Gmail

BENJAMIN CRUZ <speaker@senatorbjcruz.com>

MC Fwd: CCU MEETING 6/5/18 / MEETING MATERIALS

1 message

BENJAMIN CRUZ <speaker@senatorbjcruz.com>
To: 34th Guam Legislature Clerks <clerks@guamlegislature.org>
Cc: Rennae Meno <rennae@guamlegislature.org>

Wed, Jun 6, 2018 at 8:35 AM

06/06/18	06/06/18	Consolidated Commission on Utilities	CCU Meeting May 5, 2018. Materials.*	34-18-1957

---------- Forwarded message ---------
From: **Bernadette Lou Sablan** <l.sablan@gpagwa.com>
Date: Tue, Jun 5, 2018 at 4:48 PM
Subject: CCU MEETING 6/5/18 / 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>, "Kevin Kerrigan (kevin@postguam.com)" <kevin@postguam.com>, Kim Garrido <kim.garrido@mec-guam.com>, "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>, "Patricia L. Diego" <pldiego@gpagwa.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 pdf file for today's CCU meeting materials.

GL#34-18-1957
Speaker Benjamin J.F. Cruz

JUN 06 2018
Time: 835 [ ] AM [ ] PM File No. _____
Received By:

Best,

Lou

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/

2018 JUN -6 AM 9:24

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OFFICE OF SPEAKER BENJAMIN J.F. CRUZ

Committee on Appropriations and Adjudication

I Mina'trentai Kuatro na Liheslaturan Guahan

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

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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., June 5, 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
   - 4.1.2 Financials
   - 4.1.3 Resolution No. 34-FY2018/GPA Resolution No. 2018-13 Change Order for the GPWA SCADA System Contract to Include the Ugum Surface Water Treatment Plant SCADA integration Upgrade
   - 4.1.4 Resolution No. 35-FY2018 MOU for the Renewal of the GWA / GFT Collective Bargaining Agreement
   - 4.1.5 Resolution No. 36-FY2018 Design Services for the Pressure Zone Realignment and Tank Repair/Replacement Contract
   - 4.1.6 Resolution No. 37-FY2018 Approval of Expenditures for Security Services Contract in Excess of the General Manager's Authority

   - 4.2 GPA
   - 4.2.1 GM Report
     - 4.2.1.1 Update
     - 4.2.1.2 Net Metering Credits
   - 4.2.2 Financials
   - 4.2.3 Relative to Generation Financing
   - 4.2.4 Resolution 2018-11 Levelized Energy Adjustment Clause (LEAC)
   - 4.2.5 Resolution 2018-12 Relative to Hyundai RFO Fuel Contract Extension
   - 4.2.6 Resolution 2018-13/GWA Resolution No. 34-FY2018 Change Order for the GPWA SCADA System Contract to Include the Ugum Surface Water Treatment Plant SCADA integration Upgrade

5. OLD BUSINESS

6. ANNOUNCEMENTS
   - 6.1 Next CCU Meetings: GWA Work Session: 7/17/18; GPA Work Session: 7/19/18
     CCU Meeting: 7/24/18

7. EXECUTIVE SESSION
   - 7.1 Personnel 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., May 22, 2018

MINUTES

1. CALL TO ORDER

The Chairman called the CCU regular meeting of May 22, 2018 to order at 5:30 p.m. He said all four (4) Commissioners were present, and that Comm. Sanchez is on his way. Others present include:

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
Paul Kemp	GM (A) / GWA
Melinda Mafnas	GM (A) / GPA
John Cruz	AGMET / GPA
Tricee Limtiaco	AGMA / GPA
John Kim	CFO / GPA
Graham Botha	Staff Attorney / GPA
Kelly Clark	Staff Attorney / GWA

Management & Staff:

Teresa Camacho	Customer Service / GWA
Jacalyn Taisacan	Customer Service / GWA
Ron Topasna	Operations / GWA
Dave Fletcher	GWA
Zina Charfaurous	Personnel Admin / GWA
Vincent Pangelinan	GWA
Heidi Ballendorf	Communications / GWA
Ann Borja	Mgmt. Analyst / GWA Ex. Office
Lou Sablan	Board Secretary / CCU

Guest:

John Riezel	Brown & Caldwell

Cheryl Dirks	Brown & Caldwell
Angela Perez	AM Insurance
Annmarie Muna	AM Insurance
Marcel Camacho	Resident

- Arrived after meeting adjourned.

2. APPROVAL OF MINUTES

The Minutes of April 20, 2018 was presented for approval.

Comm. Santos motioned to approve the Minutes subject to verification and written correction, second by Comm. Bamba. There was no further discussion or objection and the motion passed.

3. COMMUNICATIONS

3.1 Public Comments - None

4. NEW BUSINESS

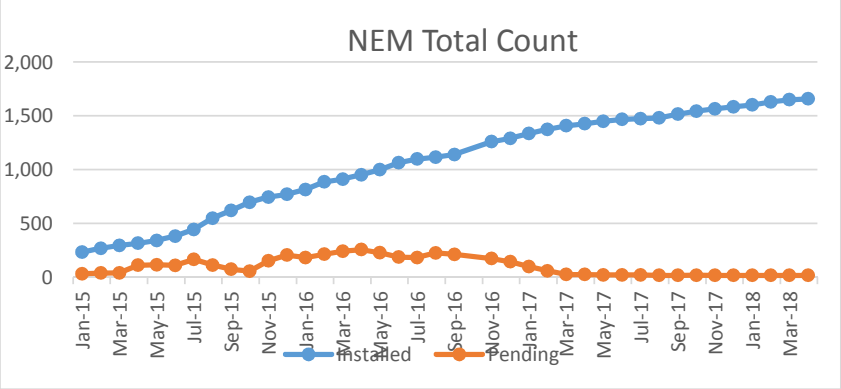
4.1 GPA

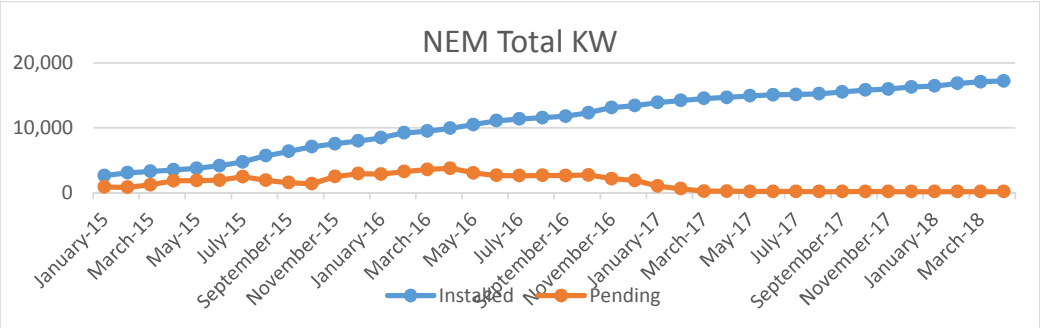
4.1.1 GM Report Update (refer to updated report from Tricee)

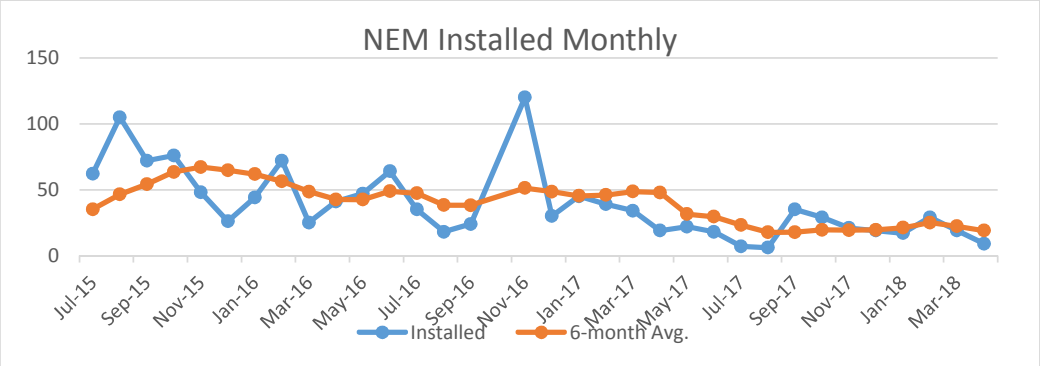
Generation System Update:

The following summarizes the expected generation capacity situation for June 2018. The peak demand for June is projected to be 255 MW. GPA is scheduling the chemical cleaning of the Cabras 1 steam boiler for the end of May. The system is now heading into the higher peak months of the summer. Last year, the peak demand was 261 MW on August 1st, 2017. It is anticipated peak demand for CY 2018 may be 265MW. It appears the Demand Side Management program is having some impact in slowing the system growth in peak demand.

June 2018 Projected Capacity:	**385 MW**
June 2018 Projected Demand	**255 MW**
Projected Reserve Margin	**130 MW**







Renewable Energy Production Summary thru April 2018:

Energy Production Source:	Kwh	Oil Barrels Avoided	Fuel Cost Avoided
NRG Total Production beginning Oct 2015	124,386,711	207,977	$11,438,719
Net Metering Estimated Production beginning Jan 2015	61,981,993	103,635	$5,699,922
Wind Power Production beginning Jan 2016	927,422	1,551	$85,287
Renewables Total:	**187,296,126**	**313,162**	**$17,223,928**

Demand Side Management (DSM) Program Expenses Thru April 2018:
All Expenses – Fiscal Year

Description	FY16	FY17	FY18 as of April 30	Total to Date
Regular/OT Pay	$11,348.80	$22,256.00	$11,005.25	$44,610.05
Other Contractual	$28,278.50	$73,010.05	$2,885.00	$104,173.55
Bank Fees	$155.00	$1,032.06	$230.00	$1,417.06
Paid Rebates-Split AC	$154,700.00	$557,275.00	$649,875.00	$1,361,850.00

Paid Rebates-Central AC	$3,400.00	$8,200.00	$1,300.00	$12,900.00
Paid Rebates-Washer/Dryer	$2,800.00	$7,425.00	$8,600.00	$18,825.00
Total Expenses	**$200,682.30**	**$669,198.11**	**$673,895.25**	**$1,543,775.66**

SUMMARY

DESCRIPTION	AMOUNT
Initial DSM Budget FY'16	$1,806,014.00
Interest Income as of Apr 18	$3,900.94
Total Expense	**$1,543,775.66**
Ending Balance as of Apr 18	$266,139.28
Addtl. Budget: Approved (FY'18)	$1,139,189.00
Total Ending Balance as of Apr 18:	**$1,405,328.28**

5. Net Metering Customer Credit Recommendation: GPA will complete its analysis and recommendation as to what credit and cost should be applied to net metering energy. GPA will provide its recommendation at the June 6, 2018 CCU regular meeting. Once the CCU approves a policy, GPA could petition the PUC for their approval.

6. Phase II Renewables: The Signing of the power purchase agreement with KEPCO/LGCNS is scheduled for May 31st at 9am here at Fadian. We will send out invitations to the CCU.

7. **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 technical proposals are due on June 19, 2018. The opening date of prices of acceptable technical proposals has been set for August 17, 2018.
8. **Typhoon Dolphin:** The final payment of $1,324,392.70 was received from FEMA on 5/22/18, for costs associated with the 2015 storm. Total FEMA reimbursement was **$2,154,585.32** (75% of total cost).

Description	FEMA Share	GPA Share
Cabras 1 Main Transformer Temporary Repairs	$142,952.03	$47,650.68
Cabras 1 Main Transformer	$599,916.00	$421,250.00

Add'l Generators (GWA)	$230,276.63	$76,758.88
Substation Damages	$1,181,440.67	$393,813.56

9. **PUC April 26, 2018 regular meeting resulted in the following:**
   - Approval of GPA Docket 18-12, Invitation for Bid (IFB) for Property Insurance

   Dockets to be considered in the May PUC meeting:
   - GPA Docket 18-13, Petition to Approve the Piti 8 & 9 Contract Extension with Marianas Energy Corporation
   - GPA Docket 18-14, Petition to Approve the Purchase of Harmon Property for New Generation Plant

10. Supervisory Control and Data Acquisition (SCADA) Commissioning: The new SCADA system being housed in Fadian is on track for commissioning in October 2018. The new system includes the latest technology for the GPA power and GWA water and wastewater system. The factory testing of the system's major components has been rescheduled to early June in Taiwan.

11. Key Performance Indicators: The following are updated indicators thru March 2018. Sales continued to be strong. Fuel oil prices have risen again and has passed $70 per bbl.

- Public Law 102-34, consolidation of the Ukudu lots (60 acres) and rezoning to M1 took effect on May 16, 2018. Bill 223-34 was passed by the 34th Legislature by a vote of 11–2. The Governor allowed the Bill to lapse.
- Bid Submittals (Step 1) were opened on April 5, 2018. 18 submittals were received.
  1. APTIM
  2. Green Globe Solutions
  3. Guam Power Partners
  4. Hanwha Energy
  5. Karpower International
  6. KEPCO/EWP
  7. Korea Midland Power
  8. Korea Southern Power
  9. Osaka Gas Co.
  10. POSCO Energy
  11. Proman Global Dev.
  12. Samsung C&T Corp.
  13. Shanghai Electric Power
  14. Sojitz
  15. Summit Power Group
  16. TEMES
  17. Toyota Tsusho Corp.
  18. Wartsila

- Qualified Proponents will proceed to Step 2 (Technical Bid)
  1. Hanwha Energy
  2. KEPCO/EWP
  3. Osaka Gas Company
  4. POSCO Energy
  5. Samsung C&T Corporation
  6. Toyota Tsusho Corporation
  7. Wartsila

- Notifications were issued today
- Issuance of technical bid specifications after CCU & PUC approvals

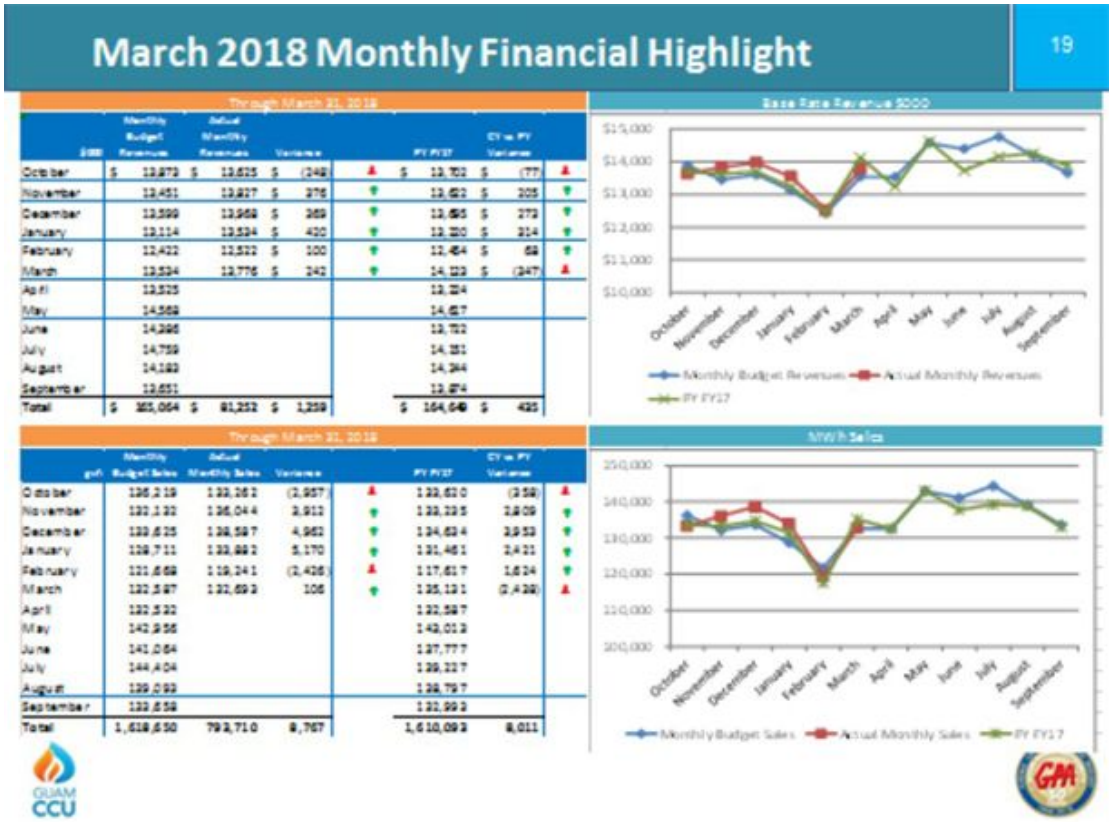
Various graphs were also included in the report but not shown here. A full copy of the report is available upon request.

In discussion it was mentioned that GPA received $1.3M from FEMA for reimbursement that PUC will entertain land purchase for new power plant at their May 30th meeting, that PSCC will move to Fadian around Oct. 1. The system will run parallel until the new equipment is stabilized.

ACTION: Chairman said to GPA GM to work with GWA on better resolution for lightning strikes that affect water wells. GPA GM said he will work with GWA to address system protection / action plan.

4.1.2 Financials

CFO Kim confirmed there was no change in the financials as reported at the May 17th GPA Work Session. The report is posted below for the record.



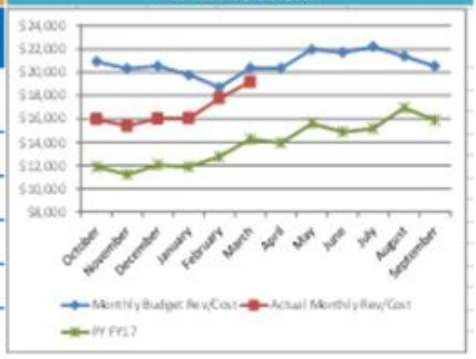
March 2018 Monthly Financial Highlight (Continued)

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Through March 31, 2018

2018	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	20,500	16,400	$ (4,099)	↓	11,215	4,185	↑
December	20,529	16,007	$ (4,522)	↓	12,036	3,971	↑
January	19,774	16,038	$ (3,735)	↓	11,387	4,650	↑
February	18,691	17,765	$ (926)	↓	11,751	6,014	↑
March	20,670	19,180	$ (1,490)	↓	14,348	4,832	↑
April	20,581				15,940		
May	21,955				15,396		
June	21,672				14,859		
July	22,185				15,375		
August	21,569				16,967		
September	20,554				15,855		
Total	$ 248,677	$ 100,322	$ (20,270)		$ 166,423	$ 26,311	

Rual Revenue/ Cost $000



- Under recovery of LEAC - $14.4 million

March 2018 Monthly Financial Highlight (Continued)

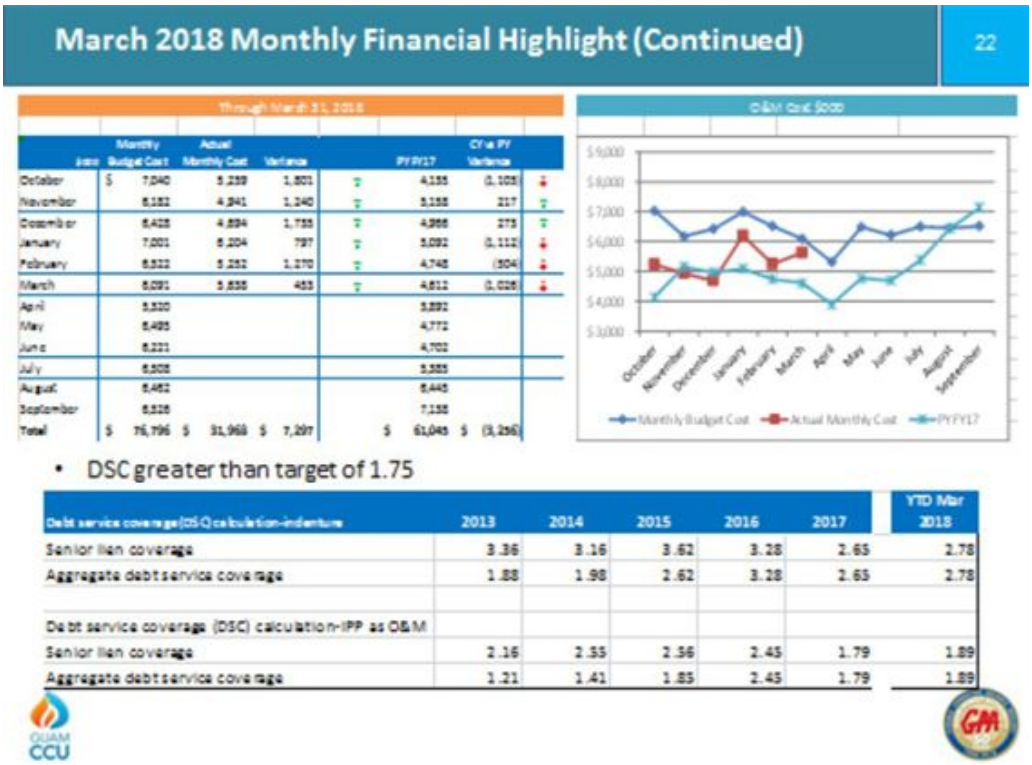
21

Through March 31, 2018

	1Q 2017	2Q 2017	3 Q20 17	4Q 2017	1Q 2018	2 Q20 18
Residential	42,582	42,718	43,002	42,991	43,898	44,065
Commercial	5,235	5,236	5,252	5,226	5,231	5,262
Government	1,071	1,077	1,071	1,073	1,076	1,086
Streetlights	723	800	824	823	908	1,005
Navy	1	1	1	1	1	1
	50,611	50,832	51,050	51,114	51,114	51,419

Number of Customers





4.1.3 Resolution 2018-10 Relative to Unarmed Security Guard Services

This request is to increase the contract amount thru the end of the FY

The renewal of current contract is necessary and urgent in order to provide GPA with security guard services at various locations for the protection of GPA physical assets and employees. Security Guard services extended to Supply Warehouse, Storage Yard and T&D Service Center, Gloria B. Nelson Public Service Facility, Cabras Power Plant and Dispatch Control Center Compound, Tanguisson Power Plant.

The cost for the services is detailed below and will be funded with O&M Funds.

Site		**Monthly Cost**
1)	Supply Warehouse, Storage Yard and T&D Service Center	$11,490.20
2)	Gloria B. Nelson Public Service Facility	$8,237.27
3)	Cabras Power Plant and Dispatch Control Center Compound	$11,490.20
4)	Tanguisson Power Plant	$11,490.20
	Monthly Total:	*$42,707.87*
	Total Additional Cost (4 months)	**$170,831.48**

Base Year	$512,494.44	CCU Resolution 2016-35
1st Year Option	$512,494.44	CCU Resolution 2016-35
Temporary Addition of Aggreko/Yigo CTs	$22,948.92	GM Authority
Final Option Year (4 mos)	$170,831.48	
Subtotal	*$1,218,769.28*	

2016-35 Approval	($1,024,988.88)
Total Additional Funding	**$193,780.40**

Pacific Island Security Agency is the current contractor and they are on their 2nd year option to renew based on the terms below:

Base contract term:	06/01/16 – 09/30/16
	10/01/16 – 05/31/17
1st year option to renew term:	06/01/17 – 09/30/17
	10/01/17 – 05/31/18
2nd year option to renew term:	06/01/18 – 09/30/18

Comm. Santos motioned to approve Resolution 2018-10; second by Comm. Bamba. There was no further discussion or objection and the motion passed.

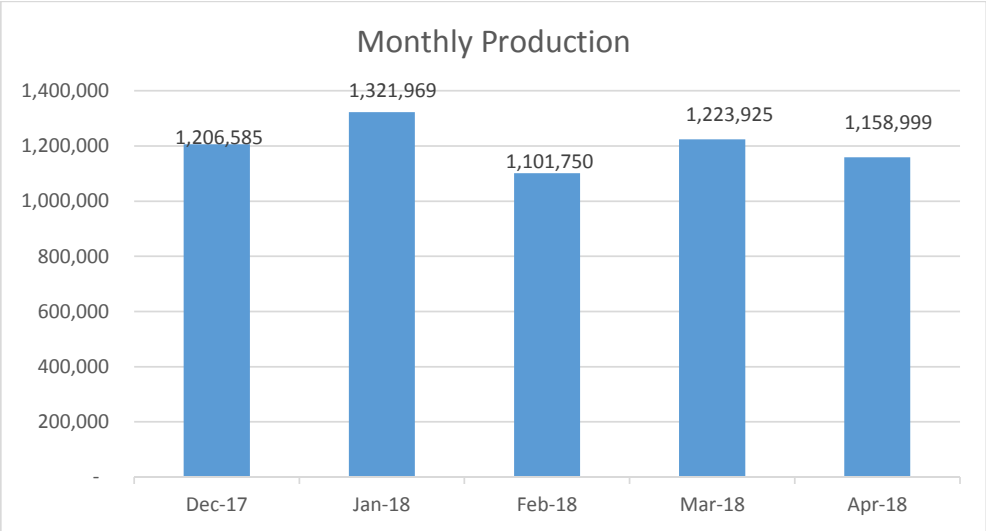
4.2 GWA

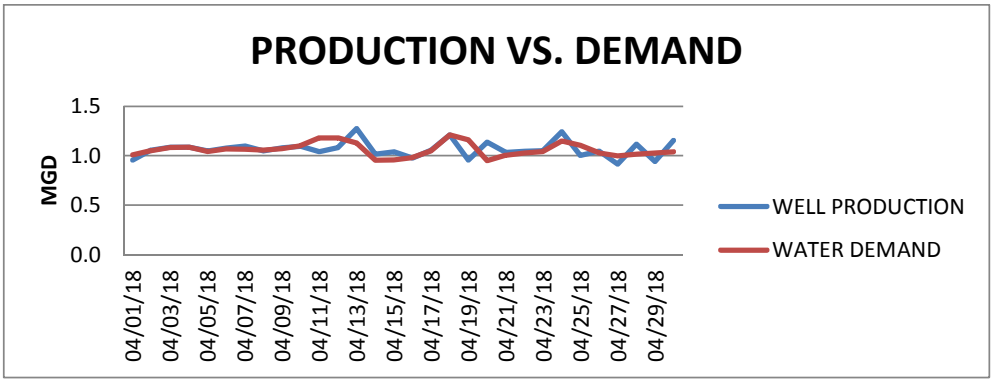
4.2.1 GM Report Update

Operations Update

Production

Monthly Production Summary - April 2018					
Deep Wells				35.4	MGD
	Active wells =	95	of 120		
	Avg days in operation =	30.00	days		
	Total Production =	1,063,306	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 =	30	days		
	Total Production =	63,763	Kgals		
Tumon Maui Well				1.03	MGD
	Avg days in operation =	30	days		
	Total Production =	31,930	Kgals		
		1,158,999	Kgals	38.6	MGD





Distribution

Monthly Distribution Summary - April 2018

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	14	93.3%
		25	51	47	92.2%

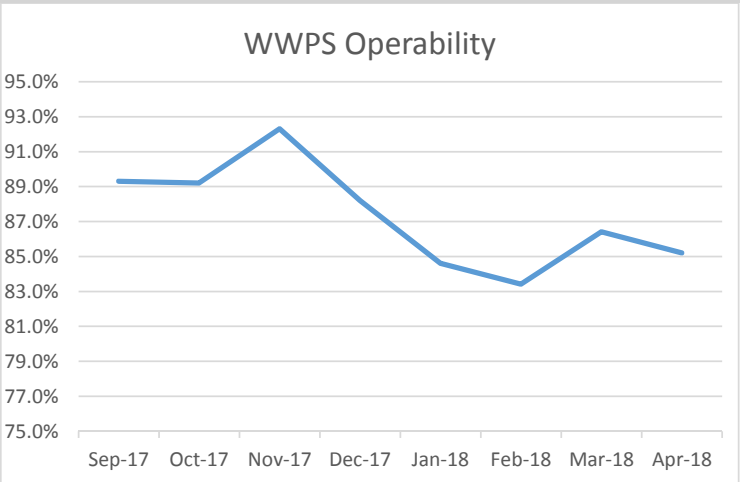


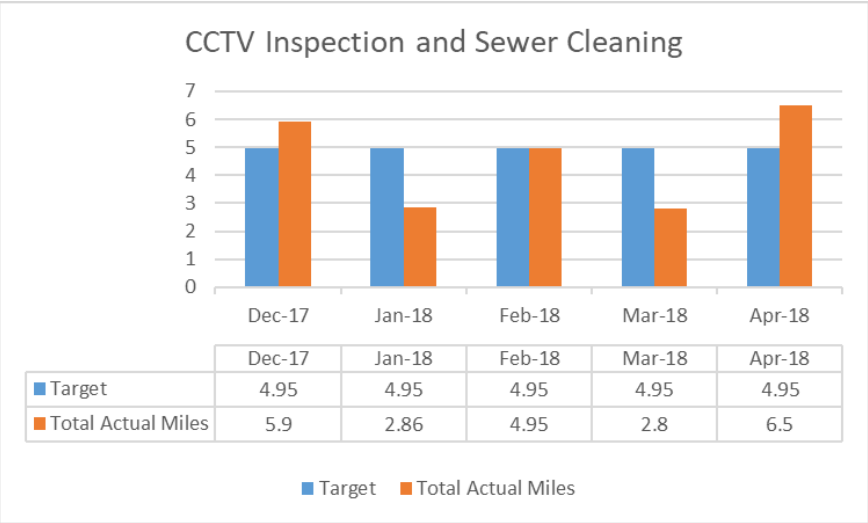
Wastewater Collections

Monthly Collections Summary - April 2018

Wastewater Pump Stations

	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	22	52	46	88.5%
	Central	29	63	55	87.3%
	Southern	27	54	43	79.6%
		78	169	144	85.2%





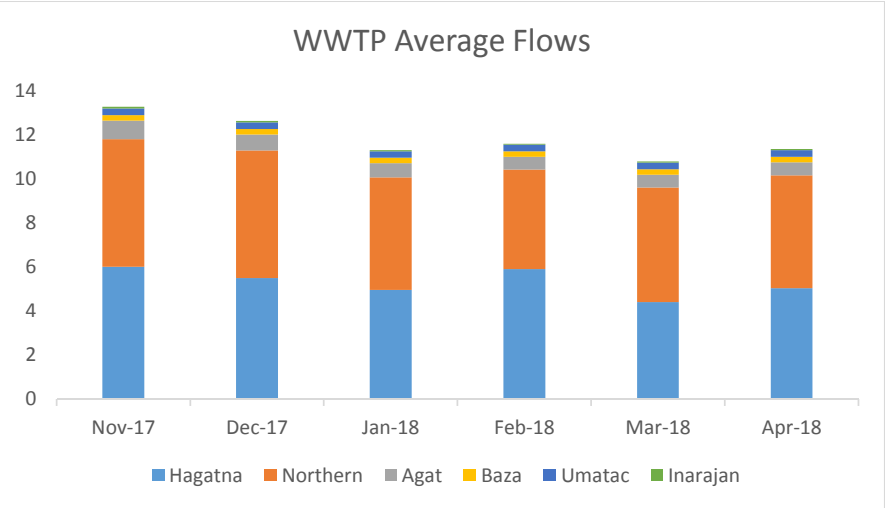
	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Target	4.95	4.95	4.95	4.95	4.95
Total Actual Miles	5.9	2.86	4.95	2.8	6.5

Wastewater Treatment

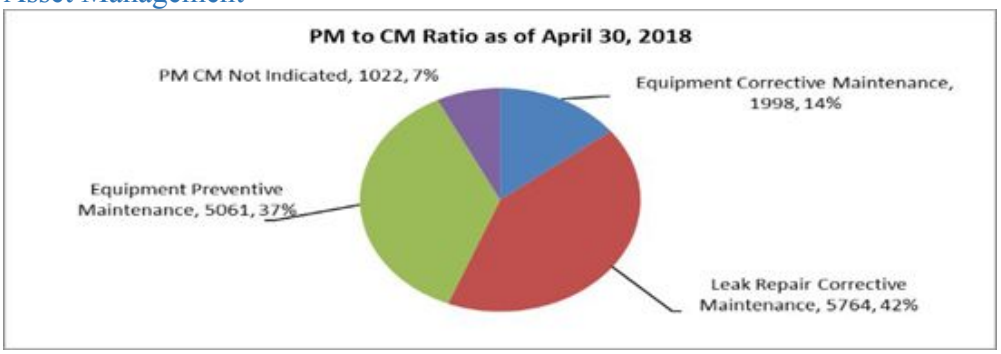
Monthly Wastewater Treatment Summary - April 2018

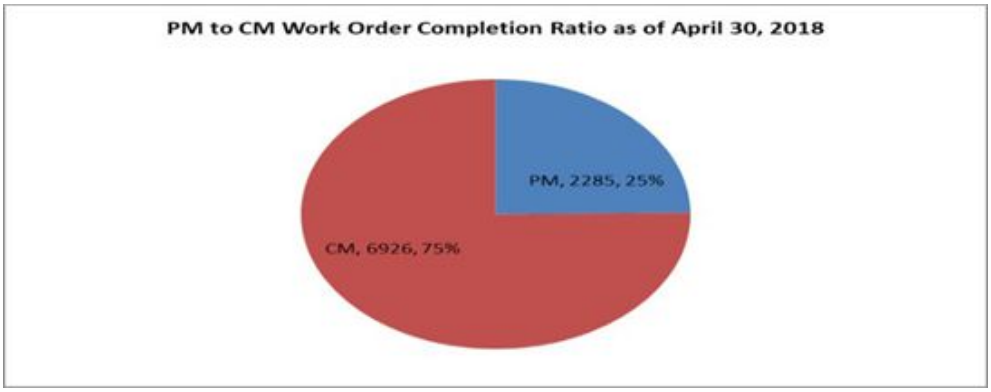
WW Treatment Plants - Flows

	Facility	Avg. Daily Flows	Sludge (lbs)	Sludge Disp. ($)
	Hagatna	5.03	527,980	$ 47,518
	Northern	5.12	934,500	$ 84,105
	Agat	0.59		
	Baza	0.25		
	Umatac	0.30		
	Inarajan	0.06		
		11.35	1,462,480	$ 131,623



Asset Management





Operational Issues

Production & Distribution

- Leak repair
  - Crews maintaining performance - There are 49 pending repairs, 32 requires a backhoe
  - pending IFB for leak repair services
  - pending IFB for advanced remote leak detection services
- Recently reported "leak" at Asan Springs was inaccurate; overflow from Asan Springs was a natural result of spring water exceeding capacity of raw water reservoir and a clogged storm water drain.
  - No water from GWA's distribution system was lost at this location.
  - GWA unclogged portion of the storm water system, however, a segment of DPW's storm water system is still clogged and allowing storm water runoff from the springs to run along the curb and gutter of the roadways in the vicinity.
- Ugum WTP – scope of SCADA improvements finalized – pending pricing adjustments and change order.
- 2018 Pump/Motor order – released on February 16, 2018; Submersible Motor Order: 50 ordered, 49 have been received, 98% of order is complete. We are pending 1 each 150hp Submersible motor. Submersible Pump Order: 70 ordered and 70 received, 100 % order complete.

- GWA Crane Repair –all issues resolved; unit is working properly; load testing/certification pending.

Wastewater Collection & Treatment

- CCTV:
  - Crews completed approximately 2.81 miles in March and approximately 6.5 miles in April.
- Pump station facility maintenance efforts still underway
- All issues related to USEPA inspection at Hagatna WWTP have been addressed with two items pending.
  - Effluent pump was down – repair on one pump completed, critical spare motor in procurement.
  - Digester mixer was down – pending gearbox repair
  - Floc chamber mixers were down – repairs have been completed, all floc chambers in operation.
  - One Centrifuge is operational and second is pending HMI display panel replacement scheduled for today.
  - Safety issue – motor guards have been reinstalled.

Meters

COMPLETED FIELD ACTIVITY JAN 2017 THRU APRIL 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	Feb-18	Mar-18	Apr-18	TOTAL:	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	969	1213	1429	9567	224
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	452	259	239	1086	2120	121	10053	0
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	82	169	356	106	117	69	2858	3
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	127	612	858	1122	1055	463	5855	21
TOTAL:	453	312	343	743	1360	878	1351	2237	###	###	1095	1418	###	3283	4505	2082	28333	248

# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	927	704	721	1041	1347	815	10003	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	77	4	136	23	323	48	1276	$ 869,123.79

# OF FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28	28*	28*	5	13	2
# OF ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15	13	13	8	11	5
# OF SUPPLY STAFF TO ISSUE MATERIALS AND PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2	2	2	2	4	0
# OF TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2
# OF ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2	2	2	2	2	2
TOTAL:	30	18	22	22	38	37	31	45	58	50	48	48	20	32	11

*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.
NOTE: MARCH 10, 2018 - PROJECT ON HOLD PENDING ARRIVAL OF METERS

- Meter, Badger 5/8”x3/4” M25LL Integral, Stock# 65293 (1500 each, Batch 250), 20% (300ea.) will be brought to MTF to be tested.
- Meter, Badger 5/8”x3/4” M25 (HRE), Stock#60484 (3456 each, Batch 576), 20% (696ea.) will be brought to MTF to be tested.
- Meter, Badger 5/8”x3/4” M25 (HRE), Stock#60484 (5044 each, Batch 841), 20% (1008ea) will be brought to MTF to be tested.
- All meters arrived on 5/17/2018 assembled and still in stop mode.

REMAINING ACTIVE BADGER LP MODELS AS OF APRIL 30, 2018:

ACTIVE LP MODELS - PURCHASE MO & YEAR	COUNT	
2012	8904	WARRANTY EXPIRED
Jan-13	2161	
Feb-13	764	
Mar-13	628	
May-13	1445	ACTIVE WARRANTY
Aug-13	2595	
Sep-13	1	
Nov-13	1	
Jan-14	1	
Feb-14	650	
Apr-14	2446	
Jun-14	71	
Aug-14	1405	
TOTAL :	21072	

12457	WARRANTY EXPIRED
8615	ACTIVE WARRANTY

Marbo (Andy-South) Wells – Status

- Involuntary reversion appears imminent; GWA Counsel transmitted draft easement documents to GSA for consideration with DoD
- Waiting on response from GSA

One Guam Update

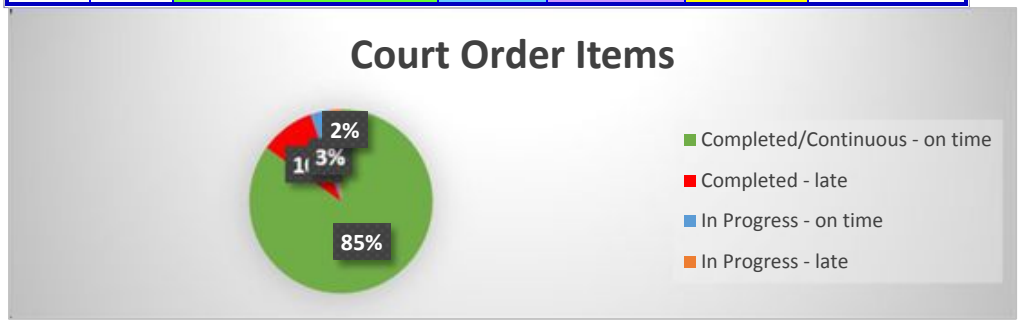
- Tumon Maui Well:
  - For the vent shaft leaks, GWA's Consultant B&C needs a work authorization so they will draft a proposal. Initial water flow from the vent shaft was caused by a failure of the level indicator which allowed the tank to overflow. A new level indicator will be employed to avoid the problem in the future.
- Captain Jones' last day will be June 22, 2018. Her replacement, Captain Dan Turner attended the One Guam meeting in May and met with the Chairman briefly.
- Santa Rosa Tank:
  - GWA and DOD are finalizing the design of the Intertie. All the property maps were completed and submitted to DOD.
  - Once the maps are completed, the letter to General Cox will be finalized for the temporary easement.
  - The After-Action Report format is being reviewed.
  - The Standard Operation Procedure (SOP) and MOU are being reviewed by DOD.
- Agat-Santa Rita WWTP
  - Compensation for the Agat-Santa Rita easement is still under discussion.
- DOD Distribution Lines

- Southern High, Leon Guerrero property and Murray road wastewater and water lines are resolved, including how the customers will be charged for the service.

- Date Sharing MOU is being drafted
  - This MOU will outline the standards for GIS, hydraulic and other data to be shared between DOD and GWA. Draft expected in May.

Court Order

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	79	2	9	3	97.8%



Status Information

- 2 items delayed
  - Meters
  - Baza Gardens Sewer Line
- Final Date to complete all Court Order items is December 31, 2020.
- Overflow or Bypass events reported to USEPA:
  - 04/08/2018 - Redondo Luchan, Dededo – Manhole overflow. Combination of mostly rocks and some grease. Probable damaged sewer line;
  - 05/09/2018 – Aga Drive, Santa Rita – Sewer Overflow to wetland. Under investigation as a possible sewer refurbishment contractor problem.
  - 05/17/2018 - First heavy rain events (3): - Majanao Lift Station and Westbrook Barrigada -- pump air lock, Captain Reyes Way Barrigada manhole – rocks and grit (no FOG).

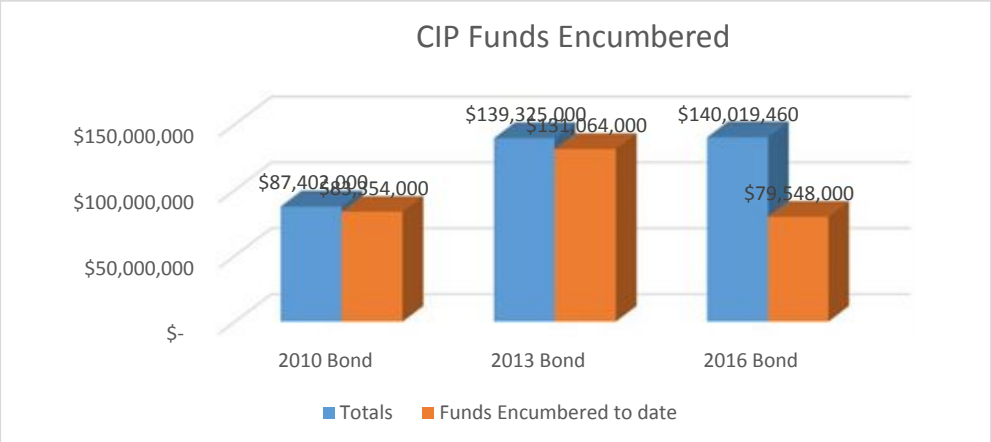
CIP Summary

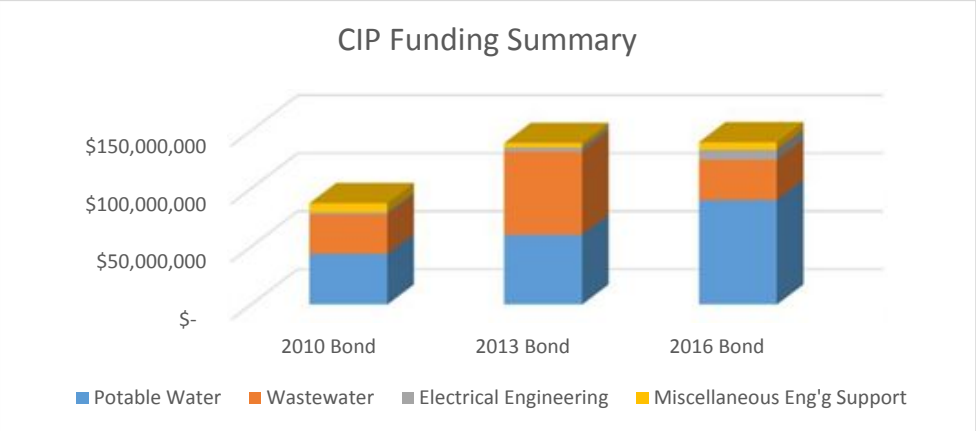
CIP Summary - Project Encumbrance

	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%			

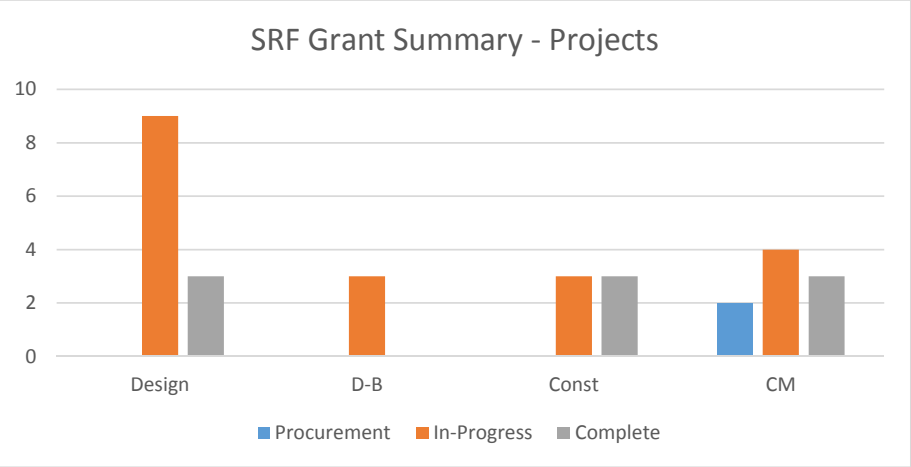


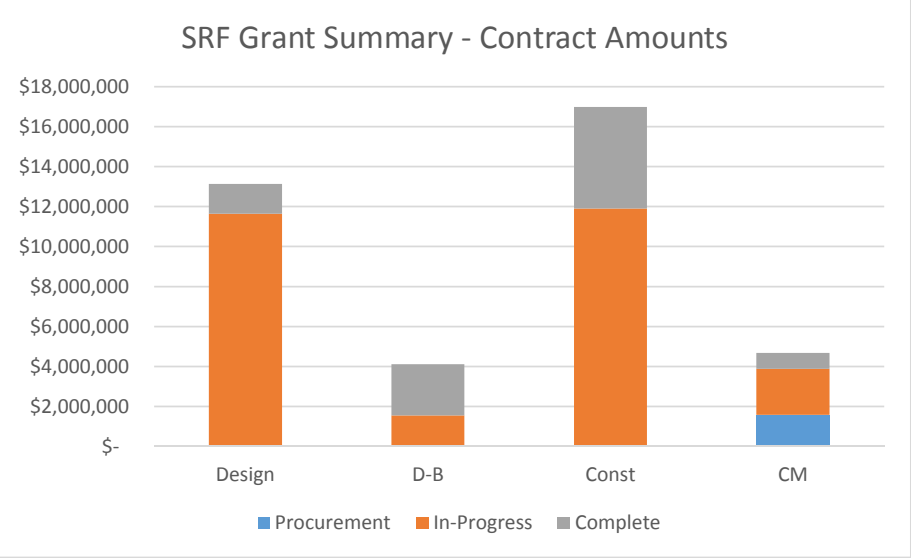


SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	9	3	12	40%
D-B	0	3		3	10%
Const	0	3	3	6	20%
CM	2	4	3	9	30%
Totals	2	19	9	30	
%	7%	63%	30%		

SRF Grant Summary - Contract Amounts					
	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 11,642,195	1,499,418	$ 13,141,613	34%
D-B	$ -	$ 1,542,979	$ 2,565,237	$ 4,108,216	11%
Const		$ 11,902,506	$ 5,086,129	$ 16,988,635	44%
CM	$ 1,572,000	$ 2,303,747	$ 802,243	$ 4,677,990	12%
Totals	$ 1,572,000	$ 27,391,427	$ 9,953,027	$ 38,916,454	
%	4%	70%	26%		





OEA Grant Summary

- NDWWTP Upgrades
  - 30% design submittal has been submitted.

- USEPA reported recently that two potential but likely insignificant cultural resources may have been found, waiting on more detail

- Outfall Diffuser:
  - Post-bid Input from bidders received
  - Bid package being revised based on comments; re-design of anchors being evaluated;
  - GWA expects review set in a few weeks.
- Sewer Line Interceptor Design-Build
  - Multi-Step IFB has been issued.
  - Technical Proposal received and Qualified Bidder List established – 3 bidders qualified.
  - Bids opened 4-26-18, GWA accepted lowest responsible/responsive bid from CoreTech-Hawaiian Dredging LLC.
  - Resolution 32-FY18 submitted for CCU action
- NGLA Observation wells – Design work on-going
  - Workshop for 30% design completed in May

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't./Private/Other	Land Acquisition Status
Tanks	Ugum	Private	Appraisal Services completed 05/09/18.
	Astumbo	Gov't./CLTC	GWA and DoLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DoLM.
	Piti	Private	Preliminary geotechnical investigation and archaeological investigation in the process 05/01/18.
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't./GALC	Pending Grant Deed from DoLM 05/02/18.
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17.
	AG-12	Dept. of Agriculture/Manhita Farms	DCA is still verifying suspected buildings/concrete houses encroachments along the northerly and southerly boundaries 04/02/18.
	Y-8	Gov't./CLTC	Deed of Dedication drafted for legal counsel approval 05/01/18.
Booster Pump Station	Agfayan	Private	No response from private property owner as of 05/11/18. TGE will conduct physical visit for response letter received 05/11/18.
Sewer Pump Stations	Property adjacent	Private	GWA started acquisition process on 12/23/2016. Property

	to Southern Link		ownership vested in GWA 08/11/2017.
Asan Springs	Asan	Gov't./Private	Pending meeting confirmation from GHURA regarding property ownership 05/11/18.

NRW – Update

- Water Loss Control Program activities are on-going
  - Latest water audit results are being reviewed by Technical Consultant under EPA grant. Conference call to be set up this week with consultant to review GWA responses and finalize date request.
  - Production meter replacement program is underway for 65 well sites. Portable flow meter is being procured to calibrate existing meters.
  - District Metering Areas are currently being developed for pilot project. Locations have been identified. Congresswoman Bordallo's Grant application.
  - DOI Grant application has been submitted for water loss control program enhancements. This will include training and equipment.

The report also contained graphs and charts not included here. A copy of the full GM Report is available upon request.

4.2.2 Financials

CFO Greg Cruz said there is nothing new to report relative to financials. For the record, the financials that was submitted at the GWA Work Session on May 15th is noted here:

DASHBOARD

FYTD April 2018 Budget vs Actual ($000)

Category	Description	Budget FYTD18	Actual FYTD18	Variance
Rate Based Revenues	Water	$41,591	$39,959	($1,631)
	Wastewater	23,253	23,123	(129)
	Total	64,843	63,083	(1,760)
Operations & Maintenance	Salaries & Benefits	15,467	13,437	(2,030)
	Power	7,406	8,392	986
	Water Purchases	5,048	5,208	161
	A&G	7,506	5,976	(1,530)
	Contractual	2,613	2,482	(130)
	Total	$49,305	$46,630	($2,675)

Key Financial Ratios ($000)

Category	FY18	FY17
Accounts Payable $$/Days	$4,149 / 46 days	$5,390 / 59 days
Accounts Receivable $$/Days	$15,531 / 61 days	$15,451 / 51 days
Days Cash On Hand	189 days	184 days
Annual Debt Service (Revenue Bonds)	$26,739	$24,563
Debt Service Coverage (Bond/PUC)	1.79 / 2.21	1.98 / 2.44

Debt as a Percent to Gross Revenue



Water & Wastewater Analytics





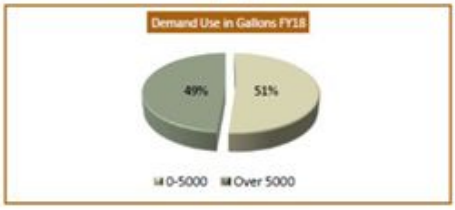


Water & Wastewater Customers









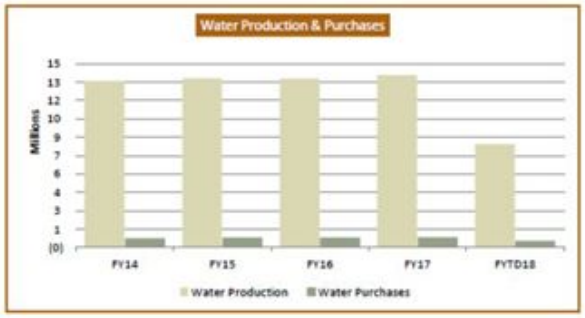
Top Ten Largest Water and Wastewater Customers – April 2018

Water				Wastewater			
	Customer Name	FYTD18 Revenues	% of Total		Customer Name	FYTD18 Revenues	% of Total
1)	MDI GUAM CORPORATION/LEOPALACE	$787,175	1.97%	1)	AIR FORCE DOD	$2,200,025	9.52%
2)	PACIFIC ISLANDS CLUB	687,809	1.72%	2)	NAVY DOD	1,355,393	5.86%
3)	HOTELS OF THE MARIANAS INC	579,823	1.45%	3)	HOTELS OF THE MARIANAS INC	620,048	2.68%
4)	HYATT	532,712	1.33%	4)	HYATT	570,321	2.47%
5)	HOTEL NIKKO GUAM	514,361	1.29%	5)	HOTEL NIKKO GUAM	549,729	2.38%
6)	GUAM REEF HOTEL INC	486,635	1.22%	6)	GUAM REEF HOTEL INC	520,827	2.25%
7)	SHERATON LAGUNA GUAM RESORT	458,360	1.15%	7)	SHERATON LAGUNA GUAM RESORT	490,454	2.12%
8)	MDI GUAM CORPORATION/WESTIN	379,827	0.95%	8)	MDI GUAM CORPORATION/WESTIN	406,096	1.76%
9)	OUTRIGGER GUAM RESORT	373,016	0.93%	9)	OUTRIGGER GUAM RESORT	399,659	1.73%
10)	GOODWIND DEVELOPMENT CORP/MICROMALL	355,457	0.89%	10)	GOODWIND DEVELOPMENT CORP	379,039	1.64%
	Total	$5,155,176	12.90%		Total	$7,491,589	32.41%

Power, Water Purchases and Water Production

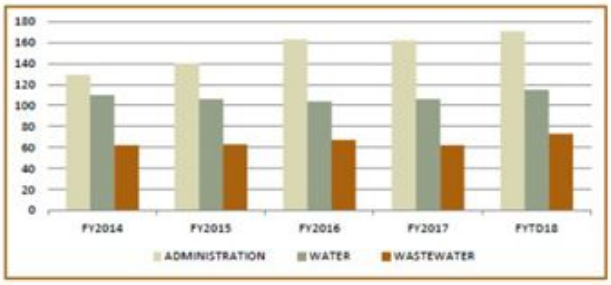




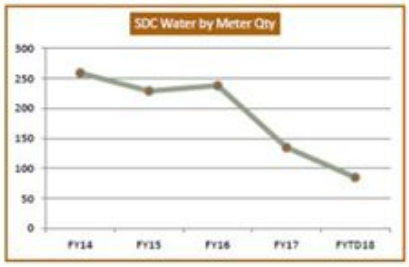


FTE by Major Division

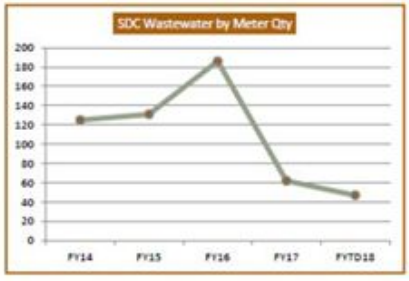
DIVISION	FY2014	FY2015	FY2016	FY2017	FYTD18
ADMINISTRATION	129	140	163	162	171
WATER	110	106	104	106	115
WASTEWATER	62	63	67	62	73
TOTAL NUMBER OF STAFF	301	309	334	330	359
Gross Salaries & Wages ($000)	15,532	15,805	16,442	17,210	10,102
Water Customers	41,702	41,274	41,858	42,181	42,688
Staff to Customers Ratio	0.72%	0.75%	0.80%	0.78%	0.84%



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	77
1	5	5	7	2	1
1 1/2	1	1	1	1	3
2	3	2	4	2	3
3	1	-	1	-	-
4	-	1	-	-	1
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Water	259	229	252	135	85



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	115	124	179	58	39
1	4	3	2	-	1
1 1/2	1	1	1	1	3
2	3	2	3	2	3
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	1
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Wastewater	125	131	186	62	47

4.2.3 Resolution No. 28-FY2018 Relative to Approval of the Construction Contract for the SCADA System for Water and Wastewater Facilities Phase A-1

GWA is developing and installing a SCADA System to monitor the operations of its water and wastewater systems, and to promptly alert operators when a fault or alarm condition occurs. This project primarily focuses on installing industrial controls, field instrumentation, and communications equipment to enable connectivity between 19 GWA assets with the Central SCADA Server located in Fadian through the use of GPA's TropOS wireless mesh network to enable continuous monitoring of these assets.

An important objective of the project is to implement SCADA for several of the GWA facilities that are part of Phase A-1 project so as to enhance GWA's ability to "monitor flow, pressure, tank levels and chlorine throughout the services area…" as required in Court Order Paragraph 28.

The SCADA system will monitor the following wells:
Well A-01, Well A-03, Well A-05, Well A-06, Well A-12, Well A-23, Well A-25, Well A-29, Well A-30, Well A-31, Well A-32, Well M-17B, Well M-20A, Chaot Reservoir, Agana Heights Reservoir, Agana Heights Booster Pump Station, Hagatna Wastewater Treatment Plant, Fujita Sewer Pump Station, and Route 16 Sewer Pump Station.

GWA Management seeks CCU approval to enter into contract with G4S in the amount of Two Million Six Hundred Twenty-One Thousand Sixteen Dollars and Eighty-Five Cents ($2,621,016.85). GWA Management also seeks approval of a 10% contingency in the amount of Two Hundred Sixty-Two Thousand One Hundred One Dollars ($262,101.00) which will bring the total authorized funding amount to a maximum of Two Million Eight Hundred Eighty-Three Thousand One Hundred Seventeen Dollars and Eighty-Five Cents ($2,883,117.85) and will be funded by bond funds.

Three (3) out of twelve (12) interested parties submitted bids. The contract time is 365 calendar days.

Comm. Santos motioned to approve Resolution 28-FY2018, second by Comm. Guthertz. There was no further discussion or objection and the motion passed.

4.2.4 Resolution No. 29-FY2018 Relative to Approval of Change Order to the Yigo and Astumbo Reservoir Construction Management Contract

If approved, this change order will allow continuance of the construction management services for the Yigo No. 1, Yigo No. 3, and Astumbo No. 2 reservoir construction project and increase funding to the contract. The continued services are required due to delay by the contractor (Pernix) in completing the project. The Contractor has agreed through a Memorandum of Understanding to pay for the additional construction management cost for the duration of the project until final completion.

The Yigo and Astumbo Tank Construction project is a Court Order project, thus the urgency is to complete the project as soon as possible but maintain adequate Construction Management oversight.

The construction management services will be at the Yigo reservoirs site along Route 1 near the entrance to Anderson Air Force Base and the Astumbo reservoir is located off Ysengsong Road on Chalan Paluan.

GWA and the construction management firm has negotiated the cost of Four Hundred Eighty-One Thousand Five Hundred Sixty-Three Dollars ($481,563.00) to extend the services from February 19, 2018 to November 21, 2018 for the Astumbo site and from July 31, 2018 to November 21, 2018 for the Yigo site.

The construction management services will continue up until November 21, 2018. Should the contractor delay the project past the projected November 21, 2018 deadline, GWA will negotiate to extend the construction management contract. Cost will be covered by the contractor.

The funding for this project will be from the bond funds under the line item - PW 09-11 "Water System Reservoirs 2005 Improvements" and PW 12-05 "Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1".

The funding sources will be replenished by money received from the contractor through a deductive change order from the contractor's contract.

Comm. Bamba motioned to approve Resolution 29-FY2018, second by Comm. Guthertz. There was no further discussion or objection and the motion passed.

4.2.5 Resolution No. 30-FY2018 Relative to Approval of the Construction Management Contract for the Route 1 Asan-Adelup-Hagatna Sewer Line Rehabilitation Project

The objective of this is to manage the construction of the sewerline work to be completed along Route 1 in the Asan and Hagatna area, on a time and materials basis. The work during construction could include pipe replacement, cured-in-place-pipe installation, and manhole repairs along approximately 4,500 linear feet of sewerline pipe. The area of gravity sewerline from Asan into Adelup has deteriorated and experienced a number of collapses in the past two years, and requires immediate attention. This project is located in the villages of Asan and Hagatna, along Route 1, from the Asan "War in the Pacific" National Historic Park to the Agana Main Pump Station. Construction activities will be limited to the government easements of the sewer infrastructure elements.

The construction management services contract value relative to the construction of Bid Schedule B, includes construction management, inspection, and project coordination services during construction for the amount of Eight Hundred Seventy Thousand Six Hundred Ten Dollars and Forty-One Cents ($870,610.41), plus a ten percent (10%) contingency of Eighty-Seven Thousand Sixty-One Dollars and Four Cents ($87,061.04), for a total amount of Nine Hundred Fifty-Seven Thousand Six Hundred Seventy-One Dollars and Forty-Five Cents ($957,671.45). This contract amount will be based on a Time and Materials basis. The funding for this project will be from USEPA Grant, and if necessary, GWA Bond Funds.

The construction contract length of this project is 650 calendar days after an NTP is issued to the construction contractor. The construction management services will be for the whole time of the construction project and is estimated to be completed in May 2020.

It was mentioned that Eight (8) proposals were received and evaluated.

Comm. Guthertz motioned to approve Resolution 30-FY2018, second by Comm. Bamba. There was no further discussion or objection and the motion carried.

4.2.6 Resolution No. 31-FY2018 Relative to Approval of the 2013 and 2016 Bond Reallocation

If approved, this action will move "unobligated" funds to CIP line item WW 11-02 Baza Gardens STP Replacement as a means of expending the fund as expeditiously as possible to comply with the 2013 Bond indenture requirements. WW 11-02 is the CP line item that funds the Baza Gardens Wastewater Conveyance projects which has a completion deadline in FY2018.

The objective of the 2016 bond reallocation is to "focus" a little less than half of the current unobligated funds to the Court Order tank projects as a means of maintaining the design and construction activities to meet as best as possible the December 2020 deadline. An important note is that this reallocation of the 2016 bond funds will not completely address the required design and construction needs of the court order but will help GWA accelerate some of the projects which will help management the remaining tank projects to come. The planned 2019 bond issuance is still required to help complete the court order deadline requirements of December 2020.

The result of the bond reallocation will affect the fund certification for the Baza Gardens Wastewater Conveyance Projects, as well as help accelerate the procurement of the next set of tank improvements.

Six Million Five Hundred Forty-Two Thousand Six Dollars ($6,542,006.00) that are still identified as "Unobligated Project Cost" from the 2013 Bond proceeds will be reallocated to WW 11-03 Baza Gardens STP Replacement. Thirty Million Four Hundred Eighty Thousand One Hundred Fifty-Five Dollars ($30,480,155.00) that are also identified as "Unobligated Project Cost" from the 2016 Bond proceeds will be reallocated into PW 09-11 Water System Reservoirs 2005 Improvements.

The 2013 bond funds that will be reallocated is expected to be expended by end of FY2018. The 2016 bond funds that will be reallocated is expected to be encumbered by end of FY2019.

Comm. Bamba motioned to approve Resolution 31-FY2018, second by Comm. Guthertz. There was no further discussion or objection and the motion passed.

4.2.7 Resolution No. 32-FY2018 Relative to Approval of Contract for Design and Construction of the GWA Interceptor Sewer Refurbishment Project for Northern District

The objective of the Interceptor Sewer Refurbishment project is three-fold – 1) to maintain wastewater collection service to Andersen Air Force Base, 2) provide service to the military forces being relocated to Guam, and 3) to mitigate impacts to groundwater resources. The sewer refurbishment project is necessary to protect the groundwater aquifer by improving the

wastewater collection system to ensure that the relocation of military assets to Guam do not adversely affect the civilian infrastructure or resources. The installation is urgent to meet the scheduled military relocation.

The interceptor sewer is located near the entrance to Andersen AFB at the north gate and runs generally west along Route 9 and south along Route 3 and terminates at the Northern District Wastewater Treatment Plant. The sewer comprises approximately 8.4 miles of 18-inch to 42-inch diameter pipe.

GWA Management seeks CCU approval for the proposed bid price of Twenty-Two Million Eight Hundred Ninety-Seven Thousand Eight Hundred Eight Dollars ($22,897,808.00) plus a ten percent (10%) contingency of Two Million Two Hundred Eighty-Nine Thousand Seven Hundred Eighty Dollars and Eighty Cents ($2,289,780.80) to bring the total authorized funding amount requested to Twenty-Five Million One Hundred Eighty-Seven Thousand Five Hundred Eighty-Eight Dollars and Eighty Cents ($25,187,588.80). Funding for the Interceptor Sewer Refurbishment project is from the General Assistance Grant for water and wastewater improvements in support of the relocation of U.S. Marines and their dependents to Guam OEA Grant No. OCON676-16-01, dated August 26, 2016, for $30,600,000.

The anticipated completion of the construction activities by the contractor is October 2020, however this is dependent on weather conditions.

It was mentioned that thirteen (13) firms registered for and picked up the bidding documents and three (3) submitted bids. Core Tech-Hawaiian Dredging, LLC is recommended as the lowest priced, responsive and responsible bidder.

Comm. Guthertz motioned to approve Resolution 32-FY2018, second by Comm. Bamba. There was no further discussion or objection and the motion passed.

4.2.8 <u>Resolution No. 33-FY2018 Relative to Approval of Funding Match Commitment for Bureau of Reclamation Grant as it Relates to GWA District Metering Project Grant Application</u>

GWA management seeks CCU approval of the project intent as well as CCU commitment to the legal and financial obligations associated with the 50% matching requirement per Department of Interior, Bureau of Reclamation, Water-Smart Program.

The project intends to install distribution main meters at fourteen locations including vault boxes and related piping. Included in the scope will be all related equipment & infrastructure for power and communication which will allow the meters to have AMI capabilities. With the AMI infrastructure in-place at those locations, given ideal conditions customers' meters may also be brought into the AMI infrastructure, although this is not directly related to the project. Data from the distribution main meters and customer meters can be examined in real-time; any sharp deviation from normal water supply levels would indicate a possible distribution main break. This will allow GWA to dispatch leak detection crews to identify possible line breaks in a relatively narrower area, thereby reducing response time. This project is urgent given that GWA water loss rate is relatively high.

Distribution main meters will be located at key supply entry points in the following location: Hagatna; Asan; Agat-Santa Rita; Anao Point; Yigo; Baza Gardens, Yona; East Gayinero, Yigo; Ipan, Talofofo; Bear Rock, Inarajan; Nimitz Hill, Piti; Pago Bay, OCP; Paradise Estates, Dededo; Piti; TaloVerde, Tamuning; Talofofo.

Estimated overall total project cost is $2,000,000.00. The grant proposal is to the Bureau of Reclamation, which includes a 50-50 match requirement. If successful, Bureau of Reclamation will be providing fifty-percent (50%) of total project costs estimated at $1M.

Estimated project completion will be 36 months from the time funding/NEPA is secured.

Comm. Guthertz motioned to approve Resolution 33-FY2018; Comm. Bamba seconded. There was no further discussion or objection and the motion passed.

5. OLD BUSINESS - None

6. ANNOUNCEMENTS

6.1 Next CCU Meetings: CCU Meeting – June 5, 2018; Work Sessions: None

The Chairman announced that the next meeting would be a regular meeting on June 5th. There will be no work session in June.

The Chairman called for a 5-mimnute recess before going into Executive Session. It was 7:10 p.m.

7. EXECUTIVE SESSION

7.1 Personnel Matter

7.2 Litigation Matter

At about 8:30 p.m. the Chairman called the meeting back to regular session; and asked if any of the Commissioners have a comment. Comm. Sanchez said he would like to announce the end of his recusal. He said for the record he and any company that he is affiliated with or has financial interest in is not involved with this procurement or the 7-8 companies that have submitted bids and that he is now able to participate in related discussions

8. ADJOURNMENT

With no further business to discuss, the meeting adjourned at 8:35 p.m.

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bls
Attested:

_____ _____

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

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

GWA Resolution No. 34-FY2018 / GPA Resolution No. 2018-13
Relative to Approving the Change Order for the GPWA SCADA System Contract to Include the Ugum Surface Water Treatment Plant SCADA Integration Upgrade

What is the project's objective and is it necessary and urgent?
The objective of the change order is to upgrade and integrate the Ugum SWTP to the new GPWA SCADA System. The upgrades need to be performed first to integrate the Ugum SWTP SCADA system to the new GPWA SCADA System. The upgrades include major replacements and improvements on the Main Programmable Logic Controller, SCADA Server, SCADA client workstations, Profibus cabling and integration of the remote raw water pump station to the plant, software upgrades and motor control drives.

The upgrades shall correct the following issues, which does not include all issues described in the Siemens assessment report:

- The Ugum SCADA System consists of a SCADA Server with 2 client workstations but only the SCADA Server is operational. The SCADA Server is also running on Windows Server 2003 which is obsolete and no longer supported by Microsoft. Data trending is not archived properly resulting in loss of data. The Raw Water Pump Station, where the treatment process begins, is not visible in the control system. The Main PLC consists of a Read Access Memory (RAM) that will lose the program and all stored information in event of a momentary power loss and failure of the backup batteries which can cause the plant to shut down. The backwash for Cell #1 is not working properly; the cause has not been found.

- The Ugum SWTP is the major water source to the villages of Talofofo, Malojloj, Inarajan, Merizo and Umatac. The change order is necessary and urgent to ensure continual operation of the plant to deliver reliable water service to these areas. SCADA integration is necessary to allow the operations of Ugum SWTP to be visible to GWA Systems Control Center and key Water personnel to better coordinate and manage the water operations. Additionally, the change order is necessary to address the Ugum SWTP's cyber security vulnerabilities that have been identified in the Ernest and Young's vulnerability and cyber security assessment.

Where is the location?
Ugum Water Treatment Plant and Ugum Raw Water Pump Station, Talofofo.

How much will it cost?
The total amount of the change order proposal is Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25).

When will it be completed?
The contract time is 126 calendar days.

What is the funding source?
The funding source will be from 2016 CIP EE 09-08 AND EE 09-09.

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. 34-FY2018

GPA RESOLUTION NO. 2018-13

RELATIVE TO APPROVING THE CHANGE ORDER FOR THE GPWA SCADA SYSTEM CONTRACT TO INCLUDE THE UGUM SURFACE WATER TREATMENT PLANT SCADA INTEGRATION UPGRADE

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, GPA issued a Multi-Step Bid Invitation No. GPA-066-16 soliciting bid proposals from qualified bidders to design and install a Supervisory Control and Data Acquisition ("SCADA") system that would run both Power SCADA and Water/Wastewater SCADA on a common platform; and

WHEREAS, GPA received two bid proposals in response to the Multi-Step IFB and Benson Guam Enterprises, Inc. was determined the lowest responsive and responsible bidder that met all the requirements and was therefore awarded the contract (Exhibit B); and

WHEREAS, on September 27, 2016, CCU approved GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA) authorizing GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc for the total amount of $1,951,147; GPA's share was $1,518,769 and GWA's share was $432,705 (Exhibit B); and

WHEREAS, on October 27, 2016, Guam PUC approved GPA Docket 17-01 and GWA Docket 17-01 authorizing GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc for the total amount of $1,951,147; GPA's share was $1,518,769 and GWA's share was $432,705 that reference GPA Docket 14-09 approved by the Guam PUC on December 1, 2014 authorizing GPA to expend $1,800,000 of its funds for the SCADA system (Exhibit B); and

WHEREAS, On December 2016, GPA and GWA executed a contract with Benson Guam Enterprises, Inc and issued a Notice to Proceed and Purchase Orders to Benson Guam Enterprises, Inc (Exhibit C); and

WHEREAS, Siemens is the subcontractor that is designing, developing, testing and delivering a Siemens SCADA system to GPA and GWA to manage the island-wide power, water and wastewater operations; and

WHEREAS, the Ugum SWTP has a Programmable Logic Controller (PLC) control system and a Siemens SCADA system, which are both products of Siemens, that monitor and control the operations of the plant; and

WHEREAS, after a power glitch, Ugum's Main PLC failed to startup that eventually caused the Ugum SWTP to shut down; and

WHEREAS, GPA Resolution No. 2017-22 and GWA Resolution No. 31-FY2017 adopted on May 23, 2017 and authorizing the General Managers of GPA and GWA the authority to obligate their respective agencies up to and including the threshold amount of $750,000, on January 9, 2018 GWA issued a change order no. 2 to Benson Guam Enterprises, Inc. to have Siemens conduct an on-site assessment on Ugum's Siemens SCADA and PLC control system and provide emergency recovery and on-call services. The change order was in the amount of $90,716.60 to bring GWA's total share to $523,421.60 for a total contract cost of $2,042,190.60; GPA share remained at $1,518,769.00; and

WHEREAS, GPA and GWA issued other change orders (Exhibit C) in the amount of $183,339.56 and $94,074.91 respectively to bring GPA's total share to $1,702,108.56 and GWA's total share to $617,496.51 for a total contract cost of $2,319,605.07, and to extend the

completion date to October 1, 2018 to compensate for time needed to complete the change order work; and

WHEREAS, upon completing its assessment, Siemens submitted a report (Exhibit D) recommending GWA to upgrade Ugum SWTP's Main PLC and SCADA system with a redundant system, upgrade the software, integrate the raw water intake pump station to the plant's SCADA system, and replace defective equipment and cabling that were considered necessary to ensure continual operation of the plant and SCADA integration; and

WHEREAS, Ernest and Young (E&Y), under a separate contract, performed a vulnerability and cyber security assessment of GWA facilities and recommended GWA to address vulnerabilities found on the Ugum SWTP SCADA system; and

WHEREAS, Benson Guam Enterprises, Inc. has submitted a change order proposal (Exhibit A) in the amount of $687,506.25 to perform the recommended upgrades of the Ugum SWTP SCADA and PLC system as described in the assessment report (Exhibit D) and integrate the Ugum SWTP SCADA system to the new GPWA SCADA System that shall concurrently address the cyber security vulnerabilities found on Ugum SWTP SCADA system by E&Y; and

WHEREAS, GWA Management finds the change order proposal of $687,506.25 to be acceptable; and

WHEREAS, GWA Management seeks CCU approval to issue a change order to Benson Guam Enterprises, Inc. in the amount of $687,506.25 to bring GWA's total requested authorized funding amount to a maximum of $1,305,002.76; and

WHEREAS, GWA Management further seeks CCU approval to petition the PUC to approve the change order amount of $687,506.25 to bring GWA's total authorized funding amount to $1,305,002.76; and

WHEREAS, the funding source of the change order will be from 2016 CIP EE 09-08 and EE 09-09; and

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

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the change order proposal submitted by Benson Guam Enterprises, Inc. are fair and reasonable.
3. The CCU hereby authorizes the management of GWA to accept the change order proposal from Benson Guam Enterprises, Inc. attached hereto as EXHIBIT A, and which is also incorporated into this Resolution in its entirety.
4. The CCU hereby further authorizes the management of GWA to process the change order proposal with Benson Guam Enterprises, Inc.in the amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25).
5. The CCU hereby further approves the requested total maximum authorized funding amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25), funded by 2016 CIP EE 09-08 and EE 09-09.
6. The CCU hereby further authorizes the management of GWA to seek from the PUC its approval for GWA to issue the change order to Benson Guam Enterprises, Inc. in the amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25) and to approve GWA's total funding amount of the GPWA SCADA System to One Million Three Hundred Five Thousand Two Dollars and Seventy-Six Cents ($1,305,002.76).

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

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DULY AND REGULARLY ADOPTED, this 5th day of June 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

Do it Best Benson
A Tanvy Group

BENSON GUAM ENTERPRISES, INC.
P.O. Box 6157, Tamuning, Guam 96931-6157
779 Route 8, Hagatna, Guam 96910-2019
Tel: (671) 477-7562 Fax: (671) 477-3736
email: monito.co@bensonguam.com
general email: benson@bensonguam.com
www.bensonguam.com
Support: MIKKEL TAN I. VY FOUNDATION

Date: May 29, 2018

To: Miguel C. Bordallo, P.E.
General Manager, GWA

Cc: John M. Benavente, P.E.
General Manager, GPA

From: Benson Guam Inc.

Subject: Bid No. GPA 066-16 - Request for Contract Modification –
CHANGE ORDER NO. 5
Ref: GWA Purchase Order No. 300305-000 OP

Dear Mr. Bordallo,

We are hereby submitting a change order proposal to include the various services, hardware, equipment and accessories for the Ugum Water Treatment Plant (WTP) based on recommendations by Siemens Singapore relative to the On-site Assessment made as a result of their visit from January 23, 2018 to January 26, 2018.

This change order will result in an increase of contract scope and price.

Total Amount based on Siemens Proposal CS-18-8092R2 Rev 1 ----------	$ 455,738.00
Integration of the Ugum WTP to the new GPWA SCADA System ---------- (As per attached listing)	119,100.00
TOTAL AMOUNT:	$ 574,838.00
Benson service charge and mark-up: 15% ----------	86,225.70
Total Amount:	$ 661,063.70
Plus: 4% Administrative Expense ----------	26,442.55
GRAND TOTAL:	$ 687,506.25
Amount of P.O. 300305-000 OP as per Change Order No. 4 ----------	617,496.51

New Contract Amount as a result of Change Order No. 5 ---------- $ 1,305,002.76

(Page 1)

Continuation – Page 2

NOTE:

a. Completion Time: 18 weeks after Receipt of Confirmed Order.

b. Payment Terms: Net 30 days upon presentation of progress invoice

c. Item 5.5.1. FAT – If Factory Acceptance Test is required, please add cost of each attendee as follows:
   (1) Round trip Airfare to Singapore: U.S. $1,100.00/person
   (2) Average Hotel Room: U.S. $220.00 per night per person
   (Recommended stay of at least 3 days/2 nights)

d. Item 15. Training – attached herewith is the 2018 Training Calendar and Rate in Singapore Dollar which you can select which type of training you need and number of days of stay in Singapore.
   For your information:
   (1) U.S.$1.00 = SGD 1.35
   (2) Round-trip Plane Fare: U.S. $1,100.00/ person
   (3) Average Hotel Room: U.S.$220.00 per night per room

e. Power Quality Assessment – proposal to follow.

f. Main PLC Cabinet – if lockset for the existing cabinet door is available, we estimate to cost $500.00 for the lockset and labor to install this.

Thank you for your time and consideration to this matter. Should you have any questions regarding this request, please feel free to contact the undersigned at (671) 687-2788.

Very truly yours,
BENSON GUAM ENT., INC.



Monito S. Co
Contract Administrator

SIEMENS CS-18-8092R2 7 May 2018

PROPOSAL (II): RECOMMENDATION BASE ON SITE ASSESSMENT (UPGRADE WORKS)

GUAM WATERWORKS - UGUM

SIEMENS CS-18-8092R2 7 May 2018

1. Introduction

Siemens is a global powerhouse in electronics and electrical engineering, operating in the industry, energy and healthcare sectors.

In 1908, the company established a Technical Bureau in Singapore, known as Siemens Brothers Dynamo Works Limited, to search for new business opportunities in the then flourishing British colony. 100 years on, Siemens has grown with Singapore, and has helped to develop the Lion City into the modern, economic powerhouse it is today.

At present, Siemens has 6 companies and employs 2,200 people, and is one of the largest German companies in Singapore.

2. Our Division

The Customer Service Division (previously known as Industry

Technologies) is a life cycle services provider that provides solutions and services over the entire life cycle of industrial plants and infrastructure projects. This would include equipment supply, project management and installation and commissioning services for Greenfield projects (new plant constructions) and existing running plants

As maintenance and service partners to owners of running plants, we have been working with engineering and maintenance departments to provide on call service as well as consulting and execution for modernizations, retrofits and expansions for automation and drive systems. The combination of these capabilities makes us a good choice if you are looking for a "one stop shop" for electrical engineering products and services.

3. Our Services

Project: We have a group of experience and competent Project team to manage all large scale and small scale projects.

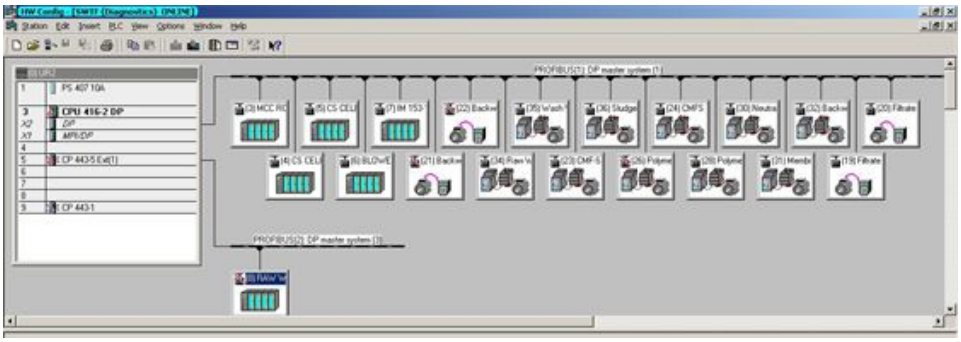
Service: We offer wide range of services that consist of Emergency Breakdown at 24 hours per day and 365 days per year, Maintenance Contract, Marine Services, Repair Services, Training, Data Backup, Services and Spare Parts.

4. Message from Project Manager

We thank you for given us an opportunity to submit our proposal as a Technical Specialist in the Automation Line. The subsequent chapters will shows how we are going to implement the system in using the most advance technology available in today’s market and reputable product from different Multi-National Company in the world. Rests assure that our prices are competitive and all items are quoted based on initial site survey.

SIEMENS CS-18-8092R2 7 May 2018

GWA-Ugum Existing System :-



Scope & Proposed Upgrade Works

The scope of work includes supply, install, testing and commissioning of the PLC, Scada, Remote connect & VFD

No.	Description	Qty	Price/Unit (US$)	Total Prices (US$)
1	Main PLC System The current PLC system hardware configuration with 6 ET200M slave stations as per above GWA-Ugum existing system Proposal Upgrade - PLC H-System The SIMATIC S7-400H suitable as a controller for high-availability processes, with two H CPUs of the same type; in the event of a fault, changeover takes place from the master system to the standby station. The method of event-driven synchronization supports fast and bumpless changeover to the redundant CPU in the event of a fault. It resumes processing at the point of interruption without any loss of information or interrupts. All components can be replaced during normal operation (hot swapping). When a CPU is replaced, all the current programs and data are automatically reloaded. The SIMATIC S7-400H is suitable for high-availability processes with hot standby requirements (processes with changeover times shorter than 100 ms).			
1.1	Hardware (a) 6ES7400-0HR03-4AB0 SIMATIC S7-400H, 416-5H system-bundle H-system with 1 x UR2-H, w/o memory card, 2 x PS407 C120/230V, 10A, 4 x sync-module up to 10m, 2 x sync-cable 1m, 2 x CPU 416-5H, 4 x back-up batteries	1	20,856.00	20,856.00

	(b) 6ES7952-1KP00-0AA0 SIMATIC S7, memory card for S7-400, long version, 5V Flash-Eprom, 8 Mbytes	2	1,346.00	2,692.00
2	<u>WinCC Scada</u> The current system is a server configuration with 2 x clients. The server and 1 x client station is in the control building. The 2nd client station is in the MCC room. <u>Proposal Upgrade - 2 Server & 2 Client</u> The SIMATIC Scada systems and SIMATIC Industrial PCs together form a high-performance and reliable platform for the acquisition, evaluation, and visualization of data. The harmonized and certified total package of hardware and software offers the highest quality in all industries.			
2.1	<u>Hardware</u> (a) 6AG4104-4HN24-0HB2 (Server IPC) SIMATIC IPC547G (Rack PC, 19", 4HU); Interfaces: 2x USB 3.0 on the front; 2x Intel Gigabit Ethernet, 2x PS/2, Audio on the rear side; 7 slots: 5x PCI Express, 2x PCI, Temperature and Fan monitoring; Watchdog; Card retainer Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache, iAMT); Mainboard: (chipset C236, 1x DVI-D, 2x display ports V1.2, 4x USB 3.0 and 4x USB 2.0 on the rear side, 1x USB 2.0 internal, 1x COM 1; RAID onboard) RAID1, 1 TB (2x 1 TB HDD) in interchangeable insert, hot-swap, front-side 16 GB DDR4 SD-RAM (2x 8 GB), Dual Channel Enclosure blue chromated, 2x 100/240V AC redundant Industrial power supply unit, DVD +/-RW (slim) Graphics onboard Windows Server 2016 Standard edition incl. 5 clients, 64 bit MUI (en/de/fr/it/es) SIMATIC IPC Image & Partition Creator V3.5 enclosed Power supply cable USA	2	6,380.00	12,760.00
	(b) 6AG4104-4HA14-0CB2 (Client-IPC) SIMATIC IPC547G (Rack PC, 19", 4HU); Interfaces: 2x USB 3.0 on the front; 2x Intel Gigabit Ethernet, 2x PS/2, Audio on the rear side; 7 slots: 5x PCI Express, 2x PCI, Temperature and Fan monitoring; Watchdog; Card retainer Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache, iAMT); Mainboard: (chipset C236, 1x DVI-D, 2x display ports V1.2, 4x USB 3.0 and 4x USB 2.0 on the rear side, 1x USB 2.0 internal, 1x COM 1; RAID onboard) 1x 1 TB HDD, internal, (0.2 g vibration, 1 g shock) 8 GB DDR4 SD-RAM (2x 4 GB), Dual Channel Enclosure blue chromated, 2x 100/240V AC redundant Industrial power supply unit, DVD +/-RW (slim) Graphics onboard Windows 10 IoT Enterprise LTSB 2015, MUI (en/de/fr/it/es), 64 bit SIMATIC IPC Image & Partition Creator V3.5 enclosed Power supply cable USA	2	4,197.00	8,394.00

	(c) SIMATIC IPC, accessories, service option for rack PC, warranty extension to a total of 48 months *contains no data storage medium* The purchase of this supplementary agreement entitles you to the following services for SIMATIC Rack IPCs for 48 months after purchasing the device (i) Free repairs for 48 months in one of our authorized repair shops worldwide (ii) Return shipping to the customer. (iii) Repair time 3 to 5 business days.	4	250.00	1,000.00
2.2	<u>Software</u> (a) 6AV6381-2BQ07-4AX0 WinCC system software V7.4 SP1, RC 65536 (65536 Power Tags), runtime/configuration software on DVD, floating license, license key on USB stick, class A, 5 languages (de,fr,en,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	1	14,994.00	14,994.00
	(b) 6AV6381-2CA07-4AX0 WinCC RT Client V7.4 SP1 runtime software, single license, SW and documentation on DVD, license key on USB stick, class A, 5 languages (de,fr,en,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	2	3,022.00	6,044.00
	(c) 6AV6362-1AD00-0BB0 SIMATIC WinCC/Web Navigator, 3 client licenses (countable), Option f. WinCC V7.4 or higher and WinCC Prof. V14 or higher, runtime software, Single license, License key on USB stick	1	8,990.00	8,990.00
	(d) 6AV6362-4AH00-0BB0 WinCC/Industrial-Data-Bridge,3000 tags (countable), option for WinCC V7.4 or higher, and WinCC Prof. V14 or higher, data exchange with databases and OPC servers, runtime software, single license, license key on USB stick	2	4,204.00	8,408.00
	(e) 6ES7810-5CC12-0YA5 SIMATIC S7 STEP 7 Prof 2017/V15 combo incl. TIA Portal, floating license for 1 user, E-SW, software and documentation on DVD, license key on USB stick, class A, 5/6 languages (de,en,fr, sp,it)/(cn), executable on Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016, Windows 7 SP1, Windows 10 Professional, Windows 10 Enterprise Reference HW: S7-300/400 (S7-1200/1500)	1	3,939.00	3,939.00

	(f) 6ES7658-1EX58-0YA5 SIMATIC CFC V9.0, software floating license F.1 User E-SW, SW and document on CD, license key on USB-stick, class A, 6 languages (G,E,F,I,S,C) executable under Win 7 Ultimate Windows 10 Enterprise LTSB Server 2012 R2 reference-HW: PC/PG	1	3,403.00	3,403.00
	(g) 6AV6371-1CA07-4AX0 SIMATIC WinCC/Server V7.4, option for WinCC V7.4, runtime software, single license, license key on USB stick	2	4,405.00	8,810.00
	(h) 6AV6371-1CF07-4AX0 SIMATIC WinCC/Redundancy V7.4, option for SIMATIC WinCC V7.4, runtime software, single license. f. 2 installations	1	4,577.00	4,577.00
	(i) 6AV6381-2BF07-4AX0 WinCC system software V7.4 SP1, RT 65536 (65536 Power Tags), runtime software, single license, SW and documentation on DVD, License key on USB stick, class A, 5 languages (defr,en,fr,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	1	8,855.00	8,855.00
3	Remote Connect Network The current system via mobile communication support Proposal Upgrade - Remote Access The new management platform for remote networks, SINEMA Remote Connect, is a server application. SINEMA Remote Connect provides users access to remote plants or machines for convenient and secure maintenance			
3.1	Hardware (a) 6GK1704-1VW05-0AA0 Industrial Ethernet Softnet security client V5 software for setting up secure IP based VPN connections from a PC/PG to network segments, by SCALANCE S, SCALANCE M and security CPs single license is protected for 1 installation runtime software, software and electr. manual on CD-ROM, software 2 languages (de, en); HB 5 languages (de, fr, en fr,sp, it) for Windows 7 Ultimate and Professional (32+64 bit),Windows server 2012 R2	1	333.00	333.00
	(b) 6GK5876-4AA00-2BA2 SCALANCE M876-4 4G router; for the wireless IP communication from ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in europe, VPN, firewall, NAT; 4-port switch; 2x SMA antennas, MIMO technology; 1 x digital input, 1 x digital output; observe national approvals	1	1,490.00	1,490.00

	(c) 6GK5896-4MA00-0AA3 ANT896-4MA mobile wireless antenna for GSM (2G), UMTS (3G) and LTE(4G) networks; omnidirectional characteristic, radially rotatable, with additional joint, antenna gain: 2 dBi, incl. SMA connector, IP54, (-40-+85°C), observe national approvals; for direct installation with SMA connection system scope of delivery: 1x ANT 896-4MA, compact instructions as hard copy German/English	1	60.00	60.00
4	Siemens VFD The current drive MicroMaster 440 for the CMF-S Filtrate Pumps #1 & #2, Backwash Pumps #1 & #2 Proposal Upgrade - Sinamics G120 The SINAMICS ® G120 family of closed-loop vector drives offers high levels of integrated safety, energy savings, and network connectivity			
4.1	Hardware (a) 6SL3210-1PE21-8UL0 SINAMICS power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-10% 47-63Hz output high overload : 5.5kW for 200%, 3s,150% 57s,100% 240s ambient temp. -10 to +50 Deg C output low overload: 7,5kW for 150% 3s,110% 57s,100% 240s ambient temp. -10 to +40 Deg C 291 x 100 X 165 (HXWXD), FSB protection IP20 without control unit and panel approved for CU firmware-Version V4.6	2	773.00	1,546.00
	(b) 6SL3210-1PE31-1UL0 SINAMICS G120 power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-20% 47-63Hz, output high overload : 45kW for 200% 3s,150% 57s,100% 240s ambient temp. -20 to +50 Deg C (HO) output low overload : 55kW for 150% 3s,110% 57s,100% 240s ambient temp. -20 to +40 Deg C (LO) 551 X 275 X 237 (HXWXD), FSE protection IP20 without control unit and panel approved. For CU firmware - Version V4.7 HF8	1	4,257.00	4,257.00
	(c) 6SL3244-0BB12-1PA1 SINAMICS G120 control unit CU240E-2 DP E-type safety integrated STO, profibus DP 6DI, 3DO, 2AI, 2AO, Max. 1F-DI PTC/KTY interface USB- and SD/MMC-interface protection IP20 ambient temp. 0 to +50 Deg C without power module and panel	3	225.00	675.00
	(d) 6SL3255-0AA00-4CA1 SINAMICS G120 Basic operator panel (BOP-2)	3	30.00	90.00
5	Engineering Works - Siemens Singapore Setup, power up and pre-commission system	1	30,000.00	30,000.00

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5.1	Hardware & Software (a) PLC system - Analyze & pre-program (b) Scada system - Analyze & pre-program (c) Remote Access – Scalance router configure & network setting (d) VFD (Sinamics G120) – Drive configure and setting (e) Hardcopy and digital copy of the configuration for each configuration/programmable device (f) Written backup plan for backing up the hard drives (g) Documentation & updating drawing (Auto-Cad version available)			
6 6.1	Siemens Engineering – GWA Ugum Scope of Works (a) Site configuration of PLC system, Scada, Remote access and VFD to accommodate the upgraded system (b) Site testing and commissioning of PLC system, Scada, Remote access and VFD to accommodate the upgraded system (c) Site basic training of PLC system, Scada, Remote access and VFD. Note : (a) Max. 30 days at Guam site for service engineers (b) Including traveling (2 days) (c) Including site training (2 days) (d) Normal working hours (e) Additional US$4,000.00 per day if require at GWA Ugum	1	100,500.00	100,500.00
A			Total Prices for Item 1~6	252,673.00
7 7.1	Danfoss Drive Profibus Network Connection The Profibus connection to the Raw Water Intake System if up and running, it can connect the Danfoss drive through this network. This will enable monitoring and control of these three VFDs Scope of Works (a) FDS as per as per works described in the 3-page. The attached document is titled 'Raw Water Intake System, Ugum (b) Engineering of the changes (c) Installation of Profibus option into the VFDs (d) Hardware configuration changes in the PLC system (e) Control logic addition to the current program to enable Scada monitoring and control (f) Static and dynamics graphics changes in the Scada (g) Site commissioning	1	20,000.00	20,000.00
8	Danfoss Profibus (FC) Cables Supply, install and testing of Profibus cables for the Raw Water ET200 module station to the three Danfoss VFD	1	15,000.00	15,000.00

8.1	Hardware (a) 6ES7972-0BB52-0XA0 SIMATIC DP, Connection plug for Profibus up to 12 Mbit/s 90°cable outlet, Insulation displacement method fast connect, with PG receptacle (b) Danfoss Profibus DP MCA101	4 3	45.00 650.00	180.00 1,950.00
9 9.1 9.2	Fiber Optic (FO) Cables Supply, install and testing of Fiber Optic (FO) cables for following location Locations (a) Control room to River raw water intake (b) Control room to MCC room (c) Control room to Chemical room Hardware (a) 6GK1503-3CB00 Profibus OLM/G12 V4.0 Optical Link Module with 1 RS485 and 2 glass FOC interfaces (4 BFOC sockets) for standard distances up to 2850 m, with signaling contact and measuring output	1 6	75,000.00 885.00	75,000.00 5,310.00
B			Total Prices for Item 7~9	117,440.00
10	Yearly Site Inspection A yearly visit is recommended for system checks and to ensure that the important information is backed up. The following activities will be executed: (a) Back up the PLC program (b) Back up the WinCC SCADA program (c) Back up the Simocodes (d) Backup the VFDs parameters (e) Check the diagnostics of the PLC (f) Check the data logger of the WinCC Note : (a) Max. 5 days at Guam site for service engineer (b) Including traveling (2 days) (c) Normal working hours	1	12,000.00	12,000.00
11	Monthly Remote Checks For The Main PLC & The WinCC Scada Every month we will connect remotely to check the diagnostic buffers of the PLC. We will also check the event logger of the WinCC Scada. It is also an opportunity for the plant personnel to feedback any observations that we can look into and clarify and/or rectify Note : (a) Normal working hours	12	1,000.00	12,000.00

	(b) Max. 8 hours/session			
C			Total Prices for Item 10~11	24,000.00
12	Tools & Test Equipment A. SIRIUS Simocodes (i) 3ZS1312-5CC10-0YA5 SIRIUS Simocode ES 2007 Standard, Floating License for one user engineering software, SW and documentation on CD, license key on USB flash drive Class A, 3 languages (de,en,fr) Executable in: Win 7 SP1 / Win 10 - 64 bit (Prof./Ultimate/Enterprise) / Win Server 2008 R2 Std. SP1 / 2012 R2 / 2016 - 64 bit, Reference hardware: SIRIUS Simocode Pro 3UF7*, communication via system interface (ii) 3UF7941-0AA00-0 USB PC cable for connection to the USB interface of a PC, for communication with Simocode pro or SIRIUS 3RW44 soft starter or modular safety system 3RK3 via the system interface B. Profibus Cable Cutter (i) 6GK1905-6AA00 Profibus fast connect stripping tool, stripping tool for fast stripping of the profibus fast connect bus cable C. Profi-Trace For the Profibus network diagnostics and trouble shooting.	1 1 1 1	543.00 76.00 76.00 7,500.00	543.00 76.00 76.00 7,500.00
D			Total Prices for Item 12	8,195.00
13	Recommended Spare Parts List (a) 6ES7400-0HR03-4AB0 SIMATIC S7-400H, 416-5H system-bundle H-system with 1 x UR2-H, w/o memory card, 2 x PS407 UC120/230V, 10A, 4 x sync-module up to 10m, 2 x sync-cable 1m, 2 x CPU 416-5H, 4 x back-up batteries (b) 6ES7952-1KP00-0AA0 SIMATIC S7, memory card for S7-400, long version, 5V Flash-Eprom, 8 Mbytes (c) 6GK5876-4AA00-2BA2 SCALANCE M876-4 4G router; for the wireless IP communication from ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in Europe, VPN, firewall, NAT; 4-port switch; 2x SMA antennas, MIMO technology; 1 x digital input, 1 x digital output; observe national approvals	1 2 1	20,856.00 1,346.00 1,490.00	20,856.00 2,692.00 1,490.00

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	(e) 6SL3210-1PE21-8UL0 SINAMICS power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-10% 47-63Hz output high overload : 5.5kW for 200%, 3s,150% 57s,100% 240s ambient temp. -10 to +50 Deg C output low overload: 7,5kW for 150% 3s,110% 57s,100% 240s ambient temp. -10 to +40 Deg C 291 x 100 X 165 (HXWXD), FSB protection IP20 without control unit and panel approved for CU firmware-Version V4.6	1	773.00	773.00
	(f) 6SL3210-1PE31-1UL0 SINAMICS G120 power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-20% 47-63Hz, output high overload : 45kW for 200% 3s,150% 57s,100% 240s ambient temp. -20 to +50 deg. C (HO) output low overload: 55kW for 150% 3s,110% 57s,100% 240s ambient temp. -20 to +40 deg. C (LO) 551 X 275 X 237 (HXWXD), FSE protection IP20 without control unit and panel approved. For CU firmware - Version V4.7 HF8	1	4,257.00	4,257.00
	(g) 6SL3244-0BB12-1PA1 SINAMICS G120 control unit CU240E-2 DP E-type safety integrated STO, profibus DP 6DI, 3DO, 2AI, 2AO, Max. 1F-DI PTC/KTY interface USB- and SD/MMC-interface protection IP20 ambient temp. 0 to +50 deg. C without power module and panel	2	225.00	450.00
	(h) 6SL3255-0AA00-4CA1 SINAMICS G120 Basic operator panel (BOP-2)	2	30.00	60.00
	(i) 3UF7000-1AU00-0 Basic unit Simocode pro C Profibus DP interface 12 Mbps,RS485 4I/3O freely parameterizable, US: 110...240 V AC/DC input for thermistor connection monostable relay outputs	3	254.00	762.00
	(j) 3UF7200-1AA00-0 Operator panel, installation in control cabinet door or front plate, can be plugged onto basic unit or extension modules, 10 LEDs for status display and 5 freely assignable keys for manual control, light gray	3	147.00	441.00
	(k) 6ES7972-0BB52-0XA0 SIMATIC DP, Connection plug for Profibus up to 12 Mbit/s 90°cable outlet, Insulation displacement method fast connect, with PG receptacle	3	45.00	135.00
	(l) Danfoss Profibus DP MCA101	1	650.00	650.00
	(m) 6GK1503-3CB00 Profibus OLM/G12 V4.0 Optical Link Module with 1 RS485 and 2 glass FOC interfaces (4 BFOC sockets) for standard distances up to 2850 m, with signaling contact and measuring output	1	885.00	885.00
E			Total Prices for Item 13	33,451.00

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14	Accessories (Local Supply) (a) APC Smart-UPS 1500 LCD RM – UPS - 1kW -1440 VA - with APC SmartConnect (b) Dell 24 Monitor | E2417H 23.8" (c) Dell Multimedia Keyboard (English) - KB216 - Black (d) Dell Optical Mouse - MS116 - Black (e) Lexmark CX310dn Color Laser Printer - Multifunction (f) Operating cost – Local SIM card (4G), Mobile data	 1 1 1 1 □□	 861.00 216.00 9.00 9.00 924.00 80.00□month	 8□□.00 □□□.00 □.00 □.00 □□4.00 □□0.00
15	SiemensTraining Centre TOTAL AMOUNT □OR iT□M □4: The following training courses are recommended (a) PLC System - STEP7 Service 1 & 2 (b) WinCC Scada - WinCC Basic (c) Simocode (d) Siemens VFDs – Micro Master & Sinamics Note : Pls refer to attachment Sitrain 2018 Training Calender			□,□7□.00
16	Power Quality – No Offer Assessment of power quality and selection of protective devices are necessary prior to installing the new equipment. GWA with GPA support will provide incoming power data to Siemens for evaluation. The result is recommended works needed to protect the equipment from power quality issues (transients, Over/Under voltages, Sags/Swells). Reported in GWA's SCADA Master Plan, TVSS installation was recommended.			
17	Main PLC Cabinet (a) Replace existing door main PLC cabinet with a lockable door to provide physical security (b) Replace new main PLC cabinet;*require at least 1~2 weeks total system shut down.			

GRAND TOTAL AMOUNT: $455,738.00

Note

1. All other scopes not mentioned above are not included in the quotation. (includes shipping charges of hardware to Guam)

Terms & Conditions

(a) Currency : All prices are in US Dollars, excluding GST and other taxes/duties

(b) Incoterm : CIF, Guam (Est. 10% of the total hardware costs, US$17,000.00)

(c) Validity of Offer : 90 days from quotation date

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(d) Delivery	: Approx. 10 ~ 12 weeks
(e) Terms of Payment	: 30% Down payment, balance 70% within 30 days upon T&C (subjected to credit approval)
(f) Cancellation Charges	: A 30% cancellation charge will be imposed after receipt of order confirmation from Purchase Order or Written consent
(g) Export Regulation	: Please declare in your PO that the above merchandise will not be used for war related project
(h) Warranty	: 12 months from date of delivery with 1+4 years for IPC extended warranty
(i) Taxes	: All “Local & Export” Taxes, if any, will be borne by customer

This quotation is subject to SIEMENS General Conditions of SALE of Goods and Services (including Software). A copy of which is available upon request or may be downloaded from Siemens Singapore website http://sg.siemens.com/aboutus/profile/. Siemens’ obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national and international foreign trade and customs requirements or any embargos [or other sanctions]. Notwithstanding any other provisions, Siemens total liability shall be limited to 10% of the purchase order value. Under no circumstances shall Siemens be liable for any indirect or consequential losses such as but not limited to loss of profit, loss of production and production stoppages etc Goods labelled with “AL not equal to N” are subject to European or German export authorization when being exported out of the EU. Goods labeled with “ECCN not equal to N” are subject to US re-export authorization. Even without a label, or with label “AL:N or ECCN:N”, authorization may be required due to the final whereabouts and purpose for which the goods are to be used.

We hope that our offer is acceptable to you and look forward to receiving your order. Please feel free to contact Daniel (Mobile: 8809 8122) should you have any queries.

Thank you.

Yours faithfully,

For Siemens Pte Ltd

Daniel Wong
Sales
Digital Factory
Customer Services DF&PD

Kathleen Koh
Commercial Head
Digital Factory
Customer Services DF&PD

Do it Best Benson
A Tanvy Group
BENSON GUAM ENTERPRISES, INC.
P.O. Box 6157, Tamuning, Guam 96931-6157
779 Route 8, Hagatna, Guam 96910-2019
Tel: (671) 477-7562 Fax: (671) 477-3736
email: monito.co@bensonguam.com
general email: benson@bensonguam.com
www.bensonguam.com
Support: MIKKEL TAN I. VY FOUNDATION

INTEGRATION OF THE UGUM WTP TO THE NEW GPWA SCADA SYSTEM:

1. Proposal from Siemens Singapore, scope as follow: ---------- **$ 60,000.00**
   a. Hardware
      (1) TIM 4R-IE DNP3 communication module for SIMATIC S7-300, S7-400, PC; with two RS232/RS485 Interfaces for DNP3-Communication via standard WAN and two RJ45 interfaces for DNP3 communication via IP-based networks (WAN or LAN)
      Price : USD 3740.00

      (2) SINAUT engineering software V5.5 +SP3, on DVD, for ST7 a.DNP3-TIM modules consisting of configuration and diagnostic software for STEP 7 V5.6, SINAUT TD7 block library and electronic manual in German and English
      Price : USD 2575.00

   b. Scope of engineering works, FAT (30 days), SAT (10 days)
      (1) Configuration and programming of TIM 4R-IE DNP3, FAT (Singapore)
      (2) Coordination with GPWA SCADA vendors, FAT in Singapore & SAT in Guam
      (3) SCADAPack 334E Configuration (including connection with S7-416H PLC), SAT (Guam)
      Prices : USD 53,685.00

2. Proposal from Siemens Taiwan ---------- **$ 22,600.00**
   a. EMS/SCADA HMI engineering ---------- **$ 6,600.00**
   b. Point to point test, include travel and accommodations ---------- **$ 16,000.00**
   NOTE: Price proposal for this portion will be valid only if work will be done no later than the SAT of SP5 EMS/SCADA System.

Continuation – Page 2
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3. Installation of the SCADAPack 334E, Tropos ---------- **$ 14,000.00**
   Router with Antenna and fire wall
   - **a.** list of electrical materials and their --- **$ 1,600.00**
     estimated quantities
   - **b.** Labor cost for installation, includes -- **$ 10,000.00**
     clean-up
   - c. 2 sets of 24" x 30" x 12" NEMA 12 -- **$ 2,400.00**
     Stainless steel enclosure. $1,200.00 each

4. Additional hardware ---------- **$ 22,500.00**
   a. 2 units of Schneider SCADAPak ------- **$ 7,400.00**
   334E RTU ($3,700/ unit)
   b. ABB Tropos Router and Antenna Kit -- **$ 3,600.00**
   c. Network Firewall ---------- **$ 11,500.00**

TOTAL COST: $ 119,100.00

EXHIBIT B

CONSOLIDATED
COMMISSION ON UTILITIES
Guam Power Authority • Guam Waterworks Authority
P.O.BOX 2977 • Agana,Guam 96932

GPA RESOLUTION NO. 2016-48

GWA RESOLUTION NO. 60-FY2016 (SCADA)

AUTHORIZING MANAGEMENT OF GUAM POWER AUTHORITY (GPA) AND MANAGEMENT OF GUAM WATERWORKS AUTHORITY (GWA) TO ENTER INTO A CONTRACT WITH BENSON GUAM ENTERPRISES, INC. FOR THE DESIGN AND INSTALLATION OF THE SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

WHEREAS, GPA and GWA, collectively called GPWA, made a mutual agreement to enter into a bid process for the procurement of a single Supervisory Control and Data Acquisition (SCADA) System that would run both Power SCADA and Water & Wastewater SCADA on a common platform; and

WHEREAS, GPA will use the SCADA system procured under this bid to primarily monitor and control its electric power grid, and GWA will use the SCADA procured under this bid to monitor and control its water and wastewater utility system; and

WHEREAS, GPA Procurement is the issuing office of the subject bid, Multi-Step Bid No. GPA-066-16; and

WHEREAS, GPA Procurement Office received and accepted proposals from Benson Guam Enterprises, Inc. and LSIS Company Ltd. in response to the subject bid; and

WHEREAS, the GPWA Bid Committee, upon the evaluations of technical and price bid proposals accepted under Step One and Step Two of the multi-step bid process, determined

Benson Guam Enterprises, Inc. the lowest responsive and responsible bidder that met all the requirements set forth in the Multi-Step Bid GPA-066-16 (Exhibit A); and

WHEREAS, the GPWA Bid Committee recommends awarding the contract to Benson Guam Enterprises, Inc. for the base bid in the amount of One Million Nine Hundred Fifty-One Thousand Four Hundred Seventy-Four Dollars and Zero Cents ($1,951,474.00) (Exhibit A); and

WHEREAS, GPA's shared cost of the base bid is in the amount of One Million Five Hundred Eighteen Thousand Seven Hundred Sixty-Nine Dollars and Zero Cents ($1,518,769.00) (Exhibit A); and

WHEREAS, GWA's shared cost of the base bid is in the amount of Four Hundred Thirty-Two Thousand Seven Hundred Five Dollars and Zero Cents ($432,705.00) (Exhibit A); and

WHEREAS, GPWA would like to proceed expeditiously to substantially complete the SCADA Project by the end of 365 days from Benson Guam Enterprises, Inc.'s receipt date of GPWA's Notice to Proceed, as stipulated in the bid documents; and

WHEREAS, GPWA management seeks approval to award Benson Guam Enterprises, Inc. in the amount of One Million Five Hundred Eighteen Thousand Seven Hundred Sixty-Nine Dollars and Zero Cents ($1,518,769.00) to cover GPA's share and Four Hundred Thirty-Two Thousand Seven Hundred Five Dollars and Zero Cents ($432,705.00) to cover GWA's share, for a total authorized funding amount of One Million Nine Hundred Fifty-One Thousand Four Hundred Seventy-Four Dollars and Zero Cents ($1,951,474.00); and

WHEREAS, funding of GPA's shared amount will be from GPA's Bond funds; and

WHEREAS, funding for GWA's shared amount will be from GWA's 2016 Bond under CIP Line Item EE 09-08 SCADA Improvements – Phase 3; and

NOW, THEREFORE BE IT RESOLVED, by the Consolidated Commission on Utilities as follows:

1. Both the General Manager of the Guam Power Authority and the General Manager of the Guam Waterworks Authority are authorized to enter into a contract with Benson Guam Enterprises, Inc. for the total amount of $1,951,474.00 for the design and installation of a SCADA System that comprises of a GPA power SCADA and a GWA water and wastewater SCADA running on a common platform.

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

DULY AND REGULARLY ADOPTED this 27th day of September, 2016.

Certified by:

JOSEPH T. DUENAS
Chairman
Consolidated Commission on Utilities

Date: 9/27/16

Attested by:

J. GEORGE BAMBA
Secretary
Consolidated Commission on Utilities

Date: 9/27/16

SECRETARY'S CERTIFICATE

I, **J. George Bamba**, Secretary for the Consolidated Commission on Utilities do hereby certify that the foregoing is a full, true, and correct copy of the resolution duly adopted at a regular meeting of the members of Guam's Consolidated Commission on Utilities, duly and legally held at the meeting place thereof on September 27, 2016, at which meeting of all said members had due notice and at which at least a majority thereof were present, and

At said meeting said resolution was adopted by the following vote:

Ayes:	3
Nays:	0
Absent:	2
Abstain:	0

As of the date of this certification, said original resolution has not been amended, modified, or rescinded since the date of its adoption, and the same is now in full force and effect.

SO CERTIFIED this 27th day of September 2016.

J. George Bamba
Secretary
Consolidated Commission on Utilities

EXHIBIT A

GPA RESOLUTION NO. 2016-48
GWA RESOLUTION NO. 60-FY2016

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

July 29, 2016

Memorandum

To: Supply Management Administrator

From: Evaluation Committee

Subject: GPA-066-16,
Supervisory Control and Data Acquisition
(SCADA) System

The bid evaluation committee has completed the evaluation and concludes that Benson Guam Ent. and LSIS Company LTD has met the bid specifications as stated in the Multi-Step Bid. The committee recommends proceeding to Step 2.

Wei Chen, Systems Protection Engineer
Engineering

Jeremiah Diaz
System Control Center

Felipe Tenido, Network Administrator
Computer Services

Vincent Pangelinan
Operations and Maintenance

John Cruz Jr., SPORD Manager
SPORD

Calvin Yam
Engineering

Jonathan Chargualaf, PSCC Mgr (A)
PSCC

Barbara Cruz
Engineering

[✓] Approved [ ] Disapproved

FOR John M. Benavente, P.E.
General Manager

8/2/16
Date

GUAM POWER AUTHORITY

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

August 26, 2016

Memorandum

To: Supply Management Administrator

From: Evaluation Committee

Subject: GPA-066-16, Supervisory Control and Data Acquisition (SCADA) System

The bid evaluation committee has completed the Price Proposal Evaluation for Multi-Step Bid GPA-066-16 Supervisory Control and Data Acquisition (SCADA) System. The committee recommends awarding to the lowest, most responsive and responsible bidder Benson Guam Enterprise. The following is the total price summary for Benson Guam Enterprise's Basic Bid Offer for GPA and GWA:

Guam Power Authority	Guam Waterworks Authority
$1,518,769.00	$432,705.00

Wei Chen, Systems Protection Engineer
Engineering

Jeremiah Diaz
System Control Center

Felipe Tenido, Network Administrator
Computer Services

Vincent Pangelinan
Operations and Maintenance

John Cruz Jr., SPORD Manager
SPORD

Calvin Yam
Engineering

Frank C. Santos, PSCC Mgr.
PSCC

Barbara Cruz
Engineering

[✓] Approved [ ] Disapproved

for John M. Benavente, P.E.
GPA General Manager

[✓] Approved [ ] Disapproved

Miguel C. Bordallo, P.E.
GWA General Manager

RECEIVED
OCT 27 2016
Public Utilities Commission
GUAM

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:	)	GPA Docket 17-01
	)	GWA Docket 17-01
The Application of the Guam Power Authority to Approve the SCADA System Contract with Benson Guam Enterprises, Inc. (Benson)	)	**ORDER**

INTRODUCTION

1. This matter comes before the Guam Public Utilities Commission ["PUC"] upon the Petition of Guam Power Authority ["GPA"] for Approval of the Supervisory Control and Data Acquisition System ["SCADA"] Contract with Benson Guam Enterprises, Inc. ["Benson"].[1]

2. Both GPA and GWA are requesting approval of the contract for their SCADA systems.

BACKGROUND

3. On April 28, 2015, GPA issued Multi-Step Bid Invitation No. GPA-066-16 for a Supervisory Control and Data Acquisition ["SCADA"] system.[2] The IFB invited qualified firms to participate in a Multi-Step Bid for a SCADA system for both the Guam Power Authority and the Guam Waterworks Authority.[3]

4. The bid sought a SCADA system that would run both Power SCADA and Water and Wastewater SCADA on a common platform.[4]

5. For GPA, the purpose of the project is to replace GPA's existing Siemens Power TG EMSYS Energy Management (SCADA) System, which has been in operation since 2006.[5]

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[1] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016.
[2] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016.
[3] Id. at p. 11.
[4] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016, at p. 1.
[5] Issues for Decision, GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), provided to the CCU in the Board Packet for the September 27, 2016 Regular Meeting.

6. For GWA, the project objective is to provide GWA with a water and wastewater SCADA system to manage its water and wastewater operations in a safe, reliable, responsible and cost effective manner. GWA anticipates that it will integrate approximately sixty (60) SCADA-ready water and wastewater facilities by 2018 with remaining facilities planned and added as funding becomes available.[6]

7. The new SCADA master station equipment will be installed primarily on the second and third floors of the Gloria B. Nelson Public Service Administration Building.

8. PUC Counsel filed his Report herein dated October 24, 2016. The Report explains the functions of the SCADA system in some detail. Such explanation is incorporated herein by reference.[7]

9. In general terms, a SCADA system provides remote telemetry and control to the substations and GPA plants, and to the GWA facilities.[8]

10. The SCADA system provides supervisory control to and data acquisition from the GPA and GWA facilities that are connected to the system.[9]

11. Advanced applications for GPA include Automatic Generation Control (AGC), Dispatcher Power Flow (DPF), Switch Order Management (SWOM), and Load Shedding and Restoration (LSR).[10]

12. For GWA, advanced applications include Leak Detection Management, Pump Condition Monitoring, and Sequential Control Capability.[11]

13. The new system will process and utilize real-time data acquired from remote terminal units (RTU's).[12]

14. The supervisory control capabilities allow for the performance of supervisory control operations at any of the remote terminal units or programmable logic controllers.[13]

[6] Id.
[7] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016, at p. 68.
[8] Id. at p. 75.
[9] Id. at pgs. 108-109.
[10] Id. at p. 109.
[11] Id.
[12] Id. at p. 111.
[13] Id at p. 117.

15. There were only two bidders in response to the IFB.[14] The GPWA Bid Committee, upon the evaluations of technical and price bid proposals accepted under Step One and Step Two of the multi-step bid process, determined that Benson Guam Enterprises, Inc. was the lowest responsive and responsible bidder that met all of the requirements set forth in the Multi-Step Bid GPA-066-16.[15]

16. The total cost of the SCADA System Contract with Benson Guam Enterprises, Inc. is the amount of $1,951,474; GPA's share is $1,518,769 and GWA's share is $432,705.[16]

17. GPA's share of the cost will be paid from the 2014 Bond Proceeds[17]; the PUC Order in GPA Docket 14-09, dated December 1, 2014, approved GPA's request to expend $1,800,000 for the Fadian SCADA system.[18]

18. GWA's share of the total will be paid from GWA's 2016 Bond under CIP Line Item EE 09-08 SCADA Improvements-Phase 3.[19]

19. On September 27, 2016, the CCU approved the request of GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc. for the total amount of $1,951,477.00 for the design and installation of a SCADA System.[20]

DETERMINATIONS

20. With the IFB, GPA has provided a standard form contract in accordance with which Benson will design and implement the SCADA System. The contract includes detailed specifications and should be adequate to protect the interests of GPA, GWA

[14] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016, at p. 1.
[15] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto.
[16] Id at p. 2.
[17] Id.
[18] PUC Order, GPA Docket 14-09, dated December 1, 2014, at p. 3.
[19] [19] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto, at p. 2.
[20] Id at p. 3.

and their ratepayers. The contract contains indemnification, insurance, and warranty provisions.

21. GPA's present SCADA System is over 10 years old; the new system should be more compatible with GPA's updated communications and smart grid systems.

22. GWA previously prepared its Master Plan for the implementation of a SCADA System. Since GWA does not have such a system at present, the implementation of a SCADA system should assist the upgrading and increased efficiency of its operations.

23. The system should be completed by the end of 365 days from Benson Guam Enterprises, Inc.'s receipt date of GPWA's Notice to proceed, as stipulated in the bid documents.[21]

24. The SCADA system will improve the ability of both GPA and GWA to monitor and control the electric power grid and the water and wastewater utility system.

25. GPA anticipates that it will place 10 or more additional new renewable energy facilities and a 40MW Energy Storage System at the Agana Substation on SCADA.[22] The SCADA system will also assist both GPA and GWA in implementing their Cyber Security Plan and Policies.[23]

26. For the foregoing reasons, GPA and GWA have demonstrated that the implementation of the SCADA System and the contract with Benson Guam Enterprises, Inc. are reasonable, prudent and necessary.

ORDERING PROVISIONS

After review of the record herein, GPA's Petition for Approval of the SCADA System Contract with Benson Guam Enterprises Inc., and the PUC Counsel Report, for good cause shown, on motion duly made, seconded and carried by the undersigned Commissioners, the Guam Public Utilities Commission **HEREBY ORDERS** that:

[21] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto, at p. 2.
[22] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016, volume II, at p. 71.
[23] Id. at p. 72.

1. GPA and GWA are authorized to enter into the SCADA System Contract with Benson Guam Enterprises, Inc.

2. The total amount of $1,951,474 is authorized for such Contract, with the GPA share at $1,518,769 and the GWA share at $432,705.

3. The source of funds for the Contract for both GPA and GWA is bond funds.

4. GPA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses of conducting the hearing proceedings. Assessment of PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §§12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

Dated this 27th day of October, 2016.

Jeffrey C. Johnson
Chairman

Joseph M. McDonald
Commissioner

Rowena E. Perez
Commissioner

Peter Montinola
Commissioner

Michael A. Pangelinan
Commissioner

Andrew L. Niven
Commissioner

Filomena M. Cantoria
Commissioner

EXHIBIT C

INVITATION FOR MULTI-STEP BID
NO.: GPA- 066-16

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

VOLUME IV
CONTRACT AGREEMENT

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BENSON GUAM ENTERPRISES, INC.

GUAM POWER AUTHORITY and GUAM WATERWORKS AUTHORITY

2016

MULTI-STEP BID No.: GPA – 066 - 16

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

FORMAL CONTRACT

This Agreement and Formal Contract ("Contract"), is made and entered into on the _____ day of _____, 2016 by and between:

Benson Guam Enterprises, Inc., hereinafter referred to as CONTRACTOR, duly organized, licensed, registered and qualified to do business in Guam with its principal address at 779 Route 8, Hagatna, Guam 96910

and

Guam Power Authority, hereinafter referred to as the "Authority" or "GPA", a Public Corporation with its office located at Gloria B. Nelson Public Service Building, 688 Route 15, Mangilao, Guam 96913;

and

Guam Waterworks Authority, hereinafter referred to as "GWA", a Public Corporation with its office located at Gloria B. Nelson Public Service Building, 688 Route 15, Mangilao, Guam 96913;

RECITALS

WHEREAS, GPA and GWA desire to attain a new Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS), associated software, systems, and equipment, and other associated deliverables.

WHEREAS, GPA has provided adequate public announcement of the need for such services through an Invitation for Multi-Step Bid, GPA-066-16, describing the type of services required and specifying the type of information and data required of each bidder; and

WHEREAS, CONTRACTOR submitted a bid proposal to design and install a single Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS) that would run both Power SCADA and Water & Wastewater SCADA on a common platform; and

WHEREAS, GPA, upon evaluation of the submitted bid proposal, determined that CONTRACTOR is the most responsive bidder to provide the services set forth in the Multi-Step Bid; and

WHEREAS, CONTRACTOR is fully willing to provide, and is capable of performing the design and install of a new Supervisory Control and Data Acquisition/Energy Management System, set forth in the Multi-Step Bid and Agreement in accordance with the terms and conditions thereof; and

WHEREAS, the Consolidated Commission on Utilities has determined that to hire CONTRACTOR to design and install a common SCADA/EMS is in the best interest of GPA and GWA.

NOW, THEREFORE, in consideration of the above premises and the mutual promises set forth herein and the terms and conditions hereinafter set forth and for other good and valuable consideration, receipt of which is hereby acknowledged, CONTRACTOR, GPA and GWA hereby agree as follows:

SECTION 1. DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

"$"
The term "$" refers to currency in U.S. dollars.

"Approved"
The word "Approved," when applied by ENGINEER to CONTRACTOR's drawings or documents, shall mean that the drawings or documents are satisfactory from the standpoint of interfacing with GPA-furnished components, and/or that ENGINEER has not observed any statement or feature that appears to deviate from the Specification requirements.

"Approved As Revised"
The words "Approved As Revised," when applied by ENGINEER to CONTRACTOR's drawings or documents shall mean that the drawings or documents are approved as defined above, except that the corrections shown are required for the proper interfacing with GPA-furnished components or are necessary to be in conformance with the Specification's requirements.

"Change Order"
A written instrument to CONTRACTOR signed by GPA authorizing an addition, deletion, or revision in the goods or special services, or an adjustment in the purchase order price or the delivery time, issued after the effective date of the Contract Agreement (Agreement).

"Contract"
The term "Contract" means the Supervisory Control and Data Acquisition System Phase I Contract executed as a result of this Multi-Step Bid.

"Contract Agreement (Agreement)"
The written agreement between GPA and CONTRACTOR covering the furnishing of the Goods, Special Services, and other services in connection therewith evidencing what is contemplated and agreed to between the parties including any other Contract Documents either attached to the Agreement or made a part thereof by reference therein.

"Contract Documents"

The Contract Agreement, Bonds (where required), these General Conditions, these Conditions of Contract, any Supplementary Conditions, the Specifications, the Drawings and any other documents specifically identified in the Contract Agreement, together with all Modifications issued after execution of the Contract Agreement.

"Contracting Officer"
The term "Contracting Officer" as used herein means the General Manager of the Guam Power Authority and shall include his authorized representatives.

"CONTRACTOR"
The term "Contractor" as used herein means the party or parties who or which shall have duly entered into a contract with the Guam Power Authority to perform the work herein contemplated or his or their authorized assignee.

"Day"
A calendar day of twenty-four (24) hours measured from midnight to the next midnight.

"Defective"
An adjective which when modifying the words Goods or Special Services refers to Goods or Special Services which are unsatisfactory, faulty, deficient, do not conform to the Contract Documents, or do not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents.

"Delivery Time"
The total number of days or the dates stated in the Contract Agreement for furnishing the Goods and/or Special Services.

"Drawings"
Drawings are all official drawings approved by the ENGINEER and showing the character and scope of the Goods to be furnished.

"Effective Date of the Contract Agreement"
The date indicated in the Contract Agreement on which it becomes effective, or if no such date is indicated, the date by which the Contract Agreement is signed by both parties.

"ENGINEER"
Wherever the words "ENGINEER" or "ENGINEERS" appear in the CONTRACT Documents, it shall mean GPA's ENGINEER, duly appointed as "ENGINEER". GPA shall assign several ENGINEERS as required to cover specialized areas of expertise.

"ENGINEER's Instructions"
Written instructions issued by ENGINEER which clarify or interpret the CONTRACT Documents or order minor changes or alterations in the Goods or Special Services to be furnished but which do not involve a change in the Purchase Price or the Delivery Time.

"Forms Enclosed"
The copies of the Formal Contract and Bid Bond, enclosed herewith are incorporated in these General Conditions by reference and are made a part hereof to the same extent as though fully set forth herein.

"General Manager"
The General Manager is the Chief Executive Officer of the GPA. The office and title of General Manager shall apply to any person acting in a regular or in an acting capacity as the Chief Executive Officer of the GPA.

"Goods"
All property required to be furnished by CONTRACTOR under the procurement documents.

"GPWA"
The term "GPWA" as used herein means the Guam Power Authority and Guam Waterworks Authority.

"Modification"
A written amendment of the Contract Agreement signed by both parties, or Change Order, or ENGINEER's Instructions.

"Notice"
The term "Notice" as used herein shall mean and include all written notice demands, instructions, claims, approvals and disapprovals required to obtain compliance with contract requirements. Any written notice by either party to the contract shall be sufficiently given if delivered to or at the last known business address of the person, firm, or corporation constituting the other party to the contract, or to his, their, or its duly authorized agent, representative, or officers, or when enclosed in a postage prepaid envelope addressed to such last known business address and deposited in a United States mail box. CONTRACTOR must provide and maintain a post office address within Guam and file the same with the Contracting Officer.

"OWNER"
The term "Owner", "GPA" or "Authority" as used herein means the Guam Power Authority, and shall include GWA, and the Governor of Guam and/or his authorized representatives.

"Point of Delivery"
The place at which property in the goods shall pass to GPA shall be CIF landed at job-site, Guam, unloaded.

"Procurement Officer"
The General Manager of the GPA or the General Manager's designee.

"Project"
The plant, facilities, or works, the Goods and Services are to be used for or incorporated into.

"PURCHASER"
The Guam Power Authority and the Guam Waterworks Authority with whom CONTRACTOR has entered into the Contract Agreement.

"Seller"
The CONTRACTOR.

"SITE or Site"
The SITE is the area where the Project is to be constructed or executed.

"Special Services"
Services to be furnished by the CONTRACTOR at the Site as required by the Contract Agreement.

"Territory"
The Territory of Guam.

SECTION 2. PURPOSE AND SCOPE OF SERVICES

2.1 Purpose

CONTRACTOR agrees to provide all the services as required under Volumes I Commercial Terms and Conditions, Volume II Technical and Functional Requirements, Volume III Cybersecurity and all appendices herein and the bid amendments issued by GPA and GPWA agrees to pay for all the services rendered in the amount, as stipulated in Section 6, the services to design, install, and commission Supervisory Control and Data Acquisition/Energy Management System.

2.2 General Scope Requirements

The CONTRACTOR shall be responsible for all aspects of project implementation including but not limited to:

A. Necessary permits, if required
B. Adherence to all applicable codes and standards
C. System engineering and design
D. Installation design: addressing all electrical, mechanical and civil systems
E. SCADA/EMS and other necessary equipment procurement and delivery
   a. Delivery of all Operating System software and application software
   b. Delivery of all processors, consoles, printers, local input/output facility, signal and power cabling and related hardware
   c. Delivery of all required communication hardware
   d. Delivery of two (2) each wall-mounted 85" LED 2160p 4K Ultra HDTV

e. Delivery of recommended spare parts

F. All on-site construction, equipment installation and interconnection
   a. Network and communications interconnection coordination with GPWA
   b. Equipment and software installation coordination with GPWA
   c. Interconnection of all CONTRACTOR-supplied equipment in the new GPWA Control Centers and Server Room
   d. Complete and seamless integration of all CONTRACTOR-supplied hardware, software and applications
   e. Complete and seamless integration with GPWA existing RTUs/PLCs and other GPWA-supplied hardware
   f. Complete and seamless integration with GPA's existing Multi-Screen Video Wall
   g. Complete and seamless integration and installation of two (2) each CONTRACTOR-supplied wall-mounted 85" LED 2160p 4K Ultra HDTV into the operator stations with the ability to drive the HDTV image from any operator station
   h. Complete and seamless integration and installation of CONTRACTOR-supplied SCADA/EMS and supplied systems, software, and equipment with the external software applications and systems discussed in the specifications
   i. Complete and seamless integration with GPA's existing AGC field hardware and software including controllers and communication devices.
   j. Complete and seamless integration with CONTRACTOR-supplied workstations at GWA Hagatña Wastewater Maintenance Building and GWA Upper Tumon Offices for the Operations and Maintenance Managers of the Water and Wastewater Divisions.

G. Commissioning and quality assurance and performance testing with coordination with GPWA or its ENGINEER
   a. Provide engineering, programming, display building, report designing, and database conversion and integration assistance
      1. It is the responsibility of the CONTRACTOR to ensure that the above work is performed at the highest quality and to schedule
   b. Plan, document, and execute Factory Acceptance Testing (FAT), Site Acceptance Testing (SAT), 1000-hour Availability Testing, and all other required tests
      1. CONTRACTOR shall bear the expense for all travel, lodging, meals, and incidentals for GPA and GWA personnel attending the FAT. (Appendix T: Factory Acceptance Test Attendees)
   c. Delivery of all documentation for the SCADA/EMS, supplied systems and equipment, warranties including but not limited to testing manuals and results, user guides, installation/operation/maintenance manuals, drawings, schematics, etc.

H. Training on all delivered software applications, systems, equipment, etc.

a. Deliver initial on-site training of GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment
b. Deliver on-site refresher training of GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment on the one-year anniversary of initial training
c. Provide access to refresher and other training online on demand training for GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment on the one-year anniversary of initial training

I. Delivery of all warranties including those from third-party suppliers
   a. All warranties for delivered software, systems, and equipment must be made to GPA and GWA (GPWA)
   b. Warranty or assurance that spare or replacement hardware parts will be available for a minimum of ten (10) years from the date of successful completion of the 1000-hour Availability Test
J. Delivery and execution of a support and operations and maintenance service contracts
   a) Support and maintain the delivered system including but not limited to SCADA/EMS, software, systems, and equipment provided for one (1) year after successful completion of Site Acceptance Test
   b) Integration and commissioning support for up to three (3) years after successful completion of Site Acceptance Test to assist GWA integrate more facilities into the SCADA/EMS
K. Provide a requirements gathering report for a GPWA Emergency Backup Control Center (Disaster Recovery) at the GWA Upper Tumon Office. Not a detailed design. This report provides the requirements for a future RFP for design of the GPWA Emergency Backup Control Center.

The CONTRACTOR shall include in its price proposal all of the above activities and any other activities necessary to provide GPA and GWA with a fully-functioning, cyber secure SCADA/EMS completely integrated with external applications discussed in this specification and existing GPA and GWA network, communications, RTU, and IED systems and equipment.

The CONTRACTOR shall include the submission of a Master Project Schedule outlining anticipated start and end dates for each of the functional activities listed above.

The CONTRACTOR shall provide all labor and materials including taxes, equipment, means, and operations necessary to purchase and the SCADA EMS, other software, and related features.

The CONTRACTOR shall provide operations and maintenance (O&M) services for a period of 25 years after commissioning.

2.3 Special Conditions

It shall be the CONTRACTOR's responsibility to verify the existing conditions at the site during either the official pre-bid walkthrough or subsequent site visits to the property. During the pre-bid walkthrough, all areas for project construction will be available for observation.

Any physical disruption to the site that is necessary for the construction and interconnection shall be repaired as nearly as possible to its original state.

The CONTRACTOR must maintain a clean worksite and take all necessary measures to prevent any erosion or distribution of loose material away from the site.

The CONTRACTOR must identify any malfunctioning or defective equipment and report such incidences to GPA. The GPA project manager will decide on the corrective action.

The CONTRACTOR must ensure that all product warranties are active when the project becomes operational. Documentation of product warranties shall be provided to GPA upon commissioning.

The CONTRACTOR shall be required to maintain detailed records. For compliance with GPWA's requirements, the CONTRACTOR shall submit monthly reports that track % completion for the major project tasks.

2.4 Communication Means

CONTRACTOR shall provide Engineer a means of communication to be used during the duration of the project.

2.5 Test and Inspections

Any inspection made by the inspectors of GPWA and/or its designee will be final. Such inspections or the witnessing of CONTRACTOR's test and inspection by GPWA and/or its designee shall not relieve the CONTRACTOR of any of its responsibilities or liabilities under the Contract Documents, nor be interpreted in any way as implying acceptance of the Goods.

In the event that GPWA or Engineer is needed to do inspection or witness the production, construction or testing beyond regular working hours, the cost and expense arising therefrom shall be borne by the CONTRACTOR.

2.6 Scope of Work - Basic Bid Items

The following are general descriptions of the Basic Bid Items listed in the Priced Proposal Worksheet. The CONTRACTOR shall include, in the Project Approach of the Technical Proposal, more detailed scope of work descriptions for each Basic Bid Item for evaluation

2.6.1 Mobilization

The CONTRACTOR shall be responsible for all preparatory operations performed by the CONTRACTOR, including but not limited to, those necessary for the movements of its personnel, equipment, supplies and incidentals to the project site; for premiums on bonds for the project, and for other operations which it must perform or costs it must incur before beginning installation on the various items on the project site(s).

The CONTRACTOR shall submit to GPA for approval a proposed work schedule with milestones, deliverables and timelines no later than ten (10) days after issuance of the Notice to Proceed. The schedule shall be prepared in a Gantt chart format and shall display scheduled and actual progress. The schedule shall show the work broken down into major phases and key items with the dates work is expected to begin and be completed. The schedule shall be updated and submitted to GPA every month. The schedule shall show actual progress and any proposed changes in the schedule of remaining work. The CONTRACTOR shall not change the accepted project schedule without prior concurrence of GPA.

2.6.2 Permits, Bonds and Codes

The CONTRACTOR shall secure all permits and bonds required for the construction of this project, including but not limited to those required by the Department of Public Works, Guam Waterworks Authority, Guam-based telecommunication providers, and Department of Parks and Recreation.

The CONTRACTOR shall also be responsible for applying for and obtaining all other federal, local and other applicable permits, agreements, licenses, and certificates to complete this project, unless otherwise stated in this document. Copies of the permits and approvals shall be submitted to GPA before starting work.

The CONTRACTOR shall adhere to all applicable codes governing electrical, mechanical, civil, structural systems, etc.

In the Project Approach of the Technical Proposal, the CONTRACTOR shall identify all federal and local permits, licenses and environmental assessments and/or environmental impact statements required to construct and operate the project. The CONTRACTOR

shall identify environmental impacts associated with the proposed project and its plan to mitigate such impacts if any.

2.6.3 Project Installation Site Survey

The CONTRACTOR shall perform all work required for preparation of the design and as-built drawings and for project completion. All costs required for furnishing instruments and miscellaneous materials for this work shall be included.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.4 Interconnection and Integration Design

The CONTRACTOR shall provide to GPA a design plan that describes all activities regarding integration of the SCADA/EMS and other third-party software delivered under this project with the GPWA network.

The CONTRACTOR shall provide to GPA a design plan that describes all activities regarding integration of the SCADA/EMS and other third-party equipment delivered under this project with the GPWA facility communications and electrical systems.

The CONTRACTOR shall submit to GPA for review the 60%, 90%, 100% and pre-final design drawings in hard copy and PDF prior to the final design drawing submittal.

The CONTRACTOR shall submit to GPA the approved final design drawings in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF. Construction shall not commence until the design drawings are approved by GPA. The approval of GPA shall not relieve the CONTRACTOR from the responsibility of corrective actions if defective or inadequate work was overlooked.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.5 Communications and Networking Design and Execution Plan

The CONTRACTOR shall provide to GPWA a design and execution plan that describes all activities regarding the migration of existing RTUs from existing GTA communication and from the existing serial DNP 3 protocol to the GPWA Consolidated Communications Network using secure DNP 3.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.6 Installation Design

The CONTRACTOR shall provide to GPA an integrated design plan that describes all activities on the site regarding the electrical, mechanical, structural, and civil engineering work needed for the installation of the SCADA/EMS and associated facilities and equipment:

The design plan shall include:

A. Site Plan:

Site plan shall identify all construction and installation activities that will be undertaken on the site. The CONTRACTOR shall perform site work as necessary to prepare site for installation activities. Security and access controls shall be implemented to prevent unauthorized entry to site during project installation. The CONTRACTOR shall obtain appropriate approvals and shall construct connections or new systems for electrical power, water, sewer, telephone, and other utilities as needed.

B. Site Map:

The Sit Map shall indicate the proposed SCADA/EMS and associated equipment location and the layout of other project components.

C. Building Electrical Interconnection Diagrams:

The CONTRACTOR shall provide complete and detailed electrical interconnection as-built diagrams.

The CONTRACTOR shall submit to GPA for review the 60%, 90%, 100% and pre-final design drawings in hard copy and PDF prior to the final design drawing submittal.

The CONTRACTOR shall submit to GPA the approved final design drawings in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF. Construction shall not commence until the design drawings are approved by GPWA. The approval of GPWA shall not relieve the CONTRACTOR from the responsibility of corrective actions if defective or inadequate work was overlooked.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.7 Equipment and Software Cost, Procurement and Delivery

The CONTRACTOR shall be responsible for the procurement and delivery of the SCADA/EMS and other necessary equipment to construct and install this project in a turn-key manner. Any equipment and material prices shall be provided on the basis of CIF to the Guam job site unloaded.

The SCADA/EMS shall comply with the specifications identified in Section 4. The CONTRACTOR shall comply with all sections of the entire procurement documentation including Bid Amendments, Appendices, the GWA SCADA Master Plan, and applicable industry standards and guides. CONTRACTORs shall provide a breakdown of the cost components for all Bid Items.

2.6.8 On-Site Construction, Installation and Interconnection

The CONTRACTOR's primary scheduled activities shall include, but are not limited to:

A. Requirements gathering for design, planning and plan execution activities
B. Equipment delivery and staging
C. Installation and construction activities as needed
D. SCADA/EMS and related equipment assembly and installation
E. Factory Acceptance Testing (FAT)
F. Site Acceptance Testing (SAT)
G. Interconnection installation and construction work as needed.

All construction work must comply with applicable GPA and GWA standards.

The CONTRACTOR shall include the submission of a Master Project Schedule outlining anticipated start and end dates for each of the on-site construction, installation and interconnection activities.

2.6.9 Progress Meetings

Monthly progress meetings with the SCADA/EMS Task Force shall be held throughout the duration of the project. GPWA may request additional meetings if deemed necessary. Such meetings shall be attended by the CONTRACTOR either via phone or in person, by all active subcontractors and by GPWA. The purpose of the meetings will be to discuss current work progress, design or construction issues, interface issues, and potential changes to the schedule.

The CONTRACTOR shall meet once a week with the SCADA/EMS Program Management Office or as necessary to track daily and weekly progress and activities. The CONTRACTOR must provide Project Dashboards on GPWA's iDashboard application to track daily and weekly progress and activities

2.6.10 Work Progress Reports

The CONTRACTOR shall submit to GPA monthly reports on actual work progress. Such reports shall be submitted to GPA prior to the scheduled work progress meetings. The narrative shall contain a description of current and anticipated delaying factors, if any, impact of possible delaying factors, and proposed corrective actions. The reports shall be submitted as supporting documents for progress payments.

2.6.11 Commissioning, Quality Assurance, and Testing

The CONTRACTOR shall conduct pre-commissioning through final inspection activities with the GPA Project Manager and GPWA representatives to demonstrate the successful installation and fully functional operation of the SCADA/EMS and other delivered software, systems, and equipment. Additionally, formal and informal testing must occur as part of the CONTRACTOR's quality assurance and control plan.

The CONTRACTOR shall provide:

A. Factory Acceptance Test (FAT):

The CONTRACTOR shall conduct a Factory Acceptance Test at the CONTRACTOR's facilities staging the SCADA/EMS and other related equipment as a stand-alone system for thorough testing of the SCADA/EMS and related systems functionality and documented attribute. CONTRACTOR must submit a FAT plan for GPWA's approval no later than two months prior to the scheduled Factory Acceptance Plan execution. The report shall include a list of software/equipment/products/systems staged, activities and tests to take place during the FAT. Each test element of the FAT must describe the function or attribute under test and the pass/fail criteria. The CONTRACTOR must describe and provide a system for identification of testing variances and their resolution and escalation along with the FAT documentation.

The SCADA/EMS and other related software, systems, and equipment cannot ship to GPWA until the FAT is satisfactorily completed with few minor variances and no critical variances. Upon completion of the FAT, GPWA personnel involved in the FAT must sign-off that the system is ready to be shipped to GPWA. The sign-off can be made with variances upon an acceptable variance resolution plan and successful execution of that plan.

B. Site Commissioning and Site Acceptance Test (SAT):

The CONTRACTOR shall complete commissioning process and testing of all installed SCADA/EMS equipment, subsystems, and related software and equipment to establish acceptability for use in the GPWA operational environments.

The CONTRACTOR shall commission the new SCADA/EMS with the existing SCADA/EMS running in parallel. The CONTRACTOR is responsible for replication of communication services to support this including working with GPA and GWA to transition communications to the Consolidated Communications Network (CCN). The system shall operate in parallel for no less than sixty days as long as the 1000-Hour Availability Test is ongoing.

CONTRACTOR must submit a SAT plan for GPWA's approval no later than two months prior to the scheduled Site Acceptance Plan execution. The report shall include a list of software/equipment/products/systems commissioned, activities and tests to take place during the SAT. Each test element of the SAT must describe the function or attribute under test and the pass/fail criteria. The CONTRACTOR must describe and provide a system for identification of testing variances and their resolution and escalation along with the SAT documentation.

Commissioning activities shall include, but not be limited to:

1. Verification of successful point-to-point testing of all existing field RTUs and IEDs
2. Verification of successful testing of each SCADA/EMS, third-party system, and equipment functional element
3. Verification of all SCADA/EMS SCADA:
   a. I/O point tabulars
   b. Charts and trending displays,
   c. Alarm and event tabulars
   d. Electric power system one-lines and geographical one-line displays
   e. Electric power system substation displays
   f. Water system one-lines and geographical one-line displays
   g. Wastewater system one-lines and geographical one-line displays
   h. Tabulars and graphical displays of data from external applications
   i. Electric power substation and distribution automation telemetry and control data tabulars and displays

j. Water distribution automation telemetry and control data tabulars and displays
k. Wastewater distribution automation telemetry and control data tabulars and displays
l. GWA backup power system telemetry and control tabulars and displays
m. All other tabulars and displays

4. Verification that the SCADA/EMS properly communicates and operates with the following:
   a. GWA
      i. Water and Wastewater Hydraulic Analysis (W/WW HA)
   b. GPA
      i. Automatic Generation Control (AGC)
   c. GPWA
      i. Geographic Information System (GIS)
      ii. Computerized Maintenance Management System (CMMS)/Enterprise Asset Management (EAM)
      iii. Outage Management System (OMS)
      iv. Meter Data Management System (MDMS)
      v. iDashboards
      vi. GENOPS
      vii. Nostradamus
   d. Other external applications that may come under the project prior to FAT.

C. Delivery and Warranty:

The CONTRACTOR shall complete all inspection and commissioning requirements prior to final inspection. The SCADA/EMS shall include industry standard service and parts warranty specified in Volume I, Section 4.18. CONTRACTOR must provide and identify a detailed comprehensive list of each SCADA/EMS component under the warranty and the specific associated warranty.

D. 1000-Hour Availability Testing:

The CONTRACTOR shall conduct a 1000-Hour Availability Test. Five percent of the total contract will be retained until the successful conclusion of this test. The 1000-Hour Availability Test pass criteria are continuous operation of the SCADA/EMS without failure or major incident for 1000 consecutive hours. The test shall rest upon a major failure of the SCADA/EMS system, subsystem, or critical equipment. The test shall continue until the pass criteria are met, or

GPWA agrees to a negotiated settlement with the CONTRACTOR at GPA and GWA's discretion.

E. Final Inspection:

After the Completion of the 1000 Hour Availability Testing, the CONTRACTOR shall conduct a final inspection with the GPA Project Manager and GPWA representatives and document the findings in a final inspection report. The inspection shall concentrate on the items identified at the pre-final inspection and recorded in the pre-final inspection report. The final inspection report shall: (1) certify that all items of the design have been implemented and that the construction is complete, and (2) include a record of "signed and sealed" as-built drawings and specifications verifying that all development standards have been met. At the final inspection, the CONTRACTOR shall present a completed form for the Transfer and Acceptance of Real Property to GPA and GWA for signature and acceptance.

F. Documentation of All Equipment and Construction Work:
The CONTRACTOR shall provide the following documents either during construction or upon commissioning:

1. As-built electrical, mechanical and civil drawings for all installed systems in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF and electronic copy
2. Owner's manual for all complete systems
3. All SCADA/EMS system technical and operations manuals including
   a. Fifteen (15) complete bound hardcopy sets for GPA
      i. Seven (7) sets for GPA
      ii. PSCC (3)
      iii. Engineering (1)
      iv. Information Technology Divisions (3)
      v. SPORD (1)
   b. Seven (7) complete bound hardcopy sets for GWA
      i. Engineering (2),
      ii. Operations (2)
      iii Information Technology Divisions (3)
   c. A complete set of documents in two formats uploaded to a Dropbox account folder specifically set up for this project by GPA
      i. PDF format
      ii. Microsoft Word format that GPA can modify.

2.6.12 Training

The CONTRACTOR shall conduct a training program for GPWA personnel for operation and maintenance of the new SCADA/EMS, third-party systems and applications, and all related items in the list of deliverables. The training shall include testing of the trainees to ensure the imparting of the necessary skills to operate and maintain the SCADA/EMS.

The CONTRACTOR shall provide training manuals and material in heavy duty 3-ring binders or otherwise in a bound fashion, for each participant. The CONTRACTOR shall provide electronic copies of all training materials in the DropBox account set up by GPWA. The training sessions shall be coordinated with GPWA. The CONTRACTOR must record all training sessions for future use.

2.6.13 Demobilization

The CONTRACTOR shall demobilize facilities and construction equipment as necessary, and restore the project site(s) to acceptable conditions. The CONTRACTOR shall document and report on these activities. All costs associated with withdrawing from the site after completion of work, including CONTRACTOR's personnel, facilities, equipment, cleaning and securing the site shall be included.

2.7 Warranty

The CONTRACTOR shall provide the standard warranty specified in Volume I, Section 4.18. Additionally, the CONTRACTOR must assign all third-party licenses and equipment warranties to GPA.

SECTION 3. CONDITIONS PRECEDENT

3.1 CONTRACTOR's Submittals

CONTRACTOR shall supply the following to GPA, each in form and substance satisfactory to GPA unless such condition precedent is waived by GPA:

A. A copy of the BIDDER's Articles of Incorporation or other applicable forms concerning business organization (i.e. partnership, sole proprietorship, etc.) and By-Laws
B. Certificate of Good Standing to conduct business in jurisdiction of residence
C. Information regarding outstanding claims against the BIDDER, if any
D. Accomplished forms and affidavits defined in Volume IV
E. A current Guam Business License. Although it is not required in order to provide a Bid for this engagement, obtaining a Guam Business License is a pre-condition for entering into a Contract with the Authority

3.2 GPWA's Submittals

GPA and GWA shall supply the following, each in form and substance satisfactory to CONTRACTOR unless such condition precedent is waived by CONTRACTOR:

A. Copies of resolutions adopted by the Consolidated Commission on Utilities (CCU) authorizing the execution, delivery and performance by GPA and GWA of this Agreement, each certified by the corporate secretary of the CCU in a manner satisfactory to CONTRACTOR;

3.3 Insurance

CONTRACTOR shall obtain all insurance specified in Section 32 of this Agreement.

SECTION 4. CONTRACT DOCUMENTS

4.1 Documents Included

It is mutually agreed that the following lists of documents which are attached hereto, bound herewith or incorporated herein by reference shall constitute the contract documents, all of which are made a part hereof, and collectively evidence and constitute the contract between the parties hereto, and they are as fully a part of this Agreement as if they were set out verbatim and in full herein, and are designated as follows in their order of precedence:

A. This Contract
B. Amendments to Multi-Step Bid No.: GPA-066-16
C. Multi-Step Bid No.: GPA-066-16
D. CONTRACTOR's Proposal for Multi-Step Bid No.: GPA-066-16
E. Performance Bond
F. Major Shareholders Disclosure Affidavit
G. Audited financial information on CONTRACTOR's firm and all subcontractors that will be used in the project (if applicable)
H. Certificate of Good Standing to conduct business in jurisdiction of residence
I. Non-collusion Affidavit
J. No Gratuities or Kickbacks Affidavit
K. Ethical Standards Affidavit
L. Declaration RE Compliance with US DOL Wage Determination
M. Bid Bond
N. Local Procurement Preference Application
O. Restriction against Contractors Employing Sex Offenders from Working at Government of Guam Venues
P. A current Guam Business License. Although it is not required in order to provide a bid for this engagement, obtaining a Guam Business License is a pre-condition for entering into a contract with the Authority.
Q. Bid Schedule/Price Proposal (Appendix A)

4.2 Discrepancies

In the case of discrepancies or conflicts between the above-referenced contract documents, this Contract shall take precedence over GPA-066-16, and CONTRACTOR's proposal submitted in response to the MULTI-STEP BID. In case of discrepancies or conflicts between the Amendments to GPA-066-16, the Amendments shall take precedent. CONTRACTOR believe that there is any discrepancy or inconsistency between this Contract and the other contract documents, CONTRACTOR shall bring such discrepancy to the attention of the General Manager before proceeding with the work affected thereby.

4.3 Presumption of Familiarity

It will be conclusively presumed that CONTRACTOR has read, examined and agreed to each and every term, condition, provision, covenant or agreement contained within each and every Contract Document. CONTRACTOR is assumed to be familiar with all federal (U.S.) And local laws, ordinances, rules and regulations of Guam that in any manner affect the work. Ignorance of law on the part of CONTRACTOR will not relieve CONTRACTOR from responsibility.

SECTION 5. CONTRACT TERM

5.1 Term

The term of this Contract shall be for three hundred sixty five calendar (365) days, non-inclusive of the required 1000-Hour Availability Testing and inspection as outlined herein. With the exception of the Availability Testing and final inspection, the project shall be completed in all aspects of the general requirements within three hundred sixty five calendar (365) days after NTP, on _____, 2016 and shall continue until the midnight of _____, 2016.

SECTION 6. COMPENSATION FOR SERVICES

6.1 Payment

GPWA shall pay CONTRACTOR for costs and services rendered hereunder in accordance with this Agreement. Compensation for services performed and provided by CONTRACTOR shall be on a monthly basis at the rate stipulated in this section. CONTRACTOR shall invoice GPWA once a month, and payment shall be made within 30 days of after receipt of an acceptable invoice. In the event of any dispute with regard to any portion of the invoice, the undisputed portion shall be paid pending settlement of the dispute. Should GPWA fail to make any payment due to CONTRACTOR under this Agreement, GPWA shall pay interest to CONTRACTOR in accordance with the provisions of the Prompt Payment Act, 5 GCA Sections 22502-22507.

6.2 Contract Price

The Contract Price (See Appendix A) constitutes the total consideration to be paid by GPWA to CONTRACTOR for the complete delivery of all Contract Items, and for performing other services in connection therewith in accordance with the Contract Documents as amended by the parties pursuant to the Contract Agreement. The Price or Cost for each Contract Item under this Agreement shall remain fixed during the term of this Agreement. Unless expressly provided otherwise in the Contract Documents, the Contract Price is not subject to escalation in respect of materials and/or labor cost or any other factor or variation in rates of exchange, and all duties, responsibilities, and obligations assigned to or undertaken by CONTRACTOR shall be at its expense without change in the Contract Price. Charges, fees, CONTRACTOR's profit, and all other expense shall be deemed to be included in the Contract Price. Only a formal Change Order request, accepted by GPWA, may change the Contract Price. CONTRACTOR shall make any claim for an increase in the Contract Price in advance of performance of any such changes. However, GPWA reserves the right to challenge or refute such claims.

6.3 Payment Milestones and Schedule

Payment milestones have been selected to clearly identify the actual status of the portion of the Work completed rather than anticipated project progress schedules. Payments will be based on actual completion of each milestone event, where applicable, and not on the scheduled completion date. When a change in the Agreement is approved, the total contract price will be altered to the new total, and the remaining milestone payments will be adjusted. Milestones shall not be scheduled more frequently than once every month. GPWA will not approve a milestone payment until all preceding milestones have been approved. GPWA will make payments within thirty days from receipt and approval of the invoice for the com
pleted milestone.

6.4 Invoicing

CONTRACTOR shall submit for review by GPWA monthly invoices accompanied by a progress report describing the work performed during the compensation period. All payments to CONTRACTOR shall be free of any deductions, including but not limited to withholding taxes.

6.5 Total Amounts Paid to CONTRACTOR

The amounts paid or reimbursed to CONTRACTOR shall in no event exceed the dollar amount indicated above except upon prior written agreement by the parties. Prior to incurring any expense not contemplated in the total contract amount, CONTRACTOR shall request prior approval of any such additional cost from GPWA. No such expense shall be reimbursable unless approved in advance by GPWA.

6.6 Final Payment

Final payment shall be made upon delivery and acceptance of all Services as herein specified and performed under this Agreement. Prior to final payment, and as a condition precedent thereto, CONTRACTOR shall execute and deliver to the Authority a release of any claims arising under

and by virtue of this Agreement against the Authority except any identified written claims in existence at the time of the final payment.

6.7 Guam Gross Receipts Tax

The prices and costs set forth in this Agreement are based on the assumption that the Services performed will be subject to the Guam Gross Receipts Tax. CONTRACTOR is responsible for payment of any applicable taxes.

SECTION 7. AGREEMENT

Prior to entering into a formal agreement, GPA, GWA and CONTRACTOR shall resolve and document any differences between CONTRACTOR's proposal and the tender documents. The Agreement between GPWA and CONTRACTOR shall consist of the tender documents, as resolved by CONTRACTOR's final negotiated Proposal and by GPWA amendments, and the CONTRACTOR's proposal, as adjusted by a prioritized list of documents generated during the evaluation and negotiation processes and agreed to and acknowledged in writing by both parties. These documents may consist of, but are not limited to, written answers to questions, letters, and written clarifications to the proposal.

Any formal contract document shall reference GPWA tender documents and CONTRACTOR's proposal. No oral understanding or statement shall modify the Agreement. Changes to the above documents can only be made in accordance with the procedure for modifications as defined in Section 27.

The resolved tender documents shall take priority over and shall govern in all cases of conflict with the adjusted proposal. CONTRACTOR's contractual obligation shall be to fulfill all requirements of the tender documents, as resolved, and to provide all features of the CONTRACTOR's proposal, as adjusted.

The tender documents are intended to be complementary, what is called for by one shall be as binding as if called for by all. If not otherwise specified in the tender documents, these General Conditions shall apply. If, during performance of the Agreement CONTRACTOR detects a discrepancy in the tender documents, CONTRACTOR shall so report to ENGINEER in writing at once and shall obtain a written interpretation or clarification from ENGINEER before proceeding further; however, CONTRACTOR shall not be liable to GPWA for failure to report any conflict, error, or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

All materials, equipment, and services that may reasonably be inferred from the tender documents, as being required to produce the intended result will be supplied whether or not specifically called for. When words that have a well-known technical or trade meaning are used to describe materials, equipment, or services, such words will be interpreted in accordance with such meaning. Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the code of any Governmental authority, whether such

reference be specific or by implication, shall mean the latest standard specification, manual, or code in effect on the effective date of the Agreement except as may be otherwise specifically stated in the Specification or Agreement. ENGINEER shall issue clarifications and interpretations of the tender documents.

SECTION 8. OPERATION OF THIS CONTRACT

The Guam Power Authority's and Guam Waterworks Authority's responsibility for the day to day monitoring and enforcement of this Contract resides with the GPA SPORD Manager or his designee. CONTRACTOR shall identify to GPA the person(s) responsible for the implementation of the Contract and who shall act as CONTRACTOR's point of contact.

SECTION 9. CONTRACTOR'S OBLIGATIONS

9.1 Execution

CONTRACTOR shall, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required in this contract, and as specified in the Invitation for Bid Documents. CONTRACTOR shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the contract and specifications and shall do carry on the Contract to the satisfaction of the OWNER.

9.2 Right to Inspection

GPWA shall have the right to conduct inspections of any repair and/or replacement conducted. Any inspection made by the inspector of GPWA and/or its designee will be final. Such inspections or the witnessing of CONTRACTOR's test and inspection by GPWA and/or its designee shall not relieve the CONTRACTOR of any of its responsibilities or liabilities under the Contract Documents, nor be interpreted in any way as implying acceptance of the Goods.

9.3 Contractor's Financing Capability

If necessary, CONTRACTOR shall have the financial capability to support its cash flow requirement associated with the scope of work.

SECTION 10. FEDERAL AND LOCAL REGULATORY COMPLIANCE

General Responsibilities

CONTRACTOR shall be responsible for complying with all Environmental, Homeland Security, and other Federal and Local compliance requirements.

SECTION 11. PROTECTION OF WORK AND PROPERTY

CONTRACTOR shall at all times safely guard the OWNER's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work and that of adjacent property (as provided by law and the contract documents) from damage. All passageways, guard fences, lights and other facilities required for protection by laws and regulations and local conditions must be provided and maintained.

SECTION 12. WARRANTY

CONTRACTOR's obligation to deliver and perform services in connection therewith in accordance with the Agreement is absolute, and CONTRACTOR warrants and guarantees to OWNER that all services will be in accordance with the Contract Documents. CONTRACTOR shall provide OWNER with all warranties and guarantees in writing.

Except as otherwise specified all work shall be guaranteed by CONTRACTOR against defects resulting from the use of inferior materials, equipment, or workmanship for one year from the date of final completion of any repairs or replacements.

If within any guarantee period, repairs or changes are required in connection with guaranteed work which, in the opinion of the OWNER, is rendered necessary as the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the contract, CONTRACTOR shall promptly upon receipt of notice from OWNER and without expense to the OWNER:

A. Place in satisfactory condition in every particular all of such guaranteed work and correct all defects therein; and
B. Make good all damages to the building or site or equipment or contents thereof which, in the opinion of the OWNER, are the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the contract.

The CONTRACTOR shall be responsible for remedying all defects, without limitation, in design, materials, workmanship, operating characteristics, or performance of the Goods developing within twelve (12) months from the date on which GPWA has placed the Goods in continuous service, or within twenty-four (24) months from the date of final payment, whichever date shall first occur, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee or by any specific provisions of the Contract Documents.

Any part(s) supplied in replacement of the defective part(s) of the Goods or any Goods repaired pursuant to the provisions of this Paragraph shall be supplied or repaired on the same terms and conditions as provided for herein for the supply of the Goods and in particular a new warranty period shall apply. Such new warranty period shall expire on the date twelve (12) months from the date of such replacement or repair or on the expiration date of the warranty for the original Goods that were replaced or repaired, whichever is later.

In any case wherein fulfilling the requirements of the contract or of any guarantee embraced in or required thereby CONTRACTOR disturbs any work guaranteed under another contract, he shall restore such disturbed work to a condition satisfactory to the OWNER and guarantee such restored work to the same extent as it was guaranteed under such other contract.

If CONTRACTOR, after notice, fails to proceed promptly to comply with the terms of the guarantee, the OWNER may have the defects corrected and CONTRACTOR and his surety shall be liable for all expense incurred.

All special guarantees applicable to definite parts of the work shall be stipulated in the specifications or other papers forming a part of the contract and shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

In the event CONTRACTOR furnishes special services for installation and startup, such services shall be rendered in a competent and diligent manner and in accordance with the Contract Documents, accepted industry practice and any applicable professional standards.

SECTION 13. DEFECTIVE WORK

No work or material which may be defective in construction or quality or deficient in any of the requirements of the drawings and specifications will be considered accepted as a consequence of the failure of the OWNER to discover or to point out said defects or deficiencies during the construction; nor will the presence of inspectors on the work relieve CONTRACTOR from the responsibility of securing the quality and progress of work as required by these specifications.

Any defective work that may be discovered before the completion of the work or within such time as required by the bond shall be replaced by work and materials that shall conform to the spirit and intent of the drawings, specifications and contract.

The fact that the OWNER may have overlooked defective work shall not constitute the acceptance of work. NO PAYMENT WHETHER PARTIAL OR FINAL SHALL BE CONSTRUED TO BE AN ACCEPTANCE OF DEFECTIVE WORK OR IMPROPER MATERIALS.

The OWNER may at any time by order given in writing stop any work not being done according to drawings and specifications and any order so given shall not in any way relieve CONTRACTOR from completing his contract and shall not in any way terminate, cancel or abrogate the contract or any part thereof, and the Government of Guam shall not in any way be responsible for the delay due to stopping the work as aforesaid.

SECTION 14. INSPECTION OF WORK

14.1 Access to the Work

Authorized GPWA representatives shall have access at all times to the work for inspection whatever it is in preparation or progress and CONTRACTOR shall provide proper facilities for such access and inspection.

14.2 Inspectors

Inspectors may be placed by the OWNER to supervise each and every subdivision of the work or any parts or process thereof. The authorized inspectors shall have free access to all parts of the work at all times and shall be given every facility, information and means of thoroughly inspecting the work done and the materials used or to be used. The inspectors shall at all times be free to perform their duties and any intimidation of any inspector by CONTRACTOR or the employees thereof shall be sufficient reason, if the OWNER shall so decide, to annul the contract.

SECTION 15. DEFAULT

In the event either party of this Contract fails to perform any of the provisions of this Contract, the other party must notify the party in default in writing of the deficiency or non-performance. The party in default has thirty (30) calendar days in which to remedy such default. If such default is not cured within thirty (30) calendar days, the other party may terminate all or part of the Contract. Events of default include but are not limited to the following:

A. Failure of CONTRACTOR to provide evidence of an acceptable performance bond on specified time.
B. Failure of the OWNER to pay invoices within 30-days of receipt.
C. Failure of CONTRACTOR to adhere to the terms of the Contract.
D.

SECTION 16. LICENSES, PERMITS, TAXES, AND RESPONSIBILITIES

CONTRACTOR shall, without additional expense to the OWNER, be responsible for obtaining any necessary licenses and permits, and for complying with any applicable Federal and Territorial laws, codes, statutes, and regulations necessary for the performance of the Contract by CONTRACTOR.

SECTION 17. SUBCONTRACTS

Nothing contained in the contract documents shall be construed as creating any contractual relationship between any subcontractor and the OWNER. The diffusion or sections of the specifications are not intended to control CONTRACTOR in dividing the work among subcontractors or to limit the work performed by any trade.

CONTRACTOR shall be as fully responsible to the OWNER for the acts and omissions of subcontractors and of persons employed by them, as he is for the acts and omissions of persons directly employed by him.

CONTRACTOR shall be responsible for the coordination of the subcontractors engaged in his work.

CONTRACTOR shall, without additional expense to the OWNER, utilize the services of specialty subcontractors on those parts of the work which are specified to be performed by specialty subcontractors.

The OWNER will not undertake to settle any differences between CONTRACTOR and his subcontractors or between subcontractors.

CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the work including waiver of mechanics liens to bind subcontractors by the terms of the contract documents insofar as applicable to the work of subcontractors and to give the OWNER any exercise over CONTRACTOR under any provisions of the contract documents.

SECTION 18. ASSIGNMENT OF AGREEMENT

CONTRACTOR shall not assign the whole or any part of this contract or any monies due or to become due hereunder without the written consent of the OWNER and of all the sureties executing any bonds on behalf of CONTRACTOR in connection with said contract. In case CONTRACTOR assigns the whole or any part of said contract or assigns all or any part of any monies due or to become due under said contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due CONTRACTOR or otherwise shall be subject to all of the terms and conditions of said contract or supplemental thereto, the rights and remedies of the OWNER thereunder or arising by operation of the law and to the liens of all persons, firms, and corporations for services rendered or materials supplied in connection with the performance of said contract.

SECTION 19. EQUAL OPPORTUNITY

CONTRACTOR will not discriminate against any employee or applicant for employment because of race, religion, sex, color, age, economic status, or national origin. CONTRACTOR will take affirmative action to insure that qualified applicants are employed and that employees are treated during employment without regard to their race, religion, sex, color, age, economic status, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoffs or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees

and applicants for employment, notices to be provided by the OWNER setting forth the provisions of this nondiscrimination clause.

CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, religion, sex, color, age, economic status, or national origin.

CONTRACTOR will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the OWNER, advising the said labor union or workers' representative of CONTRACTOR's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965 and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

SECTION 20. PROHIBITION AGAINST GRATUITIES, KICKBACKS, AND FAVORS

GCA 5 §5630(c) prohibits the CONSULTANT against gratuities, kickbacks, and favors.

SECTION 21. RESTRICTION AGAINST CONTRACTORS EMPLOYING CONVICTED SEX OFFENDERS FROM WORKING AT GOVERNMENT OF GUAM VENUES

GCA 5 §5253(b) restricts the CONSULTANT against employing convicted sex offenders from working at Government of Guam venues. It states:

> (b) All contracts for services to agencies listed herein shall include the following provisions: (1) warranties that no person providing services on behalf of the contractor has been convicted of a sex offense under the provisions of Chapter 25 of Title 9 GCA or an offense as defined in Article 2 of Chapter 28, Title 9 GCA, or an offense in another jurisdiction with, at a minimum, the same elements as such offenses, or who is listed on the Sex Offender Registry; and (2) that if any person providing services on behalf of the contractor is convicted of a sex offense under the provisions of Chapter 25 of Title 9 GCA or an offense as defined in Article 2 of Chapter 28, Title 9 GCA or an offense in another jurisdiction with, at a minimum, the same elements as such offenses, or who is listed on the Sex Offender Registry, that such person will be immediately removed from working at said agency and that the administrator of said agency be informed of such within twenty-four (24) hours of such conviction.

SECTION 22. CLAIMS AND DISPUTES

All controversies between the OWNER and CONTRACTOR which arise under, or are by virtue of, this Contract and which are not resolved by mutual agreement of the parties shall be decided as set forth in 5 G.C.A §5427 of the Guam Procurement Law.

SECTION 23. TERMINATION FOR CONVENIENCE

OWNER may terminate the performance of the services under this Contract in accordance with this clause in whole, or in part, whenever OWNER determines that such termination of Contract is in the best interest of the Guam Power Authority and its ratepayers.

Any such termination is effected by delivery to CONTRACTOR a written Notice of Termination specifying the extent to which services in the Contract is terminated in whole or in part. In the event the OWNER elected to terminate the Contract it shall be effective sixty (60) days after the receipt of such Notice of Termination.

SECTION 24. SURRENDER OF PREMISES

Upon voluntary or other termination of this Contract or any early termination of the term from whatever cause, CONTRACTOR shall voluntarily surrender and deliver to GPWA all materials purchased and paid for by GPWA, documents pertinent to the work, and all equipment and materials related to the work at CONTRACTORs possession.

SECTION 25. FAILURE TO COMPLY WITH LAWS

In the event CONTRACTOR or any person or entity identified as principals in the offer submitted in connection with the bid shall be found by any court or administrative agency having jurisdiction over the subject matter of the violation, to have violated any law, rule or regulation in connection with CONTRACTOR's performance of the obligations under the Contract in any manner whatsoever directly or indirectly which violation shall constitute a breach of the peace, or an act involving moral turpitude or otherwise constitute endangerment of the health, safety and welfare of the citizens of the Guam, OWNER may in its sole discretion terminate this Contract upon 30 days written notice.

SECTION 26. AMENDMENT AND WAIVER

Neither the Contract nor any provision hereof may be changed, waived, altered, amended, discharged or terminated orally, but only by an instrument in writing signed by the party against whom enforcement of the change, waiver, alteration, amendment, discharge or termination is sought.

Failure by either party to object to any failure of performance by the other party of any provision of the Contract shall not constitute a waiver of, or estoppels against, the right of such party to require such performance by the other. Nor shall any such failure to object constitute a waiver or estoppels with respect to any succeeding failure of performance.

SECTION 27. GOVERNING LAW

This Contract is made under, and shall be governed and construed in accordance with, the laws, statutes and regulations of Guam, to the exclusion of all other legal systems. Wherever a term defined by the Uniform Commercial Code is used in the Contract the definition contained in the Uniform Commercial Code of Guam will control, unless otherwise specified.

The parties expressly submit to the jurisdiction of the Superior Court of Guam, for the resolution of any dispute or difference or claims between the parties in connection with the Contract, and to service of process by registered mail. Judgment upon any award rendered by the Superior Court of Guam may be entered in any court of any country having jurisdiction, and such award shall be binding upon the parties. CONTRACTOR waives all rights against OWNER to claim consequential, special or punitive damages.

SECTION 28. RELATIONSHIP OF PARTIES

Nothing contained in the Contract as awarded to the successful bidder shall be deemed or construed by the parties or by any third person to create the relationship of principal and agent or of partnership or of joint venture or of any association between CONTRACTOR and OWNER, and no provisions contained in the Contract nor any acts of the parties shall be deemed to create any relationship between OWNER and CONTRACTOR, other than the relationship of supplier of services and beneficiary.

SECTION 29. NOTICE TO OTHER PARTY

Either party whose obligations may be affected by any of the forces or causes set out in the preceding section, supra, shall promptly notify the other party in writing, giving full particulars thereof as soon as possible after such occurrence of such force or cause. Such party shall exercise due diligence to remove such cause with all reasonable dispatch and shall exert every efforts to resume performance at the earliest practicable time.

SECTION 30. NOTICES

Any notice, demand or any document required or permitted to be delivered hereunder shall be in writing and may be delivered personally or shall be deemed to be delivered when deposited in the mail, postage prepaid, registered or certified mail, addressed to the parties at their respective address indicated below:

To: Benson Guam Enterprises, Inc.
Attention: _____
FAX Number: (671) 477-3736
P.O. Box 6157, Tamuning
Guam 96931-6157

TO: GUAM POWER AUTHORITY
Attention: General Manager
FAX Number: (671) 648-8163
P.O. Box 2977, Hagatña
Guam 96932-2977

TO: GUAM WATERWORKS AUTHORITY
Attention: General Manager
FAX Number: (671) 648-3290
P.O. Box 3010, Hagatña
Guam 96932

SECTION 31. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

CONTRACTOR upon receipt of the Contract Award and prior to commencing work, shall obtain and thereafter maintain during the course of the Contract at a minimum, the following types of insurance at no cost to the OWNER :

A. General Liability including products, completed operations and contractual coverage for this Agreement in the amount of $1,000,000 combined limit. Coverage for "on an occurrence basis" commercial general liability which includes owner's and contractor's protective and contractual liabilities, and have a general aggregate limit of One Million U.S. Dollars (US$1,000,000), a products and completed operations aggregate limit of One Million U.S. Dollars (US$1,000,000), and a single occurrence limit of One Million U.S. Dollars(US$1,000,000), and One Million U.S. Dollars (US$1,000,000) for any of the above. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

B. Automotive Liability Insurance. : It shall carry coverage for owned, hired, and non-owned vehicles, which includes endorsement for loss, property damage or destruction, and personal bodily injury in single aggregate minimum amount of One Million U.S. Dollars (US$1,000,000) for each occurrence. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

C. Professional Liability or Architects and Engineers Liability in the amount of $1,000,000.

D. Excess Liability with limits of $5,000,000 or higher. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

E. Worker's Compensation and Employer's Liability – The coverage shall include all employees and all statutory limits and requirements for workers' compensation for Guam, and including but not limited to employers' (CONTRACTOR) liability for employee

bodily injury. Statutory limits and $1,000,000/ $1,000,000/ $1,000,000 respectively. Add Waiver of Subrogation endorsement in favor of GPWA.

F. Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor, which shall include GPWA as named insured.

CONTRACTOR **must furnish to the OWNER** "Certificates of Insurance" evidencing all such coverage of the above items including the statement to the effect that cancellation or termination of said policy shall not be effective until thirty (30) working days after receipt of written notice by OWNER, prior to the commencement of this Contract. OWNER shall have the rights, which shall be exercised in OWNER's sole discretion, to terminate this contract if CONTRACTOR fails to maintain or have the insurance policy described above.

All insurance policies herein required of CONTRACTOR shall be written by a company duly authorized and licensed to do business in Guam where work under this contract is being performed and be executed by some agent thereof duly licensed as an agent in Guam.

SECTION 32. INDEMNITY

CONTRACTOR shall indemnify, defend and hold OWNER free and harmless from and against all claims of whatever nature arising from any acts, omissions, or negligence of CONTRACTOR, its employee, agents, or assigns arising from any accident, injury or damages whatsoever caused to any person, or the property of any person, occurring during the term of the Contract in or about the Premises, and to include the cost of enforcement of this indemnity. CONTRACTOR agrees that the insurance herein shall be issued by an established and reputable company with **Best's Key Rating of B+ or better.**

SECTION 33. WAIVER OF SUBROGATION

The parties hereby release each other and their respective officers, employees, and agents from all loss or damage to the Premise property, machinery and equipment and to the fixtures, personal property, equipment and improvements of either GPWA or CONTRACTOR in or on the Property, notwithstanding that any such loss or damage may be due to or result from the negligence of either of the parties or their respective officers, employees or agents. This waiver does not apply to maintenance and repair assumed under this contract by CONTRACTOR.

SECTION 34. ACCIDENT PREVENTION

Precaution shall be exercised at all times for the protection of persons (including employees) and property. Equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the latest edition of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America to the extent that such provisions are not in contravention of applicable laws.

Should typhoon warnings be issued, CONTRACTOR shall take every practicable precaution to minimize damage and/or danger to persons, to the work, and to the adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and/or equipment from exposed locations, and removing or securing scaffolding and all other temporary work.

SECTION 35. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency which threatens loss or injury of property and/or safety or life, CONTRACTOR shall act, without previous instructions from the OWNER, as the situation may warrant.

SECTION 36. FORCE MAJEURE

No failure or omission to carry out or to observe any of the terms, provisions or conditions of the Contract shall give rise to any claim by one party against the other, or be deemed to be a breach of the Contract if the same shall be cause by or arise out of:

(a) War, etc. War, hostilities, acts of public enemy or belligerents, sabotage, blockade, revolution, insurrection, riot or disorder;
(b) Restraints. Arrest or restraint of princes, rulers or peoples;
(c) Confiscation. Expropriation, requisition, confiscation of nationalization;
(d) Rationing. Embargoes, export or import restrictions or rationing or allocation, whether imposed by law, decree or regulation or by voluntary cooperation of industry at the insistence or request of any governmental authority or person purporting to act therefore;
(e) Regulations. Interference by restriction or onerous regulations imposed by civil or military authorities, whether legal or de factor and whether purporting to act under some constitution, decree, law or otherwise;
(f) Acts of God. Acts of God, fire, frost or ice, earthquake, storm, lightning, tide, tidal wave, or peril of the sea, accident of navigation or breakdown or injury of vessels;
(g) Loss of Tankers. Loss of tanker tonnage due to sinking or capture by belligerents, to include acts of piracy or to governmental taking whether or not by formal requisition;
(h) Accidents. Accidents to or adjuncts of shipping navigation;
(i) Strikes and Quarantine. Epidemics, quarantine, strikes or combination of workmen, lockouts, or other labor disturbances;
(j) Explosions. Explosion, accidents by fire or otherwise to wells, pipes, storage facilities, refineries, installations, machinery;
(k) Taking by Government. Unavailability of fuel because of the election of the government of the country of its origin to confiscate, retain, ban export, or otherwise prevent shipment of fuel;
(l) Mechanical Breakdown. Unavailability of GPWA's electric generating plant and any, or all, appurtenances thereto, including transmission and distribution facilities, due to any mechanical operate as designed, emergency outages of equipment or facilities for the purpose of making repairs to avoid breakdown thereof or damage thereto other than regularly scheduled repairs or regular maintenance; or

(m) Other Events. Any event, matter or thing wherever occurring and whether or not of the same class or kind as those set forth, which shall not be reasonably within the control and without the fault or negligence of the party affected thereby.

No failure or omissions to carry out or to observe any of the terms, provisions or conditions of the Contract shall give rise to any claim by one party against the other, or be deemed to be a breach of the Contract from the time of and to the extent occasioned by the Force Majeure, not from the date of notice of the Force Majeure is received.

SECTION 37. ATTORNEY'S FEES AND COSTS

Contractor agrees that should a default by either party result in litigation, the successful party shall be entitled to recover its costs and reasonable attorney's fees from the defaulting party.

SECTION 38. CONTRACT BINDING EFFECT

All EXHIBITS attached hereto are incorporated herein by reference in its entirety.

IN WITNESS WHEREOF the parties hereto have executed this contract as of the day and year first written.

CONTRACTOR:

CENCIO TAN C. VY

Date: DEC 13, 2016

OWNER:

GUAM POWER AUTHORITY

JOHN M. BENAVENTE, P.E.
General Manager

Date: 11-17-16

GUAM WATERWORKS AUTHORITY

MIGUEL C. BORDALLO, P.E.
General Manager

Date: 11.16.16

APPROVED AS TO FORM:

By: _____
D. GRAHAM BOTHA, Esq.,
GPA Staff Attorney

By: _____
KELLY CLARK
GWA Staff Attorney

Account No. _____

Amount: _____

CERTIFICATION OF FUNDS:

By: _____ 11.16.16
GREG P. CRUZ
GWA Chief Financial Officer

Account No. Bond 2016 EE 09-08

Amount: $432,705.00

APPENDIX A

CONTRACT - APPENDIX A

COPY

Bid Schedule / Price Proposal

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

Item	Description	Unit	Qty	GUAM POWER AUTHORITY Unit Cost			Total Cost			Total Cost	Qty	GUAM WATERWORKS AUTHORITY Unit Cost			Total Cost			Total Cost
				Material	Labor	Equipment	Material	Labor	Equipment			Material	Labor	Equipment	Material	Labor	Equipment	
Basic Bid																		
1	Mobilization	LS	1	2,500	5,000	5,500	2,500	5,000	5,500	13,000	1	2,500	5,000	5,500	2,500	5,000	5,500	13,000
2	Project Management	LS	1	3,000	115,980	-	3,000	115,980	-	118,980	1	3,000	72,000	-	3,000	72,000	-	75,000
3	Permits, Bonds and Duties	LS	1	-	200,000	-	-	200,000	-	200,000	1	-	72,000	-	-	72,000	-	72,000
4	Project Installation Site Survey	LS	1	-	18,500	2,000	-	18,500	2,000	20,500	1	-	3,500	1,500	-	3,500	1,500	5,000
5	Interconnection and Integration Design, Communications and Networking Design and Execution Plan	LS	1	-	84,450	-	-	84,450	-	84,450	1	-	15,000	-	-	15,000	-	15,000
6	Installation Design	LS	1	-	12,000	-	-	12,000	-	12,000	1	-	6,500	-	-	6,500	-	6,500
7	Software Cost, Procurement and Delivery	LS	1	-	3,500	-	-	3,500	-	3,500	1	-	2,500	-	-	2,500	-	2,500
8	Third Party Software Cost, Procurement and Delivery	LS	1	-	25,000	153,000	-	25,000	153,000	180,000	1	-	5,000	66,000	-	5,000	66,000	71,000
9	Software Installation	LS	1	-	-	31,063	-	-	31,063	31,063	1	-	-	20,000	-	-	20,000	20,000
10	Equipment Cost, Procurement and Delivery	LS	1	-	42,400	-	-	42,400	-	42,400	1	-	13,000	-	-	13,000	-	13,000
11	Construction, Equipment Installation and Interconnection	LS	1	1,000	600	271,257	1,000	600	271,257	272,857	1	1,000	400	152,995	1,000	400	152,995	154,395
12	Commissioning, Quality Assurance and Performance Testing	LS	1	1,000	137,000	-	1,000	137,000	-	138,000	1	500	8,000	-	500	8,000	-	8,500
13	Training	LS	2	35,000	185,980	2,000	35,000	185,000	2,000	242,000	2	-	-	6,500	-	-	6,500	6,500
14	Documentation	LS	1	2,000	16,000	25,000	2,000	16,000	25,000	39,000	1	1,500	7,000	-	1,500	7,000	-	8,500
15	Warranty	LS	1	1,000	1,000	28,000	1,000	2,000	28,000	31,000	1	1,000	2,000	-	1,000	2,000	-	3,000
16	Documentation	LS	1	5,000	8,000	31,000	5,000	8,000	31,000	48,000	1	2,000	4,000	10,000	2,000	4,000	10,000	16,000
17	Annual Maintenance	LS	1	3,000	5,000	-	3,000	5,000	-	7,000	1	500	2,500	-	500	2,500	-	3,000
18		LS	1	10,000	30,000	-	10,000	30,000	-	40,000	1	-	12,000	-	-	12,000	-	12,000
	Basic Bid Total Cost for both GPA and WWA:	$1,951,417.00					Basic Bid Total Cost			1,518,769					Basic Bid Total Cost			432,705

Basic Bid Total Cost in Words: U.S. Dollars One Million Nine Hundred Fifty One Thousand Four Hundred Seventeen and 00/100 only

Name of Bidder: Microgrid Networks, Inc. By: CENON TAN YY, President

COPY

Bid Schedule / Price Prop

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM Bid Schedule/ Price Proposa

Item	Description	Unit	Qty	GUAM POWER AUTHORITY							Qty	GUAM WATERWORKS AUTHORITY						
				Unit Cost			Total Cost			Total Cost		Unit Cost			Total Cost			Total Cost
				Material	Labor	Equipment	Material	Labor	Equipment			Material	Labor	Equipment	Material	Labor	Equipment	
Additive Bid																		
1	Additional Training (20 days in Guam)	LS	1	-	20,000	-	-	20,000	-	20,000	1	-	20,000	-	-	20,000	-	20,000
2	Build-out SCADA/EMS system initial to Ultimate system size	LS	1	-	6,500	-	-	6,500	-	6,500	1	-	141,000	-	-	141,000	-	141,000
3	NERC approved Power System Operator Training program (See Vol II, paragraph 2.3.7.3)	EA	3		5,000			15,000		15,000	3		5,000			15,000		15,000
4	Add Database Points, SCADA Screens, Reports in the new SCADA/EMS for:							-		-						-		-
	a. 1 ea Water Treatent Plant (see Vol II, paragraph 2.2.3)	LS								-	1		6,660			6,660		6,660
	b. 71 Facilities (see Vol II, paragraph 2.2.3)	LS								-	1		52,015			52,015		52,015
5	Point-to-Point Testing							-		-						-		-
	a. 60 GWA sites, from field RTU to GWA SCC (see Appendix V)	LS								-	1	-	44,400			44,400		44,400
	b. 22 GWA sites, from simulated RTU to GWA SCC (see Appendix V)	LS								-	1		53,280			53,280		53,280
Ultimate System Size							Additive Bid Total Cost			41,500					Additive Bid Total Cost			322,355
ADDITIONAL ADDITIVE BID																	TOTAL ADDITIVE BID COST:	373,855
6	Generation Dispatch and Control (see Vol II, paragraph 4.1)	LS	1		144,570			144,570		144,570						-		-
7	Transmission Security Management (see Vol II, paragraph 4.1)	LS	1		98,780			98,780		98,780						-		-
8	Emergency Backup Control Center (see Vol II, paragraph 4.13)	LS	1	2,000	30,700	129,486	2,000	30,700	129,486	162,186						-		-
9	Fuel Switching Application (see Appendix R)	LS	1	15,000	125,000	60,000	15,000	125,000	60,000	200,000		-	-	-	-	-	-	-
							Additive Bid Total Cost			603,536					Additive Bid Total Cost			-
																	TOTAL ADDITIONAL ADDITIVE BID COST:	603,536

* All prices shall include overhead, administration cost, profit and applicable taxes

Total Bid Cost (Basic + Additive): $ 2,325,329.00

Bid Cost in Words U.S. Dollars Two Million Three Hundred Twenty-five Thousand Three Hundred Twenty-Nine and 0/100 only

GRAND TOTAL BID COST (Basic + Additive + Additional Additive): $ 2,930,855.00

GRAND TOTAL BID COST IN WORDS U.S. Dollars Two Million Nine Hundred Thirty Thousand Eight Hundred Fifty-Five and 0/100 Only

Name of Bidder: BENSON GUAM ENT., INC. By: LENDO TAN-VY, President

revised (06/13/16) under Amendment No.: III

Doc. No. 34GL-18-1957.*

CCU Regular Meeting June 5, 2018 - NEW BUSINESS

OPTIONAL OFFER:

We are proposing as optional offer on the following Referentia's T-REX product for requirements in gathering, data integration, implementation and testing, and training and support of the product as described in the accompanying technical proposal

ANNUAL SUBSCRIPTION LICENSE COSTS:

T-Rex Core + Anayltics Interface (quad core, 1 year)

Year 1	$ 90,123.00
Year 2	90,123.00
Year 3	90,123.00

Replicated Instance (pass thru from DMZ to Corporate network)

Year 1	$ 42,000.00
Year 2	42,000.00
Year 3	42,000.00

Professional Services	$ 269,850.00
Travel	35,350.00

TOTAL:

Year 1	**$ 437,323.00**
Year 2	**132,123.00**
Year 3	**132,123.00**

OPTIONAL:

Backup T-Rex License (quad core, 1 year for backup site):

Year 1	$ 84,180.00
Year 2	84,180.00
Year 3	84,180.00

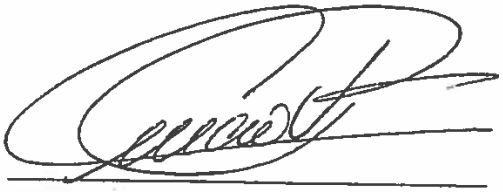
NOTES:

- Professional Services pricing includes the following:
  - On-site visit for requirements gathering/validation
  - Interface for SCADA, iDashboard and MDMS to pull data into T-Rex; data validation
  - Additional systems can be interfaced for an additional charge
  - On-site implementation services; to be done after SCADA system is operational
  - End-to-end testing
  - Training
  - Documentation
  - Project management
  - Phone support

- Perpetual licenses are available from T-Rex core + Analytics Interface; Replicated Instance and Backup T-Rex License
- Maintenance for Perpetual License will be discounted if purchased in 2 or 3 year increments
- Pricing does not include service hardware. The minimum requirements for the server are:
  - Operating System: Windows Server 2008 or Linux
  - CPU: Quad Core CPU
  - System Memory (RAM): 16 GB
  - Disk: 10 TB RAID Drive with redundancy

  Two servers are needed, one resides in the EMS network, the other is mirrored copy residing in the Corporate network and allowing Corporate users to access the data.

Submitted by:
BENSON GUAM ENT., INC.



CENCIO TAN VY, President

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

December 06, 2016

Monito Co
General Manager
Benson Guam Ent.
P.O. Box 6157
Tamuning, Guam 96931

REFERENCE: P.O. NO.: 23344 (GPA), (GWA) 300305 OP#

Dear Mr. Co:

This is your Notice to Proceed for the above subject Purchase Order Numbers for GPA and GWA for the Supervisory Control and Data Acquisition (SCADA) System. Commencement date for this project is December 14, 2016 and expires on December 14, 2017.

Be advised that any changes which may impact the schedule or the value of this order must be noticed to the Supply Management Administrator and approved by the General Manager.

Technical questions are to be directed to Roel Cahinhinan (GPA), 648-3100, Frank Santos (GPA) at 475-5296 and Barbara Cruz (GWA) at 300-6039. All other questions and/or concerns are to be directed to the Supply Management Administrator, Mrs. Jamie L.C. Pangelinan at 648-3054/55 or fax 648-3165.

Sincerely,

JOHN M. BENAVENTE, P.E.
General Manager (GPA)

MIGUEL C. BORDALLO, P.E.
General Manager (GWA)

CENCIO TAN C. VY
DEC 13, 2016

GUAM WATERWORKS AUTHORITY

1 : Page
6500: B/U
12/12/16: Date
FOB GWA: F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. ~~Reference Bid: GPA Bid No. GPA-066-16~~				
GPWA Supervisory Control	EA	.00	EA	432,705.00

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
Send certified original and three (3) copies of invoice to Guam Waterworks Authority, Government of Guam, at the address shown above.

Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $ 432,705.00

ACKNOWLEDGED BY: _____ DATE: 12/15/2016
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

SIGNATURE: _____ 12.15.16

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ACKNOWLEDGEMENT COPY

ALL PURCHASE ORDERS FROM THE GUAM WATERWORKS AUTHORITY
ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS.

1. In the shipments are connected with a bid or RFP issued by GWA, this purchase order shall be governed by the Terms and Conditions of the bid or RFP as well as the Guam Procurement Law and the Guam Procurement Regulations

2. An acknowledged and dated copy of this purchase order must be returned to GWA.

3. GWA will only be responsible for the total amount indicated in this Purchase Order and any amount in excess of that amount will not be paid by GWA.

4. All invoices (original/s and duplicate/s) must be forwarded to Accounts Payable Department of the Guam Waterworks Authority. These invoices must be properly endorsed or signed by authorized GWA personnel as indicated in the Purchase Order. And invoices should be provided to GWA within the month in which the purchases and/or services were rendered.

5. All vendors with an outstanding unpaid invoice at the end of the month after the goods or services were rendered must provide monthly vendor statements to the Accounts Payable Supervisor at GWA.

6. No variation in any of the terms, conditions, delivery dates, prices, quality, quantity or specifications under this order, regardless of the conditions or terms of the seller's acceptance, will be effective without the written consent of a person specifically authorized by GWA to make such changes.

7. Packing lists must accompany each shipment which indicate the order number and a detailed description and goods or services provided, including, but not limited to, the part number and serial number for each item delivered.

8. Shipments must be identified as either "PARTIAL" or "COMPLETE."

9. All goods delivered are subject to GWA's inspection and acceptance within a reasonable time after delivery. If the specifications are not met and are rejected by GWA, the goods shall be returned at the seller's expense.

10. In connection with any prompt payment discount offered the time will computed from date of delivery and acceptance at destination or from the date the correct invoice or voucher is received in by the Guam Waterworks Authority, if the latter is later than date of delivery and acceptance. Payment is deemed to be made, for the purpose of earning any discount on the date the check is mailed.

11. Shipments in excess of the amount stated in the order will not be accepted unless specifically approved by a GWA official authorized to make such changes.

POTERMS

GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Services Building
688 Route 15, Magilao Guam 96913

September 29, 2017

Amendment No: 017-0156

Benson Guam Enterprise
P.O. Box 6157
Tamuning, Guam 96931

Vendor No: 00018948
Purchase Order No / Bid No: 300305-000-OP
Subject: **Amendment No: 1** / OR# 29529

In reference to the above subject matter, please take the following action(s) upon receipt of this Pro Format letter. (**X**) marked in the box opposite the action, is/are the action (s) to be taken:

[ ] Cancel in its entirety

[ ] The substitute item(s) is/are acceptable, proceed with the shipment

[ ] Cancel the balance and consider the order complete

[ ] Please advise status of our order. URGENT

[X] **Other**: AMENDMENT ISSUED TO EXTEND EXPIRATION, DATE FROM SEPTEMBER 30, 2017 TO NOW READ NEW FISCAL EXPIRATION DATE MARCH 9, 2018. REFERENCE PROJECT TITLE, GPWA SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM PROJECT.**ALL OTHERS REMAIN THE SAME.**

Miguel C. Bordallo, P.E.
General Manager

Please acknowledge receipt by signing:

Comments:

_____/_____
Vendor Signature **Date**

GUAM WATERWORKS AUTHORITY

1 : Page
6500 : B/U
09/29/17 : Date
FOB GWA : F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. Reference Bid: GPA Bid No. GPA-066-16				
GPWA Supervisory Control		EA	.00 EA	432,705.00

NOTE:"SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $

SIGNATURE:

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ORIGINAL

POMIGUEL

GUAM WATERWORKS AUTHORITY

2 : Page
6500 : B/U
09/29/17 : Date
FOB GWA : F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
Amendment issued to extend expiration date from September 30, 2017 to now read new fiscal expiration date March 09, 2018. Reference project title, GPWA Supervisory Control and Data Acquisition (SCADA). System Project. All other remain the same. * Date: September 29, 2017 * Amendment #017-0156				
AMENDMENT ISSUED		EA	.00	EA

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

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TOTAL $ 432,705.00

SIGNATURE: 9-29-17

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ORIGINAL

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

'OMIGUEL

GUAM WATERWORKS AUTHORITY

1 : Page
6500: B/U
09/29/17: Date
FOB GWA: F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. Reference Bid: GPA Bid No. GPA-066-16				
GPWA Supervisory Control	EA	.00	EA	432,705.00

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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $

SIGNATURE:

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

ACKNOWLEDGEMENT COPY
Miguel C. Bordallo, P.E. General Manager
NAME TITLE

)MIGUEL

GUAM WATERWORKS AUTHORITY

2 : Page
6500: B/U
09/29/17: Date
FOB GWA: F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
Amendment issued to extend expiration date from September 30, 2017 to now read new fiscal expiration date March 09, 2018. Reference project title, GPWA Supervisory Control and Data Acquisition (SCADA). System Project. All other remain the same. * Date: September 29, 2017 * Amendment #017-0156				
AMENDMENT ISSUED		EA	.00	EA

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $ 432,705.00

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

SIGNATURE: [signature] 9-29-17

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ACKNOWLEDGEMENT COPY

MIGUEL

GUAM WATERWORKS AUTHORITY

"Better Water. Better Lives."
Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

GWA FINANCE & ACCOUNTING OFFICE ADMINISTRATIVE
RECEIVED
DEC 14 2017
BY:

CHANGE ORDER NO. 2

Project Title:	GPWA Supervisory Control and Data Acquisition (SCADA) System Project				
Project No.:	E17-001-BND	**IFB No.**	GPA-066-16 (issued by GPA)	**GWA PO No.**	300305-000 OP
Contractor:	Benson Guam Enterprises, Inc.			NTP Date:	December 14, 2016

TO: Benson Guam Enterprises, Inc.

You are directed to make changes noted below in the subject contract. The changes are accepted by:

Monito Co, General Manager
Contractor Representative (PRINT)

Contractor Representative (SIGNATURE)

12/14/2017
Date

PREPARED BY :
Barbara Cruz, P.E.
Project Manager, GWA

12/14/2017
Date

RECOMMEND APPROVAL :
Thomas Cruz, P.E.
Chief Engineer, GWA

12/14/17
Date

NATURE OF CHANGES:

Add services to GWA's Ugum Water Treatment Plant to ensure continual operation and integration of the plant with the new GPWA SCADA System.

Contractor's change order proposal with details is attached.

The changes result in the following adjustment of contract price and time:

Contract price prior to this Change Order	$	432,705.00
Net INCREASE from this Change Order (subject to approved terms and conditions)	$	90,716.60
Current contract price including this Change Order	$	523,421.60

Contract time prior to this Change Order	450	Calendar Days
Net INCREASE from this Change Order (subject to approved terms and conditions)	0	Calendar Days
Current contract time including this Change Order	450	Calendar Days
Current contract expiration date including this Change Order	Friday, March 09, 2018	

CERTIFIED FUNDS AVAILABLE:

Vendor No.: 18948
Contract No.: N/A
G.L. NO.: E171.105321.320000
Amount: $ 90,716.60

(Bond 2016 EE 09-08)

Greg Cruz
Certifying Officer

1.5.18
Date

01/08/2018

APPROVED:

Miguel C. Bordallo, P.E.
General Manager, GWA

1.9.18
Date

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

FACSIMILE TRANSMITTAL COVER LETTER

DATE: 01/23/18

ATTENTION: Benson Guam Enterprises Inc.

Tel: 477-7562
Fax: 477-3736

PO NO: 23344 (Amend II)

Please acknowledge receipt, via return fax ASAP (671) 648-3165

Have A Nice Day!

==========
==========

Received By: Monito S. CO **Date:** 1/24/2018
Print Name

Signature:

Si Yu'us Ma'ase.

Confidentiality Notice: The information in this facsimile is intended for the named recipients ONLY. It may contain instructions requiring the immediate attention of the addressee. If you receive this facsimile in error, or if there is a transmission error, please notify us immediately.

Number of pages: 3

Sent By: Jessie Naputi

Procurement Office 648-3054/3055

JAMIEP

PURCHASE ORDER

GUAM POWER AUTHORITY
P.O. Box 2977
Hagatna, Guam 96932

TELEPHONE: (671) 648-3054/5
FAX: (671) 648-3165

THIS PURCHASE ORDER NUMBER
No. 23344 OP
MUST APPEAR ON ALL INVOICES. PACKING SLIPS, PACKAGES, B/L, CORRESPONDENCE, ETC.

PO DATE	JOB ORDER NO./OBJ
10/13/16	100146.107200.102

VENDOR
BENSON GUAM ENTERPRISES INC
P O BOX 6157
TAMUNING GU 96931-6157

TEL: (671) 477-7562
FAX: (671) 477-3736

VENDOR 6169

SHIP TO
RECEIVING SECTION:
GUAM POWER AUTHORITY

P.O. BOX 2977
HAGATNA, GUAM 96932
TELEPHONE: (671) 648-3054/5
Strategis Planning and Opr

AUTHORITY	INVITATION NO.	CONTRACT NO.	TIME FOR DELIVERY	EXPIRING	DISCOUNT TERMS:
3109	MS GPA-066-16	C-066-16	10/01/18		

DESCRIPTION / SUPPLIER ITEM	QTY	UNIT	UNIT PRICE	AMOUNT	DOCUMENT NUMBER
AMENDMENT NO.: II					29247 OR
		L		$183,339.56	01/12/18

Amend to make the following changes:

1. Amend to extend the Completion Time of this purchase order from March 8, 2018 to now read October 1, 2018.

2. Amend to increase the value of this purchase order.

Extension and increase is necessary as follow:

1. Compliance with GPWA Cyber Security Policy reference NIST 800-53 requires all control equipment to be procured from a Trade Act Agreement (TAA) vendor.

2. Revised SCADA infrastructure to match GPWA's current proprietary network infrastructure.

3. Extension is necessary for finalization of the system architecture and resourcing of the equipment.

All others remain the same and unchanged.

The total value of this purchase order has INCREASED by $183,339.56 from $1,518,769.00 to a new total of $1,702,108.56.

Page 1 of 2

INSTRUCTIONS TO VENDOR:
SEND CERTIFIED ORIGINAL AND THREE (3) COPIES OF INVOICE TO GUAM POWER AUTHORITY, PO BOX 2977, CODE 33, HAGATNA, GUAM 96932

PAYMENT UPON RECEIPT OF MERCHANDISE IN GUAM IN GOOD CONDITION

TOTAL

<< DO NOT FILL THIS ORDER IF YOUR TOTAL COST EXCEEDS THIS TOTAL

ACKNOWLEDGED BY: _____ DATE: 1/24/2018
SIGNATURE OF VENDOR
RETURN TO PROCUREMENT DIVISION AT ABOVE ADDRESS

SIGNATURE: _____ 1/23/18
JOHN M. BENAVENTE, P.E., General Manager — Date
Delegated Authority

JAMIEP (57)

PURCHASE ORDER

GUAM POWER AUTHORITY
P.O. Box 2977
Hagatna, Guam 96932

TELEPHONE: (671) 648-3054/5
FAX: (671) 648-3165

THIS PURCHASE ORDER NUMBER
No. 23344 OP
MUST APPEAR ON ALL INVOICES. PACKING SLIPS, PACKAGES, B/L, CORRESPONDENCE, ETC.

PO DATE	JOB ORDER NO./OBJ
10/13/16	100146.107200.102

VENDOR
BENSON GUAM ENTERPRISES INC
P O BOX 6157
TAMUNING GU 96931-6157

TEL: (671) 477-7562
FAX: (671) 477-3736

VENDOR 6169

SHIP TO
RECEIVING SECTION:
GUAM POWER AUTHORITY

P.O. BOX 2977
HAGATNA, GUAM 96932
TELEPHONE: (671) 648-3054/5
Strategis Planning and Opr

AUTHORITY	INVITATION NO.	CONTRACT NO.	TIME FOR DELIVERY	EXPIRING	DISCOUNT TERMS:
3109	MS GPA-066-16	C-066-16	10/01/18		

DESCRIPTION / SUPPLIER ITEM	QTY	UNIT	UNIT PRICE	AMOUNT	DOCUMENT NUMBER
					29247 OR

Ref.: SPORD Manager's request dated January 10, 2018.

REVIEWED BY: 01/23/18
JAMIE LYNN C. PANGELINAN Date
Supply Management Administrator

Page 2 of 2

INSTRUCTIONS TO VENDOR:
SEND CERTIFIED ORIGINAL AND THREE (3) COPIES OF INVOICE TO GUAM POWER AUTHORITY, PO BOX 2977, CODE 33, HAGATNA, GUAM 96932

PAYMENT UPON RECEIPT OF MERCHANDISE IN GUAM IN GOOD CONDITION

$183,339.56
TOTAL

<< DO NOT FILL THIS ORDER IF YOUR TOTAL COST EXCEEDS THIS TOTAL

ACKNOWLEDGED BY: _____ DATE: 1/24/2018
SIGNATURE OF VENDOR
RETURN TO PROCUREMENT DIVISION AT ABOVE ADDRESS

SIGNATURE: 1/23/18
JOHN M. BENAVENTE, P.E., General Manager Date
Delegated Authority

GUAM WATERWORKS AUTHORITY RECEIVED BY TIME 11:44 DEC 12 2016 GENERAL MANAGER'S OFFICE

GUAM WATERWORKS AUTHORITY

"Better Water. Better Lives."
Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

RECEIVED
2018 JAN 12 PM 3:19
G.W.A.
FINANCE DIVISION

CHANGE ORDER NO. 4

Project Title:	GPWA Supervisory Control and Data Acquisition (SCADA) System Project				
Project No.:	E17-001-BND	**IFB No.**	GPA-066-16 (issued by GPA)	**GWA PO No.**	300305-000 OP
Contractor:	Benson Guam Enterprises, Inc.			**NTP Date:**	December 14, 2016

TO: Benson Guam Enterprises, Inc.

You are directed to make changes noted below in the subject contract. The changes are accepted by:

Monito Co, General Manager
Contractor Representative (PRINT)

PREPARED BY: Barbara Cruz, P.E.
Project Manager, GWA — Date: 1/12/2018

Contractor Representative (SIGNATURE) — Date: 1/12/2018

RECOMMEND APPROVAL: Thomas Cruz, P.E.
Chief Engineer, GWA — Date: 1/12/2018

NATURE OF CHANGES:

Improve management and protection of SCADA System, that is tied to the power and water/wastewater systems, from cyber threats and risks.

1. Replace Supplier Chain of Dell computer equipment from Dell Taiwan to Dell Federal to meet stricter cyber security requirements to improve protection of GPA and GWA systems against potential threats and risks. Dell Federal cost is higher. The net difference is $65,405.09. GWA's share is $35,391.83. GPA's share is $30,013.26. GWA's is higher because GWA has 4 workstations, GPA has 3.
2. Relocate Factory Acceptance Testing from China to Taiwan. Taiwan is a Trade Agreement Act (TAA) compliant country, China is not. FAT relocation requires shipment of Dell equipment, including expenses for import/export, custom clearances and ground transportation to Siemens, Taiwan. This will also require office rental and cost difference for engineering and project expenses. This cost is $110.129.62. GWA share is 50% or $55,064.81.
3. Change brand and model of the network switches. This cost will be funded by GPA. There is no cost to GWA. GWA's cost = $0.
4. Revised SCADA Architecture requires additional equipment. This cost will be funded by GPA. There is no cost to GWA. GWA cost = $0.

*** GWA total share = { $35,391.83 + $55,064.81) x 4% Admin Expenses = $94,074.91
*** *Change Order No. 3 is GPA's share of the changes; GPA's total share is $183,339.56. GPA is processing Change Order no. 3.*

The changes result in the following adjustment of contract price and time:

Contract price prior to this Change Order	$	523,421.60
Net INCREASE from this Change Order (subject to approved terms and conditions	$	94,074.91
Current contract price including this Change Orde	$	617,496.51

Contract time prior to this Change Order	450	Calendar Days
Net INCREASE from this Change Order (subject to approved terms and conditions)	206	Calendar Days
Current contract time including this Change Order	656	Calendar Days
Current contract expiration date including this Change Order	Monday, October 01, 2018	

CERTIFIED FUNDS AVAILABLE:

Vendor No.:	18948
Contract No.:	N/A
G.L. NO.:	E171.105321.320000
Amount:	$ 94,074.91

(Bond 2016 EE 09-08)

Greg Cruz
Certifying Officer — Date: 2.12.18

02/12/18

APPROVED:

Miguel C. Bordallo, P.E.
General Manager, GWA — Date: 2.12.18

EXHIBIT D

SIEMENS

28th February 2018

ASSESSMENT REPORT FOR GWA-UGUM WATERWORKS

Siemens Contact: Daniel Wong
Email: wong.daniel@siemens.com
DID: +65 6490 7068

SIEMENS 28th February 2018

This report is a summary of the site assessment done from 23~26 Jan 2018. It covers the following areas:

- The PLC Control System
- The WinCC Scada System
- Data Bridge Report Generation
- The Profibus Network
- The MCC(Simocode Pro-C) System
- The Siemens VFDs, and
- The Auxiliaries such as UPS, Cable management, Cabinet layouts, etc…

1. The PLC Control System

The PLC control system consists of the following cabinets:

(a) Main PLC Rack Cabinet
(b) MCC Panel Cabinet
(c) Cell #1 Cabinet
(d) Cell #2 Cabinet
(e) Blower Room Cabinet
(f) Chemical Room Cabinet
(g) Riverside Cabinet (Raw Water)

In addition, there are also 11 Simocodes and 4 Siemens Micromaster VFDs. The single slave station at the riverside is connected through a CP card. The main DP line 1.5Mbps, and the riverside line is at 45.45kbps.

Current status :

All the slave stations are in communication with the Profibus DP master except the following stations:

(a) Backwash Transfer Pump 1 (integrated DP port line, MM440 station address #21)
(b) Backwash Transfer Pump 2 (integrated DP port line, MM440 station address #22)
(c) Centrifuge Polymer Dosing System (integrated DP port line, Simocode station address #26)
(d) Raw Water (CP443-5 DP line, ET200M station address #8)
(e) One of the Simocode is defective.
MLFB: 3UF7000-1AU00-0
Version: V2.0.0

Location: MCC room, Centrifuge Polymer Dosing

(f) MicroMaster drives are defective.

MLFB: 6SE6440-2UD25-5CA1

Version: D06/2.11

Location: MCC Room, Backwash Transfer Pump #1 & #2

2. The WinCC SCADA

The original setup was a server with 2 clients. The server, together with a client are located in the main control building. The second client was located in the MCC room.

Current Status :

Only the server is operational, however the RAID1 is defective. Rebuild done overnight on 24th Jan 2018 and was successful when checked on 25th morning. There is no client station. Virus scan recommended.

(a) MLFB of server: 6AG4104-2DP22-0PX4 (IPC547D)

Location: Control Room

OS version of server: Svr 2003

(b) WinCC version: 6.2 +SP2

New : 7.4 +SP1

CFC ver: 7.0 +SP1 +HF1

New : Ver. 9.0

3. Industrial Databridge Version: 6.1

- New findings

Current Status :

To generate selected data from archive into a Excel List. This function is present, but does not work properly.

(a) Simatic S7 Pro version: 2006 SR5 (5.4 +SP4)

New : S7 Pro version : 2017/V15

(b) Web Navigator version: 6.2 +SP2

New : Ver. 7.4 SP1

Note : The data trending was not archived properly resulting in loss of data.

4. Network Cabling

(a) The RJ45 network cable from Control room to the MCC room is defective.

(b) The Profibus cabling to the riverside is defective.

(c) The cabling to the MCC and Chemical rooms are using the indoor purple Profibus cable.
(d) The Profibus cable to the riverside is spliced using Black cable from Rack to riverside. Splicing is done using butt connectors in 2 locations, and with Profibus connectors in 4 locations.
Note : Proposed FO cables to the 3 locations, riverside, MCC and Chemical rooms.

Others

(a) The UPS(APC Smart UPS 2200) is operational. It is only used for the IPC.
(b) There is a WinCC training simulator for the Plant and is of version 7.0

Documentation

(a) FDS is present.

5. Upgrade Possibilities for PLC System

(a) Memory Sub module from Flash RAM (952, 2MB) to Flash EPROM (6ES7952-1KL00-0AA0)

Currently the PLC program is running off a 2MB RAM. It should be transferred to the spare Flash EPROM. This will enable the program to be reloaded even if the battery backup failed and there is a power outage. The program will then be operating with the parameters that were programmed into the Flash EPROM.

(b) PS of Main Rack (Optional, if preferred)

Currently the power supply of the main PLC is the AC110/220 type. It is possible to replace it to the 24Vdc input type. This will mean that a new 24Vdc power supply needs to be installed and wired up through terminal blocks to the power supply modules. The work required would be:
(i) Install a 24Vdc power supply unit
(ii) Connect the 110Vac supply to the 24Vdc unit, through a MCCB
(iii) Connect the 24Vdc output to terminal blocks
(iv) Connect the 24Vdc supply from the terminal blocks to the Power Supply module of the PLC
Note : Update drawings

SIEMENS 28th February 2018

(c) Main PLC Rack – Option 1

Set up another main rack complete with all the hardware identical to the current PLC rack. There are sufficient spares to execute this except for the Flash EPROM. The work required would be:

(i) Re-align the existing rack to the left to allow sufficient space to mount the identical second main rack.

(ii) Mount the second rack

(iii) Program in Flash EPROM (need to purchase)

(iii) Wire up the power supply module

(iv) Power up the rack

(v) Transfer the 2x Profibus cable(purple) and 1x Ethernet cable(white) over

(vi) Test the system

(vii) Update drawings

(d) Main PLC Rack – Option 2

Upgrade the current main PLC CPU rack to a S7-400H redundant system. The following will be required:

(i) One set of S7-400H with the similar communication connectivity as the current system

(ii) Two numbers of Y-Link bundle

The work required will be:

(a) Remove the existing rack

(b) Install two numbers 24Vdc supply unit with terminal blocks

(c) Install the S7-400H main rack, with 2 new sets of 24Vdc cables

(d) Install the two numbers of Y-Link (mounting & 4 cables for 24Vdc)

(e) Install the original Profibus cables (2 numbers, going to MCC and river)

(f) Wire up the Profibus cables from CPU & CP443-5 tot the Y-Link(4 cables)

(g) Test the system

(h) Update drawings

SIEMENS 28th February 2018

6. Upgrade Possibilities for SCADA System

(a) Upgrade of IPC547D to 547G

The IPC547D is no longer in production. The IPC547G is the latest version. This version is running on the Windows 7, 64bit version. We would need to check on the Win10 LTSB version.

(b) WinCC and options

The latest version of the WinCC is V7.4+SP1. It requires the Windows 7 OS. The following is recommended:

(i) WinCC V7.4 + SP1

(ii) WinCC Industrial Bridge for required export to Excel

(iii) Simatic Manger 2010 SR4

(iv) CFC V9.0

((v) Sinema Remote Connect for remote service

(vi) Scalance M876-4 (local data SIM and antenna installation is required)

(c) Siemens Micromaster MM4

The two defective MM4 for the Back Wash Transfer pumps should be replaced by the Sinamics G120. The work would be as follows:

(i) Locate the drive parameters of the original MM4

(ii) Select the replacement Sinamics G120 model

(iii) Site installation of Sinamics G120

(iv) Commissioning of the Sinamics

(v) Update drawings

Note : Currently the two numbers of 45kW MM4 are for the CMF-S Filtrate Pumps #1 & #2. They are operational. The recommendation would be to upgrade it to the SInamics G120.

Two options are possible:

(i) To upgrade one unit to Sinamics and use the MM4 unit that is taken out as a spare for the still operational MM4

(ii) To upgrade both to the Sinamics

Generally the procedure of the upgrade work is similar but requires more time as the capacity is higher. It is also recommended to order 1-to-1 units as spares. These spare units should be commissioned as ready to use spares.

(d) Remote Support

As the plant personnel are not familiar with the Siemens Control and SCADA system, it is recommended to install the Sinema Remote Connect for Siemens engineers to assist the GWA maintenance and operational personnel in reducing the downtime of the plant.

(e) Training of GWA Personnel (Singapore Siemens Training Centre)

The following training courses are recommended for the respective personnel.

Systems	Name of courses	Target personnel
PLC System	STEP7 Service 1	Maintenance
PLC System	STEP7 Service 2	Maintenance
WinCC SCADA	WinCC Basic	Maintenance/Operation
Simocode	Simocode	Maintenance
Siemens VFDs	MicroMaster	Maintenance
Profibus Network	Certified Profibus Engineer	Maintenance

(f) Tools & Test Equipment

The following tools are recommended:

(i) Profibus cable cutter for wiring of Profibus connectors

(ii) Profi-Trace from Procentec, for the Profibus Network diagnostics and trouble shooting. It is also able to indicate the health status of the Profibus Network. This test tool is very useful if the engineer has attended the Certified Profibus Engineer course.

(iii) The Simocode Pro-C software and connecting cable. This is for backing up the configurations of the Simocodes. It is also required for programming the Simocode, if the user is trained.

(g) Profibus Cabling to the River

The original Profibus cabling to the river is not suitable for the site and environmental conditions. Extensive modifications to the current cabling run route are needed to protect the cable from the elements.

We proposed to replace it with a FO solution. This might potentially require the enlargement of the current cable routing. FO is recommended for the following reasons:

(i) FO cable can be supplied in a length that is sufficient for the distance that we need

(ii) Even if splicing is required, they can be done in a more weather resistant manner

(iii) The transmission speed can be increased to 1.5Mbps which is the same speed as the MCC room line

(h) Profibus Cabling from Control Building to the MCC Building and Chemical Building

The cable used is the purple coloured Profibus FC Caable. This cable is intended for indoor use only. If used outdoor, as in this case, it should be protected from the elements.

(i) FO cable can be used to increase reliability

(ii) Even if splicing is required, they can be done in a more weather resistant manner

(iii) A Ring topology would increase availability, can be done at a later stage

(g) Danfoss VFDs to Profibus

When the Profibus connection to the river is up and running, we can connect the Danfoss VFDs through this network. This will enable monitoring and control of these three VFDs. The following work is required:

(i) FDS discussion and confirmation

(ii) Engineering of the changes

(iii) Installation of Profibus option into the VFDs

(iv) Profibus cable installation from the Raw Wtare Et200m station to the three VFDs

(v) Hardware configuration changes in the PLC system

(vi) Control logic addition to the current program to enable SCADA monitoring and control

(vii) Static and dynamic graphics changes in the SCADA

(viii) Site commissioning

(viii) Update drawings

(h) Yearly Site Visit for Audit and Backups

A yearly visit is recommended for System checks and to ensure that the important information are backed up. The following activities will be executed:

(i) Back up the PLC program

(ii) Back up the WinCC SCADA program

(iii) Back up the Simocodes

(iv) Backup the VFDs parameters

(v) Check the diagnostics of the PLC

(vi) Check the data logger of the WinCC

(vii) Perform a health check of the Profibus networks

(i) Monthly remote checks for the main PLC and the WinCC SCADA

Every month we will connect remotely to check the diagnostic buffers of the PLC. We will also check the event logger of the WinCC SCADA. It is also an opportunity for the plant personnel to feedback any observations that we can look into and clarify and/or rectify

(j) Water Hammering

Cell #1 is not normal during the backwash sequence. Our engineer is checking on this abnormal behavior.

(k) UPS

The current UPS is only used for the IPC547D and the COMTREND wireless router. It is not sufficient if the PLC main rack is also required to be maintained.

----------END---------

GWA Ugum Waterworks

SIEMENS

1. The PLC Control System
2. The WinCC SCADA System
3. Data Bridge Report
4. Photos of Profibus cabling to riverside
5. The Control System Software versions
6. Possible training courses
7. Possible upgrades
8. SinemaRC typical connection

Daniel Wong

Tan, Gim Sin

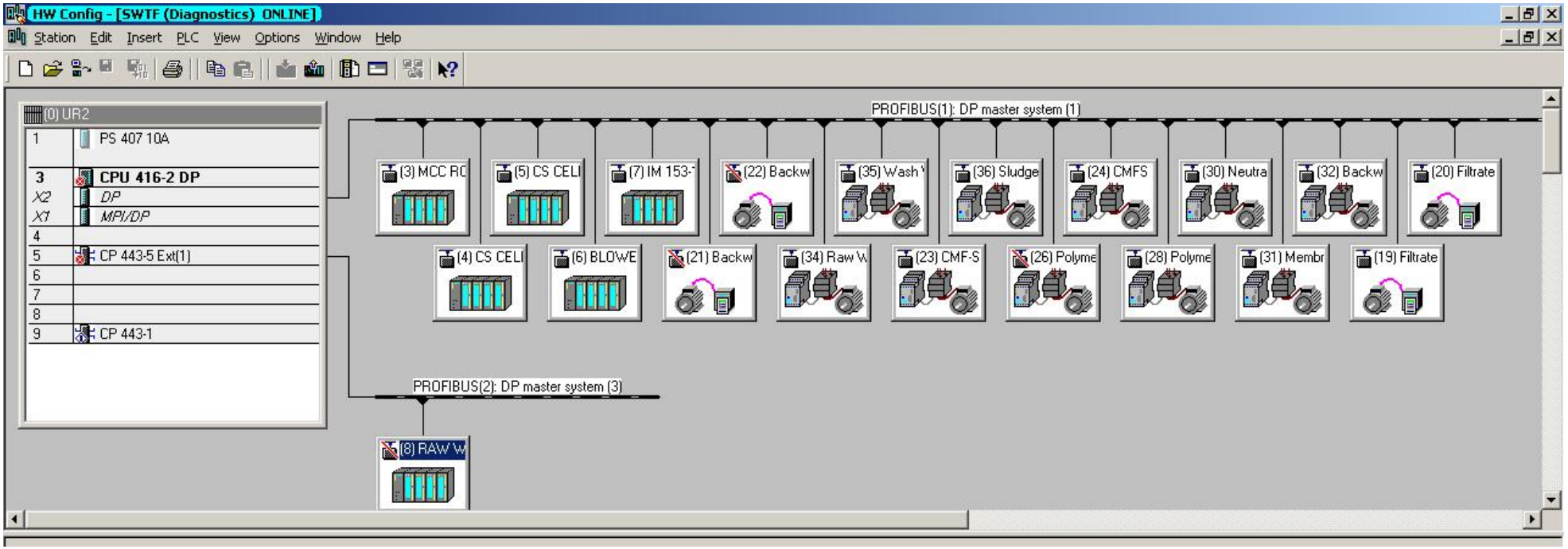
Siemens Pte Ltd, Sngapore

The PLC System

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The current PLC System Hardware configuration with:

- 6 ET200M slave stations,
- 4 MM4 VFDs, and
- 10 MCC with Simocodes.



The PLC System – Current Status and proposed possible actions

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Findings:

Issue #1: 2x MM4 VFD slave stations are not visible in the control system (Backwash Pumps #1 & #2)

Cause: Both MM4 VFDs are defective

Possible action 1: To purchase 2 numbers of MM4 and to re-commission them, OR

Possible action 2: To upgrade the MM4 to the new Sinamics G120 with spare unit programmed and ready to run.

Issue #2: 1x MCC Simocode is not visible in the control system (Centrifuge Polymer Dosing System)

Cause: The Simocode is defective

Possible action 1: To purchase a direct replacement Simocode and reprogram it. A service engineer is required.

Other action: To backup all the MCC Simocode(10x in total)

Issue #3: 1x ET200M slave station is not visible (Raw Water)

Cause: The Profibus cabling to the riverside is defective

Possible action 1: Check and correct the defects in the cabling(temporary measure), OR

Possible action 2: Replace the electrical Profibus cabling by a FO installation with network re-commissioning

Issue #4: The backwash for cell #1 is not working as that for cell #2.

Cause: to be determined by trouble-shooting the PLC program, not completed

The WinCC SCADA – Current Status and proposed corrective measures

SIEMENS

Findings:
The original system is a server configuration with 2x clients. The server and 1x client station is in the control building. The 2nd client station is in the MCC room. Only the server IPC547D is found, and working with a defective RAID 1(resolved by rebuilding).

Issue #1: The MCC room client station is not working

Cause: The PC is not properly installed with the WinCC client software..
Possible action 1: To re-install the WinCC client software into the PC.
Other action: The network cable is also found to be defective and needs to be corrected.

Issue #2: The Data Bridge report generation (into Excel) worked intermittently (the driver loses connection to WinCC)

Cause: The driver loses connection to WinCC
Possible action: will need to investigate and re-install the application
Note: The report contains data required for EPA submission (see next slide).

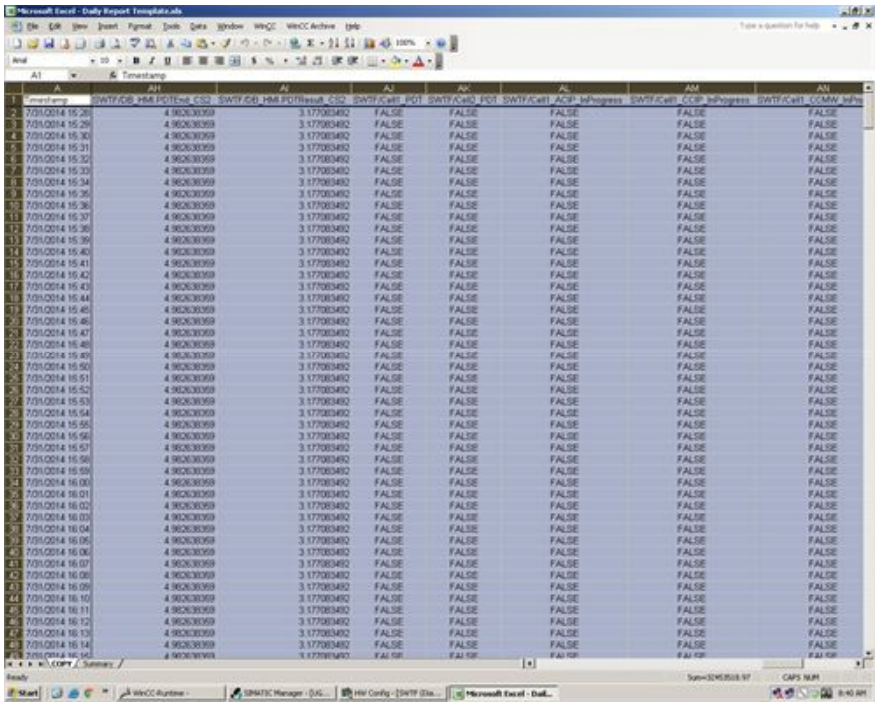
Issue #3: The data archiving is not working properly

Cause: The settings are not correct, not set to back up after 2 months
Possible action 1: To correct the settings and test. The data files will be transferred to a designated directory and can be copied out regularly. The WinCC Historian option(not installed now) is required to view these files.

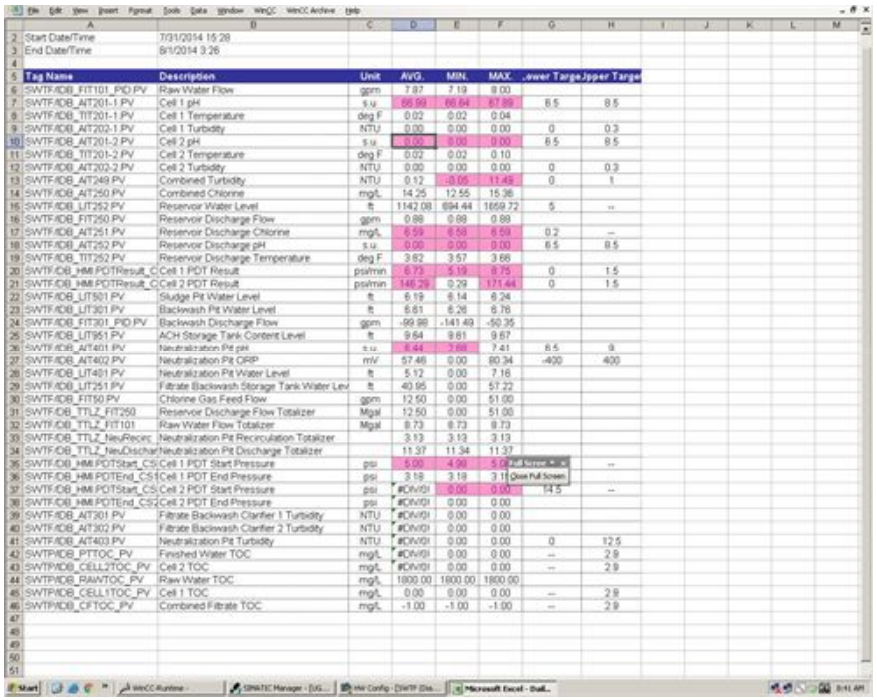
Report by Data Bridge when working

SIEMENS

Template (data captured every 15 mins)



Generated Report – Start Time & End time can be specified



	A	B	C	D	E	F	G	H
2	Start Date/Time	7/31/2014 15:28						
3	End Date/Time	8/1/2014 3:26						
4								
5	**Tag Name**	**Description**	**Unit**	**AVG.**	**MIN.**	**MAX.**	**..ower Targe**	**Jpper Targe**
6	SWTF/DB_FIT101_PID.PV	Raw Water Flow	gpm	7.87	7.19	8.00		
7	SWTF/DB_AIT201-1.PV	Cell 1 pH	s.u.	66.99	66.64	67.89	6.5	8.5
8	SWTF/DB_TIT201-1.PV	Cell 1 Temperature	deg F	0.02	0.02	0.04		
9	SWTF/DB_AIT202-1.PV	Cell 1 Turbidity	NTU	0.00	0.00	0.00	0	0.3
10	SWTF/DB_AIT201-2.PV	Cell 2 pH	s.u.	0.00	0.00	0.00	6.5	8.5
11	SWTF/DB_TIT201-2.PV	Cell 2 Temperature	deg F	0.02	0.02	0.10		
12	SWTF/DB_AIT202-2.PV	Cell 2 Turbidity	NTU	0.00	0.00	0.00	0	0.3
13	SWTF/DB_AIT249.PV	Combined Turbidity	NTU	0.12	-0.05	11.48	0	1
14	SWTF/DB_AIT250.PV	Combined Chlorine	mg/L	14.25	12.55	15.36		
15	SWTF/DB_LIT252.PV	Reservoir Water Level	ft	1142.08	894.44	1859.72	5	--
16	SWTF/DB_FIT250.PV	Reservoir Discharge Flow	gpm	0.88	0.88	0.88		
17	SWTF/DB_AIT251.PV	Reservoir Discharge Chlorine	mg/L	6.59	6.58	6.59	0.2	--
18	SWTF/DB_AIT252.PV	Reservoir Discharge pH	s.u.	0.00	0.00	0.00	6.5	8.5
19	SWTF/DB_TIT252.PV	Reservoir Discharge Temperature	deg F	3.82	3.57	3.88		
20	SWTF/DB_HMI.POTResult_C	Cell 1 PDT Result	psi/min	6.73	5.19	8.75	0	1.5
21	SWTF/DB_HMI.POTResult_C	Cell 2 PDT Result	psi/min	146.29	0.29	171.44	0	1.5
22	SWTF/DB_LIT501.PV	Sludge Pit Water Level	ft	6.19	6.14	6.24		
23	SWTF/DB_LIT301.PV	Backwash Pit Water Level	ft	6.81	6.26	6.76		
24	SWTF/DB_FIT301_PID.PV	Backwash Discharge Flow	gpm	-99.98	-141.49	-50.35		
25	SWTF/DB_LIT951.PV	ACH Storage Tank Content Level	ft	9.64	9.61	9.67		
26	SWTF/DB_AIT401.PV	Neutralization Pit pH	s.u.	8.44	7.68	7.41	6.5	9
27	SWTF/DB_AIT402.PV	Neutralization Pit ORP	mV	57.46	0.00	80.34	-400	400
28	SWTF/DB_LIT401.PV	Neutralization Pit Water Level	ft	5.12	0.00	7.16		
29	SWTF/DB_LIT251.PV	Filtrate Backwash Storage Tank Water Lev	ft	40.95	0.00	57.22		
30	SWTF/DB_FIT50.PV	Chlorine Gas Feed Flow	gpm	12.50	0.00	51.00		
31	SWTF/DB_TTLZ_FIT250	Reservoir Discharge Flow Totalizer	Mgal	12.50	0.00	51.00		
32	SWTF/DB_TTLZ_FIT101	Raw Water Flow Totalizer	Mgal	8.73	8.73	8.73		
33	SWTF/DB_TTLZ_NeuRecirc	Neutralization Pit Recirculation Totalizer		3.13	3.13	3.13		
34	SWTF/DB_TTLZ_NeuDischar	Neutralization Pit Discharge Totalizer		11.37	11.34	11.37		
35	SWTF/DB_HMI.POTStart_C51	Cell 1 PDT Start Pressure	psi	3.00	4.00	5.00		--
36	SWTF/DB_HMI.POTEnd_C51	Cell 1 PDT End Pressure	psi	3.19	3.19	3.19		
37	SWTF/DB_HMI.POTStart_C52	Cell 2 PDT Start Pressure	psi	#DIV/0!	0.00	0.00	14.5	--
38	SWTF/DB_HMI.POTEnd_C52	Cell 2 PDT End Pressure	psi	#DIV/0!	0.00	0.00		
39	SWTF/DB_AIT301.PV	Filtrate Backwash Clarifier 1 Turbidity	NTU	#DIV/0!	0.00	0.00		
40	SWTF/DB_AIT302.PV	Filtrate Backwash Clarifier 2 Turbidity	NTU	#DIV/0!	0.00	0.00		
41	SWTF/DB_AIT403.PV	Neutralization Pit Turbidity	NTU	#DIV/0!	0.00	0.00	0	12.5
42	SWTP/DB_PTTOC_PV	Finished Water TOC	mg/L	#DIV/0!	0.00	0.00	--	2.9
43	SWTP/DB_CELL2TOC_PV	Cell 2 TOC	mg/L	#DIV/0!	0.00	0.00	--	2.9
44	SWTP/DB_RAWTOC_PV	Raw Water TOC	mg/L	1800.00	1800.00	1800.00		
45	SWTP/DB_CELL1TOC_PV	Cell 1 TOC	mg/L	0.00	0.00	0.00	--	2.9
46	SWTP/DB_CFTOC_PV	Combined Filtrate TOC	mg/L	-1.00	-1.00	-1.00	--	2.9
47								
48								
49								
50								
51								

Photos of the Profibus Cabling to the Riverside Comm Box

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Photos of the Profibus Cabling to the Riverside Manhole with cable from Control Room to MCC Room/Chemical Room

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Photos of the Profibus Cabling to the Riverside Handhole #1 (spliced with butt connectors)

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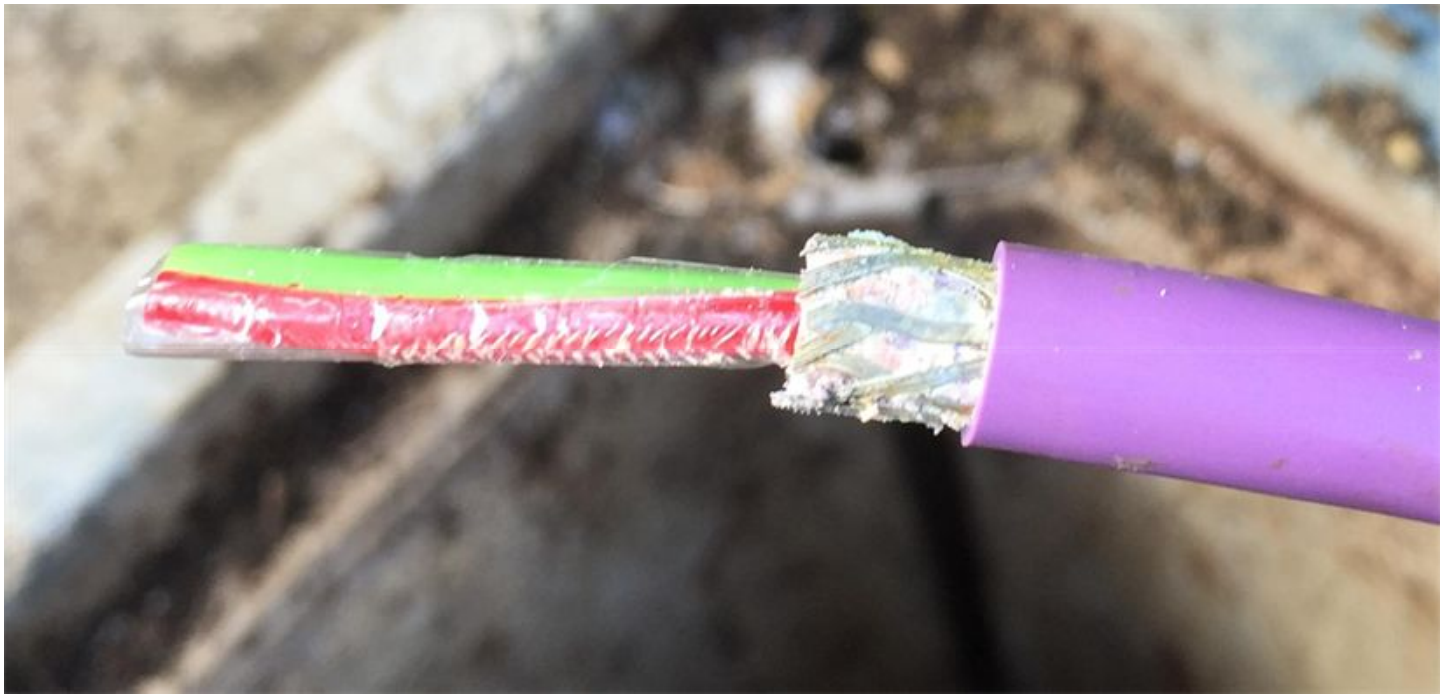
Photos of the Profibus Cabling to the Riverside Handhole #2 (bus connector)

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Photos of the Profibus Cabling to the Riverside
Profibus cable with water damage

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Photos of the Profibus Cabling to the Riverside Profibus connectors from handholes #1 & #2

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Handhole #1

Handhole #2

Photos of the Profibus Cabling to the Riverside
Profibus connectors from handhole #1

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The Control System – Software versions on site and latest available versions

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Software Packages	Versionson site	Latest versions
WinCC	V6.2 +SP2	V7.4 +SP1 +Update1
WinCC Industrial Bridge	V6.1	V7.4 +SP1
WinCC Web Navigator	V6.2 + SP2	V7.4 +SP1 +Update1
Simatic Manager	STEP7 Pro 2006	STEP7 Pro 2010 SR4
CFC	V7.0 + SP1 + HF1	V9.0

Possible Training Courses

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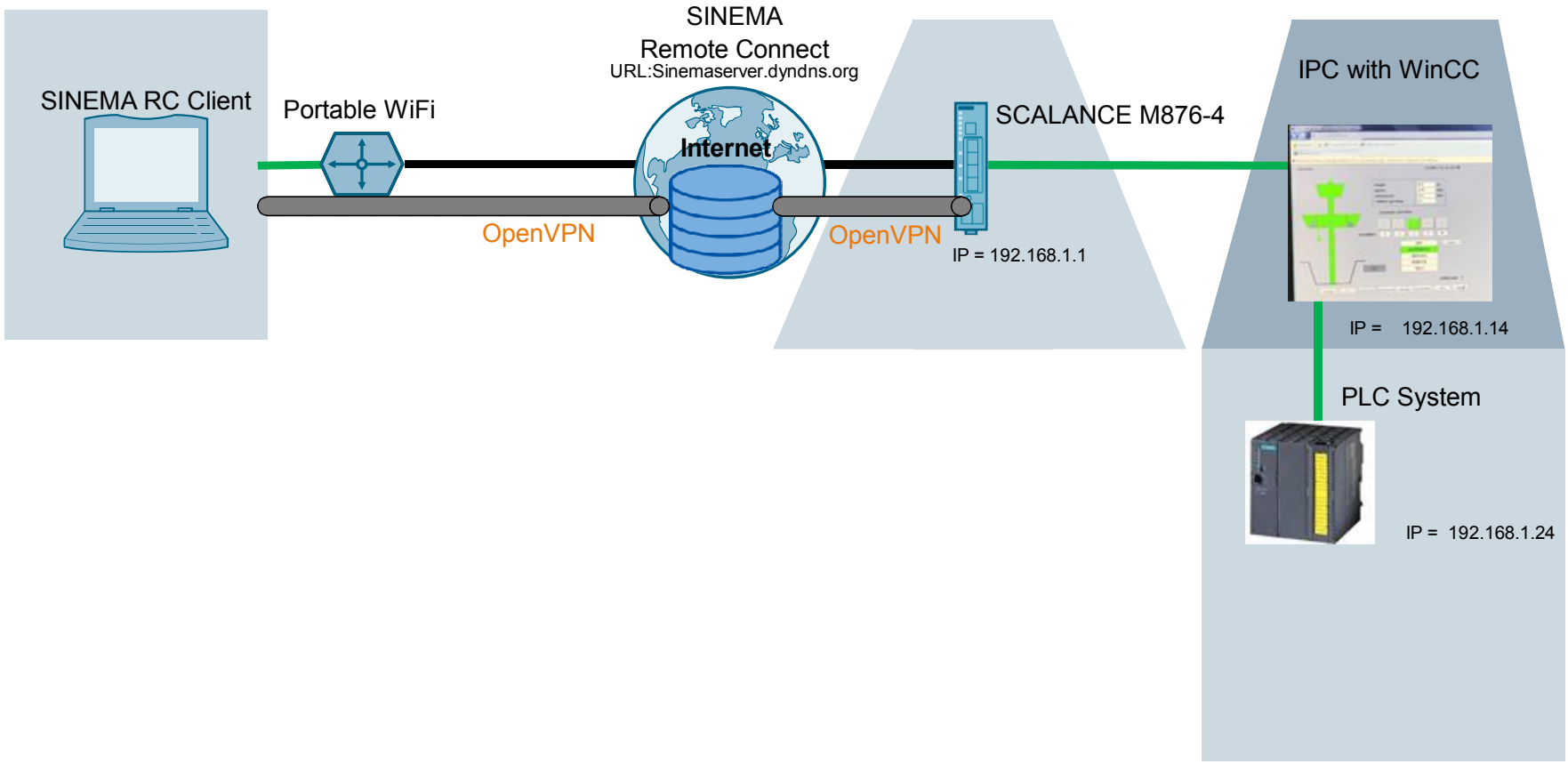
Systems	Name of courses	Target personnel
PLC System	STEP7 Service 1	Maintenance
PLC System	STEP7 Service 2	Maintenance
WinCC SCADA	WinCC Basic	Maintenance/Operation
Simocode	Simocode	Maintenance
Siemens VFDs	MicroMaster	Maintenance
Profibus Network	Certified Profibus Engineer	Maintenance

Possibilities for Upgrading

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Systems	On Site	Proposed Upgrades
PLC Control System – Option 1	S7-400 CPU 416 with ET200M	S7-400H Redundant with Y-Link
PLC Control System – Option 2	S7-400 CPU 416 with ET200M	Complete Main Rack ready to run
WinCC SCADA	V6.2 (Svr 2003)	V7.4 with redundant server(Svr 2012) with 2x clients
WinCC SCADA Historian	Not present	V2014 +SP3
Siemens VFDs	MicroMaster	Sinamics G120
For remote support		Sinema RC (see typical next slide)
Profibus Cabling	Electrical cable with bad connections to riverside/MCC/Chemical	FO cabling, continuous
Danfoss VFDs	Not connected to Profibus	Can be connected to Profibus and monitored/controlled from WinCC SCADA

SINEMA Remote Connect
Solution for integration with PLC system



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Any Questions??

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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. 35-FY2018
Relative to the Approval of the Memorandum of Understanding for the Renewal of the Collective Bargaining Agreement Between the Guam Waterworks Authority and the Guam Federation of Teachers Union

What is the project's objective and is it necessary and urgent?
The objective is to renew the effectivity of the expiring Collective Bargaining Agreement between Guam Waterworks Authority (GWA) and its employees (represented by Guam Federation of Teachers Union or GFTU), in compliance to Guam's laws.

Where is the location?
Executive Offices

How much will it cost?
No direct costs incurred**.**

When will it be completed?
Effective date is upon the approval of the Consolidated Commission on Utilities and signature by the General Manager.

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. 35-FY2018

APPROVAL OF THE MEMORANDUM OF UNDERSTANDING FOR THE RENEWAL OF THE COLLECTIVE BARGAINING AGREEMENT BETWEEN GUAM WATERWORKS AUTHORITY & GUAM FEDERATION OF TEACHERS UNION

WHEREAS, under the 12 C.G.A §14105, 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 is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, Public Employee-Management Relations Act as set forth in 4 G.C.A. Chapter 10, recognizes the Guam Federation of Teachers Union ("GFTU") as the exclusive representative of the GWA employees and it has the authority to negotiate a Collective Bargaining Agreement ("CBA") for and on behalf of GWA employees with the management of GWA; and

WHEREAS, in March of 2016 the CCU approved the Collective Bargaining Agreement between GWA and the GFTU attached hereto as EXHIBIT "A".

WHEREAS, GWA and GFTU agreed to renew the CBA for a one (1) year period and accordingly, drafted the Memorandum of Understanding Authorizing the Renewal of the Collective Bargaining Agreement between Guam Waterworks Authority & Guam Federation of Teachers Union (MOU), attached hereto as EXHIBIT "B".

WHEREAS, GFTU presented the MOU for ratification by its members who are employees of GWA and it was ratified unanimously as shown by the Declaration of Irish Olivares attached as EXHIBIT "C" and approved by the GFTU Executive Council, attached as EXHIBIT "D"

WHEREAS, after careful reading of the MOU, it is shown to be in conformity with the provisions of the CBA, and existing laws of Guam and that the renewal of the attached CBA is permitted under its provisions.

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

Section 1. The foregoing recitals hereto are hereby ratified, confirmed, and incorporated herein by reference.

Section 2. The Consolidated Commission on Utilities approves the agreement between GWA & GFTU to renew, for another 1-year period, the provisions of their previously executed Collective Bargaining Agreement.

Section 3. The subject Collective Bargaining Agreement attached as EXHIBIT "A" is renewed for a one (1) year period beginning from the date of the signing of this Resolution.

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

DULY AND REGULARLY ADOPTED, this 5th day of June, 2018.

Certified by:

_____

JOSEPH T. DUENAS
Chairperson

Attested by:

_____

J. GEORGE BAMBA
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: _____

///

///

///

///

///

///

///

Exhibit A

COLLECTIVE BARGAINING AGREEMENT

BETWEEN the

CONSOLIDATED COMMISSION ON UTILITIES
Managing Utilites in the Interest of the Consumers

For

GUAM WATERWORKS AUTHORITY

AND

GUAM FEDERATION OF TEACHERS UNION

AFT LOCAL 1581 AFL-CIO
"A Union of Professionals"

EFFECTIVE DATE 22nd day of March, 2016.

COLLECTIVE BARGAINING AGREEMENT
BETWEEN
THE GUAM WATERWORKS AUTHORITY
AND
THE GUAM FEDERATION OF TEACHERS UNION
AFT LOCAL 1581 AFL-CIO

ARTICLE I

1.A. PREAMBLE

This Agreement is entered into by and between the Guam Waterworks Authority ("GWA"), whose address is Gloria B. Nelson Public Service Building, 688 Route 15, Mangilao, Guam 96913 5 and the Guam Federation of Teachers' Union ("GFT") whose address is P.O. Box 2301, Hagatna, Guam 96932, and collectively referred to as the "Parties."

1.B. RECITALS

WHEREAS, pursuant to 4 G.C.A. §10105 and 12 G.C.A §14109.5, GWA's employees have the right to form, join, assist, and participate in the management of employee organizations of their own choice; and

WHEREAS, in compliance with the requirements set forth in 4 G.C.A §10109, GWA's Management hereby recognizes GFT as the exclusive representative of GWA's employees because at least ten percent (10%) of GWA's employees are members of the GFT and because a majority of GWA's employees have designated GFT as their exclusive representative; and

WHEREAS, pursuant to4 G.C.A §10113(b), GFT has the right, as the exclusive representative of GWA's employees, to negotiate written agreements with GWA's management reflecting bilateral determination of specific terms and conditions of employment, subject to paramount law and regulations.

NOW THEREFORE, in compliance with the above premises and mutual promises set forth herein and terms and conditions hereinafter set forth, GWA and GFT hereby covenant and agree as follows:

1.C. RECOGNITION AND BARGAINING UNIT

1.C.1. The Guam Waterworks Authority recognizes GFT as the sole and exclusive bargaining agent with respect to the terms and conditions of employment for the employees within the collective bargaining unit as defined in Section 2 of this Article.

1.C.2. The recognized unit includes all non-management employees within the Guam Waterworks Authority.

1.D. CONTRACT TERM

This contract shall be effective on the date the last signature is affixed hereto. The contract shall be for a period of one year term subject to annual renewal upon the mutual written consent of the parties.

ARTICLE II

2.A. GENERAL PROVISIONS

2.A.1. It is the policy and purpose of this Agreement and the parties hereto, that it is in the public interest, to promote orderly and constructive relationships between management and its public employees by providing an opportunity for effective participation by employees in the formulation and implementation of policies and procedures affecting conditions of their employment. The Union shall have the right to provide meaningful representation for public employees in grievances, disciplinary matters and negotiate with government management officials for establishing rules and procedures affecting terms and conditions of employment, subject to applicable laws and regulations.

2.A.2. Neither the Union nor the Management shall discriminate against any employee covered by this Agreement on the basis of race, color, religion, sex, age, handicap, or national origin. Covered employees shall have the right to form, join, assist, and participate in the Union and to act as organization representative or to refrain from any such activity, without interference, restraint, coercion, or discrimination and without fear of penalty or reprisal.

2.B. PAYROLL DEDUCTION OF UNION DUES

2.B.1. Management agrees to deduct from covered employee's paycheck each month, union dues, lawful fees and assessments as certified by the Union and agreed to by the employee and remit the same to the Union. The Union agrees that in the event of any change in the Union's dues structure, it will notify the Employer within twenty (20) work days prior to implementing the change. The Employer agrees to furnish the Union with the names and addresses of all newly hired and separated employees.

2.B.2. GWA agrees that it will deduct bi-weekly from covered employees' wages that amount voluntarily allotted for Union dues and forward that amount deducted to the Union within seven (7) working days from the pay-period ending date where such deductions were made. The Employer shall submit a list of the names and social security numbers of employees on whose behalf dues have been deducted. All covered Employees agree to disclosure of their Social Security numbers for the purposes stated herein.

2.C. DEFINITIONS

2.C.1. Administrative leave: Leave with pay without charge to the employee's accumulated leave, granted at the discretion of the Appointing Authority.

2.C.2. Appointing Authority: The General Manager of the Guam Waterworks Authority or his/her designee.

2.C.3. Classified Service: Government service of which employees have attained permanent status and cannot be removed from employment without cause.

2.C.4. Compensatory Time Off: Time off in lieu of overtime pay and managed in accordance with the FLSA and this Agreement. The amount of time off shall be granted at time and one-half.

2.C.5. Continuation of Pay (COP): Means employees are entitled up to 45 calendar days of COP because of temporary total disability or temporary partial disability due to a job related injury that is substantiated by medical report(s). A maximum of 45 calendar days per injury is allowed. The 45 calendar days begin the day following the injury.

2.C.6. Day: Shall mean calendar day unless otherwise specified.

2.C.7. Demotion: The involuntary change of an employee's position to a position with a lower maximum salary rate for just cause. Employee shall be slotted into the step of the respective pay grade closest to, but not more than the salary received in the pay grade he held prior to the demotion for cause.

2.C.8. Demotion (Voluntary): The voluntary movement of an employee from a higher to a lower position with the same or lower salary in the same department/agency.

2.C.9. Detail: The temporary assignment of an employee by the General Manager to perform a particular function.

2.C.10. Disability: The inability to perform the job to which they are assigned due to medical reasons. The disability can be temporary or permanent and partial or complete.

2.C.11. Dismissal: Separation, discharge, or removal for cause of an employee from his/her position.

2.C.12. Duty: A task assigned to an employee by a responsible management authority.

2.C.13. Emergency: Situations which may jeopardize human life and property or agency operations as declared in a manner provided by law.

2.C.14. Employer: Guam Waterworks Authority

2.C.15. Employee: Any non-management person employed by the Guam Waterworks Authority covered under this agreement.

2.C.16. Grievance: Complaints which relate to the working condition and relationship to policies, rules and regulations, and this agreement.

2.C.17. Immediate Family: With respect to leave, immediate family is defined as the employee's spouse, common-law, mother, father, grandparents, guardian, children, grandchildren, in-loco parentis, sister, brother, mother-in-law and father-in-law. Step, adoptive, and spouse of adoptive parents/children/grandchildren would also be considered "immediate family."

2.C.18. Injury: This term means accidental injury, illness, or death arising out of and from the course of employment.

2.C.19. Layoff: The involuntary termination of an employee for reasons other than disciplinary actions and which does not negatively reflect on the Employee's service to GWA and includes reductions-in-force as a result of reorganization or lack of funds.

2.C.20. Management: The line of authority from the General Manager down to the first level supervisors.

2.C.21. Performance Rating: The appraisal or evaluation of the work performance of an employee.

2.C.22. Position: The work consisting of the duties, functions, and responsibilities assignable to an employee.

2.C.23. Probationary Period: It is that period in which a covered employee initially serves to attain permanent status as a GWA employee. This also applies to former employees who have not been employed in the Government of Guam service after four years of separation in good standing. Probationary periods shall not be less than 3 months nor more than 12 months.

2.C.24. Overtime: Actual hours worked in excess of 40 hours in a workweek.

2.C.25. Permanent Status: Permanent status is attained once an employee completes a satisfactory probationary period.

2.C.26. Position Description: A statement of the duties and responsibilities comprising the work assigned to an employee/position.

2.C.27. Promotion: The movement of a permanent employee to a position with a higher maximum salary rate.

2.C.28. Resignation: The voluntary termination of employment by an employee submitted in writing to the GWA General Manager. The effective date of the resignation shall be the date stated in the letter, or if no date is stated, it shall be deemed to be effective the next business day.

2.C.29. Supervisor: A person having supervisory authority over any other employee.

2.C.30. Suspension: The temporary removal of an employee from his/her position with loss of pay for cause.

2.C.31. Termination: The removal of an employee from employment for cause.

2.C.32. Union: The recognized collective bargaining Authority.

2.C. 33. Work Day: The time an Employee is scheduled to work excluding the period of time the employee is scheduled for lunch.

2.C.34. Work Week: A regularly recurring period of seven consecutive 24 hour intervals. A workweek need not coincide with a calendar week. It may begin any day of the week at any hour of the day. A workweek shall remain the same unless any change is intended to be permanent.

2.D. UNION RIGHTS

2.D.1. CONFERENCES

The General Manager or authorized designee and the GFT President or authorized designee shall meet upon request of either party within five working days of a request.

2.D.2. WORK SITE VISITS

The President of the Union or designated representative, or full-time Union employees may visit worksites for matters pertaining to this Agreement and other policies after providing 48 hours advance notice to the GWA General Manager of the facilities the union wishes to visit. If conferences with covered employees are necessary, they shall be scheduled before or after the duty day or during lunch period.

2.D.3. PRESIDENT'S RELEASE TIME

In the event that a covered employee is elected President of the Union the following shall apply:

2.D.3.a. Upon written request from the Union, GWA shall grant the president of the Union leave of absence, without pay, during the president's term of office to conduct Union business. GWA may temporarily fill the position in the President's absence.

2.D.3.b. The president's leave of absence shall commence within thirty days of such request. The Union agrees to reimburse GWA, on a current basis, for the Government of Guam retirement contribution that it makes on behalf of the president.

2.D.3.c. The president shall suffer no loss of benefits or rights, as defined by law or this Agreement, as a result of this leave. The president's seniority shall be treated the same as any other member of the bargaining unit who is on leave from their worksite.

2.E. BULLETIN BOARDS

The Union has the right to the use of a bulletin board paid for by the Union and consisting of a maximum of 16 square feet. The location of the board is subject to GWA approval. The board shall be placed in an employee high traffic area. Management may remove inappropriate postings with immediate notification to the Union.

2.F. UNION STEWARDS

2.F.1. The number and need of stewards shall be determined by the Union and appointments thereof will be made by the President. The Union agrees to limit the number of stewards to a maximum of one (1) per shift per GWA organizational division.

2.F.2. The Union shall supply Management a current and complete list of all authorized stewards.

2.F.3. Management agrees to recognize the Stewards officers and duly designated representatives of the Union and shall be kept advised, in writing, by the Union of the names of its officers and representatives.

2.F.4. Management agrees that in the event it plans to transfer a Steward from one GWA organizational division to work another, GWA shall inform the Union five (5) days prior to taking such action, except for transfers of Stewards for disciplinary, safety, sexual harassment actions, or for homeland security or regulatory compliance.

ARTICLE III

3. GRIEVANCE PROCEDURES

3.A. STATEMENT OF POLICY

It shall be the policy of the Guam Waterworks Authority to promote favorable relations between management and its employees by resolving complaints expeditiously; preventing similar complaints; assuring fair and equitable treatment of all employees; and promoting harmonious working relationships among all levels of employees.

These procedures outline the responsibilities and procedures to be followed by employees in the presentation of an informal or formal grievance. All levels of management shall carefully and promptly respond to an employee's grievance and shall be guided by these procedures.

3.B. APPLICABILITY

The regulations in this Chapter shall apply to all covered employees in the classified service.

3.C. DEFINITION

A **grievance** is any question or complaint filed by a covered employee alleging that there has been a misinterpretation, misapplication, or violation of this agreement, a personnel statute, rule, regulation, or written policy which directly affects the employee in the performance of his official duties; performance evaluation matters, or has received prejudicial, unfair, arbitrary, capricious treatment in his working conditions, or work relationships. The time frames provided in this chapter may be extended or shortened based on the mutual agreement of the parties involved.

3.D. COVERAGE
Grievances may include, but are not limited to, such matters as employee supervisor relationships, duty assignments not related to job classification, shift and job locations, assignments, hours worked, working facilities and conditions, policies for granting leave, promotional matter, and other related matters.

3.E. EXCLUSIONS

3.E.1. GENERAL EXCLUSIONS: The following actions are not covered by these grievance procedures:

a. Disqualifications of an applicant
b. Disqualification of an eligible
c. Examination of ratings
d. Removal during original probationary period
e. Appeals from classification determinations
f. Appeals from adverse personnel actions
g. Allegations or complaints of discrimination
h. Position description and job qualification minimum

3.E.2. EQUAL EMPLOYMENT OPPORTUNITY DISCRIMINATION COMPLAINT: When an aggrieved employee submits a written allegation of discrimination on the grounds of race, color, religion, sex, national origin, marital status, age, disability, or political affiliation in connection with a matter which is subject to the government's grievance procedures, as well as the EEO discrimination complaint procedures, that allegation shall be processed under the EEO discrimination complaint procedures.

3.F. GENERAL GRIEVANCE PROCEDURES

3.F.1. FREEDOM FROM REPRISAL OR INTERFERENCE
An employee and his representative shall be free to use the grievance system without restraint, interference, coercion, discrimination, or reprisal.

3.F.2. An employee, whether acting in an official capacity or on any other basis, must not interfere with, or attempt to interfere with, another employee's exercise of his rights under this grievance system. To be fully effective, the spirit as well as the letter of this non-interference requirement must be enforced. It is not enough for an official to abstain from overt threats or interference. He should refrain from making any statement or taking any action which has the appearance of a threat, interference or intimidation.

3.F.3. EMPLOYEE'S STATUS DURING GRIEVANCE PROCEDURES
An employee's status during each procedural level shall be status quo.

3.F.4. RIGHT TO SEEK ADVICE: Employees may communicate with and seek advice from the following, however, not for the purpose of circumventing these grievance procedures:

a. The GWA Personnel Office;
b. An Equal Employment Opportunity Officer;

c. GWA legal counsel;
d. The supervisor or management official of higher rank than the employee's immediate supervisor; or
e. The Union.

3.F.5. REPRESENTATION

a. An employee has the right to present a grievance without representation.
b. An employee has the right to present a grievance with representation.
   i. An employee has the right to be accompanied, represented, and advised by a representative of his choice at any stage of the grievance proceedings.
   ii. An employee may change his representative, but to do so, he must notify the General Manager within two (2) working days of the change in writing.
   iii. A person chosen by the employee must be willing to represent him.

3.F.6. OFFICIAL TIME FOR PRESENTATION OF THE GRIEVANCE

a. An employee must be given a reasonable amount of official time to present his grievance.
b. An employee's representative, if he is an employee of the GWA must be given a reasonable amount of official time to present the grievance.
c. Official time for the presentation does not include time relating to the investigation or preparation of a grievance , nor does it include travel time in excess of 45 minutes, travel expenses, per diem travel allowances or consultation with private attorney.

3.F.7. TERMINATION OF A GRIEVANCE

a. An employee who has filed a grievance may terminate the grievance at any time by notifying the General Manager at any time in writing.
b. Failure on the part of the employee to proceed to a higher step of the grievance procedure within the time period specified will automatically terminate the grievance.

3.F.8. MANAGEMENT'S RESPONSIBILITY FOR TIMELY ACTION AND SETTLEMENTAT THE LOWEST POSSIBLE LEVEL

a. It shall be the responsibility of management to settle grievances fairly and promptly at the organizational level where the grievance was brought to their attention by the employee.
b. Failure by management to render a decision to the employee within the allotted time automatically allows the employee to proceed to the next step of the grievance procedures.

3.G. STEP 1 - INFORMAL GRIEVANCE PROCEDURES

3.G.1. MANAGEMENT RESPONSIBILITY

An employee's grievance may, or may not be objectively justified. What is important is that the grievance is real to the employee. When the grievance is well-founded, management has both a duty and a need to eliminate the cause. When the grievance is not well-founded, it is equally important to reach an understanding based on the full facts. Therefore, the informal procedure should assure consideration of every employee's grievance with a degree of promptness, understanding, fairness, and competence, which convinces the employee that he has been treated fairly. The employee may present his grievance under the informal procedures, either orally or in writing, and he should not be prevented from submitting a written explanation if he desires.

3.G.2. SUPERVISOR'S RESPONSIBILITY

a. Normal day-to-day discussions between employees and supervisors regarding working conditions and related employment matters are the most constructive and expeditious means of developing and enhancing favorable and effective working relationships.

b. Each employee has the right to present matters to his supervisor and each supervisor has the obligation to act promptly and fairly upon them, seeking the advice and assistance of others when necessary.

3.G.3. EMPLOYEE'S RESPONSIBILITY

a. Each employee is expected to make a consorted effort to achieve informal settlement of his grievance.

b. Tolling Period - In counting the number of days for each step, if the last day of the period falls on a weekend or legal holiday, the filing time or receipt time falls on the next working day.

3.G.4. USING THE INFORMAL GRIEVANCE PROCEDURE - STEP 1

3.G.4.a. INITIATION BY EMPLOYEE

In keeping with the personal nature of matters covered by grievance procedures, grievances can be initiated only by employees, they may not be initiated by employee organizations. Employee organizations may be permitted to present a grievance on behalf of an employee, or a group of employees when requested to do so by the employee or employees.

3.G.4.b. TIME LIMIT

a. An employee may present a grievance to his supervisor concerning a continuing practice or condition at any time. Grievances concerning a particular act or occurrence.

b. Grievances must be presented within 15 work days of that action or occurrence, unless the condition is continuing.

c. The immediate supervisor shall render a decision within 10 work days of the presentation of the grievance. However, this period is tolled during the pendency of any declared emergency related to natural disasters.

3.G.4.c. FORM OF THE GRIEVANCE
An employee may present a grievance under the informal procedure either orally or in writing. Employee must state that he or she is grieving.

3.G.4.d. NON-REJECTION PROVISION
A grievance may not be rejected in the informal procedure for any reason. If the grievance consists of a matter not covered under the grievance system, the employee should be so advised, but he must be allowed to submit his grievance under the formal procedures if he insists.

3.G.4.e. MANDATORY USE OF THE INFORMAL PROCEDURE
An employee must complete the informal procedure before Management may accept from him a grievance concerning the same matter under the formal procedure.

3.G.4.f. FAILURE TO RESPOND
In the event that a Supervisor fails to answer or respond to an informal grievance within ten work days after such informal grievance is presented to him or her, such action shall be considered as a denial of the informal grievance and the employee may proceed with a formal grievance. At no time shall a grievance be remanded back to a lower level due to a failure by a management official to respond to the employee's grievance.

3.H. STEP 2 - FORMAL GRIEVANCE PROCEDURES – NEXT ADMINISTRATIVE LEVEL

3.H.1. PRESENTATION OF THE GRIEVANCE - STEP 2

3.H.1.a. An employee is entitled to present a grievance under the formal procedure if:

a. He or she has completed the informal procedures; and
b. The Employee believes that grievance is not satisfactorily resolved at the informal level; or
c. The immediate supervisor failed to render a decision as specified in step 1, item 3.G.4.b within 10 work days of the presentation of the grievance at the informal level.

3.H.1.b. The grievance presented in Step 2 must:

a. Be in writing on the prescribed form *(see Appendix A);*
b. Contain sufficient detail to identify and clarify the basis for the grievance;
c. Specify the specific relief requested by the employee; and
d. Be submitted to the official who is the next higher supervisor than the immediate supervisor within five (5) work days after the receipt of the answer in Step 1, or after the answer was due.

3.H.2. RESPONSIBILITY OF NEXT HIGHER SUPERVISOR

3.H.2.a. The next higher supervisor must determine whether the grievance was timely, is covered by the grievance procedure and has been processed through the informal procedure.

3.H.2.b. The next higher supervisor shall make a positive attempt to resolve the grievance. He shall render a decision, in writing, to the employee as specified in item 3.H.1.b.

3.I. STEP 3 - FORMAL GRIEVANCE PROCEDURES – GENERAL MANAGER

3.I.1. PRESENTATION OF THE GRIEVANCE - STEP 3

An employee is entitled to present a grievance to the General Manager under Step 3, if:

3.I.1.a. He or she has completed Step 2 of the procedures; and,

3.I.1.b. The Employee believes the grievance is not satisfactorily resolved at the Step 2 level; and,

3.I.1.c. He or she has specified the personal relief sought; and

3.I.1.d. He or she has submitted the entire grievance record to the General Manager within ten (10) work days after receipt of the answer in Step 2, or after the answer was due.

3.I.2. THE GENERAL MANAGER'S WRITTEN DECISION

The General Manager shall render a written decision to the employee within fifteen (15) work days after the General Manager is presented with the employee's grievance. The General Manager's written decision shall include:

3.I.2.a. Whether-or-not the grievance has been granted or denied and,the grounds for the decision.

3.I.2.b. Remedy or relief provided (if appropriate).

3.I.2.c. Any other pertinent facts.

3.J. STEP 4 - APPEAL TO THE CIVIL SERVICE COMMISSION

3.J.1. PRESENTATION OF THE GRIEVANCE - STEP 4

3.J.1.a. An employee is entitled to present a grievance appeal under Step 4, if:

- **i.** He has completed Step 3 of these procedures;
- **ii.** The Employee believes the grievance is not satisfactorily resolved at the Step 3 level; or
- **iii.** The General Manager failed to render a decision within fifteen (15) working days of the submission of the complete grievance, in writing, at the Step 3 level;

3.J.1.b. The grievance presented in Step 4, must:

- **i.** Be in writing;
- **ii.** Contain sufficient details to identify and clarify the basis of the grievance;
- **iii.** Include complete copies of the grievance forms submitted in Steps 2 and 3;
- **iv.** Specify the personal relief requested by the employee;

v. Be submitted to the Civil Service Commission within ten (10) work days after receipt of the answer in Step 3, or after the answer was due; and
vi. Contain complete information of Employee and Representative (if appropriate).

ARTICLE IV

4. TRANSFERS AND DETAIL ASSIGNMENTS

4.A. VOLUNTARY TEMPORARY TRANSFERS:

4.A.1. When management identifies a temporary need for an employee in another position classification for a period of time longer than 90 days but less than one (1) year, and for which they are qualified, an employee may be transferred to that position with the employee's consent. The Employee shall retain all vested classified rights. The Employee shall be paid at the salary of the new position classification not to exceed two steps up from their salary step at the time of the transfer. Under no circumstances shall an employee be paid a lower rate due to a temporary transfer.

4.A.2. Increments shall not be affected during a voluntary temporary transfer.

4.A.3. No employee shall be eligible for any other voluntary temporary transfer within five years following the date that any prior voluntary temporary transfer was concluded.

4.B. VOLUNTARY DEMOTIONS

Demotions may be made when the employee meets the minimum qualification requirements of the position to which he seeks movement. Such demotion shall require the prior approval of the General Manager and the written consent of the employee.

4.C. COMPENSATION ADJUSTMENT FOLLOWING A DEMOTION

The reduction shall be to the salary in the new pay grade closest to, but not more than, the employee's salary at the time of demotion.

4.D. DETAIL ASSIGNMENTS

4.D.1. A detail is the temporary assignment to meet management needs of an employee to another position or to a group of specific duties and responsibilities for a specified period not to exceed ninety (90) days with the employee returning to his regular duties at the end of the detail.

4.D.2. Details shall be made only for meeting temporary needs of a division, department, or section programs including but not limited to the following:

a. emergency details - to meet emergencies occasioned by abnormal workload, change in the organization or unanticipated absences; or
b. pending description and formal classification for a new position; or
c. to replace an incumbent who is undergoing training and to replace any employee who is unavailable for work for any reason including filling vacancies on a temporary basis.

4.D.3. All details in excess of 30 calendar days must be documented.

4.D.4. An employee may be detailed while serving a probationary period provided however that no employee may be terminated for performance related matters to the detail, including lack of training.

4.D.5. Temporarily assignments and details shall conform to applicable statutes on the subject.

4.D.6. An employee in an unclassified position, or an individual employed under a contract shall not be detailed to a position in the classified service.

4.D.7. Nothing in this regulation is intended to infringe on management's prerogatives in day-to-day operational activities which may occasionally require that an employee be assigned, for brief periods up to 90 calendar days, work normally performed by another employee.

4.D.8. Employees serving on a detail in a position having a higher pay grade than his regular position shall receive the pay grade assigned to that position at the employee's current step.

4.D.9. Employees serving a detail in a position having a lower pay grade shall not have their pay adjusted to the lower pay. An Employee whom has filed a complaint or grievance of any sort against the agency or its management may be detailed or temporarily reassigned with written justification therefore.

ARTICLE V

5. HOURS OF WORK, OVERTIME AND PREMIUM PAY

5.A. STATEMENT OF POLICY

This chapter sets forth the standard for hours of work, wages, overtime compensation, compensating time-off in lieu of overtime pay, observance of holidays and a system under which the pay of certain employees shall be adjusted for certain hours, days or conditions of work. These provisions shall be in addition to the Fair Labor Standards Act (FLSA).

5.B. GENERAL PROVISIONS

The following provisions shall apply to all employees covered under this agreement:

5.B.1. The basic workweek is 40 hours. Alternatively, a workweek is a regularly recurring period of 168 consecutive hours – seven consecutive 24 hour periods. The workweek need not coincide with the calendar week. It may begin any day of the week and any hour of the day, but it must in each case, be established in advance. The workweek may be changed, but only if the change is intended to be permanent and is not made to evade overtime requirements or policies.

5.B.2. An employee's workweek may be in accordance with office hours, with designated shifts, or with such flexible or variable hour program as are implemented by individual departments. A work week shall not be less than 40 hours unless a bonafide financial need is declared by law, GWA governing board or General Manager.

5.B.3. A full-time employee shall be allowed a 15 minute break period in the first half and second half of the work day.

5.B.4. Full-time employees shall be allowed a minimum of 30 minutes and up to a one hour meal period during each work day.

5.B.5. Normally the schedule of workweek for shift workers shall be prepared and prominently posted at least two weeks in advance so that the employees affected will be informed. Such schedule shall not be less than one week and may not be changed, except for good cause. Whenever possible, work schedules shall permit an employee to enjoy a holiday on the day it is observed.

5.B.6. The General Manager may permit flexible work schedules as may be appropriate.

5.C. HOURS WORKED

All times during which an employee is required by the Supervisor of higher authority to be at work, is considered as hours worked, except for meals or other periods when he is released from duty, or for any such time that an employee is engaged in personal business. Hours worked does not include "*Happy Labor*" (work performed voluntarily and without expectation of compensation).

5.D. HOURLY RATE OF PAY

5.D.1. OVERTIME

5.D.1.a COVERAGE

i. Upon the occurrence of overtime work, covered classified employees shall be entitled to receive overtime compensation calculated at the rate of 1 and ½ times the regular rate of pay for each hour or portion of the hour of overtime worked.

ii. In determining the number of hours worked by an employee within a given workweek or work period, time spent off on annual, administrative (except for training), sick, compensatory time-off, other leave (with or without pay), or holidays will not be counted as time worked. Such time off with pay shall be included in straight time pay, but it is not included in computing whether a covered employee has worked in excess of 8 hours in a day or 40 straight time hours in a workweek.

iii. Any fraction of an hour of overtime worked shall be converted to the nearest 30 minutes.

iv. Covered employees include those positions that are not exempted by the Fair Labor Standards Act.

5.D.1.b. OCCURRENCE OF OVERTIME WORK

i. Overtime work may be authorized by the Supervisor in cases of emergency, or when the best interest of GWA service indicate that overtime work is required.

ii. It shall be the responsibility of the Supervisor to determine that the provisions of overtime pay are administered in the best interest of GWA services. Recognizing that the Supervisor is responsible for the manner in which overtime work is authorized, it is

especially important to control unauthorized overtime.
iii. Each Supervisor is responsible for internal controls which will provide a means of reviewing and evaluating the use of overtime.
iv. Overtime work will occur when an employee renders service renders service in excess of 40 hours per workweek.

5.D.1.c. COMPENSATION FOR OVERTIME WORK

i. Payment for overtime work shall be made no later than two pay periods after the overtime work is performed.
ii. Overtime compensation shall be at the rate of 1 and ½ times the regular rate of pay for each hour, or 30 minute portion of the hour of overtime worked.
iii. An employee who is subject to the maximum 120 hours of compensatory time under this agreement shall be paid cash wages of time and one-half the regular rate of pay for overtime hours in excess of this maximum.
iv. The requirement that overtime must be paid after 40 hours a week may not be waived by an agreement between management and the employee, except as provided in this agreement.
v. Employees who work during emergency periods as declared by the Governor of Guam shall be compensated pursuant to the law.

5.E. COMPENSATORY TIME OFF (CTO) IN LIEU OF OVERTIME PAY

5.E.1. In the absence of any funds for overtime compensation, compensatory time off shall be granted in lieu of overtime pay. A record of this agreement must be kept with the GWA Payroll Office. Employees shall submit a leave-form requesting CTO.

5.E.2. The number of hours of overtime work shall be converted to compensatory time credit at the rate of 1 and ½ hours for each hour of overtime work, or portion of the hour.

5.E.3. Employees may accrue not more than 120 hours of compensatory time.

5.E.4. Any additional overtime work performed by employees, who have already accumulated the maximum 120 hours of compensatory time shall be compensated not later than two pay periods following the period during which the overtime was worked.

5.E.5. When sickness lasting one or more days occurs during a scheduled compensatory time off, and the employee substantiates such to the satisfaction of the Supervisor, the employee shall be charged sick leave and permitted to reschedule his compensatory time off. Application for such substitution of sick leave for compensatory time off shall be made within three work days upon return to duty, and shall be in conformance with the requirements for using sick leave.

5.E.6. An employee who has requested the use of compensatory time off shall be permitted to use such time, within a reasonable period after making the request, if the use of the compensatory time does not unduly disrupt the operations of GWA.

5.E.7. An employee on compensatory time off shall be deemed to be on official leave with pay status.

5.E.8. The Supervisor may require an employee to use any accumulated compensatory time off.

5.F. CONVERSION OF COMPENSATORY TIME OFF TO CASH

5.F.1. The employee may request in writing that accrued CTO be converted cash payment. All such requests are subject to the approval of the General Manager and if approved shall be paid at the rate at which it was earned. Such requests shall not be unreasonably denied.

5.F.2. At the time of separation, the employee shall be paid in cash for all unused compensatory time credit earned at the rate at which it was earned.

5.G. HOLIDAY PAY

Employees who are required, because of an emergency or other reasons, to work on holidays shall be paid at a rate equivalent to double their hourly rate of pay exclusive of any additional pay, except as otherwise provided by statute. For purposes of these rules, holidays are declared to be those identified in local statute.

5.H. NIGHT DIFFERENTIAL PAY

Work performed between the hours of 6:00 p.m. and 6:00 a.m. shall be compensated as follows:

Any employee who works between the hours of 6:00 p.m. to 6:00 a.m. shall be entitled to night differential pay, calculated at the rate of their regular wage plus 10% for all periods worked between the hours of 6:00 p.m. and 6:00 a.m., except as otherwise provided by statute.

5.I SALARY INCREMENTS (Non – CTP)

5.I.1. Salary increment increases shall be granted to covered Employees whose services are rated satisfactory or above for the rating period.

5.I.2. Salary increment increase up to step 7 is on an annual basis from date of hire or from the date of a promotion, when the employee has successfully completed their new probationary period following promotion, when the employee has successfully completed their new probationary period following promotion.

5.I.3. Salary increment increase from Steps 7 to 10 is granted eighteen (18) months from date of hire or from the date of a promotion when the employee has successfully completed their new probationary period following promotion.

5.I.4. Salary increment increase from Steps 10 to 20 is granted every two (2) years from date of hire or from the date of a promotion when the employee has successfully completed their new probationary period following promotion.

5.I.5. Should an employee separate in good standing, return under the provisions of re-employment, the employee shall be credited for the time served prior to separation for the purpose of granting salary increment, provided that the employee has had a review period of at least 90 days following his return.

5.I.6. Personnel actions for salary increment shall be processed in a timely manner. A reasonable standard shall apply in determining timeliness.

5.J. OUTSIDE EMPLOYMENT

Employees shall be permitted to work at outside private employment not in conflict with their government service, nor such as would bring GWA or its employees into disrepute. Any employee may undertake outside employment only if such is not in conflict with his work assignments and duly scheduled hours of his government employment. All outside employment requests must be in writing and must be approved in advance by the GWA General Manager and such requests for outside employment shall be made at least once annually.

5.K. HAZARDOUS PAY

The following guidelines shall apply relative to requests for payment of hazardous duty pay differential which involves exposure to hazardous conditions.

5.K.1. Employees shall not to be compelled to Work in Unsafe Conditions. Following the determination of an unsafe working condition by GWA's Safety and Compliance Officer, no employee may be compelled or in any way coerced to work in an unsafe working condition. An extremely unsafe condition is one that threatens immediate and unavoidable physical harm. The determination of GWA's Safety and Compliance Officer shall be in the form of a written report which covers the location of the extremely unsafe condition, a description of the nature of the extremely unsafe condition, the length of time the condition is estimated to exist along with a recommendation on how the extremely unsafe condition will be alleviated and/or fixed. The report shall be immediately delivered to the General Manager when completed. The GWA Safety and Compliance Manager shall treat any report of an extremely unsafe working condition as their top priority.

Refusal to work in an unsafe working condition after a reporting of an unsafe working condition shall not be considered in evaluating job performance or be considered as a factor in the promotion or demotion or adverse action of said employee.

GWA shall take reasonable steps based on GWA's budget, capital plan and regulatory needs, Guam laws, emergency declarations, existing circumstances and income to eliminate or reduce hazardous working conditions in order to assure every employee of GWA a safe workplace and healthful working conditions free from recognized hazards that are causing or likely to cause death or serious physical harm.

5.K.2. Hazardous Duty Pay. Hazardous duty pay as established under GWA's Hazardous Pay Policy (which may be amended from time-to-time by GWA's governing board for CTP employees) may be added to the base pay of employees who are temporarily exposed to hazardous duty for a minimum of 15 minutes for each assigned hazardous duty that is not

included within their job duties or pay structure. All hazardous pay requests shall comply with GWA's Hazardous Pay Policy.

ARTICLE VI

6. PERFORMANCE EVALUATIONS

6.A. PURPOSE

The GWA shall establish and maintain a performance evaluation system for the fair and objective appraisal of work performance of employees. The performance evaluation system **may** be used to:

1. Analyze/improve individual performance.
2. Strengthen supervisor/employee relationships.
3. Recognize employee accomplishments and good work.
4. Identify job standards.
5. Identify training need.
6. Grant or deny pay increments.
7. Determine order of layoffs.
8. Determine eligibility for promotion.

6.B. PERFORMANCE EVALUATION RECORDS

6.B. 1. A copy of the performance evaluation report shall be transmitted to the General Manager 30 days prior to the anniversary date. Upon receipt of the performance evaluation report and recommendations, the General Manager shall effect the appropriate personnel action in accordance with the recommendation of the Supervisor and it shall contain the Supervisor's comments and recommendations. The General Manager may adopt the recommendations or make his own as long as it is justified. The GWA General Manager shall provide written justification upon request.

6.B.2 Records of the performance evaluation report shall be filed in the employee's personnel file.

6.C. RESPONSIBILITY FOR PERFORMANCE EVALUATIONS

The General Manager shall approve all performance ratings made within GWA. He shall insure that performance evaluations and reports are completed and submitted on a timely basis. The employee shall sign the performance report; the signature of the employee does not imply agreement but only indicates that the report has been seen. In the event that the employee has substantial disagreement and refuses to sign, the supervisor shall state such fact on the performance evaluation form.

6.D. SUPERVISOR'S RESPONSIBILITY FOR PERFORMANCE EVALUATIONS

6.D.1. The performance standards shall be developed and the performance rating shall be completed by the supervisor immediately responsible for the employee's work with input from

the employee (the level of input to be determined by the Supervisor). The rater should be the individual who oversees reviews and checks the daily work performance of the employee being rated, or is the supervisor who is most closely acquainted with the employee's daily work performance. The supervisor shall also be responsible for the timely preparation and submission of performance reports for all employees under his supervision. The employee's supervisor must have supervised the employee for at least 90 days to render a fair evaluation. Before a supervisor retires, resigns, or transfers, he shall render an evaluation for the assigned employees before leaving the division/section or GWA.

6.D.2. For employees on temporary assignments due to work injury, disability (light duty), etc. for 120 days or more, the supervisor may establish additional performance standards to reflect current duties. A composite rating for the temporary assignment and permanent position may be made.

6.E. THE PERFORMANCE EVALUATION FORM
Performance evaluations shall be accomplished on a form prescribed by the General Manager consistent with the performance evaluation system in effect. The performance evaluation forms shall be filed in the employee's personnel file.

6.F. SALARY INCREMENTS - PERMANENT EMPLOYEES
Every covered employee shall be entitled to not less than a one step salary increment for satisfactory or better performance aside from CTPs covered under this agreement who shall receive salary increments in accordance with law.

6.G. APPEAL OF PERFORMANCE EVALUATION RATING
Employees whom are dissatisfied with a performance evaluation or rating may invoke the grievance procedures laid forth in this agreement.

ARTICLE VII

7. LEAVE

7.A ANNUAL LEAVE

7.A.1. REQUEST FOR ANNUAL LEAVE
Requests for annual leave shall be submitted to the appropriate supervisor by the employee, at least 48 hours in advance, for leaves in excess of 40 consecutive hours; and 24 hours in advance for leaves less than 40 hours, in order to avoid unnecessary disruption of work. Reasonable consideration shall be afforded for emergency situations.

7.A.2. MINIMUM CHARGE FOR ANNUAL LEAVE
Annual leave requests shall be made and such requests shall only be granted in increments of whole hours.

7.A.3. ACCRUAL OF ANNUAL LEAVE

Accrual of Annual Leave shall be computed pursuant to Guam Law.

7.A.4. LUMP SUM PAYMENT FOR ANNUAL LEAVE UPON SEPARATION OR TRANSFER

When an employee is separated from the GWA service, he shall be given a lump sum payment for any accrued and unused annual leave as of the date of separation.

7.A.5. LIBERAL CONSIDERATION OF ANNUAL LEAVE REQUESTS UPON BIRTH ORADOPTION OF A CHILD

Employees may, upon the birth or adoption of a child, submit a request on the appropriate leave form for annual leave for the purposes of assisting or caring for the child. Such requests should be liberally considered by supervisors and for other leaves set forth in the Family and Medical Leave Act (FMLA) in addition to maternity and paternity leave, for a maximum of six (6) months.

7.A.6. ADVANCE LUMP SUM PAYMENT FOR ANNUAL LEAVE

In accordance with Section 4111, Chapter 4 of Title 4 of the Guam Code Annotated, an employee may, prior to taking authorized annual vacation leave, receive a lump sum payment in advance for the period of leave authorized. No employee who received a lump sum payment in advance may return to work prior to the expiration period of such leave.

7. B. SICK LEAVE

7.B.1. PURPOSE AND ELIGIBILITY

7.B.1.a. Sick leave shall be allowed to an employee when the employee:

i. receives medical, dental or optical examination or treatment or any mental health examination, counseling or treatment;
ii. Is incapacitated for the performance of duties by sickness, injury, complications due to pregnancy, medical confinement; or would jeopardize the health of others by his presence at his duty assignment because of exposure to a contagious disease; or
iii. Is compelled to be absent from duty to provide health care for a member of the employee's immediate family as a result of an illness or injury.

7.B.1.b. Sick leave with pay shall be allowed during leaves of absence or vacations, provided, however, that any sick leave taken by an employee while on vacation must be supported by a certificate issued by a licensed physician.

7.B.2. NOTIFICATION OF SICKNESS

Notification of absence on account of sickness shall be given as soon as possible on the first day of absence or, if impractical, as soon thereafter as circumstances permit.

7.B.3. SICK LEAVE

Sick leave shall be granted in accordance with statute and this agreement.

7.B.4. SICK LEAVE CHARGED ONLY FOR WORKING HOURS
An employee shall be charged for sickness for only those hours for which he was, or would have been scheduled to work.

7.B.5. ACCRUAL OF SICK LEAVE
Sick leave shall be accrued pursuant to Guam Law.

7.B.6. MINIMUM CHARGE FOR SICK LEAVE
Sick leave requests shall be made and such requests shall only be granted in increments of whole hours.

7.B.7. ACCUMULATION AND CARRY OVER OF SICK LEAVE
Unused sick leave may be accumulated and carried over to succeeding leave years without limitation.

7.B.8 ADVANCE OF SICK LEAVE
a. An employee, who has suffered a serious illness or ailment and has exhausted his sick leave and who intends to return to work, may submit a written request, for advance of sick leave, to the General Manager. Each request for advance of sick leave must be accompanied by a certification by the employee's physician. An advance of sick leave may not exceed 13 days, and shall be subject to approval by the General Manager.

b. If the employee is medically certified as being unable to return to work after all accrued and/or advanced sick leave credits have been used, the employee shall be allowed to use any accrued compensatory or annual leave credits before being placed on leave without pay or FMLA leave.

7.B.9. PHYSICIAN'S CERTIFICATION OF INCAPACITATION
a. An employee who is absent in excess of three consecutive days because of illness, injury, quarantine, or to provide health care for a member of the employee's immediate family may be required to furnish a certification as to the incapacitation by a licensed physician or furnish other administratively acceptable evidence.

b. Supervisor may require certification for other periods of illness when there is adequate proof of abuse of sick leave or when suspicious patterns of leave develop. Supervisors shall notify the affected employee in advance that medical certification will be required for such other periods.

c. If the certification required is not furnished, all absences which would have been covered by such certification shall be indicated on the payroll as leave of absence without pay and the employee may be subject to disciplinary action.

d. If the medical certification furnished by the employee is not acceptable to the General Manager, he may require the employee to submit to an independent medical examination which shall be paid for by GWA.

e. Based on the medical certification, the General Manager:

i. May disapprove further use of sick leave if the employee is medically evaluated as fit for work.
ii. Shall allow the employee to use accrued sick leave if GWA's medical evaluation as unfit to return to work. In the event the employee exhausts his accrued sick leave the provisions of these Rules shall apply.

7.C. ON-THE-JOB INJURY
It is the policy of GWA and the Union that employees are provided with as safe working conditions as is practicable. However, in the event that an employee incurs a job-related injury, the following procedures shall apply.

7.D. EXCUSED ABSENCES/ADMINISTRATIVE LEAVE
Employees are entitled up to 45 calendar days of COP because of temporary total disability or temporary partial disability due to a job related injury that is substantiated by medical report(s). A maximum of 45 calendar days per injury is allowed. The 45 calendar days begin the day following the injury.

7.E. JURY DUTY

7.E.1. An employee, who is called for jury duty in any court in the Island of Guam, shall be excused from duty with full pay and without charge to leave for all hours required for such duty, not to exceed the number of hours in the employee's normal work day.

7.E.2. An employee called for jury duty is required to show the Jury Duty Call Notification to his supervisor.

7.E.3. Supervisors are responsible for advising employees that all compensation earned for such jury service, except allowances for travel, must be paid to GWA, in accordance with Section 6505, Chapter 6, Title 4 of the Guam Code Annotated. An employee may elect to request for annual leave for the purpose of jury duty service, in which case the employee may keep the compensation earned for such jury duty.

7.F. NATURAL DISASTERS AND OTHER EMERGENCY CONDITIONS

7.F.1. Administrative leave, unless required to work, shall be granted to employees when natural disasters or other emergency conditions create unsafe working conditions.

7.F.2. Excused absence, for natural disaster or other emergency conditions, may be granted only when there has been an official proclamation of the hazardous conditions from the CCU, GWA General Manager, or the Governor of Guam.

7.F.3. When Emergency has been declared, the General Manager shall determine whether affected facilities or portions thereof, covered by the proclamation, are to be closed.

7.F.4. Except for those employees determined by the General Manager to be necessary for

providing essential services, employees shall be released from duty with pay, without charge to leave, for the period the facility is closed.

7.F.5. Employees who are on annual or sick leave status when an emergency condition is declared and are not required to report to duty, shall be considered as released from duty with pay without charge to leave for the period the work facility is closed.

7.G. ABSENCE PENDING FORMAL INVESTIGATION

An employee, who is under formal investigation for misconduct, or violation of a rule or statute, may be placed on excused absence from duty without charge to leave, when the employee's absence from the work location is essential to the investigation.

7.H. BEREAVEMENT LEAVE

A. An employee, upon request, shall be granted two days of excused absence with pay, and without charge to leave upon the death of any member of the employee's immediate family.

7.I. PATERNITY LEAVE

A. Paternity leave shall be granted to a male employee occupying a permanent position upon the birth of a child, or children by his wife, including common-law.

B. Paternity leave shall not exceed 20 days of paid leave and must encompass the date of childbirth.

7.J. MATERNITY LEAVE

7.J.1. Pregnant employees are responsible for notifying their supervisor, in advance, of their intention to request leave for maternity purposes including the type of leave, approximate dates and anticipated date of return to duty, to allow the agency time to prepare for any staffing adjustments which may be necessary. The supervisor is responsible for providing gainful employment and making use of the employee's skills for as long as the employee is not incapacitated for duty.

7.J. 2. Sick leave shall be made available during pregnancy to cover for physical examinations and periods of incapacitation based on certification by the employee's physician. An employee may request for annual or sick leave, or leave without pay (in addition to the authorized maternity leave) to provide for a reasonable period of adjustment, or to make arrangements for the care of the child.

7.J. 3. An employee who wishes to return to work following delivery shall be assured continued employment in her position or a position of like seniority, status and pay upon presentation of her personal physician's certification of fitness for duty.

7.J. 4. The marital status of the pregnant employee shall not adversely affect her right to continued employment or use of leave.

7. J.5. GRANTING OF MATERNITY LEAVE

a. Maternity leave shall be granted to a female employee occupying a permanent position who is absent from work as a result of childbirth. Such maternity leave shall not exceed 20 days encompassing the date of childbirth. Any additional leave taken for such childbirth purpose, may be charged against accumulated sick leave, or may be unpaid leave, at the option of the employee.

b. Total leave, whether maternity, sick or unpaid leave, shall not exceed twenty days without approval of the employee's supervisor, and must be based on medical need as certified by a licensed doctor.

7.K. PARENTAL INVOLVEMENT INITIATIVE LEAVE

7.K.1. An employee of the Government of Guam, who is a parent or legal guardian and who is not otherwise prohibited from such contact with his child by order of a court, may use up to four (4) hours every two (2) pay periods to meet with a teacher or other school official concerning the employee's child's performance or behavior or to volunteer parental-involvement time at his child's school.

7.K.2. The four (4) hours every two (2) pay periods may be utilized at the arrangement of the employee with the employee's supervisor, and may be split into smaller separate segments over the two (2) pay period time frame.

7.K.3. An employee requesting such leave shall submit a request to his supervisor in advanced, and is required to obtain from his child's teacher or school official a signed certification that the employee has visited the school for an official conference or function. Such requests may be denied for good cause.

7.L. LEAVE WITHOUT PAY

7.L.1. Leave without pay is a temporary non-pay status and an absence granted in response to an employee's request. Leave without pay covers only those hours which an employee would otherwise work or, for which he would be paid. Employees may request leave without pay for good cause when their current authorized annual or sick leave with pay, will not cover the total period of requested leave. Such request may be denied for good cause. All LWOP requests must be approved by the GWA G.M.

7.L.2. When an employee is on leave without pay status, accrual of sick, annual or retirement credit is not allowed.

ARTICLE VIII

8. EMPLOYEES WITH DISABILITIES

8.A. PLACEMENT OF EMPLOYEES WHO BECOME MEDICALLY NON-QUALIFIED

8.A.1. The provisions of this section shall apply to permanent employees who become medically non-qualified and to original probationary employees with a service connected disability.

8.A.2. It is the responsibility of GWA to assure, to the extent possible, the continued employment of employees who become disabled as a result of an injury, accident or illness that is not a result of misconduct, or who are found to be medically non-qualified for their present position, but who are medically qualified for other types of positions within GWA.

8.A.3. The employee shall be examined at the expense of GWA by a government or private physician or physicians, in such field or fields of medicine and/or psychiatry as may be applicable to evaluate the employee's qualifications for his present position, or assess his current physical and emotional capacities and/or evaluate his qualifications for a vacancy for which he is being considered under the provisions of this section.

8.A.4. Employees affected by this rule shall be considered for those vacancies for which they qualify.

8.A.5. In the placement of employees with a disability, the following should be taken into account:
a. The ability of the employee to safely perform the duties of the position without undue interruption to the work program and/or undue hardship on the operations of the program.
b. The ability of the employee to absorb any required training or retraining.
c. The mutual interest of both GWA and the employee.
d. If demotion is involved, whether or not initiated by the employee, he shall be compensated in accordance with GWA Personnel Rule and Regulation.

8.B. PLACEMENT OF EMPLOYEES WITH DISABILITIES

8.B.1. After medical, physical, or psychological reevaluation, an employee who is no longer qualified to perform the duties of his position satisfactorily within a stated reasonable period of time and in spite of reasonable accommodations due to a permanent medical physical or mental incapacity, the General Manager shall take the following action:
a. Transfer and re-assign the employee to an equivalent position elsewhere in GWA;
b. Promote the employee; or
c. Reassign the employee to a lower graded position elsewhere in GWA, if no equivalent position is available.

8.B.2. If there is no appropriate position in which the employee can be placed within GWA, the General Manager will coordinate placement of the employee in a suitable position with other Government of Guam departments and agencies. If an appropriate vacancy is found, the receiving department or agency may process the appropriate action to employ the employee who is medically disabled consistent with personnel rules of that department or agency and provisions of the ADA.

8.C. REASONABLE ACCOMMODATION

Every effort shall be made by the General Manager to provide reasonable accommodations to assure continued employment.

8.D. TERMINATION OF EMPLOYMENT
The General Manager shall terminate the employment of the employee:

8.D.1. If no suitable placement can be made or if the employee refuses placement in a suitable position.

8.D.2. If the employee refuses retirement.

8.D.3. If the General Manager has evidence that the employee is permanently disabled from performing the job, or will be disabled for a long time that termination is necessary in light of demonstrated business realities. Such termination action shall be consistent with Adverse Action Procedures.

ARTICLE IX

9. MISCELLANEOUS PROVISIONS

9. A. RESIGNATION PENDING ADVERSE ACTION
An employee who resigns after receipt of a notice of proposed adverse action is deemed to have resigned voluntarily. No record of the proposed adverse action shall be kept by the agency.

9.B. SAFETY STANDARDS
The minimum safety standards shall be those established in the Occupational Safety and Health Code (Chapter 87, Title 10 of the Guam Code Annotated) and administered by the Division of Occupational Safety and Health, Department of Labor.

9.C. DRUG FREE WORK PLACE
It is the rule of the GWA to prohibit the manufacture, distribution, dispensation, possession or use of a controlled substance on or off the workplace. Any employee who violates this rule will be subject to disciplinary action.
Note: Refer to Drug Free manual on the Implementation Procedures of
the Drug-Free Workplace Program Policy adopted by the GWA.

9.D. PERSONNEL FILE

9.D.1. Derogatory Material: GWA shall notify the employee if derogatory or confidential material is placed in his file.

9.D.2. Right to Respond: The employee shall have the right to submit a response to derogatory material or statements. Such response shall be attached to and filed with the material or statement in the employee's official personnel file. No anonymous reports shall be filed in the employee's personnel file.

9.D.3. Employee's Right to Access File

Besides the right to inspect his personnel file and the right to an opportunity to respond to derogatory material in his file, as delineated above, each employee shall have the following rights regarding his personnel file:

a. No material in the file may be made confidential as to the employee; he must have the opportunity to know its contents.

b. In the event the employee disagrees with or considers any documented information or material untrue, he may resort to the grievance procedures;

c. The employee shall have the right to duplicate any material in his file including employment application forms, police clearance, TB clearance, High School/College Diploma and/or Transcripts, etc.

d. The employee shall have the right to submit to the Personnel Office for his personnel file any material of merit which is relevant to his performance within the GWA.

e. GWA may reject any material that is irrelevant or inappropriate that is submitted under item #4.

9.D.4. Duration of Disciplinary Action

Memorandum of Concern, Warning, Counseling, or Reprimand against an employee will be kept in the employee's personnel record.

ARTICLE X

MISCELLANEOUS PROVISIONS

10.A. SEVERABILITY

In the event that any portion of this Agreement, in whole or in part, is declared to be illegal, void or invalid by any court of competent jurisdiction, all other items, conditions and provisions of this Agreement shall remain in full force and effect to the same extent as if that provision had never been incorporated in this Agreement, and in such event the remainder of this Agreement shall continue to be binding upon the parties thereto.

10.B. SAVINGS

10.B.1 Grievances initiated under this Agreement (or as extended) and pending on the execution hereof beyond the life of this Agreement are saved and may be prosecuted by the aggrieved party as though the Agreement is still in force.

10.B.2 Leave entitlement and balances are not affected by expiration of the Agreement

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10.C. NEGOTIATIONS

10.C.1 If either party desires to modify any or all parts of this Agreement for a successive term that party may give written notice of the same to the other party at any time. A jointly developed schedule for negotiations shall be completed and negotiations shall commence not later than 60 days thereafter.

10.C.2 Upon the request of either party, the other shall make available for inspection and copying, documents and records pertinent to the subject of negotiations. Both parties have the right to request that their most recent proposals be answered by a written counterproposal.

10.C.3 An article, or portion thereof, is considered a tentative agreement only when mutually signed and dated by both parties. All tentative agreements are subject to formal ratification by the Board and the Union.

10.C.4 When tentative agreements have been negotiated on all matters submitted by the parties, the Agreement shall be reduced to writing and presented to the Union for ratification. The Union shall have fifteen (15) days in which to present a written report to the Board of their action. Following such ratification, the Agreement shall be subject to ratification by the Board that shall take place within fifteen (15) days of the date the Union notifies the Board of ratification. The Agreement shall then be forwarded to the Attorney General and-the Governor.

10.D. PRINTING AND POSTING OF THIS AGREEMENT

Both the Union and the Board retain the right to print this Agreement, and subsequent modifications, if any. The Union shall be responsible for the printing and distribution of the Agreement to its dues paying members. The Board agrees that it shall be responsible for printing and distribution of this Agreement for the managers of the GWA. Copies of the Agreement shall be posted on both the Waterworks Authority's and the Unions web site. Both the Union and Board may make printed copies of the Agreement available for purchase to all others.

10.E. EFFECTIVE DATES OF AGREEMENT, TERM AND AMENDMENTS.

10.E.1 This Agreement may be amended in whole or in part as specified in Section 10.C. (subject to GWA board approval and other approvals required to be obtained by the Union). Both parties agree to review and negotiate any request in good faith.

10.E.2 This contract shall be effective on the date the last signature is affixed hereto. The contract shall be for a period of one year term subject to annual renewal upon the mutual written consent of the parties.

In Witness Whereof, the parties hereto, through their duly authorized representatives, hereby execute this Agreement on the date indicated below:

Approved by GWA:

Mark G. Miller — 4/23/2015
Interim General Manager — Date

CCU Chairperson — 3/21/16 — Date

Ratified for the Union:

Daniel Del Priore — 23 March 2015
Daniel Del Priore — Date
Chief Negotiator

Timothy Fedenko, President — 7/27/2015 — Date

Exhibit B

MEMORANDUM OF UNDERSTANDING AUTHORIZING RENEWAL OF THE COLLECTIVE BARGAINING AGREEMENT BETWEEN GUAM WATERWORKS AUHORITY AND THE GUAM FEDERATION OF TEACHERS UNION

This Memorandum of Understanding (*MOU*) is by and between the Guam Federation of Teachers Union (*GFTU*), herein represented by its President, **SANJAY SHARMA** and Guam Waterworks Authority (*GWA*), herein represented by its General Manager, **MIGUEL BORDALLO** with consent of the Consolidated Commission on Utilities.

GFTU and GWA shall herein collectively referred to as *The Parties*.

WHEREAS, the current Collective Bargaining Agreement (*CBA*) renewal executed by the parties in April of 2017 will expire in May 2018.

WHEREAS, the parties wish to be governed for another year under the same terms and conditions provided in the CBA.

WHEREAS, consistent with the Section 10.E.2 of the CBA, the parties are allowed to renew the CBA for an additional year beginning on the date this MOU is signed by GWA's General Manager.

NOW THEREFORE, in consideration of the foregoing premise, the parties do hereby agree to:

1. Renew the CBA (herein attached as Exhibit *"A"*) previously executed by the parties for a one-year period commencing on the date signed by the General Manager of Guam Waterworks Authority after consent by the Consolidated Commission on Utilities in accordance with Guam law.

In Witness Whereof, the parties, through their duly authorized representatives, hereby execute this MOU by affixing their signatures herein below.

MIGUEL C. BORDALLO, P.E. **date**
General Manager, GWA

SANJAY SHARMA
President, GFTU

JOSEPH T. DUENAS
Chairman of the Consolidated Commission on Utilities

Exhibit C

DECLARATION OF IRISH OLIVARES

I, Irish Olivares, do hereby state and affirm that I am an Organizer for the Guam Federation of Teachers, and in that capacity, I have coordinated the arrangements for the Ratification Vote of the Renewal of the GFT-GWA Collective Bargaining Agreement, and accompanying Memorandum of Understanding, and to accomplish this I have carried-out or caused to be carried-out the following:

A) Publication of the Renewal of the GFT-GWA CBA; with the CBA attached as exhibit "A", and the accompanying Memorandum of Understanding; these were made available to all of the GFT Members who are employed by GWA; as well as written Notice of the Day, Times and Places for the Ratification Vote to take place.
B) A phone bank was conducted by the GFT Staff the day before the Ratification Vote to reach-out and remind Members of the Voting Day, Times and Places.
C) All of the identified Voting Places were properly manned and voting boxes were available for voting to take place at all of the locations and at the times specified.
D) The First Voter at each location witnessed that the pertinent ballot box was empty, and that the Pad-Lock for the Ballot Box was secured, and the Members could then proceed to cast their confidential vote.
E) At the conclusion of the voting, the Ballot Boxes were returned to the GFT Office; where they were unlocked and opened one-by-one, and the tabulation of the voting was conducted by a Member of the GFT Election Committee, and I was also present at that time to witness it.
F) The Ratification Voting was unanimously in favor of Ratification; for both the CBA and the MOU.

I am also aware that Sanjay Sharma is the President and Chief-Executive-Officer of GFT, and as such he is authorized to sign on behalf of GFT the CBAs, and any related MOU, for GFT as to the Government of Guam Collective Bargaining Agreements; after they have been ratified by a vote of the then voting GFT Members, and the GFT Executive Council.

I declare under penalty of perjury under the Laws of Guam, that the foregoing is true and correct; of my own belief and personal knowledge. Dated this 16th Day of May 2018.

Irish Olivares, Organizer

AFT Local 1581 (GFT)

AFL-CIO

Exhibit D

DECLARATION OF SANJAY SHARMA AND CORA MUCHO

I, Sanjay Sharma, do hereby state and affirm that I am the elected President, and that Cora Mucho is the elected Secretary of the Guam Federation of Teachers. In the foregoing capacities, we attended and took the Minutes for the Executive Council Meeting of the GFT, the governing body for the GFT, on Monday 7 May 2018; held at the GFT's Offices in Mangilao, Guam. The Meeting of the Executive Council was duly called, a quorum was present, and an item on the Agenda was the Renewal of the GFT-GWA Collective Bargaining Agreement; and the related Memorandum of Understanding between the parties.

In the course of the Meeting of the GFT Executive Council a Motion was made, and properly Seconded, that the GFT confirm its approval of the Renewal Agreement pertaining to the GFT-GWA CBA, and the related MOU.

The above referenced Motion, after discussion, was unanimously passed by the GFT Executive Council.

We, the undersigned, declare under penalty of perjury under the Laws of Guam, that the foregoing is true and correct; of our own belief and personal knowledge, and this Declaration is prepared and executed in our above stated positions as the President and Secretary of the Guam Federation of Teachers respectively.

Dated this 15th Day of May 2018

Sanjay Sharma, President

Guam Federation of Teachers

Conforme:

Dated this 16 Day of May 2018

Cora Mucho, Secretary

Guam Federation of Teachers

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
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Tel: (671) 300-6846

Issues for Decision

Resolution No. 36-FY2018
Relative to Approval of the Design Services for the Pressure Zone Realignment and Tank Repair/Replacement Contract

What is the project's objective and is it necessary and urgent?
The design for the Pressure Zone Realignment and Tank Repair/Replacement project is based on work required to accomplish zone realignment and system improvements in the draft 2017 Water Resource Master Plan. The key elements of this project are divided into several tasks:

1. Pressure zone realignment
2. Zone metering
3. Hydraulic modeling
4. Tank repair/replacement/modification and site upgrades
5. Water audit and trial district metering areas
6. Limited construction management services for pressure zone construction work

This project is necessary in order for GWA to have a properly functioning water system, which includes proper pressure zoning, metering, working facilities (tanks, bps, and all other critical facilities).

Where is the location?
The project encompasses the entire island.

The pressure zone areas (22) include the following:

1	Yigo North	12	Harmon Industrial
2	Yigo South	13	Tumon/Tamuning/Hagatna North
3	Astumbo	14	Tumon/Tamuning/Hagatna Central
4	Route 15	15	Tiyan
5	Barrigada	16	Mangilao
6	Barrigada Subzone	17	Ordot/Sinajana
7	Hyundai	18	Pago Bay
8	Hyundai Subzone	19	Santa Ana Lower
9	Mangilao North	20	Santa Ana Upper
10	Mangilao Central	21	Chalan Palaun
11	Kaiser	22	Santa Rita

The tanks (10) include the following:

1	Umatac Subdivision	6	Agat No. 1
2	Windward Hills	7	Malojloj
3	Umatac No. 1	8	Upper Nimitz
4	Kaiser	9	Lower Nimitz
5	Pigua	10	Agat No. 2

How much will it cost?
The fee proposal from the A/E is for Two Million Five Hundred Thirty-Nine Thousand Nine Hundred Ninety-One Dollars ($2,539,991.00).

With a ten percent (10%) contingency in the amount of Two Hundred Fifty-Three Thousand Nine Hundred Ninety-Nine Dollars and Ten Cents ($253,999.10) included, the total authorized funding requested is Two Million Seven Hundred Ninety-Three Thousand Nine Hundred Ninety Dollars and Ten Cents ($2,793,990.10).

When will it be completed?
GWA expects to complete all design within 18 months; however, project duration may extend depending on property issues or acquisition. The A/E is aware that the project may extend.

What is the funding source?
- PW 09-04: Pressure Zone Realignment/Development 2005 Improvements
- PW 09-10: Water Reservoir Internal/External Corrosion Rehabilitation Program
- PW 09-11: Water System Reservoirs 2005 Improvements
- PW 12-01: Water Audit Program and Water Loss Control Plan

The RFP responses:
- RFP-03-ENG-2018
- 20 firms RFP picked up
- 5 firms submitted
- GHD recommended for award

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. 36–FY2018

RELATIVE TO APPROVAL OF THE DESIGN SERVICES FOR THE PRESSURE ZONE REALIGNMENT AND TANK REPAIR/REPLACEMENT CONTRACT

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 is working on critical reservoir projects under the 2011 Court Order ("CO") Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, GWA's PMO Brown and Caldwell has developed a pressure zone realignment plan as part of the Water Resource Master Plan (2017 Draft WRMP); and

WHEREAS, engineering and design services are required to integrate the improvements needed for realigning pressure zones within the distribution system, and the on-going 2011 CO storage tank/reservoir program; and

WHEREAS, GWA has advertised the Request for Proposals (RFP-03-ENG-2018) soliciting statement of qualifications from experienced and qualified engineering firms to provide tank repair/replacement/modification design, pressure zone realignment and zone metering design, and limited construction management services for the implementation of the pressure zone realignment construction; and

WHEREAS, RFP packages were picked up by twenty (20) interested parties, from which GWA received proposal submittals from five (5) firms before the RFP submittal deadline; and

WHEREAS, the GWA A-E Selection committee reviewed and evaluated the five (5) proposals (See Exhibit A – Score Summary) and generated a short list of the top 3 firms with a recommendation to award a contract to the firm GHD (See Exhibit B – GM's Determination); and

WHEREAS, GWA and GHD negotiated the price and scope of work for tank repair/replacement/modification design, the pressure zone realignment design (22 pressure zones), including zone metering, as recommended by the 2017 Draft WRMP, limited construction management services (estimated time & materials budget) for the implementation of the pressure zone realignment construction and an AWWA water audit, including three trial district metering areas (See Exhibit C – Scope of Work and Fee); and

WHEREAS, GWA management seeks approval of the estimated fee proposal amount of Two Million Five Hundred Thirty-Nine Thousand Nine Hundred Ninety-One Dollars ($2,539,991.00), along with a ten percent (10%) contingency of Two Hundred Fifty-Three Thousand Nine Hundred Ninety-Nine Dollars and Ten Cents ($253,999.10), to bring the total authorized funding amount to a maximum of Two Million Seven Hundred Ninety-Three Thousand Nine Hundred Ninety Dollars and Ten Cents ($2,793,990.10); and

WHEREAS, funding for this project will be from the Bond Funds under the line items PW 09-04 Pressure Zone Realignment/Development 2005 Improvements, PW 09-10 Water Reservoir Internal/External Corrosion Rehabilitation Program, PW 09-11 Water System Reservoirs 2005 Improvements, and PW 12-01 Water Audit Program and Water Loss Control Plan; 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 fee proposal submitted by GHD are fair and reasonable.
3. The CCU hereby authorizes the management to accept the fee proposal from GHD (Exhibit C) inclusive of estimated time and material budget for limited CM services, which is also incorporated into this Resolution in its entirety.
4. The CCU hereby authorizes the management of GWA to enter into a contract with GHD, in the amount of Two Million Five Hundred Thirty-Nine Thousand Nine Hundred Ninety-One Dollars and Zero Cents ($2,539,991.00).
5. The CCU hereby approves the total funding amount for this project of Two Million Five Hundred Thirty-Nine Thousand Nine Hundred Ninety-One Dollars ($2,539,991.00), with a ten percent (10%) contingency of Two Hundred Fifty-Three Thousand Nine Hundred Ninety-Nine Dollars and Ten Cents ($253,999.10), to bring the total authorized funding amount to Two Million Seven Hundred Ninety-Three Thousand Nine Hundred Ninety Dollars and Ten Cents ($2,793,990.10).
6. The CCU hereby further approved the funding source shall be the following:
   - PW 09-04: Pressure Zone Realignment/Development 2005 Improvements
   - PW 09-10: Water Reservoir Internal/External Corrosion Rehabilitation Program
   - PW 09-11: Water System Reservoirs 2005 Improvements
   - PW 12-01: Water Audit Program and Water Loss Control Plan

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

DULY AND REGULARLY ADOPTED, this 5th day of June 2018.

Certified by:

_____
JOSEPH T. DUENAS
Chairperson

Attested by:

_____
J. GEORGE BAMBA
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 1 of 1

GUAM WATERWORKS AUTHORITY
Gloria B. Nelson Public Service Building • 688 Route 15 • Mangilao, Guam 96913

March 7, 2018

To: Thomas F. Cruz, P.E., Chief Engineer

From: Gloria P. Bensan
Chairperson, Consultant Selection Board

Subject: RFP-03-ENG-2018
Design Services for Pressure Zone Realignment and Tank Repair/Replacement
GWA Project No. W18-001-BND

The following information is intended to document the evaluation process undertaken for the referenced solicitation.

EVALUATION COMMITTEE MEMBERS	
Name	**Title**
Brett Railey, P.E.	Engineer Supervisor
Garrett Yeoh	Senior Engineer
Ryan Diaz	Junior Engineer
Vincent Pangelinan	Operations Manager

Consultant	Evaluation Score				Total	Rank
1. EMPSCO Engineering Consultants	65	63	78	66	272	5
2. TG Engineers, PC	68	80	87	81	316	4
3. GHD	96	98	97	88	379	1
4. AECOM Technical Services	91	95	98	89	373	2
5. Duenas, Camacho & Associates	82	80	96	81	339	3

Scores were evaluated based on sum of the individual scores. The recommendation of the evaluation committee is shown in the ranking above.

Please review and approve at your earliest convenience so that we may proceed with the notification letters.

Exhibit B 1 of 1

GUAM WATERWORKS AUTHORITY
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Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

MEMORANDUM

To: Miguel C. Bordallo, General Manager

From: Thomas F. Cruz, P.E., Chief Engineer

Subject: RFP-03-ENG-2018
Design Services for Pressure Zone Realignment and Tank Repair/Replacement
GWA Project No. W18-001-BND

Date: March 7, 2018

The Selection Committee has completed all necessary actions for selecting the most qualified consultant for the referenced solicitation. All proposals were reviewed and scored according to the conditions established in the solicitation. The evaluation summary sheet is attached for your information.

The committee recommends the following top three (3) firms in order of preference for the project:

1. GHD
2. AECOM Technical Services, Inc
3. Duenas, Camacho & Associates

Concurred:

VINCENT E. GUERRERO
Supply Management Administrator

5/7/18
Date

GENERAL MANAGER'S DETERMINATION

Consultant Firm Selected:

GHD

Remarks:

MIGUEL C. BORDALLO, P.E.
General Manager

3.13.18
Date

GWA Pressure Zone Realignment and Tank Repair/Replacement Design Scope of Work and Fees

I. GENERAL

GHD will provide design and construction management services for the Pressure Zone Realignment and Tank Repair/Replacement Project. The design services will consist of site investigations, preparation of plans, specifications, and estimates to construct improvements recommended in the Pressure Zone Realignment and Pressure Improvement report prepared by Brown and Caldwell completed in 2017. Project design tasks include review of Brown and Caldwell's report, investigation of GWA's existing system and comparison to the report figures, Basis of Design reports, design calculations, hydraulic modelling, construction schedule estimates, topographical surveys, property research, property mapping, geotechnical reports, cultural resource inventory and evaluation of historic resources, construction documents, design drawings in Auto CAD, and construction bid support services.

The construction management tasks include onsite inspection and inspection reports, project correspondence, Quality Assurance testing, submittal review, contractor schedule review, payment request review, and progress meetings.

Reports, plans, specifications and other documents submitted to GWA shall be in a form approved by GWA.

II. PROJECT OVERVIEW

The design for the Pressure Zone Realignment and Tank Repair/Replacement Project is based on work required to accomplish the zone realignment in the above mentioned report by Brown and Caldwell, and steel tank repair or replacement as needed. The project is divided into three general tasks, the key elements and details of the scope of work are described for each:

A. Pressure Zone Realignment and Zone Metering

Appendices G and H of the Pressure Zone Realignment and Pressure Improvement report show a multitude of improvements and changes to the system over 53 zones. GHD will review and analyse the report appendices. The analysis will mainly consist of verification of existing infrastructure shown in the appendices by comparing as-built drawings and site visits. If discrepancies are found, alternative designs will be presented

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to provide the same result as intended by the report. GHD will not analyse the report for effectiveness of improvements to realign the zones.

Individual improvements that may be designed are pressure reducing valves (PRV) in vaults, master meters in vaults, in-line valves to be closed, abandonment of existing PRVs, PRV rehabs, piping connections, new waterlines, and SCADA and instrumentation systems.

GHD will sub-contract Water Systems Optimization, Inc. (WSO) to perform a water audit, analysis of losses, GWA's economic level of leakage, and implement three pilot District Metered Areas (DMA). The scope from WSO will be approved by GWA. GHD will provide only minimal project management and coordination support to WSO's scope of work and no design effort is included.

B. Hydraulic Modelling

The hydraulic modelling scope will be limited to updating the model once improvements are completed. Hydraulic modelling will also be used to determine the setting of new and replaced PRVs.

C. Tank Repair and Site Upgrades

The project includes possible repairs to ten existing steel reservoirs. The tanks are listed in the table below.

Table 2.1 Tank to Repair

Number	Tank Name	Capacity (MG)	Status	Inspected
1	Umatac Subdivision	0.5	Online	No
2	Windward Hills	1.0	Online	No
3	Umatac #1	0.2	Online	No
4	Kaiser	2.5	Online	No
5	Pigua	0.5	Online	No
6	Agat #1	1.0	Online	No
7	Malojloj	1.0	Online	No
8	Upper Nimitz	0.01	Online	Yes
9	Lower Nimitz	0.025	Offline	Yes
10	Agat #2	0.5	Online	Yes

GHD will provide construction management services for the repair of the existing steel tanks listed in Table 2.1. GWA will determine which tanks are to be repaired or

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replaced. The fees for construction management services will be awarded through change orders to the contract as needed.

Tank site upgrades may include cathodic protection systems, instrumentation systems, new vaults, altitude valves, meters, piping, and a control building. The needs of each site will be determined by GWA.

III. DESIGN PHASE TASKS

A. Project Controls:

These services shall be provided to insure the project is efficiently managed and sufficient data is collected to provide a thorough design.

The project controls for each site or improvement shall consist of:

1. Analysis of the existing site conditions and on-site inspection – GHD shall visit each site to determine existing conditions and system configurations including
    a. Existing site conditions and facilities
    b. Existing site operation
    c. Proposed site improvements
    d. Preliminary site layout
    e. Research existing Right-of-Way
    f. Demolition requirements
    g. Minor grading requirements
    h. Piping and valving requirements
    i. Operational requirements
    j. Electrical power supply
    k. Construction sequencing
    l. Future expandability as needed
2. Survey Services – GHD will contract with a subconsultant to provide surveying services at each site as listed in the fee proposal, consisting of property boundary or Right-of-way (ROW), topographic field survey, and preparation of topographical mapping. These services include preparation of topographical and boundary/ROW mapping of the improvement or tank site including existing facilities above ground within the project area and adjacent sites which may be impacted. The GHD team will make all necessary research for determination of land ownership.

B. Design:

1. GHD will prepare construction drawings, specifications, cost estimates, supporting design calculations, and other documents necessary for project construction.

a. The design plans will include necessary piping, valving, fittings, and appurtenances to connect to the existing water system. The plan will also include necessary erosion control measures such as erosion control seeding, silt fencing, protection of stockpiled materials, and other necessary measures to mitigate the impact of erosion and sedimentation.
b. GHD will prepare and submit the following:
    - Multidiscipline plans to the 30% (preliminary design), 60%, 90%, and 100% completion levels.
    - Specifications at 60%, 90%, and 100% completion levels, which will include front end documents and technical specifications applicable to the indicated completion levels.
    - Construction cost estimate update at 60% completion level. This estimate will be a Class 3 estimate in accordance with the AACE International Cost Estimate Classification System. All costs will be in current dollars and escalated to the estimated midpoint of construction.
    - Final construction cost estimate based on quantity takeoffs and the requirements of the 100% design plans and specifications. This estimate will be a Class 2 estimate in accordance with the AACE International Cost Estimate Classification System. All costs will be in current dollars and escalated to the estimated midpoint of construction.
    - GHD shall coordinate with relevant agencies such as Guam Environmental Protection Agency, Department of Public Works, and other relevant agencies at the 60%, and 100% submittals. This includes submitting design documents (11x17 plans and specifications at both phases) and maintaining communication throughout the duration of the project and incorporating any relevant regulation requirements in the design.

Task B Deliverables: Deliverables to GWA will be provided in accordance with the following:

1. 30% phase
    a. 5 hard copies of the design development documents – if requested
    b. Digital copy of the design development documents
2. 60% phase
    a. 5 hard copies of the 60% design documents (plan submittal shall consist of 3 sets of 11"x17" sized drawings if requested)
    b. Digital copy of the 60% design documents
3. 90% phase
    a. 5 hard copies of the 90% design documents (plan submittal shall consist of 3 sets of 11"x17" sized drawings if requested)

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   b. Digital copy of the 90% design documents
4. Final phase
   a. 5 hard copies of the final design documents (plan submittal shall consist of 2 sets of 36"x24" sized drawings and 3 sets of 11"x17" sized drawings)
   b. Digital copy of the final design documents

IV. CONSTRUCTION PHASE TASKS

A. Construction Bid Support Services:

1. Pre-Bid Conference (4 total) - GHD shall assist GWA with the meeting and provide meeting minutes for the pre-bid conference. The pre-bid conference shall be arranged to inform prospective bidders of the overview of the project. GHD will be present to respond to technical questions involving the design and specifications and will provide formal responses within five working days of the meeting.
2. Request For Information – GHD will assist GWA with preparing answers to questions regarding the bid packages during the bidding phase.
3. Bid Addenda – GHD will provide addenda to the plans, specifications and contract documents as needed during the bidding phase.
4. Bid Evaluation (4 total) – Upon receipt of bids GHD will review the bid packages and provide GWA with a recommendation and/or concurrence on the proposed selected contractor. This will include a bid analysis, review of bid proposal prices, and conformance with contract requirements and the Guam Procurement Code. GHD will prepare a recommendation of award letter.

B. Construction Management Services:

GHD will assume a budget for time and material construction management services for the Pressure Zone Realignment and Zone Metering improvements. The budget assumes a part-time construction manager for four (4) different construction packages with a four month construction duration for each. If the assumed budget is depleted and additional construction management services are required, then GHD will negotiate a change order to the contract with GWA.

Construction Management Services shall consist of:

1. Implementation and maintenance of project controls
2. Conduct and prepare meeting minutes for
   a. Pre-construction conference
   b. Weekly or bi-weekly progress meetings
   c. As-built drawing review meetings
   d. Other meetings as required
3. Project correspondence including



   a. Daily construction reports
   b. Material testing logs
   c. Progress photos
4. Submittal and shop drawing review including Contractor project schedules
5. Payment requests review and processing including payroll reports
6. Track and process Requests for Information
7. General Compliance Monitoring for
   a. Labor laws
   b. Permit compliance
   c. insurance
8. Claims and disputes
   a. Claim records
   b. Review and interpret claims
   c. Change order review, negotiation and log
   d. Prepare design changes
9. Maintenance of project records and document management
10. Quality Assurance testing and inspection
11. Construction observation, part-time inspection and quality control monitoring
12. Provide special inspections as required
13. Project Closeout
   a. Inspections
   b. Punch list development
   c. Coordinate training
   d. Review closeout submittals
14. Final CM report

V. PROJECT PLANNING AND MANAGEMENT

The GHD team shall arrange for a bi-weekly design meeting with team members and GWA to discuss design issues, progress of work, and coordination. GHD shall prepare meeting minutes for all design progress meetings. The meeting minutes shall include action items from week to week. Separate hydraulic analysis team meetings will be held to streamline this time sensitive work.

GHD shall maintain an electronic project record which will include all project correspondence, reports, meeting minutes, deliverables, and other items required to document the project. GHD will communicate and coordinate with all stakeholders during the design, bid and construction phases.

CLARIFICATIONS AND ASSUMPTIONS:

1. The fee assumes items will be included in the design that may not be needed based on the analysis of the appendices of the report by Brown and Caldwell. If any item is

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not required, based on the analysis report, then the individual fee can be removed from the scope.

2. Assumed individual improvements for the project are listed on the attached Scope of Work Table. If design is required for other improvement, GHD will negotiate a change order to the contract.
3. GHD assumed Project Planning and Management will last for two years (104 weeks). If the project is extended past that time, additional fees will be negotiated with GWA.
4. Pressure Zone Realignment and Zone Metering:
    a. Improvements to the PRV/meter and existing tank sites will include only minimal grading design if required.
    b. A budget for construction management has been assumed. The budget was based on an estimate of one part-time inspector for four separate packages with four-month construction durations. The budget will be invoiced as time and material.
    c. Property investigation, appraisals, and boundary surveys are excluded.
    d. Design of remote control of three PRV sites via the SCADA system will be provided as trial for GWA.
    e. Refurbishment of existing PRV sites will only include the replacement of pipe, fittings and PRVs. Meters, electrical, SCADA and new vaults are excluded.
5. Hydraulic Modelling:
    a. Effort for hydraulic modelling has been assumed per improvement site as needed to verify the improvement is needed per the model prior to design and to update the model after construction. Hydraulic modelling will be used to determine the setting of the new PRVs in the project. No extensive modelling of the system or updating is included.
6. Tank Repair and Site Upgrades:
    a. The review of tank repair plans is excluded.
    b. The project will include repair for the ten tanks listed above and in the RFP. It is assumed that all ten tanks can be repaired. If, after further inspection, it is determined by GWA that an existing tank cannot be repaired, then GHD will negotiate a change to the scope of work to design an AWWA D110 Type I pre-stressed concrete replacement reservoir.
    c. Designs for improvements to existing tank sites may include cathodic protection systems, instrumentation systems, new vaults, altitude valves, meters, piping, a control building, other necessary tank and site upgrades. The needs of each site will be determined by GWA.
    d. Construction Management Services for repair of existing steel tanks will be awarded as needed through a change order to the contract.
    e. Hazardous material testing is excluded. Testing can be added through a change order to the contract if a tank is determined to be demolished and testing is deemed necessary.

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7. Data Loggers: An assumed budget of $525 per logger setup (x15), including lock and fittings. GHD will provide research of different brands and models by requesting experience from other GHD offices. There may not be any responses from the request resulting in no recommendation.
8. GHD will not prepare the construction permit applications, route the permits through the required government agencies, nor pay permit fees.
9. GHD will create four (4) separate bid packages for the pressure zone realignment. The improvements will be divided to provide four (4) packages with similar construction costs.
10. Fees are not included for GHD to revise or update bid packages that have expired due to a delay in advertising them for bid. GWA agrees to negotiate with GHD for change orders for additional work that may include such services as restamping plans and specifications, verifying design based on a change in the adopted building code or design standards, and preprinting of the bid packages.
11. GWA agrees to negotiate with GHD for change orders for additional design phase services due to additional work or any other reason not due to the negligent acts of GHD.

VI. FEE SCHEDULE

TASK	DESCRIPTION	COST
A	**Project Planning/Management**	
A1	Design Scope/Fee Development	$11,106
A2	Project Design Meetings (52, every two weeks)	$31,214
A3	Hydraulic Analysis Team Meetings (24)	$13,032
A4	Planning and Design Team Management	$54,300
A5	Project Communication/File Management	$14,118
A6	Subconsultant Management	$12,660
A7	Review of Pressure Zone Realignment Report	$5,430
A8	Project Administration/Invoicing	$14,832
A9	District Metered Areas (DMA) Study	$206,396
A10	Data Loggers (15)	$9,749
	SUBTOTAL	**$372,837**
	EXPENSES SUBTOTAL	**$7,068**
	PLANNING/MANAGEMENT & EXPENSES SUBTOTAL	**$379,905**
B	**Pressure Zone Realignment Tasks**	
B1.0	**Project Controls**	
B1.1	Plan Set Preparation (8)	$11,456
B1.2	Specifications General (8)	$19,794
B1.3	GEPA Review and Responses (8)	$4,074
B1.4	Design Review Meeting (8)	$3,076
	SUBTOTAL	$38,400
B2.0	**Pressure Zone Improvements Design**	

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G-4	Yigo North	$84,317
G-5	Yigo South	$9,052
G-7	Astumbo	$233,432
G-8	Route 15	$16,991
G-9	Barrigada	$158,416
G-10	Barrigada Subzone	$153,288
G-12	Hyundai	$10,290
G-13	Hyundai Subzone	$18,338
G-14	Mangilao North	$103,375
G-15	Mangilao Central	$50,758
G-16	Kaiser	$31,262
G-17	Harmon Industrial	$62,365
G-18	Tumon/Tamuning/Hagatna North	$68,231
G-19	Tumon/Tamuning/Hagatna Central	$13,415
G-21	Tiyan	$87,253
G-22	Mangilao	$112,016
G-23	Ordot/Sinajana	$171,192
G-25	Pago Bay	$34,435
G-31	Santa Rita	$10,855
G-32	Santa Ana Lower	$45,043
G-33	Santa Ana Upper	$13,403
G-52	Chalan Palauan	$17,726
B2.1	Tank Site Upgrades (assumed budget)	$160,000
	SUBTOTAL	**$1,665,453**
B3.0	**Construction Bid Support Services**	
B3.1	Prebid Conference and Meeting Minutes (8)	$2,896
B3.2	RFI Responses (assume 10 at 2 hr each, per package)	$14,480
B3.3	Bid Addenda	$4,992
B3.4	Bid analysis and recommendation (8)	$10,612
	SUBTOTAL	**$32,980**
B4.0	**Construction Management Services**	
B4.1	Assumed T&M Budget (4 packages, part-time CM, 4 mo. Constr. Ea)	$300,000
	SUBTOTAL	**$300,000**
	PRESSURE ZONE DESIGN SERVICES SUBTOTAL	**$2,036,833**
ALL	SUBTOTAL	$2,416,738
ALL	GRT AT 5.1%	$123,254
ALL	**GRAND TOTAL**	**$2,539,991**

GHD Inc. 865 South Marine Corps Drive Suite 202 Tamuning Guam 96913
T 1 671 472 6792 **F** 1 671 477 6229 **E** guam@ghd.com **W** www.ghd.com

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. 37- FY2018
Relative to Approving Expenditures for Security Services Contract in Excess of the General Manager's Authority

What is the project's objective and is it necessary and urgent?
There is an ongoing need to maintain the existing security services at several GWA facilities.

Where is the location?
GWA Upper Tumon Facility to include the main building and inside the customer service area, the laboratory, customer parking lot, and warehouse and FMES areas.

How much will it cost?
Approximately Two Hundred Thirty Thousand Dollars ($230,000.00) per year based on previous expenditures.

When will it be completed?
This contract ends at the end of FY 2018 and a new procurement will be initiated and a contract will be in place prior to the expiration.

What is the funding source?
~~Internal cash flow~~. Revenue funded.

The RFP/BID responses (if applicable):
N/A.

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. 37-FY2018

RELATIVE TO APRROVING EXPENDITURES FOR SECURITY SERVICES CONTRACT IN EXCESS OF THE GENERAL MANAGER'S AUTHORITY

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, in April of 2015, GWA entered into a 4-year agreement with G4S Secure Solutions "G4S" as a result of a formal procurement titled GWA IFB 2015-01; and

WHEREAS, the G4S agreement provided for an initial 1-year term with the second through fourth year renewable annually; and

WHEREAS, the second, third and fourth annual renewals on the agreement were exercised by GWA; and

WHEREAS, during the course of the last two renewal terms, additional security guards were needed due to the recent policy change to opening GWA customer service locations on Saturdays, and;

WHEREAS, as of the close of April invoicing this year, payments to the vendor exceeded the General Manager's authority by approximately Seventy-Five Thousand Dollars ($75,000.00) (See EXHIBIT A), and;

WHEREAS, the expenditures anticipated under the current contract period will bring the total amount expended to under $1,000,000.00; and

WHEREAS, GWA procurement will initiate a new procurement for security services in July of this year which will provide ample time to get a new services contract in place prior to the expiration of the current contract.

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 payment for Security Services currently provided on contract by G4S is reasonable, prudent and necessary (EXHIBIT A).
3. The payments to the vendor to date and going forward up to the amount of $1,000,000.00 are hereby ratified and approved.

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

DULY AND REGULARLY ADOPTED, this 5th day of June, 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

Guam Waterworks Authority
Summary of Security Service Expenditures (G4S Secure Solutions) on IFB 2015-01
Contract Period: March 01, 2015 - February 29, 2019
Report Period: March 01, 2015 - May 31, 2018

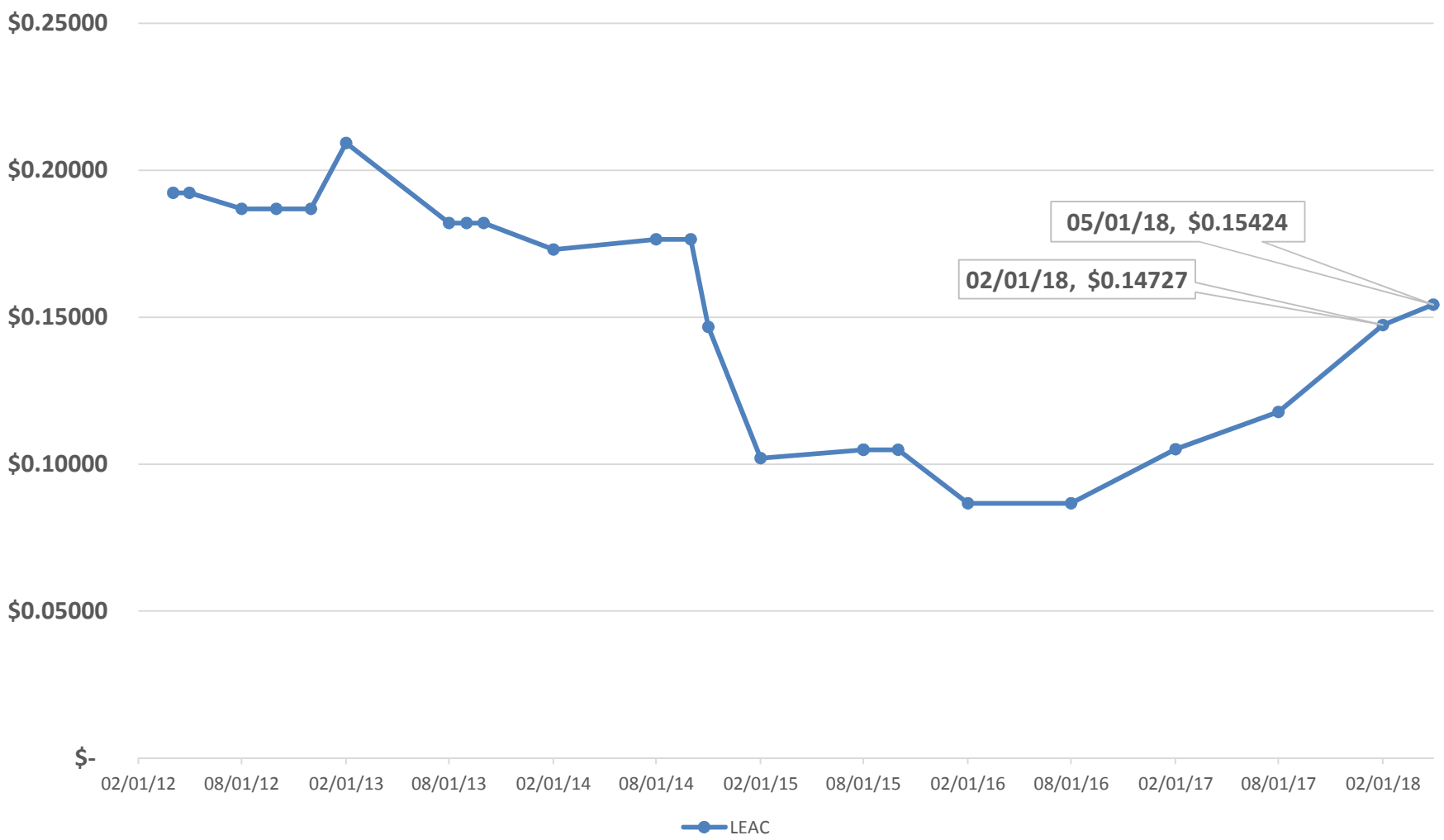
FY	Dates	Purchase Order	Amount Expended
2015	03/01/15 - 09/30/15	298185	132,096.82
2016	10/01/15 - 09/30/16	298876	246,012.71
2017	10/01/16 - 09/30/17	300001 / 300638	281,354.44
2018	10/01/17 - 04/30/18	301466	165,816.03
			$ 825,280.01

GM REPORT
Consolidated Commission on Utilities
June 5, 2018

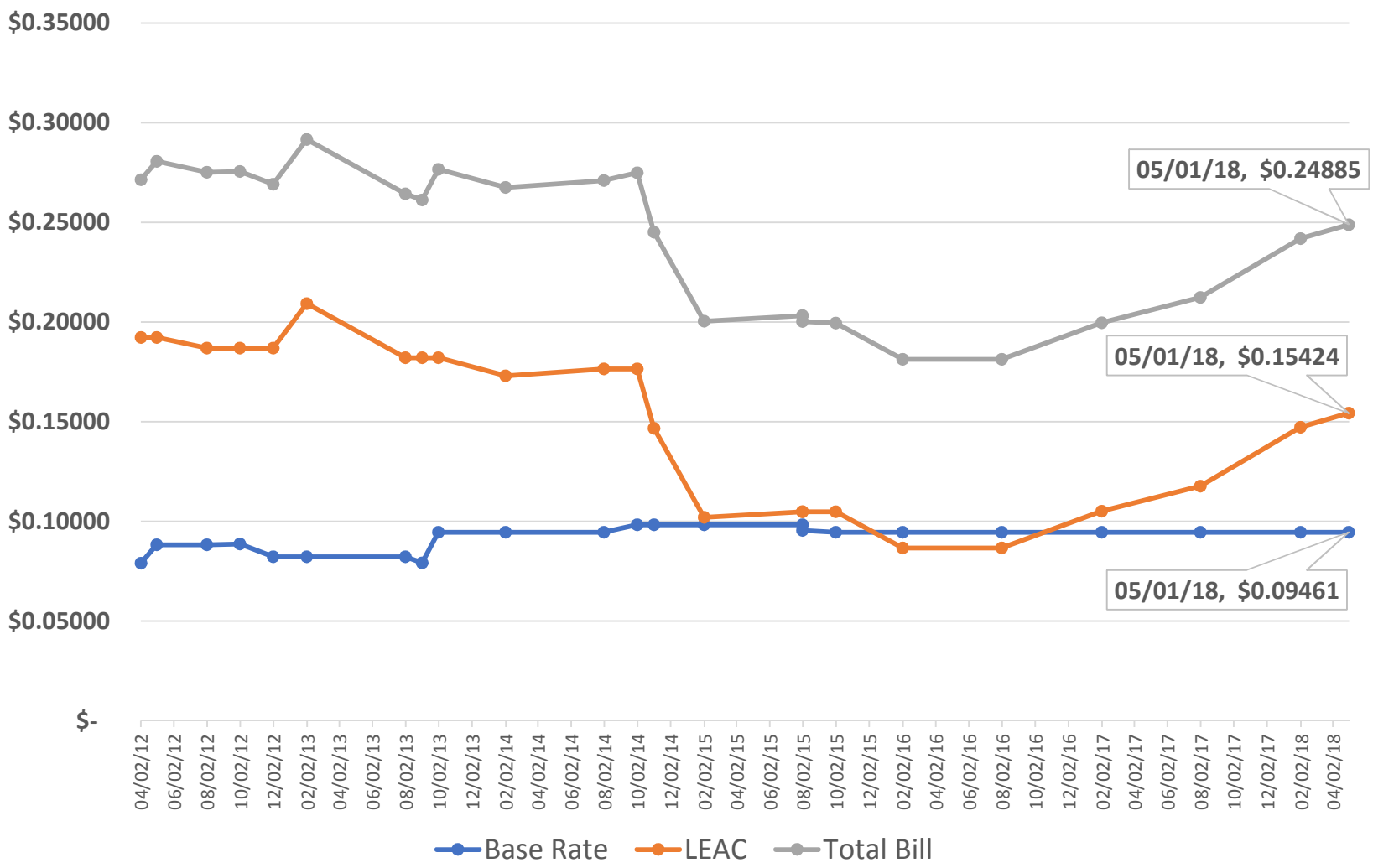
LEAC Update – GPA Fuel Purchases (Per Barrel)



Historical Residential LEAC Rate



Historical Residential Rate



Historical LEAC Over (Under) Recovery

LEAC Period From	LEAC Period To	Approved LEAC Rate	Actual Over (Under) Recovery	
4/1/2012	7/31/2012	$ 0.192310	$ (3,040,418)	
8/1/2012	1/31/2013	$ 0.186834	$ (2,494,052)	
2/1/2013	7/31/2013	$ 0.209271	$ 1,345,259	
8/1/2013	10/31/2013	$ 0.182054	$ 1,300,093	
2/1/2014	7/31/2014	$ 0.172986	$ (1,137,034)	
8/1/2014	10/31/2014	$ 0.176441	$ (4,646,872)	
11/1/2014	1/31/2015	$ 0.146666	$ 661,428	
2/1/2015	7/31/2015	$ 0.102054	$ 1,757,878	
8/1/2015	1/31/2016	$ 0.104871	$ (2,467,151)	
2/1/2016	7/31/2016	$ 0.086613	$ (2,668,603)	
8/1/2016	1/31/2017	$ 0.086613	$ (9,915,360)	
			$ (5,315,360)	a
2/1/2017	7/31/2017	$ 0.105051	$ (14,050,504)	
8/1/2017	1/31/2018	$ 0.117718	$ (16,775,982)	
2/1/2018	4/30/2018	$ 0.147266	$ (13,005,689)	
5/1/2018	7/31/2018	$ 0.154242	$ (9,460,187)	

a) Under-recovery Balance after applying the $4.6 million from the Cabras 3&4 Extra Expense claim

LEAC Update – Scenario Model Runs

	Proposed Effective 8/01/2018	Scenario 1 Fuel Price (May 7-11, 2018)		
		No Change in Fuel Price	@ Zero Cost Recovery	@ Full Cost Recovery
1	Average Price per Bbl-RFO	$ 65.23	$ 74.59	$ 74.59
2	Average Price per Gal-Diesel	$ 9.86	$ 97.05	$ 97.05
3	Proposed LEAC Rate	**$ 0.154242**	**$ 0.154242**	**$ 0.165100**
4	Monthly Increase/(Decrease) - 1000 kWh	$ -	$ -	$ 10.86
5	% Increase/(Decrease) in LEAC	0.00%	0.00%	7.04%
6	% Increase/(Decrease) in Total Bill	0.00%	0.00%	4.36%
7	Fuel Cost (Over) Under Recovery at the end of the period	**($3.0M)**	**$7.1M**	**$ -**

LEAC Update – Scenario Model Runs

	Proposed Effective 8/01/2018	Scenario 2 Fuel Price (May 24-June 1, 2018)		
		No Change in Fuel Price	@ Zero Cost Recovery	@ Full Cost Recovery
1	Average Price per Bbl-RFO	$ 65.23	$ 77.13	$ 77.13
2	Average Price per Gal-Diesel	$ 89.86	$ 98.54	$ 98.54
3	Proposed LEAC Rate	**$ 0.154242**	**$ 0.154242**	**$ 0.169464**
4	Monthly Increase/(Decrease) - 1000 kWh	$ -	$ -	$ 15.22
5	% Increase/(Decrease) in LEAC	0.00%	0.00%	9.87%
6	% Increase/(Decrease) in Total Bill	0.00%	0.00%	6.12%
7	Fuel Cost (Over) Under Recovery at the end of the period	**($3.0M)**	**$10.1M**	$ -

ISSUES FOR DECISION

RESOLUTIONS

GPA Resolution No. 2018-11

Authorizing the Management of the Guam Power Authority to Petition the Guam Public Utilities Commission for a Change in the Levelized Energy Adjustment Clause

What is the project's objective and is it necessary and urgent?
The objective of adjusting or not adjusting the Levelized Energy Adjustment Clause (LEAC) rate is to recover the cost of fuel and authorized fuel related expenses to the extent that it does not cause extraordinary hardships on GPA customers.

In the upcoming LEAC period, we are proposing not to change the current LEAC rate of $0.154242/kWh, however if the price of fuel increased above the estimated $77.13 per barrel, GPA will petition PUC for a new LEAC rate effective November 1, 2018.

Where is it at?
The LEAC rate affects all the rate payers**.**

How much will it cost?
The projected under-recovery for the LEAC period with no change to the rate is $10.1M by the end of the LEAC period on January 31, 2019.

When will it be completed?
The LEAC period covered in this resolution is from August 1, 2108 to January 31, 2019.

What is its funding source?
The funding source is the LEAC surcharge imposed on all ratepayers with the exception of the Navy. The Navy is billed on actual fuel cost basis each month.

The RFP/BID Responses:
No bid or RFP required for this petition.

GPA Resolution No. 2018-12

Relative to Hyundai RFO Fuel Contract Extension

What is the project's objective and is it necessary and urgent?
The Guam Power Authority's current contract for the Supply of Residual Fuel Oil No.6 is expiring in August 31, 2018. Solicitation for a new supplier is in progress and award of the contract is anticipated to be in September 2018.
An extension of the current contract for 3 months is necessary to allow the supplier for the new contract sufficient time for mobilization.

Where is it at?
RFO No.6 will be supplied to the Cabras 1&2, and MEC 8&9 baseload plants

How much will it cost?
The 3-month contract extension is estimated to exceed $1.5M, requiring prior approval from the CCU & PUC.

When will it be completed?
November 30, 2018. The 3-month extension period begins September 1, 2018, and will expire November 30, 2018.

What is its funding source?
Fuel Revenue funds

The RFP/BID Responses:
The IFB solicitation is in progress. Award of the contract is anticipated to be in August 2018.

GM REPORT

TO: **Consolidated Commission on Utilities**

FROM: **General Manager**

DATE: **June 5, 2018**

SUBJECT: **General Manager's Report**

This report provides an update on key issues:

1. Generation System Update:

The following summarizes the expected generation capacity situation for June 2018. The peak demand for June is projected to be 255 MW. The chemical cleaning of the Cabras 1 steam boiler will be completed this week. The system is now heading into the higher peak months of the summer. Last year, the peak demand was 261 MW on August 1st, 2017. It is anticipated peak demand for CY 2018 may be 265 MW.

June 2018 Projected Capacity:	**385 MW**
June 2018 Projected Demand:	**255 MW**
Projected Reserve Margin:	**130 MW**

2. **PUC May 31, 2018 regular meeting resulted in the following:**
   - Approval of GPA Docket 18-13, Petition to Approve the Piti 8 & 9 Contract Extension with Marianas Energy Corporation, with the exception of the retrofit/fuel conversion. Approval is subject to final review and approval by PUC of the contract form.
   - Approval of GPA Docket 18-14, Petition for Approval of Purchase of the Harmon Property for New Generation Plant

   PUC June 28, 2018

   - Docket re. Levelized Energy Adjustment Clause (LEAC)

   No PUC meeting is scheduled for July 2018.

3. **New Power Plant Procurement:**
   - Notifications sent to all bidders regarding Phase I qualifications.
   - Review of Phase II Technical Specifications is ongoing. Final specifications will be submitted for CCU and PUC approval.

4. **Net Metering Customer Credit Recommendation:** Presentation included as a separate report to the CCU.

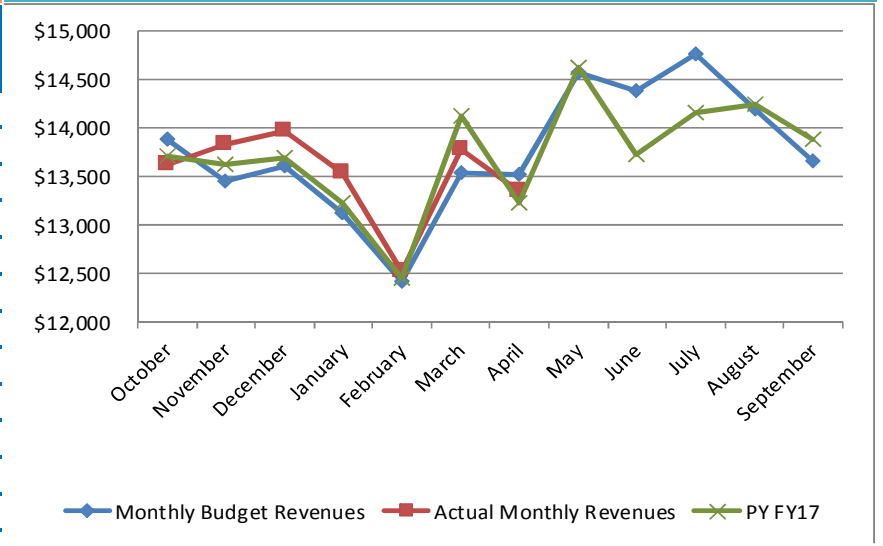
FINANCIAL HIGHLIGHTS
April 2018

April 2018 Monthly Financial Highlights

Base Rate Through April 30, 2018

$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	13,534	$ 420	↑	13,220	$ 314	↑
February	12,422	12,522	$ 100	↑	12,454	$ 68	↑
March	13,534	13,776	$ 242	↑	14,123	$ (347)	↓
April	13,525	13,351	$ (174)	↓	13,224	$ 127	↑
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**	**$ 94,603**	**$ 1,085**		**$ 164,649**	**$ 562**	

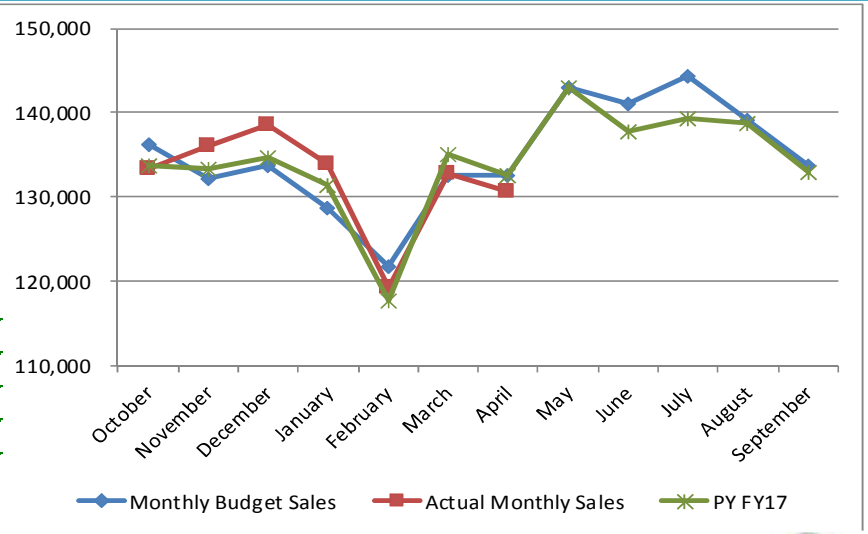
Base Rate Revenue $000



MWh Sales Through April 30, 2018

	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	133,882	5,170	↑	131,461	2,421	↑
February	121,668	119,241	(2,426)	↓	117,617	1,624	↑
March	132,587	132,693	106	↑	135,131	(2,438)	↓
April	132,532	130,565	(1,967)	↓	132,587	(2,022)	↓
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**	**924,275**	**6,801**		**1,610,093**	**5,989**	

MWh Sales

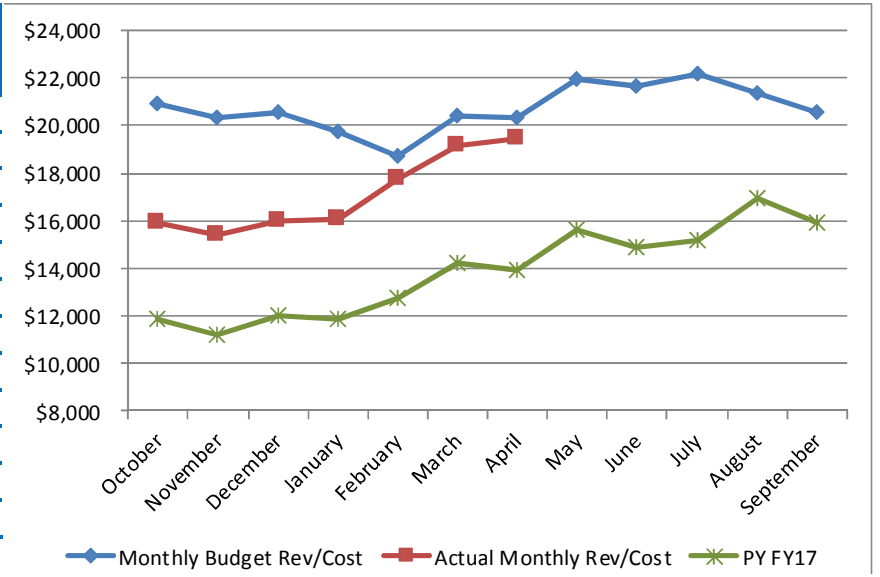


April 2018 Monthly Financial Highlights (Continued)

Fuel Revenue Through April 30, 2018

$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	16,036	$ (3,738)	↓	11,867	$ 4,169	↑
February	18,692	17,763	$ (930)	↓	12,751	$ 5,012	↑
March	20,370	19,180	$ (1,190)	↓	14,248	$ 4,932	↑
April	20,361	19,441	(920)	↓	13,940	5,500	↑
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**	**$ 119,763**	**$(21,191)**		**$ 166,425**	**$ 31,811**	

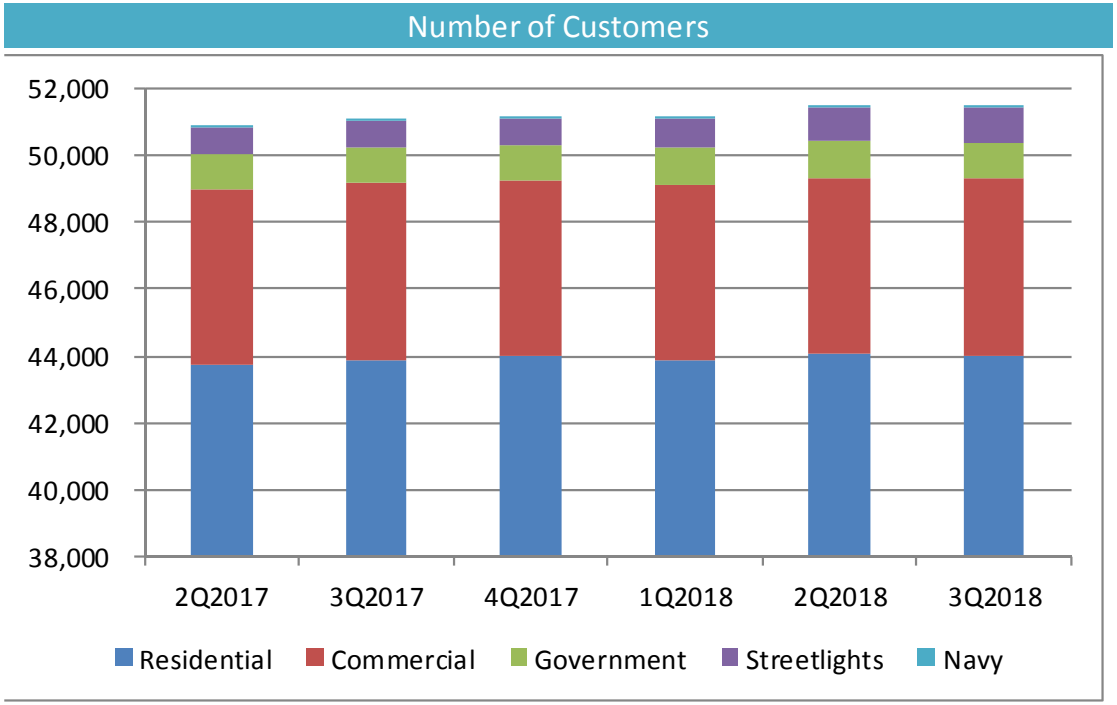
Fuel Revenue/ Cost $000



- Under recovery of LEAC - $13.0 million

April 2018 Monthly Financial Highlights (Continued)

Number of Customers Through April 20, 2018							
	2Q2017	3Q2017	4Q2017	1Q2018	2Q2018	3Q2018	
Residential	43,718	43,902	43,991	43,898	44,065	43,991	
Commercial	5,236	5,252	5,226	5,231	5,262	5,292	
Government	1,077	1,071	1,073	1,076	1,086	1,089	
Streetlights	800	824	823	908	1,005	1,049	
Navy	1	1	1	1	1	1	
Total	**50,832**	**51,050**	**51,114**	**51,050**	**51,419**	**51,422**	

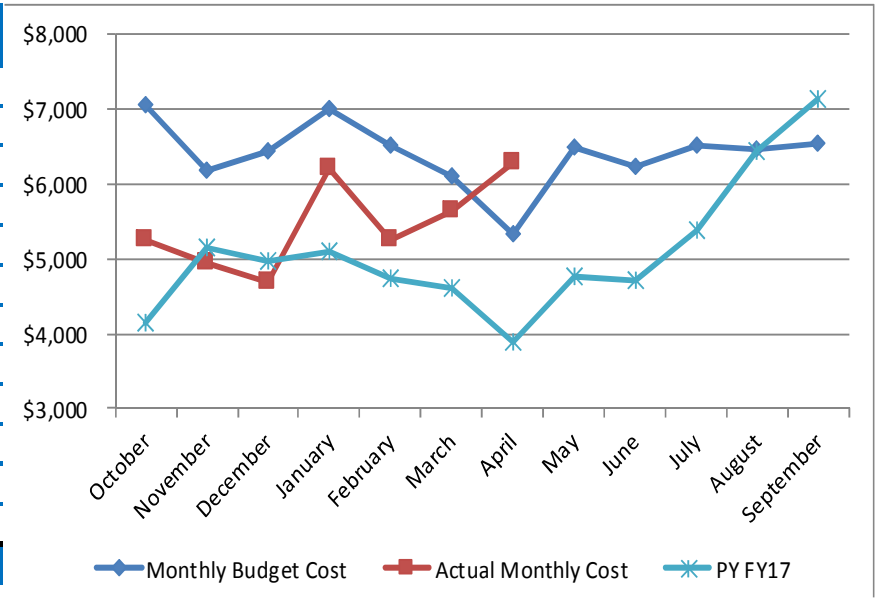


April 2018 Monthly Financial Highlights (Continued)

O&M Cost Through April 30, 2018

$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	6,204	797	↑	5,092	(1,112)	↓
February	6,522	5,252	1,270	↑	4,748	(504)	↓
March	6,091	5,638	453	↑	4,612	(1,026)	↓
April	5,320	6,269	(949)	↓	3,892	(2,378)	↓
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**	**$ 38,237**	**$ 6,347**		**$ 61,045**	**$ (5,633)**	

O&M Cost $000



- DSC greater than target of 1.75

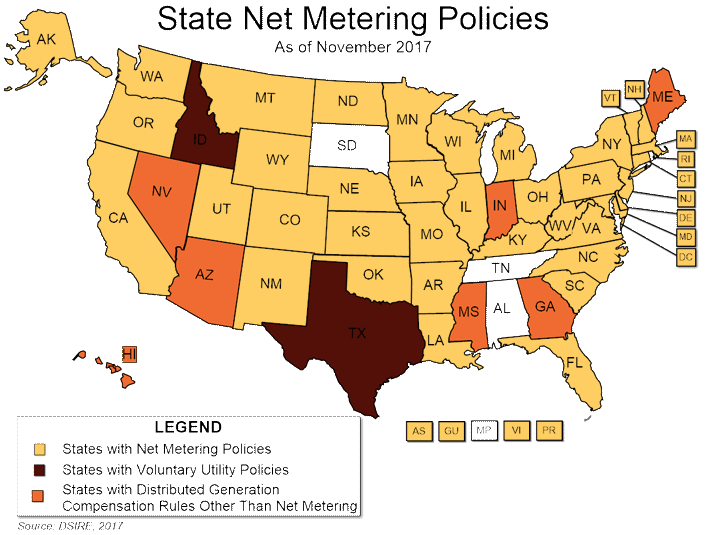
Debt service coverage (DSC) calculation-indenture	2013	2014	2015	2016	2017	YTD APR 2018
Senior lien coverage	3.36	3.16	3.62	3.28	2.65	2.69
Aggregate debt service coverage	1.88	1.98	2.62	3.28	2.65	2.69
Debt service coverage (DSC) calculation-IPP as O&M						
Senior lien coverage	2.16	2.55	2.56	2.45	1.79	1.80
Aggregate debt service coverage	1.21	1.41	1.85	2.45	1.79	1.80

Net Metering (NEM) Credit Recommendation

June 5, 2018

OVERVIEW – NET METERING POLICIES

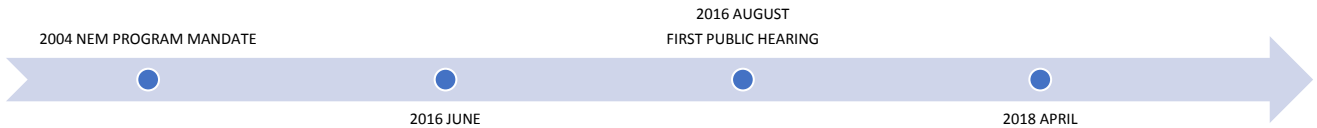
- Thirty Eight (38) States, Washington D.C., and Four (4) Territories Offer Net Metering and utilities in two additional states (Idaho and Texas adopted Net Metering (Full Retail Credit).
- Arizona, Georgia, Hawaii, Indiana, Maine and Mississippi have compensation other than net metering.
- The Value of Solar (VOS) is an alternative to net metering. Customers buy from the grid at retail rate and sell to the grid at an established VOS rate. Only Minnesota and Austin Energy (Texas) has adopted a VOS rate.



Source: National Council of State Legislatures: 11/20/17

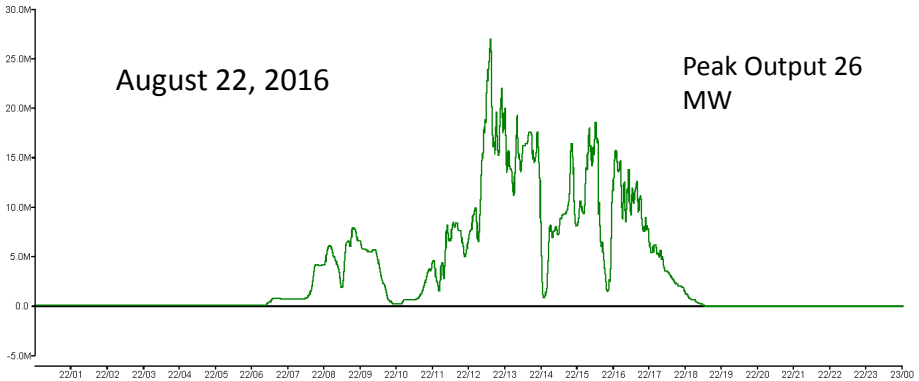
Guam NEM Program

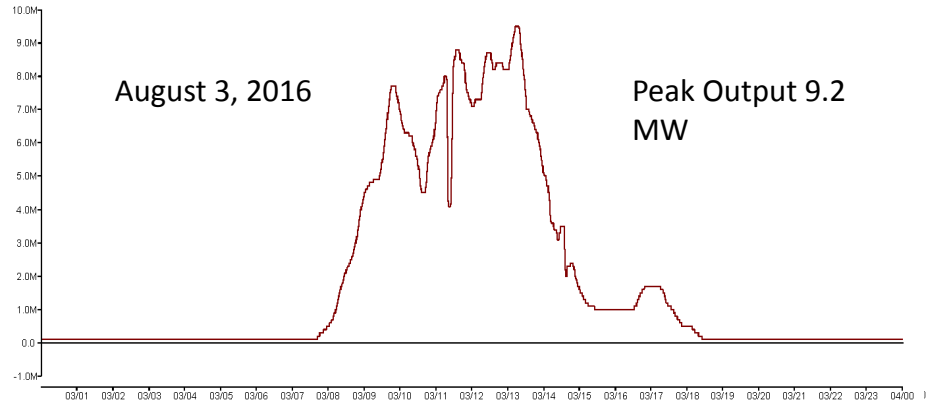
- Program Mandated in 2004. Guam has been crediting NEM customers full retail rate over the past 13 years. Excess credit carried over or paid out annually at full retail rate.
- PUC to evaluate program and credits provided when GPA has 1,000 NEM Customers which occurred in June 2016.
- As of April 2018, GPA has 1,658 NEM Customers (94.8% Residential), with 17,218 KW of capacity. The revenue impact on non-NEM ratepayers is estimated at $3.1M annually.
- CCU/GPA conducted its first public hearing on NEM in August 2016 to gather input from stakeholders in order to prepare its filing to the PUC for changes in rate credits in order to achieve parity amongst all ratepayers.



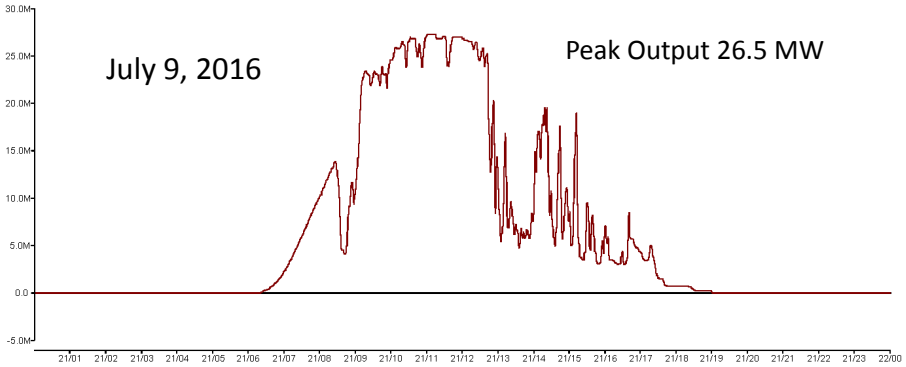
Solar PV Energy Production Characteristics

Utility Scale PV Output Look Like This …





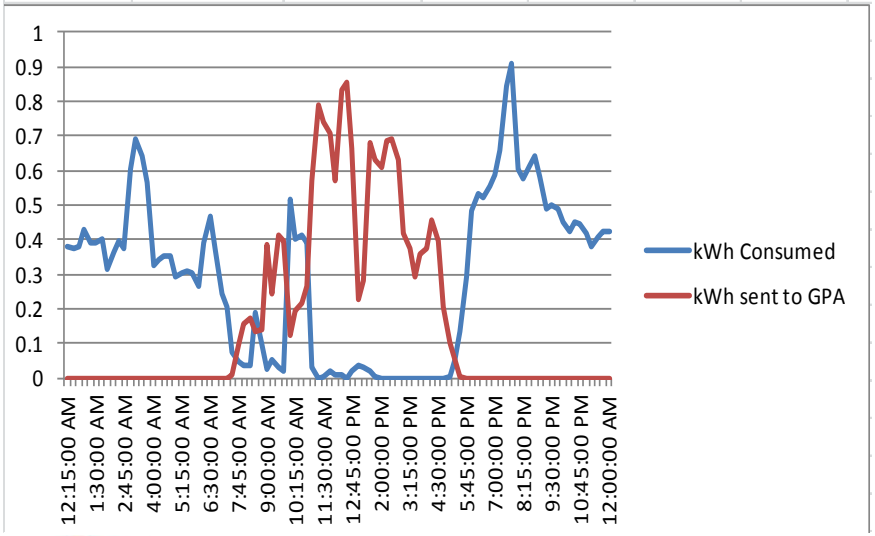
NEM does not eliminate need for capacity



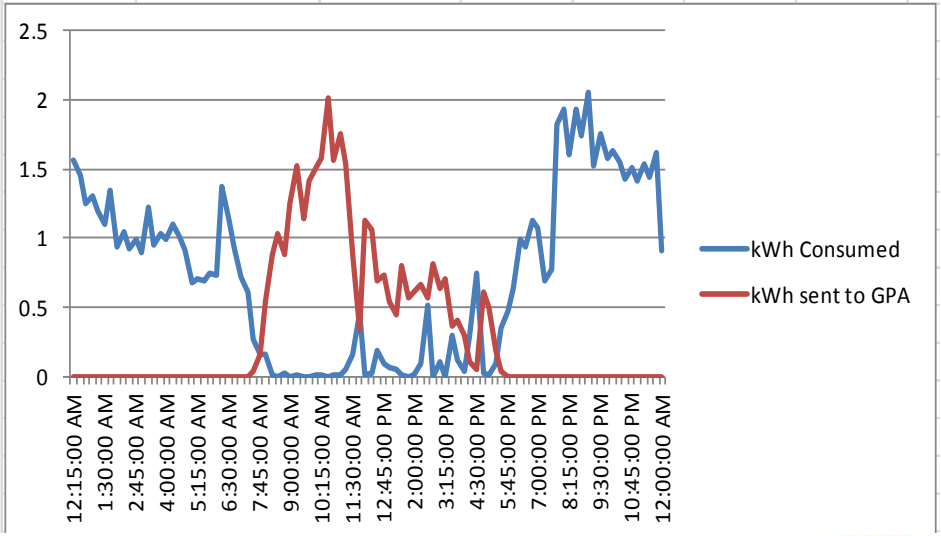
PV without adequate storage is not a capacity benefit. It is an energy benefit.

NEM Customer Profiles

Date:	14-Jun-16		
PV System KW Size	5.0		
GPA KWH 12am to 7am	11.05		
GPA KWH 7am to 6pm	3.66		
GPA KWH 6pm to 12am	**12.92**	**Evening Peak**	
NEM KWH 7am to 6pm	16.14		
Net GPA KWH	11.49		

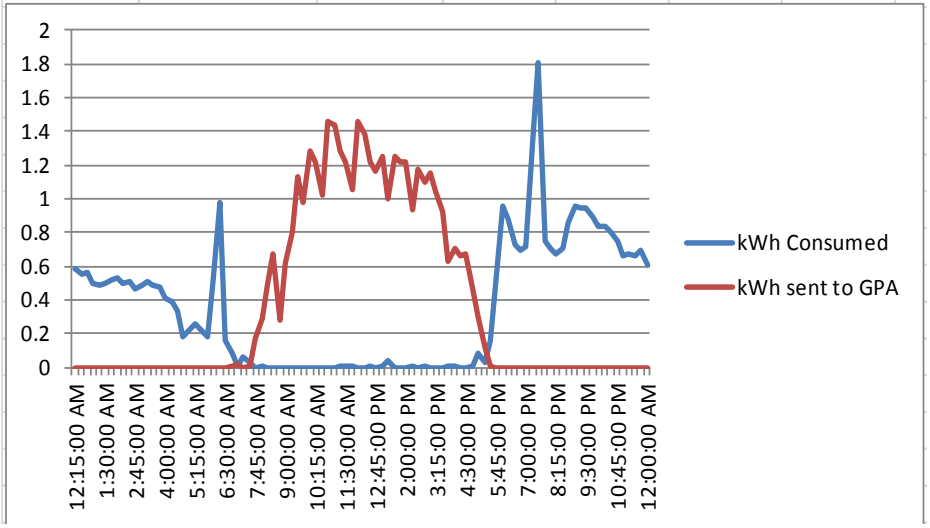


Date:	14-Jun-16		
PV System KW Size	12.4		
GPA KWH 12am to 7am	28.9		
GPA KWH 7am to 6pm	6.1		
GPA KWH 6pm to 12am	**34.6**	**Evening Peak**	
NEM KWH 7am to 6pm	32.5		
Net GPA KWH	37.1		

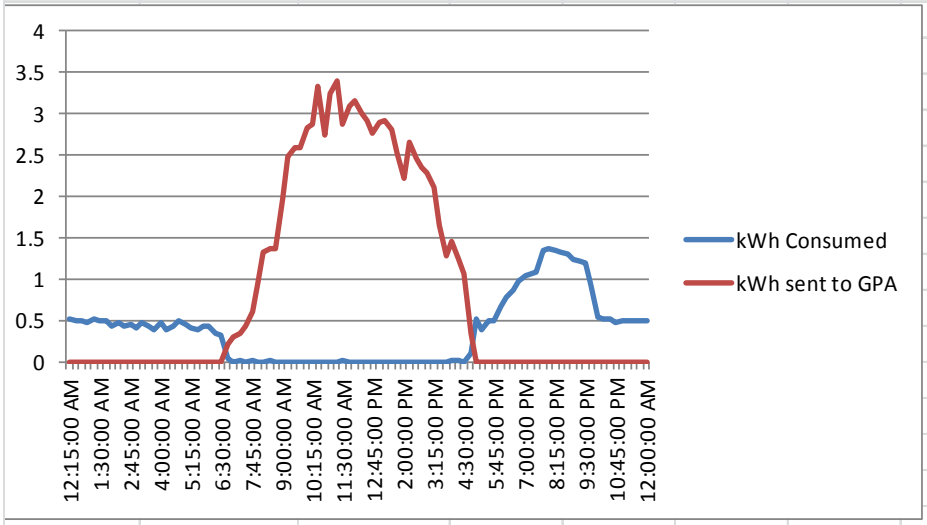


More NEM Profile Variations

Date:	14-Jun-16		
PV System KW Size	8.8		
GPA KWH 12am to 7am	11.5		
GPA KWH 7am to 6pm	1.9		
GPA KWH 6pm to 12am	**20.1**	**Evening Peak**	
NEM KWH 7am to 6pm	34.5		
Net GPA KWH	-0.9		



Date:	14-Jun-16		
PV System KW Size	15.3		
GPA KWH 12am to 7am	11.4		
GPA KWH 7am to 6pm	2.7		
GPA KWH 6pm to 12am	**21.6**	**Evening Peak**	
NEM KWH 7am to 6pm	84.9		
Net GPA KWH	-49.2		

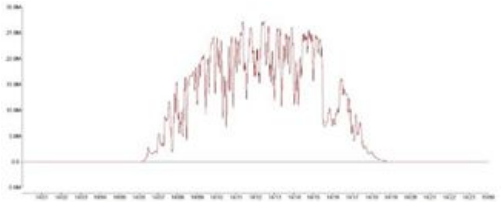


Correlation of PV NEM for Different Locations

Solar PV production is intermittent throughout the Island
Energy Storage Systems required to improve power quality

14 June 2016

	ASAN	BARRIGADA 1	BARRIGADA 2	BARRIGADA 3	BARRIGADA 4	Tamuning	Piti	Yigo	Dededo	Agana Heights	Malojloj	Talofofo	Mongmong	Mangilao	Inarajan	Santa Rita	NRG/GPA
ASAN	100.0%																
BARRIGADA 1	91.7%	100.0%															
BARRIGADA 2	89.7%	84.1%	100.0%														
BARRIGADA 3	88.4%	90.6%	92.1%	100.0%													
BARRIGADA 4	88.4%	90.6%	92.1%	100.0%	100.0%												
Tamuning	90.8%	80.0%	90.6%	81.6%	81.6%	100.0%											
Piti	93.5%	85.3%	79.5%	81.2%	81.2%	85.4%	100.0%										
Yigo	84.3%	77.9%	80.7%	73.8%	73.8%	82.7%	83.2%	100.0%									
Dededo	94.7%	89.3%	92.6%	89.0%	89.0%	92.9%	88.2%	81.6%	100.0%								
Agana Heights	82.4%	67.5%	75.3%	64.5%	64.5%	77.2%	81.6%	78.2%	77.5%	100.0%							
Malojloj	94.1%	88.8%	90.9%	89.0%	89.0%	89.1%	90.7%	83.6%	95.4%	81.5%	100.0%						
Talofofo	91.7%	85.6%	90.8%	84.6%	84.6%	92.4%	83.7%	85.9%	95.2%	72.0%	91.4%	100.0%					
Mongmong	96.8%	91.9%	90.4%	88.9%	88.9%	89.3%	92.0%	85.0%	96.1%	83.6%	96.9%	92.4%	100.0%				
Mangilao	96.7%	89.0%	92.1%	87.5%	87.5%	93.6%	92.3%	86.4%	95.7%	86.6%	96.4%	90.8%	97.4%	100.0%			
Inarajan	93.3%	88.9%	90.1%	87.1%	87.1%	88.4%	88.1%	82.9%	94.9%	80.2%	97.6%	89.3%	95.3%	95.8%	100.0%		
Santa Rita	93.3%	88.9%	90.1%	87.1%	87.1%	88.4%	88.1%	82.9%	94.9%	80.2%	97.6%	89.3%	95.3%	95.8%	100.0%	100.0%	
NRG/GPA	91.7%	88.0%	87.0%	84.7%	84.7%	83.2%	88.7%	82.0%	90.9%	80.3%	93.8%	87.3%	92.8%	91.6%	92.2%	92.2%	100.0%



PV NEM and NRG/GPA systems swing together almost in unison

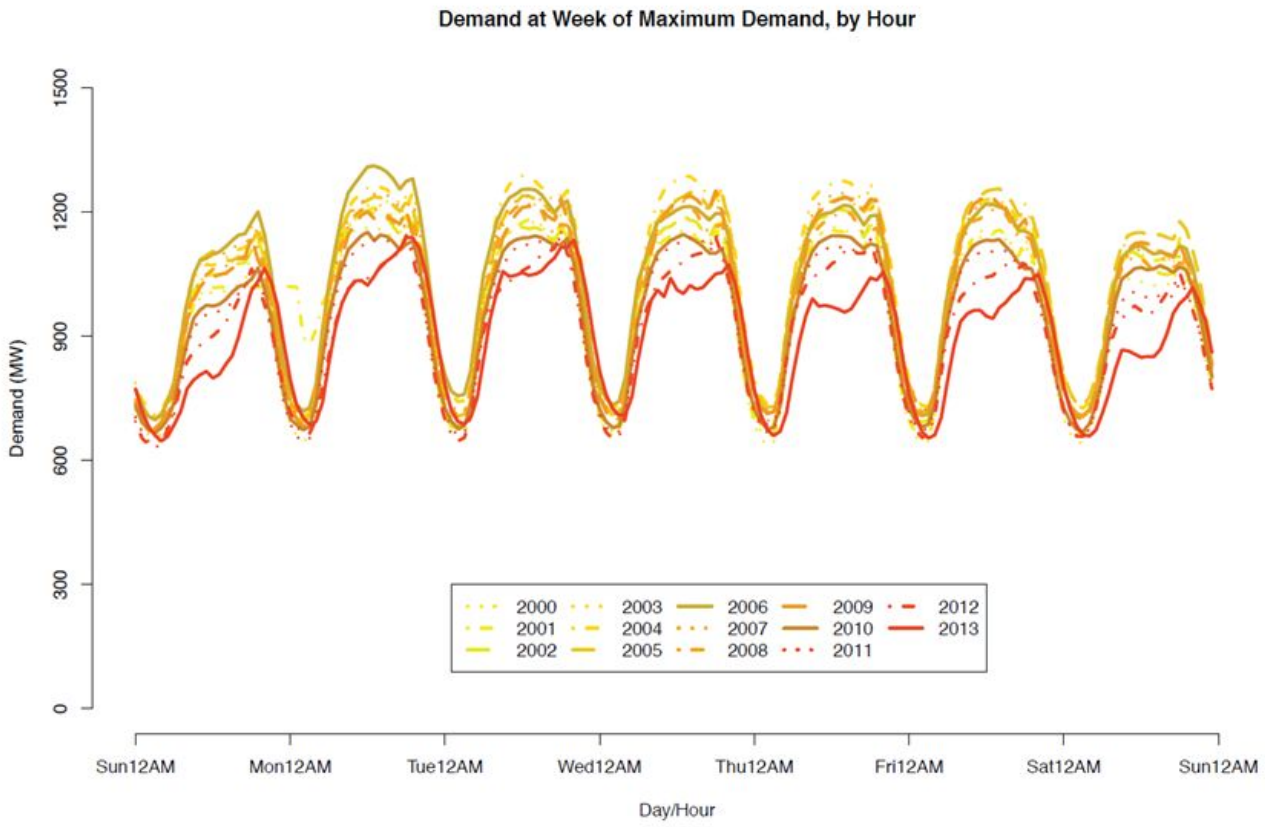
Does NEM Lower Guam Generation Capacity Requirements?

No. Solar PV systems in Guam without adequate energy storage capacity does not reduce peak demand and therefore does not eliminate conventional capacity needs

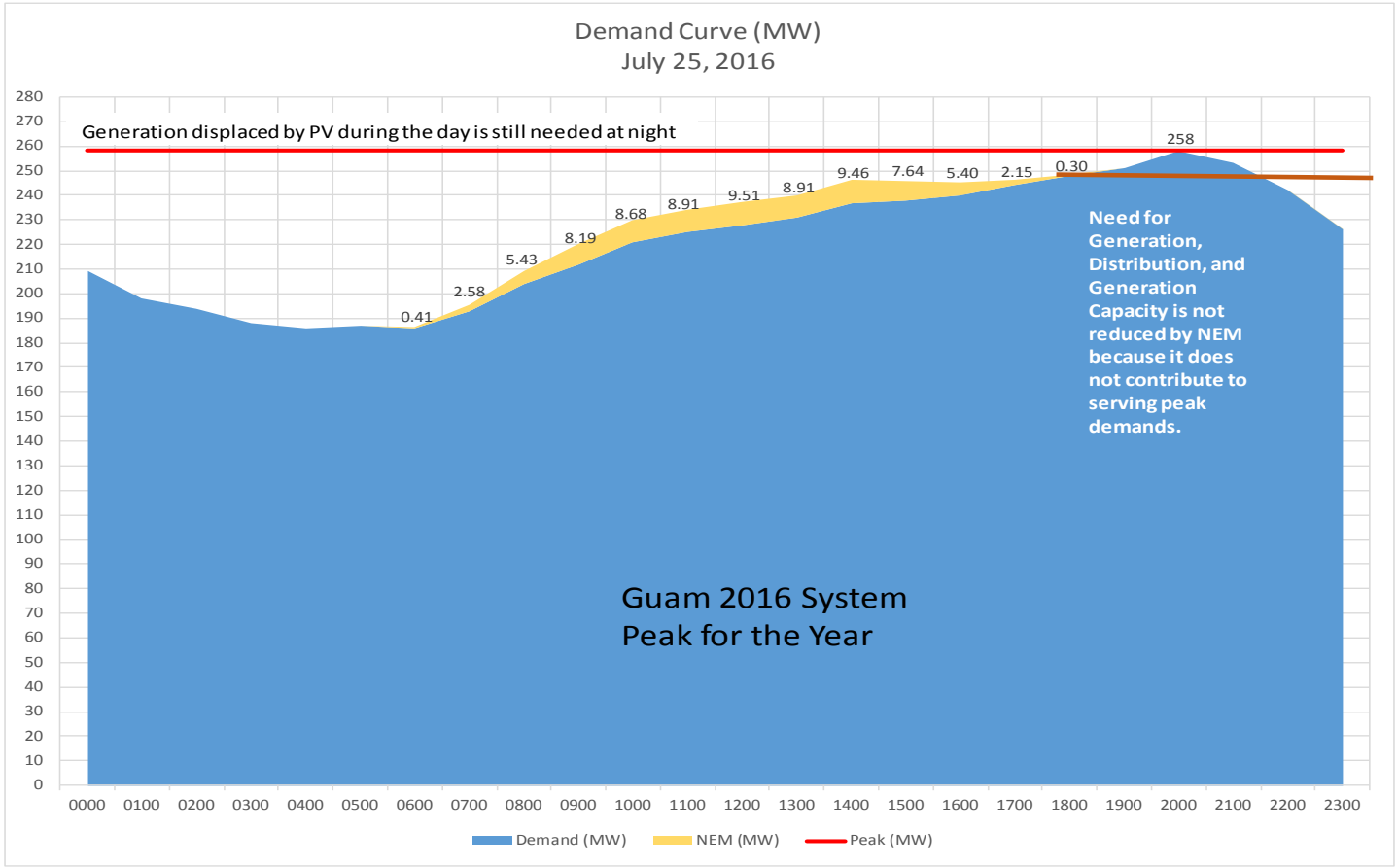
Oahu Electricity Demand During High and Low Demand Weeks

PV NEM saves Oahu Money by displacing conventional generation producing at 46% above average production costs at the system peak occurring midday when solar PV produces energy.

Guam's generation capacity requirements are set by peak demand. Guam's peak demand occurs at night. PV NEM without adequate storage does not reduce the amount of capacity needed by the system.

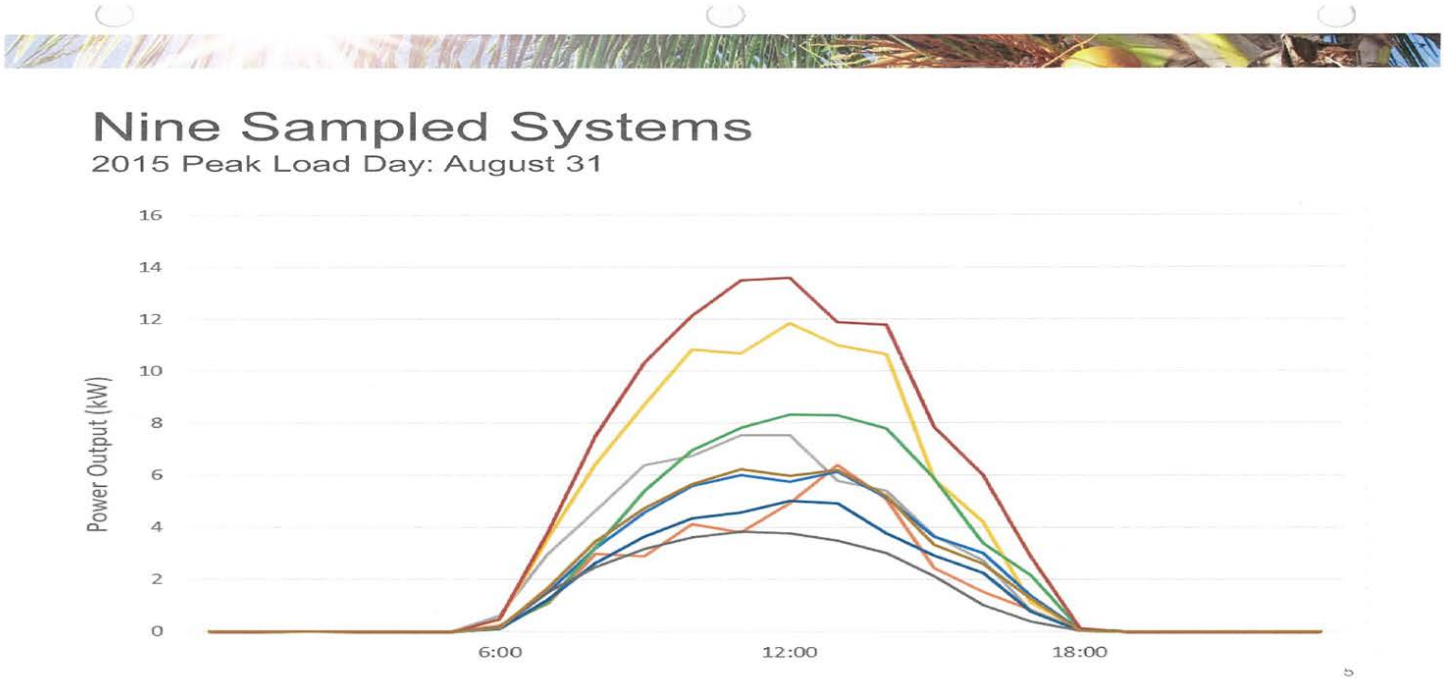


Transmission, Distribution, or Generation Capacity for Guam Not Reduced by PV



NEM Peak Production not at GPA Peak Demand Period

Source: Clean Power Resource Report



Value of Solar (VOS) Policy Issues

3

- Replacement for Net Metering Program
- Grandfathering existing registered NEM customers
  - Allow customers who own system to recover investment
  - Phase in VOS rates over an extended time period
- GPA files for PUC approval:
  - Reassessed VOS rates each LEAC for Avoided Energy Value
  - Reassessed VOS rates for other VOS components
    - Annually
    - Periodically over a set number of years
    - When GPA's generation mix changes

Value of the Grid to NEM Customers

4

- NEM customers receive services from the grid including:
  - Use the grid to sell power (get credit at full retail rate for excess production)
  - Use the grid to energize their homes at night
  - Frequency regulation absorbed by grid for intermittencies
  - Reactive power supply
  - Voltage regulation
  - Stand-by power on overcast days when the sun does not shine

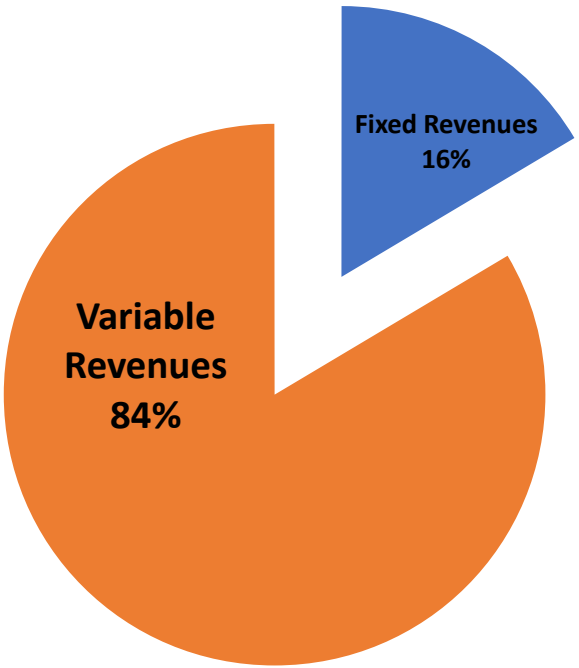
- Monthly fixed charge of $15 does not recover cost to serve from grid
  - Most of GPA fixed cost is recovered in the energy use (kWh) rate component which is typically zero for NEM customers

GUAM CCU

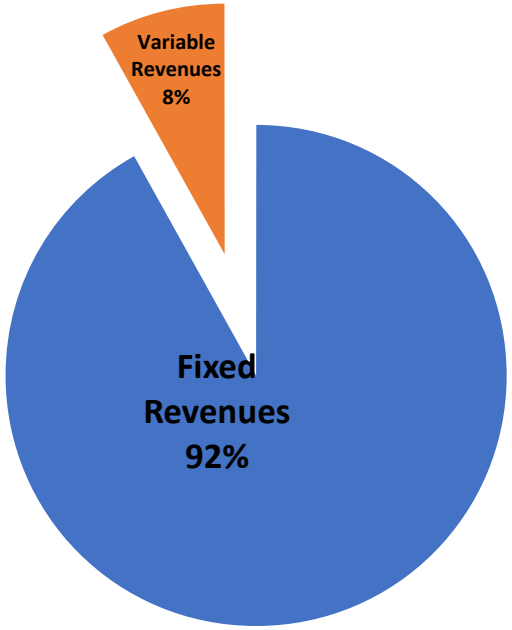
14

Rate Structure & Fixed Cost Recovery

Civilian Fixed vs Variable Revenues



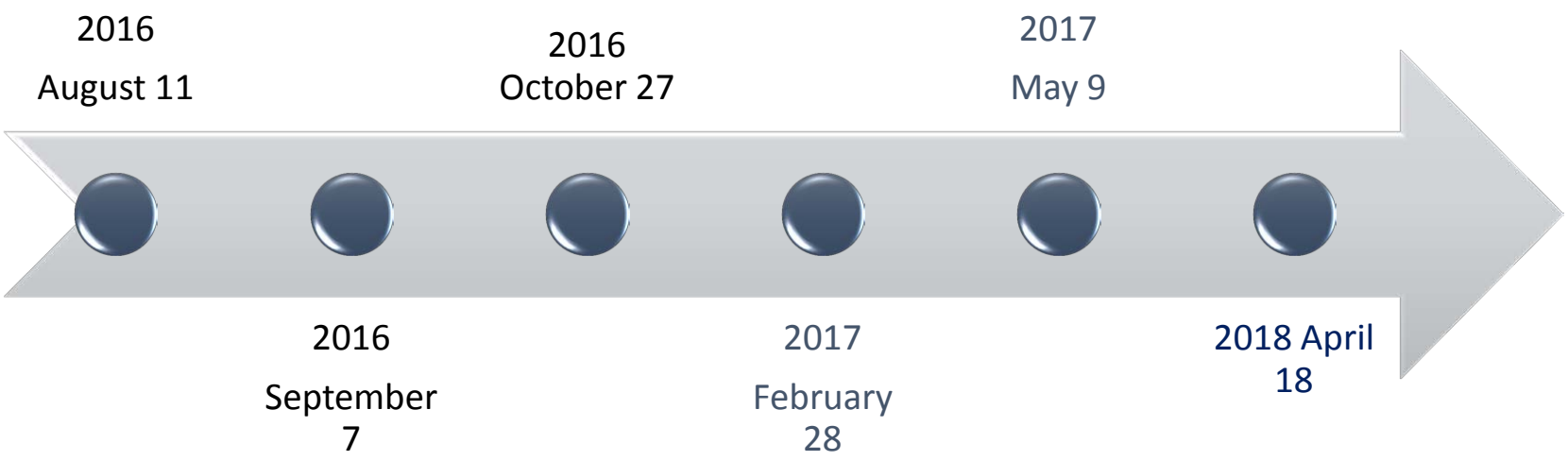
Navy Fixed vs Variable Revenues



GPA Rate Structure Should Move Towards Recovering More Fixed Costs Through Fixed Charges.

- Civilian rate structure
  - Most of GPA fixed costs recovered in the variable rate
- Navy rate structure
  - Most of GPA fixed costs recovered in the fixed rate
- Hawaii has moved to fixed cost recovery predominantly through its fixed rate

Net Metering Public Meetings Held to Gather Input from Stakeholders



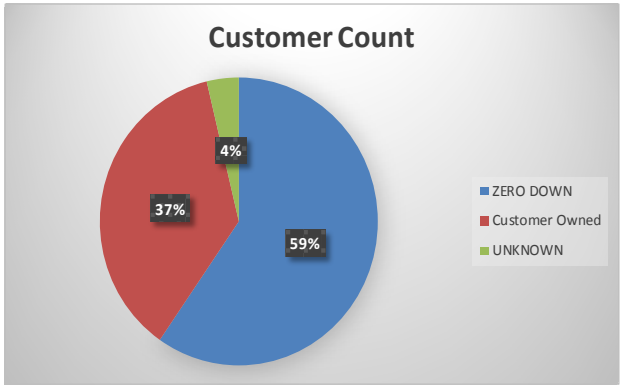
Key Points from Public Meetings

- The B&V report provides all the gain to GPA and did not represent true value of solar
- NEM Owner wants to recover his investment. Asked for grandfathering until he does so. He said it will take 7 years to recover his $60K investment
- NEM not meant to be money making business but a fair exchange of trade energy…some customers making money from units sized beyond their needs
- The applicability of NEM program to 3rd party providers need to be clarified
- PV provider wants NEM program to continue up to 20% penetration similar to Hawaii
- PV provider wanted more time to provide a report on Value of Solar and bring to GPA for information. Report was conducted and presented by Clean Power Research on April 18, 2018

Key Points from Public Meetings (continued)

- Provider commented the NEM energy saves the utility cost on:
  - Maintenance cost for generations, poles, labor, lines, substations, transformers, etc.
  - Reduction of line losses because energy is near customers
  - Costs associated with fuel and fuel shipments
  - Helps GPA achieve energy portfolio reducing need for more renewable projects
  - Savings to environment; lessens carbon foot print
- Provider-GPA should consider subsidies for home energy storage systems
- Provider-GPA should consider grandfathering NEM customers through a phased approach

NEM – PV Statistics

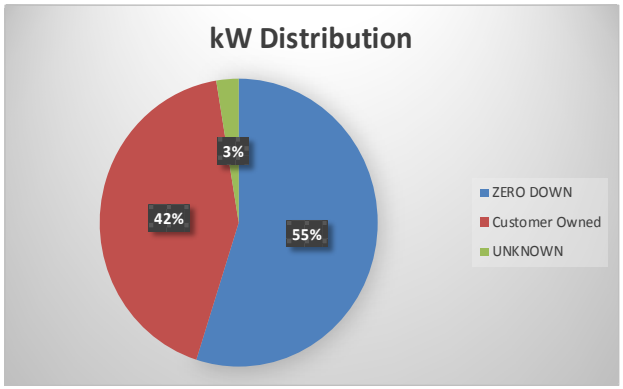


□ustomer □ount

Description	Number of Customers
□□RO DO□ N	□7□
□ustomer Owned	□0□
UN□NO□ N	□□
Grand Total	**1,642**

March 2018

Customer Class	KW	NEM	Customers	Percent of Customer Class
R □Residential	□4,□□□	□,5□□	43,75□	3.□□
□□ Small General Ser□ice Demand	□,□47	3□	□87	3.□□
□ □Small Go□ernment Demand	3□8	□	348	□.□□
L □Large Go□ernment Demand	□3	□	45	□.□□
□ □Large General Demand	□4□	3	□□□	□.□□
G □Small General Non Demand	□□□	33	4,□□7	0.8□
S □Small Go□ernment Non□Demand	7□	7	□8□	□.0□
Total	**17,092**	**1,647**	**50,060**	

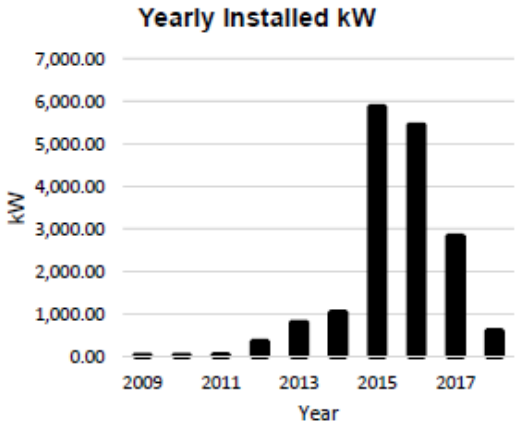


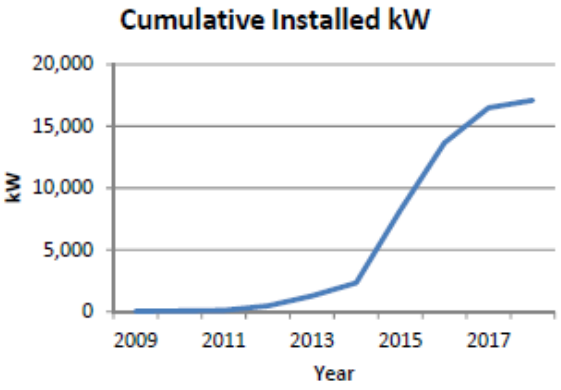
□□ Distri□ution

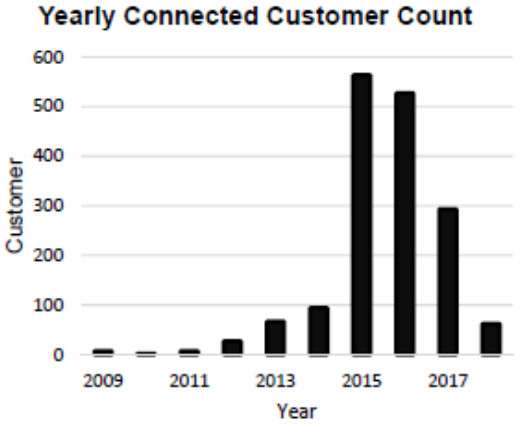
Description	kW
□□RO DO□ N	□,3□□
□ustomer Owned	7,□□□
UN□NO□ N	440
Grand Total	**16,978**

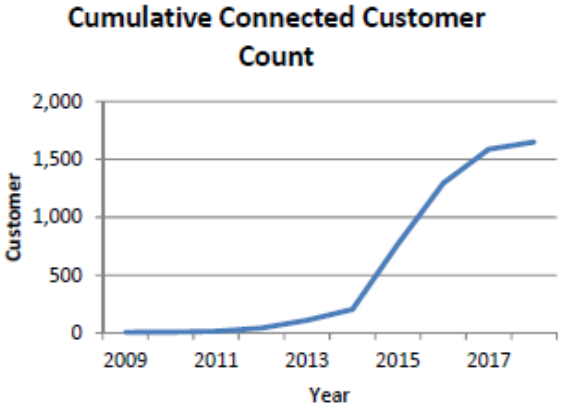
Projected FY 2018 Non-Fuel Revenue Loss				
Customer Rate Class	Renewable Energy Capacity (kW)	Annual kWh Generated (@5.092 hours/day)*	Average Non-Fuel Yield $/kWh	Estimated Annual Revenue Loss
R	13,693	25,447,071	0.09293	$ 2,364,822
J	1,647	3,059,970	0.13112	401,226
K	318	590,618	0.13932	82,286
L	23	42,373	0.13525	5,731
P	241	447,331	0.11539	51,617
G	636	1,182,853	0.15084	178,417
S	79	146,447	0.15334	22,456
Grand Total	**16,636**	**30,916,662**		**$ 3,106,555**

*Estimated number of hours from NREL for Guam (13.4° North and 144° East).









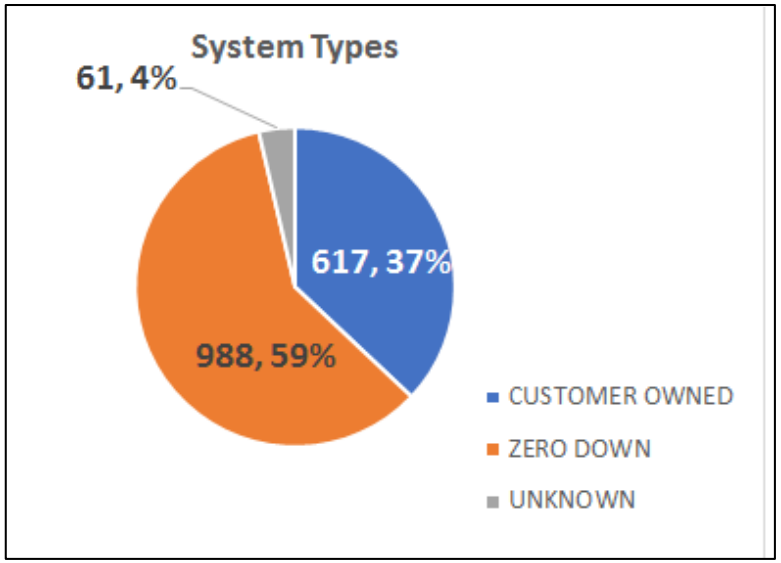
NEM Market Analysis

- Product Lifecycle Stages
  - 2009 -2011 Introduction
  - 2012 – 2014 Growth
  - 2015 – 2016 Maturity
  - 2017 – Present Decline



Market Share of Competitors

Firm	Count	Capacity (KW)	% of Installed System
□ompan□A	747	□,88□	40.3□
□ompan□ □	□7□	□,337	□3.7□
□ompan□ □	□□□	□,4□□	□4.□□
□ompan□D	□47	□,4□0	□4.□□
Owner □nstalled	□0	□,088	□.4□
□ompan□ □	□□	470	□.7□
□ompan□ □	□□	357	□.□□
□ompan□G	□3	□00	0.□□
All Other □ompanies□Self □onstructed □om□ined	35	57□	3.4□
Un□nown	□□	44□	□.□□
Totals:	□,□4□	□7,0□5	□00.0□



GPA Value of Solar from an Avoided Cost Perspective

4

Cost Category	FY 2017	Cost per kWh Sold	GPA Avoided Cost ($/kWh)
Generation + IPP Costs			
Other Production - Fixed O&M	$ 17,783,917	$ 0.0110	
IPP Costs - Fixed O&M	$ 16,958,770	$ 0.0105	
IPP Costs - Variable O&M	$ 2,976,564	$ 0.0018	$ 0.0018
Transmission & Distribution	$ 11,703,969	$ 0.0073	
Admin and General			
Payroll, benefits, retirement	$ 12,862,412	$ 0.0080	
Insurance	$ 7,252,504	$ 0.0045	
Contracts	$ 4,024,943	$ 0.0025	
Utilities	$ 1,817,009	$ 0.0011	
Office supplies & Others	$ 844,349	$ 0.0005	
Customer Accounting	$ 4,756,213	$ 0.0030	
Debt Service	$ 56,937,000	$ 0.0354	
CIPs/Others	$ 26,731,639	$ 0.0166	
Total (Base Rate Revenues)	$ 164,649,289	$ 0.1023	
Fuel Costs	$ 181,683,506	$ 0.1128	
Fuel Consumption, plus the under recovery of $15.3 M)	$ 165,692,714	$ 0.1029	$ 0.1029
Fuel Handling	$ 7,128,512	$ 0.0044	
Renewables	$ 8,862,280	$ 0.0055	
Total	346,332,795	$ 0.2151	
Energy losses at 3.5%		$ 0.0054	$ 0.0054
Environmental cost		$ 0.000039	$ 0.000039
Total Avoided Cost			**$ 0.1102**
Average cost in 2017 per kWh		$ 0.2151	$ 0.2151
Credit Beyond Avoided Cost			**$ 0.1049**

Energy Storage System (ESS) Cost Frequency Control

FY2019	
Total KWH Sales Projected:	1,610,093,011
ESS Annual Debt Service & O&M:	$ 2,829,348
$/kWh:	$0.0018

GPA provides low cost energy storage

New 40 MW Energy Storage System Commissioning Oct 2019

Value of Solar Comparison

Only Minnesota and Austin Energy (Texas) adopted VOS Model

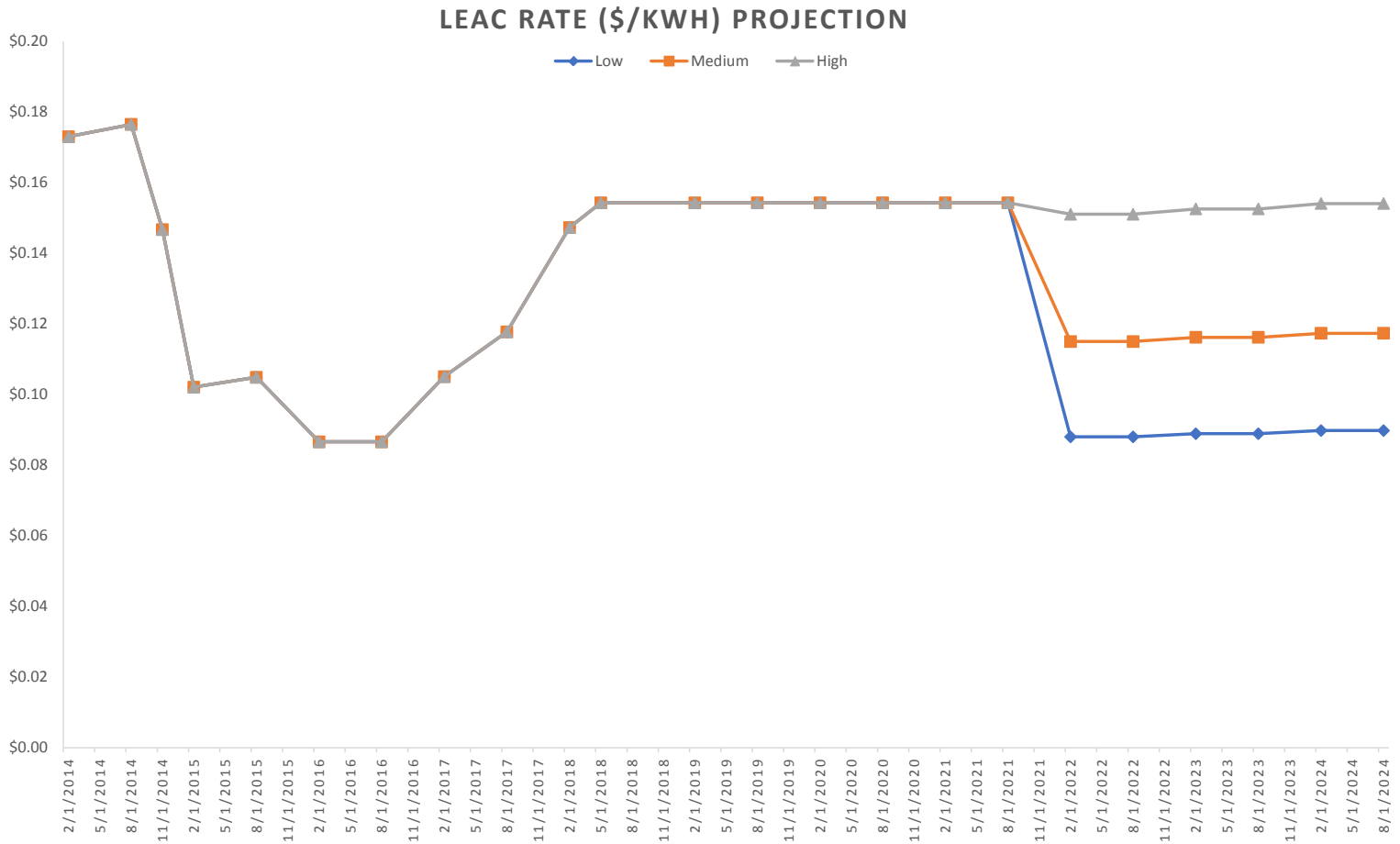
Cost Category	Minnesota	Austin Energy	Clean Power Research (MRE)	GPA Avoided Cost FY 2017	Comments
uel ost			$0.000	$0.00	lose Agreement
nerg Losses			$0.0054	$0.0054	n Agreement
lant O M i ed					
lant O M aria le				$0.008	Minor ost mpact
Generation apacit ost			$0.040		No apacit A oided
Reser e apacit ost					
Transmission apacit ost					
Distri ution apacit ost					
n ironmental ost				$0.000	Minor ost mpact
oltage ontrol ost					
Solar ntegration ost					
A oided uel edging Uncertaint ost			$0.050		N A G A Does Not edge
A oided Mandated R S ost			$0.030		G A meeting R S at Sa ings not ost
Total:			**$0.2704**	**$0.1102**	**Variance Subsidized by Non-NEM Ratepayers**

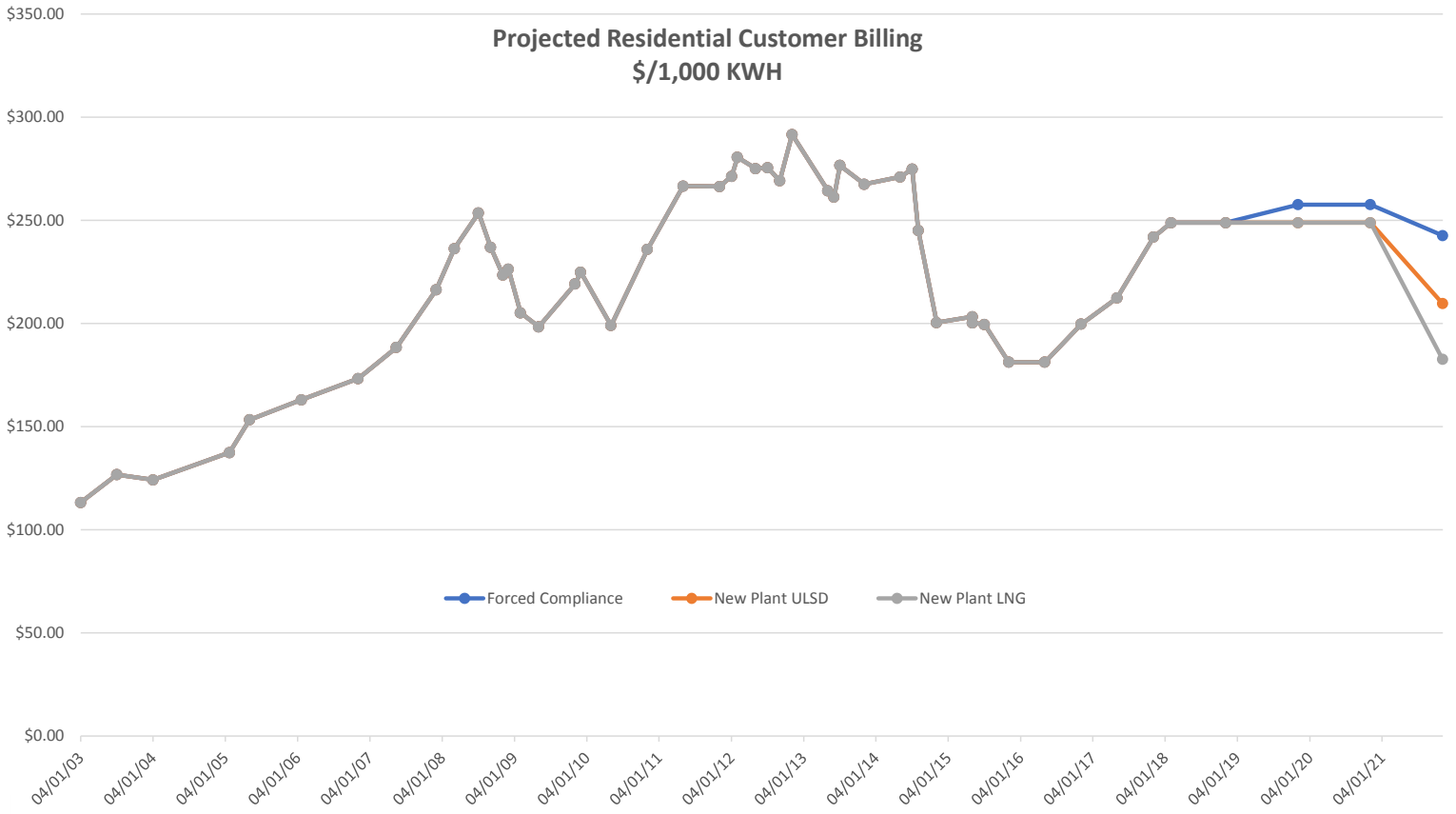
Value of Solar Comparison

□7

Adjusted to GPA Actual Cost

Cost Category	Clean Power Research (MRE)	Revised CPR/MRE Based on Comments	GPA Avoided Cost FY 2017	Comments
□uel □ost	$0.□□□0	$0.□0□□	$0.□0□□	Ad□usted □ased on L□A□ for Similar □□ □0□7 □eriod
□nerg□Losses 4.□□	$0.0054	$0.0047	$0.0047	□n Agreement
□lant O□M□□aria□le			$0.00□8	G□A Determined Minor □ost □mpact
Generation □apacit□ □ost	$0.04□0	$0.0000	$0.0000	No □apacit□A□oided □ecause does not Reduce □ea□ Demand
□n□ironmental □ost			$0.000□	G□A Determined Minor □ost □mpact
A□oided □uel □edging Uncertaint□ □ost	$0.05□0	$0.0000	$0.0000	Not Applica□le □G□A Does Not □edge, Therefore No □ost
A□oided Mandated R□S □ost	$0.03□0	$0.0000	$0.0000	G□A meeting R□S at a Sa□ings not a □ost
Total:	**$0.2704**	**$0.1076**	**$0.1095**	


LEAC RATE ($/KWH) PROJECTION
Low
Medium
High
$0.20
$0.18
$0.16
$0.14
$0.12
$0.10
$0.08
$0.06
$0.04
$0.02
$0.00
2/1/2014
5/1/2014
8/1/2014
11/1/2014
2/1/2015
5/1/2015
8/1/2015
11/1/2015
2/1/2016
5/1/2016
8/1/2016
11/1/2016
2/1/2017
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8/1/2021
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2/1/2022
5/1/2022
8/1/2022
11/1/2022
2/1/2023
5/1/2023
8/1/2023
11/1/2023
2/1/2024
5/1/2024
8/1/2024


Projected Residential Customer Billing
$/1,000 KWH
$350.00
$300.00
$250.00
$200.00
$150.00
$100.00
$50.00
$0.00
Forced Compliance
New Plant ULSD
New Plant LNG
04/01/03
04/01/04
04/01/05
04/01/06
04/01/07
04/01/08
04/01/09
04/01/10
04/01/11
04/01/12
04/01/13
04/01/14
04/01/15
04/01/16
04/01/17
04/01/18
04/01/19
04/01/20
04/01/21

Net Metering Economics

When Do Customer-Owned NEM Recover their Investment?

Value of Solar Payment Versus Simple Payback						
$/Kwh Credit	$0.10		$0.12		$0.27	
ITC Valid	2018-2019		2018-2019		2018-2019	
Solar PV All-In Cost ($/W)	30.0% ITC		30.0% ITC		30.0% ITC	
	Simple Payback (years)	IRR (%)	Simple Payback (years)	IRR (%)	Simple Payback (years)	IRR (%)
1.00	6	18.8%	5	23.9%	2	53.0%
1.25	7	14.6%	6	18.8%	3	42.2%
1.50	8	11.6%	7	15.3%	3	35.0%
1.75	10	9.5%	8	12.7%	4	29.8%
2.00	11	7.8%	9	10.7%	4	25.9%
2.25	12	6.4%	10	9.1%	5	22.9%
2.50	**14**	**5.2%**	**11**	**7.8%**	**5**	**20.4%**
2.75	15	4.2%	12	6.6%	**6**	18.4%
3.00	17	3.4%	13	5.7%	**6**	16.7%
3.25	18	2.6%	14	4.8%	**7**	15.2%
3.50	20	1.9%	16	4.1%	**7**	13.9%
3.75	21	1.3%	17	3.4%	**8**	12.8%
4.00	**23**	**0.8%**	**18**	**2.8%**	**8**	**11.8%**
4.25	25	0.3%	19	2.2%	9	10.9%

NEM Customer Owned Solar PV

At GPA Retail Rate Credit Recovers Investment in 5 to 8 Years

GPA Residential Retail Rate Credit:			
Average $/W Installed	**$3.25/Watt**	**Annual Savings**	**Simple Payback Years**
□□ □□ □apacit□	7.□□		
Annual □apacit□□actor	□0.0□		
Annual □wh □roduction	□3,473		
A□erage L□A□	$0.□47		
A□erage □ase Rate	$0.0□3		
Total Average rate	**$0.240**		
Annual □nerg□□ost A□oided	$3,□33.4□		
□nstallation □ost □No Ta□□redit	$□4,□□3		**7.7**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,□□□	$3□4.4□	
□ ith Ta□□redit	$□7,4□5		**5.4**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,043	$□,□□0.4□	

NEM Customer Owned Solar PV

At GPA 2018 LEAC Rate Credit Recovers Investment in 8 to 12 Years

GPA 2018 LEAC Rate Credit:			
Average $/W Installed	**$3.25/Watt**	**Annual Savings**	**Simple Payback Years**
□□ □□ □apacit□	7.□□		
Annual □apacit□□actor	□0.0□		
Annual □wh □roduction	□3,473		
A□erage L□A□	$0.□54		
A□erage □ase Rate	$0.000		
Total Average rate	**$0.154**		
Annual □nerg□□ost A□oided	$□,074.8□		
□nstallation □ost □No Ta□□redit	$□4,□□3		**12.0**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,□□□	□$844.□8	
□ ith Ta□□redit	$□7,4□5		**8.4**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,043	$3□.8□	

NEM Customer Owned Solar PV

At GPA 2022 LEAC Rate Credit Recovers Investment in 10 to 16 Years

GPA 2022 LEAC Rate Credit:			
Average $/W Installed	**$3.25/Watt**	**Annual Savings**	**Simple Payback Years**
□□ □□ □apacit□	7.□□		
Annual □apacit□□actor	□0.0□		
Annual □wh □roduction	□3,473		
A□erage L□A□	$0.□□0		
A□erage □ase Rate	$0.000		
Total Average rate	**$0.120**		
Annual □nerg□□ost A□oided	$□,□□□.75		
□nstallation □ost □No Ta□□redit	$□4,□□3		**15.5**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,□□□	□$□,30□.□5	
□ ith Ta□□redit	$□7,4□5		**10.8**
□5 □ear Loan Annual □a□ment, 8□ , □5 □ears	$□,043	□$4□□.□5	

Summary

- Net Metering was established 13 years ago in 2004. Substantial Changes has occurred on GPA delivery cost and more changes expected by 2022.
- Customer Owned NEM System recovers its investment within 5 to 8 years from installation at GPA full Retail Rate Credit.
- Customer Owned NEM System recovers its investment within 8 to 16 years from installation at GPA LEAC Avoided Cost Rate Credit.
- It appears Zero Down Customers with 2.9% escalators will incur higher cost over the life of their 25 year contract.

Recommendation

1. CCU approve a GPA filing as shown herein at its July/August 2018 Meeting
2. Recommend an implementation plan for billing NEM customers on net billing: Buy All/Sell All or similar billing models
3. GPA files with GPUC for adjustment of net metering credits from retail to avoided cost
4. For existing NEM Customers, implement a Grandfather phase-in approach over 5 to 8 years to the GPA avoided cost credit. Adjustments for LEAC, line loss and variable cost changes done annually.
5. For future NEM customers, credit set at GPA avoided cost

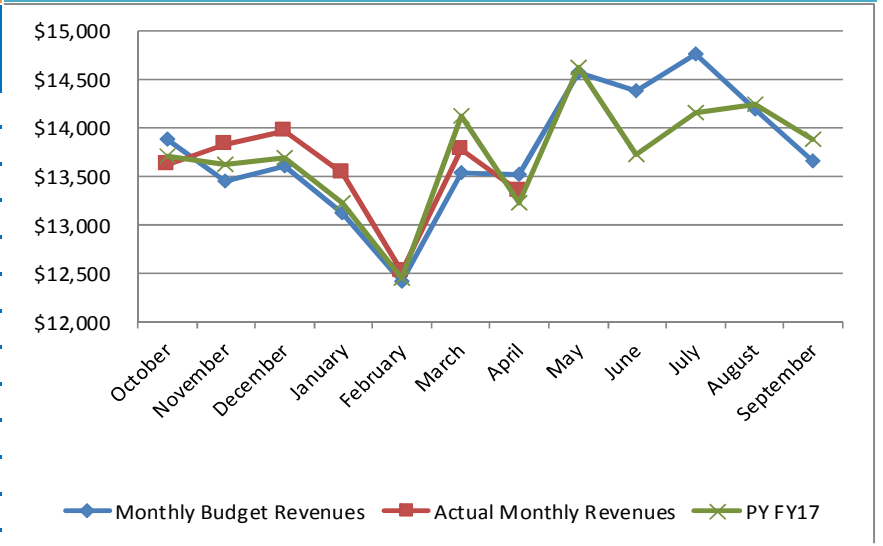
FINANCIAL HIGHLIGHTS
April 2018

April 2018 Monthly Financial Highlights

Base Rate Through April 30, 2018

$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	13,534	$ 420	↑	13,220	$ 314	↑
February	12,422	12,522	$ 100	↑	12,454	$ 68	↑
March	13,534	13,776	$ 242	↑	14,123	$ (347)	↓
April	13,525	13,351	$ (174)	↓	13,224	$ 127	↑
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**	**$ 94,603**	**$ 1,085**		**$ 164,649**	**$ 562**	

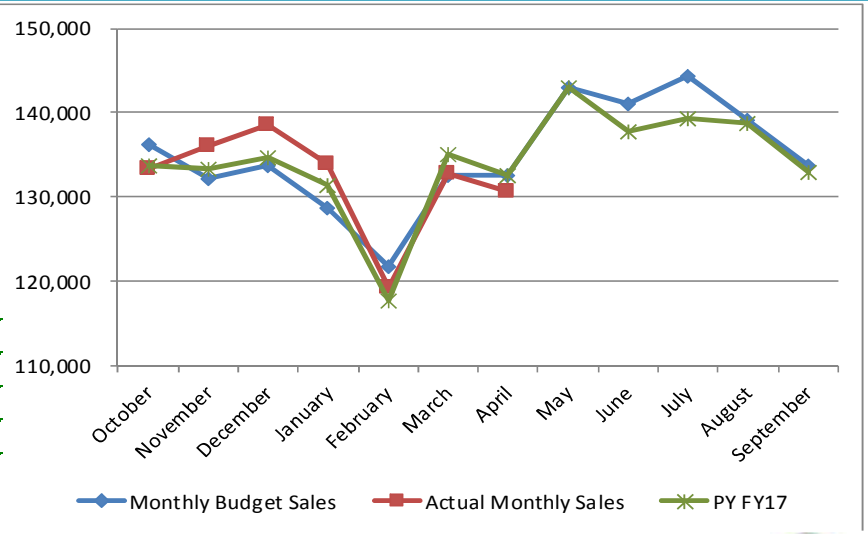
Base Rate Revenue $000



MWh Sales Through April 30, 2018

	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	133,882	5,170	↑	131,461	2,421	↑
February	121,668	119,241	(2,426)	↓	117,617	1,624	↑
March	132,587	132,693	106	↑	135,131	(2,438)	↓
April	132,532	130,565	(1,967)	↓	132,587	(2,022)	↓
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**	**924,275**	**6,801**		**1,610,093**	**5,989**	

MWh Sales

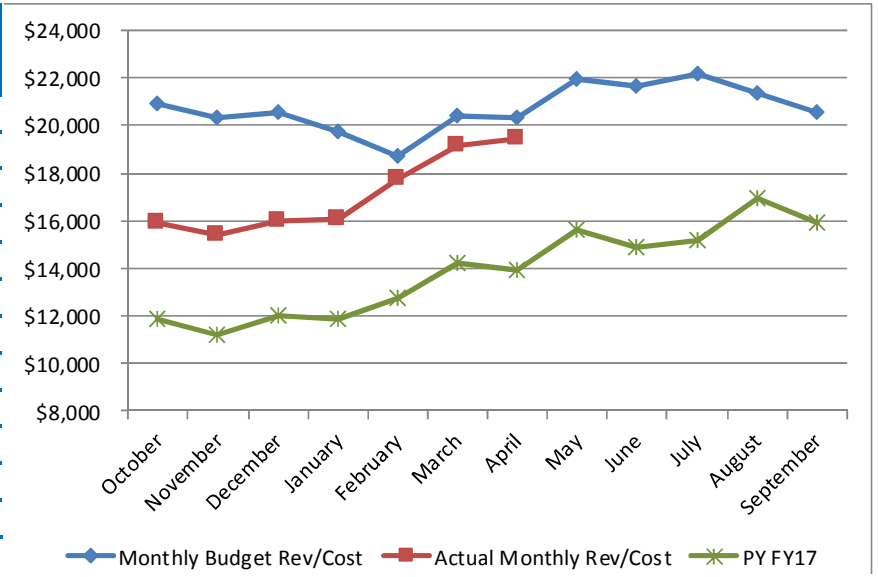


April 2018 Monthly Financial Highlights (Continued)

Fuel Revenue Through April 30, 2018

$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	16,036	$ (3,738)	↓	11,867	$ 4,169	↑
February	18,692	17,763	$ (930)	↓	12,751	$ 5,012	↑
March	20,370	19,180	$ (1,190)	↓	14,248	$ 4,932	↑
April	20,361	19,441	(920)	↓	13,940	5,500	↑
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**	**$ 119,763**	**$(21,191)**		**$ 166,425**	**$ 31,811**	

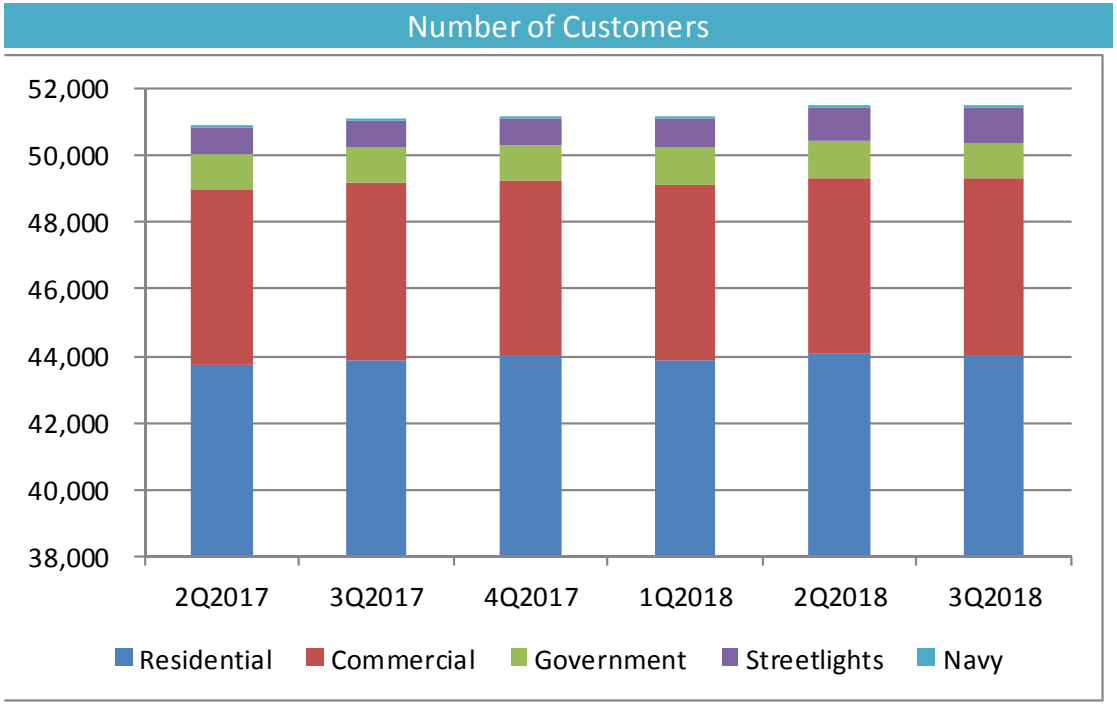
Fuel Revenue/ Cost $000



- Under recovery of LEAC - $13.0 million

April 2018 Monthly Financial Highlights (Continued)

Number of Customers Through April 20, 2018							
	2Q2017	3Q2017	4Q2017	1Q2018	2Q2018	3Q2018	
Residential	43,718	43,902	43,991	43,898	44,065	43,991	
Commercial	5,236	5,252	5,226	5,231	5,262	5,292	
Government	1,077	1,071	1,073	1,076	1,086	1,089	
Streetlights	800	824	823	908	1,005	1,049	
Navy	1	1	1	1	1	1	
Total	**50,832**	**51,050**	**51,114**	**51,050**	**51,419**	**51,422**	

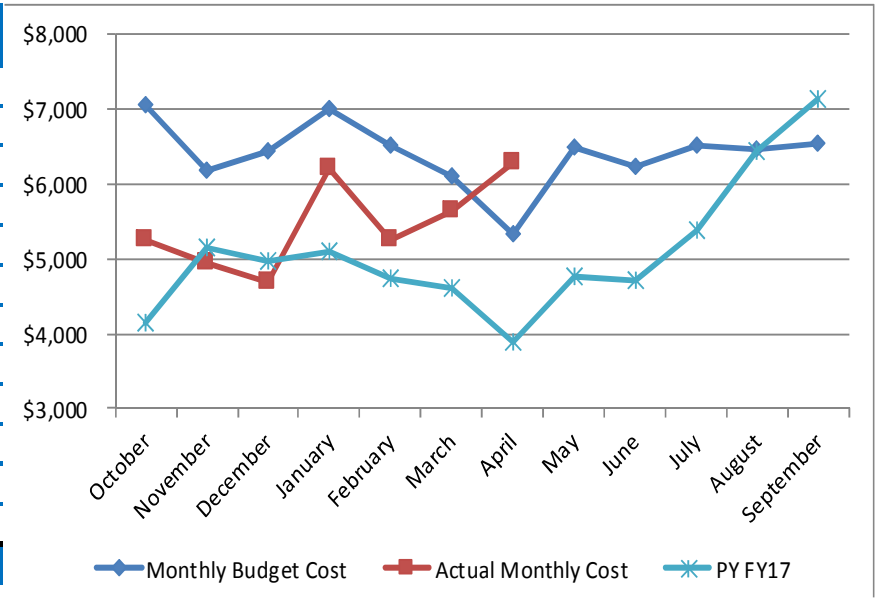


April 2018 Monthly Financial Highlights (Continued)

O&M Cost Through April 30, 2018

$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	6,204	797	↑	5,092	(1,112)	↓
February	6,522	5,252	1,270	↑	4,748	(504)	↓
March	6,091	5,638	453	↑	4,612	(1,026)	↓
April	5,320	6,269	(949)	↓	3,892	(2,378)	↓
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**	**$ 38,237**	**$ 6,347**		**$ 61,045**	**$ (5,633)**	

O&M Cost $000



- DSC greater than target of 1.75

Debt service coverage (DSC) calculation-indenture	2013	2014	2015	2016	2017	YTD APR 2018
Senior lien coverage	3.36	3.16	3.62	3.28	2.65	2.69
Aggregate debt service coverage	1.88	1.98	2.62	3.28	2.65	2.69
Debt service coverage (DSC) calculation-IPP as O&M						
Senior lien coverage	2.16	2.55	2.56	2.45	1.79	1.80
Aggregate debt service coverage	1.21	1.41	1.85	2.45	1.79	1.80

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

Issues for Decision

Resolution No. 2018-11:

Relative to : Relative to the request to petition the Guam Public Utilities Commission to maintain the current LEAC rate in the new LEAC period of August 1, 2018 to January 31, 2019

What is the project's objective? Is it necessary and urgent? The objective of adjusting or not adjusting the Levelized Energy Adjustment Clause (LEAC) rate is to recover the cost of fuel and authorized fuel related expenses to the extent that it does not cause extraordinary hardships on GPA customers. In the upcoming LEAC period, we are proposing not to change the current LEAC rate of $0.154242/kWh, however if the price of fuel increased above the estimated $77.13 per barrel, GPA will petition PUC for a new LEAC rate effective November 1, 2018.

Where is the location? The LEAC rate affects all the rate payers**.**

How much will it cost? The projected under-recovery for the LEAC period with no change to the rate is $10.1M by the end of the LEAC period on January 31, 2019.

When will it be completed? The LEAC period covered in this resolution is from August 1, 2108 to January 31, 2019.

What is its funding source? The funding source is the LEAC surcharge imposed on all ratepayers with the exception of the Navy. The Navy is billed on actual fuel cost basis each month.

The RFP/BID responses: No bid or RFP required for this petition.

CONSOLIDATED
COMMISSION ON UTILITIES
Guam Power Authority • Guam Waterworks Authority
P.O.BOX 2977 • Agana,Guam 96932

GUAM CONSOLIDATED COMMISSION ON UTILITIES

RESOLUTION NO.: 2018 - 11

AUTHORIZING THE MANAGEMENT OF THE GUAM POWER AUTHORITY TO PETITION THE GUAM PUBLIC UTILITIES COMMISSION FOR NO CHANGE IN THE LEVELIZED ENERGY ADJUSTMENT CLAUSE

WHEREAS, the Guam Public Utilities Commission (GPUC) has established a Tariff under which the Guam Power Authority (GPA) is allowed to recover its fuel costs and fuel related costs under a factor which is reset and trued up every (6) six months through the Levelized Energy Adjustment Clause (LEAC); and

WHEREAS, the deadline for the next filing is June 15, 2018; and

WHEREAS, for the LEAC period covered from February 1, 2018 through July 31, 2018, GPA requested a two-phase approach in increasing the secondary LEAC rate of $0.117718/kWh to $0.147266/kWh on February 1, 2018 and then to $0.154242/kWh in May 2018 in anticipation of rising prices in the fuel market and to recover at least 70% of the under recovery at the end of the period; and

WHEREAS, during this period, using this two-phase LEAC increase method, GPA was able to reduce the under-recovery balance of $16.8M as of January 31, 2018 to $9.5M by July 31, 2018 thus projecting to recover $7.3 million as of July 31, 2018; and

WHEREAS, the average market price of fuel in the initial filing for the current period was approved at $65.23/bbl for the (6) six-month period ending July 31, 2018, the current projection for the same period is $63.73/bbl and the projected price of fuel for the period ending January 31, 2019 is $77.13/bbl; and

WHEREAS, OPEC and its allies, whose production was at its lowest level in May 2018 since April 2017, is expected to meet later this month to discuss the United States' proposed sanctions on Iran that may affect their market share as well as their allies and the impact on their oil production levels; and

WHEREAS, GPA desires to err on the side of caution until the outcome of this June meeting is determined; and

WHEREAS, although GPA will file the required LEAC schedules, it has determined that it will not petition for a change in the LEAC factor for secondary voltage service customers as well as alternative voltage customer for the period of August 1, 2018 to January 31, 2019; and

WHEREAS, based on this status quo approach, an under-recovery of about $10.1M is anticipated by the end of the LEAC period on January 31, 2019 which will have some impact on the working capital and other financial ratios however GPA will be able to manage in a short term period; and

WHEREAS, if the price of fuel continues to increase above the projected $77.13/bbl, GPA will file a proposed new LEAC rate in October 2018 to be effective November 1, 2018.

WHEREAS, GPA now is requesting the Consolidated Commission on Utilities to authorize the Authority to file such petition with the Guam Public Utilities Commission; and

NOW, THEREFORE BE IT RESOLVED, by the Consolidated Commission on Utilities as follows:

The General Manager of the Guam Power Authority is authorized to petition the Guam Public Utilities Commission for the LEAC rate to remain at $0.154242/kWh effective for the period from August 1, 2018 thru January 31, 2019. (LEAC factors for alternative voltage levels are as reflected in the attached spreadsheets in the attached Exhibit A.)

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

DULY AND REGULARLY ADOPTED AND APPROVED THIS 5th DAY OF JUNE 2018

Certified by:	Attested by:
_____	_____
JOSEPH T. DUENAS	**J. GEORGE BAMBA**
Chairperson	Secretary
Consolidated Commission on Utilities	Consolidated Commission on Utilities

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

The foregoing is a full, true and correct copy of the resolution duly adopted at a regular meeting by the members of the Guam CCU, 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: _____

GPA
Summary of Proposed LEAC Rate

		@ 70% Cost Recovery Approved Eff 2/01/2018	@ Full Cost Recovery Proposed [2] Eff 8/01/2018	@ Full Cost Recovery Updated [3] Eff 8/01/2018
1	Average Price per Bbl-RFO	$ 65.23	$ 74.59	$ 77.13
2	Average Price per Gal-Diesel	$ 89.86	$ 97.05	$ 98.54
3	Number 6 (HSFO/LSFO)	$ 64,848	$ 77,975	$ 80,624
4	Number 2 (Diesel)	33,177	36,226	36,783
5	Renewable (Solar)	5,610	4,511	4,511
6	TOTAL COST	$ 103,635	$ 118,712	$ 121,918
7	Handling Costs	5,725	4,519	4,527
8	Total Current Fuel Expense	$ 109,360	$ 123,231	$ 126,445
9	Civilian Allocation	80.91%	81.12%	81.12%
10	LEAC Current Fuel Expense	$ 88,485	$ 99,967	$ 102,575
11	Deferred Fuel Expense	17,863	9,183	9,460
12	Total LEAC Expense	$ 106,348	$ 109,150	$ 112,035
13	Less: Trans. Level Costs	(5,977)	(6,510)	(6,682)
14	Distribution Level Costs	$ 100,371	$ 102,640	$ 105,354
15	Under recovery at the end of the period	$ (11,428)	$ -	$ -
16	Adjusted Distribution Level Costs	$ 88,943	$ 102,640	$ 105,354
17	Distribution Level Sales (mWh)	603,962	621,688	621,688
18	LEAC Factor Distribution [1]	0.147266	0.165100	0.169464
19	Current LEAC Factor Distribution	0.117718	0.154242	0.154242
20	Increase/(Decrease)	0.02955	0.01086	0.01522
21	Monthly Increase/(Decrease) - 1000 kWh	$ 29.55	$ 10.86	$ 15.22
22	% Increase/(Decrease) in LEAC	25.10%	7.04%	9.87%
23	% Increase/(Decrease) in Total Bill	13.92%	4.36%	6.12%
24	Discount (3%) - Primary 13.8 KV	$ 0.149579	$ 0.160126	$ 0.164359
25	Discount (4%) - 34.5 KV	$ 0.149148	$ 0.159665	$ 0.163886
26	Discount (5%) - 115 KV	$ 0.147312	$ 0.157700	$ 0.161868

(1) There were two LEAC rates approved by PUC for the period ending July 31, 2018. Effective May 1, 2018, the rate was increased to $.0154242/kWh

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

Issues for Decision

Resolution No. 2018-12:

Relative to: Authorizing the Management of Guam Power Authority to Extend the Current contract for the Supply of Residual Fuel Oil No.6 for Three (3) Months.

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

The Guam Power Authority's current contract for the Supply of Residual Fuel Oil No.6 is expiring in August 31, 2018. Solicitation for a new supplier is in progress and award of the contract is anticipated to be in September 2018.
An extension of the current contract for 3 months is necessary to allow the supplier for the new contract sufficient time for mobilization.

Where is the location?

Residual Fuel Oil No.6 will be supplied to the baseload plants

1. Cabras 1&2
2. MEC 8&9

How much will it cost?

The 3-month contract extension is estimated to exceed $1.5M requiring prior approval from the PUC.

When will it be completed?

The 3-month extension period shall commence on or September 01, 2018 and will expire on November 30, 2018.

What is its funding source?

Fuel revenue funds

The RFP/BID responses:

The IFB solicitation is in progress. Award of contract is anticipated to be in August 2018.

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

RESOLUTION NO. 2018-12

AUTHORIZING THE MANAGEMENT OF THE GUAM POWER AUTHORITY (GPA) TO PROCEED WITH THE EXTENSION OF THE CONTRACT FOR THE SUPPLY OF RESIDUAL FUEL OIL NO. 6 (GPA-068-12) WITH HYUNDAI CORPORATION

WHEREAS, the five (5) year contract period with Hyundai Corporation for the Supply of Residual Fuel Oil (RFO) for the Baseload Power Generating Units under GPA-068-12 will expire on August 31, 2018; and

WHEREAS, the Authority released an Invitation For Bid for the Supply of Residual Fuel Oil No. 6 as approved by the Consolidated Commission on Utilities through adoption of Resolution No. 2017-40 and PUC Docket 18-01; and

WHEREAS, the new Invitation For Bid for the procurement of Residual Fuel Oil No.6 for the Baseload plants under IFB GPA-019-18 shall be for a base period of two (2) years, to commence on or about September 01, 2018 through August 31, 2020, with three (3) additional one-year extension options; and

WHEREAS, the Authority anticipates awarding a contract by August 2018, however, GPA would need to provide adequate mobilization period for the supplier; and

WHEREAS, GPA and Hyundai have negotiated and agreed to a three-month extension up to November 30, 2018, under the same contract terms and condition; and

WHEREAS, GPA management considers the extension to be reasonable, in the best interests of GPA and its customers, and to allow for adequate transition to the new fuel supplier; and

WHEREAS, GPA requests for authorization to negotiate for a three (3) month extension of the current contract with Hyundai Corporation from September 01, 2018 to November 30, 2018; and

WHEREAS, the estimated total cost for three (3) month extension is approximately $36M and shall be funded under the fuel revenue funds.

NOW THEREFORE, BE IT RESOLVED, by the Consolidated Commission on Utilities, subject to the review and approval of the Public Utilities Commission, as follows:

1. GPA is hereby authorized to proceed with the negotiation for an extension of contract GPA-068-12 for the Supply of Residual Fuel Oil No. 6, for a period not to exceed three (3) months to commence on September 01, 2018 and to expire on November 30, 2018.

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

DULY and REGULARLY ADOPTED this __th day of June 2018.

Certified by: **Attested by:**

JOSEPH T. DUENAS
CHAIRMAN

J. GEORGE BAMBA
SECRETARY

SECRETARY'S CERTIFICATE

I, J. GEORGE BAMBA, Secretary for the Consolidated Commission on Utilities do hereby certify that the foregoing is a full, true, and correct copy of the resolution duly adopted at a regular meeting of the members of Guam's Consolidated Commission on Utilities, duly and legally held at the meeting place thereof on June __, 2018, at which meeting of all said members had due notice and at which at least s majority thereof were present, and

At said meeting said resolution was adopted by the following vote:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

As of the date of this certification, said original resolution has not been amended, modified, or rescinded since the date of its adoption, and the same is now in full force and effect.

SO CERTIFIED this __th day of June, 2018.

J. GEORGE BAMBA
Secretary
Consolidated Commission on
Utilities

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O. BOX 2977, HÅGATÑA, GUAM 96932-2977

May 29, 2018

Hyundai Corporation
140-2 Gye-dong,
Jongno-gu, Seoul 110-793
Korea
Tel: +822-390-1222

ATTN: MR. MYUNG KEUN CHA
General Manager (Petroleum Products Team)

SUBJECT: **Notice of Intent – Extension of Contract**
Re: **Residual Fuel Oil Supply Contract (GPA-068-12)**

Dear Mr. Cha:

As earlier communicated with Mr. Minha Do, the Authority would like to extend the current contract (GPA-068-12) beyond the August 31, 2018 expiry date.

Attached is a copy of the Amendment 4 of the Contract for your concurrence.

Subject to the approval of the Guam Consolidated Commission on Utilities (CCU) and the Public Utilities Corporation (PUC), the current contract under GPA-068-12 shall be extended for a period not to exceed three (3) months to commence on September 01, 2018 and to expire on November 30, 2018. All other provision and conditions of the contract as amended shall remain unchanged.

Thank you.

Sincerely,

JOHN M. BENAVENTE, P.E.
General Manager

AMENDMENT NO. 4

TO THE FUEL OIL SUPPLY CONTRACT
BETWEEN
THE GUAM POWER AUTHORITY
AND
HYUNDAI CORPORATION

EFFECTIVE DATE

THIS AMENDMENT NO. 4, to the Fuel Oil Supply Contract under reference IFB GPA-068-12, hereinafter referred to as the "CONTRACT," between the GUAM POWER AUTHORITY, hereinafter referred to as "GPA" and HYUNDAI CORPORATION, hereinafter referred to as "CONTRACTOR, shall become effective on September 01, 2018.

RECITALS

WHEREAS, the three (3) year contract extension set forth in Section 3 of the CONTRACT expires at midnight on or about August 31, 2018; and

WHEREAS, GPA desires and Hyundai have agreed to extend the contract for another three (3) months to commence on September 01, 2018 and to expire on November 30, 2018; and

WHEREAS, the parties desire to amend the CONTRACT with changes to certain provisions set forth in Section 3 (Contract Term) of the CONTRACT; and

WHEREAS, Section 40 (Amendment and Waiver) of the CONTRACT authorizes amendment to the CONTRACT by an instrument in writing signed by the party against whom enforcement of the change, waiver, alteration, amendment, discharge, or termination is sought.

NOW THEREFORE, for and in consideration of the mutual covenants contained in the CONTRACT and herein, and subject to the approval of the Guam Consolidated Commission

on Utilities (CCU) and the Public Utilities Corporation (PUC), the parties hereto do hereby agree as follows:

SECTION 3. CONTRACT TERM

Delete: "with options to extend for THREE (3) year term, upon mutual agreement of both parties" And replace with: "with options to extend for THREE (3) year and THREE (3) months term, upon mutual agreement of both parties"

All other terms and condition of the Contract as amended shall remain unchanged.

SO AGREED this 31 day of May 2018 by:

For the Guam Power Authority:

JOHN M. BENAVENTE, P.E.
General Manager

For Hyundai Corporation:

HYUNDAI CORPORATION

MONG HYUCK CHUNG
Chairman & C.E.O.
Mong Hyuck Chung
Chairman & C.E.O.

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

GWA Resolution No. 34-FY2018 / GPA Resolution No. 2018-13
Relative to Approving the Change Order for the GPWA SCADA System Contract to Include the Ugum Surface Water Treatment Plant SCADA Integration Upgrade

What is the project's objective and is it necessary and urgent?
The objective of the change order is to upgrade and integrate the Ugum SWTP to the new GPWA SCADA System. The upgrades need to be performed first to integrate the Ugum SWTP SCADA system to the new GPWA SCADA System. The upgrades include major replacements and improvements on the Main Programmable Logic Controller, SCADA Server, SCADA client workstations, Profibus cabling and integration of the remote raw water pump station to the plant, software upgrades and motor control drives.

The upgrades shall correct the following issues, which does not include all issues described in the Siemens assessment report:

- The Ugum SCADA System consists of a SCADA Server with 2 client workstations but only the SCADA Server is operational. The SCADA Server is also running on Windows Server 2003 which is obsolete and no longer supported by Microsoft. Data trending is not archived properly resulting in loss of data. The Raw Water Pump Station, where the treatment process begins, is not visible in the control system. The Main PLC consists of a Read Access Memory (RAM) that will lose the program and all stored information in event of a momentary power loss and failure of the backup batteries which can cause the plant to shut down. The backwash for Cell #1 is not working properly; the cause has not been found.

- The Ugum SWTP is the major water source to the villages of Talofofo, Malojloj, Inarajan, Merizo and Umatac. The change order is necessary and urgent to ensure continual operation of the plant to deliver reliable water service to these areas. SCADA integration is necessary to allow the operations of Ugum SWTP to be visible to GWA Systems Control Center and key Water personnel to better coordinate and manage the water operations. Additionally, the change order is necessary to address the Ugum SWTP's cyber security vulnerabilities that have been identified in the Ernest and Young's vulnerability and cyber security assessment.

Where is the location?
Ugum Water Treatment Plant and Ugum Raw Water Pump Station, Talofofo.

How much will it cost?
The total amount of the change order proposal is Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25).

When will it be completed?
The contract time is 126 calendar days.

What is the funding source?
The funding source will be from 2016 CIP EE 09-08 AND EE 09-09.

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. 34-FY2018

GPA RESOLUTION NO. 2018-13

RELATIVE TO APPROVING THE CHANGE ORDER FOR THE GPWA SCADA SYSTEM CONTRACT TO INCLUDE THE UGUM SURFACE WATER TREATMENT PLANT SCADA INTEGRATION UPGRADE

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, GPA issued a Multi-Step Bid Invitation No. GPA-066-16 soliciting bid proposals from qualified bidders to design and install a Supervisory Control and Data Acquisition ("SCADA") system that would run both Power SCADA and Water/Wastewater SCADA on a common platform; and

WHEREAS, GPA received two bid proposals in response to the Multi-Step IFB and Benson Guam Enterprises, Inc. was determined the lowest responsive and responsible bidder that met all the requirements and was therefore awarded the contract (Exhibit B); and

WHEREAS, on September 27, 2016, CCU approved GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA) authorizing GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc for the total amount of $1,951,147; GPA's share was $1,518,769 and GWA's share was $432,705 (Exhibit B); and

WHEREAS, on October 27, 2016, Guam PUC approved GPA Docket 17-01 and GWA Docket 17-01 authorizing GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc for the total amount of $1,951,147; GPA's share was $1,518,769 and GWA's share was $432,705 that reference GPA Docket 14-09 approved by the Guam PUC on December 1, 2014 authorizing GPA to expend $1,800,000 of its funds for the SCADA system (Exhibit B); and

WHEREAS, On December 2016, GPA and GWA executed a contract with Benson Guam Enterprises, Inc and issued a Notice to Proceed and Purchase Orders to Benson Guam Enterprises, Inc (Exhibit C); and

WHEREAS, Siemens is the subcontractor that is designing, developing, testing and delivering a Siemens SCADA system to GPA and GWA to manage the island-wide power, water and wastewater operations; and

WHEREAS, the Ugum SWTP has a Programmable Logic Controller (PLC) control system and a Siemens SCADA system, which are both products of Siemens, that monitor and control the operations of the plant; and

WHEREAS, after a power glitch, Ugum's Main PLC failed to startup that eventually caused the Ugum SWTP to shut down; and

WHEREAS, GPA Resolution No. 2017-22 and GWA Resolution No. 31-FY2017 adopted on May 23, 2017 and authorizing the General Managers of GPA and GWA the authority to obligate their respective agencies up to and including the threshold amount of $750,000, on January 9, 2018 GWA issued a change order no. 2 to Benson Guam Enterprises, Inc. to have Siemens conduct an on-site assessment on Ugum's Siemens SCADA and PLC control system and provide emergency recovery and on-call services. The change order was in the amount of $90,716.60 to bring GWA's total share to $523,421.60 for a total contract cost of $2,042,190.60; GPA share remained at $1,518,769.00; and

WHEREAS, GPA and GWA issued other change orders (Exhibit C) in the amount of $183,339.56 and $94,074.91 respectively to bring GPA's total share to $1,702,108.56 and GWA's total share to $617,496.51 for a total contract cost of $2,319,605.07, and to extend the

completion date to October 1, 2018 to compensate for time needed to complete the change order work; and

WHEREAS, upon completing its assessment, Siemens submitted a report (Exhibit D) recommending GWA to upgrade Ugum SWTP's Main PLC and SCADA system with a redundant system, upgrade the software, integrate the raw water intake pump station to the plant's SCADA system, and replace defective equipment and cabling that were considered necessary to ensure continual operation of the plant and SCADA integration; and

WHEREAS, Ernest and Young (E&Y), under a separate contract, performed a vulnerability and cyber security assessment of GWA facilities and recommended GWA to address vulnerabilities found on the Ugum SWTP SCADA system; and

WHEREAS, Benson Guam Enterprises, Inc. has submitted a change order proposal (Exhibit A) in the amount of $687,506.25 to perform the recommended upgrades of the Ugum SWTP SCADA and PLC system as described in the assessment report (Exhibit D) and integrate the Ugum SWTP SCADA system to the new GPWA SCADA System that shall concurrently address the cyber security vulnerabilities found on Ugum SWTP SCADA system by E&Y; and

WHEREAS, GWA Management finds the change order proposal of $687,506.25 to be acceptable; and

WHEREAS, GWA Management seeks CCU approval to issue a change order to Benson Guam Enterprises, Inc. in the amount of $687,506.25 to bring GWA's total requested authorized funding amount to a maximum of $1,305,002.76; and

WHEREAS, GWA Management further seeks CCU approval to petition the PUC to approve the change order amount of $687,506.25 to bring GWA's total authorized funding amount to $1,305,002.76; and

WHEREAS, the funding source of the change order will be from 2016 CIP EE 09-08 and EE 09-09; and

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

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the change order proposal submitted by Benson Guam Enterprises, Inc. are fair and reasonable.
3. The CCU hereby authorizes the management of GWA to accept the change order proposal from Benson Guam Enterprises, Inc. attached hereto as EXHIBIT A, and which is also incorporated into this Resolution in its entirety.
4. The CCU hereby further authorizes the management of GWA to process the change order proposal with Benson Guam Enterprises, Inc.in the amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25).
5. The CCU hereby further approves the requested total maximum authorized funding amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25), funded by 2016 CIP EE 09-08 and EE 09-09.
6. The CCU hereby further authorizes the management of GWA to seek from the PUC its approval for GWA to issue the change order to Benson Guam Enterprises, Inc. in the amount of Six Hundred Eighty-Seven Thousand Five Hundred Six Dollars and Twenty-Five Cents ($687,506.25) and to approve GWA's total funding amount of the GPWA SCADA System to One Million Three Hundred Five Thousand Two Dollars and Seventy-Six Cents ($1,305,002.76).

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

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DULY AND REGULARLY ADOPTED, this 5th day of June 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

Do it Best Benson
A Tanvy Group

BENSON GUAM ENTERPRISES, INC.
P.O. Box 6157, Tamuning, Guam 96931-6157
779 Route 8, Hagatna, Guam 96910-2019
Tel: (671) 477-7562 Fax: (671) 477-3736
email: monito.co@bensonguam.com
general email: benson@bensonguam.com
www.bensonguam.com
Support: MIKKEL TAN I. VY FOUNDATION

Date: May 29, 2018

To: Miguel C. Bordallo, P.E.
General Manager, GWA

Cc: John M. Benavente, P.E.
General Manager, GPA

From: Benson Guam Inc.

Subject: Bid No. GPA 066-16 - Request for Contract Modification –
CHANGE ORDER NO. 5
Ref: GWA Purchase Order No. 300305-000 OP

Dear Mr. Bordallo,

We are hereby submitting a change order proposal to include the various services, hardware, equipment and accessories for the Ugum Water Treatment Plant (WTP) based on recommendations by Siemens Singapore relative to the On-site Assessment made as a result of their visit from January 23, 2018 to January 26, 2018.

This change order will result in an increase of contract scope and price.

Total Amount based on Siemens Proposal CS-18-8092R2 Rev 1 ----------	$ 455,738.00
Integration of the Ugum WTP to the new GPWA SCADA System ---------- (As per attached listing)	119,100.00
TOTAL AMOUNT:	$ 574,838.00
Benson service charge and mark-up: 15% ----------	86,225.70
Total Amount:	$ 661,063.70
Plus: 4% Administrative Expense ----------	26,442.55
GRAND TOTAL:	$ 687,506.25
Amount of P.O. 300305-000 OP as per Change Order No. 4 ----------	617,496.51

New Contract Amount as a result of Change Order No. 5 ---------- $ 1,305,002.76

(Page 1)

Continuation – Page 2

NOTE:

a. Completion Time: 18 weeks after Receipt of Confirmed Order.

b. Payment Terms: Net 30 days upon presentation of progress invoice

c. Item 5.5.1. FAT – If Factory Acceptance Test is required, please add cost of each attendee as follows:
   (1) Round trip Airfare to Singapore: U.S. $1,100.00/person
   (2) Average Hotel Room: U.S. $220.00 per night per person
   (Recommended stay of at least 3 days/2 nights)

d. Item 15. Training – attached herewith is the 2018 Training Calendar and Rate in Singapore Dollar which you can select which type of training you need and number of days of stay in Singapore.
   For your information:
   (1) U.S.$1.00 = SGD 1.35
   (2) Round-trip Plane Fare: U.S. $1,100.00/ person
   (3) Average Hotel Room: U.S.$220.00 per night per room

e. Power Quality Assessment – proposal to follow.

f. Main PLC Cabinet – if lockset for the existing cabinet door is available, we estimate to cost $500.00 for the lockset and labor to install this.

Thank you for your time and consideration to this matter. Should you have any questions regarding this request, please feel free to contact the undersigned at (671) 687-2788.

Very truly yours,
BENSON GUAM ENT., INC.



Monito S. Co
Contract Administrator

SIEMENS CS-18-8092R2 7 May 2018

PROPOSAL (II): RECOMMENDATION BASE ON SITE ASSESSMENT (UPGRADE WORKS)

GUAM WATERWORKS - UGUM

SIEMENS CS-18-8092R2 7 May 2018

1. Introduction

Siemens is a global powerhouse in electronics and electrical engineering, operating in the industry, energy and healthcare sectors.

In 1908, the company established a Technical Bureau in Singapore, known as Siemens Brothers Dynamo Works Limited, to search for new business opportunities in the then flourishing British colony. 100 years on, Siemens has grown with Singapore, and has helped to develop the Lion City into the modern, economic powerhouse it is today.

At present, Siemens has 6 companies and employs 2,200 people, and is one of the largest German companies in Singapore.

2. Our Division

The Customer Service Division (previously known as Industry

Technologies) is a life cycle services provider that provides solutions and services over the entire life cycle of industrial plants and infrastructure projects. This would include equipment supply, project management and installation and commissioning services for Greenfield projects (new plant constructions) and existing running plants

As maintenance and service partners to owners of running plants, we have been working with engineering and maintenance departments to provide on call service as well as consulting and execution for modernizations, retrofits and expansions for automation and drive systems. The combination of these capabilities makes us a good choice if you are looking for a "one stop shop" for electrical engineering products and services.

3. Our Services

Project: We have a group of experience and competent Project team to manage all large scale and small scale projects.

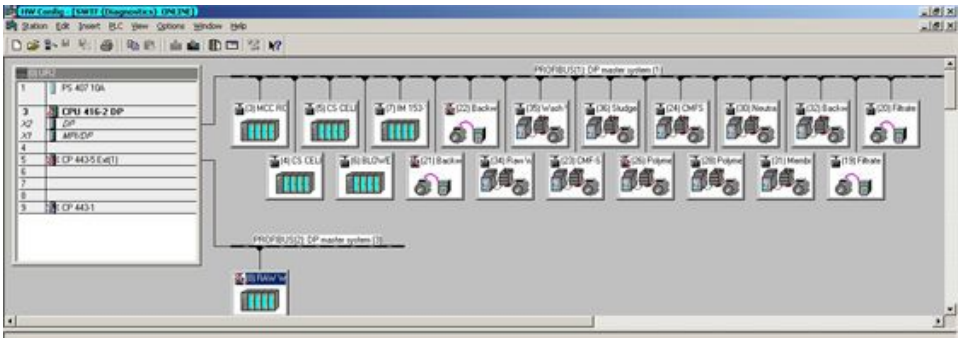
Service: We offer wide range of services that consist of Emergency Breakdown at 24 hours per day and 365 days per year, Maintenance Contract, Marine Services, Repair Services, Training, Data Backup, Services and Spare Parts.

4. Message from Project Manager

We thank you for given us an opportunity to submit our proposal as a Technical Specialist in the Automation Line. The subsequent chapters will shows how we are going to implement the system in using the most advance technology available in today’s market and reputable product from different Multi-National Company in the world. Rests assure that our prices are competitive and all items are quoted based on initial site survey.

SIEMENS CS-18-8092R2 7 May 2018

GWA-Ugum Existing System :-



Scope & Proposed Upgrade Works

The scope of work includes supply, install, testing and commissioning of the PLC, Scada, Remote connect & VFD

No.	Description	Qty	Price/Unit (US$)	Total Prices (US$)
1	Main PLC System The current PLC system hardware configuration with 6 ET200M slave stations as per above GWA-Ugum existing system Proposal Upgrade - PLC H-System The SIMATIC S7-400H suitable as a controller for high-availability processes, with two H CPUs of the same type; in the event of a fault, changeover takes place from the master system to the standby station. The method of event-driven synchronization supports fast and bumpless changeover to the redundant CPU in the event of a fault. It resumes processing at the point of interruption without any loss of information or interrupts. All components can be replaced during normal operation (hot swapping). When a CPU is replaced, all the current programs and data are automatically reloaded. The SIMATIC S7-400H is suitable for high-availability processes with hot standby requirements (processes with changeover times shorter than 100 ms).			
1.1	Hardware (a) 6ES7400-0HR03-4AB0 SIMATIC S7-400H, 416-5H system-bundle H-system with 1 x UR2-H, w/o memory card, 2 x PS407 C120/230V, 10A, 4 x sync-module up to 10m, 2 x sync-cable 1m, 2 x CPU 416-5H, 4 x back-up batteries	1	20,856.00	20,856.00

	(b) 6ES7952-1KP00-0AA0 SIMATIC S7, memory card for S7-400, long version, 5V Flash-Eprom, 8 Mbytes	2	1,346.00	2,692.00
2	<u>WinCC Scada</u> The current system is a server configuration with 2 x clients. The server and 1 x client station is in the control building. The 2nd client station is in the MCC room. <u>Proposal Upgrade - 2 Server & 2 Client</u> The SIMATIC Scada systems and SIMATIC Industrial PCs together form a high-performance and reliable platform for the acquisition, evaluation, and visualization of data. The harmonized and certified total package of hardware and software offers the highest quality in all industries.			
2.1	<u>Hardware</u> (a) 6AG4104-4HN24-0HB2 (Server IPC) SIMATIC IPC547G (Rack PC, 19", 4HU); Interfaces: 2x USB 3.0 on the front; 2x Intel Gigabit Ethernet, 2x PS/2, Audio on the rear side; 7 slots: 5x PCI Express, 2x PCI, Temperature and Fan monitoring; Watchdog; Card retainer Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache, iAMT); Mainboard: (chipset C236, 1x DVI-D, 2x display ports V1.2, 4x USB 3.0 and 4x USB 2.0 on the rear side, 1x USB 2.0 internal, 1x COM 1; RAID onboard) RAID1, 1 TB (2x 1 TB HDD) in interchangeable insert, hot-swap, front-side 16 GB DDR4 SD-RAM (2x 8 GB), Dual Channel Enclosure blue chromated, 2x 100/240V AC redundant Industrial power supply unit, DVD +/-RW (slim) Graphics onboard Windows Server 2016 Standard edition incl. 5 clients, 64 bit MUI (en/de/fr/it/es) SIMATIC IPC Image & Partition Creator V3.5 enclosed Power supply cable USA	2	6,380.00	12,760.00
	(b) 6AG4104-4HA14-0CB2 (Client-IPC) SIMATIC IPC547G (Rack PC, 19", 4HU); Interfaces: 2x USB 3.0 on the front; 2x Intel Gigabit Ethernet, 2x PS/2, Audio on the rear side; 7 slots: 5x PCI Express, 2x PCI, Temperature and Fan monitoring; Watchdog; Card retainer Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache, iAMT); Mainboard: (chipset C236, 1x DVI-D, 2x display ports V1.2, 4x USB 3.0 and 4x USB 2.0 on the rear side, 1x USB 2.0 internal, 1x COM 1; RAID onboard) 1x 1 TB HDD, internal, (0.2 g vibration, 1 g shock) 8 GB DDR4 SD-RAM (2x 4 GB), Dual Channel Enclosure blue chromated, 2x 100/240V AC redundant Industrial power supply unit, DVD +/-RW (slim) Graphics onboard Windows 10 IoT Enterprise LTSB 2015, MUI (en/de/fr/it/es), 64 bit SIMATIC IPC Image & Partition Creator V3.5 enclosed Power supply cable USA	2	4,197.00	8,394.00

	(c) SIMATIC IPC, accessories, service option for rack PC, warranty extension to a total of 48 months *contains no data storage medium* The purchase of this supplementary agreement entitles you to the following services for SIMATIC Rack IPCs for 48 months after purchasing the device (i) Free repairs for 48 months in one of our authorized repair shops worldwide (ii) Return shipping to the customer. (iii) Repair time 3 to 5 business days.	4	250.00	1,000.00
2.2	<u>Software</u> (a) 6AV6381-2BQ07-4AX0 WinCC system software V7.4 SP1, RC 65536 (65536 Power Tags), runtime/configuration software on DVD, floating license, license key on USB stick, class A, 5 languages (de,fr,en,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	1	14,994.00	14,994.00
	(b) 6AV6381-2CA07-4AX0 WinCC RT Client V7.4 SP1 runtime software, single license, SW and documentation on DVD, license key on USB stick, class A, 5 languages (de,fr,en,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	2	3,022.00	6,044.00
	(c) 6AV6362-1AD00-0BB0 SIMATIC WinCC/Web Navigator, 3 client licenses (countable), Option f. WinCC V7.4 or higher and WinCC Prof. V14 or higher, runtime software, Single license, License key on USB stick	1	8,990.00	8,990.00
	(d) 6AV6362-4AH00-0BB0 WinCC/Industrial-Data-Bridge,3000 tags (countable), option for WinCC V7.4 or higher, and WinCC Prof. V14 or higher, data exchange with databases and OPC servers, runtime software, single license, license key on USB stick	2	4,204.00	8,408.00
	(e) 6ES7810-5CC12-0YA5 SIMATIC S7 STEP 7 Prof 2017/V15 combo incl. TIA Portal, floating license for 1 user, E-SW, software and documentation on DVD, license key on USB stick, class A, 5/6 languages (de,en,fr, sp,it)/(cn), executable on Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016, Windows 7 SP1, Windows 10 Professional, Windows 10 Enterprise Reference HW: S7-300/400 (S7-1200/1500)	1	3,939.00	3,939.00

	(f) 6ES7658-1EX58-0YA5 SIMATIC CFC V9.0, software floating license F.1 User E-SW, SW and document on CD, license key on USB-stick, class A, 6 languages (G,E,F,I,S,C) executable under Win 7 Ultimate Windows 10 Enterprise LTSB Server 2012 R2 reference-HW: PC/PG	1	3,403.00	3,403.00
	(g) 6AV6371-1CA07-4AX0 SIMATIC WinCC/Server V7.4, option for WinCC V7.4, runtime software, single license, license key on USB stick	2	4,405.00	8,810.00
	(h) 6AV6371-1CF07-4AX0 SIMATIC WinCC/Redundancy V7.4, option for SIMATIC WinCC V7.4, runtime software, single license. f. 2 installations	1	4,577.00	4,577.00
	(i) 6AV6381-2BF07-4AX0 WinCC system software V7.4 SP1, RT 65536 (65536 Power Tags), runtime software, single license, SW and documentation on DVD, License key on USB stick, class A, 5 languages (defr,en,fr,sp,it), executable under Windows 7 Prof/Ent/Ult +SP1 (32-bit)/ 7 Prof/Ent/Ult +SP1 (64 bit)/ 8.1 Prof./ENT (32-bit)/ 8.1 Prof./ENT (64 bit)/ 10 Prof./ENT (64 bit)/ Server 2008 R2+SP1 (64 bit)/ Server 2012 R2 (64 bit)/ Server 2016 (64 bit)	1	8,855.00	8,855.00
3	Remote Connect Network The current system via mobile communication support Proposal Upgrade - Remote Access The new management platform for remote networks, SINEMA Remote Connect, is a server application. SINEMA Remote Connect provides users access to remote plants or machines for convenient and secure maintenance			
3.1	Hardware (a) 6GK1704-1VW05-0AA0 Industrial Ethernet Softnet security client V5 software for setting up secure IP based VPN connections from a PC/PG to network segments, by SCALANCE S, SCALANCE M and security CPs single license is protected for 1 installation runtime software, software and electr. manual on CD-ROM, software 2 languages (de, en); HB 5 languages (de, fr, en fr,sp, it) for Windows 7 Ultimate and Professional (32+64 bit),Windows server 2012 R2	1	333.00	333.00
	(b) 6GK5876-4AA00-2BA2 SCALANCE M876-4 4G router; for the wireless IP communication from ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in europe, VPN, firewall, NAT; 4-port switch; 2x SMA antennas, MIMO technology; 1 x digital input, 1 x digital output; observe national approvals	1	1,490.00	1,490.00

	(c) 6GK5896-4MA00-0AA3 ANT896-4MA mobile wireless antenna for GSM (2G), UMTS (3G) and LTE(4G) networks; omnidirectional characteristic, radially rotatable, with additional joint, antenna gain: 2 dBi, incl. SMA connector, IP54, (-40-+85°C), observe national approvals; for direct installation with SMA connection system scope of delivery: 1x ANT 896-4MA, compact instructions as hard copy German/English	1	60.00	60.00
4	Siemens VFD The current drive MicroMaster 440 for the CMF-S Filtrate Pumps #1 & #2, Backwash Pumps #1 & #2 Proposal Upgrade - Sinamics G120 The SINAMICS ® G120 family of closed-loop vector drives offers high levels of integrated safety, energy savings, and network connectivity			
4.1	Hardware (a) 6SL3210-1PE21-8UL0 SINAMICS power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-10% 47-63Hz output high overload : 5.5kW for 200%, 3s,150% 57s,100% 240s ambient temp. -10 to +50 Deg C output low overload: 7,5kW for 150% 3s,110% 57s,100% 240s ambient temp. -10 to +40 Deg C 291 x 100 X 165 (HXWXD), FSB protection IP20 without control unit and panel approved for CU firmware-Version V4.6	2	773.00	1,546.00
	(b) 6SL3210-1PE31-1UL0 SINAMICS G120 power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-20% 47-63Hz, output high overload : 45kW for 200% 3s,150% 57s,100% 240s ambient temp. -20 to +50 Deg C (HO) output low overload : 55kW for 150% 3s,110% 57s,100% 240s ambient temp. -20 to +40 Deg C (LO) 551 X 275 X 237 (HXWXD), FSE protection IP20 without control unit and panel approved. For CU firmware - Version V4.7 HF8	1	4,257.00	4,257.00
	(c) 6SL3244-0BB12-1PA1 SINAMICS G120 control unit CU240E-2 DP E-type safety integrated STO, profibus DP 6DI, 3DO, 2AI, 2AO, Max. 1F-DI PTC/KTY interface USB- and SD/MMC-interface protection IP20 ambient temp. 0 to +50 Deg C without power module and panel	3	225.00	675.00
	(d) 6SL3255-0AA00-4CA1 SINAMICS G120 Basic operator panel (BOP-2)	3	30.00	90.00
5	Engineering Works - Siemens Singapore Setup, power up and pre-commission system	1	30,000.00	30,000.00

SIEMENS CS-18-8092R2 7 May 2018

5.1	Hardware & Software (a) PLC system - Analyze & pre-program (b) Scada system - Analyze & pre-program (c) Remote Access – Scalance router configure & network setting (d) VFD (Sinamics G120) – Drive configure and setting (e) Hardcopy and digital copy of the configuration for each configuration/programmable device (f) Written backup plan for backing up the hard drives (g) Documentation & updating drawing (Auto-Cad version available)			
6 6.1	Siemens Engineering – GWA Ugum Scope of Works (a) Site configuration of PLC system, Scada, Remote access and VFD to accommodate the upgraded system (b) Site testing and commissioning of PLC system, Scada, Remote access and VFD to accommodate the upgraded system (c) Site basic training of PLC system, Scada, Remote access and VFD. Note : (a) Max. 30 days at Guam site for service engineers (b) Including traveling (2 days) (c) Including site training (2 days) (d) Normal working hours (e) Additional US$4,000.00 per day if require at GWA Ugum	1	100,500.00	100,500.00
A			Total Prices for Item 1~6	252,673.00
7 7.1	Danfoss Drive Profibus Network Connection The Profibus connection to the Raw Water Intake System if up and running, it can connect the Danfoss drive through this network. This will enable monitoring and control of these three VFDs Scope of Works (a) FDS as per as per works described in the 3-page. The attached document is titled 'Raw Water Intake System, Ugum (b) Engineering of the changes (c) Installation of Profibus option into the VFDs (d) Hardware configuration changes in the PLC system (e) Control logic addition to the current program to enable Scada monitoring and control (f) Static and dynamics graphics changes in the Scada (g) Site commissioning	1	20,000.00	20,000.00
8	Danfoss Profibus (FC) Cables Supply, install and testing of Profibus cables for the Raw Water ET200 module station to the three Danfoss VFD	1	15,000.00	15,000.00

8.1	Hardware (a) 6ES7972-0BB52-0XA0 SIMATIC DP, Connection plug for Profibus up to 12 Mbit/s 90°cable outlet, Insulation displacement method fast connect, with PG receptacle	4	45.00	180.00
	(b) Danfoss Profibus DP MCA101	3	650.00	1,950.00
9	Fiber Optic (FO) Cables Supply, install and testing of Fiber Optic (FO) cables for following location	1	75,000.00	75,000.00
9.1	Locations (a) Control room to River raw water intake (b) Control room to MCC room (c) Control room to Chemical room			
9.2	Hardware (a) 6GK1503-3CB00 Profibus OLM/G12 V4.0 Optical Link Module with 1 RS485 and 2 glass FOC interfaces (4 BFOC sockets) for standard distances up to 2850 m, with signaling contact and measuring output	6	885.00	5,310.00
B			Total Prices for Item 7~9	117,440.00
10	Yearly Site Inspection A yearly visit is recommended for system checks and to ensure that the important information is backed up. The following activities will be executed: (a) Back up the PLC program (b) Back up the WinCC SCADA program (c) Back up the Simocodes (d) Backup the VFDs parameters (e) Check the diagnostics of the PLC (f) Check the data logger of the WinCC Note : (a) Max. 5 days at Guam site for service engineer (b) Including traveling (2 days) (c) Normal working hours	1	12,000.00	12,000.00
11	Monthly Remote Checks For The Main PLC & The WinCC Scada Every month we will connect remotely to check the diagnostic buffers of the PLC. We will also check the event logger of the WinCC Scada. It is also an opportunity for the plant personnel to feedback any observations that we can look into and clarify and/or rectify Note : (a) Normal working hours	12	1,000.00	12,000.00

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	(b) Max. 8 hours/session			
C			Total Prices for Item 10~11	24,000.00
12	Tools & Test Equipment A. SIRIUS Simocodes (i) 3ZS1312-5CC10-0YA5 SIRIUS Simocode ES 2007 Standard, Floating License for one user engineering software, SW and documentation on CD, license key on USB flash drive Class A, 3 languages (de,en,fr) Executable in: Win 7 SP1 / Win 10 - 64 bit (Prof./Ultimate/Enterprise) / Win Server 2008 R2 Std. SP1 / 2012 R2 / 2016 - 64 bit, Reference hardware: SIRIUS Simocode Pro 3UF7*, communication via system interface (ii) 3UF7941-0AA00-0 USB PC cable for connection to the USB interface of a PC, for communication with Simocode pro or SIRIUS 3RW44 soft starter or modular safety system 3RK3 via the system interface B. Profibus Cable Cutter (i) 6GK1905-6AA00 Profibus fast connect stripping tool, stripping tool for fast stripping of the profibus fast connect bus cable C. Profi-Trace For the Profibus network diagnostics and trouble shooting.	1 1 1 1	543.00 76.00 76.00 7,500.00	543.00 76.00 76.00 7,500.00
D			Total Prices for Item 12	8,195.00
13	Recommended Spare Parts List (a) 6ES7400-0HR03-4AB0 SIMATIC S7-400H, 416-5H system-bundle H-system with 1 x UR2-H, w/o memory card, 2 x PS407 UC120/230V, 10A, 4 x sync-module up to 10m, 2 x sync-cable 1m, 2 x CPU 416-5H, 4 x back-up batteries (b) 6ES7952-1KP00-0AA0 SIMATIC S7, memory card for S7-400, long version, 5V Flash-Eprom, 8 Mbytes (c) 6GK5876-4AA00-2BA2 SCALANCE M876-4 4G router; for the wireless IP communication from ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in Europe, VPN, firewall, NAT; 4-port switch; 2x SMA antennas, MIMO technology; 1 x digital input, 1 x digital output; observe national approvals	1 2 1	20,856.00 1,346.00 1,490.00	20,856.00 2,692.00 1,490.00

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	(e) 6SL3210-1PE21-8UL0 SINAMICS power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-10% 47-63Hz output high overload : 5.5kW for 200%, 3s,150% 57s,100% 240s ambient temp. -10 to +50 Deg C output low overload: 7,5kW for 150% 3s,110% 57s,100% 240s ambient temp. -10 to +40 Deg C 291 x 100 X 165 (HXWXD), FSB protection IP20 without control unit and panel approved for CU firmware-Version V4.6	1	773.00	773.00
	(f) 6SL3210-1PE31-1UL0 SINAMICS G120 power module PM240-2 without filter with built in braking chopper 3AC380-480V +10/-20% 47-63Hz, output high overload : 45kW for 200% 3s,150% 57s,100% 240s ambient temp. -20 to +50 deg. C (HO) output low overload: 55kW for 150% 3s,110% 57s,100% 240s ambient temp. -20 to +40 deg. C (LO) 551 X 275 X 237 (HXWXD), FSE protection IP20 without control unit and panel approved. For CU firmware - Version V4.7 HF8	1	4,257.00	4,257.00
	(g) 6SL3244-0BB12-1PA1 SINAMICS G120 control unit CU240E-2 DP E-type safety integrated STO, profibus DP 6DI, 3DO, 2AI, 2AO, Max. 1F-DI PTC/KTY interface USB- and SD/MMC-interface protection IP20 ambient temp. 0 to +50 deg. C without power module and panel	2	225.00	450.00
	(h) 6SL3255-0AA00-4CA1 SINAMICS G120 Basic operator panel (BOP-2)	2	30.00	60.00
	(i) 3UF7000-1AU00-0 Basic unit Simocode pro C Profibus DP interface 12 Mbps,RS485 4I/3O freely parameterizable, US: 110...240 V AC/DC input for thermistor connection monostable relay outputs	3	254.00	762.00
	(j) 3UF7200-1AA00-0 Operator panel, installation in control cabinet door or front plate, can be plugged onto basic unit or extension modules, 10 LEDs for status display and 5 freely assignable keys for manual control, light gray	3	147.00	441.00
	(k) 6ES7972-0BB52-0XA0 SIMATIC DP, Connection plug for Profibus up to 12 Mbit/s 90°cable outlet, Insulation displacement method fast connect, with PG receptacle	3	45.00	135.00
	(l) Danfoss Profibus DP MCA101	1	650.00	650.00
	(m) 6GK1503-3CB00 Profibus OLM/G12 V4.0 Optical Link Module with 1 RS485 and 2 glass FOC interfaces (4 BFOC sockets) for standard distances up to 2850 m, with signaling contact and measuring output	1	885.00	885.00
E			Total Prices for Item 13	33,451.00

SIEMENS CS-18-8092R2 7 May 2018

14	Accessories (Local Supply) (a) APC Smart-UPS 1500 LCD RM – UPS - 1kW -1440 VA - with APC SmartConnect (b) Dell 24 Monitor | E2417H 23.8" (c) Dell Multimedia Keyboard (English) - KB216 - Black (d) Dell Optical Mouse - MS116 - Black (e) Lexmark CX310dn Color Laser Printer - Multifunction (f) Operating cost – Local SIM card (4G), Mobile data	 1 1 1 1 □□	 861.00 216.00 9.00 9.00 924.00 80.00□month	 8□□.00 □□□.00 □.00 □.00 □□4.00 □□0.00
15	SiemensTraining Centre TOTAL AMOUNT □OR iT□M □4: The following training courses are recommended (a) PLC System - STEP7 Service 1 & 2 (b) WinCC Scada - WinCC Basic (c) Simocode (d) Siemens VFDs – Micro Master & Sinamics Note : Pls refer to attachment Sitrain 2018 Training Calender			□,□7□.00
16	Power Quality – No Offer Assessment of power quality and selection of protective devices are necessary prior to installing the new equipment. GWA with GPA support will provide incoming power data to Siemens for evaluation. The result is recommended works needed to protect the equipment from power quality issues (transients, Over/Under voltages, Sags/Swells). Reported in GWA's SCADA Master Plan, TVSS installation was recommended.			
17	Main PLC Cabinet (a) Replace existing door main PLC cabinet with a lockable door to provide physical security (b) Replace new main PLC cabinet;*require at least 1~2 weeks total system shut down.			

GRAND TOTAL AMOUNT: $455,738.00

Note

1. All other scopes not mentioned above are not included in the quotation. (includes shipping charges of hardware to Guam)

Terms & Conditions

(a) Currency : All prices are in US Dollars, excluding GST and other taxes/duties

(b) Incoterm : CIF, Guam (Est. 10% of the total hardware costs, US$17,000.00)

(c) Validity of Offer : 90 days from quotation date

SIEMENS CS-18-8092R2 7 May 2018

(d) Delivery	: Approx. 10 ~ 12 weeks
(e) Terms of Payment	: 30% Down payment, balance 70% within 30 days upon T&C (subjected to credit approval)
(f) Cancellation Charges	: A 30% cancellation charge will be imposed after receipt of order confirmation from Purchase Order or Written consent
(g) Export Regulation	: Please declare in your PO that the above merchandise will not be used for war related project
(h) Warranty	: 12 months from date of delivery with 1+4 years for IPC extended warranty
(i) Taxes	: All “Local & Export” Taxes, if any, will be borne by customer

This quotation is subject to SIEMENS General Conditions of SALE of Goods and Services (including Software). A copy of which is available upon request or may be downloaded from Siemens Singapore website http://sg.siemens.com/aboutus/profile/. Siemens’ obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national and international foreign trade and customs requirements or any embargos [or other sanctions]. Notwithstanding any other provisions, Siemens total liability shall be limited to 10% of the purchase order value. Under no circumstances shall Siemens be liable for any indirect or consequential losses such as but not limited to loss of profit, loss of production and production stoppages etc Goods labelled with “AL not equal to N” are subject to European or German export authorization when being exported out of the EU. Goods labeled with “ECCN not equal to N” are subject to US re-export authorization. Even without a label, or with label “AL:N or ECCN:N”, authorization may be required due to the final whereabouts and purpose for which the goods are to be used.

We hope that our offer is acceptable to you and look forward to receiving your order. Please feel free to contact Daniel (Mobile: 8809 8122) should you have any queries.

Thank you.

Yours faithfully,

For Siemens Pte Ltd

Daniel Wong
Sales
Digital Factory
Customer Services DF&PD

Kathleen Koh
Commercial Head
Digital Factory
Customer Services DF&PD

Do it Best Benson
A Tanvy Group
BENSON GUAM ENTERPRISES, INC.
P.O. Box 6157, Tamuning, Guam 96931-6157
779 Route 8, Hagatna, Guam 96910-2019
Tel: (671) 477-7562 Fax: (671) 477-3736
email: monito.co@bensonguam.com
general email: benson@bensonguam.com
www.bensonguam.com
Support: MIKKEL TAN I. VY FOUNDATION

INTEGRATION OF THE UGUM WTP TO THE NEW GPWA SCADA SYSTEM:

1. Proposal from Siemens Singapore, scope as follow: ---------- **$ 60,000.00**
   a. Hardware
      (1) TIM 4R-IE DNP3 communication module for SIMATIC S7-300, S7-400, PC; with two RS232/RS485 Interfaces for DNP3-Communication via standard WAN and two RJ45 interfaces for DNP3 communication via IP-based networks (WAN or LAN)
      Price : USD 3740.00

      (2) SINAUT engineering software V5.5 +SP3, on DVD, for ST7 a.DNP3-TIM modules consisting of configuration and diagnostic software for STEP 7 V5.6, SINAUT TD7 block library and electronic manual in German and English
      Price : USD 2575.00

   b. Scope of engineering works, FAT (30 days), SAT (10 days)
      (1) Configuration and programming of TIM 4R-IE DNP3, FAT (Singapore)
      (2) Coordination with GPWA SCADA vendors, FAT in Singapore & SAT in Guam
      (3) SCADAPack 334E Configuration (including connection with S7-416H PLC), SAT (Guam)
      Prices : USD 53,685.00

2. Proposal from Siemens Taiwan ---------- **$ 22,600.00**
   a. EMS/SCADA HMI engineering ---------- **$ 6,600.00**
   b. Point to point test, include travel and accommodations ---------- **$ 16,000.00**
   NOTE: Price proposal for this portion will be valid only if work will be done no later than the SAT of SP5 EMS/SCADA System.

Continuation – Page 2
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3. Installation of the SCADAPack 334E, Tropos ---------- **$ 14,000.00**
   Router with Antenna and fire wall
   a. list of electrical materials and their --- **$ 1,600.00**
   estimated quantities
   b. Labor cost for installation, includes -- **$ 10,000.00**
   clean-up
   c. 2 sets of 24" x 30" x 12" NEMA 12 -- **$ 2,400.00**
   Stainless steel enclosure. $1,200.00 each

4. Additional hardware ---------- **$ 22,500.00**
   a. 2 units of Schneider SCADAPak ------- **$ 7,400.00**
   334E RTU ($3,700/ unit)
   b. ABB Tropos Router and Antenna Kit -- **$ 3,600.00**
   c. Network Firewall ---------- **$ 11,500.00**

TOTAL COST: $ 119,100.00

EXHIBIT B

CONSOLIDATED
COMMISSION ON UTILITIES
Guam Power Authority • Guam Waterworks Authority
P.O.BOX 2977 • Agana,Guam 96932

GPA RESOLUTION NO. 2016-48

GWA RESOLUTION NO. 60-FY2016 (SCADA)

AUTHORIZING MANAGEMENT OF GUAM POWER AUTHORITY (GPA) AND MANAGEMENT OF GUAM WATERWORKS AUTHORITY (GWA) TO ENTER INTO A CONTRACT WITH BENSON GUAM ENTERPRISES, INC. FOR THE DESIGN AND INSTALLATION OF THE SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

WHEREAS, GPA and GWA, collectively called GPWA, made a mutual agreement to enter into a bid process for the procurement of a single Supervisory Control and Data Acquisition (SCADA) System that would run both Power SCADA and Water & Wastewater SCADA on a common platform; and

WHEREAS, GPA will use the SCADA system procured under this bid to primarily monitor and control its electric power grid, and GWA will use the SCADA procured under this bid to monitor and control its water and wastewater utility system; and

WHEREAS, GPA Procurement is the issuing office of the subject bid, Multi-Step Bid No. GPA-066-16; and

WHEREAS, GPA Procurement Office received and accepted proposals from Benson Guam Enterprises, Inc. and LSIS Company Ltd. in response to the subject bid; and

WHEREAS, the GPWA Bid Committee, upon the evaluations of technical and price bid proposals accepted under Step One and Step Two of the multi-step bid process, determined

Benson Guam Enterprises, Inc. the lowest responsive and responsible bidder that met all the requirements set forth in the Multi-Step Bid GPA-066-16 (Exhibit A); and

WHEREAS, the GPWA Bid Committee recommends awarding the contract to Benson Guam Enterprises, Inc. for the base bid in the amount of One Million Nine Hundred Fifty-One Thousand Four Hundred Seventy-Four Dollars and Zero Cents ($1,951,474.00) (Exhibit A); and

WHEREAS, GPA's shared cost of the base bid is in the amount of One Million Five Hundred Eighteen Thousand Seven Hundred Sixty-Nine Dollars and Zero Cents ($1,518,769.00) (Exhibit A); and

WHEREAS, GWA's shared cost of the base bid is in the amount of Four Hundred Thirty-Two Thousand Seven Hundred Five Dollars and Zero Cents ($432,705.00) (Exhibit A); and

WHEREAS, GPWA would like to proceed expeditiously to substantially complete the SCADA Project by the end of 365 days from Benson Guam Enterprises, Inc.'s receipt date of GPWA's Notice to Proceed, as stipulated in the bid documents; and

WHEREAS, GPWA management seeks approval to award Benson Guam Enterprises, Inc. in the amount of One Million Five Hundred Eighteen Thousand Seven Hundred Sixty-Nine Dollars and Zero Cents ($1,518,769.00) to cover GPA's share and Four Hundred Thirty-Two Thousand Seven Hundred Five Dollars and Zero Cents ($432,705.00) to cover GWA's share, for a total authorized funding amount of One Million Nine Hundred Fifty-One Thousand Four Hundred Seventy-Four Dollars and Zero Cents ($1,951,474.00); and

WHEREAS, funding of GPA's shared amount will be from GPA's Bond funds; and

WHEREAS, funding for GWA's shared amount will be from GWA's 2016 Bond under CIP Line Item EE 09-08 SCADA Improvements – Phase 3; and

NOW, THEREFORE BE IT RESOLVED, by the Consolidated Commission on Utilities as follows:

1. Both the General Manager of the Guam Power Authority and the General Manager of the Guam Waterworks Authority are authorized to enter into a contract with Benson Guam Enterprises, Inc. for the total amount of $1,951,474.00 for the design and installation of a SCADA System that comprises of a GPA power SCADA and a GWA water and wastewater SCADA running on a common platform.

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

DULY AND REGULARLY ADOPTED this 27th day of September, 2016.

Certified by:

JOSEPH T. DUENAS
Chairman
Consolidated Commission on Utilities

Date: 9/27/16

Attested by:

J. GEORGE BAMBA
Secretary
Consolidated Commission on Utilities

Date: 9/27/16

SECRETARY'S CERTIFICATE

I, **J. George Bamba**, Secretary for the Consolidated Commission on Utilities do hereby certify that the foregoing is a full, true, and correct copy of the resolution duly adopted at a regular meeting of the members of Guam's Consolidated Commission on Utilities, duly and legally held at the meeting place thereof on September 27, 2016, at which meeting of all said members had due notice and at which at least a majority thereof were present, and

At said meeting said resolution was adopted by the following vote:

Ayes:	3
Nays:	0
Absent:	2
Abstain:	0

As of the date of this certification, said original resolution has not been amended, modified, or rescinded since the date of its adoption, and the same is now in full force and effect.

SO CERTIFIED this 27th day of September 2016.

J. George Bamba
Secretary
Consolidated Commission on Utilities

EXHIBIT A

GPA RESOLUTION NO. 2016-48
GWA RESOLUTION NO. 60-FY2016

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

July 29, 2016

Memorandum

To: Supply Management Administrator

From: Evaluation Committee

Subject: GPA-066-16,
Supervisory Control and Data Acquisition
(SCADA) System

The bid evaluation committee has completed the evaluation and concludes that Benson Guam Ent. and LSIS Company LTD has met the bid specifications as stated in the Multi-Step Bid. The committee recommends proceeding to Step 2.

Wei Chen, Systems Protection Engineer
Engineering

Jeremiah Diaz
System Control Center

Felipe Tenido, Network Administrator
Computer Services

Vincent Pangelinan
Operations and Maintenance

John Cruz Jr., SPORD Manager
SPORD

Calvin Yam
Engineering

Jonathan Chargualaf, PSCC Mgr (A)
PSCC

Barbara Cruz
Engineering

[✓] Approved [ ] Disapproved

John M. Benavente, P.E.
General Manager

8/2/16
Date

GUAM POWER AUTHORITY

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

August 26, 2016

Memorandum

To: Supply Management Administrator

From: Evaluation Committee

Subject: GPA-066-16, Supervisory Control and Data Acquisition (SCADA) System

The bid evaluation committee has completed the Price Proposal Evaluation for Multi-Step Bid GPA-066-16 Supervisory Control and Data Acquisition (SCADA) System. The committee recommends awarding to the lowest, most responsive and responsible bidder Benson Guam Enterprise. The following is the total price summary for Benson Guam Enterprise's Basic Bid Offer for GPA and GWA:

Guam Power Authority	Guam Waterworks Authority
$1,518,769.00	$432,705.00

Wei Chen, Systems Protection Engineer
Engineering

Jeremiah Diaz
System Control Center

Felipe Tenido, Network Administrator
Computer Services

Vincent Pangelinan
Operations and Maintenance

John Cruz Jr., SPORD Manager
SPORD

Calvin Yam
Engineering

Frank C. Santos, PSCC Mgr.
PSCC

Barbara Cruz
Engineering

[✓] Approved [ ] Disapproved

John M. Benavente, P.E.
GPA General Manager

[✓] Approved [ ] Disapproved

Miguel C. Bordallo, P.E.
GWA General Manager

RECEIVED
OCT 27 2016
Public Utilities Commission
GUAM

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:	)	GPA Docket 17-01
	)	GWA Docket 17-01
The Application of the Guam Power Authority to Approve the SCADA System Contract with Benson Guam Enterprises, Inc. (Benson)	)	**ORDER**

INTRODUCTION

1. This matter comes before the Guam Public Utilities Commission ["PUC"] upon the Petition of Guam Power Authority ["GPA"] for Approval of the Supervisory Control and Data Acquisition System ["SCADA"] Contract with Benson Guam Enterprises, Inc. ["Benson"].[1]

2. Both GPA and GWA are requesting approval of the contract for their SCADA systems.

BACKGROUND

3. On April 28, 2015, GPA issued Multi-Step Bid Invitation No. GPA-066-16 for a Supervisory Control and Data Acquisition ["SCADA"] system.[2] The IFB invited qualified firms to participate in a Multi-Step Bid for a SCADA system for both the Guam Power Authority and the Guam Waterworks Authority.[3]

4. The bid sought a SCADA system that would run both Power SCADA and Water and Wastewater SCADA on a common platform.[4]

5. For GPA, the purpose of the project is to replace GPA's existing Siemens Power TG EMSYS Energy Management (SCADA) System, which has been in operation since 2006.[5]

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[1] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016.
[2] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016.
[3] Id. at p. 11.
[4] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016, at p. 1.
[5] Issues for Decision, GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), provided to the CCU in the Board Packet for the September 27, 2016 Regular Meeting.

6. For GWA, the project objective is to provide GWA with a water and wastewater SCADA system to manage its water and wastewater operations in a safe, reliable, responsible and cost effective manner. GWA anticipates that it will integrate approximately sixty (60) SCADA-ready water and wastewater facilities by 2018 with remaining facilities planned and added as funding becomes available.[6]

7. The new SCADA master station equipment will be installed primarily on the second and third floors of the Gloria B. Nelson Public Service Administration Building.

8. PUC Counsel filed his Report herein dated October 24, 2016. The Report explains the functions of the SCADA system in some detail. Such explanation is incorporated herein by reference.[7]

9. In general terms, a SCADA system provides remote telemetry and control to the substations and GPA plants, and to the GWA facilities.[8]

10. The SCADA system provides supervisory control to and data acquisition from the GPA and GWA facilities that are connected to the system.[9]

11. Advanced applications for GPA include Automatic Generation Control (AGC), Dispatcher Power Flow (DPF), Switch Order Management (SWOM), and Load Shedding and Restoration (LSR).[10]

12. For GWA, advanced applications include Leak Detection Management, Pump Condition Monitoring, and Sequential Control Capability.[11]

13. The new system will process and utilize real-time data acquired from remote terminal units (RTU's).[12]

14. The supervisory control capabilities allow for the performance of supervisory control operations at any of the remote terminal units or programmable logic controllers.[13]

[6] Id.
[7] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016, at p. 68.
[8] Id. at p. 75.
[9] Id. at pgs. 108-109.
[10] Id. at p. 109.
[11] Id.
[12] Id. at p. 111.
[13] Id at p. 117.

15. There were only two bidders in response to the IFB.[14] The GPWA Bid Committee, upon the evaluations of technical and price bid proposals accepted under Step One and Step Two of the multi-step bid process, determined that Benson Guam Enterprises, Inc. was the lowest responsive and responsible bidder that met all of the requirements set forth in the Multi-Step Bid GPA-066-16.[15]

16. The total cost of the SCADA System Contract with Benson Guam Enterprises, Inc. is the amount of $1,951,474; GPA's share is $1,518,769 and GWA's share is $432,705.[16]

17. GPA's share of the cost will be paid from the 2014 Bond Proceeds[17]; the PUC Order in GPA Docket 14-09, dated December 1, 2014, approved GPA's request to expend $1,800,000 for the Fadian SCADA system.[18]

18. GWA's share of the total will be paid from GWA's 2016 Bond under CIP Line Item EE 09-08 SCADA Improvements-Phase 3.[19]

19. On September 27, 2016, the CCU approved the request of GPA and GWA to enter into a contract with Benson Guam Enterprises, Inc. for the total amount of $1,951,477.00 for the design and installation of a SCADA System.[20]

DETERMINATIONS

20. With the IFB, GPA has provided a standard form contract in accordance with which Benson will design and implement the SCADA System. The contract includes detailed specifications and should be adequate to protect the interests of GPA, GWA

[14] GPA Petition to Approve the SCADA System Contract with Benson Guam Enterprises, Inc., GPA Docket 17-01 and GWA Docket 17-01, filed October 10, 2016, at p. 1.
[15] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto.
[16] Id at p. 2.
[17] Id.
[18] PUC Order, GPA Docket 14-09, dated December 1, 2014, at p. 3.
[19] [19] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto, at p. 2.
[20] Id at p. 3.

and their ratepayers. The contract contains indemnification, insurance, and warranty provisions.

21. GPA's present SCADA System is over 10 years old; the new system should be more compatible with GPA's updated communications and smart grid systems.

22. GWA previously prepared its Master Plan for the implementation of a SCADA System. Since GWA does not have such a system at present, the implementation of a SCADA system should assist the upgrading and increased efficiency of its operations.

23. The system should be completed by the end of 365 days from Benson Guam Enterprises, Inc.'s receipt date of GPWA's Notice to proceed, as stipulated in the bid documents.[21]

24. The SCADA system will improve the ability of both GPA and GWA to monitor and control the electric power grid and the water and wastewater utility system.

25. GPA anticipates that it will place 10 or more additional new renewable energy facilities and a 40MW Energy Storage System at the Agana Substation on SCADA.[22] The SCADA system will also assist both GPA and GWA in implementing their Cyber Security Plan and Policies.[23]

26. For the foregoing reasons, GPA and GWA have demonstrated that the implementation of the SCADA System and the contract with Benson Guam Enterprises, Inc. are reasonable, prudent and necessary.

ORDERING PROVISIONS

After review of the record herein, GPA's Petition for Approval of the SCADA System Contract with Benson Guam Enterprises Inc., and the PUC Counsel Report, for good cause shown, on motion duly made, seconded and carried by the undersigned Commissioners, the Guam Public Utilities Commission **HEREBY ORDERS** that:

[21] Guam Consolidated Commission on Utilities GPA Resolution No. 2016-48 and GWA Resolution No. 60-FY2016 (SCADA), Authorizing Management of Guam Power Authority (GPA) and Management of Guam Waterworks Authority (GWA) to Enter into a Contract with Benson Guam Enterprises, Inc. for the Design and Installation of the Supervisory Control and Data Acquisition (SCADA) System, adopted September 27, 2016, at p. 2; see also Exhibit A thereto, at p. 2.
[22] GPA Invitation for Multi-Step Bid (IFB) No. GPA-066-16, filed by GPA herein on October 12, 2016, volume II, at p. 71.
[23] Id. at p. 72.

Order
Approval for SCADA Contract
GPA Docket 17-01
October 27, 2016

1. GPA and GWA are authorized to enter into the SCADA System Contract with Benson Guam Enterprises, Inc.

2. The total amount of $1,951,474 is authorized for such Contract, with the GPA share at $1,518,769 and the GWA share at $432,705.

3. The source of funds for the Contract for both GPA and GWA is bond funds.

4. GPA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses of conducting the hearing proceedings. Assessment of PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §§12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

Dated this 27th day of October, 2016.

Jeffrey C. Johnson
Chairman

Joseph M. McDonald
Commissioner

Rowena E. Perez
Commissioner

Peter Montinola
Commissioner

Michael A. Pangelinan
Commissioner

Andrew L. Niven
Commissioner

Filomena M. Cantoria
Commissioner

EXHIBIT C

INVITATION FOR MULTI-STEP BID
NO.: GPA- 066-16

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

VOLUME IV
CONTRACT AGREEMENT

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BENSON GUAM ENTERPRISES, INC.

GUAM POWER AUTHORITY and GUAM WATERWORKS AUTHORITY

2016

MULTI-STEP BID No.: GPA – 066 - 16

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

FORMAL CONTRACT

This Agreement and Formal Contract ("Contract"), is made and entered into on the _____ day of _____, 2016 by and between:

Benson Guam Enterprises, Inc., hereinafter referred to as CONTRACTOR, duly organized, licensed, registered and qualified to do business in Guam with its principal address at 779 Route 8, Hagatna, Guam 96910

and

Guam Power Authority, hereinafter referred to as the "Authority" or "GPA", a Public Corporation with its office located at Gloria B. Nelson Public Service Building, 688 Route 15, Mangilao, Guam 96913;

and

Guam Waterworks Authority, hereinafter referred to as "GWA", a Public Corporation with its office located at Gloria B. Nelson Public Service Building, 688 Route 15, Mangilao, Guam 96913;

RECITALS

WHEREAS, GPA and GWA desire to attain a new Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS), associated software, systems, and equipment, and other associated deliverables.

WHEREAS, GPA has provided adequate public announcement of the need for such services through an Invitation for Multi-Step Bid, GPA-066-16, describing the type of services required and specifying the type of information and data required of each bidder; and

WHEREAS, CONTRACTOR submitted a bid proposal to design and install a single Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS) that would run both Power SCADA and Water & Wastewater SCADA on a common platform; and

WHEREAS, GPA, upon evaluation of the submitted bid proposal, determined that CONTRACTOR is the most responsive bidder to provide the services set forth in the Multi-Step Bid; and

WHEREAS, CONTRACTOR is fully willing to provide, and is capable of performing the design and install of a new Supervisory Control and Data Acquisition/Energy Management System, set forth in the Multi-Step Bid and Agreement in accordance with the terms and conditions thereof; and

WHEREAS, the Consolidated Commission on Utilities has determined that to hire CONTRACTOR to design and install a common SCADA/EMS is in the best interest of GPA and GWA.

NOW, THEREFORE, in consideration of the above premises and the mutual promises set forth herein and the terms and conditions hereinafter set forth and for other good and valuable consideration, receipt of which is hereby acknowledged, CONTRACTOR, GPA and GWA hereby agree as follows:

SECTION 1. DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

"$"
The term "$" refers to currency in U.S. dollars.

"Approved"
The word "Approved," when applied by ENGINEER to CONTRACTOR's drawings or documents, shall mean that the drawings or documents are satisfactory from the standpoint of interfacing with GPA-furnished components, and/or that ENGINEER has not observed any statement or feature that appears to deviate from the Specification requirements.

"Approved As Revised"
The words "Approved As Revised," when applied by ENGINEER to CONTRACTOR's drawings or documents shall mean that the drawings or documents are approved as defined above, except that the corrections shown are required for the proper interfacing with GPA-furnished components or are necessary to be in conformance with the Specification's requirements.

"Change Order"
A written instrument to CONTRACTOR signed by GPA authorizing an addition, deletion, or revision in the goods or special services, or an adjustment in the purchase order price or the delivery time, issued after the effective date of the Contract Agreement (Agreement).

"Contract"
The term "Contract" means the Supervisory Control and Data Acquisition System Phase I Contract executed as a result of this Multi-Step Bid.

"Contract Agreement (Agreement)"
The written agreement between GPA and CONTRACTOR covering the furnishing of the Goods, Special Services, and other services in connection therewith evidencing what is contemplated and agreed to between the parties including any other Contract Documents either attached to the Agreement or made a part thereof by reference therein.

"Contract Documents"

The Contract Agreement, Bonds (where required), these General Conditions, these Conditions of Contract, any Supplementary Conditions, the Specifications, the Drawings and any other documents specifically identified in the Contract Agreement, together with all Modifications issued after execution of the Contract Agreement.

"Contracting Officer"
The term "Contracting Officer" as used herein means the General Manager of the Guam Power Authority and shall include his authorized representatives.

"CONTRACTOR"
The term "Contractor" as used herein means the party or parties who or which shall have duly entered into a contract with the Guam Power Authority to perform the work herein contemplated or his or their authorized assignee.

"Day"
A calendar day of twenty-four (24) hours measured from midnight to the next midnight.

"Defective"
An adjective which when modifying the words Goods or Special Services refers to Goods or Special Services which are unsatisfactory, faulty, deficient, do not conform to the Contract Documents, or do not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents.

"Delivery Time"
The total number of days or the dates stated in the Contract Agreement for furnishing the Goods and/or Special Services.

"Drawings"
Drawings are all official drawings approved by the ENGINEER and showing the character and scope of the Goods to be furnished.

"Effective Date of the Contract Agreement"
The date indicated in the Contract Agreement on which it becomes effective, or if no such date is indicated, the date by which the Contract Agreement is signed by both parties.

"ENGINEER"
Wherever the words "ENGINEER" or "ENGINEERS" appear in the CONTRACT Documents, it shall mean GPA's ENGINEER, duly appointed as "ENGINEER". GPA shall assign several ENGINEERS as required to cover specialized areas of expertise.

"ENGINEER's Instructions"
Written instructions issued by ENGINEER which clarify or interpret the CONTRACT Documents or order minor changes or alterations in the Goods or Special Services to be furnished but which do not involve a change in the Purchase Price or the Delivery Time.

"Forms Enclosed"
The copies of the Formal Contract and Bid Bond, enclosed herewith are incorporated in these General Conditions by reference and are made a part hereof to the same extent as though fully set forth herein.

"General Manager"
The General Manager is the Chief Executive Officer of the GPA. The office and title of General Manager shall apply to any person acting in a regular or in an acting capacity as the Chief Executive Officer of the GPA.

"Goods"
All property required to be furnished by CONTRACTOR under the procurement documents.

"GPWA"
The term "GPWA" as used herein means the Guam Power Authority and Guam Waterworks Authority.

"Modification"
A written amendment of the Contract Agreement signed by both parties, or Change Order, or ENGINEER's Instructions.

"Notice"
The term "Notice" as used herein shall mean and include all written notice demands, instructions, claims, approvals and disapprovals required to obtain compliance with contract requirements. Any written notice by either party to the contract shall be sufficiently given if delivered to or at the last known business address of the person, firm, or corporation constituting the other party to the contract, or to his, their, or its duly authorized agent, representative, or officers, or when enclosed in a postage prepaid envelope addressed to such last known business address and deposited in a United States mail box. CONTRACTOR must provide and maintain a post office address within Guam and file the same with the Contracting Officer.

"OWNER"
The term "Owner", "GPA" or "Authority" as used herein means the Guam Power Authority, and shall include GWA, and the Governor of Guam and/or his authorized representatives.

"Point of Delivery"
The place at which property in the goods shall pass to GPA shall be CIF landed at job-site, Guam, unloaded.

"Procurement Officer"
The General Manager of the GPA or the General Manager's designee.

"Project"
The plant, facilities, or works, the Goods and Services are to be used for or incorporated into.

"PURCHASER"
The Guam Power Authority and the Guam Waterworks Authority with whom CONTRACTOR has entered into the Contract Agreement.

"Seller"
The CONTRACTOR.

"SITE or Site"
The SITE is the area where the Project is to be constructed or executed.

"Special Services"
Services to be furnished by the CONTRACTOR at the Site as required by the Contract Agreement.

"Territory"
The Territory of Guam.

SECTION 2. PURPOSE AND SCOPE OF SERVICES

2.1 Purpose

CONTRACTOR agrees to provide all the services as required under Volumes I Commercial Terms and Conditions, Volume II Technical and Functional Requirements, Volume III Cybersecurity and all appendices herein and the bid amendments issued by GPA and GPWA agrees to pay for all the services rendered in the amount, as stipulated in Section 6, the services to design, install, and commission Supervisory Control and Data Acquisition/Energy Management System.

2.2 General Scope Requirements

The CONTRACTOR shall be responsible for all aspects of project implementation including but not limited to:

A. Necessary permits, if required
B. Adherence to all applicable codes and standards
C. System engineering and design
D. Installation design: addressing all electrical, mechanical and civil systems
E. SCADA/EMS and other necessary equipment procurement and delivery
   a. Delivery of all Operating System software and application software
   b. Delivery of all processors, consoles, printers, local input/output facility, signal and power cabling and related hardware
   c. Delivery of all required communication hardware
   d. Delivery of two (2) each wall-mounted 85" LED 2160p 4K Ultra HDTV

e. Delivery of recommended spare parts

F. All on-site construction, equipment installation and interconnection
   a. Network and communications interconnection coordination with GPWA
   b. Equipment and software installation coordination with GPWA
   c. Interconnection of all CONTRACTOR-supplied equipment in the new GPWA Control Centers and Server Room
   d. Complete and seamless integration of all CONTRACTOR-supplied hardware, software and applications
   e. Complete and seamless integration with GPWA existing RTUs/PLCs and other GPWA-supplied hardware
   f. Complete and seamless integration with GPA's existing Multi-Screen Video Wall
   g. Complete and seamless integration and installation of two (2) each CONTRACTOR-supplied wall-mounted 85" LED 2160p 4K Ultra HDTV into the operator stations with the ability to drive the HDTV image from any operator station
   h. Complete and seamless integration and installation of CONTRACTOR-supplied SCADA/EMS and supplied systems, software, and equipment with the external software applications and systems discussed in the specifications
   i. Complete and seamless integration with GPA's existing AGC field hardware and software including controllers and communication devices.
   j. Complete and seamless integration with CONTRACTOR-supplied workstations at GWA Hagatña Wastewater Maintenance Building and GWA Upper Tumon Offices for the Operations and Maintenance Managers of the Water and Wastewater Divisions.

G. Commissioning and quality assurance and performance testing with coordination with GPWA or its ENGINEER
   a. Provide engineering, programming, display building, report designing, and database conversion and integration assistance
      1. It is the responsibility of the CONTRACTOR to ensure that the above work is performed at the highest quality and to schedule
   b. Plan, document, and execute Factory Acceptance Testing (FAT), Site Acceptance Testing (SAT), 1000-hour Availability Testing, and all other required tests
      1. CONTRACTOR shall bear the expense for all travel, lodging, meals, and incidentals for GPA and GWA personnel attending the FAT. (Appendix T: Factory Acceptance Test Attendees)
   c. Delivery of all documentation for the SCADA/EMS, supplied systems and equipment, warranties including but not limited to testing manuals and results, user guides, installation/operation/maintenance manuals, drawings, schematics, etc.

H. Training on all delivered software applications, systems, equipment, etc.

a. Deliver initial on-site training of GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment
b. Deliver on-site refresher training of GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment on the one-year anniversary of initial training
c. Provide access to refresher and other training online on demand training for GPWA personnel for operation and maintenance of delivered SCADA/EMS, and other associated systems, software, and equipment on the one-year anniversary of initial training

I. Delivery of all warranties including those from third-party suppliers
   a. All warranties for delivered software, systems, and equipment must be made to GPA and GWA (GPWA)
   b. Warranty or assurance that spare or replacement hardware parts will be available for a minimum of ten (10) years from the date of successful completion of the 1000-hour Availability Test
J. Delivery and execution of a support and operations and maintenance service contracts
   a) Support and maintain the delivered system including but not limited to SCADA/EMS, software, systems, and equipment provided for one (1) year after successful completion of Site Acceptance Test
   b) Integration and commissioning support for up to three (3) years after successful completion of Site Acceptance Test to assist GWA integrate more facilities into the SCADA/EMS
K. Provide a requirements gathering report for a GPWA Emergency Backup Control Center (Disaster Recovery) at the GWA Upper Tumon Office. Not a detailed design. This report provides the requirements for a future RFP for design of the GPWA Emergency Backup Control Center.

The CONTRACTOR shall include in its price proposal all of the above activities and any other activities necessary to provide GPA and GWA with a fully-functioning, cyber secure SCADA/EMS completely integrated with external applications discussed in this specification and existing GPA and GWA network, communications, RTU, and IED systems and equipment.

The CONTRACTOR shall include the submission of a Master Project Schedule outlining anticipated start and end dates for each of the functional activities listed above.

The CONTRACTOR shall provide all labor and materials including taxes, equipment, means, and operations necessary to purchase and the SCADA EMS, other software, and related features.

The CONTRACTOR shall provide operations and maintenance (O&M) services for a period of 25 years after commissioning.

2.3 Special Conditions

It shall be the CONTRACTOR's responsibility to verify the existing conditions at the site during either the official pre-bid walkthrough or subsequent site visits to the property. During the pre-bid walkthrough, all areas for project construction will be available for observation.

Any physical disruption to the site that is necessary for the construction and interconnection shall be repaired as nearly as possible to its original state.

The CONTRACTOR must maintain a clean worksite and take all necessary measures to prevent any erosion or distribution of loose material away from the site.

The CONTRACTOR must identify any malfunctioning or defective equipment and report such incidences to GPA. The GPA project manager will decide on the corrective action.

The CONTRACTOR must ensure that all product warranties are active when the project becomes operational. Documentation of product warranties shall be provided to GPA upon commissioning.

The CONTRACTOR shall be required to maintain detailed records. For compliance with GPWA's requirements, the CONTRACTOR shall submit monthly reports that track % completion for the major project tasks.

2.4 Communication Means

CONTRACTOR shall provide Engineer a means of communication to be used during the duration of the project.

2.5 Test and Inspections

Any inspection made by the inspectors of GPWA and/or its designee will be final. Such inspections or the witnessing of CONTRACTOR's test and inspection by GPWA and/or its designee shall not relieve the CONTRACTOR of any of its responsibilities or liabilities under the Contract Documents, nor be interpreted in any way as implying acceptance of the Goods.

In the event that GPWA or Engineer is needed to do inspection or witness the production, construction or testing beyond regular working hours, the cost and expense arising therefrom shall be borne by the CONTRACTOR.

2.6 Scope of Work - Basic Bid Items

The following are general descriptions of the Basic Bid Items listed in the Priced Proposal Worksheet. The CONTRACTOR shall include, in the Project Approach of the Technical Proposal, more detailed scope of work descriptions for each Basic Bid Item for evaluation

2.6.1 Mobilization

The CONTRACTOR shall be responsible for all preparatory operations performed by the CONTRACTOR, including but not limited to, those necessary for the movements of its personnel, equipment, supplies and incidentals to the project site; for premiums on bonds for the project, and for other operations which it must perform or costs it must incur before beginning installation on the various items on the project site(s).

The CONTRACTOR shall submit to GPA for approval a proposed work schedule with milestones, deliverables and timelines no later than ten (10) days after issuance of the Notice to Proceed. The schedule shall be prepared in a Gantt chart format and shall display scheduled and actual progress. The schedule shall show the work broken down into major phases and key items with the dates work is expected to begin and be completed. The schedule shall be updated and submitted to GPA every month. The schedule shall show actual progress and any proposed changes in the schedule of remaining work. The CONTRACTOR shall not change the accepted project schedule without prior concurrence of GPA.

2.6.2 Permits, Bonds and Codes

The CONTRACTOR shall secure all permits and bonds required for the construction of this project, including but not limited to those required by the Department of Public Works, Guam Waterworks Authority, Guam-based telecommunication providers, and Department of Parks and Recreation.

The CONTRACTOR shall also be responsible for applying for and obtaining all other federal, local and other applicable permits, agreements, licenses, and certificates to complete this project, unless otherwise stated in this document. Copies of the permits and approvals shall be submitted to GPA before starting work.

The CONTRACTOR shall adhere to all applicable codes governing electrical, mechanical, civil, structural systems, etc.

In the Project Approach of the Technical Proposal, the CONTRACTOR shall identify all federal and local permits, licenses and environmental assessments and/or environmental impact statements required to construct and operate the project. The CONTRACTOR

shall identify environmental impacts associated with the proposed project and its plan to mitigate such impacts if any.

2.6.3 Project Installation Site Survey

The CONTRACTOR shall perform all work required for preparation of the design and as-built drawings and for project completion. All costs required for furnishing instruments and miscellaneous materials for this work shall be included.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.4 Interconnection and Integration Design

The CONTRACTOR shall provide to GPA a design plan that describes all activities regarding integration of the SCADA/EMS and other third-party software delivered under this project with the GPWA network.

The CONTRACTOR shall provide to GPA a design plan that describes all activities regarding integration of the SCADA/EMS and other third-party equipment delivered under this project with the GPWA facility communications and electrical systems.

The CONTRACTOR shall submit to GPA for review the 60%, 90%, 100% and pre-final design drawings in hard copy and PDF prior to the final design drawing submittal.

The CONTRACTOR shall submit to GPA the approved final design drawings in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF. Construction shall not commence until the design drawings are approved by GPA. The approval of GPA shall not relieve the CONTRACTOR from the responsibility of corrective actions if defective or inadequate work was overlooked.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.5 Communications and Networking Design and Execution Plan

The CONTRACTOR shall provide to GPWA a design and execution plan that describes all activities regarding the migration of existing RTUs from existing GTA communication and from the existing serial DNP 3 protocol to the GPWA Consolidated Communications Network using secure DNP 3.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.6 Installation Design

The CONTRACTOR shall provide to GPA an integrated design plan that describes all activities on the site regarding the electrical, mechanical, structural, and civil engineering work needed for the installation of the SCADA/EMS and associated facilities and equipment:

The design plan shall include:

A. Site Plan:

Site plan shall identify all construction and installation activities that will be undertaken on the site. The CONTRACTOR shall perform site work as necessary to prepare site for installation activities. Security and access controls shall be implemented to prevent unauthorized entry to site during project installation. The CONTRACTOR shall obtain appropriate approvals and shall construct connections or new systems for electrical power, water, sewer, telephone, and other utilities as needed.

B. Site Map:

The Sit Map shall indicate the proposed SCADA/EMS and associated equipment location and the layout of other project components.

C. Building Electrical Interconnection Diagrams:

The CONTRACTOR shall provide complete and detailed electrical interconnection as-built diagrams.

The CONTRACTOR shall submit to GPA for review the 60%, 90%, 100% and pre-final design drawings in hard copy and PDF prior to the final design drawing submittal.

The CONTRACTOR shall submit to GPA the approved final design drawings in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF. Construction shall not commence until the design drawings are approved by GPWA. The approval of GPWA shall not relieve the CONTRACTOR from the responsibility of corrective actions if defective or inadequate work was overlooked.

CONTRACTOR is responsible this scope of work and for all costs to implement this plan.

2.6.7 Equipment and Software Cost, Procurement and Delivery

The CONTRACTOR shall be responsible for the procurement and delivery of the SCADA/EMS and other necessary equipment to construct and install this project in a turn-key manner. Any equipment and material prices shall be provided on the basis of CIF to the Guam job site unloaded.

The SCADA/EMS shall comply with the specifications identified in Section 4. The CONTRACTOR shall comply with all sections of the entire procurement documentation including Bid Amendments, Appendices, the GWA SCADA Master Plan, and applicable industry standards and guides. CONTRACTORs shall provide a breakdown of the cost components for all Bid Items.

2.6.8 On-Site Construction, Installation and Interconnection

The CONTRACTOR's primary scheduled activities shall include, but are not limited to:

A. Requirements gathering for design, planning and plan execution activities
B. Equipment delivery and staging
C. Installation and construction activities as needed
D. SCADA/EMS and related equipment assembly and installation
E. Factory Acceptance Testing (FAT)
F. Site Acceptance Testing (SAT)
G. Interconnection installation and construction work as needed.

All construction work must comply with applicable GPA and GWA standards.

The CONTRACTOR shall include the submission of a Master Project Schedule outlining anticipated start and end dates for each of the on-site construction, installation and interconnection activities.

2.6.9 Progress Meetings

Monthly progress meetings with the SCADA/EMS Task Force shall be held throughout the duration of the project. GPWA may request additional meetings if deemed necessary. Such meetings shall be attended by the CONTRACTOR either via phone or in person, by all active subcontractors and by GPWA. The purpose of the meetings will be to discuss current work progress, design or construction issues, interface issues, and potential changes to the schedule.

The CONTRACTOR shall meet once a week with the SCADA/EMS Program Management Office or as necessary to track daily and weekly progress and activities. The CONTRACTOR must provide Project Dashboards on GPWA's iDashboard application to track daily and weekly progress and activities

2.6.10 Work Progress Reports

The CONTRACTOR shall submit to GPA monthly reports on actual work progress. Such reports shall be submitted to GPA prior to the scheduled work progress meetings. The narrative shall contain a description of current and anticipated delaying factors, if any, impact of possible delaying factors, and proposed corrective actions. The reports shall be submitted as supporting documents for progress payments.

2.6.11 Commissioning, Quality Assurance, and Testing

The CONTRACTOR shall conduct pre-commissioning through final inspection activities with the GPA Project Manager and GPWA representatives to demonstrate the successful installation and fully functional operation of the SCADA/EMS and other delivered software, systems, and equipment. Additionally, formal and informal testing must occur as part of the CONTRACTOR's quality assurance and control plan.

The CONTRACTOR shall provide:

A. Factory Acceptance Test (FAT):

The CONTRACTOR shall conduct a Factory Acceptance Test at the CONTRACTOR's facilities staging the SCADA/EMS and other related equipment as a stand-alone system for thorough testing of the SCADA/EMS and related systems functionality and documented attribute. CONTRACTOR must submit a FAT plan for GPWA's approval no later than two months prior to the scheduled Factory Acceptance Plan execution. The report shall include a list of software/equipment/products/systems staged, activities and tests to take place during the FAT. Each test element of the FAT must describe the function or attribute under test and the pass/fail criteria. The CONTRACTOR must describe and provide a system for identification of testing variances and their resolution and escalation along with the FAT documentation.

The SCADA/EMS and other related software, systems, and equipment cannot ship to GPWA until the FAT is satisfactorily completed with few minor variances and no critical variances. Upon completion of the FAT, GPWA personnel involved in the FAT must sign-off that the system is ready to be shipped to GPWA. The sign-off can be made with variances upon an acceptable variance resolution plan and successful execution of that plan.

B. Site Commissioning and Site Acceptance Test (SAT):

The CONTRACTOR shall complete commissioning process and testing of all installed SCADA/EMS equipment, subsystems, and related software and equipment to establish acceptability for use in the GPWA operational environments.

The CONTRACTOR shall commission the new SCADA/EMS with the existing SCADA/EMS running in parallel. The CONTRACTOR is responsible for replication of communication services to support this including working with GPA and GWA to transition communications to the Consolidated Communications Network (CCN). The system shall operate in parallel for no less than sixty days as long as the 1000-Hour Availability Test is ongoing.

CONTRACTOR must submit a SAT plan for GPWA's approval no later than two months prior to the scheduled Site Acceptance Plan execution. The report shall include a list of software/equipment/products/systems commissioned, activities and tests to take place during the SAT. Each test element of the SAT must describe the function or attribute under test and the pass/fail criteria. The CONTRACTOR must describe and provide a system for identification of testing variances and their resolution and escalation along with the SAT documentation.

Commissioning activities shall include, but not be limited to:

1. Verification of successful point-to-point testing of all existing field RTUs and IEDs
2. Verification of successful testing of each SCADA/EMS, third-party system, and equipment functional element
3. Verification of all SCADA/EMS SCADA:
   a. I/O point tabulars
   b. Charts and trending displays,
   c. Alarm and event tabulars
   d. Electric power system one-lines and geographical one-line displays
   e. Electric power system substation displays
   f. Water system one-lines and geographical one-line displays
   g. Wastewater system one-lines and geographical one-line displays
   h. Tabulars and graphical displays of data from external applications
   i. Electric power substation and distribution automation telemetry and control data tabulars and displays

j. Water distribution automation telemetry and control data tabulars and displays
k. Wastewater distribution automation telemetry and control data tabulars and displays
l. GWA backup power system telemetry and control tabulars and displays
m. All other tabulars and displays

4. Verification that the SCADA/EMS properly communicates and operates with the following:
   a. GWA
      i. Water and Wastewater Hydraulic Analysis (W/WW HA)
   b. GPA
      i. Automatic Generation Control (AGC)
   c. GPWA
      i. Geographic Information System (GIS)
      ii. Computerized Maintenance Management System (CMMS)/Enterprise Asset Management (EAM)
      iii. Outage Management System (OMS)
      iv. Meter Data Management System (MDMS)
      v. iDashboards
      vi. GENOPS
      vii. Nostradamus
   d. Other external applications that may come under the project prior to FAT.

C. Delivery and Warranty:

The CONTRACTOR shall complete all inspection and commissioning requirements prior to final inspection. The SCADA/EMS shall include industry standard service and parts warranty specified in Volume I, Section 4.18. CONTRACTOR must provide and identify a detailed comprehensive list of each SCADA/EMS component under the warranty and the specific associated warranty.

D. 1000-Hour Availability Testing:

The CONTRACTOR shall conduct a 1000-Hour Availability Test. Five percent of the total contract will be retained until the successful conclusion of this test. The 1000-Hour Availability Test pass criteria are continuous operation of the SCADA/EMS without failure or major incident for 1000 consecutive hours. The test shall rest upon a major failure of the SCADA/EMS system, subsystem, or critical equipment. The test shall continue until the pass criteria are met, or

GPWA agrees to a negotiated settlement with the CONTRACTOR at GPA and GWA's discretion.

E. Final Inspection:

After the Completion of the 1000 Hour Availability Testing, the CONTRACTOR shall conduct a final inspection with the GPA Project Manager and GPWA representatives and document the findings in a final inspection report. The inspection shall concentrate on the items identified at the pre-final inspection and recorded in the pre-final inspection report. The final inspection report shall: (1) certify that all items of the design have been implemented and that the construction is complete, and (2) include a record of "signed and sealed" as-built drawings and specifications verifying that all development standards have been met. At the final inspection, the CONTRACTOR shall present a completed form for the Transfer and Acceptance of Real Property to GPA and GWA for signature and acceptance.

F. Documentation of All Equipment and Construction Work:
The CONTRACTOR shall provide the following documents either during construction or upon commissioning:

1. As-built electrical, mechanical and civil drawings for all installed systems in the following formats: hard copy of appropriate size, AutoCAD 2005 and PDF and electronic copy
2. Owner's manual for all complete systems
3. All SCADA/EMS system technical and operations manuals including
   a. Fifteen (15) complete bound hardcopy sets for GPA
      i. Seven (7) sets for GPA
      ii. PSCC (3)
      iii. Engineering (1)
      iv. Information Technology Divisions (3)
      v. SPORD (1)
   b. Seven (7) complete bound hardcopy sets for GWA
      i. Engineering (2),
      ii. Operations (2)
      iii Information Technology Divisions (3)
   c. A complete set of documents in two formats uploaded to a Dropbox account folder specifically set up for this project by GPA
      i. PDF format
      ii. Microsoft Word format that GPA can modify.

2.6.12 Training

The CONTRACTOR shall conduct a training program for GPWA personnel for operation and maintenance of the new SCADA/EMS, third-party systems and applications, and all related items in the list of deliverables. The training shall include testing of the trainees to ensure the imparting of the necessary skills to operate and maintain the SCADA/EMS.

The CONTRACTOR shall provide training manuals and material in heavy duty 3-ring binders or otherwise in a bound fashion, for each participant. The CONTRACTOR shall provide electronic copies of all training materials in the DropBox account set up by GPWA. The training sessions shall be coordinated with GPWA. The CONTRACTOR must record all training sessions for future use.

2.6.13 Demobilization

The CONTRACTOR shall demobilize facilities and construction equipment as necessary, and restore the project site(s) to acceptable conditions. The CONTRACTOR shall document and report on these activities. All costs associated with withdrawing from the site after completion of work, including CONTRACTOR's personnel, facilities, equipment, cleaning and securing the site shall be included.

2.7 Warranty

The CONTRACTOR shall provide the standard warranty specified in Volume I, Section 4.18. Additionally, the CONTRACTOR must assign all third-party licenses and equipment warranties to GPA.

SECTION 3. CONDITIONS PRECEDENT

3.1 CONTRACTOR's Submittals

CONTRACTOR shall supply the following to GPA, each in form and substance satisfactory to GPA unless such condition precedent is waived by GPA:

A. A copy of the BIDDER's Articles of Incorporation or other applicable forms concerning business organization (i.e. partnership, sole proprietorship, etc.) and By-Laws
B. Certificate of Good Standing to conduct business in jurisdiction of residence
C. Information regarding outstanding claims against the BIDDER, if any
D. Accomplished forms and affidavits defined in Volume IV
E. A current Guam Business License. Although it is not required in order to provide a Bid for this engagement, obtaining a Guam Business License is a pre-condition for entering into a Contract with the Authority

3.2 GPWA's Submittals

GPA and GWA shall supply the following, each in form and substance satisfactory to CONTRACTOR unless such condition precedent is waived by CONTRACTOR:

A. Copies of resolutions adopted by the Consolidated Commission on Utilities (CCU) authorizing the execution, delivery and performance by GPA and GWA of this Agreement, each certified by the corporate secretary of the CCU in a manner satisfactory to CONTRACTOR;

3.3 Insurance

CONTRACTOR shall obtain all insurance specified in Section 32 of this Agreement.

SECTION 4. CONTRACT DOCUMENTS

4.1 Documents Included

It is mutually agreed that the following lists of documents which are attached hereto, bound herewith or incorporated herein by reference shall constitute the contract documents, all of which are made a part hereof, and collectively evidence and constitute the contract between the parties hereto, and they are as fully a part of this Agreement as if they were set out verbatim and in full herein, and are designated as follows in their order of precedence:

A. This Contract
B. Amendments to Multi-Step Bid No.: GPA-066-16
C. Multi-Step Bid No.: GPA-066-16
D. CONTRACTOR's Proposal for Multi-Step Bid No.: GPA-066-16
E. Performance Bond
F. Major Shareholders Disclosure Affidavit
G. Audited financial information on CONTRACTOR's firm and all subcontractors that will be used in the project (if applicable)
H. Certificate of Good Standing to conduct business in jurisdiction of residence
I. Non-collusion Affidavit
J. No Gratuities or Kickbacks Affidavit
K. Ethical Standards Affidavit
L. Declaration RE Compliance with US DOL Wage Determination
M. Bid Bond
N. Local Procurement Preference Application
O. Restriction against Contractors Employing Sex Offenders from Working at Government of Guam Venues
P. A current Guam Business License. Although it is not required in order to provide a bid for this engagement, obtaining a Guam Business License is a pre-condition for entering into a contract with the Authority.
Q. Bid Schedule/Price Proposal (Appendix A)

4.2 Discrepancies

In the case of discrepancies or conflicts between the above-referenced contract documents, this Contract shall take precedence over GPA-066-16, and CONTRACTOR's proposal submitted in response to the MULTI-STEP BID. In case of discrepancies or conflicts between the Amendments to GPA-066-16, the Amendments shall take precedent. CONTRACTOR believe that there is any discrepancy or inconsistency between this Contract and the other contract documents, CONTRACTOR shall bring such discrepancy to the attention of the General Manager before proceeding with the work affected thereby.

4.3 Presumption of Familiarity

It will be conclusively presumed that CONTRACTOR has read, examined and agreed to each and every term, condition, provision, covenant or agreement contained within each and every Contract Document. CONTRACTOR is assumed to be familiar with all federal (U.S.) And local laws, ordinances, rules and regulations of Guam that in any manner affect the work. Ignorance of law on the part of CONTRACTOR will not relieve CONTRACTOR from responsibility.

SECTION 5. CONTRACT TERM

5.1 Term

The term of this Contract shall be for three hundred sixty five calendar (365) days, non-inclusive of the required 1000-Hour Availability Testing and inspection as outlined herein. With the exception of the Availability Testing and final inspection, the project shall be completed in all aspects of the general requirements within three hundred sixty five calendar (365) days after NTP, on _____, 2016 and shall continue until the midnight of _____, 2016.

SECTION 6. COMPENSATION FOR SERVICES

6.1 Payment

GPWA shall pay CONTRACTOR for costs and services rendered hereunder in accordance with this Agreement. Compensation for services performed and provided by CONTRACTOR shall be on a monthly basis at the rate stipulated in this section. CONTRACTOR shall invoice GPWA once a month, and payment shall be made within 30 days of after receipt of an acceptable invoice. In the event of any dispute with regard to any portion of the invoice, the undisputed portion shall be paid pending settlement of the dispute. Should GPWA fail to make any payment due to CONTRACTOR under this Agreement, GPWA shall pay interest to CONTRACTOR in accordance with the provisions of the Prompt Payment Act, 5 GCA Sections 22502-22507.

6.2 Contract Price

The Contract Price (See Appendix A) constitutes the total consideration to be paid by GPWA to CONTRACTOR for the complete delivery of all Contract Items, and for performing other services in connection therewith in accordance with the Contract Documents as amended by the parties pursuant to the Contract Agreement. The Price or Cost for each Contract Item under this Agreement shall remain fixed during the term of this Agreement. Unless expressly provided otherwise in the Contract Documents, the Contract Price is not subject to escalation in respect of materials and/or labor cost or any other factor or variation in rates of exchange, and all duties, responsibilities, and obligations assigned to or undertaken by CONTRACTOR shall be at its expense without change in the Contract Price. Charges, fees, CONTRACTOR's profit, and all other expense shall be deemed to be included in the Contract Price. Only a formal Change Order request, accepted by GPWA, may change the Contract Price. CONTRACTOR shall make any claim for an increase in the Contract Price in advance of performance of any such changes. However, GPWA reserves the right to challenge or refute such claims.

6.3 Payment Milestones and Schedule

Payment milestones have been selected to clearly identify the actual status of the portion of the Work completed rather than anticipated project progress schedules. Payments will be based on actual completion of each milestone event, where applicable, and not on the scheduled completion date. When a change in the Agreement is approved, the total contract price will be altered to the new total, and the remaining milestone payments will be adjusted. Milestones shall not be scheduled more frequently than once every month. GPWA will not approve a milestone payment until all preceding milestones have been approved. GPWA will make payments within thirty days from receipt and approval of the invoice for the com
pleted milestone.

6.4 Invoicing

CONTRACTOR shall submit for review by GPWA monthly invoices accompanied by a progress report describing the work performed during the compensation period. All payments to CONTRACTOR shall be free of any deductions, including but not limited to withholding taxes.

6.5 Total Amounts Paid to CONTRACTOR

The amounts paid or reimbursed to CONTRACTOR shall in no event exceed the dollar amount indicated above except upon prior written agreement by the parties. Prior to incurring any expense not contemplated in the total contract amount, CONTRACTOR shall request prior approval of any such additional cost from GPWA. No such expense shall be reimbursable unless approved in advance by GPWA.

6.6 Final Payment

Final payment shall be made upon delivery and acceptance of all Services as herein specified and performed under this Agreement. Prior to final payment, and as a condition precedent thereto, CONTRACTOR shall execute and deliver to the Authority a release of any claims arising under

and by virtue of this Agreement against the Authority except any identified written claims in existence at the time of the final payment.

6.7 Guam Gross Receipts Tax

The prices and costs set forth in this Agreement are based on the assumption that the Services performed will be subject to the Guam Gross Receipts Tax. CONTRACTOR is responsible for payment of any applicable taxes.

SECTION 7. AGREEMENT

Prior to entering into a formal agreement, GPA, GWA and CONTRACTOR shall resolve and document any differences between CONTRACTOR's proposal and the tender documents. The Agreement between GPWA and CONTRACTOR shall consist of the tender documents, as resolved by CONTRACTOR's final negotiated Proposal and by GPWA amendments, and the CONTRACTOR's proposal, as adjusted by a prioritized list of documents generated during the evaluation and negotiation processes and agreed to and acknowledged in writing by both parties. These documents may consist of, but are not limited to, written answers to questions, letters, and written clarifications to the proposal.

Any formal contract document shall reference GPWA tender documents and CONTRACTOR's proposal. No oral understanding or statement shall modify the Agreement. Changes to the above documents can only be made in accordance with the procedure for modifications as defined in Section 27.

The resolved tender documents shall take priority over and shall govern in all cases of conflict with the adjusted proposal. CONTRACTOR's contractual obligation shall be to fulfill all requirements of the tender documents, as resolved, and to provide all features of the CONTRACTOR's proposal, as adjusted.

The tender documents are intended to be complementary, what is called for by one shall be as binding as if called for by all. If not otherwise specified in the tender documents, these General Conditions shall apply. If, during performance of the Agreement CONTRACTOR detects a discrepancy in the tender documents, CONTRACTOR shall so report to ENGINEER in writing at once and shall obtain a written interpretation or clarification from ENGINEER before proceeding further; however, CONTRACTOR shall not be liable to GPWA for failure to report any conflict, error, or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

All materials, equipment, and services that may reasonably be inferred from the tender documents, as being required to produce the intended result will be supplied whether or not specifically called for. When words that have a well-known technical or trade meaning are used to describe materials, equipment, or services, such words will be interpreted in accordance with such meaning. Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the code of any Governmental authority, whether such

reference be specific or by implication, shall mean the latest standard specification, manual, or code in effect on the effective date of the Agreement except as may be otherwise specifically stated in the Specification or Agreement. ENGINEER shall issue clarifications and interpretations of the tender documents.

SECTION 8. OPERATION OF THIS CONTRACT

The Guam Power Authority's and Guam Waterworks Authority's responsibility for the day to day monitoring and enforcement of this Contract resides with the GPA SPORD Manager or his designee. CONTRACTOR shall identify to GPA the person(s) responsible for the implementation of the Contract and who shall act as CONTRACTOR's point of contact.

SECTION 9. CONTRACTOR'S OBLIGATIONS

9.1 Execution

CONTRACTOR shall, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required in this contract, and as specified in the Invitation for Bid Documents. CONTRACTOR shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the contract and specifications and shall do carry on the Contract to the satisfaction of the OWNER.

9.2 Right to Inspection

GPWA shall have the right to conduct inspections of any repair and/or replacement conducted. Any inspection made by the inspector of GPWA and/or its designee will be final. Such inspections or the witnessing of CONTRACTOR's test and inspection by GPWA and/or its designee shall not relieve the CONTRACTOR of any of its responsibilities or liabilities under the Contract Documents, nor be interpreted in any way as implying acceptance of the Goods.

9.3 Contractor's Financing Capability

If necessary, CONTRACTOR shall have the financial capability to support its cash flow requirement associated with the scope of work.

SECTION 10. FEDERAL AND LOCAL REGULATORY COMPLIANCE

General Responsibilities

CONTRACTOR shall be responsible for complying with all Environmental, Homeland Security, and other Federal and Local compliance requirements.

SECTION 11. PROTECTION OF WORK AND PROPERTY

CONTRACTOR shall at all times safely guard the OWNER's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work and that of adjacent property (as provided by law and the contract documents) from damage. All passageways, guard fences, lights and other facilities required for protection by laws and regulations and local conditions must be provided and maintained.

SECTION 12. WARRANTY

CONTRACTOR's obligation to deliver and perform services in connection therewith in accordance with the Agreement is absolute, and CONTRACTOR warrants and guarantees to OWNER that all services will be in accordance with the Contract Documents. CONTRACTOR shall provide OWNER with all warranties and guarantees in writing.

Except as otherwise specified all work shall be guaranteed by CONTRACTOR against defects resulting from the use of inferior materials, equipment, or workmanship for one year from the date of final completion of any repairs or replacements.

If within any guarantee period, repairs or changes are required in connection with guaranteed work which, in the opinion of the OWNER, is rendered necessary as the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the contract, CONTRACTOR shall promptly upon receipt of notice from OWNER and without expense to the OWNER:

A. Place in satisfactory condition in every particular all of such guaranteed work and correct all defects therein; and
B. Make good all damages to the building or site or equipment or contents thereof which, in the opinion of the OWNER, are the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the contract.

The CONTRACTOR shall be responsible for remedying all defects, without limitation, in design, materials, workmanship, operating characteristics, or performance of the Goods developing within twelve (12) months from the date on which GPWA has placed the Goods in continuous service, or within twenty-four (24) months from the date of final payment, whichever date shall first occur, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee or by any specific provisions of the Contract Documents.

Any part(s) supplied in replacement of the defective part(s) of the Goods or any Goods repaired pursuant to the provisions of this Paragraph shall be supplied or repaired on the same terms and conditions as provided for herein for the supply of the Goods and in particular a new warranty period shall apply. Such new warranty period shall expire on the date twelve (12) months from the date of such replacement or repair or on the expiration date of the warranty for the original Goods that were replaced or repaired, whichever is later.

In any case wherein fulfilling the requirements of the contract or of any guarantee embraced in or required thereby CONTRACTOR disturbs any work guaranteed under another contract, he shall restore such disturbed work to a condition satisfactory to the OWNER and guarantee such restored work to the same extent as it was guaranteed under such other contract.

If CONTRACTOR, after notice, fails to proceed promptly to comply with the terms of the guarantee, the OWNER may have the defects corrected and CONTRACTOR and his surety shall be liable for all expense incurred.

All special guarantees applicable to definite parts of the work shall be stipulated in the specifications or other papers forming a part of the contract and shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

In the event CONTRACTOR furnishes special services for installation and startup, such services shall be rendered in a competent and diligent manner and in accordance with the Contract Documents, accepted industry practice and any applicable professional standards.

SECTION 13. DEFECTIVE WORK

No work or material which may be defective in construction or quality or deficient in any of the requirements of the drawings and specifications will be considered accepted as a consequence of the failure of the OWNER to discover or to point out said defects or deficiencies during the construction; nor will the presence of inspectors on the work relieve CONTRACTOR from the responsibility of securing the quality and progress of work as required by these specifications.

Any defective work that may be discovered before the completion of the work or within such time as required by the bond shall be replaced by work and materials that shall conform to the spirit and intent of the drawings, specifications and contract.

The fact that the OWNER may have overlooked defective work shall not constitute the acceptance of work. NO PAYMENT WHETHER PARTIAL OR FINAL SHALL BE CONSTRUED TO BE AN ACCEPTANCE OF DEFECTIVE WORK OR IMPROPER MATERIALS.

The OWNER may at any time by order given in writing stop any work not being done according to drawings and specifications and any order so given shall not in any way relieve CONTRACTOR from completing his contract and shall not in any way terminate, cancel or abrogate the contract or any part thereof, and the Government of Guam shall not in any way be responsible for the delay due to stopping the work as aforesaid.

SECTION 14. INSPECTION OF WORK

14.1 Access to the Work

Authorized GPWA representatives shall have access at all times to the work for inspection whatever it is in preparation or progress and CONTRACTOR shall provide proper facilities for such access and inspection.

14.2 Inspectors

Inspectors may be placed by the OWNER to supervise each and every subdivision of the work or any parts or process thereof. The authorized inspectors shall have free access to all parts of the work at all times and shall be given every facility, information and means of thoroughly inspecting the work done and the materials used or to be used. The inspectors shall at all times be free to perform their duties and any intimidation of any inspector by CONTRACTOR or the employees thereof shall be sufficient reason, if the OWNER shall so decide, to annul the contract.

SECTION 15. DEFAULT

In the event either party of this Contract fails to perform any of the provisions of this Contract, the other party must notify the party in default in writing of the deficiency or non-performance. The party in default has thirty (30) calendar days in which to remedy such default. If such default is not cured within thirty (30) calendar days, the other party may terminate all or part of the Contract. Events of default include but are not limited to the following:

A. Failure of CONTRACTOR to provide evidence of an acceptable performance bond on specified time.
B. Failure of the OWNER to pay invoices within 30-days of receipt.
C. Failure of CONTRACTOR to adhere to the terms of the Contract.
D.

SECTION 16. LICENSES, PERMITS, TAXES, AND RESPONSIBILITIES

CONTRACTOR shall, without additional expense to the OWNER, be responsible for obtaining any necessary licenses and permits, and for complying with any applicable Federal and Territorial laws, codes, statutes, and regulations necessary for the performance of the Contract by CONTRACTOR.

SECTION 17. SUBCONTRACTS

Nothing contained in the contract documents shall be construed as creating any contractual relationship between any subcontractor and the OWNER. The diffusion or sections of the specifications are not intended to control CONTRACTOR in dividing the work among subcontractors or to limit the work performed by any trade.

CONTRACTOR shall be as fully responsible to the OWNER for the acts and omissions of subcontractors and of persons employed by them, as he is for the acts and omissions of persons directly employed by him.

CONTRACTOR shall be responsible for the coordination of the subcontractors engaged in his work.

CONTRACTOR shall, without additional expense to the OWNER, utilize the services of specialty subcontractors on those parts of the work which are specified to be performed by specialty subcontractors.

The OWNER will not undertake to settle any differences between CONTRACTOR and his subcontractors or between subcontractors.

CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the work including waiver of mechanics liens to bind subcontractors by the terms of the contract documents insofar as applicable to the work of subcontractors and to give the OWNER any exercise over CONTRACTOR under any provisions of the contract documents.

SECTION 18. ASSIGNMENT OF AGREEMENT

CONTRACTOR shall not assign the whole or any part of this contract or any monies due or to become due hereunder without the written consent of the OWNER and of all the sureties executing any bonds on behalf of CONTRACTOR in connection with said contract. In case CONTRACTOR assigns the whole or any part of said contract or assigns all or any part of any monies due or to become due under said contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due CONTRACTOR or otherwise shall be subject to all of the terms and conditions of said contract or supplemental thereto, the rights and remedies of the OWNER thereunder or arising by operation of the law and to the liens of all persons, firms, and corporations for services rendered or materials supplied in connection with the performance of said contract.

SECTION 19. EQUAL OPPORTUNITY

CONTRACTOR will not discriminate against any employee or applicant for employment because of race, religion, sex, color, age, economic status, or national origin. CONTRACTOR will take affirmative action to insure that qualified applicants are employed and that employees are treated during employment without regard to their race, religion, sex, color, age, economic status, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoffs or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees

and applicants for employment, notices to be provided by the OWNER setting forth the provisions of this nondiscrimination clause.

CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, religion, sex, color, age, economic status, or national origin.

CONTRACTOR will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the OWNER, advising the said labor union or workers' representative of CONTRACTOR's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965 and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

SECTION 20. PROHIBITION AGAINST GRATUITIES, KICKBACKS, AND FAVORS

GCA 5 §5630(c) prohibits the CONSULTANT against gratuities, kickbacks, and favors.

SECTION 21. RESTRICTION AGAINST CONTRACTORS EMPLOYING CONVICTED SEX OFFENDERS FROM WORKING AT GOVERNMENT OF GUAM VENUES

GCA 5 §5253(b) restricts the CONSULTANT against employing convicted sex offenders from working at Government of Guam venues. It states:

> (b) All contracts for services to agencies listed herein shall include the following provisions: (1) warranties that no person providing services on behalf of the contractor has been convicted of a sex offense under the provisions of Chapter 25 of Title 9 GCA or an offense as defined in Article 2 of Chapter 28, Title 9 GCA, or an offense in another jurisdiction with, at a minimum, the same elements as such offenses, or who is listed on the Sex Offender Registry; and (2) that if any person providing services on behalf of the contractor is convicted of a sex offense under the provisions of Chapter 25 of Title 9 GCA or an offense as defined in Article 2 of Chapter 28, Title 9 GCA or an offense in another jurisdiction with, at a minimum, the same elements as such offenses, or who is listed on the Sex Offender Registry, that such person will be immediately removed from working at said agency and that the administrator of said agency be informed of such within twenty-four (24) hours of such conviction.

SECTION 22. CLAIMS AND DISPUTES

All controversies between the OWNER and CONTRACTOR which arise under, or are by virtue of, this Contract and which are not resolved by mutual agreement of the parties shall be decided as set forth in 5 G.C.A §5427 of the Guam Procurement Law.

SECTION 23. TERMINATION FOR CONVENIENCE

OWNER may terminate the performance of the services under this Contract in accordance with this clause in whole, or in part, whenever OWNER determines that such termination of Contract is in the best interest of the Guam Power Authority and its ratepayers.

Any such termination is effected by delivery to CONTRACTOR a written Notice of Termination specifying the extent to which services in the Contract is terminated in whole or in part. In the event the OWNER elected to terminate the Contract it shall be effective sixty (60) days after the receipt of such Notice of Termination.

SECTION 24. SURRENDER OF PREMISES

Upon voluntary or other termination of this Contract or any early termination of the term from whatever cause, CONTRACTOR shall voluntarily surrender and deliver to GPWA all materials purchased and paid for by GPWA, documents pertinent to the work, and all equipment and materials related to the work at CONTRACTORs possession.

SECTION 25. FAILURE TO COMPLY WITH LAWS

In the event CONTRACTOR or any person or entity identified as principals in the offer submitted in connection with the bid shall be found by any court or administrative agency having jurisdiction over the subject matter of the violation, to have violated any law, rule or regulation in connection with CONTRACTOR's performance of the obligations under the Contract in any manner whatsoever directly or indirectly which violation shall constitute a breach of the peace, or an act involving moral turpitude or otherwise constitute endangerment of the health, safety and welfare of the citizens of the Guam, OWNER may in its sole discretion terminate this Contract upon 30 days written notice.

SECTION 26. AMENDMENT AND WAIVER

Neither the Contract nor any provision hereof may be changed, waived, altered, amended, discharged or terminated orally, but only by an instrument in writing signed by the party against whom enforcement of the change, waiver, alteration, amendment, discharge or termination is sought.

Failure by either party to object to any failure of performance by the other party of any provision of the Contract shall not constitute a waiver of, or estoppels against, the right of such party to require such performance by the other. Nor shall any such failure to object constitute a waiver or estoppels with respect to any succeeding failure of performance.

SECTION 27. GOVERNING LAW

This Contract is made under, and shall be governed and construed in accordance with, the laws, statutes and regulations of Guam, to the exclusion of all other legal systems. Wherever a term defined by the Uniform Commercial Code is used in the Contract the definition contained in the Uniform Commercial Code of Guam will control, unless otherwise specified.

The parties expressly submit to the jurisdiction of the Superior Court of Guam, for the resolution of any dispute or difference or claims between the parties in connection with the Contract, and to service of process by registered mail. Judgment upon any award rendered by the Superior Court of Guam may be entered in any court of any country having jurisdiction, and such award shall be binding upon the parties. CONTRACTOR waives all rights against OWNER to claim consequential, special or punitive damages.

SECTION 28. RELATIONSHIP OF PARTIES

Nothing contained in the Contract as awarded to the successful bidder shall be deemed or construed by the parties or by any third person to create the relationship of principal and agent or of partnership or of joint venture or of any association between CONTRACTOR and OWNER, and no provisions contained in the Contract nor any acts of the parties shall be deemed to create any relationship between OWNER and CONTRACTOR, other than the relationship of supplier of services and beneficiary.

SECTION 29. NOTICE TO OTHER PARTY

Either party whose obligations may be affected by any of the forces or causes set out in the preceding section, supra, shall promptly notify the other party in writing, giving full particulars thereof as soon as possible after such occurrence of such force or cause. Such party shall exercise due diligence to remove such cause with all reasonable dispatch and shall exert every efforts to resume performance at the earliest practicable time.

SECTION 30. NOTICES

Any notice, demand or any document required or permitted to be delivered hereunder shall be in writing and may be delivered personally or shall be deemed to be delivered when deposited in the mail, postage prepaid, registered or certified mail, addressed to the parties at their respective address indicated below:

To: Benson Guam Enterprises, Inc.
Attention: _____
FAX Number: (671) 477-3736
P.O. Box 6157, Tamuning
Guam 96931-6157

TO: GUAM POWER AUTHORITY
Attention: General Manager
FAX Number: (671) 648-8163
P.O. Box 2977, Hagatña
Guam 96932-2977

TO: GUAM WATERWORKS AUTHORITY
Attention: General Manager
FAX Number: (671) 648-3290
P.O. Box 3010, Hagatña
Guam 96932

SECTION 31. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

CONTRACTOR upon receipt of the Contract Award and prior to commencing work, shall obtain and thereafter maintain during the course of the Contract at a minimum, the following types of insurance at no cost to the OWNER :

A. General Liability including products, completed operations and contractual coverage for this Agreement in the amount of $1,000,000 combined limit. Coverage for "on an occurrence basis" commercial general liability which includes owner's and contractor's protective and contractual liabilities, and have a general aggregate limit of One Million U.S. Dollars (US$1,000,000), a products and completed operations aggregate limit of One Million U.S. Dollars (US$1,000,000), and a single occurrence limit of One Million U.S. Dollars(US$1,000,000), and One Million U.S. Dollars (US$1,000,000) for any of the above. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

B. Automotive Liability Insurance. : It shall carry coverage for owned, hired, and non-owned vehicles, which includes endorsement for loss, property damage or destruction, and personal bodily injury in single aggregate minimum amount of One Million U.S. Dollars (US$1,000,000) for each occurrence. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

C. Professional Liability or Architects and Engineers Liability in the amount of $1,000,000.

D. Excess Liability with limits of $5,000,000 or higher. GPWA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPWA.

E. Worker's Compensation and Employer's Liability – The coverage shall include all employees and all statutory limits and requirements for workers' compensation for Guam, and including but not limited to employers' (CONTRACTOR) liability for employee

bodily injury. Statutory limits and $1,000,000/ $1,000,000/ $1,000,000 respectively. Add Waiver of Subrogation endorsement in favor of GPWA.

F. Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor, which shall include GPWA as named insured.

CONTRACTOR **must furnish to the OWNER** "Certificates of Insurance" evidencing all such coverage of the above items including the statement to the effect that cancellation or termination of said policy shall not be effective until thirty (30) working days after receipt of written notice by OWNER, prior to the commencement of this Contract. OWNER shall have the rights, which shall be exercised in OWNER's sole discretion, to terminate this contract if CONTRACTOR fails to maintain or have the insurance policy described above.

All insurance policies herein required of CONTRACTOR shall be written by a company duly authorized and licensed to do business in Guam where work under this contract is being performed and be executed by some agent thereof duly licensed as an agent in Guam.

SECTION 32. INDEMNITY

CONTRACTOR shall indemnify, defend and hold OWNER free and harmless from and against all claims of whatever nature arising from any acts, omissions, or negligence of CONTRACTOR, its employee, agents, or assigns arising from any accident, injury or damages whatsoever caused to any person, or the property of any person, occurring during the term of the Contract in or about the Premises, and to include the cost of enforcement of this indemnity. CONTRACTOR agrees that the insurance herein shall be issued by an established and reputable company with **Best's Key Rating of B+ or better.**

SECTION 33. WAIVER OF SUBROGATION

The parties hereby release each other and their respective officers, employees, and agents from all loss or damage to the Premise property, machinery and equipment and to the fixtures, personal property, equipment and improvements of either GPWA or CONTRACTOR in or on the Property, notwithstanding that any such loss or damage may be due to or result from the negligence of either of the parties or their respective officers, employees or agents. This waiver does not apply to maintenance and repair assumed under this contract by CONTRACTOR.

SECTION 34. ACCIDENT PREVENTION

Precaution shall be exercised at all times for the protection of persons (including employees) and property. Equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the latest edition of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America to the extent that such provisions are not in contravention of applicable laws.

Should typhoon warnings be issued, CONTRACTOR shall take every practicable precaution to minimize damage and/or danger to persons, to the work, and to the adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and/or equipment from exposed locations, and removing or securing scaffolding and all other temporary work.

SECTION 35. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency which threatens loss or injury of property and/or safety or life, CONTRACTOR shall act, without previous instructions from the OWNER, as the situation may warrant.

SECTION 36. FORCE MAJEURE

No failure or omission to carry out or to observe any of the terms, provisions or conditions of the Contract shall give rise to any claim by one party against the other, or be deemed to be a breach of the Contract if the same shall be cause by or arise out of:

(a) War, etc. War, hostilities, acts of public enemy or belligerents, sabotage, blockade, revolution, insurrection, riot or disorder;
(b) Restraints. Arrest or restraint of princes, rulers or peoples;
(c) Confiscation. Expropriation, requisition, confiscation of nationalization;
(d) Rationing. Embargoes, export or import restrictions or rationing or allocation, whether imposed by law, decree or regulation or by voluntary cooperation of industry at the insistence or request of any governmental authority or person purporting to act therefore;
(e) Regulations. Interference by restriction or onerous regulations imposed by civil or military authorities, whether legal or de factor and whether purporting to act under some constitution, decree, law or otherwise;
(f) Acts of God. Acts of God, fire, frost or ice, earthquake, storm, lightning, tide, tidal wave, or peril of the sea, accident of navigation or breakdown or injury of vessels;
(g) Loss of Tankers. Loss of tanker tonnage due to sinking or capture by belligerents, to include acts of piracy or to governmental taking whether or not by formal requisition;
(h) Accidents. Accidents to or adjuncts of shipping navigation;
(i) Strikes and Quarantine. Epidemics, quarantine, strikes or combination of workmen, lockouts, or other labor disturbances;
(j) Explosions. Explosion, accidents by fire or otherwise to wells, pipes, storage facilities, refineries, installations, machinery;
(k) Taking by Government. Unavailability of fuel because of the election of the government of the country of its origin to confiscate, retain, ban export, or otherwise prevent shipment of fuel;
(l) Mechanical Breakdown. Unavailability of GPWA's electric generating plant and any, or all, appurtenances thereto, including transmission and distribution facilities, due to any mechanical operate as designed, emergency outages of equipment or facilities for the purpose of making repairs to avoid breakdown thereof or damage thereto other than regularly scheduled repairs or regular maintenance; or

(m) Other Events. Any event, matter or thing wherever occurring and whether or not of the same class or kind as those set forth, which shall not be reasonably within the control and without the fault or negligence of the party affected thereby.

No failure or omissions to carry out or to observe any of the terms, provisions or conditions of the Contract shall give rise to any claim by one party against the other, or be deemed to be a breach of the Contract from the time of and to the extent occasioned by the Force Majeure, not from the date of notice of the Force Majeure is received.

SECTION 37. ATTORNEY'S FEES AND COSTS

Contractor agrees that should a default by either party result in litigation, the successful party shall be entitled to recover its costs and reasonable attorney's fees from the defaulting party.

SECTION 38. CONTRACT BINDING EFFECT

All EXHIBITS attached hereto are incorporated herein by reference in its entirety.

IN WITNESS WHEREOF the parties hereto have executed this contract as of the day and year first written.

CONTRACTOR:

CENCIO TAN C. VY

Date: DEC 13, 2016

OWNER:

GUAM POWER AUTHORITY

JOHN M. BENAVENTE, P.E.
General Manager

Date: 11-17-16

GUAM WATERWORKS AUTHORITY

MIGUEL C. BORDALLO, P.E.
General Manager

Date: 11.16.16

APPROVED AS TO FORM:

By: _____
D. GRAHAM BOTHA, Esq.,
GPA Staff Attorney

By: _____
KELLY CLARK
GWA Staff Attorney

Account No. _____

Amount: _____

CERTIFICATION OF FUNDS:

By: _____ 11.16.16
GREG P. CRUZ
GWA Chief Financial Officer

Account No. Bond 2016 EE 09-08

Amount: $432,705.00

APPENDIX A

CONTRACT - APPENDIX A

COPY

Bid Schedule / Price Proposal

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM

Item	Description	Unit	Qty	GUAM POWER AUTHORITY Unit Cost			Total Cost			Incal Cost	Qty	GUAM WATERWORKS AUTHORITY Unit Cost			Total Cost			Total Cost
				Material	Labor	Equipment	Material	Labor	Equipment			Material	Labor	Equipment	Material	Labor	Equipment	
Basic Bid																		
1	Mobilization	LS	1	2,500	5,000	5,500	2,500	5,000	5,500	13,000	1	2,500	5,000	5,500	2,500	5,000	5,500	13,000
2	Project Management	LS	1	3,000	115,000	-	3,000	115,000	-	118,000	1	3,000	72,000	-	3,000	72,000	-	75,000
3	Permits, Bonds and Duties	LS	0		200,000	-	-	200,000	-	200,000	1	-	-	-	-	-	-	-
4	Project Installation Site Survey	LS	1	-	18,500	2,000	-	18,500	2,000	20,500	1	-	-	-	-	-	-	-
5	Interconnection and Integration Design, Communications and Networking Design and Execution Plan	LS	1	-	84,450	-	-	84,450	-	84,450	1	-	3,500	1,500	-	3,500	1,500	5,000
6	Installation Design	LS	1	-	12,000	-	-	12,000	-	12,000	1	-	15,000	-	-	15,000	-	15,000
7	Software Core, Procurement and Delivery	LS	1	-	3,500	-	-	3,500	-	3,500	1	-	6,500	-	-	6,500	-	6,500
8	Third Party Software Cost, Procurement and Delivery	LS	1	-	25,000	153,000	-	25,000	153,000	180,000	1	-	2,500	-	-	2,500	-	2,500
9	Hardware	LS	1	-	-	31,063	-	-	31,063	31,063	1	-	5,000	66,000	-	5,000	66,000	71,000
10	Software Installation	LS	1	-	43,000	-	-	43,000	-	43,000	1	-	-	20,000	-	-	20,000	20,000
11	Equipment Core, Procurement and Delivery	LS	1	1,000	600	271,257	1,000	600	271,257	272,857	1	1,000	13,000	-	1,000	13,000	-	13,000
12	Interconnection Commissioning, Quality Assurance and Performance Testing	LS	1	1,000	137,000	-	1,000	137,000	-	138,000	1	500	8,000	154,995	500	8,000	154,995	154,995
13	Training	LS	2	35,000	185,980	2,000	35,000	185,000	2,000	242,000	2	-	-	-	500	8,000	-	8,500
14	Documentation	LS	1	2,000	16,000	25,000	2,000	16,000	25,000	39,000	0	1,500	7,000	-	1,500	7,000	-	8,500
15	Warranty	LS	1	1,000	2,000	20,000	1,000	2,000	20,000	23,000	1	1,000	3,000	-	1,000	3,000	-	4,000
16	Documentation	LS	1	5,000	8,000	35,000	5,000	8,000	35,000	48,000	1	2,000	4,000	10,000	2,000	4,000	10,000	16,000
17	Annual Maintenance	LS	1	3,000	5,000	-	3,000	5,000	-	7,000	1	500	2,500	-	500	2,500	-	3,000
18		LS	1	10,000	80,000	-	10,000	80,000	-	90,000	1	-	12,000	-	-	12,000	-	12,000
	Basic Bid Total Cost for both GPA and WWA:	$1,951,471.00						Basic Bid Total Cost		1,514,764						Basic Bid Total Cost		437,705

Basic Bid Total Cost in Words: U.S. Dollars One Million Nine Hundred Fifty One Thousand Four Hundred Seventy One Dollars only

Name of Bidder: Microgrid Networks, LLC By: CENDO TAN YY, President

COPY

Bid Schedule / Price Prop

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM Bid Schedule/ Price Proposa

Item	Description	Unit	Qty	GUAM POWER AUTHORITY							Qty	GUAM WATERWORKS AUTHORITY						
				Unit Cost			Total Cost			Total Cost		Unit Cost			Total Cost			Total Cost
				Material	Labor	Equipment	Material	Labor	Equipment			Material	Labor	Equipment	Material	Labor	Equipment	
Additive Bid																		
1	Additional Training (20 days in Guam)	LS	1	-	20,000	-	-	20,000	-	20,000	1	-	20,000	-	-	20,000	-	20,000
2	Build-out SCADA/EMS system initial to Ultimate system size	LS	1	-	6,500	-	-	6,500	-	6,500	1	-	141,000	-	-	141,000	-	141,000
3	NERC approved Power System Operator Training program (See Vol II, paragraph 2.3.7.3)	EA	3		5,000			15,000		15,000	3		5,000			15,000		15,000
4	Add Database Points, SCADA Screens, Reports in the new SCADA/EMS for:							-		-						-		-
	a. 1 ea Water Treatent Plant (see Vol II, paragraph 2.2.3)	LS						-		-	1		6,660			6,660		6,660
	b. 71 Facilities (see Vol II, paragraph 2.2.3)	LS						-		-	1		52,015			52,015		52,015
5	Point-to-Point Testing							-		-						-		-
	a. 60 GWA sites, from field RTU to GWA SCC (see Appendix V)	LS						-		-	1	-	44,400			44,400		44,400
	b. 22 GWA sites, from simulated RTU to GWA SCC (see Appendix V)	LS						-		-	1		53,280			53,280		53,280
Ultimate System Size							Additive Bid Total Cost			41,500					Additive Bid Total Cost			322,155
ADDITIONAL ADDITIVE BID																	TOTAL ADDITIVE BID COST:	373,655
6	Generation Dispatch and Control (see Vol II, paragraph 4.1)	LS	1		144,570			144,570		144,570						-		-
7	Transmission Security Management (see Vol II, paragraph 4.1)	LS	1		98,780			98,780		98,780						-		-
8	Emergency Backup Control Center (see Vol II, paragraph 4.13)	LS	1	2,000	30,700	129,486	2,000	30,700	129,486	162,186						-		-
9	Fuel Switching Application (see Appendix R)	LS	1	15,000	125,000	60,000	15,000	125,000	60,000	200,000		-	-	-	-	-	-	-
							Additive Bid Total Cost			603,536					Additive Bid Total Cost			-
																	TOTAL ADDITIONAL ADDITIVE BID COST:	603,536

* All prices shall include overhead, administration cost, profit and applicable taxes

Total Bid Cost (Basic + Additive): $ 2,325,329.00

Bid Cost in Words U.S. Dollars Two Million Three Hundred Twenty-five Thousand Three Hundred Twenty-Nine and 0/100 only

GRAND TOTAL BID COST (Basic + Additive + Additional Additive): $ 2,930,855.00

GRAND TOTAL BID COST IN WORDS U.S. Dollars Two Million Nine Hundred Thirty Thousand Eight Hundred Fifty-Five and 0/100 Only

Name of Bidder: BENSON GUAM ENT., INC. By: LENDO TAN IV, President

revised (06/13/16) under Amendment No.: III

Doc. No. 34GL-18-1957.*

CCU Regular Meeting June 5, 2018 - NEW BUSINESS

OPTIONAL OFFER:

We are proposing as optional offer on the following Referentia's T-REX product for requirements in gathering, data integration, implementation and testing, and training and support of the product as described in the accompanying technical proposal

ANNUAL SUBSCRIPTION LICENSE COSTS:

T-Rex Core + Anayltics Interface (quad core, 1 year)

Year 1	$ 90,123.00
Year 2	90,123.00
Year 3	90,123.00

Replicated Instance (pass thru from DMZ to Corporate network)

Year 1	$ 42,000.00
Year 2	42,000.00
Year 3	42,000.00

Professional Services	$ 269,850.00
Travel	35,350.00

TOTAL:

Year 1	**$ 437,323.00**
Year 2	**132,123.00**
Year 3	**132,123.00**

OPTIONAL:

Backup T-Rex License (quad core, 1 year for backup site):

Year 1	$ 84,180.00
Year 2	84,180.00
Year 3	84,180.00

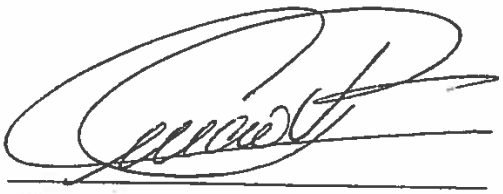
NOTES:

- Professional Services pricing includes the following:
  - On-site visit for requirements gathering/validation
  - Interface for SCADA, iDashboard and MDMS to pull data into T-Rex; data validation
  - Additional systems can be interfaced for an additional charge
  - On-site implementation services; to be done after SCADA system is operational
  - End-to-end testing
  - Training
  - Documentation
  - Project management
  - Phone support

- Perpetual licenses are available from T-Rex core + Analytics Interface; Replicated Instance and Backup T-Rex License
- Maintenance for Perpetual License will be discounted if purchased in 2 or 3 year increments
- Pricing does not include service hardware. The minimum requirements for the server are:
  - Operating System: Windows Server 2008 or Linux
  - CPU: Quad Core CPU
  - System Memory (RAM): 16 GB
  - Disk: 10 TB RAID Drive with redundancy

  Two servers are needed, one resides in the EMS network, the other is mirrored copy residing in the Corporate network and allowing Corporate users to access the data.

Submitted by:
BENSON GUAM ENT., INC.



CENCIO TAN VY, President

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

December 06, 2016

Monito Co
General Manager
Benson Guam Ent.
P.O. Box 6157
Tamuning, Guam 96931

REFERENCE: P.O. NO.: 23344 (GPA), (GWA) 300305 OP#

Dear Mr. Co:

This is your Notice to Proceed for the above subject Purchase Order Numbers for GPA and GWA for the Supervisory Control and Data Acquisition (SCADA) System. Commencement date for this project is December 14, 2016 and expires on December 14, 2017.

Be advised that any changes which may impact the schedule or the value of this order must be noticed to the Supply Management Administrator and approved by the General Manager.

Technical questions are to be directed to Roel Cahinhinan (GPA), 648-3100, Frank Santos (GPA) at 475-5296 and Barbara Cruz (GWA) at 300-6039. All other questions and/or concerns are to be directed to the Supply Management Administrator, Mrs. Jamie L.C. Pangelinan at 648-3054/55 or fax 648-3165.

Sincerely,

JOHN M. BENAVENTE, P.E.
General Manager (GPA)

MIGUEL C. BORDALLO, P.E.
General Manager (GWA)

CENCIO TAN C. VY
DEC 13, 2016

GUAM WATERWORKS AUTHORITY

1 : Page
6500: B/U
12/12/16: Date
FOB GWA: F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. ~~Reference Bid: GPA Bid No. GPA-066-16~~				
GPWA Supervisory Control		EA	.00	EA 432,705.00

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
Send certified original and three (3) copies of invoice to Guam Waterworks Authority, Government of Guam, at the address shown above.

Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $ 432,705.00

ACKNOWLEDGED BY: [signature] DATE: 12/15/2016
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

SIGNATURE: [signature] 12.15.16

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ACKNOWLEDGEMENT COPY

ALL PURCHASE ORDERS FROM THE GUAM WATERWORKS AUTHORITY
ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS.

1. In the shipments are connected with a bid or RFP issued by GWA, this purchase order shall be governed by the Terms and Conditions of the bid or RFP as well as the Guam Procurement Law and the Guam Procurement Regulations

2. An acknowledged and dated copy of this purchase order must be returned to GWA.

3. GWA will only be responsible for the total amount indicated in this Purchase Order and any amount in excess of that amount will not be paid by GWA.

4. All invoices (original/s and duplicate/s) must be forwarded to Accounts Payable Department of the Guam Waterworks Authority. These invoices must be properly endorsed or signed by authorized GWA personnel as indicated in the Purchase Order. And invoices should be provided to GWA within the month in which the purchases and/or services were rendered.

5. All vendors with an outstanding unpaid invoice at the end of the month after the goods or services were rendered must provide monthly vendor statements to the Accounts Payable Supervisor at GWA.

6. No variation in any of the terms, conditions, delivery dates, prices, quality, quantity or specifications under this order, regardless of the conditions or terms of the seller's acceptance, will be effective without the written consent of a person specifically authorized by GWA to make such changes.

7. Packing lists must accompany each shipment which indicate the order number and a detailed description and goods or services provided, including, but not limited to, the part number and serial number for each item delivered.

8. Shipments must be identified as either "PARTIAL" or "COMPLETE."

9. All goods delivered are subject to GWA's inspection and acceptance within a reasonable time after delivery. If the specifications are not met and are rejected by GWA, the goods shall be returned at the seller's expense.

10. In connection with any prompt payment discount offered the time will computed from date of delivery and acceptance at destination or from the date the correct invoice or voucher is received in by the Guam Waterworks Authority, if the latter is later than date of delivery and acceptance. Payment is deemed to be made, for the purpose of earning any discount on the date the check is mailed.

11. Shipments in excess of the amount stated in the order will not be accepted unless specifically approved by a GWA official authorized to make such changes.

POTERMS

GUAM WATERWORKS AUTHORITY
Gloria B. Nelson Public Services Building
688 Route 15, Magilao Guam 96913

September 29, 2017

Amendment No: 017-0156

Benson Guam Enterprise
P.O. Box 6157
Tamuning, Guam 96931

Vendor No: 00018948
Purchase Order No / Bid No: 300305-000-OP
Subject: **Amendment No: 1** / OR# 29529

In reference to the above subject matter, please take the following action(s) upon receipt of this Pro Format letter. (**X**) marked in the box opposite the action, is/are the action (s) to be taken:

[ ] Cancel in its entirety

[ ] The substitute item(s) is/are acceptable, proceed with the shipment

[ ] Cancel the balance and consider the order complete

[ ] Please advise status of our order. URGENT

[X] **Other**: AMENDMENT ISSUED TO EXTEND EXPIRATION, DATE FROM SEPTEMBER 30, 2017 TO NOW READ NEW FISCAL EXPIRATION DATE MARCH 9, 2018. REFERENCE PROJECT TITLE, GPWA SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM PROJECT.**ALL OTHERS REMAIN THE SAME.**

Miguel C. Bordallo, P.E.
General Manager

Please acknowledge receipt by signing:

Comments:

_____/_____
Vendor Signature **Date**

GUAM WATERWORKS AUTHORITY

1 : Page
6500 : B/U
09/29/17 : Date
FOB GWA : F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. Reference Bid: GPA Bid No. GPA-066-16				
GPWA Supervisory Control		EA	.00 EA	432,705.00

NOTE:"SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $

SIGNATURE:

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ORIGINAL

POMIGUEL

GUAM WATERWORKS AUTHORITY

2 : Page
6500 : B/U
09/29/17 : Date
FOB GWA : F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
Amendment issued to extend expiration date from September 30, 2017 to now read new fiscal expiration date March 09, 2018. Reference project title, GPWA Supervisory Control and Data Acquisition (SCADA). System Project. All other remain the same. * Date: September 29, 2017 * Amendment #017-0156				
AMENDMENT ISSUED		EA	.00	EA

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
Send certified original and three (3) copies of invoice to Guam Waterworks Authority, Government of Guam, at the address shown above.

Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $ 432,705.00

SIGNATURE: 9-29-17

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ORIGINAL

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

'OMIGUEL

GUAM WATERWORKS AUTHORITY

1 : Page
6500: B/U
09/29/17: Date
FOB GWA: F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

THIS PURCHASE ORDER MUST APPEAR ON ALL INVOICES PACKING SLIPS, PACKAGES, B/L CORRESPONDENCE, ETC.

Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
CONDITIONS: 2GAR§3109 Competitive Sealed Bids Requested by: Lani Unchangco Authorized Personnel: Thomas Cruz / Barbara Cruz Business Unit: 6500 G/L Account No. E171.105321.320000 Funding Source: Bond 2016, EE 09-08 OQ# 29721 / OR# 29529 Buyer: Victoria Heacock, #1047 * IMPORTANT NOTICE TO VENDORS " All invoices must indicate P.O. Number for payment " All invoices must indicate on the invoice the Employee's " Name, Badge Number that must be signed and printed clearly " Submit signed and dated P.O. acknowledgement with invoice " GWA will not be liable for any unauthorized services that are not listed in the Purchase Order - only the services listed on the Purchase Order will be paid by GWA. " Only the authorized names listed on the Purchase Order are allowed to transact. Unauthorized person(s) will not be honored by GWA. * SPECIFICATIONS (ARTICLES OR SERVICES): * Project Title: GPWA Supervisory Control and Data Acquisition (SCADA) System Project Description of Services: Design and install a new SCADA system for GPA and GWA in accordance with the terms and conditions of the contract. Amount: $432,705.00 Account No.: Bond 2016, EE 09-08 Expiration Date: 365 calendar days from Notice-to-proceed date. Reference Bid: GPA Bid No. GPA-066-16				
GPWA Supervisory Control	EA	.00	EA	432,705.00

NOTE:"SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

SIGNATURE:

ACKNOWLEDGEMENT COPY
Miguel C. Bordallo, P.E. General Manager
NAME TITLE

OMIGUEL

GUAM WATERWORKS AUTHORITY

2 : Page
6500 : B/U
09/29/17 : Date
FOB GWA : F.O.B.

PURCHASE ORDER
GUAM WATERWORKS AUTHORITY

P.O. Box 3010, Hagatna, Guam 96932
PHONE: (671) 647-7818 FAX: (671) 649-3750

No. 300305-000 OP

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Payment Terms: Net 30 Days

VENDOR:

BENSON GUAM ENTERPRISE INC
P.O. BOX 6157
TAMUNING GU 96931

SHIP TO:

GUAM WATERWORKS AUTHORITY
578 N. Marine Corps. Dr.
ATTENTION: P & S WAREHOUSE
Tamuning GU 96913

AUTHORITY	IFB / REFERENCE	TIME FOR DELIVERY	EXPIRATION
PL 16-124 / PL 21-148			09/30/2017

ARTICLES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
Amendment issued to extend expiration date from September 30, 2017 to now read new fiscal expiration date March 09, 2018. Reference project title, GPWA Supervisory Control and Data Acquisition (SCADA). System Project. All other remain the same. * Date: September 29, 2017 * Amendment #017-0156				
AMENDMENT ISSUED		EA	.00	EA

NOTE: "SUBJECT TO THE GUAM PROCUREMENT CODE AND ACCOMPANYING REGULATIONS"

SPECIAL INSTRUCTIONS TO VENDOR:
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Payment upon receipt of merchandise in Guam in good condition.

SEE BACK FOR TERMS AND CONDITIONS

DO NOT FILL THIS ORDER if your total cost exceeds this total. >>

TOTAL $ 432,705.00

ACKNOWLEDGED BY: _____ DATE: _____
SIGNATURE OF VENDOR

RETURN TO PROCUREMENT DIVISION AT THE ABOVE ADDRESS

SIGNATURE: 9-29-17

Miguel C. Bordallo, P.E. General Manager
NAME TITLE

ACKNOWLEDGEMENT COPY

MIGUEL

GUAM WATERWORKS AUTHORITY

"Better Water. Better Lives."
Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

GWA FINANCE & ACCOUNTING OFFICE ADMINISTRATIVE
RECEIVED
DEC 14 2017
BY:

CHANGE ORDER NO. 2

Project Title:	GPWA Supervisory Control and Data Acquisition (SCADA) System Project				
Project No.:	E17-001-BND	**IFB No.**	GPA-066-16 (issued by GPA)	**GWA PO No.**	300305-000 OP
Contractor:	Benson Guam Enterprises, Inc.			NTP Date:	December 14, 2016

TO: Benson Guam Enterprises, Inc.

You are directed to make changes noted below in the subject contract. The changes are accepted by:

Monito Co, General Manager
Contractor Representative (PRINT)

Contractor Representative (SIGNATURE)

12/14/2017
Date

PREPARED BY : JCruz
Barbara Cruz, P.E.
Project Manager, GWA

12/14/2017
Date

RECOMMEND APPROVAL :
Thomas Cruz, P.E.
Chief Engineer, GWA

12/14/17
Date

NATURE OF CHANGES:

Add services to GWA's Ugum Water Treatment Plant to ensure continual operation and integration of the plant with the new GPWA SCADA System.

Contractor's change order proposal with details is attached.

The changes result in the following adjustment of contract price and time:

Contract price prior to this Change Order	$	432,705.00
Net INCREASE from this Change Order (subject to approved terms and conditions)	$	90,716.60
Current contract price including this Change Order	$	523,421.60

Contract time prior to this Change Order	450	Calendar Days
Net INCREASE from this Change Order (subject to approved terms and conditions)	0	Calendar Days
Current contract time including this Change Order	450	Calendar Days
Current contract expiration date including this Change Order	Friday, March 09, 2018	

CERTIFIED FUNDS AVAILABLE:

Vendor No.: 18948
Contract No.: N/A
G.L. NO.: E171.105321.320000
Amount: $ 90,716.60

(Bond 2016 EE 09-08)

Greg Cruz
Certifying Officer

1.5.18
Date

GL: 01/05/2018

APPROVED:

Miguel C. Bordallo, P.E.
General Manager, GWA

1.9.18
Date

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

FACSIMILE TRANSMITTAL COVER LETTER

DATE: 01/23/18

ATTENTION: Benson Guam Enterprises Inc.

Tel: 477-7562
Fax: 477-3736

PO NO: 23344 (Amend II)

Please acknowledge receipt, via return fax ASAP (671) 648-3165

Have A Nice Day!

==========
==========

Received By: Monito S. CO **Date:** 1/24/2018
Print Name

Signature:

Si Yu'us Ma'ase.

Confidentiality Notice: The information in this facsimile is intended for the named recipients ONLY. It may contain instructions requiring the immediate attention of the addressee. If you receive this facsimile in error, or if there is a transmission error, please notify us immediately.

Number of pages: 3

Sent By: Jessie Naputi

Procurement Office 648-3054/3055

JAMIEP

PURCHASE ORDER

GUAM POWER AUTHORITY
P.O. Box 2977
Hagatna, Guam 96932

TELEPHONE: (671) 648-3054/5
FAX: (671) 648-3165

THIS PURCHASE ORDER NUMBER
No. 23344 OP
MUST APPEAR ON ALL INVOICES. PACKING SLIPS, PACKAGES, B/L, CORRESPONDENCE, ETC.

PO DATE	JOB ORDER NO./OBJ
10/13/16	100146.107200.102

VENDOR
BENSON GUAM ENTERPRISES INC
P O BOX 6157
TAMUNING GU 96931-6157

TEL: (671) 477-7562
FAX: (671) 477-3736

VENDOR 6169

SHIP TO
RECEIVING SECTION:
GUAM POWER AUTHORITY

P.O. BOX 2977
HAGATNA, GUAM 96932
TELEPHONE: (671) 648-3054/5
Strategis Planning and Opr

AUTHORITY	INVITATION NO.	CONTRACT NO.	TIME FOR DELIVERY	EXPIRING	DISCOUNT TERMS:
3109	MS GPA-066-16	C-066-16	10/01/18		

DESCRIPTION / SUPPLIER ITEM	QTY	UNIT	UNIT PRICE	AMOUNT	DOCUMENT NUMBER
AMENDMENT NO.: II					29247 OR
		L		$183,339.56	01/12/18

Amend to make the following changes:

1. Amend to extend the Completion Time of this purchase order from March 8, 2018 to now read October 1, 2018.

2. Amend to increase the value of this purchase order.

Extension and increase is necessary as follow:

1. Compliance with GPWA Cyber Security Policy reference NIST 800-53 requires all control equipment to be procured from a Trade Act Agreement (TAA) vendor.

2. Revised SCADA infrastructure to match GPWA's current proprietary network infrastructure.

3. Extension is necessary for finalization of the system architecture and resourcing of the equipment.

All others remain the same and unchanged.

The total value of this purchase order has INCREASED by $183,339.56 from $1,518,769.00 to a new total of $1,702,108.56.

Page 1 of 2

INSTRUCTIONS TO VENDOR:
SEND CERTIFIED ORIGINAL AND THREE (3) COPIES OF INVOICE TO GUAM POWER AUTHORITY, PO BOX 2977, CODE 33, HAGATNA, GUAM 96932

PAYMENT UPON RECEIPT OF MERCHANDISE IN GUAM IN GOOD CONDITION

TOTAL

<< DO NOT FILL THIS ORDER IF YOUR TOTAL COST EXCEEDS THIS TOTAL

ACKNOWLEDGED BY: _____ DATE: 1/24/2018
SIGNATURE OF VENDOR
RETURN TO PROCUREMENT DIVISION AT ABOVE ADDRESS

SIGNATURE: _____ 1/23/18
JOHN M. BENAVENTE, P.E., General Manager — Date
Delegated Authority

JAMIEP (57)

PURCHASE ORDER

GUAM POWER AUTHORITY
P.O. Box 2977
Hagatna, Guam 96932

TELEPHONE: (671) 648-3054/5
FAX: (671) 648-3165

THIS PURCHASE ORDER NUMBER
No. 23344 OP
MUST APPEAR ON ALL INVOICES. PACKING SLIPS, PACKAGES, B/L, CORRESPONDENCE, ETC.

PO DATE	JOB ORDER NO./OBJ
10/13/16	100146.107200.102

VENDOR
BENSON GUAM ENTERPRISES INC
P O BOX 6157
TAMUNING GU 96931-6157

TEL: (671) 477-7562
FAX: (671) 477-3736

VENDOR 6169

SHIP TO
RECEIVING SECTION:
GUAM POWER AUTHORITY

P.O. BOX 2977
HAGATNA, GUAM 96932
TELEPHONE: (671) 648-3054/5
Strategis Planning and Opr

AUTHORITY	INVITATION NO.	CONTRACT NO.	TIME FOR DELIVERY	EXPIRING	DISCOUNT TERMS:
3109	MS GPA-066-16	C-066-16	10/01/18		

DESCRIPTION / SUPPLIER ITEM	QTY	UNIT	UNIT PRICE	AMOUNT	DOCUMENT NUMBER
					29247 OR

Ref.: SPORD Manager's request dated January 10, 2018.

REVIEWED BY: 01/23/18
JAMIE LYNN C. PANGELINAN Date
Supply Management Administrator

Page 2 of 2

INSTRUCTIONS TO VENDOR:
SEND CERTIFIED ORIGINAL AND THREE (3) COPIES OF INVOICE TO GUAM POWER AUTHORITY, PO BOX 2977, CODE 33, HAGATNA, GUAM 96932

PAYMENT UPON RECEIPT OF MERCHANDISE IN GUAM IN GOOD CONDITION

$183,339.56

TOTAL

<< DO NOT FILL THIS ORDER IF YOUR TOTAL COST EXCEEDS THIS TOTAL

ACKNOWLEDGED BY: _____ DATE: 1/24/2018
SIGNATURE OF VENDOR
RETURN TO PROCUREMENT DIVISION AT ABOVE ADDRESS

SIGNATURE: 1/23/18
JOHN M. BENAVENTE, P.E., General Manager Date
Delegated Authority

GUAM WATERWORKS AUTHORITY RECEIVED BY TIME 11:44 DEC 12 2016 GENERAL MANAGER'S OFFICE

GUAM WATERWORKS AUTHORITY

"Better Water. Better Lives."
Gloria B. Nelson Public Service Building
688 Route 15, Mangilao, Guam 96913

RECEIVED
2018 JAN 12 PM 3:19
G.W.A.
FINANCE DIVISION

CHANGE ORDER NO. 4

Project Title:	GPWA Supervisory Control and Data Acquisition (SCADA) System Project				
Project No.:	E17-001-BND	**IFB No.**	GPA-066-16 (issued by GPA)	**GWA PO No.**	300305-000 OP
Contractor:	Benson Guam Enterprises, Inc.			**NTP Date:**	December 14, 2016

TO: Benson Guam Enterprises, Inc.

You are directed to make changes noted below in the subject contract. The changes are accepted by:

Monito Co, General Manager
Contractor Representative (PRINT)

Contractor Representative (SIGNATURE) — Date: 1/12/2018

PREPARED BY: Barbara Cruz, P.E., Project Manager, GWA — Date: 1/12/2018

RECOMMEND APPROVAL: Thomas Cruz, P.E., Chief Engineer, GWA — Date: 1/12/2018

NATURE OF CHANGES:

Improve management and protection of SCADA System, that is tied to the power and water/wastewater systems, from cyber threats and risks.

1. Replace Supplier Chain of Dell computer equipment from Dell Taiwan to Dell Federal to meet stricter cyber security requirements to improve protection of GPA and GWA systems against potential threats and risks. Dell Federal cost is higher. The net difference is $65,405.09. GWA's share is $35,391.83. GPA's share is $30,013.26. GWA's is higher because GWA has 4 workstations, GPA has 3.
2. Relocate Factory Acceptance Testing from China to Taiwan. Taiwan is a Trade Agreement Act (TAA) compliant country, China is not. FAT relocation requires shipment of Dell equipment, including expenses for import/export, custom clearances and ground transportation to Siemens, Taiwan. This will also require office rental and cost difference for engineering and project expenses. This cost is $110.129.62. GWA share is 50% or $55,064.81.
3. Change brand and model of the network switches. This cost will be funded by GPA. There is no cost to GWA. GWA's cost = $0.
4. Revised SCADA Architecture requires additional equipment. This cost will be funded by GPA. There is no cost to GWA. GWA cost = $0.

*** GWA total share = { $35,391.83 + $55,064.81) x 4% Admin Expenses = $94,074.91
*** *Change Order No. 3 is GPA's share of the changes; GPA's total share is $183,339.56. GPA is processing Change Order no. 3.*

The changes result in the following adjustment of contract price and time:

Contract price prior to this Change Order	$	523,421.60
Net INCREASE from this Change Order (subject to approved terms and conditions	$	94,074.91
Current contract price including this Change Orde	$	617,496.51

Contract time prior to this Change Order	450	Calendar Days
Net INCREASE from this Change Order (subject to approved terms and conditions)	206	Calendar Days
Current contract time including this Change Order	656	Calendar Days
Current contract expiration date including this Change Order	Monday, October 01, 2018	

CERTIFIED FUNDS AVAILABLE:

Vendor No.:	18948
Contract No.:	N/A
G.L. NO.:	E171.105321.320000
Amount:	$ 94,074.91

(Bond 2016 EE 09-08)

Greg Cruz, Certifying Officer — Date: 2.12.18

APPROVED:

Miguel C. Bordallo, P.E., General Manager, GWA — Date: 2.12.18

EXHIBIT D

SIEMENS

28th February 2018

ASSESSMENT REPORT FOR GWA-UGUM WATERWORKS

Siemens Contact: Daniel Wong
Email: wong.daniel@siemens.com
DID: +65 6490 7068

SIEMENS

28th February 2018

This report is a summary of the site assessment done from 23~26 Jan 2018. It covers the following areas:

- The PLC Control System
- The WinCC Scada System
- Data Bridge Report Generation
- The Profibus Network
- The MCC(Simocode Pro-C) System
- The Siemens VFDs, and
- The Auxiliaries such as UPS, Cable management, Cabinet layouts, etc…

1. The PLC Control System

The PLC control system consists of the following cabinets:

(a) Main PLC Rack Cabinet
(b) MCC Panel Cabinet
(c) Cell #1 Cabinet
(d) Cell #2 Cabinet
(e) Blower Room Cabinet
(f) Chemical Room Cabinet
(g) Riverside Cabinet (Raw Water)

In addition, there are also 11 Simocodes and 4 Siemens Micromaster VFDs. The single slave station at the riverside is connected through a CP card. The main DP line 1.5Mbps, and the riverside line is at 45.45kbps.

Current status :

All the slave stations are in communication with the Profibus DP master except the following stations:

(a) Backwash Transfer Pump 1 (integrated DP port line, MM440 station address #21)
(b) Backwash Transfer Pump 2 (integrated DP port line, MM440 station address #22)
(c) Centrifuge Polymer Dosing System (integrated DP port line, Simocode station address #26)
(d) Raw Water (CP443-5 DP line, ET200M station address #8)
(e) One of the Simocode is defective.
MLFB: 3UF7000-1AU00-0
Version: V2.0.0

SIEMENS 28th February 2018

Location: MCC room, Centrifuge Polymer Dosing

(f) MicroMaster drives are defective.

MLFB: 6SE6440-2UD25-5CA1

Version: D06/2.11

Location: MCC Room, Backwash Transfer Pump #1 & #2

2. The WinCC SCADA

The original setup was a server with 2 clients. The server, together with a client are located in the main control building. The second client was located in the MCC room.

Current Status :

Only the server is operational, however the RAID1 is defective. Rebuild done overnight on 24th Jan 2018 and was successful when checked on 25th morning. There is no client station. Virus scan recommended.

(a) MLFB of server: 6AG4104-2DP22-0PX4 (IPC547D)

Location: Control Room

OS version of server: Svr 2003

(b) WinCC version: 6.2 +SP2

New : 7.4 +SP1

CFC ver: 7.0 +SP1 +HF1

New : Ver. 9.0

3. Industrial Databridge Version: 6.1

- New findings

Current Status :

To generate selected data from archive into a Excel List. This function is present, but does not work properly.

(a) Simatic S7 Pro version: 2006 SR5 (5.4 +SP4)

New : S7 Pro version : 2017/V15

(b) Web Navigator version: 6.2 +SP2

New : Ver. 7.4 SP1

Note : The data trending was not archived properly resulting in loss of data.

4. Network Cabling

(a) The RJ45 network cable from Control room to the MCC room is defective.

(b) The Profibus cabling to the riverside is defective.

(c) The cabling to the MCC and Chemical rooms are using the indoor purple Profibus cable.
(d) The Profibus cable to the riverside is spliced using Black cable from Rack to riverside. Splicing is done using butt connectors in 2 locations, and with Profibus connectors in 4 locations.
Note : Proposed FO cables to the 3 locations, riverside, MCC and Chemical rooms.

Others

(a) The UPS(APC Smart UPS 2200) is operational. It is only used for the IPC.
(b) There is a WinCC training simulator for the Plant and is of version 7.0

Documentation

(a) FDS is present.

5. Upgrade Possibilities for PLC System

(a) Memory Sub module from Flash RAM (952, 2MB) to Flash EPROM (6ES7952-1KL00-0AA0)

Currently the PLC program is running off a 2MB RAM. It should be transferred to the spare Flash EPROM. This will enable the program to be reloaded even if the battery backup failed and there is a power outage. The program will then be operating with the parameters that were programmed into the Flash EPROM.

(b) PS of Main Rack (Optional, if preferred)

Currently the power supply of the main PLC is the AC110/220 type. It is possible to replace it to the 24Vdc input type. This will mean that a new 24Vdc power supply needs to be installed and wired up through terminal blocks to the power supply modules. The work required would be:
(i) Install a 24Vdc power supply unit
(ii) Connect the 110Vac supply to the 24Vdc unit, through a MCCB
(iii) Connect the 24Vdc output to terminal blocks
(iv) Connect the 24Vdc supply from the terminal blocks to the Power Supply module of the PLC
Note : Update drawings

SIEMENS 28th February 2018

(c) Main PLC Rack – Option 1

Set up another main rack complete with all the hardware identical to the current PLC rack. There are sufficient spares to execute this except for the Flash EPROM. The work required would be:

(i) Re-align the existing rack to the left to allow sufficient space to mount the identical second main rack.

(ii) Mount the second rack

(iii) Program in Flash EPROM (need to purchase)

(iii) Wire up the power supply module

(iv) Power up the rack

(v) Transfer the 2x Profibus cable(purple) and 1x Ethernet cable(white) over

(vi) Test the system

(vii) Update drawings

(d) Main PLC Rack – Option 2

Upgrade the current main PLC CPU rack to a S7-400H redundant system. The following will be required:

(i) One set of S7-400H with the similar communication connectivity as the current system

(ii) Two numbers of Y-Link bundle

The work required will be:

(a) Remove the existing rack

(b) Install two numbers 24Vdc supply unit with terminal blocks

(c) Install the S7-400H main rack, with 2 new sets of 24Vdc cables

(d) Install the two numbers of Y-Link (mounting & 4 cables for 24Vdc)

(e) Install the original Profibus cables (2 numbers, going to MCC and river)

(f) Wire up the Profibus cables from CPU & CP443-5 tot the Y-Link(4 cables)

(g) Test the system

(h) Update drawings

SIEMENS 28th February 2018

6. Upgrade Possibilities for SCADA System

(a) Upgrade of IPC547D to 547G

The IPC547D is no longer in production. The IPC547G is the latest version. This version is running on the Windows 7, 64bit version. We would need to check on the Win10 LTSB version.

(b) WinCC and options

The latest version of the WinCC is V7.4+SP1. It requires the Windows 7 OS. The following is recommended:

(i) WinCC V7.4 + SP1

(ii) WinCC Industrial Bridge for required export to Excel

(iii) Simatic Manger 2010 SR4

(iv) CFC V9.0

((v) Sinema Remote Connect for remote service

(vi) Scalance M876-4 (local data SIM and antenna installation is required)

(c) Siemens Micromaster MM4

The two defective MM4 for the Back Wash Transfer pumps should be replaced by the Sinamics G120. The work would be as follows:

(i) Locate the drive parameters of the original MM4

(ii) Select the replacement Sinamics G120 model

(iii) Site installation of Sinamics G120

(iv) Commissioning of the Sinamics

(v) Update drawings

Note : Currently the two numbers of 45kW MM4 are for the CMF-S Filtrate Pumps #1 & #2. They are operational. The recommendation would be to upgrade it to the SInamics G120.

Two options are possible:

(i) To upgrade one unit to Sinamics and use the MM4 unit that is taken out as a spare for the still operational MM4

(ii) To upgrade both to the Sinamics

Generally the procedure of the upgrade work is similar but requires more time as the capacity is higher. It is also recommended to order 1-to-1 units as spares. These spare units should be commissioned as ready to use spares.

(d) Remote Support

As the plant personnel are not familiar with the Siemens Control and SCADA system, it is recommended to install the Sinema Remote Connect for Siemens engineers to assist the GWA maintenance and operational personnel in reducing the downtime of the plant.

(e) Training of GWA Personnel (Singapore Siemens Training Centre)

The following training courses are recommended for the respective personnel.

Systems	Name of courses	Target personnel
PLC System	STEP7 Service 1	Maintenance
PLC System	STEP7 Service 2	Maintenance
WinCC SCADA	WinCC Basic	Maintenance/Operation
Simocode	Simocode	Maintenance
Siemens VFDs	MicroMaster	Maintenance
Profibus Network	Certified Profibus Engineer	Maintenance

(f) Tools & Test Equipment

The following tools are recommended:

(i) Profibus cable cutter for wiring of Profibus connectors

(ii) Profi-Trace from Procentec, for the Profibus Network diagnostics and trouble shooting. It is also able to indicate the health status of the Profibus Network. This test tool is very useful if the engineer has attended the Certified Profibus Engineer course.

(iii) The Simocode Pro-C software and connecting cable. This is for backing up the configurations of the Simocodes. It is also required for programming the Simocode, if the user is trained.

SIEMENS 28th February 2018

(g) Profibus Cabling to the River

The original Profibus cabling to the river is not suitable for the site and environmental conditions. Extensive modifications to the current cabling run route are needed to protect the cable from the elements.

We proposed to replace it with a FO solution. This might potentially require the enlargement of the current cable routing. FO is recommended for the following reasons:

(i) FO cable can be supplied in a length that is sufficient for the distance that we need

(ii) Even if splicing is required, they can be done in a more weather resistant manner

(iii) The transmission speed can be increased to 1.5Mbps which is the same speed as the MCC room line

(h) Profibus Cabling from Control Building to the MCC Building and Chemical Building

The cable used is the purple coloured Profibus FC Caable. This cable is intended for indoor use only. If used outdoor, as in this case, it should be protected from the elements.

(i) FO cable can be used to increase reliability

(ii) Even if splicing is required, they can be done in a more weather resistant manner

(iii) A Ring topology would increase availability, can be done at a later stage

(g) Danfoss VFDs to Profibus

When the Profibus connection to the river is up and running, we can connect the Danfoss VFDs through this network. This will enable monitoring and control of these three VFDs. The following work is required:

(i) FDS discussion and confirmation

(ii) Engineering of the changes

(iii) Installation of Profibus option into the VFDs

(iv) Profibus cable installation from the Raw Wtare Et200m station to the three VFDs

(v) Hardware configuration changes in the PLC system

(vi) Control logic addition to the current program to enable SCADA monitoring and control

(vii) Static and dynamic graphics changes in the SCADA

(viii) Site commissioning

(viii) Update drawings

(h) Yearly Site Visit for Audit and Backups

A yearly visit is recommended for System checks and to ensure that the important information are backed up. The following activities will be executed:

(i) Back up the PLC program

(ii) Back up the WinCC SCADA program

(iii) Back up the Simocodes

(iv) Backup the VFDs parameters

(v) Check the diagnostics of the PLC

(vi) Check the data logger of the WinCC

(vii) Perform a health check of the Profibus networks

(i) Monthly remote checks for the main PLC and the WinCC SCADA

Every month we will connect remotely to check the diagnostic buffers of the PLC. We will also check the event logger of the WinCC SCADA. It is also an opportunity for the plant personnel to feedback any observations that we can look into and clarify and/or rectify

(j) Water Hammering

Cell #1 is not normal during the backwash sequence. Our engineer is checking on this abnormal behavior.

(k) UPS

The current UPS is only used for the IPC547D and the COMTREND wireless router. It is not sufficient if the PLC main rack is also required to be maintained.

----------END---------

GWA Ugum Waterworks

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1. The PLC Control System
2. The WinCC SCADA System
3. Data Bridge Report
4. Photos of Profibus cabling to riverside
5. The Control System Software versions
6. Possible training courses
7. Possible upgrades
8. SinemaRC typical connection

Daniel Wong

Tan, Gim Sin

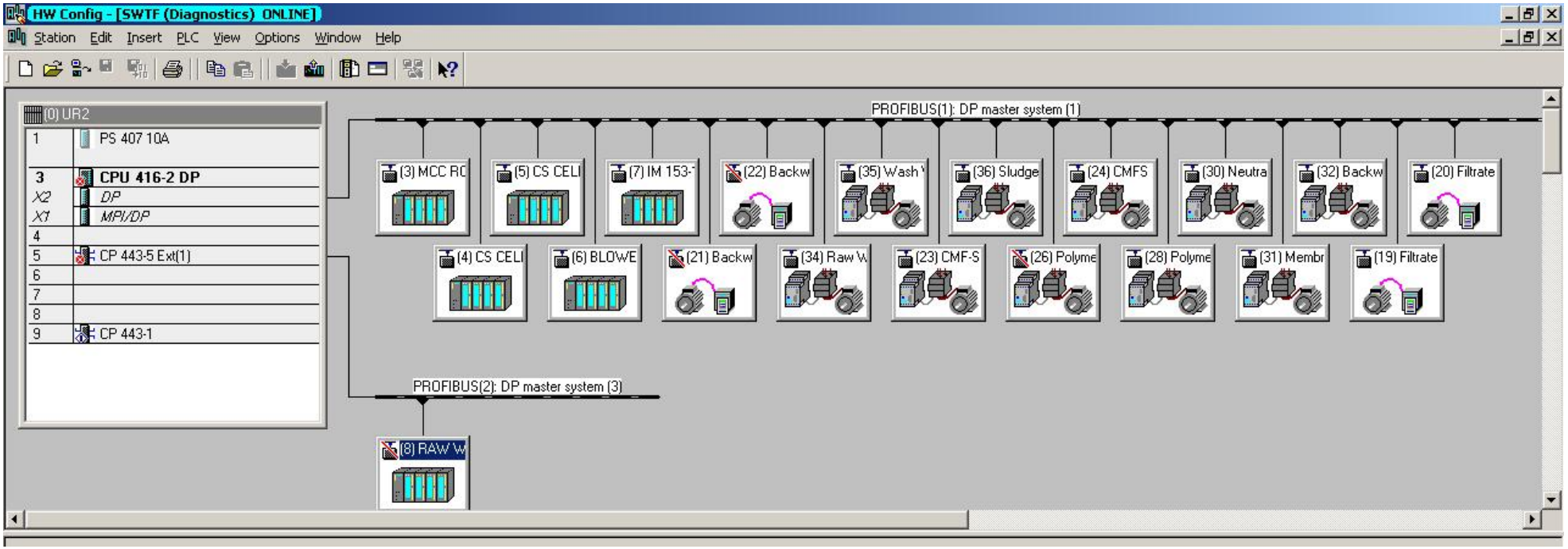
Siemens Pte Ltd, Sngapore

The PLC System

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The current PLC System Hardware configuration with:

- 6 ET200M slave stations,
- 4 MM4 VFDs, and
- 10 MCC with Simocodes.



The PLC System – Current Status and proposed possible actions

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Findings:

Issue #1: 2x MM4 VFD slave stations are not visible in the control system (Backwash Pumps #1 & #2)

Cause: Both MM4 VFDs are defective

Possible action 1: To purchase 2 numbers of MM4 and to re-commission them, OR

Possible action 2: To upgrade the MM4 to the new Sinamics G120 with spare unit programmed and ready to run.

Issue #2: 1x MCC Simocode is not visible in the control system (Centrifuge Polymer Dosing System)

Cause: The Simocode is defective

Possible action 1: To purchase a direct replacement Simocode and reprogram it. A service engineer is required.

Other action: To backup all the MCC Simocode(10x in total)

Issue #3: 1x ET200M slave station is not visible (Raw Water)

Cause: The Profibus cabling to the riverside is defective

Possible action 1: Check and correct the defects in the cabling(temporary measure), OR

Possible action 2: Replace the electrical Profibus cabling by a FO installation with network re-commissioning

Issue #4: The backwash for cell #1 is not working as that for cell #2.

Cause: to be determined by trouble-shooting the PLC program, not completed

The WinCC SCADA – Current Status and proposed corrective measures

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Findings:
The original system is a server configuration with 2x clients. The server and 1x client station is in the control building. The 2nd client station is in the MCC room. Only the server IPC547D is found, and working with a defective RAID 1(resolved by rebuilding).

Issue #1: The MCC room client station is not working

Cause: The PC is not properly installed with the WinCC client software..
Possible action 1: To re-install the WinCC client software into the PC.
Other action: The network cable is also found to be defective and needs to be corrected.

Issue #2: The Data Bridge report generation (into Excel) worked intermittently (the driver loses connection to WinCC)

Cause: The driver loses connection to WinCC
Possible action: will need to investigate and re-install the application
Note: The report contains data required for EPA submission (see next slide).

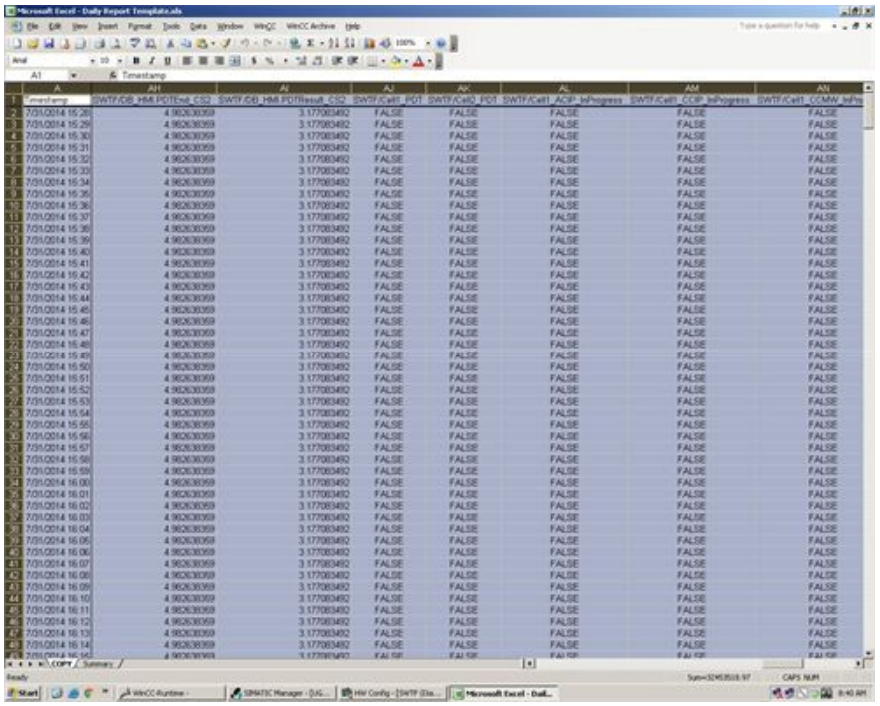
Issue #3: The data archiving is not working properly

Cause: The settings are not correct, not set to back up after 2 months
Possible action 1: To correct the settings and test. The data files will be transferred to a designated directory and can be copied out regularly. The WinCC Historian option(not installed now) is required to view these files.

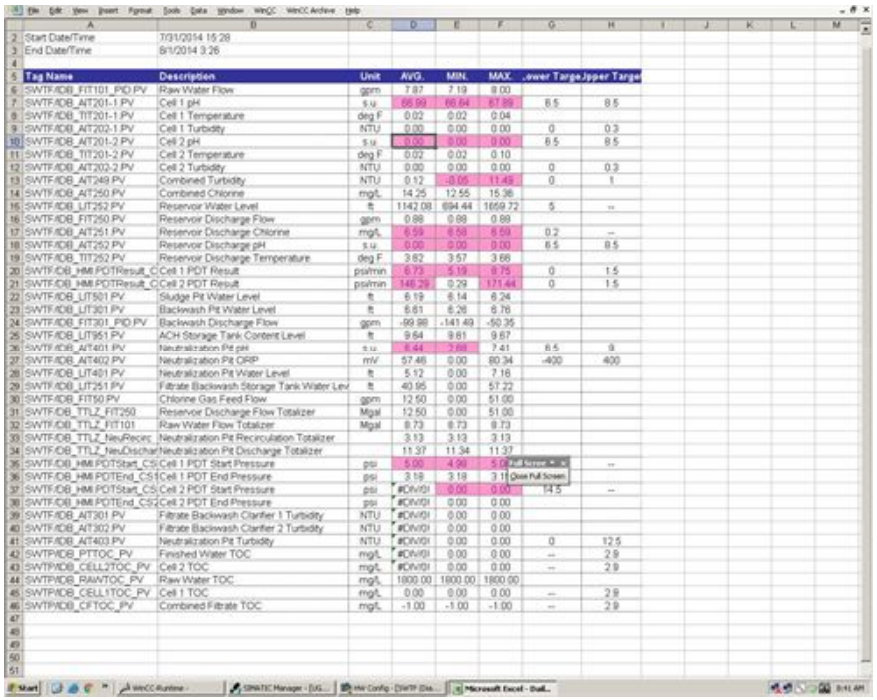
Report by Data Bridge when working

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Template (data captured every 15 mins)



Generated Report – Start Time & End time can be specified



	A	B	C	D	E	F	G	H
2	Start Date/Time			7/31/2014 15:28				
3	End Date/Time			8/1/2014 3:26				
4								
5	**Tag Name**	**Description**	**Unit**	**AVG.**	**MIN.**	**MAX.**	**..ower Targe**	**Jpper Targe**
6	SWTF/DB_FIT101_PID.PV	Raw Water Flow	gpm	7.87	7.19	8.00		
7	SWTF/DB_AIT201-1.PV	Cell 1 pH	s.u.	66.99	66.64	67.89	6.5	8.5
8	SWTF/DB_TIT201-1.PV	Cell 1 Temperature	deg F	0.02	0.02	0.04		
9	SWTF/DB_AIT202-1.PV	Cell 1 Turbidity	NTU	0.00	0.00	0.00	0	0.3
10	SWTF/DB_AIT201-2.PV	Cell 2 pH	s.u.	0.00	0.00	0.00	6.5	8.5
11	SWTF/DB_TIT201-2.PV	Cell 2 Temperature	deg F	0.02	0.02	0.10		
12	SWTF/DB_AIT202-2.PV	Cell 2 Turbidity	NTU	0.00	0.00	0.00	0	0.3
13	SWTF/DB_AIT249.PV	Combined Turbidity	NTU	0.12	-0.05	11.48	0	1
14	SWTF/DB_AIT250.PV	Combined Chlorine	mg/L	14.25	12.55	15.36		
15	SWTF/DB_LIT252.PV	Reservoir Water Level	ft	1142.08	894.44	1859.72	5	--
16	SWTF/DB_FIT250.PV	Reservoir Discharge Flow	gpm	0.88	0.88	0.88		
17	SWTF/DB_AIT251.PV	Reservoir Discharge Chlorine	mg/L	6.59	6.58	6.59	0.2	--
18	SWTF/DB_AIT252.PV	Reservoir Discharge pH	s.u.	0.00	0.00	0.00	6.5	8.5
19	SWTF/DB_TIT252.PV	Reservoir Discharge Temperature	deg F	3.82	3.57	3.88		
20	SWTF/DB_HMI.POTResult_C	Cell 1 PDT Result	psi/min	6.73	5.19	8.75	0	1.5
21	SWTF/DB_HMI.POTResult_C	Cell 2 PDT Result	psi/min	146.29	0.29	171.44	0	1.5
22	SWTF/DB_LIT501.PV	Sludge Pit Water Level	ft	6.19	6.14	6.24		
23	SWTF/DB_LIT301.PV	Backwash Pit Water Level	ft	6.81	6.26	6.76		
24	SWTF/DB_FIT301_PID.PV	Backwash Discharge Flow	gpm	-99.98	-141.49	-50.35		
25	SWTF/DB_LIT951.PV	ACH Storage Tank Content Level	ft	9.64	9.61	9.67		
26	SWTF/DB_AIT401.PV	Neutralization Pit pH	s.u.	8.44	7.68	7.41	6.5	9
27	SWTF/DB_AIT402.PV	Neutralization Pit ORP	mV	57.46	0.00	80.34	-400	400
28	SWTF/DB_LIT401.PV	Neutralization Pit Water Level	ft	5.12	0.00	7.16		
29	SWTF/DB_LIT251.PV	Filtrate Backwash Storage Tank Water Lev	ft	40.95	0.00	57.22		
30	SWTF/DB_FIT50.PV	Chlorine Gas Feed Flow	gpm	12.50	0.00	51.00		
31	SWTF/DB_TTLZ_FIT250	Reservoir Discharge Flow Totalizer	Mgal	12.50	0.00	51.00		
32	SWTF/DB_TTLZ_FIT101	Raw Water Flow Totalizer	Mgal	8.73	8.73	8.73		
33	SWTF/DB_TTLZ_NeuRecirc	Neutralization Pit Recirculation Totalizer		3.13	3.13	3.13		
34	SWTF/DB_TTLZ_NeuDischar	Neutralization Pit Discharge Totalizer		11.37	11.34	11.37		
35	SWTF/DB_HMI.POTStart_C51	Cell 1 PDT Start Pressure	psi	3.00	4.00	5.00		--
36	SWTF/DB_HMI.POTEnd_C51	Cell 1 PDT End Pressure	psi	3.19	3.19	3.19		
37	SWTF/DB_HMI.POTStart_C52	Cell 2 PDT Start Pressure	psi	#DIV/0!	0.00	0.00	14.5	--
38	SWTF/DB_HMI.POTEnd_C52	Cell 2 PDT End Pressure	psi	#DIV/0!	0.00	0.00		
39	SWTF/DB_AIT301.PV	Filtrate Backwash Clarifier 1 Turbidity	NTU	#DIV/0!	0.00	0.00		
40	SWTF/DB_AIT302.PV	Filtrate Backwash Clarifier 2 Turbidity	NTU	#DIV/0!	0.00	0.00		
41	SWTF/DB_AIT403.PV	Neutralization Pit Turbidity	NTU	#DIV/0!	0.00	0.00	0	12.5
42	SWTP/DB_PTTOC_PV	Finished Water TOC	mg/L	#DIV/0!	0.00	0.00	--	2.9
43	SWTP/DB_CELL2TOC_PV	Cell 2 TOC	mg/L	#DIV/0!	0.00	0.00	--	2.9
44	SWTP/DB_RAWTOC_PV	Raw Water TOC	mg/L	1800.00	1800.00	1800.00		
45	SWTP/DB_CELL1TOC_PV	Cell 1 TOC	mg/L	0.00	0.00	0.00	--	2.9
46	SWTP/DB_CFTOC_PV	Combined Filtrate TOC	mg/L	-1.00	-1.00	-1.00	--	2.9
47								
48								
49								
50								
51								

Photos of the Profibus Cabling to the Riverside Comm Box

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Photos of the Profibus Cabling to the Riverside Manhole with cable from Control Room to MCC Room/Chemical Room

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Photos of the Profibus Cabling to the Riverside Handhole #1 (spliced with butt connectors)

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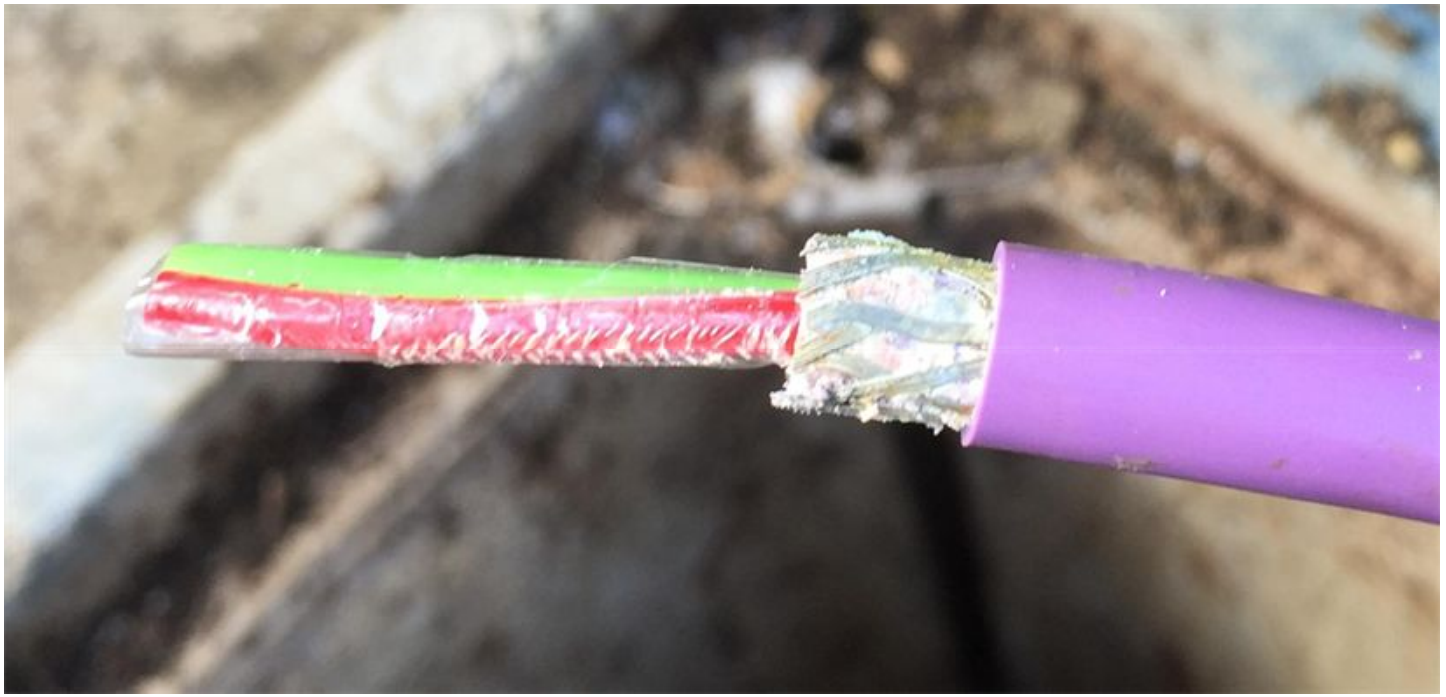
Photos of the Profibus Cabling to the Riverside Handhole #2 (bus connector)

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Photos of the Profibus Cabling to the Riverside
Profibus cable with water damage

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Photos of the Profibus Cabling to the Riverside
Profibus connectors from handholes #1 & #2

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Handhole #1

Handhole #2

Photos of the Profibus Cabling to the Riverside
Profibus connectors from handhole #1

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The Control System – Software versions on site and latest available versions

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Software Packages	Versionson site	Latest versions
WinCC	V6.2 +SP2	V7.4 +SP1 +Update1
WinCC Industrial Bridge	V6.1	V7.4 +SP1
WinCC Web Navigator	V6.2 + SP2	V7.4 +SP1 +Update1
Simatic Manager	STEP7 Pro 2006	STEP7 Pro 2010 SR4
CFC	V7.0 + SP1 + HF1	V9.0

Possible Training Courses

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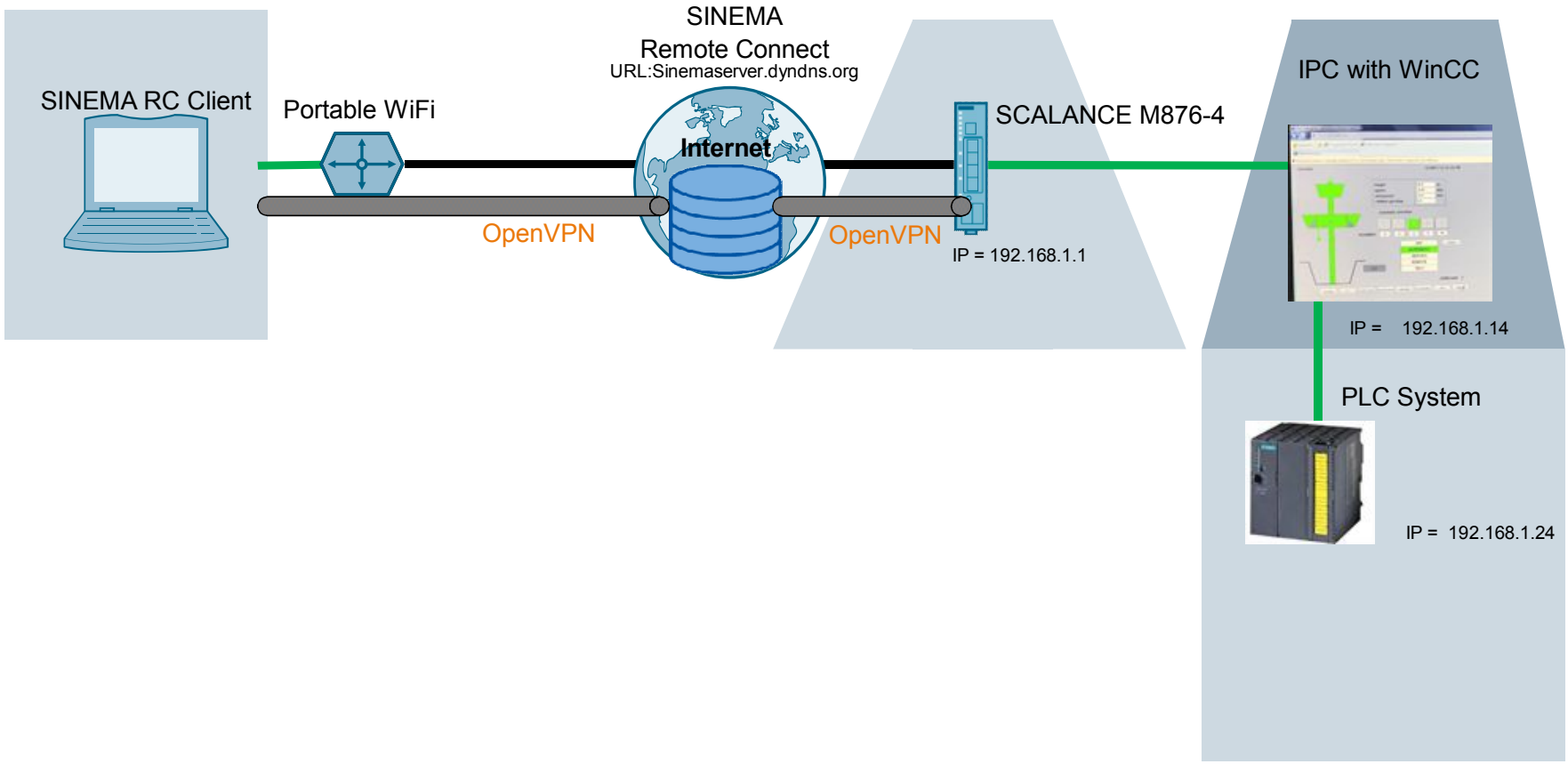
Systems	Name of courses	Target personnel
PLC System	STEP7 Service 1	Maintenance
PLC System	STEP7 Service 2	Maintenance
WinCC SCADA	WinCC Basic	Maintenance/Operation
Simocode	Simocode	Maintenance
Siemens VFDs	MicroMaster	Maintenance
Profibus Network	Certified Profibus Engineer	Maintenance

Possibilities for Upgrading

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Systems	On Site	Proposed Upgrades
PLC Control System – Option 1	S7-400 CPU 416 with ET200M	S7-400H Redundant with Y-Link
PLC Control System – Option 2	S7-400 CPU 416 with ET200M	Complete Main Rack ready to run
WinCC SCADA	V6.2 (Svr 2003)	V7.4 with redundant server(Svr 2012) with 2x clients
WinCC SCADA Historian	Not present	V2014 +SP3
Siemens VFDs	MicroMaster	Sinamics G120
For remote support		Sinema RC (see typical next slide)
Profibus Cabling	Electrical cable with bad connections to riverside/MCC/Chemical	FO cabling, continuous
Danfoss VFDs	Not connected to Profibus	Can be connected to Profibus and monitored/controlled from WinCC SCADA

SINEMA Remote Connect
Solution for integration with PLC system



Any Questions??

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