Facility Test referenced in Section 4.1(e), the capacity of the Facility shall be tested during each Contract Year during the Delivery Period (the "Annual Facility Test"). Seller shall notify GPA of the specific date on which it intends to conduct the Annual Facility Test at least ten (10) Business Days in advance and shall permit GPA to be present at such test. GPA shall have the right to receive copies of the results of the Annual Facility Test, which shall be conducted in accordance with the protocol set forth in Appendix I. Any dispute regarding the results of the Annual Facility Test shall be resolved as set forth in Section 12.9 of this Agreement. GPA shall receive, in accordance with Section 4.5, the entire Renewable Energy from the Facility during any Annual Facility Test or re-test. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

4.10 Scheduling.

Seller agrees to supply at the Delivery Point all Renewable Energy produced by the Project, net of Renewable Energy self-generated and consumed at the Facility, and net of any generation losses prior to the Delivery Point, up to the Facility Capacity, in accordance with the scheduling and coordination procedures set out in Appendix H. GPA agrees to take at the Delivery Point all Renewable Energy tendered by Seller in accordance with the foregoing sentence. The Schedules and estimates provided pursuant to this Section 4.10 shall be made by Seller in good faith and based on information available to it at such time, but in no event shall such Schedules be binding on Seller nor shall Seller be liable for any inaccuracies in such Schedules.

4.11 Force Majeure.

To the extent either Party is prevented by Force Majeure from carrying out, in whole or part, its obligations under this Transaction and such Party (the "Claiming Party") gives Notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party shall be excused from the performance of its obligations with respect to such Transaction (other than the obligation to make payments then due or becoming due hereunder). The Claiming Party shall remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure.

4.12 Facility Outages and Maintenance Scheduling.

(a) Planned Outages. Seller shall provide written Notice to GPA prior to conducting any Planned Outages of the Facility. Within ninety (90) days prior to the Commercial Operation Date, as the same may be extended in accordance with the provisions of Section 4.2, and on or before the first day of each subsequent Contract Year, Seller shall provide GPA with a schedule of such proposed Planned Outages. The proposed Planned Outages schedule shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output of the Facility as a result of the Outage.

GPA shall promptly review Seller's proposed schedule and may request modifications within thirty (30) days of GPA's receipt of such schedule. Changes to the schedule may

be requested by either Party and each Party shall make Commercially Reasonable Efforts to accommodate such changes, provided further that Seller shall have no obligation to agree to GPA's proposed modifications or revisions to any Planned Outage schedule.

Notwithstanding any of the foregoing, Seller shall not commence a Planned Outage that is expected to result in an Outage of ten percent (10%) or more of the Facility without notifying GPA of the Planned Outage at least five (5) Business Days prior to the start of such Planned Outage.

(b) Forced Outages. In the event of any Forced Outage, Seller shall promptly notify GPA of the same. Seller shall immediately notify GPA verbally and shall then, within twenty-four (24) hours thereafter, provide written Notice to GPA (the "Forced Outage Notice"). The Forced Outage Notice shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output of the Facility as a result of the Outage. Seller shall return the Facility to service as soon as possible, consistent with Good Utility Practices, after the Forced Outage ceases to exist.

(c) GPA Parts Inventory. To the extent GPA maintains an inventory of parts or components that are used or useful in the Facility and provided it can prudently do so under its own ordinary course operating practices and restrictions, GPA shall cooperate with Seller in a commercially reasonable manner by making such parts or components available to Seller at its request during the period of time Seller is obtaining replacement parts or components for the Facility in order to maximize output of Renewable Energy. If Seller obtains a replacement part or component from GPA, it shall at GPA's option either replace such part or component with the new part or component ordered by Seller or return the borrowed part or component to GPA at such time as Seller obtains the replacement. Seller shall bear the installation, transportation and labor charges relating to GPA's replacement parts or components, and if the parts or components are returned to GPA then Seller shall reimburse GPA for any damage to such parts or components while in Seller's possession.

4.13 Operating Status Reports.

From the Effective Date of this Agreement, through the date of Commercial Operation, Seller shall provide GPA with Monthly reports regarding material data pertaining to the operation of the Facility. The operations data is generally identified as performance, Outage, and risk data and shall be sent electronically to GPA using a reasonably acceptable format provided by GPA. The operations data report format may be modified by agreement of the Parties from time-to-time during the Term of this Agreement.

4.14 Resource Quality Reporting: Forecasting.

Seller shall provide to GPA at its request copies of non-proprietary resource quality data that could reasonably be expected to affect, in any material manner, the operation and/or productivity of the Facility, whether produced, compiled or otherwise generated by Seller or any third party in a Commercially Reasonable manner, so that GPA can evaluate the expected performance of the Facility. Seller shall provide such data as it is produced or otherwise made available to Seller. Upon Commercial Operation of the Facility, to the extent generated or procured by Seller, Seller shall also provide to GPA Monthly and day-ahead forecasting information for the Facility. Such information shall be in a format agreed to by the Parties and include, among other things: Seller's forecasts for the performance of the Facility based on Facility specifications, weather-based forecasting, and weather-related studies. Such information, which will be used by GPA solely for evaluation, Scheduling, and other purposes related to this Agreement, shall be provided as available. In no event shall the data and/or information provided to GPA pursuant to this Section 4.14 be binding upon Seller, nor shall Seller be liable for any penalties, charges or other damages based on the inaccuracy of such data or information.

4.15 Permit Violations.

Seller shall at all times during the Term of this Agreement maintain and comply with all applicable permits for the development, ownership and maintenance of the Facility in all material respects. As soon as practicable after the occurrence of any event known to Seller that would constitute or is reasonably likely to lead to a violation of any applicable permit, but in no event more than ten (10) Business Days thereafter, Seller shall provide GPA with written Notice of the same.

4.16 Change in Technical Requirements.

The Parties agree that, from and after the Effective Date, if Seller is required at any time to comply with new or modified technical or other performance requirements for the Facility or any material portion thereof (or in the manner any such facilities are to be operated or maintained) and such addition to or change in the above standards causes an increase in Seller's actual costs to perform in excess of $25,000 in the aggregate, then the Parties shall negotiate in good faith to agree upon an adjustment to the Contract Price and/or the Annual Microgrid Payment, as applicable, to compensate Seller for such increased costs. Such a change in the technical or performance requirements may arise as a result of the scheduling protocols or the communication protocols to be established by GPA pursuant to Appendix H or any other protocols or regulations established by GPA, requirements imposed by the transmission provider or pursuant to the Interconnection Agreement, requirements imposed by GPA or another Governmental Authority pursuant to or in connection with this Agreement, among other circumstances.

Seller will deliver prompt notice of the occurrence of a change in technical or performance requirements which has or is reasonably expected to result in the additional actual costs described above. If, on the date which is forty-five (45) days following Seller's delivery of notice to GPA, the Parties are unable to agree upon an adjustment to the Contract Price and/or the Annual Microgrid Payment, as applicable, which compensates Seller for such additional costs and is otherwise mutually acceptable, then Supplier may submit such dispute for resolution pursuant to Section 12.9.

4.17 Delivery of RECs.

(a) Use of North American Renewables Registry. At least ten (10) days prior to COD, Seller shall transfer to GPA the authority to create, own and transfer all Environmental Attributes associated with the Renewable Energy produced by the Facility, by executing and delivering the form entitled "Generator Owner's Designation of Responsible Party" published by NAR, wherein Seller shall designate GPA as the "responsible party" for all matters relating to the creation, ownership, and transfer of any RECS. Thereafter, GPA shall be responsible for all obligations relating to creating and transferring RECs and Seller shall have no further obligations or liabilities with respect thereto, provided, however, that Seller shall reimburse to GPA its costs of creating and maintaining the NAR account and NAR's fees charged to transfer the RECs, up to an aggregate maximum amount of $5,000 per annum. In the event this Agreement is terminated for any reason, the Parties agree to each consent to the termination of such designation in accordance with NAR procedures.

(b) GPA Registration as a QRE. GPA shall be the QRE for the Facility as required by NAR and shall comply with any and all NAR Operating Procedures relating to the registration and operation as a QRE and the reporting of generation data from the Facility to NAR. As the QRE, each month upon receipt of an invoice and associated interval metering data from Seller in accordance with Section 7.5 herein, GPA shall report such data to NAR within three (3) Business Days following receipt of such data. The Parties shall cooperate to ensure that the Seller Metering Equipment and the resulting interval metering data meet the NAR requirements for metering equipment and generation data.

(c) Change Event. During the Term, in the event that (i) the NAR Operating Procedures are amended or changed such that it becomes impossible for the Parties to utilize NAR as the REC tracking method and/or for GPA to continue as "responsible party" for purposes of

creating, owning and transferring RECs attributable to the Facility; (ii) the fees or charges imposed by NAR on either Seller or GPA to utilize the NAR REC tracking system are materially increased such that use of the NAR REC tracking system becomes uneconomic or infeasible; or (iii) the NAR REC tracking system is eliminated (each one individually, a "Change Event"), then the Parties shall promptly negotiate in good faith to reform the terms of this Agreement in order to give effect to the original intention of the Parties to the extent reasonable under the circumstances, including utilizing an alternative method for transferring RECs to GPA, but in no case shall Seller's cost with respect thereto exceed $5,000 per annum.

4.18 Ramp Rate Control Performance.

During the Delivery Period, Seller shall cause the Microgrid Unit to comply with the performance guarantees for ramp rate control set forth [below] (the "Ramp Rate Control Performance Guarantees").] If the Microgrid Unit System fails to meet the Ramp Rate Control Performance Guarantees over the time periods set forth [below], GPA may provide written notice to Seller of the failure to meet the Ramp Rate Control Performance Guarantees and a request for Seller to take steps needed for the Energy Storage System to meet the Ramp Rate Control Performance Guarantees. In response to such a notice, Seller shall, within two (2) weeks from the date of such notice, provide GPA with a written remedial action plan that provides a detailed description of Seller's course of action and plan to meet the Ramp Rate Control Performance Guarantees and shall take steps to implement such remedial action within six (6) months of the date of such action plan; provided, however, GPA shall not be entitled to such a remedial action plan if the failure to achieve the Ramp Rate Control Performance Guarantees is due to a Force Majeure event, GPA Delay or an Event of Default by GPA. Seller's sole obligation with respect to any deficiency in the Ramp Rate Control Performance Guarantees is to follow its remedial action plan.

If ramp rate is greater than 3 MW/minute seller shall reduce plant output until ramp rate is less than 3 MW/minute. If system issues remain, GPA reserves the right to restrict Seller's plant output until seller restores operation with a ramp rate less than 3 MW/minute. The Interconnection Agreement shall define conditions for Seller's plant reduction and implementation of GPA's restrictions.

ARTICLE FIVE: SELLER FAILURE

5.1 Seller Failure.

In the event Seller fails to deliver to GPA any Quantity of Renewable Energy to which GPA is entitled in accordance with the terms of this Agreement and instead sells such Quantity of Renewable Energy to which GPA is entitled to a third party in violation of this Agreement ("Seller Failure"), then Seller shall pay to GPA the "Seller Failure Damages," which shall mean the positive difference, if any, between the Replacement Price and the Contract Price for the period of such Seller failure, times such Quantity of Renewable Energy. GPA shall calculate the Seller Failure Damages and shall provide to Seller an invoice for such amount, including a written statement explaining in reasonable detail the calculation of such amount. Seller shall pay the Seller Failure Damages not later than ten (10) days following its receipt of such an invoice from GPA. If the Replacement Price is less than the Contract Price, then the Seller Failure Damages are deemed to be zero. The Seller Failure Damages represent the sole and exclusive remedy of GPA for Seller's failure as described herein.

ARTICLE SIX: EVENTS OF DEFAULT; REMEDIES

6.1 Events of Default.

An "Event of Default" shall mean, with respect to a Party (a "Defaulting Party"), the occurrence of any of the following:

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within three (3) Business Days after receipt of written Notice;

(b) Any representation or warranty made by such Party herein is false or misleading in any material respect when made or when deemed made or repeated, if such failure is not remedied within thirty (30) Business Days after receipt of written Notice, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(c) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default and except for such Party's obligations to deliver or receive the Renewable Energy, the remedies for which are provided in Article Five) if such failure is not remedied within thirty (30) Business Days after written Notice, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(d) Such Party becomes Bankrupt (or if the Bankruptcy is involuntary, the failure of such Party to achieve dismissal of the Bankruptcy within ninety (90) days);

(e) A Merger Event occurs with respect to such Party;

(f) If during the Term of this Agreement there have occurred three (3) or more Seller Failures as that term is used in Section 5.1;

(g) With respect to Seller, a material permit violation occurs, such violation has or is reasonably likely to result in a material adverse effect on the Seller's ability to perform its obligations under this Agreement and such violation is not remedied within fifteen (15) Business Days after Notice by either GPA or the relevant permitting authority, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(h) With respect to Seller, failure to maintain the Development Security as required pursuant to this Agreement and the failure to reinstate the same within ten (10) Business Days after Seller's receipt of written Notice thereof from GPA.

6.2 Declaration of an Early Termination Date.

If an Event of Default with respect to a Defaulting Party shall have occurred on or after the Commercial Operation Date and be continuing, the other Party (the "Non-Defaulting Party") shall have the right but not the obligation to: (i) designate a day, no earlier than the day such Notice is effective and no later than twenty (20) days after such Notice is effective, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate this Agreement between the Parties; (ii) withhold any payments due to the Defaulting Party under this Agreement as setoff against termination costs and liabilities as determined herein (and until such amounts are determined); and (iii) suspend its performance under this Agreement.

6.3 Suspension of Performance and Other Remedies.

Except as otherwise expressly provided in this Agreement, if an Event of Default shall have occurred and be continuing, the Non-Defaulting Party, upon written Notice to the Defaulting Party, shall have the right (i) to suspend performance under this Agreement; and (ii) to the extent an Event of Default shall have occurred and be continuing to exercise any remedy available at law or in equity including any specific remedies set forth in this Agreement; provided, however, that any damages shall include only the direct actual damages incurred by the Non-Defaulting Party as provided in Section 8.1.

ARTICLE SEVEN: PAYMENT AND NETTING

7.1 Billing Period.

Unless otherwise specifically agreed upon by the Parties, the calendar Month shall be the standard period for all payments under this Agreement. The Annual MicroGrid Payment shall be divided into twelve equal monthly payments each Contract Year. No later than the tenth (10^{th}) day after the end of each Month, each Party will render to the other Party an invoice (in the case of Seller, such invoice being rendered in accordance with Section 7.5) for the payment obligations of non-invoicing Party, if any, incurred hereunder during the preceding Month.

7.2 Timeliness of Payment.

Unless otherwise agreed by the Parties, all invoices under this Agreement shall be due and payable in accordance with each Party's invoice instructions on or before the later of the tenth (10th) day of each Month, or if later the tenth (10th) day after receipt of the invoice or, if such day is not a Business Day, then on the next Business Day. Each Party will make payments by electronic funds transfer, or by other mutually agreeable method(s), to the account designated by the other Party. Any amounts not paid by the due date will be deemed delinquent and will accrue interest at the Interest Rate, such interest to be calculated from and including the due date to but excluding the date the delinquent amount is paid in full.

7.3 Disputes and Adjustments of Invoices.

A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice, rendered under this Agreement or adjust any invoice for any arithmetic or computational error within twelve (12) Months of the date the invoice, or adjustment to an invoice, was rendered. In the event an invoice or portion thereof, or any other claim or adjustment arising hereunder, is disputed, payment of the undisputed portion of the invoice shall be required to be made when due, with Notice of the objection given to the other Party. Any invoice dispute or invoice adjustment shall be in writing and shall state the basis for the dispute or adjustment. Except as otherwise provided in this Agreement, payment of the disputed amount shall not be required until the dispute is resolved. Upon resolution of the dispute, any required payment shall be made within two (2) Business Days of such resolution along with interest accrued at the Interest Rate from and including the due date to but excluding the date paid. Inadvertent overpayments shall be returned upon request or deducted by the Party receiving such overpayment from subsequent payments, with interest accrued at the Interest Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment. Any dispute with respect to an invoice is waived unless the other Party is notified in accordance with this Section 7.3 within twelve (12) Months after the invoice is rendered or any specific adjustment to the invoice is made. If an invoice is not rendered within twelve (12) Months after the close of the Month during which performance of a Transaction occurred, the right to payment for such performance is waived.

7.4 Metering and Other Facilities.

Seller shall be responsible, at its sole expense, for providing the Seller Metering Equipment in accordance with Good Utility Practices. In accordance with the terms of the Interconnection Agreement, the Seller may elect to have GPA provide Seller with the Seller Metering Equipment; provided, however, the cost of such meters shall be borne solely by Seller at no cost to GPA. Seller shall be solely responsible for operating, maintaining, and repairing the Seller Metering Equipment at its own expense throughout the Term of this Agreement. Seller shall inspect and test the Seller Metering Equipment upon its installation and at least once every year at Seller's expense. Seller shall give GPA reasonable advance Notice of any test, and promptly provide GPA with the results of any such test. GPA may observe the test and conduct its own tests, at GPA's expense, to verify Seller's procedures and results.

Upon an inaccurate read of the Seller Metering Equipment or if Seller knows of any material inaccuracy or defect in Seller Metering Equipment, Seller shall notify GPA in writing within forty-eight (48) hours of such defect. Seller shall be solely responsible for adjusting, repairing, replacing or recalibrating such metering device as near as practicable to a condition of zero (-0-) error, and for paying any expenses associated with such adjustment, repair,

replacement or recalibration. If a metering device fails to register or is found upon testing to be inaccurate, an adjustment will be made correcting all measurements by the inaccurate or defective metering device in the following manner:

(a) In the event that an adjustment factor cannot be reliably calculated, the Parties shall use the measurements from GPA-owned meters if they are installed, fully operational and calibrated in accordance with Good Utility Practices. If for any reason the measurements cannot be obtained from GPA owned meters, the Parties shall use data from Seller's computer monitoring system to determine the relevant measurements. If Seller's computer monitoring system is found to be inaccurate by more than two (2) percent, the Parties shall estimate the amount of the necessary adjustment using the site meteorological information for the period of the inaccuracy based upon deliveries of Renewable Energy delivered to GPA at the Delivery Point from the Facility during periods of similar operating conditions when the Seller Metering Equipment was registering accurately. The adjustment will be made for the period during which inaccurate measurements were made.

(b) If the Parties cannot agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted will be the shorter of: (1) the last one-half of the period from the last previous test of the metering device to the test that found the metering device to be defective or inaccurate; or (2) the one hundred and eighty 180-day period immediately preceding the test that found the metering device to be defective or inaccurate.

(c) Upon determination of corrected measurements, the required payment adjustment shall be made according to the procedures set forth in Section 7.3.

7.5 Invoices.

Seller shall maintain and read the Seller Metering Equipment for measuring the Renewable Energy (including Stored Energy) delivered hereunder. For review purposes, Seller shall furnish GPA with a written invoice reflecting the Contract Price and the interval data from the Seller Metering Equipment used to calculate that invoice; and any other charges due, within ten (10) Business Days after Seller reads the Seller Metering Equipment. Seller shall furnish GPA with a written invoice reflecting the applicable portion of the Annual Microgrid Payment the tenth (10^{th}) day after the end of each Month. Such invoices may be furnished to GPA by facsimile transmission or by such other method as the Parties agree.

ARTICLE EIGHT: LIMITATIONS

8.1 Limitation of Remedies, Liability and Damages.

EXCEPT AS SET FORTH HEREIN, THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED HEREIN, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN OR IN A TRANSACTION, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. UNLESS EXPRESSLY HEREIN PROVIDED, NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

Notwithstanding the foregoing, if GPA is the Defaulting Party, the Parties agree that the actual damages recoverable to Seller hereunder on account of an Event of Default by GPA shall include loss of Tax Benefits on a grossed up after tax basis, using the highest applicable United States marginal personal income tax rate.

Any assets transferred to GPA as required by the Interconnection Agreement shall require a one year warranty on all construction work and assignment of any manufacturer warranties from the transfer of such assets; provided, however, that the obligations and liability of Seller pursuant to such warranty and obligation to assign shall be subject to any limitations and exclusions set forth in the Interconnection Agreement.

ARTICLE NINE: CREDIT AND COLLATERAL REQUIREMENTS

9.1 Development Security.

In order to secure Seller's obligations prior to Commercial Operation of the Facility, hereunder, Seller shall post the Development Security in the form of a Letter of Credit or cash deposit in the amount of $2,375,805 The Development Security shall be held by GPA as security for Seller's obligations prior to the Commercial Operation Date including its obligation to satisfy the Financing Arrangement Deadline, but GPA may draw on the Development Security at any time only in the amounts and according to the schedule set forth in Section 4.4. Seller shall post the Development Security in accordance with the following terms and conditions:

(a) Seller shall post the Development Security within ten business (10) days following the Effective Date of this Agreement.

(b) If the Development Security is posted as a Letter of Credit, it shall be in substantially the form attached hereto as Appendix [F-1].

(c) Any Development Security posted in cash shall bear simple interest at a rate equal to the Interest Rate. The calculation and payment of any such interest shall be made in accordance with the procedure specified in Section 9.3 of this Agreement.

9.2 Forfeiture of Development Security.

In the event that the Commercial Operation Date does not occur on or before the Scheduled Commercial Operations Date, as extended pursuant to the terms of this Agreement, and to the extent Seller does not remit any COD Extension Payment or Daily Delay Liquidated Damages payment when due, then GPA shall be entitled to proceed against the Development Security in accordance with the terms thereof, to the extent of the amount(s) due and owing from time to time. Seller acknowledges and agrees that forfeiture of all or a portion of the Development Security, as provided herein, represents reasonable compensation to GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements as a result of Seller's failure to achieve Commercial Operation by the Scheduled Commercial Operation Date. Notwithstanding the foregoing, if Seller terminates this Agreement prior to the Commercial Operation Date for the sole purpose of selling the Renewable Energy to a third party, GPA shall be entitled to both the Development Security and any other remedies available at law or in equity to the extent that GPA's actual damages exceed the value of the Development Security.

9.3 Return of Development Security.

At the end of the Term or upon the termination of this Agreement following the settlement and payment of any damages owed as a result of such termination, GPA shall return to Seller any remaining portion of the Development Security still held by GPA and to which GPA has no claim pursuant to the terms of this Agreement. If the Development Security was posted as a Letter of Credit, GPA shall return the Letter of Credit to Seller and Seller shall be entitled to immediately cancel such Letter of Credit. If the Development Security was posted in cash, GPA shall return to Seller the balance of the Development Security, together with daily interest at the Interest Rate, from and including the date that the Development Security was posted until, but not including, the date on which the Development Security is returned by GPA.

9.4 Performance Security.

In order to secure Seller's obligations after Commercial Operation of the Facility and during the Delivery Period hereunder, Seller shall post security in one of the forms contemplated below, each of which is deemed acceptable by GPA (the "Performance Security"):

(a) A Letter of Credit or cash in the amount of $4,751,610; or

(b) A Payment and Performance Bond in the amount of $4,751,610; or

(c) A subordinated second lien on the Sponsor Interest and Seller agrees to take such action as is reasonably required in order to perfect GPA's security interest in, and lien on, such collateral and any and all proceeds resulting therefrom; provided, that concurrently with the grant of such lien, GPA shall enter into such subordination, inter-creditor and other agreements with the senior financing parties as they as may reasonably require pursuant to which GPA shall agree that their rights and remedies pursuant to their second lien shall be subordinated in all respects to the senior first lien held by the financing parties; provided further, for the avoidance of doubt, there shall be no lien granted on the Tax Equity Investor Interest.

The Performance Security shall be held by GPA as security for Seller's obligations after the Commercial Operation Date and during the Delivery Period, but GPA may draw on the Performance Security at any time only in the amounts actually due and payable by Seller to GPA pursuant to this Agreement. Seller may (i) post the Performance Security by posting a combination or one or more of the above acceptable forms of credit support in an aggregate amount of $4,751,609.95, and (ii) at any time elect to substitute any form of one or more of the above acceptable forms of credit support for any existing Performance Security in which case GPA shall return the replaced Performance Security and reasonably cooperate with Seller in the exchange or cancellation of such credit support.

Seller shall post the Performance Security in accordance with the following terms and conditions:

(a) Seller shall post the Development Security within ten (10) business days following the Commercial Operation Date.

(b) If the Performance Security is posted as a Letter of Credit, it shall be in substantially the form attached hereto as Appendix [F-1].

(c) If the Performance Security is posted as a Payment and Performance Bond, it shall be in substantially the form attached hereto as Appendix [F-2].

(d) Any Performance Security posted in cash shall bear simple interest at a rate equal to the Interest Rate. The calculation and payment of any such interest shall be made in accordance with the procedure specified in Section 9.5 of this Agreement.

9.5 Return of Performance Security.

At the end of the Term or upon the termination of this Agreement following the settlement and payment of any damages owed as a result of such termination, GPA shall return to Seller any remaining portion of the Performance Security still held by GPA and to which GPA has no claim pursuant to the terms of this Agreement. If the Performance Security was posted as a Letter of Credit or a Payment and Performance Bond, then GPA shall return the Letter of Credit or Payment and Performance Bond to Seller and Seller shall be entitled to immediately cancel such Letter of Credit or Payment and Performance Bond. If the Performance Security was posted in cash, GPA shall return to Seller the balance of the Performance Security, together with daily interest at the Interest Rate, from and including the date that the Performance Security was posted until, but not including, the date on which the Performance Security is returned by GPA.

ARTICLE TEN: GOVERNMENTAL CHARGES

10.1 Cooperation.

Each Party shall use Commercially Reasonable Efforts to implement the provisions of and to administer this Agreement in accordance with the intent of the Parties to minimize all taxes, so long as neither Party is materially adversely affected by such efforts.

10.2 Governmental Charges.

Seller shall pay or cause to be paid all taxes imposed by any Government Authority ("Governmental Charges") on or with respect to the Renewable Energy or this Agreement arising prior to the Delivery Point. GPA shall pay or cause to be paid all Governmental Charges on or with respect to the Renewable Energy or this Agreement at and from the Delivery Point (other than ad valorem, franchise or income taxes which are related to the sale of the Renewable Energy and are, therefore, the responsibility of the Seller). In the event Seller is required by law or regulation to remit or pay Governmental Charges, which are GPA's responsibility hereunder, GPA shall promptly reimburse Seller for such Governmental Charges. If GPA is required by law or regulation to remit or pay Governmental Charges which are Seller's responsibility hereunder, GPA may deduct the amount of any such Governmental Charges from the sums due to Seller under Article Seven of this Agreement. Nothing shall obligate or cause a Party to pay or be liable to pay any Governmental Charges for which it is exempt under the law.

ARTICLE ELEVEN: ASSIGNMENT

11.1 Buyer Assignment.

Buyer may not assign this Agreement or assign or delegate its rights and obligations under this Agreement, in whole or in part, without Seller's consent, not to be unreasonably withheld.

11.2 Seller Assignment.

Seller may perform any of the following, without the consent of the Buyer (1) transfer, pledge, encumber, or assign this Agreement or the accounts, revenues, or proceeds hereof, in connection with any financing or other financial arrangements for the Facility, (2) transfer or assign this Agreement to any of its Affiliates in connection with a transfer of the Facility to such Affiliate, (3) transfer or assign this Agreement to any person or entity succeeding to all or substantially all of the assets of such Party, and (4) transfer or assign this Agreement to _____ or to any of its Affiliates; provided, that Seller provides Buyer prior notice of any such transfer or assignment and, with respect to any transfer to an such assignee of Seller, (A) such assignee posts replacement credit support in accordance with this Agreement, and (B) such Affiliate enters into an assignment and assumption agreement, in form and substance reasonably satisfactory to Buyer, pursuant to which Affiliate assumes all of Seller's obligations hereunder and otherwise agrees to be bound by the terms of this Agreement. Seller agrees that it will provide written notice to Buyer of any assignment of this Agreement by Seller within five (5) Business Days of the date of such assignment.

Except as stated above, neither this Agreement nor any of the rights, interests and obligations hereunder shall be assigned by Seller without the prior written consent of Buyer, which consent shall not be unreasonably withheld. Any assignment of this Agreement in violation of the foregoing shall be, at the option of Buyer, void.

11.3 Liability After Assignment.

A Party's assignment or transfer of rights or obligations pursuant to this Article 11 shall relieve said Party from any liability and financial responsibility for the performance thereof arising after any such transfer or assignment.

11.4 Transfers of Ownership.

Subject to any rights of first offer or refusal under this Agreement, during the Term, Seller shall not sell, transfer, assign or otherwise dispose of its interest in the Facility to any third-party absent (1) a transfer of this Agreement to such third-party and (2) Seller entering into an assignment and assumption agreement, in form and substance reasonably satisfactory to Buyer, with such third-party.

11.5 Successors and Assigns.

This Agreement and all of the provisions hereof are binding upon, and inure to the benefit of, the Parties and their respective successors and permitted assigns.

11.6 Collateral Assignment by Seller.

In the event that Seller pursuant to Section 11.2 (1) transfers, pledges, encumbers or collaterally assigns this Agreement to Seller's lenders, Seller shall provide written notice to Buyer of such transfer, pledge, encumbrance or assignment, including the address of Seller's lenders. In connection with any financing or refinancing of the Facility, Buyer at Seller's request shall negotiate in good faith with Seller and Seller's lenders to agree upon a reasonable direct agreement with respect to this Agreement, which shall be in form and substance reasonably agreed to by Buyer, Seller and Seller's lenders, and which shall, among other terms. include provisions substantially as follows:

(a) The Parties shall not amend or modify this Agreement in any material respect without the prior written consent of the Seller's lenders;

(b) Prior to exercising its right to terminate this Agreement as a result of an Event of Default by Seller, Buyer shall give notice of such Event of Default by Seller to the administrative agent of Seller's lenders, which Buyer has been provided written notice of; and

(c) Seller's lenders shall have the right, but not the obligation, to cure an Event of Default on behalf of Seller in accordance with the provisions of this Agreement, provided that Seller's lenders shall be provided an additional forty-five (45) days, from the end of the cure periods provided pursuant to Section 6.1, to effect a cure of such Event of Default.

ARTICLE TWELVE: MISCELLANEOUS

12.1 Term of Agreement; Conditions Precedent.

(a) The Term of this Agreement shall commence on the Effective Date and shall remain in effect for the duration of the Delivery Period, as set forth in Section 2.1, unless earlier terminated by either Party in accordance with this Agreement herein (the "Term"); provided, however, that such termination shall not affect or excuse the performance of either Party under any provision of this Agreement that by its terms survives any such termination.

(b) This Agreement shall be effective on the Effective Date provided that the Parties' obligations hereunder shall be subject to the satisfaction of the following conditions precedent:

(i) Receipt by GPA of a final, non-appealable approval of this Agreement by the Guam Public Utilities Commission ("PPA Approval");

(ii) Execution of the Interconnection Agreement by the Parties;

(iii) Receipt by GPA of a final, non-appealable approval of the Interconnection Agreement by the Guam Public Utilities Commission ("ICA Approval"); and

GPA shall submit this Agreement for approval by the Guam Public Utilities Commission within thirty (30) days of the Effective Date. GPA shall also submit the Interconnection Agreement for approval by the Guam Public Utilities Commission within thirty (30) days of the execution of the Interconnection Agreement. Each Party shall use Commercially Reasonable Efforts to satisfy the conditions precedent prior to the End Date; provided that neither Party shall be obligated to execute the Interconnection Agreement except on terms acceptable to such Party in its sole discretion. Seller shall have the right in its sole discretion to waive the conditions precedent set forth in section 12.1(b) above.

Either Party has the right to terminate this Agreement by Notice, which will be effective five (5) Business Days after such Notice is given, if the conditions precedent set forth above have not been satisfied (or waived in accordance herewith) within [**to be determined based on date of signing – between 60-120 days consistent with proposed project schedule**] days after the Effective Date ("End Date"). If either Party exercises its termination right pursuant to this Section 12.1(b), no Termination Damages will be due or owing by either Party and Seller will be entitled to a return of any Development Security provided to GPA.

12.2 Insurance.

At all times during the Term of this Agreement, Seller shall maintain at its own expense insurance policies for the Facility and its tangible assets in such amounts and against such risks and losses as are consistent with Good Utility Practices and those policies listed below. Such insurance policies shall be maintained only with insurers rated at least A- VII by MVI Best or comparable ratings agency.

- Commercial General Liability with limits of $1,000,000 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Commercial Auto Liability in the amount of $1,000,000 combined single limit for bodily injury and property damage. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $5,000,000. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Workers Compensation and Employers Liability with statutory limits and $1,000,000/$1,000,000/$1,000,000 respectively. Seller shall add a waiver of subrogation endorsement in favor of GPA.

- Pollution Liability, when applicable, with limits for $5,000,000. GPA is to be an additional insured. Seller shall grant a waiver of Subrogation in favor of GPA.

- Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by financially responsible insurers duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co-insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

At all times after achieving COD, Seller may discontinue or otherwise cancel each of the aforementioned policies, except the following insurance policies, which shall be maintained with the limits set forth below:

- Commercial General Liability with limits of $1,000,000.00 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $3,000,000.00. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by any financially responsible insurer duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co- insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

- Seller is also required to carry Business Interruption and Extra Expense insurance in the amount of $1,000,000.00.

If the Facility is lost or damaged due to a casualty, then only if and to the extent Seller is not required to use available insurance proceeds to prepay any Facility Debt then outstanding, Seller shall re-build the Facility promptly and in a commercially reasonable manner if and to the extent technically feasible and commercially reasonable in

light of the available insurance proceeds and subject to the procurement by Seller of the consent of any lender or financing party pursuant to the Financing Documents if required thereunder; provided, however, (i) if the time to re-build the Facility would result in less than five (5) years remaining in the Delivery Period then (A) Seller shall have the option in lieu of re-building the Facility to pay to GPA the Buyout Payment and terminate this Agreement with no further costs or penalties provided that the Buyout Payment shall not in any case exceed the available insurance proceeds remaining following full prepayment of the Facility Debt, or (B) if Seller nevertheless elects to re-build the Facility then GPA shall reimburse Seller for any deductibles payable by Seller under its property insurance, and (ii) regardless of when the casualty event occurs, if Seller re-builds the Facility then the Delivery Period shall be extended for the greater of one (1) year or two (2) times the length of the interruption of the sale of Renewable Energy (pro rated based on the Minimum Production for partial interruptions), and the Contract Price shall be the price in effect, without escalation, at the beginning of the re-building period.

Within ten (10) Business Days after receipt of a request for the same from GPA, Seller shall deliver to GPA a certificate of insurance for any or all policies maintained in accordance with this Section 12.2, which certificate shall include at least the following information: (i) the name of the insurance company, policy number and expiration date; and (ii) the coverage and limits on coverage, including the amount of deductibles or self-insured retentions.

Seller shall furnish certificates of insurance and waiver of subrogation endorsement to GPA prior to commencement of construction of the Facility showing evidence of such coverage, including the statement to the effect that cancellation or termination of the insurance shall not be effective until at least thirty (30) days after receipt of written Notice to GPA. At all times Seller's insurance shall be primary and non-contributory to any other insurance that may be carried by GPA. The statement of limits of insurance coverage shall not be construed as in any way limiting the Seller's liability under this Agreement. GPA shall be an additional insured on all liability coverage and certificates of insurance shall clearly indicate such.

12.3 Indemnity.

To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident first occurring or existing during the period when control and title to the Renewable Energy is vested in such Party, unless a Claim is due to such Party's willful misconduct or gross negligence. To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party against any Governmental Charges for which such Party is responsible under Article Ten. Notwithstanding anything to the contrary contained in this Agreement, no individual representative of either Party shall have any personal liability to the other Party as a result of the breach of any representation, warranty, covenant or agreement contained herein.

12.4 Site Access and Inspection of Records.

Seller shall provide GPA with reasonable access to the Facility site for purposes of review and inspection during regular business hours within a reasonable time after a request for the same is made by GPA. During such reviews and inspections, GPA representatives shall be permitted to review such records relating to the Facility and reasonably related to the performance of this Agreement, including Facility maintenance and operations logs. GPA shall have access to the Facility site for the limited purposes described herein, but Seller shall at all times remain responsible and liable for the control and operation of the Facility and the Facility site. GPA representatives shall follow Seller's safety procedures when accessing the Facility site and shall conduct themselves in a manner that will not interfere with the operation of the Facility. Seller will provide GPA with information about such safety procedures to enable GPA to comply with this requirement.

12.5 Audit.

Subject to Section 7.3, each Party has the right, at its sole expense and during normal working hours, to examine copies of the records of the other Party to the extent reasonably necessary to verify the accuracy of any statement, charge or computation made pursuant to this Agreement.

12.6 Confidentiality.

The Parties will make Commercially Reasonable Efforts to safeguard Confidential Information against disclosure by employing the same means to protect such Confidential Information as that Party uses to protect its own non-public, confidential or proprietary information, and otherwise in accordance with the provisions of this Section 12.6. Specifically, no receiving Party shall itself, or permit its employees, consultants and/or agents to disclose to any person, corporation or other entity the Confidential Information without the prior written consent of the Party providing the Confidential Information, except a receiving Party may distribute the Confidential Information to its and its Affiliates' board members, officers, employees, agents, consultants, actual or potential investors, actual or potential purchasers, actual or potential Facility lenders or financing parties, and others who have a need for such Confidential Information.

The Parties acknowledge, however, that a Party may need to disclose the Confidential Information in connection with its regulatory filings or to otherwise satisfy its governmental and regulatory requirements. In the event that a Party intends to disclose any of the Confidential Information to its regulatory authorities including, but not limited to, the Guam Public Utilities Commission, the FERC, or any employee, staff member, consultant, and/or agent of the foregoing, it shall give the other Party prompt prior written Notice of its intention so that the other Party may seek a protective order or other appropriate remedy. In addition, each Party specifically agrees not to use the other Party's name in connection with this Agreement or the Facility in any press releases, public meetings or hearings, or other public communications, including any release to any newswire service, without the express written consent of the other Party. The Parties anticipate that at some future time it may be in the best interests of one or both of them to disclose Confidential Information to the media and the Parties anticipate entering into a subsequent agreement that will govern the terms of such disclosure. The Parties expressly agree, however, that unless and until such subsequent agreement is executed between the Parties, the terms of this Agreement shall be binding with respect to such disclosure.

In the event that any Party receiving the Confidential Information becomes legally compelled (by deposition, interrogatory, request for documents, subpoena, civil investigative demand or similar process) to disclose any of the Confidential Information, the legally compelled Party shall give the other Party providing the Confidential Information prompt prior written Notice of such requirement so that the providing Party may seek a protective order or other appropriate remedy and/or waive compliance with the terms of this Agreement. In the event that such protective order or other remedy is not obtained, the providing Party waives compliance with the terms hereof.

Each Party acknowledges that the unauthorized disclosure of any Confidential Information may cause irreparable harm and significant injury that may be difficult to ascertain. Each Party therefore agrees that specific performance or injunctive relief, in addition to other legal and equitable relief, are appropriate remedies for any actual or threatened violation or breach of this Agreement, **although neither Party shall be entitled to any special, consequential, indirect or punitive damages as a result of a breach of this Agreement, whether a claim is based in contract, tort or otherwise**. The Parties agree that the respondent in any action for an injunction, specific performance decree or similar relief shall not allege or assert that the initiating Party has an adequate remedy at law in respect to the relief sought in the proceeding, nor shall the respondent seek the posting of a bond by the Party initiating the action. Under no circumstances will either Party's directors, management, employees, agents or consultants be individually liable for any damages resulting from the disclosure of Confidential Information in violation of the terms of this Agreement.

12.7 Notices.

All notices, requests, statements or payments ("Notices") shall be made as specified on Appendix B attached hereto and incorporated herein by reference. Notices (other than with respect to scheduling) shall, unless otherwise specified herein, be in writing and may be delivered by hand delivery, United States mail, overnight courier service or facsimile. Notice by facsimile or hand delivery shall be effective at the close of business on the day actually received, if received during business hours on a Business Day, and otherwise shall be effective at the close of business on the next Business Day. Notice by overnight United States mail or courier shall be effective on the next Business Day after it was sent. Notices relating to Facility operations and Scheduling, as required pursuant to Appendix H, may be given electronically and shall be deemed effective upon receipt; otherwise,

electronic notices shall not be effective unless affirmatively acknowledged in writing (including by reply e-mail) by the receiving Party. A Party may change its addresses by providing Notice of same in accordance herewith.

12.8 Purchase Option.

(a) Transfer During the Delivery Period. In the event that Seller desires to sell the Facility during the Delivery Period, Seller shall provide prior written Notice of the same to GPA, and agrees to engage in discussions with GPA during an exclusivity period with GPA if GPA desires to purchase the Facility. Within ninety (90) days following Seller's Notice to GPA of its intent to sell the Facility, GPA may deliver to Seller an indicative purchase price at which it would be willing to purchase the Facility. If GPA does not deliver the indicative purchase price within ninety (90) days, then Seller shall be free to transfer the Facility under any terms and conditions at any time thereafter. If GPA delivers the indicative purchase price within ninety (90) days, then the Parties shall negotiate exclusively for a period of up to sixty (60) days after GPA delivers the indicative purchase price. If no binding agreement is entered into by the Parties during such sixty (60)-day period then Seller shall be free to transfer the Facility to any person on materially comparable terms, including price, better than GPA's indicative offer, and neither Party shall have any further liability or obligation to the other Party in connection with such sale or as a result of the terminated negotiations. If Seller does not transfer the Facility on such basis within one (1) year following the end of the sixty (60)-day exclusive negotiation period, then the procedure in this paragraph shall apply to any subsequent sale of the Facility during the Term of this Agreement.

(b) Transfer or Extension of Delivery Period. GPA, by Notice delivered to Seller at least one hundred and eighty (180) days prior to the end of the Delivery Period, may either (i) extend the Term of this Agreement on a year-to-year basis, in which case the Contract Price during the extension of the Term shall be eighty percent (80%) of the LEAC Rate in effect from time to time during such extension (whereupon either Party may thereafter terminate this Agreement on one hundred and eighty (180) days' Notice prior to the end of any extension year), or (ii) purchase the Facility from Seller at eighty percent (80%) of the Appraisal Price, within thirty (30) days of the determination of the Appraisal Price. If GPA fails to send such Notice then this Agreement shall terminate in accordance with the terms hereof.

12.9 Alternative Dispute Resolution. All disputes arising under this Agreement are subject to the provisions of this Section 12.9.

(a) If a dispute, controversy or claim arises out of, relates, or is in connection with, this Agreement, or the breach, termination or validity thereof, whether sounding in contract, tort, unfair competition, equity, or other legal form, it shall be settled solely in the manner provided for in this Section 12.9. A meeting of the Parties shall be held within ten (10) Business Days after either Party gives the other Party written Notice of the dispute. The Notice shall set forth in reasonable detail the aggrieved Party's position and its proposal for resolution of the dispute. A representative of each Party who has authority to resolve the dispute shall be in attendance at all meetings. If the dispute is not resolved within thirty (30) days after the first meeting of the Parties, or such other period of time as to which the Parties agree, the dispute shall be settled by arbitration in the manner provided in this Section 12.9). A Party's failure to comply with this Section 12.9 shall entitle the other Party to recover its costs and reasonable attorney's fees in any judicial proceedings that circumvent this dispute resolution provision. Settlement discussions undertaken under this Section 12.9 shall be privileged and confidential and no position taken or communication made by a party during or in connection with said settlement discussions may be presented as evidence in the ensuing arbitration should settlement fail to achieve a negotiated result.

(a) Arbitration. Any disputes between the Parties and/or their respective representatives involving or arising under a Claim relating to the terms of this Agreement, or the breach thereof, may be submitted to binding arbitration, whether such Claims sound in contract, tort or otherwise. The arbitration shall be conducted in accordance with the Federal Arbitration Act and the then prevailing Commercial Arbitration Rules of the American Arbitration Association. The validity, construction, and interpretation of this Agreement to arbitrate and all procedural aspects of the arbitration conducted pursuant hereto shall be decided by the arbitrator(s). Submission shall be made upon the request of either Party. Within twenty (20) calendar days of the receipt by the respondent of service of the Notice of arbitration, the Parties shall select one (1) arbitrator by mutual consent. If the Parties are unable to agree upon a single arbitrator, there shall be three (3) arbitrators. Specifically, in the event the Parties cannot agree upon a single arbitrator, both the claimant and the respondent shall appoint one (1) arbitrator within ten (10) calendar days after written Notice by either Party that three (3) arbitrators shall be necessary. The two (2) arbitrators so appointed shall then select the third arbitrator within twenty (20) calendar days, who shall be the chairperson, of the tribunal. The chairperson shall be a person who has over eight (8) years of experience in energy-related transactions, and none of the arbitrators shall have been previously employed by either Party or have any direct interest in either Party or the subject matter of the arbitration, unless such conflict is expressly acknowledged and waived in writing by both Parties. The chairperson shall be bound to schedule and hear the dispute in its entirety within three (3) Months after his/her appointment and shall render the panel's decision within thirty (30) calendar days after the hearing concludes. It is agreed that the arbitration proceeding shall be conducted in Honolulu, Hawaii, or another neutral location mutually agreed to by the Parties; provided, however, either Party may provide all witnesses, deponents and other ancillary personnel by video telecast or other electronic media, it being the intent of the Parties to minimize expenses of conducting the arbitration. It is further agreed that the arbitrator(s) shall have no authority to award consequential, treble, exemplary, or punitive damages of any type or kind regardless of whether such damages may be available under any law or right, with the Parties hereby affirmatively waiving their rights, if any, to recover or claim such damages. The compensation and any costs and expenses of the arbitrators shall be borne equally by the Parties. Any arbitration proceedings, decision or award rendered hereunder and the validity, effect and interpretation of this arbitration provision shall be governed by the Federal Arbitration Act. The award shall be final and binding on the Parties and judgment upon any award may be entered in any court of competent jurisdiction. The Parties agree that all information exchanged as a result of any proceeding as described herein shall be deemed Confidential Information.

(b) Judicial Relief. Either Party may petition a court of appropriate jurisdiction, as described in Section 12.11, for non-monetary relief relating to any claim of breach of this Agreement in order to prevent undue hardship relating to any such claimed breach pending the appointment of an arbitration panel as described in this Section 12.9.

12.10 Governing Law.

THIS AGREEMENT AND THE RIGHTS AND DUTIES OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY AND CONSTRUED, ENFORCED AND PERFORMED IN ACCORDANCE WITH THE LAWS OF GUAM**,** WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW.

12.11 Jurisdiction and Costs.

Subject to the mandatory arbitration provisions herein, with respect to any proceeding in connection with any claim, counterclaim, demand, cause of action, dispute and controversy arising out of or relating to this Agreement, the Parties hereby consent to the exclusive jurisdiction of the local and federal courts in the Territory of Guam. Both Parties waive any right to trial by jury in such action. In the event such judicial proceedings are

instituted by either Party, the prevailing Party shall be entitled to award of its costs and reasonable attorneys' fees incurred in connection with such proceedings.

12.12 Financial Accounting Standards.

Under the latest interpretations of the Financial Accounting Standards Board's Interpretation No. 46(R) (FIN No. 46(R)), "Consolidation of Variable Interest Entities," GPA may be required to consolidate a Seller's entity for which GPA has entered into a long-term power purchase agreement. Seller agrees to provide all information needed in order for GPA to determine whether or not the special purpose entity which owns the Seller's generating facility must be consolidated by GPA under FIN No. 46(R). If it is determined that GPA needs to consolidate such special purpose entity, Seller agrees to provide all information needed to comply with the consolidation requirements of FIN 46(R) in a timely manner every calendar quarter. If GPA is required to consolidate the special purpose entity that owns the Seller's generating facility in its financial statements, Seller agrees to provide access to any needed records and personnel, as requested, so GPA's independent auditor, Deloitte & Touche LLP, can conduct financial statement audits in accordance with generally accepted auditing standards, as well as internal control audits in accordance with Section 404 of the Sarbanes-Oxley Act of 2002.

12.13 Forward Contract.

The Parties intend that in any relevant proceedings, each be regarded as a forwards trading merchant in respect of this Agreement and that each Transaction be a forwards contract for purposes of the United States Bankruptcy Code, 11 U.S.C. §§ 101 et seq., as amended from time to time.

12.14 General.

No delay of a Party in the exercise of, or the failure to exercise, any rights under this Agreement shall operate as a waiver of such rights, a waiver of any other rights under this Agreement or a release of the other Party from any of its obligations under this Agreement. Any provision declared or rendered unlawful by any applicable court of law or regulatory agency or deemed unlawful because of a statutory change will not otherwise affect the remaining lawful obligations that arise under this Agreement; and provided, further, that if such an event occurs, the Parties shall use their best efforts to reform this Agreement in order to give effect to the original intention of the Parties. The term "including" when used in this Agreement shall be by way of example only and shall not be considered in any way to be in limitation. The headings used herein are for convenience and reference purposes only. The indemnity provisions of this Agreement shall survive the termination of this Agreement for the period of the applicable statute of limitations. The audit provisions of this Agreement shall survive the termination of this Agreement for a period of twelve (12) Months. This Agreement shall be binding on each Party's successors and permitted assigns.

12.15 Entire Agreement; Amendment.

This Agreement, together with any appendices, schedules, and any written supplements hereto constitutes the entire agreement between the Parties relating to the subject matter hereof. This Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties and shall not be construed against one Party or the other as a result of the preparation, substitution, submission or other event of negotiation, drafting or execution hereof. Except to the extent herein provided for, no amendment or modification to this Agreement shall be enforceable unless reduced to writing and executed by both Parties.

12.16 Appendices.

The following Appendices are included in this Agreement for all purposes:

Appendix A	Contract Price and Minimum Production
Appendix B	Notice Addresses
Appendix C	Ramp Rate Control and Microgrid

Appendix D	Independent Engineers
Appendix E	[Not Used]
Appendix F	Form of Letter of Credit
Appendix G	[Not Used]
Appendix H	Scheduling and Coordination
Appendix I	Base Conditions and Facility Test Protocol
Appendix J	Interconnection Agreement
Appendix K	Additional Terms regarding Ramps Rates and Dispatch Down
Appendix L	Resolutions of Consolidated Committee on Utilities

12.17 Special Provisions.

It is the policy of GPA not to discriminate on the basis of age, race, sex, color, national origin, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services, and activities. With regard to all aspects of this Agreement, Seller certifies and warrants it will comply with this policy. No person shall be excluded from participation in, be denied benefits of, be discriminated against in the admission or access to, or be discriminated against in treatment or employment in GPA's contracted programs or activities, on the grounds of such person's handicap or disability, age, race, color, religion, sex, national origin, or any other classification protected by federal or Guam law; nor shall any person be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in performance of contracts with GPA or in the employment practices of GPA's contractors. Accordingly, all persons entering into contracts with GPA shall, upon request, be required to show proof of such nondiscrimination and to post notices of non-discrimination in conspicuous places that are available to all employees and applicants.

Seller hereby represents that Seller has not been retained or retained any persons to solicit or secure a contract from GPA upon an agreement or understanding for a contingent commission, percentage, or brokerage fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business. Breach of the provisions of this section is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Government Authority.

It shall be a breach of ethical standards for any person to offer, give or agree to give any employee or former employee, or for any employee or former employee to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter, pertaining to any program requirement of a contract or subcontract or to any solicitation or proposal therefor. It shall be breach of ethical standards for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or a person associated therewith, as an inducement for the award of a subcontractor or order. Breach of the provisions of this paragraph is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Governmental Authority.

Seller warrants that no person providing services on behalf of Seller or in its employment who has been convicted of a sex offense under the provisions of Chapter 25 of Title 9 of the Guam Code Annotated, or convicted of an offense

defined in Article 2 of Chapter 28 of Title 9 of the Guam Code Annotated regardless of the jurisdiction in which the conviction was obtained, shall provide services on behalf of Seller relative to this Agreement. If any person employed by Seller and providing services under this Agreement is convicted subsequent to the date of this Agreement, then Seller warrants that it will notify GPA of the conviction within twenty-four hours of the conviction, and will immediately remove such convicted person from providing services under this Agreement. If Seller is found to be in violation of any of the provisions of this paragraph, then GPA shall give Notice to Seller to take corrective action. Seller shall take corrective action within twenty-four hours of Notice from GPA, and Seller shall notify GPA when action has been taken. If Seller fails to take corrective steps within twenty-four hours of Notice from GPA, then GPA in its sole discretion may suspend this Agreement temporarily.

12.18 Waiver of Immunity.

To the extent that GPA may in any jurisdiction claim for itself or its assets or revenues immunity from suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process and to the extent that in any such jurisdiction there may be attributed to GPA or its assets or revenues such immunity (whether or not claimed), GPA agrees not to claim and irrevocably waives such immunity to the full extent permitted by the laws of such jurisdiction.

IN WITNESS THEREOF, the Parties hereto made and executed this Agreement, signed by their duly authorized officers or individuals, as of the dates listed below.

GUAM POWER AUTHORITY **GPA or Buyer**		**HANWHA ENERGY CORPORATION Seller**	
By:	_____	By:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

[Signature Page to Renewable Energy Purchase Agreement]

APPENDICES

APPENDIX A

CONTRACT PRICE AND MINIMUM PRODUCTION

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)
1	65.99	72,005
2	66.65	71,831
3	67.32	71,245
4	67.99	70,865
5	68.67	70,485
6	69.36	70,306
7	70.05	69,724
8	70.75	69,344
9	71.46	68,693
10	72.17	68,780
11	72.89	68,202
12	73.62	67,821
13	74.36	67,440
14	75.10	67,252
15	75.85	66,678

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)
16	76.61	66,296
17	77.38	65,915
18	78.15	65,722
19	78.93	65,151
20	79.72	64,770
21	80.52	64,388
22	81.33	64,190
23	82.14	63,623
24	82.96	63,241
25	83.79	62,859
26		
27		
28		
29		
30		

ESS MICRO GRID

Contract Year	Micro Grid Operation Price ($)
1	1,287,082
2	1,264,710
3	1,244,969
4	1,225,229
5	1,206,804
6	1,188,380
7	1,171,271
8	1,155,479
9	1,139,686
10	1,123,894
11	1,108,101
12	1,093,625
13	1,079,149
14	1,064,672
15	1,051,512

Contract Year	Micro Grid Operation Price ($)
16	1,038,352
17	1,025,191
18	1,012,031
19	998,871
20	987,026
21	975,182
22	963,338
23	951,493
24	939,649
25	927,805

APPENDIX B

NOTICE ADDRESSES

APPENDIX C

RAMP RATE CONTROL & MICROGRID

I. Description of Storage Unit

A. Specifications. The Facility shall include the Storage Unit as more fully described in the technical specifications set forth in Schedule C-1 attached hereto ("Storage Technical Specifications").

B. Operations. The operation of the Storage Unit shall at all times be subject to the operating restrictions and limitation set forth in Schedule C-2 attached hereto ("Storage Operating Restrictions"). At no time will Seller be expected to operate the Storage Unit in a manner that is inconsistent with the Storage Operating Restrictions notwithstanding any contrary terms in this Agreement.

C. Metering. Seller will install and maintain a separate meter for the Storage Unit and the operation and maintenance of such meter shall be governed by section 7.4 of this Agreement. The Storage Unit will not serve station use and Seller shall separately meter station use.

D. Augmentation. Seller shall be entitled to determine the actions necessary to achieve the Guaranteed Storage Output (as defined below) from time to time, including without limitation, whether to augment the batteries included in the Storage Unit solely as determined by Seller in its discretion.

E. Ramp Rate Control. The Storage Unit shall be operated such that the charging and output of the Storage Unit does not exceed 1% of the Project's nameplate capacity per minute; provided that Seller shall only be obligated to achieve such ramp rate as set forth in the table below on an average basis during each Contract Year ("Agreed Ramp Rate").

Contract Year	Agreed Ramp Rate
1	98.00%
2	97.90%
3	97.80%
4	97.70%
5	97.60%
6	97.50%
7	97.40%
8	97.30%
9	97.20%
10	97.10%
11	97.00%
12	96.90%
13	96.80%
14	96.70%
15	96.60%
16	96.50%
17	96.40%
18	96.30%
19	96.20%

20	96.10%
21	96.00%
22	95.90%
23	95.80%
24	95.70%
25	95.60%

F. Ramp Rate Control Performance

Energy Storage System will control the ramping rate under 1% of the Facility Capacity (i.e. 600 kW) per minute and the control period [for the ramping rate] will be no more than 1 second. Detailed ramping control algorithm will be finalized through discussions between GPA and Seller after the final design of the Energy Storage System is put in place but no later than one (1) month before the commissioning test of the Facility will start.

Evaluation of Performance Verification:

During the Delivery Period, on an annual basis, Seller shall carry out the evaluation process for the performance verification of the Energy Storage System, including power test and 1% ramp-rate control test in the presence of GPA, once every year with annual data storage in the Facility database and GPA SCADA. [Note: specify what is to be measured and equation below.]

$$\left| \frac{\sum_{t-\Delta t}^{t} PV_i(x)}{\Delta t} - \frac{\sum_{t-2\Delta t}^{t-\Delta t} PV_i(x)}{\Delta t} \right| > P_{ramp}$$

Where:

- Δt = 60 seconds
- $PV_i(x)$: PV generation at time t
- i = 1,2,3, ….., 60 seconds
- P_{ramp}: active power considering ramp rate limit per 1min window

Ramp Rate Control shall be based on a plus or minus (±) 1% of rated power of 60MW plant ("Measured Value"). Ramp Rate Control Failure means a plus or minus (±) 2% of Measured Value.

Ramp Control Penalty:

Penalty will apply to failure to meet the 1% ramp per minute rate for both under and over power. Ramp-Control must be controlled within 1 second. The failure percentage is as below:

- Failure Percentage (FP) = (E1 – E2)

Symbol	Item	Unit	Remarks
E1	Guaranteed value of Succeed Ramp-Rate	%	Proposal (offer) shown in table below

E2	Output of Ramp Rate Controlled	%	1% ramping requirement with 2% measurement error

If FP is greater than 0 (zero), then Penalty shall be calculated as follow:

- Under Power Failure Penalty = (AF_U) *(C_U)*(FP_U)
- Over Power Failure Penalty= (AF_O) *(C_O)*(FP_O)

Symbol	Item	Value	Unit
C_U	Nominal Ramp Down Cost	1.96	$/min/MW
C_O	Nominal Ramp Up Cost	0.49	$/min/MW

The penalty is calculated only for the portion exceeding the guaranteed value.

Where:

- Failure Power of Under Power (FP_U) = |Ramp Rate Required Power – CP| [MW]
- Failure Power of Over Power (FP_O) = |CP – Ramp Rate Required Power| [MW]
- Controlled Power (CP) =1 minute Average Power of 1% Ramp Rate Controlled by 1 second
- Acceleration Factor of Under Power (AF_U) = 0.5
- Acceleration Factor of Over Power (AF_O) = 0.5

G. Time Shifting. As described herein, the Storage Unit will be charged during the day and discharged during the night and in this manner will provide GPA with delayed deliveries of Renewable Energy.

E. Communication Protocols. Seller and GPA shall mutually agree (in writing) upon communication protocols to allow GPA to have access to SCADA information and a real-time data feed with respect to the Facility.

II. Delivery of Stored Energy for Dispatch

A. Charging. During the Delivery Period, Seller shall (i) operate and maintain the Storage Unit, (ii) charge the Storage Unit with a portion of the Renewable Energy generated by the Project (referred to as Charging Energy), and (iii) then shall store, discharge and deliver the Stored Energy to the Delivery Point. Charging Energy shall be drawn from the Renewable Energy generated by the Project and Stored Energy when delivered shall count towards the Minimum Production of the Project each Contract Year. In no case shall Seller be penalized for a reduction in the Renewable Energy delivered based on Charging Energy used to charge the Storage Unit.

B. Discharging. Seller shall sell and deliver, or cause to be delivered, and GPA shall purchase and receive, or cause to be received, all Stored Energy discharged by the Storage Unit, at the Delivery Point, and GPA shall pay Seller the Annual Storage Payment as compensation for Seller's operation of the Storage Unit and deliver of such Quantity of Stored Energy to the Delivery Point.

Stored Energy shall be discharged each day during the Delivery Period beginning from a time out of the 6 options as follows: 6 pm, 7 pm, 8 pm, 9 pm, 10 pm and 11 pm local time and shall be delivered to the Delivery

Point except during any Excused Hours and Weather Hours. The Discharge Energy shall be fixed as 5MW and the Delivery Period ends once all remaining Energy in the Microgrid has been discharged until the designated SOC of the Microgrid has been met.

If GPA desires to change the daily start time of the dispatch of the Storage Unit at any time during the Delivery Period, then GPA shall deliver Notice to Seller of such proposed change at least seven (7) days prior to the date on which Seller is being asked to implement such change ("Dispatch Instruction"). Seller shall not be obligated to accept and implement Dispatch Instruction requested by GPA if (i) such Dispatch Instruction is not consistent with the Operating Parameters, Good Utility Practices, any Planned Outages, applicable law or any limits set forth in any permit or approval received by Seller in connection with the Facility, or (ii) implementation of such dispatch instructions would limit, interfere with or prevent Seller's operation and maintenance of the Facility and/or its performance of its obligations under this Agreement, including without limitation, Seller's obligations with respect to the Guaranteed Dispatch Rate and/or Minimum Production and any make-up amounts Seller reasonably expects to deliver in any Contract Year, or (iii) implementation of such dispatch instructions would limit, interfere with or prevent Seller's performance of its obligations under the Interconnection Agreement. Any Dispatch Instruction delivered by GPA shall remain in effect until another valid Dispatch Instruction is delivered by GPA to Seller in accordance herewith.

Contract Year	Estimated Annual Stored Energy to be discharged from the Storage Unit and delivered to the Delivery Point referred to herein as the "Guaranteed Dispatch Rate"
1	6,570
2	6,554
3	6,501
4	6,466
5	6,431
6	6,415
7	6,362
8	6,327
9	6,293
10	6,276
11	6,223
12	6,188
13	6,153
14	6,136
15	6,084
16	6,049
17	6,015
18	5,997
19	5,945
20	5,910
21	5,875
22	5,857
23	5,805
24	5,771
25	5,736

The annual estimate of Stored Energy to be delivered shall be subject to the terms set forth in part II.C below.

C. Guaranteed Storage Output. The Storage Unit is expected to allow Seller to deliver a minimum number of MWhs of Stored Energy each Contract Year as set forth above (such annual MWh production is the "Guaranteed Dispatch Rate").

Seller during the Delivery Period shall (i) during any Contract Year, deliver to GPA at least ninety percent (90%) of the Guaranteed Dispatch Rate, and (ii) for any consecutive six (6) Contract Years during the Delivery Period, deliver to GPA at least ninety percent (90%) of the aggregate Guaranteed Dispatch Rate during such period (which shall include make-up amounts generated and delivered in any years in excess of one hundred percent (100%) of the Guaranteed Dispatch Rate for such year) (any such time period a "Storage Measurement Period" and each such guaranteed amount of delivered Stored Energy during any Stored Measurement Period, the "Guaranteed Storage Output"). Any shortfall of Stored Energy (expressed in MWhs/year) from the applicable Guaranteed Storage Output during a Storage Measurement Period shall be deemed a "Storage Deficiency Amount."

The Annual Storage Payment for the following Contract Year shall be adjusted for any Storage Deficiency Amount which is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below) ("Shortfall Adjustment"). The Shortfall Adjustment will be calculated as set forth below:

Adjusted Annual Storage Payment = (Storage Deficiency Amount/Guaranteed Dispatch Rate) x Annual Storage Payment

For purposes of clarity, Seller shall be entitled to deliver to GPA Renewable Energy or Stored Energy in the amount of such Storage Shortfall in subsequent time periods (even if such make-up amounts are in excess of the Guaranteed Dispatch Rate for such subsequent year), and this Agreement may be extended as necessary for a period of up to six (6) months to allow Seller to make up any Storage Deficiency Amount; however, there shall be no Shortfall Adjustment for such individual Contract Year unless such Stored Energy delivered hereunder is less than [ninety percent (90%) of the] Guaranteed Storage Output for the applicable Storage Measurement Period, and such shortfall is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below).

In the event Shortfall Adjustment applies to a Storage Measurement Period of six (6) rolling Contract Years, then such Shortfall Adjustment shall be reduced by the amount of any Shortfall Adjustment paid for any Contract Year during such six (6) year Storage Measurement Period. The Shortfall Adjustment to the Annual Storage Payment shall be Seller's sole liability and obligation, and GPA's sole right and remedy, with respect to Seller's failure to deliver the Guaranteed Output during any Storage Measurement Period.

To the extent any Storage Deficiency Amount is due to Weather Hours, Seller's sole liability and GPA's sole remedy shall be to deliver thereafter Renewable Energy or Stored Energy equal to such Storage Deficiency Amount attributable to Weather Hours, calculated in accordance with Appendix K (which includes a sample calculation for a hypothetical Storage Measurement Period). If any portion of a Storage Deficiency Amount due to Weather Hours is not made up in the five (5) Contract Years beginning in the first Contract Year following the Contract Year in which the Weather Hours Storage Deficiency Amount occurred, then a Shortfall Adjustments shall be applied for the remaining Storage Deficiency Amount. Notwithstanding the foregoing, with respect to any Storage Deficiency Amount that is due to Weather Hours, Seller shall have the option, at any time prior to the expiration of the five (5) Contract Year make-up period, to elect to apply any remaining Shortfall Adjustment in its entirety. If the Storage Deficiency Amount arising as a result of Weather Hours occurs in the last five (5) years of the Delivery Period, then unless Seller exercises its option to apply any remaining Shortfall Adjustment early, the Delivery Period shall be extended as necessary, for a period of up to six (6) months, to achieve a make-up period of five (5) Contract Years as described above.

Seller shall be entitled to sell, and GPA shall purchase, quantities of Stored Energy for which Shortfall Adjustments are paid hereunder, during any remaining Storage Measurement Period during the Delivery Period. During any Contract Year, all Renewable Energy delivered by Seller to GPA in excess of the Guaranteed Dispatch Rate shall be credited against makeup of any outstanding Storage Adjustment, with oldest Storage Adjustment made up first.

To the extent any Storage Adjustment is due to Excused Hours, Seller shall be excused from any liability with respect thereto.

D. Remedies. For Seller's failure to deliver Stored Energy as required hereunder, GPA's remedies shall be as set forth in part II.C above. For GPA's failure to purchase and receive Stored Energy as required hereunder, Seller shall in addition have all other remedies available at law or in equity.

E. Title and Risk of Loss. Seller shall be responsible for any costs or charges imposed on or associated with the Stored Energy or its delivery up to the Delivery Point. GPA shall be responsible for any costs or charges imposed on or associated with Stored Energy or its receipt at and from the Delivery Point. Title to and risk of loss of Stored Energy from the Facility delivered to the Delivery Point shall transfer to GPA at the Delivery Point. Seller warrants that it will deliver to Buyer Stored Energy free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point.

III. Compensation for Storage Unit Operations

Compensation to Seller for the operation of the Storage Unit during the Delivery Period shall consist of an Annual Storage Payment as set forth in Appendix A. The Annual Storage Payment shall be paid in accordance with Sections 7.1, 7.2 and 7.5 of this Agreement.

The Annual Storage Payment shall only be subject to reduction or offset for, and GPA's sole remedy for Seller's failure to deliver Stored Energy and Seller's operation of the Storage Unit shall be, the application of any Shortfall Adjustment in accordance with Section II.C above.

Schedule C-1
Technical Specifications for Storage Unit

- Microgrid Capacity: 20MW PCS, 32.5MWh usable energy (Actual installed capacity shall be determined at later stage)
- The Microgrid will normally perform the ramp rate control as required, but if the Power Plant output exceeds 22.5MW, it will charge the excess amount into the Microgrid.
- The Microgrid will also force charge the Microgrid if the weather conditions are not sufficient enough to make the Power Plant to reach production amounts above 22.5MW to ensure that the Microgrid will discharge every year the agreed on discharge amount.

Schedule C-2
Operating Parameters for Storage Unit

- The output that the Facility delivers to the grid shall be limited to 22.5MWac throughout the Delivery Period.
- [Seller to provide additional Operating Parameters]

APPENDIX D

NOT USED

APPENDIX E

NOT USED

APPENDIX F-1

FORM OF LETTER OF CREDIT

(Provided is sample which may be replaced by Bank / Financial Institution Form)

(*Bank or Financial Institution*)

_____, 201__

Irrevocable Standby Letter of Credit No. ____

Beneficiary:
Guam Power Authority
P.O. Box 2977
Guam 96932-2977
Attn:
Applicant:

Dear _____:

We hereby establish for the account of (*Company Name*) ("Applicant") our irrevocable standby letter of credit in your favor for an amount of USD 4,000,000 (Four Million United States Dollars). Applicant has advised us that this letter of credit is issued in connection with the Renewable Energy Purchase Agreement, dated as of _____, 2012, by and between the Applicant, and Guam Power Authority (the "Beneficiary"). This letter of credit shall become effective immediately on the date hereof and shall expire on _____ [*the date that is XX days after the Effective Date of the PPA*] (such date, or such later date(s) as determined by Applicant in accordance with the next succeeding sentence, the "Expiration Date"). The Expiration Date can be extended on one or more occasions by written notice to us from the Applicant, provided that such written notice is received at least 10 days prior to the Expiration Date. This letter of credit is subject to the following:

1. Funds under this letter of credit shall be made available to Beneficiary against its draft drawn on us in the form of Annex 1 hereto, accompanied by (a) a certificate in the form of Annex 2 hereto, appropriately completed and signed by an authorized officer of Beneficiary, dated the date of presentation, and (b) the original of the letter of credit (the "Accompanying Documents") and presented at our office located at (*Bank/Financial Institution Address*) attention _____. (or at any other office which may be designated by us by written notice delivered to you). A presentation under this letter of credit may be made only on a day, and during hours, in which such office is open for business (a "Business Day"). If we receive your draft and the Accompanying Documents at such office on any Business Day, all in strict conformity with the terms and conditions of this letter of credit, we will honor the same by making payment in accordance with your payment instructions on the third succeeding Business Day after presentation.

2. This letter of credit shall terminate upon the earliest to occur of (i) our receipt of a notice in the form of Annex 3 hereto signed by an authorized officer of Beneficiary, accompanied by this letter of credit for cancellation, or (ii) our close of business at our aforesaid office on the Expiration Date, or if the Expiration Date is not a Business Day, then on the succeeding Business Day. This letter of credit shall be surrendered to us by you upon the earlier of presentation or expiration.

3. This letter of credit is issued and subject to the International Standby Practices 1998 (ISP98) International Chamber of Commerce Publication No. 590, and as to matters not addressed by ISP98, shall be governed by and construed in accordance with the laws of the State of New York and application of U.S. Federal Law.

4. This letter of credit sets forth in full our undertaking, and such undertaking shall not in any way be modified, amended, amplified or limited by reference to any document, instrument or agreement referred to herein, except for Annexes 1, 2 and 3 hereto and the notices referred to herein; and any such reference shall not be deemed to incorporate herein by reference any document, instrument or agreement except as otherwise provided in this paragraph 5.

5. Communications with respect to this letter of credit shall be in writing and shall be addressed to us at the address referred to in paragraph 1 above, and shall specifically refer to this letter of credit no. _____.

Very truly yours,

_____

Authorized signature
(*Bank or Financial Institution*)

EAST\151029886.4

ANNEX 1
TO LETTER OF CREDIT NO. _____

under LETTER OF CREDIT No. _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

[*Month, Day , Year*]

On Sight

Pay to Guam Power Authority U.S. $ _____ [not to exceed amount available to be drawn]

Wire to:
Bank's Name: Bank of Guam
Bank's Location: 111 Chalan Santo Papa St., Hagatna, Guam 96910
Bank's Mailing Address: P.O. Box BW, Hagatna, Guam 96932
Account Name: Guam Power Authority Revenue Fund Account
Acct. No.: (to be provided)
Routing No.: (to be provided)

For value received and charge to account of Letter of Credit No. _____ of (*Company Name*)

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

EAST\151029886.4

ANNEX 2
TO LETTER OF CREDIT NO. _____

Drawing under Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

The undersigned, a duly authorized officer of the Guam Power Authority, ("Beneficiary"), hereby certifies on behalf of Beneficiary to (*Bank or Financial Institution*) and to (*Company Name*) (the "Applicant") with reference to irrevocable standby Letter of Credit No. _____ (the "Letter of Credit") issued for the account of (*Company Name*) ("Applicant"), that:

1) pursuant to the Renewable Energy Purchase Agreement, dated as of _____, 201__, by and between Applicant and Beneficiary and as of the date hereof Beneficiary is entitled to draw under the Letter of Credit;

2) by presenting this certificate and the accompanying sight draft, Beneficiary is requesting that payment in the amount of $_____, as specified on said draft, be made under the Letter of Credit by wire transfer or deposit of funds into the account specified on said draft; and

3) the amount specified on the sight draft accompanying this certificate does not exceed the remaining amount to which Beneficiary is entitled to draft under said Renewable Energy Purchase Agreement.

In witness whereof, Beneficiary has caused this certificate to be duly executed and delivered by its duly authorized officer as of the date and year written below.

Date: _____

GUAM POWER AUTHORITY

By: _____
Name: _____
Title: _____

EAST\151029886.4

ANNEX 3
TO LETTER OF CREDIT NO. _____

Notice of surrender of Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

Re: Letter of Credit No. _____ issued for the account of (*Company Name*)

Ladies and Gentlemen:

We refer to your above-mentioned irrevocable standby Letter of Credit (the "Letter of Credit"). The undersigned hereby surrenders the Letter of Credit to you for cancellation as of the date hereof. No payment is demanded of you under this Letter of Credit in connection with this surrender.

Very truly yours,

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

EAST\151029886.4

APPENDIX F-2

To be provided

APPENDIX G

NOT USED

APPENDIX H

SCHEDULING AND COORDINATION PROCEDURES

The Parties acknowledge that as of the Effective Date GPA has not yet established protocols for scheduling (firm or intermittent) power to permit solar projects to participate in GPA's scheduling process. As soon as practicable, Seller and GPA shall establish such protocols by mutual agreement in writing. Seller shall use Commercially Reasonable Efforts to comply with all additional reasonable protocols issued by GPA relating to available resources during the Delivery Period, and GPA shall consult with Seller (and take into account and accommodate Seller's reasonable comments) in connection with the preparation of any such additional protocols. The foregoing shall be subject to Section 4.16 of this Agreement.

1.1 General

(a) Notices. Seller shall submit to GPA notices and updates required under this Agreement regarding the Project's status, including, but not limited to, outage requests, forced outages and forced outage reports. If a web based system is not available, Seller shall promptly submit such information to GPA (in order of preference) telephonically, by electronic mail, or facsimile transmission to the personnel designated to receive such information. **Need to include PSCC requirements for Hourly Reports, Daily Production Reports, etc.**

(b) GPA Settlements. GPA shall be responsible for all settlement functions within GPA related to the Project.

(c) Resource Data Template. Seller shall provide the data to the GPA that is required for GPA's resource data template (or successor data system) for the Project consistent with this Agreement. Neither Party shall change such data without the other Party's prior written consent.

(d) Annual Delivery Schedules. No later than forty-five (45) days before (A) the first day of the first Contract Year and (B) the beginning of each calendar year for every subsequent Contract Year during the Delivery Term, Seller shall provide a non-binding forecast of each month's average-day expected Actual Renewable Energy for the following calendar year.

(e) Monthly Delivery Schedules. Ten (10) Business Days before the beginning of each month during the Delivery Term, Seller shall provide a non-binding forecast of each day's average expected Actual Renewable Energy for the following month ("Monthly Delivery Forecast") .

(f) Daily Delivery Schedules. By 5:30 AM Guam Prevailing Time on the Business Day immediately preceding the date of delivery, Seller shall provide GPA with a non-binding forecast of the Project's available energy (a "Day-Ahead Forecast"). A Day-Ahead Forecast provided in a day prior to any non-Business Day(s) shall include Schedules for the immediate day, each succeeding non-Business Day and the next Business Day. Each Day-Ahead Forecast shall clearly identify, for each hour, Seller's estimate of the Project's available energy. Seller may not change such Schedule past the deadlines provided in this section except in the event of a Forced Outage or Schedule change imposed by GPA, in which case Seller shall promptly provide GPA with a copy of any and all updates to such Schedule indicating changes from the then-current Schedule. These notices and changes to the Schedules shall be sent to GPA's on-duty scheduling coordinator. If Seller fails to provide GPA with a Day-Ahead Forecast as required herein, then for such unscheduled delivery period

only GPA shall rely on the delivery Schedule provided in the Monthly Delivery Forecast or GPA's best estimate based on information reasonably available to GPA and Seller shall be liable for Scheduling and delivery based on such Monthly Delivery Forecast or GPA's best estimate.

(g) Hourly Delivery Schedules. Notwithstanding anything to the contrary herein, in the event Seller makes a change to its Schedule on the actual date of delivery for any reason, including Forced Outages (other than a scheduling change imposed by GPA), that results in a change to its deliveries (whether in part or in whole), Seller shall notify GPA immediately by calling GPA's on-duty scheduling coordinator. Seller shall notify GPA of Forced Outages in accordance with this Agreement. Seller shall keep GPA reasonably informed of any developments that are reasonably expected to affect either the duration of the outage or the availability of the Project during or after the end of the outage.

1.2 Dispatch Down/Curtailment.

(a) GPA shall have the right to order Seller to curtail deliveries of Renewable Energy from the Project to the Delivery Point pursuant to a Notice of a Dispatch Down as defined in Appendix K delivered to Seller, provided that the value attributable to any Renewable Energy [in an aggregated quantity of more than _2% of the Minimum Production for any Contract Year] which is not delivered during such curtailment periods, whether for transmission unavailability, operational dispatch or pre-set ramping parameters or otherwise, shall be reimbursed to Seller as provided below.

(b) GPA shall have the right to order Seller to curtail deliveries of Stored Energy from the Microgrid Unit to the Delivery Point pursuant to a Notice of a Dispatch Down as defined in Appendix K delivered to Seller, provided that GPA shall remain obligated to pay Seller the complete Annual Microgrid Payment without adjustment notwithstanding such curtailments, whether for transmission unavailability, operational dispatch or pre-set ramping parameters or otherwise.

(c) Seller shall have the right in its discretion to make up any curtailed quantities of Renewable Energy as a result of a Dispatch Down ("Dispatch Down Makeup Production"), for which it is not reimbursed pursuant to this Appendix H, in the first and any subsequent Contract Year in which at least the Minimum Production is delivered and to extend the Term to the extent necessary, but not to exceed six (6) months, to make up any curtailed quantities. The Contract Price for the Contract Year in which the make-up occurs shall apply to Dispatch Down Makeup Production up to the Minimum Production amount for the Contract Year in which the Dispatch Down originally occurred. For production quantities in excess of the Minimum Production for the Contract Year in which the Dispatch Down originally occurred, the price will be the lesser of the then current LEAC Rate or the Contract Price in the Contract Year in which the make-up occurs. Production in excess of Minimum Production for any Contract Year will first be applied to any previous years' Deficiency Amounts, then to Dispatch Down Makeup Production, then treated under this Agreement as production in excess of Minimum Production.

(d) GPA shall provide to Seller all technical information necessary to justify and support each Dispatch Down.

(e) GPA shall pay Seller, on the date payment would otherwise be due in respect of the month in which any such curtailment in excess of 2% of Minimum Production for such Contract Year occurred], an amount equal to the product of the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to

GPA but for such curtailment ("Lost Revenue"). During the Contract Year-end annual true-up process, any payments made by GPA to the Seller for production (MWh) in excess of the Minimum Production for that Contract Year, whether such production results from actual generation surpluses or Lost Revenue, will be adjusted to reflect the lesser of the Contract Price for the then current Contract Year or then current LEAC Rate. For purposes of clarification, for any given Contract Year, GPA will not be required to pay the Contract Price on amounts of production beyond the Minimum Production if the Contract Price for that Contract Year is higher than the LEAC Rate for that Contract Year. Seller agrees to reduce the Project's Renewable Energy as set forth in such a Notice of Dispatch Down that meets the requirements set forth herein.

(f) For purposes of clarification, no curtailment by GPA, as a result of a warranted failure of or defect in the interconnection facilities transferred by Seller to GPA pursuant to the Interconnection Agreement, during the one-year warranty term thereof, shall count against the 2% curtailment threshold set forth above. During the one-year warranty term of the interconnection facilities transferred, any curtailment by GPA which results from such failure of or defect in the interconnection facilities transferred will not be eligible for reimbursement by GPA to Seller, Lost Revenue payments, or Dispatch Down Makeup Production in future Contract Years.

1.3 Outage Notification.

(a) Planned Outages. Seller shall schedule Planned Outages in accordance with Good Utility Practices and with the prior written consent of GPA, which consent may not be unreasonably withheld, conditioned or delayed. Nonetheless, the Parties acknowledge that in all circumstances, Good Utility Practices shall dictate when Planned Outages should occur. Seller shall notify GPA of Seller's proposed Planned Outage schedule for the Project for the following calendar year by submitting a written Planned Outage schedule no later than October 1st of each year during the Delivery Period. The Planned Outage schedule is subject to GPA's concurrence, which concurrence may not be unreasonably withheld, conditioned or delayed. GPA shall promptly respond with its approval or with reasonable modifications to the Planned Outage schedule and Seller shall use its Commercially Reasonable Efforts in accordance with Good Utility Practices to accommodate GPA's requested modifications. Notwithstanding the submission of the Planned Outage schedule described above, Seller shall also submit a completed form of outage notification to GPA no later than fourteen (14) days prior to each Planned Outage and reasonably appropriate outage information or requests to GPA. Seller shall contact GPA with any requested changes to the Planned Outage schedule if Seller believes the Project must be shut down to conduct maintenance that cannot be delayed until the next scheduled Planned Outage consistent with Good Utility Practices. Seller shall not change its Planned Outage schedule without GPA's concurrence, not to be unreasonably withheld, conditioned or delayed.

(b) Forced Outages. Within two hours of any Forced Outage Seller shall submit a completed form of outage notification to GPA in accordance with the instructions shown on the agreed form and shall submit outage information to GPA. Seller shall not substitute Renewable Energy from any other source for the output of the Project during a Forced Outage.

(c) Coordination with GPA. GPA shall cooperate with Seller in arranging and coordinating all Project outages.

1.4 Operations Logs and Access Rights.

(a) Operations Logs. Seller shall maintain a log of all material operations and maintenance information on a daily basis. Such log shall include, but not be limited to, information on power production, efficiency, availability, maintenance performed, outages, results of inspections, manufacturer recommended services, replacements, and control settings or adjustments of equipment and protective devices. Seller shall maintain this information for at least two (2) years and shall provide this information electronically to GPA within five days of GPA's request.

(b) Access Rights. GPA, its authorized agents, employees and inspectors shall have the right of ingress to and egress from the Project during normal business hours upon reasonable advance notice and for any purposes reasonably connected with this Agreement.

APPENDIX I

BASE CONDITIONS AND FACILITY TEST PROTOCOL

[Since this bid is opened to different renewable resources GPA is requiring bidders to provide their own test protocols for GPA's review and approval.]

APPENDIX J
INTERCONNECTION AGREEMENT
(TO BE PROVIDED UPON ITS EXECUTION)

APPENDIX K

ADDITIONAL TERMS REGARDING WEATHER HOURS AND DISPATCH DOWN

WEATHER HOURS

For each applicable period, Seller shall calculate (1) the expected production of the Facility using the historical Weather Data from "WeatherBank PGUM_2004-PRES_solar data" provided in bid Amendment 2 (the "Expected Historical Production") and (2) the expected production of the Facility using the actual Weather Data (the "Expected Actual Production"). Seller than then obtain the quotient, rounded to the fourth decimal place (the "Production Factor"), equal to the Expected Actual Production divided by the Expected Historical Production. If the Production Factor is greater than one (1), then no Weather Hours shall be deemed to have occurred. However, if the Production Factor is less than one (1), then Weather Hours shall be deemed to have occurred. The portion of any Deficiency Amount (as defined in the Agreement) attributable to such Weather Hours shall be the difference equal to (A) the aggregate Minimum Production amount for that period minus (B) the product of (x) the Production Factor and (y) the aggregate Minimum Production amount for that period. The Deficiency Amount due to weather shall not be penalized.

The Deficiency Amount due to weather shall be audited annually by an independent auditor to be selected and the cost shared by both Parties.

DISPATCH DOWN

Buyer shall pay Seller, on the date payment would otherwise be due in respect of the day in which any curtailment is initiated by GPA for reasons of Dispatch Down, an amount equal to the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to Buyer but for such Dispatch Down. The determination of the curtailed amount associated with any Dispatch Down shall be calculated as follows:

1) Identification of weather conditions for the period of Dispatch Down
   For any period the Facility was Dispatched Down, Seller shall document the Weather Data associated therewith. ("Weather Data" means solar irradiation, wind speed, and ambient temperatures.)

2) Curtailed amount calculation
   a. Seller shall use PVSyst energy simulation software or other software as agreed by the Parties to generate hypothetical generation amounts for the Dispatch Down period (curtailed amount MWh) by utilizing the Weather Data.

   b. In addition to "Annual Facility Test" (as described in Section 4.9 of this Agreement), GPA shall be entitled to check the accuracy of the equipment associated with the Weather Data once in each Contract Year as agreed with Seller.

APPENDIX L

RESOLUTIONS OF CONSOLIDATED COMMITTEE ON UTILITIES

Exhibit F

GPA Contract No. _____

RENEWABLE ENERGY
PURCHASE AGREEMENT

BETWEEN
GUAM POWER AUTHORITY
AND

[HANWHA ENERGY CORPORATION][1]

[1] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

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RENEWABLE ENERGY
PURCHASE AGREEMENT
BETWEEN
GUAM POWER AUTHORITY
AND
[HANWHA ENERGY CORPORATION][2]

THIS RENEWABLE ENERGY PURCHASE AGREEMENT (the "Agreement"), effective as of last date set forth on the signature page hereto (the "Effective Date"), is entered into by and between and Guam Power Authority, ("GPA" or "Buyer") and [Hanwha Energy Corporation] [3], a _____ ("Seller"). The purpose of this Agreement is to establish the terms and conditions under which Seller shall sell and GPA shall purchase Renewable Energy and associated Renewable Energy Credits, as defined herein. In this Agreement, Seller and GPA may be individually referred to as a "Party" or collectively as "Parties."

Recitals

WHEREAS, Seller desires to sell to GPA at the Delivery Point a portion of the Renewable Energy and associated RECs from the Facility and GPA desires to buy the same from the Seller at the Delivery Point.

WHEREAS, on the date hereof, Seller and GPA have entered into a Renewable Energy Purchase Agreement as to the remaining capacity of the Facility (the "Additional PPA").

Therefore, for good and valuable consideration, including, without limitation, the covenants and agreements of the Parties contained in this Agreement, the receipt and sufficiency of which consideration is acknowledged, the Parties agree as follows:

ARTICLE ONE: DEFINITIONS

The following definitions apply to this Agreement:

1.1 "Actual Renewable Energy" means the actual output of the Facility (expressed in MWhs), measured at the Delivery Point, including all Renewable Energy and all Stored Energy, over any Production Measurement Period. Actual Renewable Energy shall be measured by the Seller Metering Equipment, and adjusted as applicable in accordance with Section 7.4.

1.2 "Affiliate" means, with respect to any party, any other party (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such party. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.3 "Annual Facility Test" has the meaning set forth in Section 4.9.

1.4 "Annual Microgrid Payment" means, as to each Contract Year, the amount set forth in Appendix A.

1.5 "Appraisal Price" means the average of three (3) appraisals of the market value of the Facility at the end of the Delivery Term, delivered by three (3) independent appraisers qualified by experience and expertise to

[2] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

[3] Please note that it is expected that Hanwha Energy Corporation will establish a special-purpose entity to execute the PPA

determine the arm's length market value of the Facility. If the Parties do not agree on the independent appraisers then they shall be determined by arbitration in accordance with Section 12.9.

1.6 "Bankrupt" means with respect to any entity, such entity (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such valid petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due.

1.7 "Bid Security" or "Bid Bond" means the $150,000.00, which is the amount of the security provided by Seller in connection with its initial bid to GPA for the Project.

1.8 "Business Day" means any day except a Saturday, Sunday, a Federal Reserve Bank holiday or an official Guam holiday. A Business Day shall open at 8:00 a.m. and close at 5:00 p.m. local time for the relevant Party's principal place of business. The relevant Party, in each instance unless otherwise specified, shall be the Party by whom the Notice or payment or delivery is to be received.

1.9 "Buyout Payment" means, with respect to Seller's election not to re-build the Facility pursuant to Section 12.2, an amount equal to: Minimum Production x the number of Contract Years (or portion thereof) remaining in the Delivery Period x Incremental Price

1.10 "Change Event" has the meaning set forth in Section 4.16(c).

1.11 "Charging Energy" means Renewable Energy generated by the Facility and used to charge the Microgrid Unit as contemplated in Appendix C.

1.12 "Claiming Party" has the meaning set forth in Section 4.9.

1.13 "Claims" means all claims or actions, threatened or filed and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of an indemnity, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise.

1.14 "COD Extension" has the meaning set forth in Section 4.2(a).

1.15 "COD Extension Payment" has the meaning set forth in Section 4.2(a).

1.16 "Commercially Reasonable" or "Commercially Reasonable Efforts" means, with respect to any purchase, sale, decision, or other action made, attempted or taken by a Party, such efforts as a reasonably prudent business would undertake for the protection of its own interest under the conditions affecting such purchase, sale, decision or other action, consistent with Good Utility Practices, including, without limitation, electric system reliability and stability or other regulatory mandates relating to renewable energy portfolio requirements, the cost of such action (including whether such cost is reasonable), the amount of notice of the need to take a particular action, the duration and type of purchase or sale or other action, and the commercial environment in which such purchase, sale, decision or other action occurs. "Commercially Reasonable" or "Commercially Reasonable Efforts" shall be reviewed and determined based upon the facts and circumstances known, or which could have been known with the exercise of reasonable efforts, at the time that a sale, purchase, or other action is taken and shall not be based upon a retroactive review of what would have been optimal at such time.

1.17 "Commercial Operation" has the meaning set forth in Section 4.1.

1.18 "Commercial Operation Date" or "COD" means the date that Commercial Operation of the Project has been achieved in accordance with Section 4.1.

1.19 "Confidential Information" means all information, whether written or oral, that is disclosed or otherwise available in connection with this Agreement or the performance by either Party of any of its duties hereunder, except any information which: (i) at the time of disclosure or thereafter is generally available to the public (other than as a result of a disclosure by any Party in violation of this Agreement); (ii) was available to any Party on a non-confidential basis from a source other than the Party hereto providing the Confidential Information, provided that such source is not bound by a confidentiality agreement that protected the Confidential Information; or (iii) has been independently acquired or developed by any Party without violating any of its obligations under this Agreement.

1.20 "Contract Price" means the price in U.S. Dollars (unless otherwise provided for) rounded to the nearest $0.01, to be paid by GPA to Seller for the purchase of the Renewable Energy, as described in Appendix A.

1.21 "Contract Year" means the annual period, beginning on the Commercial Operation Date, and renewing thereafter on each anniversary of the Commercial Operation Date.

1.22 "Conventional Energy Resource" is an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy resources.

1.23 "Credit Rating" means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P, Moody's or any other rating agency agreed by the Parties.

1.24 "Cure Plan" has the meaning set forth in Section 4.7.

1.25 "Daily Delay Liquidated Damages" has the meaning set forth in Section 4.2(b).

1.26 "Defaulting Party" has the meaning set forth in Section 6.1.

1.27 "Deficiency Amount" has the meaning set forth in Section 4.8

1.28 "Delivery Period" means the period of delivery under this Agreement, commencing on the Commercial Operation Date and continuing for the Term, as such period may be extended in accordance with this Agreement.

1.29 "Delivery Point" means the point at which the Renewable Energy (including Stored Energy) will be delivered and received, as specified in Section 2.1 herein, or such other delivery point as may be agreed to by the Parties in writing.

1.30 "Development Security" means the security deposit during construction of the renewable project or facility prior to Commercial Operation Date. The Development Security shall be 50% of the total projected payment for the 1st contract year based on the contractor's 1st Contract Year energy rate and the guaranteed energy production. Refer to Section 9.1 for additional requirements.

1.31 "Dispatch Down" means any curtailment is initiated by GPA for reasons other than Force Majeure or Seller Event of Default.

1.32 "Early Termination Date" has the meaning set forth in Section 6.2.

1.33 "Effective Date" means the date first set forth above.

1.34 "Eligible Renewable Energy Resources" are applications of the following defined technologies that displace Conventional Energy Resources that would otherwise be used to provide electricity to GPA's customers: biogas electricity generator, biomass electricity generator, fuel cell that use only renewable fuels, geothermal

generator, hybrid wind and solar electric generator, landfill gas generator, solar electricity resources, wind generator and such other generally accepted renewable energy resources.

1.35 "Emergency" means any abnormal interconnection or system condition (including, without limitation, equipment or transmission limitations and constraints caused by thermal limits, stability, voltage, or loop flows) that Buyer determines in accordance with Good Utility Practices): (a) requires automatic or immediate manual operation to prevent or limit loss of Buyer's system or generation supply; (b) could adversely affect the reliability of the Buyer system or generation supply; (c) could adversely affect the reliability of any interconnected electric system; or (d) could otherwise pose a threat to public safety.

1.36 "End Date" has the meaning given in Section 12.1(b).

1.37 "Environmental Attributes" means environmental characteristics that are attributable to Renewable Energy, including credits; credits towards achieving local, national or international renewable portfolio standards; green tags; Renewable Energy Credits; greenhouse gas or emissions reductions, credits, offsets, allowances or benefits; actual SO2, NOx, CO2, CO, Carbon, VOC, PM_{10}, mercury, and other emissions avoided; and any and all other green energy or other environmental benefits associated with the generation of Renewable Energy (regardless of how any present or future law or regulation attributes or allocates such characteristics). Such Environmental Attributes shall be expressed in kWh or, as applicable in the case of emissions credits, in tonne equivalent or other allowance measurement. Environmental Attributes does not include Tax Benefits, or any energy, capacity, reliability, or other power attributes used by Seller to provide electricity services.

1.38 "EPC Contractor" means the contractor(s) under the engineering, procurement and construction contract for the Project.

1.39 "Equitable Defenses" means any bankruptcy, insolvency, reorganization and other laws affecting creditors' rights generally, and with regard to equitable remedies, the discretion of the court before which proceedings to obtain same may be pending.

1.40 "Event of Default" has the meaning set forth in Section 6.1.

1.41 "Excused Hours" means the hours in the applicable Production Measurement Period (i) in which Seller has declared Force Majeure, (ii) during any Planned Outage or Forced Outage but subject to an aggregate maximum of six hours per Contract Year; (ii) in which Seller has initiated a Dispatch Down or (iii) in which Seller's delivery to GPA of Renewable Energy is adversely affected as a result of failure by GPA to perform its obligations under this Agreement or the Interconnection Agreement or in which GPA does not accept delivery of Renewable Energy for any reason.

1.42 "Facility" means all of the following: the Project, as defined in Section 2.1 of this Agreement, the purpose of which is to produce Renewable Energy including the Microgrid Unit, Seller's Interconnection Facilities and all equipment and other tangible assets, land rights and contract rights reasonably necessary for the construction, operation, and maintenance of the electric generating facility that produces the Renewable Energy being sold under this Agreement.

1.43 "Facility Capacity" has the meaning set forth in Section 2.1.

1.44 "Facility Test" has the meaning set forth in Section 4.1(e).

1.45 "Facility Debt" means the obligations of Seller or its Affiliates to any Facility lender, tax equity investor or other financing party pursuant to the Financing Documents, including without limitation, principal of, premium and interest on indebtedness, reimbursement obligations regarding letters of credit, obligations under financing leases, fees, expenses or penalties, amounts due upon acceleration, prepayment or restructuring, swap or interest rate hedging obligations and breakage costs and any claims or interest due with respect to any of the foregoing. Facility Debt does not include trade debt or obligations incurred in the ordinary course of business.

1.46 "FERC" means the Federal Energy Regulatory Commission or any successor government agency.

1.47 “Financing Documents” means the loan and credit agreements, notes, bonds, indentures, security agreements, lease financing agreements, mortgages, deeds of trust, interest rate exchanges, swap agreements and other documents relating to the development, bridge, construction and/or permanent debt financing or a tax equity investment for the Facility (including any portfolio debt financing of which the Facility is included), including any credit enhancement, credit support, working capital financing, or refinancing documents, and any and all amendments, modifications, or supplements to the foregoing that may be entered into from time to time at the discretion of Seller and/or its Affiliates in connection with development, construction, ownership, leasing, operation or maintenance of the Facility.

1.48 “Forced Outage” means the shutdown or unavailability of the Facility, or a portion thereof other than as a Planned Outage, for reasons including, but not limited to, unanticipated equipment breakdown, human error, or Emergency conditions. A Forced Outage shall not include any Outage that may be deferred consistent with Good Utility Practices and without causing safety risk damage to equipment or additional costs.

1.49 “Forced Outage Notice” has the meaning set forth in Section 4.12(b).

1.50 Force Majeure” means an event or circumstance which prevents one Party from performing its obligations under this Transaction, which event or circumstance was not anticipated as of the date the Transaction was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. So long as the requirements of the preceding sentence are met, a “Force Majeure” event may include, but shall not be limited to, any act of God, an act or threatened act of the public enemy, blockade, accidents of navigation or breakdown or injury of vessels, accidents to harbors, docks, canals or other assistances to, or adjuncts of, shipping or navigation, perils of the sea, air crash, shipwreck, train wrecks or other failures or delays of transportation, nuclear emergency, radioactive contamination, ionizing radiation, release of hazardous waste or materials, sabotage, invasion, riot, civil disturbance or disobedience, flood, drought, military ordinances or archaeological discoveries at the Project site, change in applicable law or interpretation or application thereof, failure or delay by any Governmental Authority in issuing or granting any required clearance, approval, arrangement, or permit, an earthquake, storm, fire, flood, tidal wave, storm, wind, explosion or any similar cataclysmic occurrence, lightning, epidemic, war (imminent, declared or otherwise), terrorism or riot. Notwithstanding the foregoing, Force Majeure shall not be based on (i) the loss of Buyer's markets; (ii) Buyer's inability economically to use or resell the Renewable Energy purchased hereunder; (iii) the loss or failure of Seller's supply, including materials or equipment, unless such loss or failure is caused by a Force Majeure event (iv) the delay in or inability of Seller to obtain financing or economic hardship of any kind; or (v) Seller's ability to sell the Renewable Energy at a price greater than the Contract Price or Buyer’s ability to purchase the Renewable Energy at a price less than the Contract Price; or (vi) strike or other labor dispute. Neither Party may raise a claim of Force Majeure based in whole or in part on curtailment by a transmission provider unless (i) such Party has contracted for firm transmission with a transmission provider for the Renewable Energy to be delivered to or received at the Delivery Point and (ii) such curtailment is due to "force majeure" or "uncontrollable force" or a similar term as defined under the transmission provider's tariff.

1.51 “Force Majeure Extension” has the meaning set forth in Section 4.2(c).

1.52 “Good Utility Practices” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result of the lowest reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be generally accepted and consistently adhered to acceptable practices, methods, or acts.

1.53 “Governmental Authority” means any federal, territorial or local government body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

1.54 “Governmental Charges” has the meaning set forth in Section 10.2.

1.55 “GPA Delay” means any delay by GPA in performing an obligation under this Agreement or under the Interconnection Agreement which results in a delay to Seller achieving COD. A GPA Delay is not an Event of Default unless it is otherwise so designated in this Agreement.

1.56 “Guaranteed Output” has the meaning given in Section 4.8.

1.57 “Incremental Price” means, at the time of its calculation, the LEAC Rate minus the Contract Price, provided, however, if the LEAC Rate is less than the Contract Price then the Incremental Price shall be deemed to be zero. Sample calculations of the Incremental Price are shown in Schedule III to Appendix K.

1.58 “Independent Engineer” shall mean one of the engineering firms set forth in Appendix D hereto, and any other independent engineer or engineering firm, nationally recognized in the United States and having knowledge and expertise in the United States generation industry (including specifically the design and construction of utility scale solar photovoltaic power projects), and which is mutually agreed to by the Parties.

1.59 “Interconnection Agreement” means the agreement for interconnection service relating to the Facility between GPA and Seller, executed and delivered as of the Effective Date in the form attached hereto as Appendix J.

1.60 “Interest Rate” means, for any date, the lesser of (a) the per annum rate of interest equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law.

1.61 “kWh” means kilowatt hour.

1.62 “LEAC Rate” means the “Fuel Recovery Charge” (expressed in US$/MWh) as set forth in GPA’s most recent approved tariff in effect as of any date of determination of the LEAC Rate under this Agreement.

1.63 “Letter(s) of Credit” means one or more irrevocable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in substantially the form set forth in Appendix [F-1] hereto; provided, however that such form may be modified by the issuing bank as long as such modifications are acceptable to the beneficiary in its sole discretion. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.64 “Merger Event” means, with respect to a Party, that such Party consolidates or amalgamates with, or merges into or with, or transfers substantially all of its assets to another entity and (i) the resulting entity fails to assume all of the obligations of such Party hereunder or (ii) the benefits of any credit support provided pursuant to this Agreement fail to extend to the performance by such resulting, surviving or transferee entity of its obligations hereunder unless such credit support is replaced by the resulting, surviving or transferee entity in accordance with this Agreement.

1.65 “Minimum Production” has the meaning set forth in Section 4.8.

1.66 “Month” means a calendar Month. The term “Monthly” shall have a meaning correlative to a Month.

1.67 “Moody's” means Moody's Investor Services, Inc. or its successor.

1.68 “MW” or “MWh” means megawatt or megawatt hour, in each case rounded to the nearest whole MW or MWh.

1.69 “NAR” means the North American Renewables Registry.

1.70 “NAR Operating Procedures” means any and all guidelines, procedures, requirements and obligations established by the NAR, including the terms of use, operating procedures, and fee schedules, as such may be amended from time to time.

1.71 “Non-Defaulting Party” has the meaning set forth in Section 6.

1.72 "Notice” has the meaning set forth in Section 12.7.

1.73 “Outage” means the period during which the Facility or a portion thereof is out of service.

1.74 “Outside Commercial Operation Date” has the meaning set forth in Section 4.2(b).

1.75 “Payment and Performance Bond” means one or more payment and performance bonds issued by an insurance company or other institution having an investment grade Credit Rating from S&P, Moody’s or Fitch, in substantially the form set forth in Appendix [F-2] hereto; provided, however that such form may be modified by the issuing entity as long as such modifications are acceptable to the beneficiary in its sole discretion.

1.76 “Planned Outage” means any Outage that is not a Forced Outage, and refers to the shutdown or unavailability of the Facility or a portion thereof for inspection or maintenance in accordance with an advance schedule.

1.77 “Production Measurement Period” has the meaning set forth in Section 4.8.

1.78 “Project” has the meaning set forth in Section 2.1.

1.79 “QRE” means the Qualified Reporting Entity as such term is defined in the NAR Operating Procedures.

1.80 “Quantity” means the actual quantity of Renewable Energy (including Stored Energy) sold by Seller and purchased by and delivered to GPA pursuant to this Agreement. The Quantity shall be measured based on the metered data from the Seller Metering Equipment at the Delivery Point.

1.81 “Renewable Energy” means energy derived from a Renewable Energy Resource.

1.82 “Renewable Energy Credit” or “REC” means the unit created to track kWh derived from an Eligible Renewable Energy Resource or kWh equivalent of Conventional Energy Resources displaced by distributed renewable energy resources if and to the extent recognized under applicable law.

1.83 “Renewable Energy Resource” means an energy resource that is replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel.

1.84 “Replacement Price” means the price at which GPA, acting in a Commercially Reasonable Manner, purchases electricity in place of Renewable Energy.

1.85 “S&P” means the Standard & Poor's Rating Group (a division of McGraw-Hill, Inc.) or its successor.

1.86 “SCADA” means “supervisory control and data acquisition” and shall refer to that category of software application program that can be used to gather data from the Facility remotely in real time in order to monitor Facility equipment and conditions.

1.87 “Schedule,” "Scheduled” or "Scheduling” means the actions of Seller, Buyer and/or their designated representatives, of notifying, requesting and confirming to each other the quantity and type of Renewable Energy (including Stored Energy) to be delivered on any given day or days during the Delivery Period at a specified Delivery Point.

1.88 "Scheduled Commercial Operation Date" has the meaning set forth in Section 4.2(a).

1.89 "Seller Failure" has the meaning set forth in Section 5.1.

1.90 "Seller Failure Damages" has the meaning set forth in Section 5.1.

1.91 "Seller's Interconnection Facilities" means Seller's equipment as specified in the Interconnection Agreement.

1.92 "Seller Metering Equipment" means all metering equipment and data processing equipment used to measure the Quantity delivered to the Delivery Point.

1.93 "Shortfall Damages" has the meaning set forth in Section 4.8.

1.94 "Sponsor Interest" means an upstream ownership interest held by an entity that is an Affiliate of the Seller as of the Effective Date which represents a partial indirect ownership interest in Seller and which is established in connection with a tax equity financing.

1.95 "Microgrid Unit" means the energy storage unit to be installed by Seller as part of the Facility, as contemplated in Appendix C.

1.96 "Stored Energy" means Charging Energy stored in the Microgrid Unit which is later delivered to the Delivery Point as contemplated in Appendix C.

1.97 "Tax Benefits" means any and all tax benefits arising from the ownership and operation of the Facility, including without limitation Renewable Energy related tax credits or other benefits established under Section 45 and Section 48 of the Internal Revenue Code, as amended, or any similar or successor provision of the Internal Revenue Code, or any other applicable tax law, regulation, or code.

1.98 "Tax Equity Investor Interest" means an upstream ownership interest held by a financing party (including a financial institution, insurance company or other third party not affiliated with the Seller except based on the applicable tax equity investment or other similar investments or financings) as of the Effective Date which represents a partial indirect ownership interest in Seller and which is established in connection with a tax equity financing.

1.99 "Term" has the meaning set forth in Section 12.1.

1.100 "Termination Damages" has the meaning set forth in Section 4.4.

1.101 "Test Energy" means non-firm Renewable Energy generated prior to the Commercial Operation Date, subject to immediate interruption, fluctuations or reduction/increase with no prior Notice, due to unit performance.

1.102 "Transaction" means the transaction relating to the purchase or sale of Renewable Energy as contemplated in this Agreement.

1.103 "Unit Contingent" means that the Renewable Energy (excluding Charging Energy but including Stored Energy) is intended to be supplied from the Facility as it is produced.

1.104 "Weather Hours" means the total hours in any Production Measurement Period, as applicable, in which the Facility is derated as a result of cumulative weather conditions which are outside historical average conditions for any applicable Month during the Production Measurement Period in which the deration occurs, calculated in accordance with Appendix K.

ARTICLE TWO: COMMERCIAL TERMS

2.1 Commercial Terms.

The following commercial terms apply to the Transaction that is the subject of this Agreement, each as more fully described herein:

Buyer: GPA	**Seller:** Hanwha Energy Corporation
Project: Hanwha Project B	
Delivery Point: The "Point of Interconnection" as defined in the Interconnection Agreement	
Guaranteed Annual Production (MWhs): As set forth in Appendix A	**Estimated Annual Production: (MWhs):** NOT APPLICABLE
Guaranteed Availability (%): NOT APPLICABLE	**Guaranteed Capacity (MWs):** NOT APPLICABLE
Delivery Period: Twenty-five (25) years from the Commercial Operation Date	**Contract Price ($/MWh):** See Appendix A
Renewable Energy Type: Unit Contingent (solar) and associated RECs	**Development Security:** As contemplated in Section 9.1
Day(s) of week: Monday through Sunday, including NERC holidays	**Hours:** Hour Ending 0100 – Hour Ending 2400, Monday through Sunday Chamorro Standard Time (CHST), Guam time
Commercial Operation Date: No later than 36 months after Effective Date.	
Test Energy: Seller agrees to sell and Buyer agrees to purchase all Test Energy from the Facility. The test period shall be up to six (6) months. . The price of such Test Energy for the first thirty days shall be the current LEAC Rate. The price thereafter shall be the Year 1 Contract Price set out in Appendix A. Test Energy shall be delivered in accordance with the Scheduling provisions contained herein. Both Parties agree that Seller will use Commercially Reasonable Efforts to pre-schedule the Test Energy, but Buyer shall nonetheless be obligated to accept all Test Energy up to 22.5 MW per hour of Test Energy for the period set forth above. Seller shall provide to Buyer all RECs associated with the Test Energy sold hereunder in accordance with Section 4.16.	

ARTICLE THREE: REPRESENTATIONS AND WARRANTIES

3.1 Mutual Representations and Warranties.

On the Effective Date of this Agreement, each Party represents and warrants to the other Party that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(b) It has all regulatory authorizations necessary for it to legally perform its obligations under this Agreement (other than permits or regulatory authorizations to be obtained by Seller for the construction, operation or maintenance of the Facility, which Seller reasonably anticipates it will be able to obtain in due course);

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it, and the Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, subject to any Equitable Defenses.

(d) It is not Bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result in it being or becoming Bankrupt;

(e) There is not pending or, to its knowledge, threatened against it or any of its Affiliates any legal proceedings that could materially adversely affect its ability to perform its obligations under this Agreement;

(f) No Event of Default or potential Event of Default with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement; and

(g) It is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement;

3.2 Seller Representations and Warranties.

Seller affirmatively represents and warrants to GPA that:

(a) On the Effective Date of this Agreement, or in due course as required in accordance with the Financing Arrangement Deadline (as may be extended as provided in Section 4.3), Seller has (or reasonably expects to have in due course), good defensible title, or valid and effective leasehold rights in the case of leased property, to the Facility, free and clear of all liens, charges, claims, pledges, security interests, equities and encumbrances of any nature whatsoever other than the lien of current taxes not delinquent, liens, charges, claims, pledges, security, interests, equities and encumbrances relating to Facility Debt as provided for herein, or liens that in the aggregate do not materially detract from or interfere with the ability of Seller to deliver the Quantity of the Renewable Energy;

(b) All acts necessary to the valid execution, delivery and performance of this Agreement by Seller have or will be taken and performed as required under Seller's ordinances, bylaws, or other regulations including, but not limited to (i) the valid authority of the person

executing this Agreement to bind Seller and (ii) the Term of this Agreement does not extend beyond any limitation applicable to Seller imposed by relevant governing documents and applicable law; and

(c) Seller will have at the time of sale, title to and ownership of the RECs sold hereunder.

3.3 GPA Representations and Warranties.

GPA represents and warrants that:

(a) The Commission on Consolidated Utilities has made all certifications required by the Guam Public Utilities Commission and the Guam legislature in order for the valid execution, delivery and performance of this Agreement by GPA copies of which are attached hereto as Appendix L.

(b) Each of the PPA Approval and the ICA Approval is final, non-appealable and not subject to rehearing or other proceedings challenging its validity or enforceability.

(c) No authorizations, approvals or consents of any governmental or regulatory authority or agency or any other person, and no filings or registrations with any governmental authority or agency, are necessary for the execution, delivery or performance by GPA of this Agreement, or for the validity or enforceability thereof, except for any authorizations, approvals, consents or filings which have been made or obtained prior to the date hereof and are in full force and effect and are conclusive, binding and final.

(d) During the entire Term of the Agreement, all terms and conditions set forth in this Agreement shall be valid and enforceable against GPA.

(e) All legal, statutory and regulatory requirements and conditions necessary for the validity and enforceability of this Agreement and the obligations of GPA hereunder to purchase Renewable Energy, including, without limitation, the conditions and requirements as set forth in Title 12 of the Guam Code Annotated, Section 8306, have been satisfied, and at the time of the execution of the Agreement GPA further represents and warrants specifically as to the following: **NOTE TO GPA: GPA IS TO ENSURE THE RESOLUTIONS OF THE CCU ATTEST TO THE MATTERS SET FORTH BELOW**.

(i) Pursuant to the provisions of Public Law 30-66 (as codified in Title 12 of the Guam Code Annotated, Section 8104(n)), GPA is authorized to enter into this Agreement, together with any other agreement to be entered into by GPA and Seller as provided herein, and perform all the obligations imposed upon GPA as set forth herein, including, without limitation, the obligation to purchase Renewable Energy and pay all amounts due and owing to the Seller under the terms of this Agreement, and that no separate and specific appropriation or approval by *Liheslaturan Guahan* is required for such purpose.

(ii) This Agreement and the purchase of Renewable Energy by GPA at the time of the execution of the Agreement pursuant to the terms herein will not result in (A) costs to GPA which exceed the average cost of producing power under the islandwide power system owned and operated by GPA not inclusive of energy production from any backup diesel generators or other renewable energy sources, and (B) increased expenses and costs for GPA.

(iii) As set forth in the resolutions attached hereto as Appendix L, the Consolidated Commission on Utilities has certified that this Agreement is consistent with and does not violate any and all bond covenants applicable to and imposed upon

GPA and that the price to be paid by GPA for Renewable Energy as provided herein does not exceed GPA's actual current avoided cost.

GPA is not a party to a pooling agreement or any other agreement with the United States Department of Navy or any other federal agency, department or instrumentality ("Federal Government) which requires GPA to notify or obtain the approval of the Federal Government of this Agreement.

(iv) Any and all Renewable Energy to be purchased by GPA pursuant to the terms of this Agreement constitutes electrical power needed and required by GPA in connection with the operation and stability of the islandwide power system and to meet renewable energy portfolio standards which GPA is mandated to achieve and satisfy by law including without limitation, the mandates as set forth in Public Law 29-062 as codified in Title 12 of the Guam Code Annotated, Section 8311.

ARTICLE FOUR: PERFORMANCE REQUIREMENTS

4.1 Commercial Operation.

Seller shall achieve Commercial Operation of the Project no later than the Scheduled Commercial Operation Date except to the extent such date is extended pursuant to Section 4.2, in which case Commercial Operation shall occur on or prior to the Outside Commercial Operation Date. Commercial Operation shall be achieved as of the date on which each of the following conditions precedent has been satisfied or waived in writing by the Parties, as applicable ("Commercial Operation"):

(a) Seller shall have obtained all governmental and regulatory authorizations, including any applicable permits, required for the construction, ownership, operation and maintenance of the Project and for the sale of the Renewable Energy therefrom;

(b) Seller and Buyer shall have entered into the Interconnection Agreement;

(c) Seller shall have established SCADA information and real time data feed to enable GPA to view parameters or data points that relate to Renewable Energy data and other actual resource data for the Facility;

(d) The Microgrid Unit shall be capable of charging and discharging Renewable Energy;

(e) The Project shall in all other respects be capable of delivering the Renewable Energy to GPA at the Delivery Point;

(f) Seller shall perform at its cost a capacity test in accordance with the protocol outlined in Appendix I to determine the capacity of the Project ("Facility Test"). GPA shall receive the entire Renewable Energy from the Facility during such test. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

GPA shall use all available Commercially Reasonable Efforts to assist Seller in achieving the Scheduled Commercial Operation Date. Seller shall present to GPA a certificate executed by its duly executed officer, and by an Independent Engineer as to items (c), (d) and (e), verifying that each of the foregoing conditions has been satisfied or waived in writing by the Parties and Commercial Operation shall be deemed to have occurred upon the delivery of such certificate to GPA unless GPA objects to such certificate within ten (10) Business Days of delivery thereof and such objections are either agreed by Seller or resolved in favor of GPA pursuant to Section 12.9 hereof. Upon any acceptance or deemed acceptance of Seller's certificate by GPA, all conditions, set forth above shall no longer be a condition precedent to Commercial Operation of the Project. If the Commercial Operation Date does not occur on or before the Outside Commercial Operation Date, as such date may be extended in accordance with Section 4.2 herein; either Party shall have the right to terminate the Agreement upon written Notice to the other Party. In the event of such termination by either Party, GPA shall be entitled to Termination Damages set forth in Section 4.4; provided, however, that in accordance with Section 4.2(c), GPA shall not be entitled to such Termination Damages if the Outside Commercial Operation Date is not achieved due to a Force Majeure event or a GPA Delay.

4.2 Extension of Commercial Operation Date.

(a) Planned Extension. The Parties agree that the Commercial Operation Date is expected to be No later than 36 months after Effective Date. (as extended pursuant to the terms of this Agreement, the "Scheduled Commercial Operation Date"). Seller may elect to extend the Commercial Operation Date beyond such date (the "COD Extension") by paying GPA for such extension (the "COD Extension Payment"). The COD Extension Payment shall be in the amount of fifty percent (50%) of the Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year per day for

each day (or portion thereof) after but not including the date of the COD Extension until, but not including, the date on which the Project actually achieves Commercial Operation]. To extend the Commercial Operation Date, Seller must, as early as reasonably possible, but in no event later than fourteen (14) days prior to the first day of the proposed extension, provide GPA with Notice of its election to extend the Commercial Operation Date along with an estimate of the duration of the extension. The COD Extension Payment is in addition to and not to be considered part of the Development Security, and shall be paid to GPA at the time of the Notice hereunder. Seller's request to extend the Commercial Operation Date shall not be valid unless proper Notice and payment are timely received by GPA. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein, and GPA shall not have the right to terminate the Agreement or to receive Termination Damages with respect to such extension so long as Seller has provided the Notice, estimation and payment as provided in this Section 4.2(a). Seller may further extend the Commercial Operation Date beyond the original COD Extension, subject to the foregoing Notice, estimation and payment terms applicable to the original COD Extension.

Seller shall be entitled to a prompt refund, without interest, of any portion of the COD Extension Payment held by GPA which exceeds the amount required to cover the number of days by which the Commercial Operation Date was actually extended. In no event may Seller extend the Commercial Operation Date by more than ninety (90) days through the payment of the COD Extension Payment, except as provided in Section 4.2(b). In the event that the Project does not achieve Commercial Operation on or before the expiration of any COD Extension period as provided herein, either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights pursuant to Sections 4.2(b) or (c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(b) Unplanned Extension/Additional Planned Extension. In the event that (i) the Project does not achieve Commercial Operation by the Scheduled Commercial Operation Date and Seller fails to provide sufficient Notice and/or payment in order to extend the Commercial Operation Date as provided in Section 4.2(a), or (ii) the Commercial Operation Date shall not have occurred within the ninety (90) day planned extension period provided under Section 4.2(a), then Seller may further extend the Commercial Operation Date by paying GPA damages ("Daily Delay Liquidated Damages"). The Daily Delay Liquidated Damages shall be in the amount of one hundred percent (100%) of the Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year) per day for each day (or portion thereof) after but not including the earlier of the dates set forth in sub-clauses (i) or (ii) above, or until, but not including, the date on which the Project actually achieves Commercial Operation, and shall be payable within ten (10) Business Days following receipt of an invoice from GPA for any such Daily Delay Liquidated Damages. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein and GPA shall not have the right to terminate the Agreement with respect to such extension or to receive Termination Damages so long as Seller has extended the Commercial Operation Date and pays the Daily Delay Liquidated Damages as provided in this Section 4.2(b).

In no event may the Commercial Operation Date be extended more than one hundred and eighty (180) days through the payment of Daily Delay Liquidated Damages, without the express written consent of GPA. In the event that the Project does not achieve Commercial Operation on or before three hundred and sixty-five (365) days from the Scheduled Commercial Operation Date (as extended pursuant to this Agreement, the "Outside Commercial Operation Date"), then either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights

pursuant to Section 4.2(c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(c) Additional Extension. The Scheduled Commercial Operation Date and the Outside Commercial Operation Date shall also be extended, without payment or other penalty, on a day-for-day basis for each day of delay caused by reason of Force Majeure (a "Force Majeure Extension") or by reason of GPA Delay. Any Force Majeure Extension or GPA Delay shall also extend the period of any planned or unplanned extensions pursuant to Sections 4.2(a) or (b) on a day-for-day basis for each day during the Force Majeure Extension or GPA Delay, and Seller shall not be required to pay any COD Extension Payments or Daily Delay Liquidated Damages, as applicable, for any days during the Force Majeure Extension or GPA Delay. Notwithstanding any other provision in this Agreement, if, due solely to a Force Majeure Extension and/or a GPA Delay, the Project does not achieve Commercial Operation on or before the Outside Commercial Operation Date, then the Parties by mutual agreement may terminate this Agreement without penalty or further obligation to either Party, and after one hundred and eighty 180 days following the Outside Commercial Operation Date, either Party may unilaterally terminate this Agreement without penalty or further obligation to either Party. For the sake of clarityin the event of any such termination, GPA shall not be entitled to Termination Damages.

4.3 Financing Arrangement Deadline.

Seller shall make Commercially Reasonable Efforts to secure a financing sufficient for the successful completion of the Project as and when required and procure a preliminary agreement customary for such financing (such as an engagement letter) no later than one (1) year after the Effective Date as extended day-for-day for any Force Majeure Extension or GPA Delay (the "Financing Arrangement Deadline"). After the execution of the preliminary agreement, Seller shall provide GPA with a copy of such agreement within three (3) Business Days. In the event that Seller fails to procure the execution of a preliminary agreement by the Financing Arrangement Deadline, GPA may terminate the Agreement and shall be entitled to Termination Damages set forth in Section 4.4 as its sole and exclusive remedy.

4.4 Termination Damages.

Prior to the Commercial Operation Date, Seller may terminate this Agreement at any time for its convenience. GPA shall be entitled to termination damages, payable solely from the Bid Security or the Development Security established in Section 9.1 ("Termination Damages"), in the amounts set forth in the table below, if: (a) subject to the last sentence of this Section 4.4, Seller terminates the Agreement prior to the Commercial Operation Date for any reason other than: (i) a Force Majeure event or (ii) an Event of Default by GPA; [(b) GPA terminates the Agreement as a result of Seller failing to meet any Financing Arrangement Deadline after the passage of a grace period of thirty (30) days (as extended day-for-day for any Force Majeure Extension or GPA Delay);] and/or (c) GPA terminates the Agreement as a result of Seller failing to achieve the Commercial Operation Date on or prior to the Scheduled Commercial Operation Date, as the same may have been extended pursuant to Section 4.2. The Termination Damages are designed to help compensate GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements and do not constitute a penalty payment. Accordingly, Seller shall pay to GPA, from the Development Security, Termination Damages in the following amounts, based upon when the termination occurs:

Prior to Posting Date of Development Security pursuant to Section 9.1:	$0.00

[Up to Financing Arrangement Deadline]	100% of the Bid Security
[Up to six months following Financing Arrangement Deadline]	50% of Development Security
[From six months to twelve months following Financing Arrangement Deadline]	75% of Development Security
[From twelve months following Financing Arrangement Deadline]	100% of Development Security

No later than five (5) Business Days following the Financing Arrangement Deadline, GPA shall return the Bid Security to Seller, to the extent GPA has not validly claimed the Bid Security in respect of Termination Damages on or prior to such date. Notwithstanding the foregoing, in the event that Seller terminates this Agreement for any reason prior to the posting date for the Development Security as set forth in Section 9.1 herein, then Seller shall owe GPA no Termination Damages and such termination shall be without penalty to Seller.

4.5 Seller's and Buyer's Obligations.

Subject to Appendix H and Appendix C, Seller shall sell and deliver, or cause to be delivered, and GPA shall purchase and receive, or cause to be received, all Renewable Energy generated by the Facility (excluding Charging Energy but including Stored Energy when delivered, in each case, as set forth in Appendix C), at the Delivery Point, and GPA shall pay Seller the Contract Price for such Quantity of Renewable Energy (including Stored Energy) as measured by the Seller's Metering Equipment at the Delivery Point; provided that for quantities of Renewable Energy (including Stored Energy) in excess of the Estimated Annual Renewable Energy Amount, as shown in the third column of Appendix A, which are not make-up quantities for delivery deficiencies in prior Production Measurement Periods, the price payable by GPA shall be the lower of the Contract Price and the LEAC Rate.

For Seller's failure to deliver Renewable Energy as required hereunder, GPA's remedies shall be as set forth in Section 4.8. For GPA's failure to purchase and receive Renewable Energy (including Stored Energy) as required hereunder, Seller shall in addition have all other remedies available at law or in equity. Seller shall be responsible for any costs or charges imposed on or associated with the Renewable Energy (including Stored Energy) or its delivery up to the Delivery Point. GPA shall be responsible for any costs or charges imposed on or associated with Renewable Energy (including Stored Energy) or its receipt at and from the Delivery Point. Title to and risk of loss of Renewable Energy (including Stored Energy) from the Facility delivered to the Delivery Point shall transfer to GPA at the Delivery Point. Seller warrants that it will deliver to Buyer Renewable Energy (including Stored Energy) free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point.

4.6 Operation of Facility.

Seller shall operate and maintain the Facility in accordance with Good Utility Practices and in accordance with the Agreed Ramp Rate as set forth in Appendix C.

4.7 Not Used.

4.8 Minimum Production.

The Facility is expected to produce a minimum number of MWhs of Renewable Energy (including Stored Energy) each Contract Year as set forth in the third column of Appendix A (such annual MWh production is the "Minimum Production"). Seller during the Delivery Period shall (i) during any Contract Year, deliver to GPA at least ninety percent (90%) of the Minimum Production (which calculated amounts are set forth in the fourth column

of Appendix A), and (ii) for any consecutive six (6) Contract Years during the Delivery Period, deliver to GPA at least ninety-five percent (95%) of the aggregate Minimum Production during such period (which shall include make-up amounts generated and delivered in any years in excess of one hundred percent (100%) of the Minimum Production for such year) (any such time period a "Production Measurement Period" and each such guaranteed amount of delivered Renewable Energy during any Production Measurement Period, the "Guaranteed Output"). Any shortfall of Renewable Energy (expressed in MWhs/year) from the applicable Guaranteed Output during a Production Measurement Period shall be deemed a "Deficiency Amount." For the avoidance of doubt, (i) Stored Energy delivered to the Delivery Point shall count towards Seller's achievement of the Minimum Production during each Production Measurement Period, and (ii) Charging Energy shall not be delivered by Seller and shall not count towards any Deficiency Amount as it is used to charge the Microgrid Unit as contemplated in Appendix C.

GPA shall be entitled to receive damages for any Deficiency Amount ("Shortfall Damages") which are not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below). Shortfall Damages shall be calculated as follows on an annual basis at the end of each Contract Year (and [in accordance with the example set forth in Schedule I to Appendix K].):

Shortfall Damages = Deficiency Amount x Incremental Price.

For purposes of clarity, if Actual Renewable Energy (including Stored Energy) for any given Contract Year is less than the Minimum Production for that year (even if due to Excused Hours or Weather Hours), there shall be a "Shortfall," and Seller shall be entitled to deliver to GPA Renewable Energy in the amount of such Shortfall in subsequent time periods (even if such make-up amounts are in excess of the Minimum Production for such subsequent year), and this Agreement may be extended as necessary for a period of up to six (6) months to allow Seller to make up any Shortfalls; however, there shall be no Shortfall Damages owing to GPA for such individual Contract Year unless such Actual Renewable Energy is less than the Guaranteed Output for the applicable Production Measurement Period, and such shortfall is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below).

In the event Shortfall Damages are due for a Production Measurement Period of six (6) rolling Contract Years, then such Shortfall Damages shall be reduced by the amount of any Shortfall Damages paid for any Contract Year during such six (6) year Production Measurement Period. Seller's payment of Shortfall Damages shall be Seller's sole liability and obligation, and GPA's sole right and remedy, with respect to Seller's failure to deliver the Guaranteed Output during any Production Measurement Period.

To the extent any Deficiency Amount is due to Weather Hours, Seller's sole liability and GPA's sole remedy shall be to deliver thereafter Renewable Energy equal to such Deficiency Amount attributable to Weather Hours, calculated in accordance with Appendix K (which includes a sample calculation for a hypothetical Production Measurement Period). If any portion of a Deficiency Amount due to Weather Hours is not made up in the five (5) Contract Years beginning in the first Contract Year following the Contract Year in which the Weather Hours Deficiency Amount occurred, then Seller shall pay Shortfall Damages for the remaining Deficiency Amount. Notwithstanding the foregoing, with respect to any Deficiency Amount that is due to Weather Hours, Seller shall have the option, at any time prior to the expiration of the five (5) Contract Year make-up period, to pay any remaining associated Shortfall Damages in their entirety. If the Deficiency Amount arising as a result of Weather Hours occurs in the last five (5) years of the Delivery Period, then unless Seller exercises its option to pay the Deficiency Amount early, the Delivery Period shall be extended as necessary, for a period of up to six (6) months, to achieve a make-up period of five (5) Contract Years as described above. The Contract Price for such Renewable Energy shall be the Contract Price in effect in the Contract Year in which the Deficiency Amount due to Weather Hours accrued.

Seller shall be entitled to sell, and GPA shall purchase, quantities of Renewable Energy for which Shortfall Damages are paid hereunder, during any remaining Production Measurement Period during the Delivery Period. The price therefore shall be the Contract Price in effect at the time the Shortfall Damages accrued. During any Contract Year, all Renewable Energy delivered by Seller to GPA in excess of the Minimum Production shall be credited against makeup of any outstanding Deficiency Amounts, with oldest Deficiency Amounts made up first.

To the extent any Deficiency Amount is due to Excused Hours, Seller shall be excused from any liability with respect thereto.

Notwithstanding the foregoing, in the event that the Delivery Point is unavailable for any reason other than due to GPA's electric system, Seller's obligation to supply and sell, and GPA's obligation to accept and purchase, Renewable Energy shall be limited to such Renewable Energy that is actually deliverable from the Facility to the Delivery Point during such period except this paragraph shall not apply in the case of Excused Hours or an Event of Default by either Party.

4.9 Facility Testing.

In addition to the Facility Test referenced in Section 4.1(e), the capacity of the Facility shall be tested during each Contract Year during the Delivery Period (the "Annual Facility Test"). Seller shall notify GPA of the specific date on which it intends to conduct the Annual Facility Test at least ten (10) Business Days in advance and shall permit GPA to be present at such test. GPA shall have the right to receive copies of the results of the Annual Facility Test, which shall be conducted in accordance with the protocol set forth in Appendix I. Any dispute regarding the results of the Annual Facility Test shall be resolved as set forth in Section 12.9 of this Agreement. GPA shall receive, in accordance with Section 4.5, the entire Renewable Energy from the Facility during any Annual Facility Test or re-test. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

4.10 Scheduling.

Seller agrees to supply at the Delivery Point all Renewable Energy produced by the Project, net of Renewable Energy self-generated and consumed at the Facility, and net of any generation losses prior to the Delivery Point, up to the Facility Capacity, in accordance with the scheduling and coordination procedures set out in Appendix H. GPA agrees to take at the Delivery Point all Renewable Energy tendered by Seller in accordance with the foregoing sentence. The Schedules and estimates provided pursuant to this Section 4.10 shall be made by Seller in good faith and based on information available to it at such time, but in no event shall such Schedules be binding on Seller nor shall Seller be liable for any inaccuracies in such Schedules.

4.11 Force Majeure.

To the extent either Party is prevented by Force Majeure from carrying out, in whole or part, its obligations under this Transaction and such Party (the "Claiming Party") gives Notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party shall be excused from the performance of its obligations with respect to such Transaction (other than the obligation to make payments then due or becoming due hereunder). The Claiming Party shall remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure.

4.12 Facility Outages and Maintenance Scheduling.

(a) Planned Outages. Seller shall provide written Notice to GPA prior to conducting any Planned Outages of the Facility. Within ninety (90) days prior to the Commercial Operation Date, as the same may be extended in accordance with the provisions of Section 4.2, and on or before the first day of each subsequent Contract Year, Seller shall provide GPA with a schedule of such proposed Planned Outages. The proposed Planned Outages schedule shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output of the Facility as a result of the Outage.

GPA shall promptly review Seller's proposed schedule and may request modifications within thirty (30) days of GPA's receipt of such schedule. Changes to the schedule may

be requested by either Party and each Party shall make Commercially Reasonable Efforts to accommodate such changes, provided further that Seller shall have no obligation to agree to GPA's proposed modifications or revisions to any Planned Outage schedule.

Notwithstanding any of the foregoing, Seller shall not commence a Planned Outage that is expected to result in an Outage of ten percent (10%) or more of the Facility without notifying GPA of the Planned Outage at least five (5) Business Days prior to the start of such Planned Outage.

(b) Forced Outages. In the event of any Forced Outage, Seller shall promptly notify GPA of the same. Seller shall immediately notify GPA verbally and shall then, within twenty-four (24) hours thereafter, provide written Notice to GPA (the "Forced Outage Notice"). The Forced Outage Notice shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output of the Facility as a result of the Outage. Seller shall return the Facility to service as soon as possible, consistent with Good Utility Practices, after the Forced Outage ceases to exist.

(c) GPA Parts Inventory. To the extent GPA maintains an inventory of parts or components that are used or useful in the Facility and provided it can prudently do so under its own ordinary course operating practices and restrictions, GPA shall cooperate with Seller in a commercially reasonable manner by making such parts or components available to Seller at its request during the period of time Seller is obtaining replacement parts or components for the Facility in order to maximize output of Renewable Energy. If Seller obtains a replacement part or component from GPA, it shall at GPA's option either replace such part or component with the new part or component ordered by Seller or return the borrowed part or component to GPA at such time as Seller obtains the replacement. Seller shall bear the installation, transportation and labor charges relating to GPA's replacement parts or components, and if the parts or components are returned to GPA then Seller shall reimburse GPA for any damage to such parts or components while in Seller's possession.

4.13 Operating Status Reports.

From the Effective Date of this Agreement, through the date of Commercial Operation, Seller shall provide GPA with Monthly reports regarding material data pertaining to the operation of the Facility. The operations data is generally identified as performance, Outage, and risk data and shall be sent electronically to GPA using a reasonably acceptable format provided by GPA. The operations data report format may be modified by agreement of the Parties from time-to-time during the Term of this Agreement.

4.14 Resource Quality Reporting: Forecasting.

Seller shall provide to GPA at its request copies of non-proprietary resource quality data that could reasonably be expected to affect, in any material manner, the operation and/or productivity of the Facility, whether produced, compiled or otherwise generated by Seller or any third party in a Commercially Reasonable manner, so that GPA can evaluate the expected performance of the Facility. Seller shall provide such data as it is produced or otherwise made available to Seller. Upon Commercial Operation of the Facility, to the extent generated or procured by Seller, Seller shall also provide to GPA Monthly and day-ahead forecasting information for the Facility. Such information shall be in a format agreed to by the Parties and include, among other things: Seller's forecasts for the performance of the Facility based on Facility specifications, weather-based forecasting, and weather-related studies. Such information, which will be used by GPA solely for evaluation, Scheduling, and other purposes related to this Agreement, shall be provided as available. In no event shall the data and/or information provided to GPA pursuant to this Section 4.14 be binding upon Seller, nor shall Seller be liable for any penalties, charges or other damages based on the inaccuracy of such data or information.

4.15 Permit Violations.

Seller shall at all times during the Term of this Agreement maintain and comply with all applicable permits for the development, ownership and maintenance of the Facility in all material respects. As soon as practicable after the occurrence of any event known to Seller that would constitute or is reasonably likely to lead to a violation of any applicable permit, but in no event more than ten (10) Business Days thereafter, Seller shall provide GPA with written Notice of the same.

4.16 Change in Technical Requirements.

The Parties agree that, from and after the Effective Date, if Seller is required at any time to comply with new or modified technical or other performance requirements for the Facility or any material portion thereof (or in the manner any such facilities are to be operated or maintained) and such addition to or change in the above standards causes an increase in Seller's actual costs to perform in excess of $25,000 in the aggregate, then the Parties shall negotiate in good faith to agree upon an adjustment to the Contract Price and/or the Annual Microgrid Payment, as applicable, to compensate Seller for such increased costs. Such a change in the technical or performance requirements may arise as a result of the scheduling protocols or the communication protocols to be established by GPA pursuant to Appendix H or any other protocols or regulations established by GPA, requirements imposed by the transmission provider or pursuant to the Interconnection Agreement, requirements imposed by GPA or another Governmental Authority pursuant to or in connection with this Agreement, among other circumstances.

Seller will deliver prompt notice of the occurrence of a change in technical or performance requirements which has or is reasonably expected to result in the additional actual costs described above. If, on the date which is forty-five (45) days following Seller's delivery of notice to GPA, the Parties are unable to agree upon an adjustment to the Contract Price and/or the Annual Microgrid Payment, as applicable, which compensates Seller for such additional costs and is otherwise mutually acceptable, then Supplier may submit such dispute for resolution pursuant to Section 12.9.

4.17 Delivery of RECs.

(a) Use of North American Renewables Registry. At least ten (10) days prior to COD, Seller shall transfer to GPA the authority to create, own and transfer all Environmental Attributes associated with the Renewable Energy produced by the Facility, by executing and delivering the form entitled "Generator Owner's Designation of Responsible Party" published by NAR, wherein Seller shall designate GPA as the "responsible party" for all matters relating to the creation, ownership, and transfer of any RECS. Thereafter, GPA shall be responsible for all obligations relating to creating and transferring RECs and Seller shall have no further obligations or liabilities with respect thereto, provided, however, that Seller shall reimburse to GPA its costs of creating and maintaining the NAR account and NAR's fees charged to transfer the RECs, up to an aggregate maximum amount of $5,000 per annum. In the event this Agreement is terminated for any reason, the Parties agree to each consent to the termination of such designation in accordance with NAR procedures.

(b) GPA Registration as a QRE. GPA shall be the QRE for the Facility as required by NAR and shall comply with any and all NAR Operating Procedures relating to the registration and operation as a QRE and the reporting of generation data from the Facility to NAR. As the QRE, each month upon receipt of an invoice and associated interval metering data from Seller in accordance with Section 7.5 herein, GPA shall report such data to NAR within three (3) Business Days following receipt of such data. The Parties shall cooperate to ensure that the Seller Metering Equipment and the resulting interval metering data meet the NAR requirements for metering equipment and generation data.

(c) Change Event. During the Term, in the event that (i) the NAR Operating Procedures are amended or changed such that it becomes impossible for the Parties to utilize NAR as the REC tracking method and/or for GPA to continue as "responsible party" for purposes of

creating, owning and transferring RECs attributable to the Facility; (ii) the fees or charges imposed by NAR on either Seller or GPA to utilize the NAR REC tracking system are materially increased such that use of the NAR REC tracking system becomes uneconomic or infeasible; or (iii) the NAR REC tracking system is eliminated (each one individually, a "Change Event"), then the Parties shall promptly negotiate in good faith to reform the terms of this Agreement in order to give effect to the original intention of the Parties to the extent reasonable under the circumstances, including utilizing an alternative method for transferring RECs to GPA, but in no case shall Seller's cost with respect thereto exceed $5,000 per annum.

4.18 Ramp Rate Control Performance.

During the Delivery Period, Seller shall cause the Microgrid Unit to comply with the performance guarantees for ramp rate control set forth [below] (the "Ramp Rate Control Performance Guarantees").] If the Microgrid Unit System fails to meet the Ramp Rate Control Performance Guarantees over the time periods set forth [below], GPA may provide written notice to Seller of the failure to meet the Ramp Rate Control Performance Guarantees and a request for Seller to take steps needed for the Energy Storage System to meet the Ramp Rate Control Performance Guarantees. In response to such a notice, Seller shall, within two (2) weeks from the date of such notice, provide GPA with a written remedial action plan that provides a detailed description of Seller's course of action and plan to meet the Ramp Rate Control Performance Guarantees and shall take steps to implement such remedial action within six (6) months of the date of such action plan; provided, however, GPA shall not be entitled to such a remedial action plan if the failure to achieve the Ramp Rate Control Performance Guarantees is due to a Force Majeure event, GPA Delay or an Event of Default by GPA. Seller's sole obligation with respect to any deficiency in the Ramp Rate Control Performance Guarantees is to follow its remedial action plan.

If ramp rate is greater than 3 MW/minute seller shall reduce plant output until ramp rate is less than 3 MW/minute. If system issues remain, GPA reserves the right to restrict Seller's plant output until seller restores operation with a ramp rate less than 3 MW/minute. The Interconnection Agreement shall define conditions for Seller's plant reduction and implementation of GPA's restrictions.

ARTICLE FIVE: SELLER FAILURE

5.1 Seller Failure.

In the event Seller fails to deliver to GPA any Quantity of Renewable Energy to which GPA is entitled in accordance with the terms of this Agreement and instead sells such Quantity of Renewable Energy to which GPA is entitled to a third party in violation of this Agreement ("Seller Failure"), then Seller shall pay to GPA the "Seller Failure Damages," which shall mean the positive difference, if any, between the Replacement Price and the Contract Price for the period of such Seller failure, times such Quantity of Renewable Energy. GPA shall calculate the Seller Failure Damages and shall provide to Seller an invoice for such amount, including a written statement explaining in reasonable detail the calculation of such amount. Seller shall pay the Seller Failure Damages not later than ten (10) days following its receipt of such an invoice from GPA. If the Replacement Price is less than the Contract Price, then the Seller Failure Damages are deemed to be zero. The Seller Failure Damages represent the sole and exclusive remedy of GPA for Seller's failure as described herein.

ARTICLE SIX: EVENTS OF DEFAULT; REMEDIES

6.1 Events of Default.

An "Event of Default" shall mean, with respect to a Party (a "Defaulting Party"), the occurrence of any of the following:

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within three (3) Business Days after receipt of written Notice;

(b) Any representation or warranty made by such Party herein is false or misleading in any material respect when made or when deemed made or repeated, if such failure is not remedied within thirty (30) Business Days after receipt of written Notice, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(c) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default and except for such Party's obligations to deliver or receive the Renewable Energy, the remedies for which are provided in Article Five) if such failure is not remedied within thirty (30) Business Days after written Notice, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(d) Such Party becomes Bankrupt (or if the Bankruptcy is involuntary, the failure of such Party to achieve dismissal of the Bankruptcy within ninety (90) days);

(e) A Merger Event occurs with respect to such Party;

(f) If during the Term of this Agreement there have occurred three (3) or more Seller Failures as that term is used in Section 5.1;

(g) With respect to Seller, a material permit violation occurs, such violation has or is reasonably likely to result in a material adverse effect on the Seller's ability to perform its obligations under this Agreement and such violation is not remedied within fifteen (15) Business Days after Notice by either GPA or the relevant permitting authority, or such longer time, not to exceed sixty (60) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(h) With respect to Seller, failure to maintain the Development Security as required pursuant to this Agreement and the failure to reinstate the same within ten (10) Business Days after Seller's receipt of written Notice thereof from GPA.

6.2 Declaration of an Early Termination Date.

If an Event of Default with respect to a Defaulting Party shall have occurred on or after the Commercial Operation Date and be continuing, the other Party (the "Non-Defaulting Party") shall have the right but not the obligation to: (i) designate a day, no earlier than the day such Notice is effective and no later than twenty (20) days after such Notice is effective, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate this Agreement between the Parties; (ii) withhold any payments due to the Defaulting Party under this Agreement as setoff against termination costs and liabilities as determined herein (and until such amounts are determined); and (iii) suspend its performance under this Agreement.

6.3 Suspension of Performance and Other Remedies.

Except as otherwise expressly provided in this Agreement, if an Event of Default shall have occurred and be continuing, the Non-Defaulting Party, upon written Notice to the Defaulting Party, shall have the right (i) to suspend performance under this Agreement; and (ii) to the extent an Event of Default shall have occurred and be continuing to exercise any remedy available at law or in equity including any specific remedies set forth in this Agreement; provided, however, that any damages shall include only the direct actual damages incurred by the Non-Defaulting Party as provided in Section 8.1.

ARTICLE SEVEN: PAYMENT AND NETTING

7.1 Billing Period.

Unless otherwise specifically agreed upon by the Parties, the calendar Month shall be the standard period for all payments under this Agreement. The Annual MicroGrid Payment shall be divided into twelve equal monthly payments each Contract Year. No later than the tenth (10^{th}) day after the end of each Month, each Party will render to the other Party an invoice (in the case of Seller, such invoice being rendered in accordance with Section 7.5) for the payment obligations of non-invoicing Party, if any, incurred hereunder during the preceding Month.

7.2 Timeliness of Payment.

Unless otherwise agreed by the Parties, all invoices under this Agreement shall be due and payable in accordance with each Party's invoice instructions on or before the later of the tenth (10th) day of each Month, or if later the tenth (10th) day after receipt of the invoice or, if such day is not a Business Day, then on the next Business Day. Each Party will make payments by electronic funds transfer, or by other mutually agreeable method(s), to the account designated by the other Party. Any amounts not paid by the due date will be deemed delinquent and will accrue interest at the Interest Rate, such interest to be calculated from and including the due date to but excluding the date the delinquent amount is paid in full.

7.3 Disputes and Adjustments of Invoices.

A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice, rendered under this Agreement or adjust any invoice for any arithmetic or computational error within twelve (12) Months of the date the invoice, or adjustment to an invoice, was rendered. In the event an invoice or portion thereof, or any other claim or adjustment arising hereunder, is disputed, payment of the undisputed portion of the invoice shall be required to be made when due, with Notice of the objection given to the other Party. Any invoice dispute or invoice adjustment shall be in writing and shall state the basis for the dispute or adjustment. Except as otherwise provided in this Agreement, payment of the disputed amount shall not be required until the dispute is resolved. Upon resolution of the dispute, any required payment shall be made within two (2) Business Days of such resolution along with interest accrued at the Interest Rate from and including the due date to but excluding the date paid. Inadvertent overpayments shall be returned upon request or deducted by the Party receiving such overpayment from subsequent payments, with interest accrued at the Interest Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment. Any dispute with respect to an invoice is waived unless the other Party is notified in accordance with this Section 7.3 within twelve (12) Months after the invoice is rendered or any specific adjustment to the invoice is made. If an invoice is not rendered within twelve (12) Months after the close of the Month during which performance of a Transaction occurred, the right to payment for such performance is waived.

7.4 Metering and Other Facilities.

Seller shall be responsible, at its sole expense, for providing the Seller Metering Equipment in accordance with Good Utility Practices. In accordance with the terms of the Interconnection Agreement, the Seller may elect to have GPA provide Seller with the Seller Metering Equipment; provided, however, the cost of such meters shall be borne solely by Seller at no cost to GPA. Seller shall be solely responsible for operating, maintaining, and repairing the Seller Metering Equipment at its own expense throughout the Term of this Agreement. Seller shall inspect and test the Seller Metering Equipment upon its installation and at least once every year at Seller's expense. Seller shall give GPA reasonable advance Notice of any test, and promptly provide GPA with the results of any such test. GPA may observe the test and conduct its own tests, at GPA's expense, to verify Seller's procedures and results.

Upon an inaccurate read of the Seller Metering Equipment or if Seller knows of any material inaccuracy or defect in Seller Metering Equipment, Seller shall notify GPA in writing within forty-eight (48) hours of such defect. Seller shall be solely responsible for adjusting, repairing, replacing or recalibrating such metering device as near as practicable to a condition of zero (-0-) error, and for paying any expenses associated with such adjustment, repair,

replacement or recalibration. If a metering device fails to register or is found upon testing to be inaccurate, an adjustment will be made correcting all measurements by the inaccurate or defective metering device in the following manner:

(a) In the event that an adjustment factor cannot be reliably calculated, the Parties shall use the measurements from GPA-owned meters if they are installed, fully operational and calibrated in accordance with Good Utility Practices. If for any reason the measurements cannot be obtained from GPA owned meters, the Parties shall use data from Seller's computer monitoring system to determine the relevant measurements. If Seller's computer monitoring system is found to be inaccurate by more than two (2) percent, the Parties shall estimate the amount of the necessary adjustment using the site meteorological information for the period of the inaccuracy based upon deliveries of Renewable Energy delivered to GPA at the Delivery Point from the Facility during periods of similar operating conditions when the Seller Metering Equipment was registering accurately. The adjustment will be made for the period during which inaccurate measurements were made.

(b) If the Parties cannot agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted will be the shorter of: (1) the last one-half of the period from the last previous test of the metering device to the test that found the metering device to be defective or inaccurate; or (2) the one hundred and eighty 180-day period immediately preceding the test that found the metering device to be defective or inaccurate.

(c) Upon determination of corrected measurements, the required payment adjustment shall be made according to the procedures set forth in Section 7.3.

7.5 Invoices.

Seller shall maintain and read the Seller Metering Equipment for measuring the Renewable Energy (including Stored Energy) delivered hereunder. For review purposes, Seller shall furnish GPA with a written invoice reflecting the Contract Price and the interval data from the Seller Metering Equipment used to calculate that invoice; and any other charges due, within ten (10) Business Days after Seller reads the Seller Metering Equipment. Seller shall furnish GPA with a written invoice reflecting the applicable portion of the Annual Microgrid Payment the tenth (10^{th}) day after the end of each Month. Such invoices may be furnished to GPA by facsimile transmission or by such other method as the Parties agree.

ARTICLE EIGHT: LIMITATIONS

8.1 Limitation of Remedies, Liability and Damages.

EXCEPT AS SET FORTH HEREIN, THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED HEREIN, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN OR IN A TRANSACTION, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. UNLESS EXPRESSLY HEREIN PROVIDED, NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

Notwithstanding the foregoing, if GPA is the Defaulting Party, the Parties agree that the actual damages recoverable to Seller hereunder on account of an Event of Default by GPA shall include loss of Tax Benefits on a grossed up after tax basis, using the highest applicable United States marginal personal income tax rate.

Any assets transferred to GPA as required by the Interconnection Agreement shall require a one year warranty on all construction work and assignment of any manufacturer warranties from the transfer of such assets; provided, however, that the obligations and liability of Seller pursuant to such warranty and obligation to assign shall be subject to any limitations and exclusions set forth in the Interconnection Agreement.

ARTICLE NINE: CREDIT AND COLLATERAL REQUIREMENTS

9.1 Development Security.

In order to secure Seller's obligations prior to Commercial Operation of the Facility, hereunder, Seller shall post the Development Security in the form of a Letter of Credit or cash deposit in the amount of $2,375,805 The Development Security shall be held by GPA as security for Seller's obligations prior to the Commercial Operation Date including its obligation to satisfy the Financing Arrangement Deadline, but GPA may draw on the Development Security at any time only in the amounts and according to the schedule set forth in Section 4.4. Seller shall post the Development Security in accordance with the following terms and conditions:

(a) Seller shall post the Development Security within ten business (10) days following the Effective Date of this Agreement.

(b) If the Development Security is posted as a Letter of Credit, it shall be in substantially the form attached hereto as Appendix [F-1].

(c) Any Development Security posted in cash shall bear simple interest at a rate equal to the Interest Rate. The calculation and payment of any such interest shall be made in accordance with the procedure specified in Section 9.3 of this Agreement.

9.2 Forfeiture of Development Security.

In the event that the Commercial Operation Date does not occur on or before the Scheduled Commercial Operations Date, as extended pursuant to the terms of this Agreement, and to the extent Seller does not remit any COD Extension Payment or Daily Delay Liquidated Damages payment when due, then GPA shall be entitled to proceed against the Development Security in accordance with the terms thereof, to the extent of the amount(s) due and owing from time to time. Seller acknowledges and agrees that forfeiture of all or a portion of the Development Security, as provided herein, represents reasonable compensation to GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements as a result of Seller's failure to achieve Commercial Operation by the Scheduled Commercial Operation Date. Notwithstanding the foregoing, if Seller terminates this Agreement prior to the Commercial Operation Date for the sole purpose of selling the Renewable Energy to a third party, GPA shall be entitled to both the Development Security and any other remedies available at law or in equity to the extent that GPA's actual damages exceed the value of the Development Security.

9.3 Return of Development Security.

At the end of the Term or upon the termination of this Agreement following the settlement and payment of any damages owed as a result of such termination, GPA shall return to Seller any remaining portion of the Development Security still held by GPA and to which GPA has no claim pursuant to the terms of this Agreement. If the Development Security was posted as a Letter of Credit, GPA shall return the Letter of Credit to Seller and Seller shall be entitled to immediately cancel such Letter of Credit. If the Development Security was posted in cash, GPA shall return to Seller the balance of the Development Security, together with daily interest at the Interest Rate, from and including the date that the Development Security was posted until, but not including, the date on which the Development Security is returned by GPA.

9.4 Performance Security.

In order to secure Seller's obligations after Commercial Operation of the Facility and during the Delivery Period hereunder, Seller shall post security in one of the forms contemplated below, each of which is deemed acceptable by GPA (the "Performance Security"):

(a) A Letter of Credit or cash in the amount of $4,751,610; or

(b) A Payment and Performance Bond in the amount of $4,751,610; or

(c) A subordinated second lien on the Sponsor Interest and Seller agrees to take such action as is reasonably required in order to perfect GPA's security interest in, and lien on, such collateral and any and all proceeds resulting therefrom; provided, that concurrently with the grant of such lien, GPA shall enter into such subordination, inter-creditor and other agreements with the senior financing parties as they as may reasonably require pursuant to which GPA shall agree that their rights and remedies pursuant to their second lien shall be subordinated in all respects to the senior first lien held by the financing parties; provided further, for the avoidance of doubt, there shall be no lien granted on the Tax Equity Investor Interest.

The Performance Security shall be held by GPA as security for Seller's obligations after the Commercial Operation Date and during the Delivery Period, but GPA may draw on the Performance Security at any time only in the amounts actually due and payable by Seller to GPA pursuant to this Agreement. Seller may (i) post the Performance Security by posting a combination or one or more of the above acceptable forms of credit support in an aggregate amount of $4,751,609.95, and (ii) at any time elect to substitute any form of one or more of the above acceptable forms of credit support for any existing Performance Security in which case GPA shall return the replaced Performance Security and reasonably cooperate with Seller in the exchange or cancellation of such credit support.

Seller shall post the Performance Security in accordance with the following terms and conditions:

(a) Seller shall post the Development Security within ten (10) business days following the Commercial Operation Date.

(b) If the Performance Security is posted as a Letter of Credit, it shall be in substantially the form attached hereto as Appendix [F-1].

(c) If the Performance Security is posted as a Payment and Performance Bond, it shall be in substantially the form attached hereto as Appendix [F-2].

(d) Any Performance Security posted in cash shall bear simple interest at a rate equal to the Interest Rate. The calculation and payment of any such interest shall be made in accordance with the procedure specified in Section 9.5 of this Agreement.

9.5 Return of Performance Security.

At the end of the Term or upon the termination of this Agreement following the settlement and payment of any damages owed as a result of such termination, GPA shall return to Seller any remaining portion of the Performance Security still held by GPA and to which GPA has no claim pursuant to the terms of this Agreement. If the Performance Security was posted as a Letter of Credit or a Payment and Performance Bond, then GPA shall return the Letter of Credit or Payment and Performance Bond to Seller and Seller shall be entitled to immediately cancel such Letter of Credit or Payment and Performance Bond. If the Performance Security was posted in cash, GPA shall return to Seller the balance of the Performance Security, together with daily interest at the Interest Rate, from and including the date that the Performance Security was posted until, but not including, the date on which the Performance Security is returned by GPA.

ARTICLE TEN: GOVERNMENTAL CHARGES

10.1 Cooperation.

Each Party shall use Commercially Reasonable Efforts to implement the provisions of and to administer this Agreement in accordance with the intent of the Parties to minimize all taxes, so long as neither Party is materially adversely affected by such efforts.

10.2 Governmental Charges.

Seller shall pay or cause to be paid all taxes imposed by any Government Authority ("Governmental Charges") on or with respect to the Renewable Energy or this Agreement arising prior to the Delivery Point. GPA shall pay or cause to be paid all Governmental Charges on or with respect to the Renewable Energy or this Agreement at and from the Delivery Point (other than ad valorem, franchise or income taxes which are related to the sale of the Renewable Energy and are, therefore, the responsibility of the Seller). In the event Seller is required by law or regulation to remit or pay Governmental Charges, which are GPA's responsibility hereunder, GPA shall promptly reimburse Seller for such Governmental Charges. If GPA is required by law or regulation to remit or pay Governmental Charges which are Seller's responsibility hereunder, GPA may deduct the amount of any such Governmental Charges from the sums due to Seller under Article Seven of this Agreement. Nothing shall obligate or cause a Party to pay or be liable to pay any Governmental Charges for which it is exempt under the law.

ARTICLE ELEVEN: ASSIGNMENT

11.1 Buyer Assignment.

Buyer may not assign this Agreement or assign or delegate its rights and obligations under this Agreement, in whole or in part, without Seller's consent, not to be unreasonably withheld.

11.2 Seller Assignment.

Seller may perform any of the following, without the consent of the Buyer (1) transfer, pledge, encumber, or assign this Agreement or the accounts, revenues, or proceeds hereof, in connection with any financing or other financial arrangements for the Facility, (2) transfer or assign this Agreement to any of its Affiliates in connection with a transfer of the Facility to such Affiliate, (3) transfer or assign this Agreement to any person or entity succeeding to all or substantially all of the assets of such Party, and (4) transfer or assign this Agreement to _____ or to any of its Affiliates; provided, that Seller provides Buyer prior notice of any such transfer or assignment and, with respect to any transfer to an such assignee of Seller, (A) such assignee posts replacement credit support in accordance with this Agreement, and (B) such Affiliate enters into an assignment and assumption agreement, in form and substance reasonably satisfactory to Buyer, pursuant to which Affiliate assumes all of Seller's obligations hereunder and otherwise agrees to be bound by the terms of this Agreement. Seller agrees that it will provide written notice to Buyer of any assignment of this Agreement by Seller within five (5) Business Days of the date of such assignment.

Except as stated above, neither this Agreement nor any of the rights, interests and obligations hereunder shall be assigned by Seller without the prior written consent of Buyer, which consent shall not be unreasonably withheld. Any assignment of this Agreement in violation of the foregoing shall be, at the option of Buyer, void.

11.3 Liability After Assignment.

A Party's assignment or transfer of rights or obligations pursuant to this Article 11 shall relieve said Party from any liability and financial responsibility for the performance thereof arising after any such transfer or assignment.

11.4 Transfers of Ownership.

Subject to any rights of first offer or refusal under this Agreement, during the Term, Seller shall not sell, transfer, assign or otherwise dispose of its interest in the Facility to any third-party absent (1) a transfer of this Agreement to such third-party and (2) Seller entering into an assignment and assumption agreement, in form and substance reasonably satisfactory to Buyer, with such third-party.

11.5 Successors and Assigns.

This Agreement and all of the provisions hereof are binding upon, and inure to the benefit of, the Parties and their respective successors and permitted assigns.

11.6 Collateral Assignment by Seller.

In the event that Seller pursuant to Section 11.2 (1) transfers, pledges, encumbers or collaterally assigns this Agreement to Seller's lenders, Seller shall provide written notice to Buyer of such transfer, pledge, encumbrance or assignment, including the address of Seller's lenders. In connection with any financing or refinancing of the Facility, Buyer at Seller's request shall negotiate in good faith with Seller and Seller's lenders to agree upon a reasonable direct agreement with respect to this Agreement, which shall be in form and substance reasonably agreed to by Buyer, Seller and Seller's lenders, and which shall, among other terms. include provisions substantially as follows:

(a) The Parties shall not amend or modify this Agreement in any material respect without the prior written consent of the Seller's lenders;

(b) Prior to exercising its right to terminate this Agreement as a result of an Event of Default by Seller, Buyer shall give notice of such Event of Default by Seller to the administrative agent of Seller's lenders, which Buyer has been provided written notice of; and

(c) Seller's lenders shall have the right, but not the obligation, to cure an Event of Default on behalf of Seller in accordance with the provisions of this Agreement, provided that Seller's lenders shall be provided an additional forty-five (45) days, from the end of the cure periods provided pursuant to Section 6.1, to effect a cure of such Event of Default.

ARTICLE TWELVE: MISCELLANEOUS

12.1 Term of Agreement; Conditions Precedent.

(a) The Term of this Agreement shall commence on the Effective Date and shall remain in effect for the duration of the Delivery Period, as set forth in Section 2.1, unless earlier terminated by either Party in accordance with this Agreement herein (the "Term"); provided, however, that such termination shall not affect or excuse the performance of either Party under any provision of this Agreement that by its terms survives any such termination.

(b) This Agreement shall be effective on the Effective Date provided that the Parties' obligations hereunder shall be subject to the satisfaction of the following conditions precedent:

(i) Receipt by GPA of a final, non-appealable approval of this Agreement by the Guam Public Utilities Commission ("PPA Approval");

(ii) Execution of the Interconnection Agreement by the Parties;

(iii) Receipt by GPA of a final, non-appealable approval of the Interconnection Agreement by the Guam Public Utilities Commission ("ICA Approval"); and

GPA shall submit this Agreement for approval by the Guam Public Utilities Commission within thirty (30) days of the Effective Date. GPA shall also submit the Interconnection Agreement for approval by the Guam Public Utilities Commission within thirty (30) days of the execution of the Interconnection Agreement. Each Party shall use Commercially Reasonable Efforts to satisfy the conditions precedent prior to the End Date; provided that neither Party shall be obligated to execute the Interconnection Agreement except on terms acceptable to such Party in its sole discretion. Seller shall have the right in its sole discretion to waive the conditions precedent set forth in section 12.1(b) above.

Either Party has the right to terminate this Agreement by Notice, which will be effective five (5) Business Days after such Notice is given, if the conditions precedent set forth above have not been satisfied (or waived in accordance herewith) within [**to be determined based on date of signing – between 60-120 days consistent with proposed project schedule**] days after the Effective Date ("End Date"). If either Party exercises its termination right pursuant to this Section 12.1(b), no Termination Damages will be due or owing by either Party and Seller will be entitled to a return of any Development Security provided to GPA.

12.2 Insurance.

At all times during the Term of this Agreement, Seller shall maintain at its own expense insurance policies for the Facility and its tangible assets in such amounts and against such risks and losses as are consistent with Good Utility Practices and those policies listed below. Such insurance policies shall be maintained only with insurers rated at least A- VII by MVI Best or comparable ratings agency.

- Commercial General Liability with limits of $1,000,000 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Commercial Auto Liability in the amount of $1,000,000 combined single limit for bodily injury and property damage. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $5,000,000. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Workers Compensation and Employers Liability with statutory limits and $1,000,000/$1,000,000/$1,000,000 respectively. Seller shall add a waiver of subrogation endorsement in favor of GPA.

- Pollution Liability, when applicable, with limits for $5,000,000. GPA is to be an additional insured. Seller shall grant a waiver of Subrogation in favor of GPA.

- Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by financially responsible insurers duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co-insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

At all times after achieving COD, Seller may discontinue or otherwise cancel each of the aforementioned policies, except the following insurance policies, which shall be maintained with the limits set forth below:

- Commercial General Liability with limits of $1,000,000.00 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $3,000,000.00. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by any financially responsible insurer duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co- insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

- Seller is also required to carry Business Interruption and Extra Expense insurance in the amount of $1,000,000.00.

If the Facility is lost or damaged due to a casualty, then only if and to the extent Seller is not required to use available insurance proceeds to prepay any Facility Debt then outstanding, Seller shall re-build the Facility promptly and in a commercially reasonable manner if and to the extent technically feasible and commercially reasonable in

light of the available insurance proceeds and subject to the procurement by Seller of the consent of any lender or financing party pursuant to the Financing Documents if required thereunder; provided, however, (i) if the time to re-build the Facility would result in less than five (5) years remaining in the Delivery Period then (A) Seller shall have the option in lieu of re-building the Facility to pay to GPA the Buyout Payment and terminate this Agreement with no further costs or penalties provided that the Buyout Payment shall not in any case exceed the available insurance proceeds remaining following full prepayment of the Facility Debt, or (B) if Seller nevertheless elects to re-build the Facility then GPA shall reimburse Seller for any deductibles payable by Seller under its property insurance, and (ii) regardless of when the casualty event occurs, if Seller re-builds the Facility then the Delivery Period shall be extended for the greater of one (1) year or two (2) times the length of the interruption of the sale of Renewable Energy (pro rated based on the Minimum Production for partial interruptions), and the Contract Price shall be the price in effect, without escalation, at the beginning of the re-building period.

Within ten (10) Business Days after receipt of a request for the same from GPA, Seller shall deliver to GPA a certificate of insurance for any or all policies maintained in accordance with this Section 12.2, which certificate shall include at least the following information: (i) the name of the insurance company, policy number and expiration date; and (ii) the coverage and limits on coverage, including the amount of deductibles or self-insured retentions.

Seller shall furnish certificates of insurance and waiver of subrogation endorsement to GPA prior to commencement of construction of the Facility showing evidence of such coverage, including the statement to the effect that cancellation or termination of the insurance shall not be effective until at least thirty (30) days after receipt of written Notice to GPA. At all times Seller's insurance shall be primary and non-contributory to any other insurance that may be carried by GPA. The statement of limits of insurance coverage shall not be construed as in any way limiting the Seller's liability under this Agreement. GPA shall be an additional insured on all liability coverage and certificates of insurance shall clearly indicate such.

12.3 Indemnity.

To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident first occurring or existing during the period when control and title to the Renewable Energy is vested in such Party, unless a Claim is due to such Party's willful misconduct or gross negligence. To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party against any Governmental Charges for which such Party is responsible under Article Ten. Notwithstanding anything to the contrary contained in this Agreement, no individual representative of either Party shall have any personal liability to the other Party as a result of the breach of any representation, warranty, covenant or agreement contained herein.

12.4 Site Access and Inspection of Records.

Seller shall provide GPA with reasonable access to the Facility site for purposes of review and inspection during regular business hours within a reasonable time after a request for the same is made by GPA. During such reviews and inspections, GPA representatives shall be permitted to review such records relating to the Facility and reasonably related to the performance of this Agreement, including Facility maintenance and operations logs. GPA shall have access to the Facility site for the limited purposes described herein, but Seller shall at all times remain responsible and liable for the control and operation of the Facility and the Facility site. GPA representatives shall follow Seller's safety procedures when accessing the Facility site and shall conduct themselves in a manner that will not interfere with the operation of the Facility. Seller will provide GPA with information about such safety procedures to enable GPA to comply with this requirement.

12.5 Audit.

Subject to Section 7.3, each Party has the right, at its sole expense and during normal working hours, to examine copies of the records of the other Party to the extent reasonably necessary to verify the accuracy of any statement, charge or computation made pursuant to this Agreement.

12.6 Confidentiality.

The Parties will make Commercially Reasonable Efforts to safeguard Confidential Information against disclosure by employing the same means to protect such Confidential Information as that Party uses to protect its own non-public, confidential or proprietary information, and otherwise in accordance with the provisions of this Section 12.6. Specifically, no receiving Party shall itself, or permit its employees, consultants and/or agents to disclose to any person, corporation or other entity the Confidential Information without the prior written consent of the Party providing the Confidential Information, except a receiving Party may distribute the Confidential Information to its and its Affiliates' board members, officers, employees, agents, consultants, actual or potential investors, actual or potential purchasers, actual or potential Facility lenders or financing parties, and others who have a need for such Confidential Information.

The Parties acknowledge, however, that a Party may need to disclose the Confidential Information in connection with its regulatory filings or to otherwise satisfy its governmental and regulatory requirements. In the event that a Party intends to disclose any of the Confidential Information to its regulatory authorities including, but not limited to, the Guam Public Utilities Commission, the FERC, or any employee, staff member, consultant, and/or agent of the foregoing, it shall give the other Party prompt prior written Notice of its intention so that the other Party may seek a protective order or other appropriate remedy. In addition, each Party specifically agrees not to use the other Party's name in connection with this Agreement or the Facility in any press releases, public meetings or hearings, or other public communications, including any release to any newswire service, without the express written consent of the other Party. The Parties anticipate that at some future time it may be in the best interests of one or both of them to disclose Confidential Information to the media and the Parties anticipate entering into a subsequent agreement that will govern the terms of such disclosure. The Parties expressly agree, however, that unless and until such subsequent agreement is executed between the Parties, the terms of this Agreement shall be binding with respect to such disclosure.

In the event that any Party receiving the Confidential Information becomes legally compelled (by deposition, interrogatory, request for documents, subpoena, civil investigative demand or similar process) to disclose any of the Confidential Information, the legally compelled Party shall give the other Party providing the Confidential Information prompt prior written Notice of such requirement so that the providing Party may seek a protective order or other appropriate remedy and/or waive compliance with the terms of this Agreement. In the event that such protective order or other remedy is not obtained, the providing Party waives compliance with the terms hereof.

Each Party acknowledges that the unauthorized disclosure of any Confidential Information may cause irreparable harm and significant injury that may be difficult to ascertain. Each Party therefore agrees that specific performance or injunctive relief, in addition to other legal and equitable relief, are appropriate remedies for any actual or threatened violation or breach of this Agreement, **although neither Party shall be entitled to any special, consequential, indirect or punitive damages as a result of a breach of this Agreement, whether a claim is based in contract, tort or otherwise**. The Parties agree that the respondent in any action for an injunction, specific performance decree or similar relief shall not allege or assert that the initiating Party has an adequate remedy at law in respect to the relief sought in the proceeding, nor shall the respondent seek the posting of a bond by the Party initiating the action. Under no circumstances will either Party's directors, management, employees, agents or consultants be individually liable for any damages resulting from the disclosure of Confidential Information in violation of the terms of this Agreement.

12.7 Notices.

All notices, requests, statements or payments ("Notices") shall be made as specified on Appendix B attached hereto and incorporated herein by reference. Notices (other than with respect to scheduling) shall, unless otherwise specified herein, be in writing and may be delivered by hand delivery, United States mail, overnight courier service or facsimile. Notice by facsimile or hand delivery shall be effective at the close of business on the day actually received, if received during business hours on a Business Day, and otherwise shall be effective at the close of business on the next Business Day. Notice by overnight United States mail or courier shall be effective on the next Business Day after it was sent. Notices relating to Facility operations and Scheduling, as required pursuant to Appendix H, may be given electronically and shall be deemed effective upon receipt; otherwise,

electronic notices shall not be effective unless affirmatively acknowledged in writing (including by reply e-mail) by the receiving Party. A Party may change its addresses by providing Notice of same in accordance herewith.

12.8 Purchase Option.

(a) Transfer During the Delivery Period. In the event that Seller desires to sell the Facility during the Delivery Period, Seller shall provide prior written Notice of the same to GPA, and agrees to engage in discussions with GPA during an exclusivity period with GPA if GPA desires to purchase the Facility. Within ninety (90) days following Seller's Notice to GPA of its intent to sell the Facility, GPA may deliver to Seller an indicative purchase price at which it would be willing to purchase the Facility. If GPA does not deliver the indicative purchase price within ninety (90) days, then Seller shall be free to transfer the Facility under any terms and conditions at any time thereafter. If GPA delivers the indicative purchase price within ninety (90) days, then the Parties shall negotiate exclusively for a period of up to sixty (60) days after GPA delivers the indicative purchase price. If no binding agreement is entered into by the Parties during such sixty (60)-day period then Seller shall be free to transfer the Facility to any person on materially comparable terms, including price, better than GPA's indicative offer, and neither Party shall have any further liability or obligation to the other Party in connection with such sale or as a result of the terminated negotiations. If Seller does not transfer the Facility on such basis within one (1) year following the end of the sixty (60)-day exclusive negotiation period, then the procedure in this paragraph shall apply to any subsequent sale of the Facility during the Term of this Agreement.

(b) Transfer or Extension of Delivery Period. GPA, by Notice delivered to Seller at least one hundred and eighty (180) days prior to the end of the Delivery Period, may either (i) extend the Term of this Agreement on a year-to-year basis, in which case the Contract Price during the extension of the Term shall be eighty percent (80%) of the LEAC Rate in effect from time to time during such extension (whereupon either Party may thereafter terminate this Agreement on one hundred and eighty (180) days' Notice prior to the end of any extension year), or (ii) purchase the Facility from Seller at eighty percent (80%) of the Appraisal Price, within thirty (30) days of the determination of the Appraisal Price. If GPA fails to send such Notice then this Agreement shall terminate in accordance with the terms hereof.

12.9 Alternative Dispute Resolution. All disputes arising under this Agreement are subject to the provisions of this Section 12.9.

(a) If a dispute, controversy or claim arises out of, relates, or is in connection with, this Agreement, or the breach, termination or validity thereof, whether sounding in contract, tort, unfair competition, equity, or other legal form, it shall be settled solely in the manner provided for in this Section 12.9. A meeting of the Parties shall be held within ten (10) Business Days after either Party gives the other Party written Notice of the dispute. The Notice shall set forth in reasonable detail the aggrieved Party's position and its proposal for resolution of the dispute. A representative of each Party who has authority to resolve the dispute shall be in attendance at all meetings. If the dispute is not resolved within thirty (30) days after the first meeting of the Parties, or such other period of time as to which the Parties agree, the dispute shall be settled by arbitration in the manner provided in this Section 12.9). A Party's failure to comply with this Section 12.9 shall entitle the other Party to recover its costs and reasonable attorney's fees in any judicial proceedings that circumvent this dispute resolution provision. Settlement discussions undertaken under this Section 12.9 shall be privileged and confidential and no position taken or communication made by a party during or in connection with said settlement discussions may be presented as evidence in the ensuing arbitration should settlement fail to achieve a negotiated result.

(a) Arbitration. Any disputes between the Parties and/or their respective representatives involving or arising under a Claim relating to the terms of this Agreement, or the breach thereof, may be submitted to binding arbitration, whether such Claims sound in contract, tort or otherwise. The arbitration shall be conducted in accordance with the Federal Arbitration Act and the then prevailing Commercial Arbitration Rules of the American Arbitration Association. The validity, construction, and interpretation of this Agreement to arbitrate and all procedural aspects of the arbitration conducted pursuant hereto shall be decided by the arbitrator(s). Submission shall be made upon the request of either Party. Within twenty (20) calendar days of the receipt by the respondent of service of the Notice of arbitration, the Parties shall select one (1) arbitrator by mutual consent. If the Parties are unable to agree upon a single arbitrator, there shall be three (3) arbitrators. Specifically, in the event the Parties cannot agree upon a single arbitrator, both the claimant and the respondent shall appoint one (1) arbitrator within ten (10) calendar days after written Notice by either Party that three (3) arbitrators shall be necessary. The two (2) arbitrators so appointed shall then select the third arbitrator within twenty (20) calendar days, who shall be the chairperson, of the tribunal. The chairperson shall be a person who has over eight (8) years of experience in energy-related transactions, and none of the arbitrators shall have been previously employed by either Party or have any direct interest in either Party or the subject matter of the arbitration, unless such conflict is expressly acknowledged and waived in writing by both Parties. The chairperson shall be bound to schedule and hear the dispute in its entirety within three (3) Months after his/her appointment and shall render the panel's decision within thirty (30) calendar days after the hearing concludes. It is agreed that the arbitration proceeding shall be conducted in Honolulu, Hawaii, or another neutral location mutually agreed to by the Parties; provided, however, either Party may provide all witnesses, deponents and other ancillary personnel by video telecast or other electronic media, it being the intent of the Parties to minimize expenses of conducting the arbitration. It is further agreed that the arbitrator(s) shall have no authority to award consequential, treble, exemplary, or punitive damages of any type or kind regardless of whether such damages may be available under any law or right, with the Parties hereby affirmatively waiving their rights, if any, to recover or claim such damages. The compensation and any costs and expenses of the arbitrators shall be borne equally by the Parties. Any arbitration proceedings, decision or award rendered hereunder and the validity, effect and interpretation of this arbitration provision shall be governed by the Federal Arbitration Act. The award shall be final and binding on the Parties and judgment upon any award may be entered in any court of competent jurisdiction. The Parties agree that all information exchanged as a result of any proceeding as described herein shall be deemed Confidential Information.

(b) Judicial Relief. Either Party may petition a court of appropriate jurisdiction, as described in Section 12.11, for non-monetary relief relating to any claim of breach of this Agreement in order to prevent undue hardship relating to any such claimed breach pending the appointment of an arbitration panel as described in this Section 12.9.

12.10 Governing Law.

THIS AGREEMENT AND THE RIGHTS AND DUTIES OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY AND CONSTRUED, ENFORCED AND PERFORMED IN ACCORDANCE WITH THE LAWS OF GUAM**,** WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW.

12.11 Jurisdiction and Costs.

Subject to the mandatory arbitration provisions herein, with respect to any proceeding in connection with any claim, counterclaim, demand, cause of action, dispute and controversy arising out of or relating to this Agreement, the Parties hereby consent to the exclusive jurisdiction of the local and federal courts in the Territory of Guam. Both Parties waive any right to trial by jury in such action. In the event such judicial proceedings are

instituted by either Party, the prevailing Party shall be entitled to award of its costs and reasonable attorneys' fees incurred in connection with such proceedings.

12.12 Financial Accounting Standards.

Under the latest interpretations of the Financial Accounting Standards Board's Interpretation No. 46(R) (FIN No. 46(R)), "Consolidation of Variable Interest Entities," GPA may be required to consolidate a Seller's entity for which GPA has entered into a long-term power purchase agreement. Seller agrees to provide all information needed in order for GPA to determine whether or not the special purpose entity which owns the Seller's generating facility must be consolidated by GPA under FIN No. 46(R). If it is determined that GPA needs to consolidate such special purpose entity, Seller agrees to provide all information needed to comply with the consolidation requirements of FIN 46(R) in a timely manner every calendar quarter. If GPA is required to consolidate the special purpose entity that owns the Seller's generating facility in its financial statements, Seller agrees to provide access to any needed records and personnel, as requested, so GPA's independent auditor, Deloitte & Touche LLP, can conduct financial statement audits in accordance with generally accepted auditing standards, as well as internal control audits in accordance with Section 404 of the Sarbanes-Oxley Act of 2002.

12.13 Forward Contract.

The Parties intend that in any relevant proceedings, each be regarded as a forwards trading merchant in respect of this Agreement and that each Transaction be a forwards contract for purposes of the United States Bankruptcy Code, 11 U.S.C. §§ 101 et seq., as amended from time to time.

12.14 General.

No delay of a Party in the exercise of, or the failure to exercise, any rights under this Agreement shall operate as a waiver of such rights, a waiver of any other rights under this Agreement or a release of the other Party from any of its obligations under this Agreement. Any provision declared or rendered unlawful by any applicable court of law or regulatory agency or deemed unlawful because of a statutory change will not otherwise affect the remaining lawful obligations that arise under this Agreement; and provided, further, that if such an event occurs, the Parties shall use their best efforts to reform this Agreement in order to give effect to the original intention of the Parties. The term "including" when used in this Agreement shall be by way of example only and shall not be considered in any way to be in limitation. The headings used herein are for convenience and reference purposes only. The indemnity provisions of this Agreement shall survive the termination of this Agreement for the period of the applicable statute of limitations. The audit provisions of this Agreement shall survive the termination of this Agreement for a period of twelve (12) Months. This Agreement shall be binding on each Party's successors and permitted assigns.

12.15 Entire Agreement; Amendment.

This Agreement, together with any appendices, schedules, and any written supplements hereto constitutes the entire agreement between the Parties relating to the subject matter hereof. This Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties and shall not be construed against one Party or the other as a result of the preparation, substitution, submission or other event of negotiation, drafting or execution hereof. Except to the extent herein provided for, no amendment or modification to this Agreement shall be enforceable unless reduced to writing and executed by both Parties.

12.16 Appendices.

The following Appendices are included in this Agreement for all purposes:

Appendix A	Contract Price and Minimum Production
Appendix B	Notice Addresses
Appendix C	Ramp Rate Control and Microgrid

Appendix D	Independent Engineers
Appendix E	[Not Used]
Appendix F	Form of Letter of Credit
Appendix G	[Not Used]
Appendix H	Scheduling and Coordination
Appendix I	Base Conditions and Facility Test Protocol
Appendix J	Interconnection Agreement
Appendix K	Additional Terms regarding Ramps Rates and Dispatch Down
Appendix L	Resolutions of Consolidated Committee on Utilities

12.17 Special Provisions.

It is the policy of GPA not to discriminate on the basis of age, race, sex, color, national origin, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services, and activities. With regard to all aspects of this Agreement, Seller certifies and warrants it will comply with this policy. No person shall be excluded from participation in, be denied benefits of, be discriminated against in the admission or access to, or be discriminated against in treatment or employment in GPA's contracted programs or activities, on the grounds of such person's handicap or disability, age, race, color, religion, sex, national origin, or any other classification protected by federal or Guam law; nor shall any person be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in performance of contracts with GPA or in the employment practices of GPA's contractors. Accordingly, all persons entering into contracts with GPA shall, upon request, be required to show proof of such nondiscrimination and to post notices of non-discrimination in conspicuous places that are available to all employees and applicants.

Seller hereby represents that Seller has not been retained or retained any persons to solicit or secure a contract from GPA upon an agreement or understanding for a contingent commission, percentage, or brokerage fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business. Breach of the provisions of this section is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Government Authority.

It shall be a breach of ethical standards for any person to offer, give or agree to give any employee or former employee, or for any employee or former employee to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter, pertaining to any program requirement of a contract or subcontract or to any solicitation or proposal therefor. It shall be breach of ethical standards for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or a person associated therewith, as an inducement for the award of a subcontractor or order. Breach of the provisions of this paragraph is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Governmental Authority.

Seller warrants that no person providing services on behalf of Seller or in its employment who has been convicted of a sex offense under the provisions of Chapter 25 of Title 9 of the Guam Code Annotated, or convicted of an offense

defined in Article 2 of Chapter 28 of Title 9 of the Guam Code Annotated regardless of the jurisdiction in which the conviction was obtained, shall provide services on behalf of Seller relative to this Agreement. If any person employed by Seller and providing services under this Agreement is convicted subsequent to the date of this Agreement, then Seller warrants that it will notify GPA of the conviction within twenty-four hours of the conviction, and will immediately remove such convicted person from providing services under this Agreement. If Seller is found to be in violation of any of the provisions of this paragraph, then GPA shall give Notice to Seller to take corrective action. Seller shall take corrective action within twenty-four hours of Notice from GPA, and Seller shall notify GPA when action has been taken. If Seller fails to take corrective steps within twenty-four hours of Notice from GPA, then GPA in its sole discretion may suspend this Agreement temporarily.

12.18 Waiver of Immunity.

To the extent that GPA may in any jurisdiction claim for itself or its assets or revenues immunity from suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process and to the extent that in any such jurisdiction there may be attributed to GPA or its assets or revenues such immunity (whether or not claimed), GPA agrees not to claim and irrevocably waives such immunity to the full extent permitted by the laws of such jurisdiction.

IN WITNESS THEREOF, the Parties hereto made and executed this Agreement, signed by their duly authorized officers or individuals, as of the dates listed below.

GUAM POWER AUTHORITY **GPA or Buyer**		**HANWHA ENERGY CORPORATION Seller**	
By:	_____	By:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

[Signature Page to Renewable Energy Purchase Agreement]

APPENDICES

APPENDIX A

CONTRACT PRICE AND MINIMUM PRODUCTION

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)
1	62.45	72,005
2	63.08	71,831
3	63.71	71,245
4	64.35	70,865
5	64.99	70,485
6	65.64	70,306
7	66.30	69,724
8	66.96	69,344
9	67.63	68,693
10	68.31	68,780
11	68.99	68,202
12	69.68	67,821
13	70.37	67,440
14	71.08	67,252
15	71.79	66,678

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)
16	72.51	66,296
17	73.23	65,915
18	73.96	65,722
19	74.70	65,151
20	75.45	64,770
21	76.21	64,388
22	76.97	64,190
23	77.74	63,623
24	78.52	63,241
25	79.30	62,859
26		
27		
28		
29		
30		

ESS MICRO GRID

Contract Year	Micro Grid Operation Price ($)
1	1,287,082
2	1,264,710
3	1,244,969
4	1,225,229
5	1,206,804
6	1,188,380
7	1,171,271
8	1,155,479
9	1,139,686
10	1,123,894
11	1,108,101
12	1,093,625
13	1,079,149
14	1,064,672
15	1,051,512

Contract Year	Micro Grid Operation Price ($)
16	1,038,352
17	1,025,191
18	1,012,031
19	998,871
20	987,026
21	975,182
22	963,338
23	951,493
24	939,649
25	927,805

APPENDIX B

NOTICE ADDRESSES

APPENDIX C

RAMP RATE CONTROL & MICROGRID

I. Description of Storage Unit

A. Specifications. The Facility shall include the Storage Unit as more fully described in the technical specifications set forth in Schedule C-1 attached hereto ("Storage Technical Specifications").

B. Operations. The operation of the Storage Unit shall at all times be subject to the operating restrictions and limitation set forth in Schedule C-2 attached hereto ("Storage Operating Restrictions"). At no time will Seller be expected to operate the Storage Unit in a manner that is inconsistent with the Storage Operating Restrictions notwithstanding any contrary terms in this Agreement.

C. Metering. Seller will install and maintain a separate meter for the Storage Unit and the operation and maintenance of such meter shall be governed by section 7.4 of this Agreement. The Storage Unit will not serve station use and Seller shall separately meter station use.

D. Augmentation. Seller shall be entitled to determine the actions necessary to achieve the Guaranteed Storage Output (as defined below) from time to time, including without limitation, whether to augment the batteries included in the Storage Unit solely as determined by Seller in its discretion.

E. Ramp Rate Control. The Storage Unit shall be operated such that the charging and output of the Storage Unit does not exceed 1% of the Project's nameplate capacity per minute; provided that Seller shall only be obligated to achieve such ramp rate as set forth in the table below on an average basis during each Contract Year ("Agreed Ramp Rate").

Contract Year	Agreed Ramp Rate
1	98.00%
2	97.90%
3	97.80%
4	97.70%
5	97.60%
6	97.50%
7	97.40%
8	97.30%
9	97.20%
10	97.10%
11	97.00%
12	96.90%
13	96.80%
14	96.70%
15	96.60%
16	96.50%
17	96.40%
18	96.30%
19	96.20%

20	96.10%
21	96.00%
22	95.90%
23	95.80%
24	95.70%
25	95.60%

F. Ramp Rate Control Performance

Energy Storage System will control the ramping rate under 1% of the Facility Capacity (i.e. 600 kW) per minute and the control period [for the ramping rate] will be no more than 1 second. Detailed ramping control algorithm will be finalized through discussions between GPA and Seller after the final design of the Energy Storage System is put in place but no later than one (1) month before the commissioning test of the Facility will start.

Evaluation of Performance Verification:

During the Delivery Period, on an annual basis, Seller shall carry out the evaluation process for the performance verification of the Energy Storage System, including power test and 1% ramp-rate control test in the presence of GPA, once every year with annual data storage in the Facility database and GPA SCADA. [Note: specify what is to be measured and equation below.]

$$\left| \frac{\sum_{t-\Delta t}^{t} PV_i(x)}{\Delta t} - \frac{\sum_{t-2\Delta t}^{t-\Delta t} PV_i(x)}{\Delta t} \right| > P_{ramp}$$

Where:

- Δt = 60 seconds
- $PV_i(x)$: PV generation at time t
- i = 1,2,3, ….., 60 seconds
- P_{ramp}: active power considering ramp rate limit per 1min window

Ramp Rate Control shall be based on a plus or minus (±) 1% of rated power of 60MW plant ("Measured Value"). Ramp Rate Control Failure means a plus or minus (±) 2% of Measured Value.

Ramp Control Penalty:

Penalty will apply to failure to meet the 1% ramp per minute rate for both under and over power. Ramp-Control must be controlled within 1 second. The failure percentage is as below:

- Failure Percentage (FP) = (E1 – E2)

Symbol	Item	Unit	Remarks
E1	Guaranteed value of Succeed Ramp-Rate	%	Proposal (offer) shown in table below

E2	Output of Ramp Rate Controlled	%	1% ramping requirement with 2% measurement error

If FP is greater than 0 (zero), then Penalty shall be calculated as follow:

- Under Power Failure Penalty = (AF_U) *(C_U)*(FP_U)
- Over Power Failure Penalty= (AF_O) *(C_O)*(FP_O)

Symbol	Item	Value	Unit
C_U	Nominal Ramp Down Cost	1.96	$/min/MW
C_O	Nominal Ramp Up Cost	0.49	$/min/MW

The penalty is calculated only for the portion exceeding the guaranteed value.

Where:

- Failure Power of Under Power (FP_U) = |Ramp Rate Required Power – CP| [MW]
- Failure Power of Over Power (FP_O) = |CP – Ramp Rate Required Power| [MW]
- Controlled Power (CP) =1 minute Average Power of 1% Ramp Rate Controlled by 1 second
- Acceleration Factor of Under Power (AF_U) = 0.5
- Acceleration Factor of Over Power (AF_O) = 0.5

G. Time Shifting. As described herein, the Storage Unit will be charged during the day and discharged during the night and in this manner will provide GPA with delayed deliveries of Renewable Energy.

E. Communication Protocols. Seller and GPA shall mutually agree (in writing) upon communication protocols to allow GPA to have access to SCADA information and a real-time data feed with respect to the Facility.

II. Delivery of Stored Energy for Dispatch

A. Charging. During the Delivery Period, Seller shall (i) operate and maintain the Storage Unit, (ii) charge the Storage Unit with a portion of the Renewable Energy generated by the Project (referred to as Charging Energy), and (iii) then shall store, discharge and deliver the Stored Energy to the Delivery Point. Charging Energy shall be drawn from the Renewable Energy generated by the Project and Stored Energy when delivered shall count towards the Minimum Production of the Project each Contract Year. In no case shall Seller be penalized for a reduction in the Renewable Energy delivered based on Charging Energy used to charge the Storage Unit.

B. Discharging. Seller shall sell and deliver, or cause to be delivered, and GPA shall purchase and receive, or cause to be received, all Stored Energy discharged by the Storage Unit, at the Delivery Point, and GPA shall pay Seller the Annual Storage Payment as compensation for Seller's operation of the Storage Unit and deliver of such Quantity of Stored Energy to the Delivery Point.

Stored Energy shall be discharged each day during the Delivery Period beginning from a time out of the 6 options as follows: 6 pm, 7 pm, 8 pm, 9 pm, 10 pm and 11 pm local time and shall be delivered to the Delivery

Point except during any Excused Hours and Weather Hours. The Discharge Energy shall be fixed as 5MW and the Delivery Period ends once all remaining Energy in the Microgrid has been discharged until the designated SOC of the Microgrid has been met.

If GPA desires to change the daily start time of the dispatch of the Storage Unit at any time during the Delivery Period, then GPA shall deliver Notice to Seller of such proposed change at least seven (7) days prior to the date on which Seller is being asked to implement such change ("Dispatch Instruction"). Seller shall not be obligated to accept and implement Dispatch Instruction requested by GPA if (i) such Dispatch Instruction is not consistent with the Operating Parameters, Good Utility Practices, any Planned Outages, applicable law or any limits set forth in any permit or approval received by Seller in connection with the Facility, or (ii) implementation of such dispatch instructions would limit, interfere with or prevent Seller's operation and maintenance of the Facility and/or its performance of its obligations under this Agreement, including without limitation, Seller's obligations with respect to the Guaranteed Dispatch Rate and/or Minimum Production and any make-up amounts Seller reasonably expects to deliver in any Contract Year, or (iii) implementation of such dispatch instructions would limit, interfere with or prevent Seller's performance of its obligations under the Interconnection Agreement. Any Dispatch Instruction delivered by GPA shall remain in effect until another valid Dispatch Instruction is delivered by GPA to Seller in accordance herewith.

Contract Year	Estimated Annual Stored Energy to be discharged from the Storage Unit and delivered to the Delivery Point referred to herein as the "Guaranteed Dispatch Rate"
1	6,570
2	6,554
3	6,501
4	6,466
5	6,431
6	6,415
7	6,362
8	6,327
9	6,293
10	6,276
11	6,223
12	6,188
13	6,153
14	6,136
15	6,084
16	6,049
17	6,015
18	5,997
19	5,945
20	5,910
21	5,875
22	5,857
23	5,805
24	5,771
25	5,736

The annual estimate of Stored Energy to be delivered shall be subject to the terms set forth in part II.C below.

C. Guaranteed Storage Output. The Storage Unit is expected to allow Seller to deliver a minimum number of MWhs of Stored Energy each Contract Year as set forth above (such annual MWh production is the "Guaranteed Dispatch Rate").

Seller during the Delivery Period shall (i) during any Contract Year, deliver to GPA at least ninety percent (90%) of the Guaranteed Dispatch Rate, and (ii) for any consecutive six (6) Contract Years during the Delivery Period, deliver to GPA at least ninety percent (90%) of the aggregate Guaranteed Dispatch Rate during such period (which shall include make-up amounts generated and delivered in any years in excess of one hundred percent (100%) of the Guaranteed Dispatch Rate for such year) (any such time period a "Storage Measurement Period" and each such guaranteed amount of delivered Stored Energy during any Stored Measurement Period, the "Guaranteed Storage Output"). Any shortfall of Stored Energy (expressed in MWhs/year) from the applicable Guaranteed Storage Output during a Storage Measurement Period shall be deemed a "Storage Deficiency Amount."

The Annual Storage Payment for the following Contract Year shall be adjusted for any Storage Deficiency Amount which is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below) ("Shortfall Adjustment"). The Shortfall Adjustment will be calculated as set forth below:

Adjusted Annual Storage Payment = (Storage Deficiency Amount/Guaranteed Dispatch Rate) x Annual Storage Payment

For purposes of clarity, Seller shall be entitled to deliver to GPA Renewable Energy or Stored Energy in the amount of such Storage Shortfall in subsequent time periods (even if such make-up amounts are in excess of the Guaranteed Dispatch Rate for such subsequent year), and this Agreement may be extended as necessary for a period of up to six (6) months to allow Seller to make up any Storage Deficiency Amount; however, there shall be no Shortfall Adjustment for such individual Contract Year unless such Stored Energy delivered hereunder is less than [ninety percent (90%) of the] Guaranteed Storage Output for the applicable Storage Measurement Period, and such shortfall is not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below).

In the event Shortfall Adjustment applies to a Storage Measurement Period of six (6) rolling Contract Years, then such Shortfall Adjustment shall be reduced by the amount of any Shortfall Adjustment paid for any Contract Year during such six (6) year Storage Measurement Period. The Shortfall Adjustment to the Annual Storage Payment shall be Seller's sole liability and obligation, and GPA's sole right and remedy, with respect to Seller's failure to deliver the Guaranteed Output during any Storage Measurement Period.

To the extent any Storage Deficiency Amount is due to Weather Hours, Seller's sole liability and GPA's sole remedy shall be to deliver thereafter Renewable Energy or Stored Energy equal to such Storage Deficiency Amount attributable to Weather Hours, calculated in accordance with Appendix K (which includes a sample calculation for a hypothetical Storage Measurement Period). If any portion of a Storage Deficiency Amount due to Weather Hours is not made up in the five (5) Contract Years beginning in the first Contract Year following the Contract Year in which the Weather Hours Storage Deficiency Amount occurred, then a Shortfall Adjustments shall be applied for the remaining Storage Deficiency Amount. Notwithstanding the foregoing, with respect to any Storage Deficiency Amount that is due to Weather Hours, Seller shall have the option, at any time prior to the expiration of the five (5) Contract Year make-up period, to elect to apply any remaining Shortfall Adjustment in its entirety. If the Storage Deficiency Amount arising as a result of Weather Hours occurs in the last five (5) years of the Delivery Period, then unless Seller exercises its option to apply any remaining Shortfall Adjustment early, the Delivery Period shall be extended as necessary, for a period of up to six (6) months, to achieve a make-up period of five (5) Contract Years as described above.

Seller shall be entitled to sell, and GPA shall purchase, quantities of Stored Energy for which Shortfall Adjustments are paid hereunder, during any remaining Storage Measurement Period during the Delivery Period. During any Contract Year, all Renewable Energy delivered by Seller to GPA in excess of the Guaranteed Dispatch Rate shall be credited against makeup of any outstanding Storage Adjustment, with oldest Storage Adjustment made up first.

To the extent any Storage Adjustment is due to Excused Hours, Seller shall be excused from any liability with respect thereto.

D. Remedies. For Seller's failure to deliver Stored Energy as required hereunder, GPA's remedies shall be as set forth in part II.C above. For GPA's failure to purchase and receive Stored Energy as required hereunder, Seller shall in addition have all other remedies available at law or in equity.

E. Title and Risk of Loss. Seller shall be responsible for any costs or charges imposed on or associated with the Stored Energy or its delivery up to the Delivery Point. GPA shall be responsible for any costs or charges imposed on or associated with Stored Energy or its receipt at and from the Delivery Point. Title to and risk of loss of Stored Energy from the Facility delivered to the Delivery Point shall transfer to GPA at the Delivery Point. Seller warrants that it will deliver to Buyer Stored Energy free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point.

III. Compensation for Storage Unit Operations

Compensation to Seller for the operation of the Storage Unit during the Delivery Period shall consist of an Annual Storage Payment as set forth in Appendix A. The Annual Storage Payment shall be paid in accordance with Sections 7.1, 7.2 and 7.5 of this Agreement.

The Annual Storage Payment shall only be subject to reduction or offset for, and GPA's sole remedy for Seller's failure to deliver Stored Energy and Seller's operation of the Storage Unit shall be, the application of any Shortfall Adjustment in accordance with Section II.C above.

Schedule C-1
Technical Specifications for Storage Unit

- Microgrid Capacity: 20MW PCS, 32.5MWh usable energy (Actual installed capacity shall be determined at later stage)
- The Microgrid will normally perform the ramp rate control as required, but if the Power Plant output exceeds 22.5MW, it will charge the excess amount into the Microgrid.
- The Microgrid will also force charge the Microgrid if the weather conditions are not sufficient enough to make the Power Plant to reach production amounts above 22.5MW to ensure that the Microgrid will discharge every year the agreed on discharge amount.

Schedule C-2
Operating Parameters for Storage Unit

- The output that the Facility delivers to the grid shall be limited to 22.5MWac throughout the Delivery Period.
- [Seller to provide additional Operating Parameters]

APPENDIX D

NOT USED

APPENDIX E

NOT USED

APPENDIX F-1

FORM OF LETTER OF CREDIT

(Provided is sample which may be replaced by Bank / Financial Institution Form)

(*Bank or Financial Institution*)

_____, 201__

Irrevocable Standby Letter of Credit No. ____

Beneficiary:
Guam Power Authority
P.O. Box 2977
Guam 96932-2977
Attn:
Applicant:

Dear _____:

We hereby establish for the account of (*Company Name*) ("Applicant") our irrevocable standby letter of credit in your favor for an amount of USD 4,000,000 (Four Million United States Dollars). Applicant has advised us that this letter of credit is issued in connection with the Renewable Energy Purchase Agreement, dated as of _____, 2012, by and between the Applicant, and Guam Power Authority (the "Beneficiary"). This letter of credit shall become effective immediately on the date hereof and shall expire on _____ [*the date that is XX days after the Effective Date of the PPA*] (such date, or such later date(s) as determined by Applicant in accordance with the next succeeding sentence, the "Expiration Date"). The Expiration Date can be extended on one or more occasions by written notice to us from the Applicant, provided that such written notice is received at least 10 days prior to the Expiration Date. This letter of credit is subject to the following:

1. Funds under this letter of credit shall be made available to Beneficiary against its draft drawn on us in the form of Annex 1 hereto, accompanied by (a) a certificate in the form of Annex 2 hereto, appropriately completed and signed by an authorized officer of Beneficiary, dated the date of presentation, and (b) the original of the letter of credit (the "Accompanying Documents") and presented at our office located at (*Bank/Financial Institution Address*) attention _____. (or at any other office which may be designated by us by written notice delivered to you). A presentation under this letter of credit may be made only on a day, and during hours, in which such office is open for business (a "Business Day"). If we receive your draft and the Accompanying Documents at such office on any Business Day, all in strict conformity with the terms and conditions of this letter of credit, we will honor the same by making payment in accordance with your payment instructions on the third succeeding Business Day after presentation.

2. This letter of credit shall terminate upon the earliest to occur of (i) our receipt of a notice in the form of Annex 3 hereto signed by an authorized officer of Beneficiary, accompanied by this letter of credit for cancellation, or (ii) our close of business at our aforesaid office on the Expiration Date, or if the Expiration Date is not a Business Day, then on the succeeding Business Day. This letter of credit shall be surrendered to us by you upon the earlier of presentation or expiration.

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3. This letter of credit is issued and subject to the International Standby Practices 1998 (ISP98) International Chamber of Commerce Publication No. 590, and as to matters not addressed by ISP98, shall be governed by and construed in accordance with the laws of the State of New York and application of U.S. Federal Law.

4. This letter of credit sets forth in full our undertaking, and such undertaking shall not in any way be modified, amended, amplified or limited by reference to any document, instrument or agreement referred to herein, except for Annexes 1, 2 and 3 hereto and the notices referred to herein; and any such reference shall not be deemed to incorporate herein by reference any document, instrument or agreement except as otherwise provided in this paragraph 5.

5. Communications with respect to this letter of credit shall be in writing and shall be addressed to us at the address referred to in paragraph 1 above, and shall specifically refer to this letter of credit no. _____.

Very truly yours,

_____

Authorized signature
(*Bank or Financial Institution*)

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ANNEX 1
TO LETTER OF CREDIT NO. _____

under LETTER OF CREDIT No. _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

[*Month, Day , Year*]

On Sight

Pay to Guam Power Authority U.S. $ _____ [not to exceed amount available to be drawn]

Wire to:
Bank's Name: Bank of Guam
Bank's Location: 111 Chalan Santo Papa St., Hagatna, Guam 96910
Bank's Mailing Address: P.O. Box BW, Hagatna, Guam 96932
Account Name: Guam Power Authority Revenue Fund Account
Acct. No.: (to be provided)
Routing No.: (to be provided)

For value received and charge to account of Letter of Credit No. _____ of (*Company Name*)

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

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ANNEX 2
TO LETTER OF CREDIT NO. _____

Drawing under Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

The undersigned, a duly authorized officer of the Guam Power Authority, ("Beneficiary"), hereby certifies on behalf of Beneficiary to (*Bank or Financial Institution*) and to (*Company Name*) (the "Applicant") with reference to irrevocable standby Letter of Credit No. _____ (the "Letter of Credit") issued for the account of (*Company Name*) ("Applicant"), that:

1) pursuant to the Renewable Energy Purchase Agreement, dated as of _____, 201__, by and between Applicant and Beneficiary and as of the date hereof Beneficiary is entitled to draw under the Letter of Credit;

2) by presenting this certificate and the accompanying sight draft, Beneficiary is requesting that payment in the amount of $_____, as specified on said draft, be made under the Letter of Credit by wire transfer or deposit of funds into the account specified on said draft; and

3) the amount specified on the sight draft accompanying this certificate does not exceed the remaining amount to which Beneficiary is entitled to draft under said Renewable Energy Purchase Agreement.

In witness whereof, Beneficiary has caused this certificate to be duly executed and delivered by its duly authorized officer as of the date and year written below.

Date: _____

GUAM POWER AUTHORITY

By: _____
Name: _____
Title: _____

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ANNEX 3
TO LETTER OF CREDIT NO. _____

Notice of surrender of Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

Re: Letter of Credit No. _____ issued for the account of (*Company Name*)

Ladies and Gentlemen:

We refer to your above-mentioned irrevocable standby Letter of Credit (the "Letter of Credit"). The undersigned hereby surrenders the Letter of Credit to you for cancellation as of the date hereof. No payment is demanded of you under this Letter of Credit in connection with this surrender.

Very truly yours,

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

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APPENDIX F-2

To be provided

APPENDIX G

NOT USED

APPENDIX H

SCHEDULING AND COORDINATION PROCEDURES

The Parties acknowledge that as of the Effective Date GPA has not yet established protocols for scheduling (firm or intermittent) power to permit solar projects to participate in GPA's scheduling process. As soon as practicable, Seller and GPA shall establish such protocols by mutual agreement in writing. Seller shall use Commercially Reasonable Efforts to comply with all additional reasonable protocols issued by GPA relating to available resources during the Delivery Period, and GPA shall consult with Seller (and take into account and accommodate Seller's reasonable comments) in connection with the preparation of any such additional protocols. The foregoing shall be subject to Section 4.16 of this Agreement.

1.1 General

(a) Notices. Seller shall submit to GPA notices and updates required under this Agreement regarding the Project's status, including, but not limited to, outage requests, forced outages and forced outage reports. If a web based system is not available, Seller shall promptly submit such information to GPA (in order of preference) telephonically, by electronic mail, or facsimile transmission to the personnel designated to receive such information. **Need to include PSCC requirements for Hourly Reports, Daily Production Reports, etc.**

(b) GPA Settlements. GPA shall be responsible for all settlement functions within GPA related to the Project.

(c) Resource Data Template. Seller shall provide the data to the GPA that is required for GPA's resource data template (or successor data system) for the Project consistent with this Agreement. Neither Party shall change such data without the other Party's prior written consent.

(d) Annual Delivery Schedules. No later than forty-five (45) days before (A) the first day of the first Contract Year and (B) the beginning of each calendar year for every subsequent Contract Year during the Delivery Term, Seller shall provide a non-binding forecast of each month's average-day expected Actual Renewable Energy for the following calendar year.

(e) Monthly Delivery Schedules. Ten (10) Business Days before the beginning of each month during the Delivery Term, Seller shall provide a non-binding forecast of each day's average expected Actual Renewable Energy for the following month ("Monthly Delivery Forecast") .

(f) Daily Delivery Schedules. By 5:30 AM Guam Prevailing Time on the Business Day immediately preceding the date of delivery, Seller shall provide GPA with a non-binding forecast of the Project's available energy (a "Day-Ahead Forecast"). A Day-Ahead Forecast provided in a day prior to any non-Business Day(s) shall include Schedules for the immediate day, each succeeding non-Business Day and the next Business Day. Each Day-Ahead Forecast shall clearly identify, for each hour, Seller's estimate of the Project's available energy. Seller may not change such Schedule past the deadlines provided in this section except in the event of a Forced Outage or Schedule change imposed by GPA, in which case Seller shall promptly provide GPA with a copy of any and all updates to such Schedule indicating changes from the then-current Schedule. These notices and changes to the Schedules shall be sent to GPA's on-duty scheduling coordinator. If Seller fails to provide GPA with a Day-Ahead Forecast as required herein, then for such unscheduled delivery period

only GPA shall rely on the delivery Schedule provided in the Monthly Delivery Forecast or GPA's best estimate based on information reasonably available to GPA and Seller shall be liable for Scheduling and delivery based on such Monthly Delivery Forecast or GPA's best estimate.

(g) Hourly Delivery Schedules. Notwithstanding anything to the contrary herein, in the event Seller makes a change to its Schedule on the actual date of delivery for any reason, including Forced Outages (other than a scheduling change imposed by GPA), that results in a change to its deliveries (whether in part or in whole), Seller shall notify GPA immediately by calling GPA's on-duty scheduling coordinator. Seller shall notify GPA of Forced Outages in accordance with this Agreement. Seller shall keep GPA reasonably informed of any developments that are reasonably expected to affect either the duration of the outage or the availability of the Project during or after the end of the outage.

1.2 Dispatch Down/Curtailment.

(a) GPA shall have the right to order Seller to curtail deliveries of Renewable Energy from the Project to the Delivery Point pursuant to a Notice of a Dispatch Down as defined in Appendix K delivered to Seller, provided that the value attributable to any Renewable Energy [in an aggregated quantity of more than _2% of the Minimum Production for any Contract Year] which is not delivered during such curtailment periods, whether for transmission unavailability, operational dispatch or pre-set ramping parameters or otherwise, shall be reimbursed to Seller as provided below.

(b) GPA shall have the right to order Seller to curtail deliveries of Stored Energy from the Microgrid Unit to the Delivery Point pursuant to a Notice of a Dispatch Down as defined in Appendix K delivered to Seller, provided that GPA shall remain obligated to pay Seller the complete Annual Microgrid Payment without adjustment notwithstanding such curtailments, whether for transmission unavailability, operational dispatch or pre-set ramping parameters or otherwise.

(c) Seller shall have the right in its discretion to make up any curtailed quantities of Renewable Energy as a result of a Dispatch Down ("Dispatch Down Makeup Production"), for which it is not reimbursed pursuant to this Appendix H, in the first and any subsequent Contract Year in which at least the Minimum Production is delivered and to extend the Term to the extent necessary, but not to exceed six (6) months, to make up any curtailed quantities. The Contract Price for the Contract Year in which the make-up occurs shall apply to Dispatch Down Makeup Production up to the Minimum Production amount for the Contract Year in which the Dispatch Down originally occurred. For production quantities in excess of the Minimum Production for the Contract Year in which the Dispatch Down originally occurred, the price will be the lesser of the then current LEAC Rate or the Contract Price in the Contract Year in which the make-up occurs. Production in excess of Minimum Production for any Contract Year will first be applied to any previous years' Deficiency Amounts, then to Dispatch Down Makeup Production, then treated under this Agreement as production in excess of Minimum Production.

(d) GPA shall provide to Seller all technical information necessary to justify and support each Dispatch Down.

(e) GPA shall pay Seller, on the date payment would otherwise be due in respect of the month in which any such curtailment in excess of 2% of Minimum Production for such Contract Year occurred], an amount equal to the product of the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to

GPA but for such curtailment ("Lost Revenue"). During the Contract Year-end annual true-up process, any payments made by GPA to the Seller for production (MWh) in excess of the Minimum Production for that Contract Year, whether such production results from actual generation surpluses or Lost Revenue, will be adjusted to reflect the lesser of the Contract Price for the then current Contract Year or then current LEAC Rate. For purposes of clarification, for any given Contract Year, GPA will not be required to pay the Contract Price on amounts of production beyond the Minimum Production if the Contract Price for that Contract Year is higher than the LEAC Rate for that Contract Year. Seller agrees to reduce the Project's Renewable Energy as set forth in such a Notice of Dispatch Down that meets the requirements set forth herein.

(f) For purposes of clarification, no curtailment by GPA, as a result of a warranted failure of or defect in the interconnection facilities transferred by Seller to GPA pursuant to the Interconnection Agreement, during the one-year warranty term thereof, shall count against the 2% curtailment threshold set forth above. During the one-year warranty term of the interconnection facilities transferred, any curtailment by GPA which results from such failure of or defect in the interconnection facilities transferred will not be eligible for reimbursement by GPA to Seller, Lost Revenue payments, or Dispatch Down Makeup Production in future Contract Years.

1.3 Outage Notification.

(a) Planned Outages. Seller shall schedule Planned Outages in accordance with Good Utility Practices and with the prior written consent of GPA, which consent may not be unreasonably withheld, conditioned or delayed. Nonetheless, the Parties acknowledge that in all circumstances, Good Utility Practices shall dictate when Planned Outages should occur. Seller shall notify GPA of Seller's proposed Planned Outage schedule for the Project for the following calendar year by submitting a written Planned Outage schedule no later than October 1st of each year during the Delivery Period. The Planned Outage schedule is subject to GPA's concurrence, which concurrence may not be unreasonably withheld, conditioned or delayed. GPA shall promptly respond with its approval or with reasonable modifications to the Planned Outage schedule and Seller shall use its Commercially Reasonable Efforts in accordance with Good Utility Practices to accommodate GPA's requested modifications. Notwithstanding the submission of the Planned Outage schedule described above, Seller shall also submit a completed form of outage notification to GPA no later than fourteen (14) days prior to each Planned Outage and reasonably appropriate outage information or requests to GPA. Seller shall contact GPA with any requested changes to the Planned Outage schedule if Seller believes the Project must be shut down to conduct maintenance that cannot be delayed until the next scheduled Planned Outage consistent with Good Utility Practices. Seller shall not change its Planned Outage schedule without GPA's concurrence, not to be unreasonably withheld, conditioned or delayed.

(b) Forced Outages. Within two hours of any Forced Outage Seller shall submit a completed form of outage notification to GPA in accordance with the instructions shown on the agreed form and shall submit outage information to GPA. Seller shall not substitute Renewable Energy from any other source for the output of the Project during a Forced Outage.

(c) Coordination with GPA. GPA shall cooperate with Seller in arranging and coordinating all Project outages.

1.4 Operations Logs and Access Rights.

(a) Operations Logs. Seller shall maintain a log of all material operations and maintenance information on a daily basis. Such log shall include, but not be limited to, information on power production, efficiency, availability, maintenance performed, outages, results of inspections, manufacturer recommended services, replacements, and control settings or adjustments of equipment and protective devices. Seller shall maintain this information for at least two (2) years and shall provide this information electronically to GPA within five days of GPA's request.

(b) Access Rights. GPA, its authorized agents, employees and inspectors shall have the right of ingress to and egress from the Project during normal business hours upon reasonable advance notice and for any purposes reasonably connected with this Agreement.

APPENDIX I

BASE CONDITIONS AND FACILITY TEST PROTOCOL

[Since this bid is opened to different renewable resources GPA is requiring bidders to provide their own test protocols for GPA's review and approval.]

APPENDIX J
INTERCONNECTION AGREEMENT
(TO BE PROVIDED UPON ITS EXECUTION)

APPENDIX K

ADDITIONAL TERMS REGARDING WEATHER HOURS AND DISPATCH DOWN

WEATHER HOURS

For each applicable period, Seller shall calculate (1) the expected production of the Facility using the historical Weather Data from "WeatherBank PGUM_2004-PRES_solar data" provided in bid Amendment 2 (the "Expected Historical Production") and (2) the expected production of the Facility using the actual Weather Data (the "Expected Actual Production"). Seller than then obtain the quotient, rounded to the fourth decimal place (the "Production Factor"), equal to the Expected Actual Production divided by the Expected Historical Production. If the Production Factor is greater than one (1), then no Weather Hours shall be deemed to have occurred. However, if the Production Factor is less than one (1), then Weather Hours shall be deemed to have occurred. The portion of any Deficiency Amount (as defined in the Agreement) attributable to such Weather Hours shall be the difference equal to (A) the aggregate Minimum Production amount for that period minus (B) the product of (x) the Production Factor and (y) the aggregate Minimum Production amount for that period. The Deficiency Amount due to weather shall not be penalized.

The Deficiency Amount due to weather shall be audited annually by an independent auditor to be selected and the cost shared by both Parties.

DISPATCH DOWN

Buyer shall pay Seller, on the date payment would otherwise be due in respect of the day in which any curtailment is initiated by GPA for reasons of Dispatch Down, an amount equal to the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to Buyer but for such Dispatch Down. The determination of the curtailed amount associated with any Dispatch Down shall be calculated as follows:

1) Identification of weather conditions for the period of Dispatch Down
   For any period the Facility was Dispatched Down, Seller shall document the Weather Data associated therewith. ("Weather Data" means solar irradiation, wind speed, and ambient temperatures.)

2) Curtailed amount calculation
   a. Seller shall use PVSyst energy simulation software or other software as agreed by the Parties to generate hypothetical generation amounts for the Dispatch Down period (curtailed amount MWh) by utilizing the Weather Data.

   b. In addition to "Annual Facility Test" (as described in Section 4.9 of this Agreement), GPA shall be entitled to check the accuracy of the equipment associated with the Weather Data once in each Contract Year as agreed with Seller.

APPENDIX L

RESOLUTIONS OF CONSOLIDATED COMMITTEE ON UTILITIES

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INTERCONNECTION AGREEMENT

BETWEEN

GUAM POWER AUTHORITY

AND

HANWHA ENERGY CORPORATION

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Attachment 3 – One-line Diagram Depicting the Small Generating Facility, Interconnection Facilities, Metering Equipment, and Network Upgrades

Attachment 4 – Milestones

Attachment 5 – Additional Operating Requirements for the Transmission System Needed to Support the Interconnection Customer's Needs

Attachment 6 – [Not Used]

Attachment 7 - Bill of Sale

INTERCONNECTION AGREEMENT

This Interconnection Agreement ("Agreement") is made and entered into this [___] day of _____, 201__ (the “Effective Date”), by Guam Power Authority ("GPA" or “Transmission Provider”), and _____("_____" or “Interconnection Customer”) each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties."

Transmission Provider Information

Transmission Provider:	Guam Power Authority
Attention:	_____
Address:	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

Interconnection Customer Information

Interconnection Customer:	
Attention:	Mr. Seung Taek Lee_
Address:	499, Hannuridaero Sejong Si
	30102 Korea
Physical Address:	499, Hannuridaero Sejong Si
	30102 Korea
Phone:	+8244 850 3494
Email:	stlee1108@hanwha.com
Fax:	+8244 850 3519

Interconnection Customer Application No: _____

In consideration of the mutual covenants set forth herein, the Parties agree as follows:

Article 1. Scope and Limitations of Agreement

1.1 This Agreement governs the terms and conditions under which the Interconnection Customer's Small Generating Facility will interconnect with, and operate in parallel with, the Transmission System.

1.2 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power. The purchase or delivery of power and other services that the Interconnection Customer may require will be covered under a separate agreement. The Interconnection Customer will be responsible for separately making all necessary arrangements (including scheduling) for delivery of electricity to GPA in accordance with GPA's standard procedures, as provided by GPA to Interconnection Customer no later than ninety (90) days prior to commencement of testing of the Small Generating Facility.

1.3 Responsibilities of the Parties

1.3.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice.

1.3.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Small Generating Facility and construct or cause to be constructed the Interconnection Facilities in accordance with this Agreement, Good Utility Practice and the requirements of Section 1.4.4 below.

1.3.2.1 The cost of constructing, interconnecting, operating and maintaining the Small Generating Facility shall be borne entirely by Interconnection Customer.

1.3.2.2 The cost of developing, designing, procuring, constructing and installing the Interconnection Facilities shall be borne by Interconnection Customer

1.3.2.3 On or before the Commercial Operation Date (as defined in the Power Purchase Agreement), the Interconnection Customer shall transfer the Interconnection Facilities to GPA by execution and delivery of the Bill of Sale attached hereto as Attachment 7.

1.3.2.4 Interconnection Customer shall manage the overall Construction progress (Engineering, Procuring and Constructing) and bear up to $900,000.00 of the direct, verified costs of construction of such System Stability Upgrades which are referred in Section 4.2 below and in

Attachment 5, but such costs shall in no event exceed $900,000.00. Any verified costs in excess of such amount shall be reimbursed by GPA to Interconnection Customer with GPA's prior approval.

1.3.3 GPA shall operate and maintain the Transmission System, the Interconnection Facilities and the Network Upgrades in accordance with this Agreement and Good Utility Practice.

1.3.3.1 The Parties agree that Network Upgrades [will not be required] solely as a result of Interconnection Customer installing the Small Generating Facility and the Interconnection Facilities.

1.3.4 The Interconnection Customer agrees to construct the Interconnection Facilities in accordance with applicable specifications that meet or exceed those provided by the National Electrical Safety Code, the American National Standards Institute, IEEE Standards, Underwriter's Laboratory, and Operating Requirements in effect at the time of construction and other applicable national and state codes and standards. The Interconnection Customer agrees to design and install its Small Generating Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the system or equipment of GPA.

1.3.5 Interconnection Customer shall be responsible for the safe installation of the Interconnection Facilities. Following transfer by Interconnection Customer in accordance with Section 1.4.2.4, GPA shall be responsible for the safe operation, maintenance, repair, inspection and condition of the Interconnection Facilities and the Transmission System, including System Stability and Network Upgrades

1.3.6 GPA shall provide without cost to Interconnection Customer the reasonable use of labor, personnel and equipment necessary for Interconnection Customer's installation of the Small Generating Facility and the Interconnection Facilities (and the Network Upgrades if applicable), so long as GPA does not incur material out-of-pocket cost or constraint of resources as a result thereof. The foregoing includes, by way of example, (i) providing access to GPA technical information and engineering personnel as needed for questions and answers, (ii) utilizing GPA equipment and trucks as needed for GPA support, (iii) receiving and loading wire reels at the Port of Guam and bringing the same to the Small Generating Facility lay-down area, (iv) providing electricians and equipment for wire installation, splicing, terminations and testing, and (v) providing flag men for traffic control during wire installation, splicing and testing.

1.3.7 GPA shall provide Interconnection customer and its subcontractors regarding the work on the Interconnection Facilities the following items (i) the right of Access to Interconnection Facilities (ii) cover GPA's internal cost of any power shut down support during normal working hours (iii) provide sufficient land for

installing transformer and switchgear to its existing Substations as described in Attachment 2 iv) acquisiton and permitting of additional land for Apra Heights Substation

1.4 Parallel Operation Obligations

Once the Small Generating Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all rules and procedures pertaining to the parallel operation of the Small Generating Facility in the Guam control area, including, but not limited to: 1) the rules and procedures concerning the operation of generation set forth by the Transmission Provider for the Transmission System and 2) the Operating Requirements set forth in Appendix H of the Power Purchase Agreement.

1.5 Metering

The Parties' responsibilities with respect to purchase, installation, operation, maintenance, testing, repair and replacement of metering and data acquisition equipment are specified in Section 7.4 of the Power Purchase Agreement.

1.6 Reactive Power

The Interconnection Customer shall design its Small Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over the range of 0.95 leading to 0.95 lagging, unless GPA has established different requirements that apply to all similarly situated generators in the control area on a comparable basis. The Small Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection.

1.7 Definitions

Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of this Agreement.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

2.1.1 The Interconnection Customer shall test and inspect its Small Generating Facility and the Interconnection Facilities prior to interconnection. The Interconnection Customer shall notify GPA of such activities no fewer than five Business Days (or as may be agreed to by the Parties) prior to such testing and inspection. The notification shall be made by submitting a test plan for GPA's approval prior to the first scheduled testing date. GPA shall provide feedback within ten (10) business days. The test plan shall include all relevant testing details including but not limited to the date and time of each test, and expected MW and MVAR output of the Small Generating Facility. Testing and inspection shall occur on a Business Day. GPA may, at its own expense, send qualified personnel to the Small Generating Facility site to inspect the interconnection and observe the testing. The Interconnection Customer shall provide GPA a written test report when such testing and inspection is completed.

2.1.2 GPA shall provide the Interconnection Customer written acknowledgment within five (5) Business Days, that it has received the Interconnection Customer's written test report. Such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by GPA of the safety, durability, suitability, or reliability of the Small Generating Facility or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the Small Generating Facility.

2.2 Authorization Required Prior to Parallel Operation

2.2.1 GPA has listed applicable parallel operation requirements in Appendix H of the Power Purchase Agreement. Additionally, GPA shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. GPA shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.

2.2.2 The Interconnection Customer shall not operate its Small Generating Facility in parallel with the Transmission System without the one-time prior written authorization of GPA. GPA will provide such authorization once GPA receives notification that the Interconnection Customer has complied with all applicable parallel operation requirements set forth in Appendix H of the Power Purchase

Agreement. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.2.3 GPA shall have control of the power transmission system including the interconnecting transmission line breaker at the point of interconnection.

2.3 Right of Access

2.3.1 Upon reasonable notice, GPA may send a qualified person to the premises of the Interconnection Customer at or immediately before the time the Small Generating Facility first produces energy to inspect the interconnection, and observe the commissioning of the Small Generating Facility (including any required testing), startup, and operation for a period of up to three (3) Business Days after initial start-up of the unit.

2.3.2 Following the initial inspection process described above, at reasonable hours, and upon reasonable notice, or at any time without written notice in the event of an emergency or hazardous condition, GPA shall have access to the Interconnection Customer's premises for any reasonable purpose in connection with the performance of the obligations imposed on it by this Agreement or if necessary to meet its legal obligation to provide service to its customers. Within forty-eight (48) hours after a GPA access due to an emergency or hazardous condition, GPA shall provide a written summary of any such access and of any work performed during such access.

2.3.3 Each Party shall be responsible for its own costs associated with following this article.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective on the Effective Date.

3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect for a period of twenty-five (25) years from the Commercial Operation Date (as defined in the Power Purchase Agreement), or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year

period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement. In no event, however, shall GPA be entitled to terminate this Agreement unless and until the Power Purchase Agreement is terminated.

3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination.

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving GPA twenty (20) Business Days written notice.

3.3.2 Transmission Provider may terminate this Agreement if the Small Generating Facility has ceased commercial operation for three (3) consecutive years, beginning with the last date of commercial operation for the Small Generating Facility, after giving the Interconnection Customer twenty (20) Business Days advance written notice. The Small Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 3.3.2 if the Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Small Generating Facility for the purpose of returning the Small Generating Facility to commercial operation as soon as possible.

3.3.3 Either Party may terminate this Agreement after Default pursuant to Article 7.6.

3.3.4 Upon termination of this Agreement, the Small Generating Facility will be disconnected from the Transmission System. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this Agreement or such non-terminating Party otherwise is responsible for these costs under this Agreement.

3.3.5 The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.6 The provisions of this Article shall survive termination or expiration of this Agreement.

3.4 Temporary Disconnection

Temporary disconnection shall continue only for so long as reasonably necessary under Good Utility Practice.

3.4.1 Emergency Conditions

"Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of GPA, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Transmission System or the Interconnection Facilities; or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generating Facility, or with respect to the Interconnection Facilities until transferred to GPA pursuant to this Agreement. Under Emergency Conditions, if GPA believes that the Emergency Condition may reasonably be expected to affect the Transmission System or the Interconnection Facilities, GPA may immediately suspend interconnection service and temporarily disconnect the Small Generating Facility. GPA shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generating Facility. The Interconnection Customer shall notify GPA promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Transmission System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair

GPA may interrupt interconnection service or curtail the output of the Small Generating Facility and temporarily disconnect the Small Generating Facility from the Transmission System when necessary, according to Good Utility Practice, for routine maintenance, construction, and repairs on the Transmission System. GPA shall provide the Interconnection Customer with five Business Days notice prior to such interruption. GPA shall use Reasonable Efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer. The interruption or curtailment shall continue only for so long as reasonably necessary under Good Utility Practice.

3.4.3 Forced Outages

During any forced outage, GPA may suspend interconnection service to effect immediate repairs on the Transmission System. GPA shall use Reasonable Efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, GPA shall, upon request, provide the Interconnection Customer

written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects

GPA shall notify the Interconnection Customer as soon as practicable if, based on Good Utility Practice, there is a significant probability that operation of the Small Generating Facility will cause damage to the Transmission System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. If, after notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time, GPA may disconnect the Small Generating Facility. GPA shall provide the Interconnection Customer with five (5) Business Day notice of such disconnection, unless the provisions of Article 3.4.1 apply.

3.4.5 Modification of the Small Generating Facility

The Interconnection Customer must receive written authorization from GPA before making any change to the Small Generating Facility that may have a material impact on the safety or reliability of the Transmission System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without GPA's prior written authorization, GPA shall have the right to temporarily disconnect the Small Generating Facility until the Interconnection Customer makes necessary changes in order for the Small Generating Facility not to have a material impact on the safety or reliability of the Transmission System.

3.4.6 Reconnection

The Parties shall cooperate with each other to restore the Small Generating Facility, Interconnection Facilities, and the Transmission System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

Article 4. Cost Responsibility for Interconnection Facilities

4.1 Interconnection Facilities

The Interconnection Customer shall install and pay for the cost of the Interconnection Facilities itemized in Attachment 2 of this Agreement, and as further set forth in Section 1.4.

4.2 System Stability Upgrades

It is agreed that system operational characteristic changes or Small Generator Facility modifications shall be required to be installed by the Interconnection Customer as a result of the development, installation or operation of the Small Generating Facility or other generation installed in Guam.

Transmission system relaying to line current differential upgrade is required as further described in Attachment 5. GPA shall own and operate the System Stability Upgrades described in Attachment 5 of this Agreement, which will be installed as and to the extent required as as result of the Interconnection Customer connecting to the Interconnection Facilities. All actual costs of such required System Stability Upgrades, including overhead, shall be borne by the Interconnection Customer.

For any verified costs for the System Stability Upgrades in excess of $900,000.00, GPA shall reimburse the Interconnection Customer. The Interconnection Customer shall properly notify and obtain GPA's approval prior to exceeding the $900,000.00 cap.

Article 5. [Not Used]

Article 6. Billing, Payment, Milestones, and Financial Security

6.1 Milestones

The Parties shall agree on milestones for which each Party is responsible and list them in Attachment 4 of this Agreement. A Party's obligations under this provision may be extended by agreement. If a Party anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event, it shall immediately notify the other Party of the reason(s) for not meeting the milestone and (1) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (2) requesting appropriate amendments to Attachment 4. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless it will (1) suffer significant uncompensated economic or operational harm from the delay, (2) attainment of the same milestone has previously been delayed, or (3) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment.

Article 7. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default

7.1 Assignment

This Agreement may be assigned by either Party upon fifteen (15) Business Days prior written notice and opportunity to object by the other Party; provided that:

7.1.1 Either Party may assign this Agreement without the consent of the other Party to (i) any affiliate of the assigning Party with an equal or greater creditworthiness and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement, provided that the assigning Party promptly notifies the other Party of any such assignment or (ii) to any person or entity succeeding to all or substantially all of the assets of such Party, and whose creditworthiness is equal to or higher than that of such Party;

7.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of GPA, for collateral security purposes to aid in providing financing for the Small Generating Facility, provided that the Interconnection Customer will promptly notify GPA of any such assignment.

7.1.3 Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same financial, credit, and insurance obligations as the Interconnection Customer. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

7.2 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, consequential, or punitive damages, except as authorized by this Agreement.

7.3 Indemnity

7.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 7.2.

7.3.2 The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7.3.3 If an indemnified person is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this article, to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

7.3.4 If an indemnifying party is obligated to indemnify and hold any indemnified person harmless under this article, the amount owing to the indemnified person shall be the amount of such indemnified person's actual loss, net of any insurance or other recovery.

7.3.5 Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified person shall notify the indemnifying party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying party.

7.4 Consequential Damages

Other than as expressly provided for in this Agreement, neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, or cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

7.5 Force Majeure

7.5.1 As used in this article, a Force Majeure Event shall mean an event or circumstance which prevents one Party from performing its obligations under this Agreement, which event or circumstance was not anticipated as of the Effective Date, which is not within the reasonable control of, or the result of the negligence of, the Affected Party, and which, by the exercise of due diligence, the Affected Party is unable to overcome or avoid or cause to be avoided. So long as the requirements of the preceding sentence are met, a Force Majeure Event shall include, without limitation, any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

7.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party, either in writing or via the telephone, of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of Reasonable Efforts. The Affected Party will use Reasonable Efforts to resume its performance as soon as possible.

7.6 Default

7.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party may give written notice of such Default to the defaulting Party. Except as provided in Article 7.6.2, the defaulting Party shall have sixty (60) calendar days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within sixty (60) calendar days, the defaulting Party shall commence such cure within twenty (20) calendar days after notice and continuously and diligently complete such cure

within six months from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

7.6.2 If a Default is not cured as provided in this article, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this Agreement.

Article 8. [Not Used]

Article 9. Confidentiality

9.1 Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated "Confidential." For purposes of this Agreement all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such.

9.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce this Agreement. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to any permitted disclosee of confidential information pursuant to the Power Purchase Agreement, to fulfill obligations under this Agreement, or to fulfill legal or regulatory requirements.

9.2.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.

9.2.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

9.3 Notwithstanding anything in this Article to the contrary, if during the course of an investigation by a Governmental Authority or otherwise, a Governmental Authority requests information from one of the Parties that is otherwise required to be maintained in confidence pursuant to this Agreement, the Party receiving the request, if required under Applicable Laws and Regulations, shall provide the requested information to the Governmental Authority conducting the investigation, within the time provided for in the request for information. In providing the information, the Party may request that the information be treated as confidential and non-public by the Governmental Authority and that the information be withheld from public disclosure. The Party shall notify the other Party to this Agreement when it is notified by a Governmental Authority that a request to release Confidential Information has been received, at which time either of the Parties may respond before such information would be made public. .

Article 10. Disputes

10.1 The Parties agree to resolve all disputes arising out of this Agreement according to the provisions of the Power Purchase Agreement.

Article 11. Taxes

11.1 The Parties agree to follow all applicable Guam tax laws and regulations.

11.2 Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Agreement is intended to adversely affect the Transmission Provider's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

Article 12. Miscellaneous

12.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the Territory of Guam (where the Point of Interconnection is located), without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

12.2 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

12.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

12.4 Waiver

12.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

12.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by the Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from GPA. Any waiver of this Agreement shall, if requested, be provided in writing.

12.5 Entire Agreement

This Agreement, including all Attachments, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for or any condition to, either Party's compliance with its obligations under this Agreement.

12.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

12.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

12.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

12.9 Security Arrangements

Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. Both Parties are expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

12.10 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four (24) hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

12.11 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each

Party shall remain primarily liable to the other Party for the performance of such subcontractor.

12.11.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall a Party be liable for the actions or inactions of the other Party or its subcontractors with respect to obligations of the first Party under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

12.11.2 The obligations under this Article will not be limited in any way by any limitation of subcontractor's insurance.

12.12 Waiver of Sovereign Immunity

To the extent that GPA may in any jurisdiction claim for itself or its assets or revenues immunity from suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process and to the extent that in any such jurisdiction there may be attributed to GPA or its assets or revenues such immunity (whether or not claimed), GPA agrees not to claim and irrevocably waives such immunity to the full extent permitted by the laws of such jurisdiction.

Article 13. Notices

13.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national currier service, or sent by first class mail, postage prepaid, to the person specified below:

If to the Interconnection Customer:

Interconnection Customer: _____
Attention: _____
Address: _____

	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

If to the Transmission Provider:

	Guam Power Authority
Attention:	_____
Address:	_____
	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

13.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

Interconnection Customer:

Interconnection Customer:	_____
Attention:	_____
Address:	_____
	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

Transmission Provider:

	Guam Power Authority
Attention:	_____
Address:	_____
	_____
Physical Address:	_____

	_____
Phone:	_____
Email:	_____
Fax:	_____

13.3 Alternative Forms of Notice

Any notice or request required or permitted to be given by either Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out below:

If to the Interconnection Customer:

Interconnection Customer:	_____
Attention:	_____
Address:	_____
	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

If to the Transmission Provider:

	Guam Power Authority
Attention:	_____
Address:	_____
	_____
Physical Address:	_____
	_____
Phone:	_____
Email:	_____
Fax:	_____

13.4 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:

Interconnection Customer: _____
Attention: _____
Address: _____
_____
Physical Address: _____
_____
Phone: _____
Email: _____
Fax: _____

Transmission Provider's Operating Representative:

Guam Power Authority
Attention: _____
Address: _____
_____
Physical Address: _____
_____
Phone: _____
Email: _____
Fax: _____

With a copy of all notices, including notices of any defaults, sent to legal counsel of the applicable Party, as follows:

Interconnection Customer: _____
Attention: _____
Address: _____
_____
Physical Address: _____
_____
Phone: _____
Email: _____
Fax: _____

13.5 Changes to the Notice Information

Either Party may change this information by giving five Business Days written notice prior to the effective date of the change.

[Signature page follows]

Article 14. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Transmission Provider

By: _____

Name: _____

Title: _____

Date: _____

For the Interconnection Customer

By: _____

Name: _____

Title: _____

Date: _____

Attachment 1

Glossary of Terms

Applicable Laws and Regulations – All duly promulgated applicable federal, state, territorial and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Business Day – Any day except a Saturday, Sunday, a Federal Reserve Bank holiday or an official Guam holiday. A Business Day shall open at 8:00 a.m. and close at 5:00 p.m. local time for the relevant Party's principal place of business.

Default – The failure of a breaching Party to cure its breach under this Agreement, within the time periods provided in Section 7.6 hereof.

Effective Date -- The date first set forth in the preamble hereto.

Good Utility Practice – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at the lowest reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be generally acceptable and consistently adhered to acceptable practices, methods, or acts.

Governmental Authority – Any federal, territorial or local governmental body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

IEEE Standards - The standards of the Institute of Electrical and Electronics Engineers (IEEE), or its IEEE Standards Association (IEEE-SA), in effect as of the Effective Date.

Interconnection Customer – Any entity, including the Transmission Provider, the Transmission Customer or any of the affiliates or subsidiaries of either, that proposes to interconnect its Small Generating Facility with the Transmission System.

Interconnection Facilities – The Interconnection Facilities include all facilities and equipment between the Small Generating Facility and the Piti and Apra Heights Substations, including any required modification, additions or upgrades related to Interconnection that are necessary to physically and electrically interconnect the Small Generating Facility to such facilities. The Interconnection Facilities are described in more detail in Attachment 2 and Attachment 3 hereto.

Network Upgrades – Additions, modifications, and upgrades to the Transmission System required for steady state system stability to accommodate the interconnection, at the Point of Interconnection, of the Interconnection Customer's facility with the Interconnection Facilities.

Operating Requirements – Any operating and technical requirements that may be applicable and are set forth in the Power Purchase Agreement or in this Interconnection Agreement, including Attachment 5 hereto.

Party or Parties – The Transmission Provider, Interconnection Customer or any combination of the above.

Point of Interconnection – The point at the Small Generating Facility site (_____)where the Small Generating Facility connects with the Interconnection Facilities, as shown in Attachment 3.

Reasonable Efforts – With respect to an action required to be attempted or taken by a Party under the Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Small Generating Facility – The Interconnection Customer's device for the production of electricity, but shall not include the Interconnection Facilities.

Power Purchase Agreement - (i) The Renewable Energy Purchase Agreement for the sale by Interconnection Customer and the purchase by GPA of renewable solar energy from the Small Generating Facility, dated as of _____, 201___.

System Stability Upgrades – Additions, modifications, and upgrades to the Transmission System, System Operational Characteristics or Small Generating Facility required for power system recovery as a result of faults or loss of generation events, which are not considered as Network Upgrades.

Tariff – The Transmission Provider's tariff through which open access transmission service and interconnection services are offered and as amended or supplemented from time to time, or any successor tariff.

Transmission Provider – As defined in the preamble hereto.

Transmission System – The facilities owned, controlled or operated by the Transmission Provider that connect to the Interconnection Facilities and are used to provide transmission service under the Tariff.

Attachment 2

Description of the Small Generating Facility, Interconnection Facilities and Metering Equipment

Equipment, including the Small Generating Facility, Interconnection Facilities, and metering equipment shall be itemized and identified as being owned by the Interconnection Customer or by GPA.

Interconnection Facilities:

The Interconnection Facilities and the capped amounts with respect thereto (beyond which GPA will reimburse Interconnection Customer as set forth in this Agreement) include the following:

Description of work for the Substation:

A. Interconnection Customer is responsible for the design and construction of additions at the existing _____ Piti and Apra Heights Substations. Interconnection Customer shall procure and install Facility Hardware in accordance with applicable codes and standards; plans and specifications. Interconnection Customer shall test and commission the augmented substation to provide for a complete, functional, and operational _____ modification of Piti and Apra Heights Substations. Interconnection Customer shall be responsible for the following:

    1. Development of detailed engineering and physical arrangement for the new additions at the Piti 115 kV Substation and 115 & 34.5kV for Apra Heights Substation. including, but not limited to:

        a. At Piti Substation Interconnection Customer will use the existing spare 115kV switchgear and will connect one circuit (AAAC 927MCM) to it which will come from Apra Heights Substation

        b. At Apra Heights Substation one circuit (AAAC 927MCM) will come in from Malojloj Substation and will connected to the Substation.

        c. Interconnection Customer will provide a 50MVA transformer according to the SIS report which will be installed with switchgear at Apra Heights Substation

        d. In case GPA requires a higher capacity transformer (i.e. 60MVA) due to GPA's grid condition, Interconnection Customer will provide such required transformer on the basis that GPA will provide the cost difference between the 50MVA capacity and the new capacity

2. Civil and foundation design for substation new Equipment and related modification of Existing facility. Supply and installation of structural steel to support new equipment, as required, and anchor bolts for all new equipment. Structural steel will be hot dip galvanized. For foundation design, geotechnical data of Piti and Apra Heights Substations area shall be provided by GPA if available.

3. Circuit and Raceway design for all 34.5 and 115 kV new equipment and related modification of Existing facility in accordance with applicable codes and standards and specifications.

4. Circuit and Raceway list.

5. Interconnection Customer shall prepare an energization and start-up plan and submit to GPA for approval. GPA shall provide input within 10 business days.

6. Exclusion: The Interconnection Customer's work does not include the upgrade of Existing facility's infrastructures such as software version upgrade, utility system, storm & waste water drainage system, security system, external lighting, spare part storage, landscaping and etc.; unless Interconnection Customer's work detrimentally affects function of existing facility. If so, then Interconnection Customer shall take the necessary measures to correct deficiencies.

   For modification of Existing substations, Interconnection customer is only responsible for new equipment and directly-related modification work to have equipment functional that it will provide according to this Agreement.

Description of work for the Malojloj _____ Substation:

A. Interconnection Customer is responsible for the design and construction new _____ Substation. Interconnection Customer shall procure and install Facility Hardware in accordance with applicable codes and standards and specifications. Interconnection Customer shall test and commission the substation to provide for a complete, functional, and operational _____ Substation. Interconnection Customer shall be responsible for the following:

B. GPA shall be involved in the review, inspection, testing and approval processes throughout the design, construction and commissioning, as described herein.

C. GPA reserves the right to witness standard factory testing of Malojloj Substation switchgear, relay and control panel, and similar equipment supplied as spare parts. Not less than 30 days prior to factory tests, a factory test plan shall be submitted to the Owner and GPA for approval. Each item of electrical equipment and similar equipment supplied as spare parts shall be given the manufacturer's routine factory tests and also other tests as specified, to ensure successful operation of parts of the assemblies. The factory test

equipment and the test methods used shall conform to the applicable requirements of ANSI, IEEE, UL and NEMA standards and equivalent standards as approved by GPA. Five certified copies of the reports of production tests, including complete test data shall be submitted to the Owner and GPA. Factory tests shall be witnessed by the Owner and GPA, at the discretion of the Owner and GPA. Interconnection Customer shall be responsible for cost of travel, meals, and accommodations for two (2) GPA personnel for a minimum of three (3) days, or days, required to perform and witness a comprehensive factory acceptance testing.

D. Each Plant will generate and feed a maximum output of 22.5MW to the grid directly and the remaining generated power; which could be a maximum 7.5MW for each Plant will be charged during day time into the ESS and will be discharged during night time. So the total maximum output of the two power Plants is 45 MW and the maximum charging amount is 15MW. One 50MVA Step-up transformer which specification will follow the Harmon substation's 115/34.5kV transformer specification will be installed with switchgear.

E. Description of work for the Malojloj __Substation:

1. The new _____ Substation will be housed in a concrete building. The metering switchgear proposed for the Malojloj Substation, which would be directly adjacent to the Small Generating Facility and on Interconnection Customer's property, include one meter for each project (A), (B) for Power Purchase Agreement billing purposes, and would be a unit that is rated for 34,500 volts and up to 1200 amps of power along with associated auxiliaries. A meter shall also be provided on the 115 kV of the step-up power transformer. The unit would provide protective-type circuit breakers for a currently planned 60MW solar system.

2. The Work under these plans and specifications shall include complete engineering, procurement, and construction services for the 34.5 and 115 kV substation equipment associated with the Project. The Project substation, otherwise known as the Malojloj Substation, shall include 38 kV class switchgear draw-out type breaker assembly of metal-clad vacuum circuit breakers, enclosed in a walk-in concrete structure in area that collects the solar generated ac power at 34.5 kV from the solar array field and 34.5/115 kV Step-Up Transformer with 115kV class SF6 Gas Circuit Breaker (GCB) with associated disconnect switches. .

3. The Interconnection Customer is responsible for the selection, procurement, and installation of all _____ Substation equipment. This equipment shall be GPA approved equipment and conform with GPA current specifications, unless otherwise noted and approved in writing by GPA.

4. The Work required shall consist of:

a. AC collection switchgear, relaying, and metering.

b. The specific technical scope of work under these specifications includes the 38 kV class switchgear, 38 kV class vacuum breakers, one (1) 34.5/115 kV Step-Up Transformer and one (1) 115kV class SF6 Gas Circuit Breaker.

c. Relays, metering, current transformers, and voltage or potential transformers.

d. Surge arresters, cables, and raceways.

e. Grounding and lightning protection.

f. Breaker controls.

g. SCADA system including SCADA Remoter Terminal Unit (RTU).

h. Battery bank and battery bank charger.

i. Station service pad mount transformer including AC panels, DC panels, control wiring, and all other appurtenances for a complete and operational facility in accordance with GPA standards.

j. All of the new facilities shall be Interconnection Customer furnished and installed except as noted herein.

5. The Point of Interconnection is located at the designated 115 kV side of the step-up power transformer with associated metering equipment at the Malojloj Substation at the 34.5 kV level. Interconnection Customer shall provide the substation revenue meter and associated current and potential transformers. The revenue meter shall be a Schweitzer Engineering Laboratories SEL-735 or equivalent. The current and potential transformers shall have 0.2 percent accuracy or better. Current transformers shall be window type. The Interconnection Customer is responsible for the installation of these devices.

6. All necessary mounting materials such as weatherproof enclosures, terminal blocks, shorting current transformer blocks, conduit, etc. shall be provided.

7. Interconnection Customer shall prepare an energization and start-up plan and submit to Owner and GPA for approval 30 days prior to energization. GPA shall provide input within 10 business days.

Description of work for the transmission line from Substation to Substation:

A. Interconnection Customer is responsible for the design and construction of one (1) 115 kV overhead transmission line between Malojloj Substation and Apra Heights Substation.

Interconnection Customer plans to install new steel poles for this 115 kV circuit from Malojloj Substation to Apra Heights Substation along one side of road.

B. Interconnection Customer is responsible for the design and construction of one (1) 115 kV overhead transmission line using existing 115kV steel pole between Apra Heights Substation and Piti Substation along the one side of road. Interconnection Customer is responsible for the modification of existing two (2) 34.5 kV & one (1) 13.8 kV circuits. After the modification each pole will have a one 115kV circuit, two 34.5kV circuits and one 13.8kV circuit configuration

C. The Work includes the complete construction of a 115 kV overhead transmission line from the Malojloj Substation to Piti Substation via Apra Heights Substation in accordance with the applicable codes, standards and specifications.

D. Installation of fiber optic communication lines from Dandan Substation to Apra to Piti 115 kV Substation and associated hardware.

E. Transmission lines shall be 3#927 kcmil AAAC conductors. If required, underground cable for 34.5 kV line shall be two sets 3#1000 kcmil XLPE Al. conductors. 13.8 kV overhead lines shall be 3#336.4 kcmil Al.

F. GPA reserves the right to witness standard factory testing of the power circuit breakers and Apra Heights 50 MVA power transformer, relay and control panel, and similar equipment supplied as spare parts. Not less than 30 days prior to factory tests, a factory test plan shall be submitted to the Owner and GPA for approval. Each item of electrical equipment and similar equipment supplied as spare parts shall be given the manufacturer's routine factory tests and also other tests as specified, to ensure successful operation of parts of the assemblies. The factory test equipment and the test methods used shall conform to the applicable requirements of ANSI, IEEE, UL and NEMA standards and equivalent standards as approved by GPA. Five certified copies of the reports of production tests, including complete test data shall be submitted to the Owner and GPA. Factory tests shall be witnessed by the Owner and GPA, at the discretion of the Owner and GPA. Interconnection Customer shall be responsible for cost of travel, meals, and accommodations for two (2) GPA personnel for a minimum of three (3) days, or days, required to perform and witness a comprehensive factory acceptance testing. Per diem rates shall conform with Federal GSA Schedule.

G. Interconnection Customer will replace one wooden pole with a steel pole as stated in Attachment 2 clause A. The wooden pole is located on the Apra Heights Substation-Piti Substation route at the branch into Tenjo substation. Interconnection Customer’s responsibility will be limited to replacing the wooden pole with the same circuit configuration. In the case that GPA requires additional configuration circuit changes, then GPA will provide the direct cost differences that may arise from the additional configuration changes.

Spare Parts:

The Interconnection Customer shall provide the following spare parts with proper storage;

a. For each equipment supplied, the manufacturer's recommended spare parts shall be provided in accordance with best utility practices.
b. Underground Wire: the length of the longest cable run shall be provided (1000 kcmil XLPE Al. or other approved cable size), if required.
c. Underground Splices/Termination Kits: 10% of total installed, if required.
d. Overhead Transmission Line: Steel pole shall be provided one (1) set per pole type. Spare of 115kV overhead cable is not provided, because Interconnection Customer will follow the GPA's cable standard specification.
e. Non-standard/inventory materials: Provide replacement or replacement parts.

Small Generating Facility:

The general location of the Small Generating Facility and the Malojloj Substation are noted on the attached picture. The facility is planned to be installed at the locations of Lot B-3REM14, B-3REM-R14 and B-3-R4. The Small Generating Facility will be an approximately 60 MW AC fixed tilt solar and 40MW/usable 65MWh Energy Storage System (ESS) for Ramp-rate control generating facility. The Small Generating Facility will be equipped with high efficiency solar panels generating direct current that will be converted to alternating current (AC) using approximately 2,500 to 3,000kW inverters manufactured by SMA or equivalent type. Inverter will generate approximately 60MW AC power that will be transformed by LV side of 550V to 655V to MV side of 34.5kV transformers located in close proximity to the inverter. And also, these approximately 60MW solar generators are connected with Renewable Integrated ESS which is located in ESS building. The ESS consist of approximately 40MWPCS and usable 65MWh Batteries. The PCS will generate V AC power that will be transformed by LV side of 434V to 550VV to MV side of 34.5kV transformers located in close proximity to the PCS. The onsite underground constructed 34.5kV collection grid will bring the 1% ramp rate controlled approximately 60MW solar generated electricity to the Malojloj Substation to be located on the site of the Small Generating Facility, where GPA will accept the metered power under the Power Purchase Agreements.

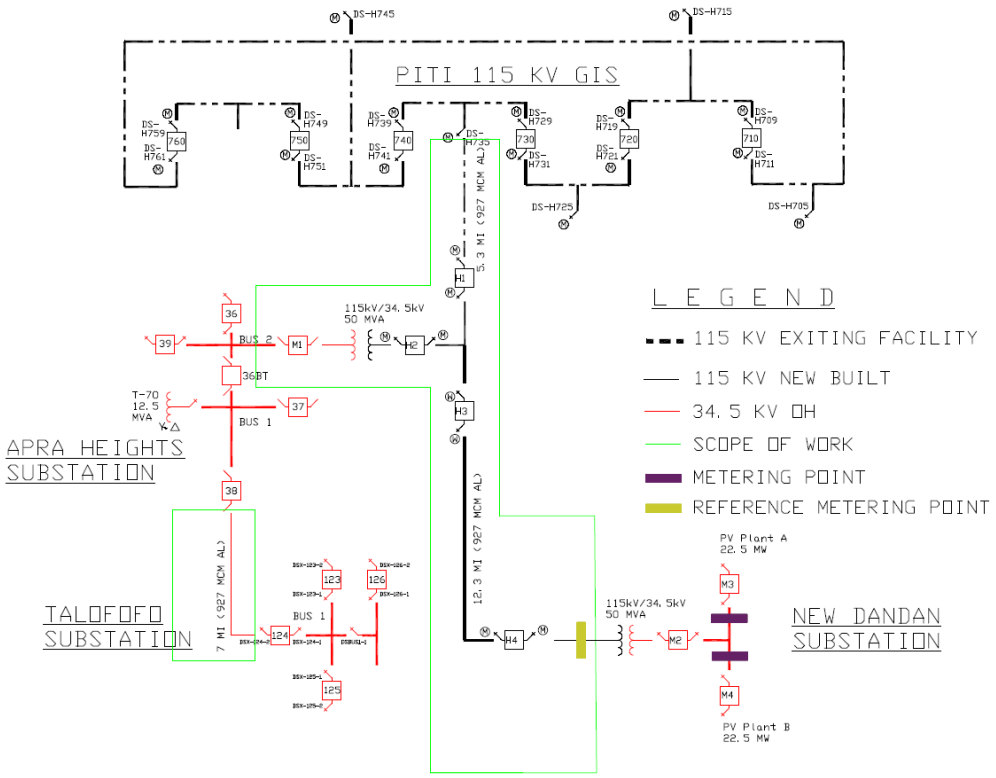
Addendum to Attachment 2 -- Project Site Picture



Project layout is subject to change as a result of archeological findings, wetlands or any other survey results

Attachment 3

One-line Diagram Depicting the Small Generating Facility, Interconnection Facilities and Metering Equipment



Provide meter at the 115 kV side of the step-up power transformer at Malojloj Substation.

Attachment 4

Milestones

In-Service Date: _____

Critical milestones and responsibility as agreed to by the Parties:

	Milestone/Date	Responsible Party
(1)	Preliminary design for Interconnection Facilities (_____/__/20_____)	Interconnection Customer
(2)	GPA approval of design basis (_____/__/20____)	GPA
(3)	Interconnection Customer to have all permits in hand for Interconnection Customer construction to start on public roads (supported by GPA engineering) (_____/__/20_____)	Interconnection Customer
(4)	Construction completion (18 month after permits are in hand)	Interconnection Customer

Agreed to by:

For the GPA (If Applicable) _____ Date_____

For the Interconnection Customer_____ Date_____

Attachment 5

Additional Operating Requirements for the Transmission Provider's Transmission System Needed to Accept the Interconnection Customer

The following requirements must be met by the Interconnection Customer prior to initiating parallel operation with the Transmission Provider's Transmission System:

If ramp rate is greater than 3 MW/minute and this situation lasts more than ten (10) times per day or five (5) consecutive times per day, seller shall reduce plant output to meet ramp rate is less than 3 MW/minute. If system issues remain, GPA reserves the right to restrict Seller's plant output until seller restores operation with a ramp rate less than 3 MW/minute.

(a) GPA counts the failure power is greater than 3 MW/minute.

i. If the number of failure is greater than ten (10) times per day or five (5) consecutive times per day, GPA SCADA sends the warning command to seller's EMS/PMS or inform via email.

ii. Seller's EMS/PMS double check the number of failure times, and send back to GPA SCADA to verify the exact number of failure times.

iii. Seller sends the restore documentation included analysis the data, how to fix, fix plan and expected results to GPA for confirming.

iv. When seller restores operation with a ramp rate less than 3MW/minute for full renewable power (60 MW), than seller send the restore result documentation to GPA.

v. GPA reviews the restore result documentation and allows to operate full (60MW) power of seller's renewable plant.

(b) If GPA's ESS or UFLS is activated twice during a single day, then GPA reserves the right to restrict Sellers's plant output until Seller restores operation with a ramp rate less than 3 MW/minute.

The Interconnection Customer is interconnecting into an established GPA power grid. The Interconnection Customer shall design, construct, and operate its facilities to ensure compatible operations with GPA and protect its facilities against any grid events. These measures shall comply with inverter ride-through and/or ramping requirements as stated in the System Impact Study.

The Interconnection Customer shall be responsible for the following project:

Transmission relay upgrade to line differential relays:

This project will replace existing line and overcurrent relays for 20 existing transmission lines with primary and backup SEL-311L line differential relays. Two each SEL-311L line differential relays will be installed (primary and backup) at each substation associated with a transmission line. Hence, 4 each SEL311L for each transmission line for a total of eighty (80) SEL311L relays shall be installed. The Interconnection Customer shall be responsible for materials, labor, and equipment. GPA will provide technical support in the setting of relays.

The Interconnection Customer's obligation shall be limited to provision of labor, equipment and materials at its cost up to $900,000 only in connection with differential relay replacement project for the System Stability Upgrades.

GPA shall provide the Interconnection Customer with detailed written instructions for quantity and quality of labor, equipment and materials for the differential relay replacement project prior to April 30, 2018 and the scope of work for provision of labor, equipment and materials for the differential relay replacement project shall be mutually agreed by the Interconnection Customer and GPA.

Interconnection Customer shall make best efforts in completing the Transmission Relay Upgrade prior to COD. However, GPA will not unreasonably withhold COD if the Transmission Relay Upgrade is not completed as long as Interconnection Customer complies with all other requirements for COD.

For the implementation Interconnection Customer shall provide to GPA intended construction schedule and construction method and GPA shall provide a response to these items within one (1) week. GPA shall provide Right of Access, Power shut down and all necessary matters so that Interconnection Customer can replace the existing relays at the predetermined date which was agreed on between Interconnection Customer and GPA. If due to GPA's fault the Transmission Relay Upgrade implementation is delayed beyond the intended COD of the Small Generating Facility, Interconnection Customer should be only responsible for the remaining cost up to the cap as defined in 4.2 and shall not be responsible for implementing the remaining Transmission Relay Upgrade.

Upon completion of the differential relay replacement project for the System Stability Upgrades, ownership of all assets in relation to the differential relay replacement project for System Stability Upgrades and all rights thereof shall be transferred to the GPA.

Attachment 6

[Not Used]

Attachment 7

Bill of Sale

THIS BILL OF SALE (this "Bill of Sale") is made and entered into by _____ ("Seller"), and Guam Power Authority ("Buyer", and together with Seller, the "Parties"), effective as of [_____], 20__.

RECITALS

WHEREAS, Seller in connection with the development, construction and ownership of a solar power generating station and related assets located in the Territory of Guam (the "Project") has designed, developed and constructed, and owns, certain transmission, switching and related assets described more fully on Exhibit "A" hereto, together with all ancillary rights and interests (including all manufacturers' and contractors' warranties) relating thereto and further described on Exhibit "A" hereto (the "Assets"); and

WHEREAS, Seller and Buyer entered into a Renewable Energy Purchase Agreement dated as of _____, 201____, pursuant to which Seller and Buyer have agreed to sell and purchase renewable energy generated by the Project (the "Seller Purchase Agreement"), Purchase Agreement, the "Purchase Agreement") and Seller and Buyer entered into an Small Generator Interconnection Agreement dated as of _____, 201___, pursuant to which Seller and Buyer have agreed to the installation and interconnection of the Project with Buyer's transmission system (the "SGIA"); and

WHEREAS, as contemplated by the SGIA, and in connection with the operation of the Project by Seller and the purchase and sale of renewable energy pursuant to the Purchase Agreement, Seller desires to transfer and Buyer desires to receive the Assets.

NOW, THEREFORE, BE IT KNOWN THAT:

1. Conveyance and Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Seller does hereby **GRANT, BARGAIN, ASSIGN, TRANSFER, SET OVER, DELIVER AND CONVEY** to Buyer all of Seller's right, title and interest in and to the Assets, **TO HAVE AND TO HOLD** the Assets by Buyer and its successors and permitted assigns, forever.

2. **NO WARRANTY. THE ASSETS ARE HEREBY CONVEYED AS IS, WHERE IS, AND SELLER HEREBY GIVES NO WARRANTY OF DESIGN, MATERIALS, WORKMANSHIP OR PERFORMANCE OF THE ASSETS, EITHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** However, Seller covenants and agrees that the manufacturers' and contractors' warranties transferred hereby as part of the Assets shall extend for a period of at least one (1) year from the acceptance of the Assets by Seller.

3. Further Assurances. Seller for itself, its successors and assigns, hereby covenants and agrees that, at any time and from time to time upon the written request of Buyer, Seller will do, execute, acknowledge and deliver or cause to be done, executed, acknowledged and delivered, such further acts, deeds, assignments, transfers, conveyances, powers of attorney and assurances as may be reasonably required in order to assign, transfer, set over, convey, assure and confirm unto and vest in Buyer, its successors and assigns, title to the assets sold, conveyed and transferred by this Bill of Sale.

4. Counterparts. This Bill of Sale may be executed in counterparts.

5. Governing Law. This Bill of Sale shall be governed by and construed in and interpreted in accordance with the laws of the Territory of Guam.

[Signature page follows.]

IN WITNESS WHEREOF, the Parties have executed this Bill of Sale as of the date above first written.

Seller:

_____

By: _____

Name: _____

Title: _____

Buyer:

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

A C K N O W L E D G E M E N T S

GUAM, U.S.A.)
) **SS:**
MUNICIPALITY OF)
_____)

ON THIS ____ day of _____, 20___, before me, a notary public in and for Guam, personally appeared _____, known or identified to me to be the _____ of Guam Power Authority, an autonomous instrumentality of the government of the Territory of Guam, whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same on behalf of said corporation, in such capacity, being fully authorized to do so, and for the uses and purposes therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

_____

GUAM, U.S.A.)
) **SS:**
MUNICIPALITY OF)
_____)

ON THIS ____ day of _____, 20___, before me, a notary public in and for Guam, personally appeared _____, known or identified to me to be the _____ of _____, whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same on behalf of said corporation, in such capacity, being fully authorized to do so, and for the uses and purposes therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

_____

Exhibit "A"

Description of Assets

[Description of Interconnection Facilities; see § 1.4.2.4 of SGIA]

[Description of Network Upgrades; see § 5.2 of SGIA]

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-05:

AUTHORIZATION OF INCREASE OF ENGINEERING, PROCUREMENT, AND CONSTRUCTION MANAGEMENT CONTRACT AMOUNT

What is the project's objective? Is it necessary and urgent?

Stanley Consultants was contracted in March 2017 through GPA RFP-17-001 as the Engineering, Procurement and Construction Management (EPCM) Contractor for the New 120-180 MW Power Plant in March 2017. As the EPCM, Stanley is providing the technical and contractual support in the new IPP procurement development and will support procurement activities including contract negotiations. The increase in contract cost will cover services through September 2018.

Where is the location?

The new power plant proposed siting is adjacent to the Harmon Substation.

How much will it cost?

GPA is requesting a $650,000 increase for technical services to develop procurement documents and support procurement activities.

When will it be completed?

Additional costs are for services through September 2018. The contract has a term of 5 years from March 2017.

What is its funding source?

CIP Funds

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

RESOLUTION NO. 2018-05

RELATIVE TO AUTHORIZATION OF INCREASE FOR ENGINEERING, PROCUREMENT, AND CONSTRUCTION MANAGEMENT CONTRACT AMOUNT

WHEREAS, Stanley Consultants was selected through GPA RFP-17-001 as the Engineering, Procurement and Construction Management (EPCM) Contractor for the New 120-180 MW Power Plant in March 2017; and

WHEREAS, in October 2016 the PUC Docket 17-06 approved the initial funding of $750,000 for the procurement development of the new power plant from 2014 Bond Funds – LNG Startup Bond Project; and

WHEREAS, Stanley and its subcontractors have completed several tasks which include

- an initial kick off meeting on site to discuss new plant scope and contract options,
- draft bid documents and contracts including the Request for Qualifications and Technical Bid documents,
- continued technical discussions for IPP scope and support for current land rezoning efforts,
- scope development for geotechnical services; and

WHEREAS, additional funds are required to complete the bid documents to incorporate

- final land details including upcoming preliminary geotechnical studies and environmental and archaeological studies,
- incorporate additional LNG details to support secondary fuel infrastructure requirements for the fuel supply line and at the power generating facility,
- address regulatory requirements and conditions,
- support procurement activities including responses to bidder questions; and

RESOLUTION NO: 2018-05

WHEREAS, GPA estimate funding requirements through September 30, 2018 is an additional $650,000.

WHEREAS, GPA has an approved FY'2018 CIP budget of $800K for IPP Procurement/Construction Management (EPCM Scope); and

WHEREAS, GPA continues to work with Stanley to develop the additional funding requirements through contract award and for services as Owner's Engineer and construction management support activities during construction which will require PUC approval; and

WHEREAS, the increase contract cost exceeds the GPA General Manager's approval authority.

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES, the GOVERNING BODY of the GUAM POWER AUTHORITY as FOLLOWS:

1. The CCU authorizes GPA to increase the Stanley EPCM contract by $650K for a contract total of $1.4M for consulting and technical services through September 2018.
2. The CCU authorizes the GPA General Manager to petition the PUC for approval to increase the Stanley EPCM contract by an additional $650K for a contract total of $1.4M for consulting and technical services through September 2018.

RESOLVED, that the Chairman certifies and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED AND APPROVED THIS 27th DAY OF FEBRUARY 2018.

Certified by:

JOSEPH T. DUENAS
Chairperson
Consolidated Commission on Utilities

Attested by:

J. GEORGE BAMBA
Secretary
Consolidated Commission on Utilities

RESOLUTION NO: 2018-05

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

GPA EPCM Budget Forecast R1

6-Feb-18

Actual Spend per Month	March	April	May	June	July	August	September	October	November	December	Total
SCI	$ 32,198	$ 49,812	$ 71,096	$ 33,341	$ 19,380	$ 24,995	$ 10,081	$ 21,988	$ 21,353	$ 19,867	**$ 304,111**
K&M	$ 42,495	$ 29,865	$ 23,730	$ 48,330	$ 12,375	$ 1,350	$ -	$ 2,445	$ 1,500	$ 1,350	**$ 163,440**
Pond	$ 8,093	$ 1,268	$ 6,820	$ 5,893	$ -	$ -	$ -	$ 1,950	$ -	$ 4,532	**$ 28,556**
EA	$ -	$ -	$ -	$ -	$ 380	$ -	$ -	$ -	$ 847	$ -	**$ 1,227**
RIM	$ -	$ -	$ 1,054	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,054**
GRT	$ 4,113	$ 3,372	$ 4,278	$ 3,648	$ 1,339	$ 1,098	$ 420	$ 1,099	$ 987	$ 1,073	**$ 21,427**
Expenses	$ 15,947	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 15,947**
Totals	**$ 102,846**	**$ 84,317**	**$ 106,978**	**$ 91,212**	**$ 33,473**	**$ 27,443**	**$ 10,501**	**$ 27,482**	**$ 24,688**	**$ 26,822**	**$ 535,761**

Average Spend Per month		Rate (avg.)	1 FTE	1.5 FTE	2 FTE
SCI	$ 30,411	$ 181.67	173	259.5	346
K&M	$ 16,344	$ 270.00			
Pond	$ 2,856	$ 258.97			
EA	$ 123				
RIM	$ 105				
GRT	$ 2,143				
Expenses	$ 1,595				
Totals	**$ 53,576**				

	2018												2019	
Forecast Spending	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**January**	**TOTALS**
SCI	$ 30,411	$ 30,411	$ 31,428	$ 31,428	$ 30,411	$ 30,411	$ 30,411	$ 30,411	$ 62,857	$ 62,857	$ 62,857	$ 15,714	$ 15,714	**$ 465,323**
K&M	$ 1,750	$ 1,750	$ 46,710	$ 46,710	$ 16,344	$ 16,344	$ 16,344	$ 16,344	$ 46,710	$ 46,710	$ 46,710	$ 46,710	$ -	**$ 349,136**
Pond	$ -	$ 15,250	$ 9,333	$ 9,333	$ 2,856	$ 2,856	$ 2,856	$ 2,856	$ 22,400	$ 22,400	$ 22,400	$ -	$ -	**$ 112,540**
EA	$ -	$ -	$ 41,904	$ 53,588	$ 39,787	$ 39,787	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 175,067**
RIM	$ 1,000	$ 3,500	$ 3,500	$ 1,000	$ 105	$ 105	$ 105	$ 105	$ 105	$ 105	$ 1,000	$ 105	$ 105	**$ 10,843**
Expenses	$ -	$ -	$ 250	$ 9,000	$ -	$ -	$ -	$ -	$ -	$ 7,500	$ 7,500	$ 7,500	$ -	**$ 31,750**
GRT (4.166%)	$ 1,381	$ 2,121	$ 5,546	$ 6,293	$ 3,729	$ 3,729	$ 2,071	$ 2,071	$ 5,502	$ 5,815	$ 5,852	$ 2,917	$ 659	**$ 47,686**
Totals	**$ 34,543**	**$ 53,032**	**$ 138,672**	**$ 157,353**	**$ 93,232**	**$ 93,232**	**$ 51,787**	**$ 51,787**	**$ 137,575**	**$ 145,387**	**$ 146,319**	**$ 72,947**	**$ 16,479**	**$ 1,192,345**
Cumulative Totals			**$750K**					**$1.2M**						
SCI	$ 334,522	$ 364,933	$ 396,362	$ 427,790	$ 458,201	$ 488,612	$ 519,023	$ 549,434	$ 612,291	$ 675,148	$ 738,005	$ 753,719	$ 769,434	**$ 769,434**
K&M	$ 165,190	$ 166,940	$ 213,650	$ 260,360	$ 276,704	$ 293,048	$ 309,392	$ 325,736	$ 372,446	$ 419,156	$ 465,866	$ 512,576	$ 512,576	**$ 512,576**
Pond	$ 28,556	$ 43,806	$ 53,139	$ 62,472	$ 65,328	$ 68,183	$ 71,039	$ 73,894	$ 96,295	$ 118,695	$ 141,096	$ 141,096	$ 141,096	**$ 141,096**
EA	$ 1,227	$ 1,227	$ 43,131	$ 96,719	$ 136,507	$ 176,294	$ 176,294	$ 176,294	$ 176,294	$ 176,294	$ 176,294	$ 176,294	$ 176,294	**$ 176,294**
RIM	$ 2,054	$ 5,554	$ 9,054	$ 10,054	$ 10,159	$ 10,265	$ 10,370	$ 10,475	$ 10,581	$ 10,686	$ 11,686	$ 11,791	$ 11,897	**$ 11,897**
Expenses	$ 15,947	$ 15,947	$ 16,197	$ 25,197	$ 25,197	$ 25,197	$ 25,197	$ 25,197	$ 25,197	$ 32,697	$ 40,197	$ 47,697	$ 47,697	**$ 47,697**
GRT	$ 22,808	$ 24,929	$ 30,475	$ 36,768	$ 40,497	$ 44,226	$ 46,297	$ 48,368	$ 53,870	$ 59,685	$ 65,537	$ 68,454	$ 69,113	**$ 69,113**
Project Cumulative Totals	**$ 570,304**	**$ 623,336**	**$ 762,007**	**$ 919,361**	**$ 1,012,593**	**$ 1,105,825**	**$ 1,157,612**	**$ 1,209,399**	**$ 1,346,974**	**$ 1,492,361**	**$ 1,638,681**	**$ 1,711,628**	**$ 1,728,106**	**$ 1,728,106**

GRAND TOTAL
(current spend thru 12/17 + forecast)
$ 1,728,106

STANLEYCONSULTANTS, Inc
8000 South Chester Street ❯ Suite 500 ❯ Centennial, CO 80112
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February 7, 2018

This scope of work is the basis for the budget forecast submitted to GPA on February 2, 2018.

Tranche 1 to $750,000

- **Support Land rezoning – schedule item MI3-1901**. This scope includes work by RiMS and Stanley in support of the property rezoning legislature effort and work by EA Engineering, Science and Technology to perform environmental property surveys and Archeology Inventory survey. January 1 through March 31.

- **Project Management activity PM000**. This scope of work includes support conference calls, coordinate response to GPA questions and requests, prepare meeting minutes, periodic reports, monthly reports and invoices, manage the internal team and subcontractors. Ongoing through March 31.

- **Incorporate comments for Integrated Power Producer (IPP) Issue for Bid (IFB) documents Package – schedule item MI3-1030**. Pond, Stanley Consultants and K&M Advisors will incorporate GPA comments and discussed changes into documents in preparation for CCU and PUC review and comments. CCU comments will be incorporated prior to submittal to PUC. February 5 through March 31.

- **Evaluate RFQ responses – schedule item MI3-1009**. Stanley Consultants and K&M Advisors personnel will support GPA in the evaluations of the submitted RFQ proposals and recommend the selection of the most qualified IPP proponents and document the reasons for disqualifications. This is planned to be a large effort as many responses are expected; several that may be outside the RFQ requirements. Evaluations to take place at GPA offices. March 23 to April 6.

Tranche 2 to $1,500,000

- **Support Land rezoning – schedule item MI3-1901**. This scope includes work by RiMS and Stanley in support of the property rezoning legislature effort. This also includes the remaining environmental survey work by EA Engineering, Science and Technology to perform property surveys and Archeology Inventory survey. April 1 through June 1.

- **Project Management activity PM000**. Support conference calls, coordinate response to GPA questions and requests, prepare meeting minutes, periodic reports, monthly reports and invoices, manage the internal team and subcontractors. Ongoing through January 31, 2019.

- **Respond to PUC questions about the IFB documents and process. Schedule item MI3-1036**. April 3 to April 23,

- **Incorporate Land information and PUC comments into the IFB documents. Schedule items MI3-1040 and MI31902**. Pond, Stanley Consultants and K&M Advisors will incorporate PUC comments and discussed changes into IFB documents in preparation for issuing for bid by GPA procurement. April 13 through May 18.

- **Support IPP IFB questions during bid process – Schedule item MI3-1052**. Stanley Consultants, Pond and K&M Advisors will support GPA in the response to bidder questions during the IFB proposal development period. Support GPA with preparation of addendums added during the proposal development period. May 15 to September 6.

- **Develop IPP IFB proposal review, evaluation, and recommendations. Schedule item MI3-1060**. Stanley Consultants, K&M Advisors and Pond will support GPA procurement and personnel in the review and evaluation of submitted IPP IFB proposals. This will include rankings and a recommendation for selection. Review and evaluation of proposals to take place at GPA offices. September 6 to November 1.

- **Provide procurement – negotiations support to GPA with the selected proponent to reach contractual agreement. Schedule item MI3-1070**. November 1 through January 31, 2019.

- **Respond to requests for information and questions from the CCU during the contract approval. Schedule item MI3-107**1. December 18 to January 3, 2019.

- **Respond to requests for information and questions from the PUC during the contract approval. Schedule item MI3-1073**. January 3 to January 31, 2019.

- **Support GPA in responding to questions and comments during the protest period.** December 18 to January 9, 2019

GUAM WATERWORKS AUTHORITY
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Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, GU 96913
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AFFIDAVIT OF KELLY O. CLARK, ESQ.

1. I am over the age of eighteen (18) years and have no disability that would prevent me from rendering testimony;

2. I make this affidavit based on my own personal knowledge of the events and facts stated herein;

3. I attended the regular board meeting of the Guam Waterworks Authority (GWA) on February 27, 2018 and acted as legal counsel for GWA during said board meeting;

4. Based on my oral and written recommendation, and after an affirmative vote of all the members of the Consolidated Commission on Utilities at said board meeting, an executive session was held wherein the following matters were discussed in my presence:

    1. a damage claim made by a customer
    2. a GWA personnel matter

5. Affiant further sayeth naught.

Respectfully filed with the Guam Waterworks Authority Board Secretary for the Consolidated Commission on Utilities on this February 27th, 2018.

Respectfully,

Kelly O. Clark
GWA General Counsel