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

GUAM POWER AUTHORITY WORK SESSION

CCU Conference Room
4:30 p.m., Thursday, February 21, 2019

AGENDA

1. **ISSUES FOR DECISION**
   - 1.1 **Demand Side Management (DSM) Funding / Resolution 2019-03**
   - 1.2 **Unified Holiday Personnel Management Policy for GPA&GWA / GPA Resolution 2019-04 / GWA Resolution 15-FY2019**

2. **GM REPORT**
   - 2.1 **GM Summary**

3. **ISSUES FOR DISCUSSION**

4. **DIVISION REPORTS**
   - 4.1 **Administration: Customer Service, HR, Procurement, Safety**
   - 4.2 **Engineering & Technical: Engineering, IT, Planning & Regulatory, SPORD**
   - 4.3 **Finance Reports**
   - 4.4 **Operations: Facilities, Generation, PSCC, T&D, Transportation**
   - 4.5 **Public Information Office**

5. **ANNOUNCEMENTS**
   - 5.1 **Next Meeting: CCU Meeting – February 26, 2019**

6 **ADJOURNMENT**

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

Issues for Decision

Resolution No. 2019-03:

Relative to Approving GPA's Recommendation for DSM Program funding under LEAC Recommendation

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

This resolution seeks approval to fund the DSM Program under LEAC for the following reasons:

- **The DSM Program is experiencing exponential growth. Although perhaps not truly unexpected, this DSM Program exponential growth is volatile: subject or characterized by rapid change. The LEAC decoupling from base rates addresses expenses like fuel that have a volatile nature.**

- **DSM rebate expenses may likely double every year and would soon place great pressure on GPA base rate funding affecting GPA Debt Service Coverage requirements. At that point, GPA would have to severely curtail the growth of the DSM rebate program. This curtailment would not comport with CCU and PUC policy and their mutual desire to reduce customer energy consumption, demand, and cost.**

- **Like renewable energy, a major rationale behind DSM is predicated on the avoidance of fuel costs and the need for capacity additions. Furthermore, unlike renewable energy without energy storage, DSM provides reductions to future power system capacity expansion costs.**

- **The PUC has allowed GPA to recover its Utility Scale Renewable Energy Program costs under the LEAC; and therefore may use this precedent to treat DSM Program Expenses in a similar fashion.**

- **Managing consumer growth in its energy consumption and demand is critical until 2022 upon the commissioning of the new power plant.**

Where is the location?

Territory of Guam

How much will it cost?

PUC approval of GPA's recommendation results in DSM expenses being revenue neutral.

When will it be completed?

Upon approval of the Guam Public Utilities Commission

What is its funding source?

The Levelized Energy Adjustment Clause (LEAC)

CONSOLIDATED COMMISSION ON UTILITIES
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RESOLUTION NO. 2019-03

AUTHORIZING MANAGEMENT OF THE GUAM POWER AUTHORITY (GPA) TO FILE RECOMMENDATIONS FOR PLACING THE DEMAND-SIDE MANAGEMENT (DSM) PROGRAM EXPENSES UNDER LEAC

WHEREAS, the Guam Public Utilities Commission (PUC) established GPA Docket 13-14 in August 2013 to develop the GPA Demand-Side Management (DSM) program; and,

WHEREAS, on February 26, 2015, the PUC approved GPA's plan to implement certain DSM programs, including Central AC, Ductless AC, Washer, and Dryer; and,

WHEREAS, in its Order dated October 27, 2015, the PUC authorized GPA to utilize the sum of $1,806,014 from the Working Capital Fund (WCF) to pay for GPA's Demand Side Management (DSM) Program rebates and other related expenses; and,

WHEREAS, furthermore the Guam Public Utilities Commission (PUC) ordered (May 25, 2017): "GPA and the ALJ are instructed to continue to discuss proposals for the long-term funding of DSM Programs and to develop a plan for such funding."; and,

WHEREAS, in June of 2015, GPA's consultant, Leidos, submitted GPA's Energy Sense Program Plan proposing an additional 18 programs that GPA could consider as DSM initiatives; and,

WHEREAS, GPA and the ALJ had determined that it was perhaps too ambitious to adopt all 18 DSM proposals at the time, particularly as a long-term funding source has not yet been identified; and,

WHEREAS, however, both GPA and the ALJ have agreed upon ten new DSM initiatives to be implemented; and,

WHEREAS, under GPA Docket 18-11, the PUC approved GPA's request balance of the Bond Refinancing Savings through 2021 to fund the GPA Demand Side Management (DSM) rebate program in the amount of $1,139,189 ($379,729.67 annually); and,

WHEREAS, Exhibit A Figures A-1 and A-2 illustrate the exponential growth year over year in the amount DSM Program rebate payments since FY 2016; and,

WHEREAS, DSM Program forecasted growth places pressure on GPA base rate funding and would impact GPA Debt Service Coverage requirements; and,

WHEREAS, GPA has budgeted $400,000 for DSM Program related expenses for FY 2019 and for FY 2019 GPA has identified an additional $1 million from insurance property premium savings as the additional funding sources for the DSM program; and,

WHEREAS, the current available funding will eventually run out and does not support the rollout of any additional programs; and,

WHEREAS, DSM Program exponential growth is volatile: subject or characterized by rapid change; and,

Resolution No.: 2019-03
EXHIBIT A

WHEREAS, the Levelized Energy Adjustment Clause (LEAC) is expenses like fuel that have a volatile nature from base rates; and,

WHEREAS, similar to renewable energy, a major rationale behind the DSM Program is predicated on the avoidance of fuel costs; and,

WHEREAS, unlike renewable energy without energy storage, the DSM Program provides reductions to future power system capacity expansion; and,

WHEREAS, the PUC has allowed GPA to recover its Utility Scale Renewable Energy Program costs under the LEAC; and

WHEREAS, to date, annual energy savings from the program is approximately 3,185 MWh; and,

WHEREAS, to date, demand savings from the program is approximately 0.72MW; and,

WHEREAS, an evaluation of a 5 MW reduction in demand shows and $800 - $1800 per day fuel savings due primarily to efficient use of units during GPA peak period; and,

WHEREAS, GPA has paid nearly $2.4 million to its customers for over 7400 rebate applications, yielding an average customer rebate amount per application of $320; and,

WHEREAS, in addition to initial appliance savings for the customer, customers could be saving $250 - $400 a year based on a 2 SEER improvement on appliance equipment for 9000 BTU and 12000 BTU sized split air conditioners as projected in Table A-2 of Exhibit A; and,

WHEREAS, the GPA system peak demand continues to climb as illustrated on Figure A-3 in Exhibit A; and,

WHEREAS, as GPA progresses on the procurement for the New Power Plant, managing consumer energy use and demand is critical through 2022 upon commissioning of the new power plant.

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. The General Manager is authorized to petition DSM Program Funding Recommendations which places DSM funding under LEAC to the Guam Public Utilities Commission.
2. The General Manager is authorized to conduct an information campaign supporting these recommendations.

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

Resolution No.: 2019-03
EXHIBIT A

DULY and REGULARY ADOPTED this 26th day of February 2019.

Certified by: **Attested by:**

JOSEPH T. DUENAS	**MICHAEL T. LIMTIACO**
CHAIRMAN	**SECRETARY**

SECRETARY'S CERTIFICATE

I, Michael T. Limtiaco, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows: The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

Resolution No.: 2019-03

EXHIBIT A

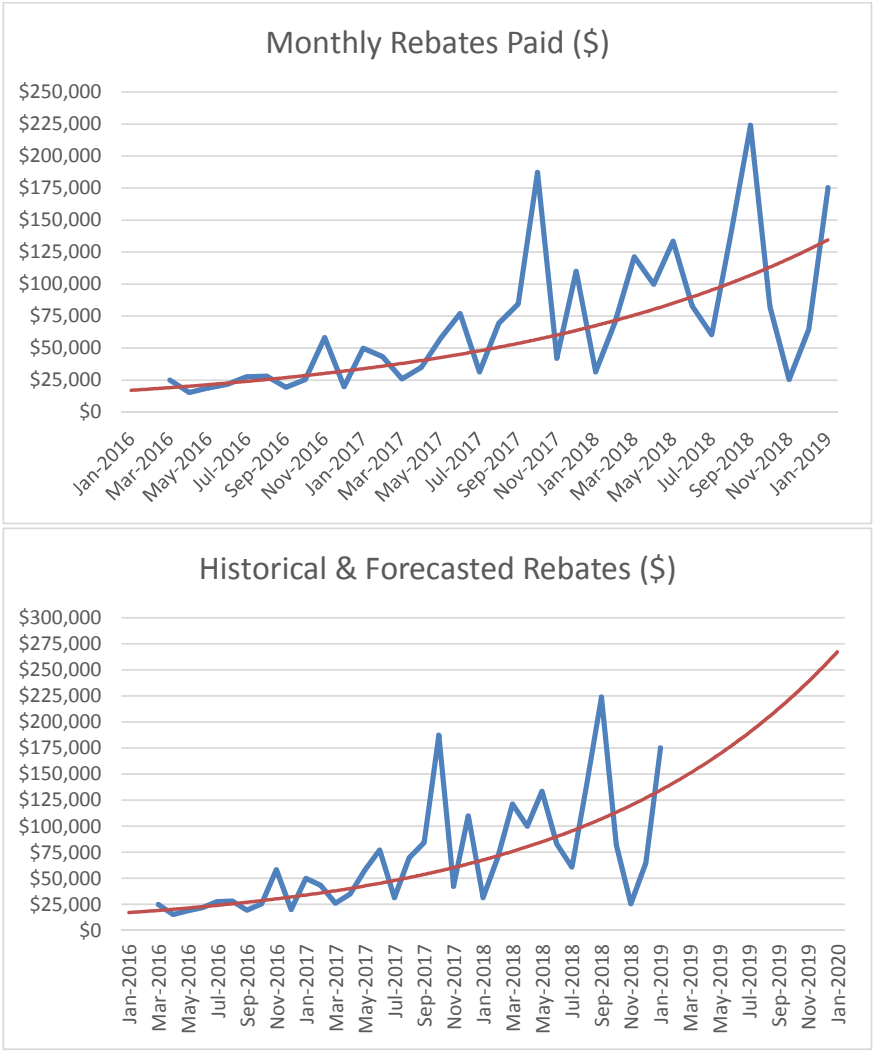

Figure A-1. Historical and Forecast Monthly DSM Rebate Expenses

- DSM Expenses is growing exponentially
- Growth Rate will make it very difficult to fund out of base rates
- GPA may have to cap program

Resolution No.: 2019-03
EXHIBIT A

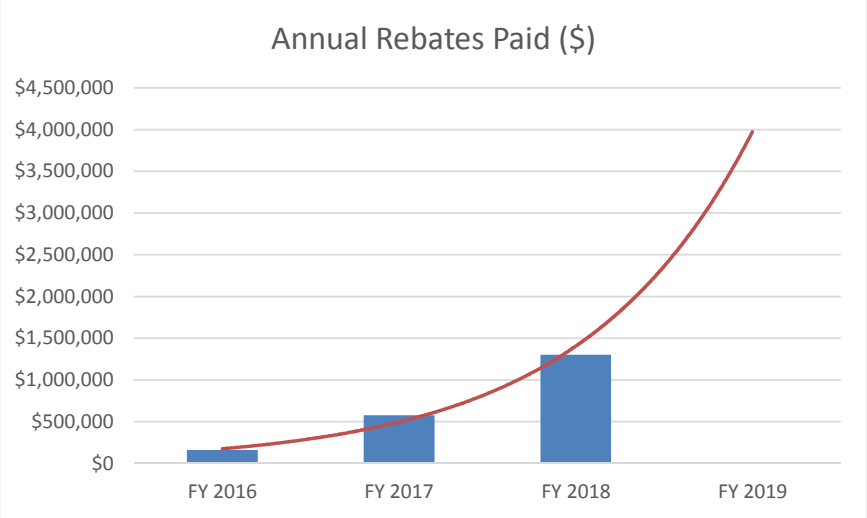

Figure A-2. Historical and Forecasted Annual DSM Rebate Expenses

Table A-1. Annual Rebate Summary

Description	Year Paid	Total Rebate Amount	Count of Applications	Avg. Rebate per Application
Rebates-Split A/Cs	2016	$ 253,500	693	$ 366
	2017	$ 798,426	2519	$ 317
	2018	$ 1,073,575	3385	$ 317
	2019	$ 158,150	463	$ 342
Rebates-Split A/Cs Total		**$ 2,283,652**	**7060**	**$ 323**
Rebates- Washer/Dryers	2016	$ 4,700	36	$ 131
	2017	$ 7,325	29	$ 253
	2018	$ 57,400	212	$ 271
	2019	$ 17,000	65	$ 262
Rebates- Washer/Dryers Total		**$ 86,425**	**342**	**$ 253**
Rebates-Central A/Cs	2016	$ 7,200	8	$ 900
	2017	$ 5,800	8	$ 725
	2018	$ 3,600	6	$ 600
	2019	$ -	0	$ -
Rebates-Central A/Cs Total		**$ 16,600**	**22**	**$ 755**
Grand Total		**$ 2,386,677**	**7424**	**$ 321**

Resolution No.: 2019-03
EXHIBIT A

Table A-2. Customer Savings Projections for 2 SEER Improvement

AC Size	New SEER	Annual KWH Savings	Annual Cost Savings			Reduction in Demand (KW)	Reduction in Demand x 1000 (MW)	Reduction in Demand x 2000 (MW)
			2017	2018	2019			
9000	22	1579	$ 175.83	$ 237.98	$ 243.49	0.36	0.36	0.72
12000	18	2486	$ 276.87	$ 374.72	$ 383.39	0.57	0.57	1.14
18000	22	3157	$ 351.66	$ 475.96	$ 486.97	0.72	0.72	1.44
24000	20	4561	$ 508.03	$ 687.60	$ 703.50	1.04	1.04	2.08
36000	20	6842	$ 762.05	$ 1,031.40	$ 1,055.26	1.56	1.56	3.12

1. Assumes 12 hours cooling period per day.
2. Annual Average LEAC charges ($/KWH):

FY 2017	$ 0.11139
FY 2018	$ 0.15076
FY 2019	$ 0.15424

Table A-3. Fuel Savings Projections for 5 MW Demand Reduction

Scenario	Reference Date	Peak	Fuel Costs Savings for 5 MW Demand Reduction	
			Daily	Annual
No Baseload Outages, High Peak	8/1/2017	261	$ 800	$ 292,000
1 Baseload Unit offline, Avg. Peak	10/15/2018	234	$ 1,800	$ 657,000

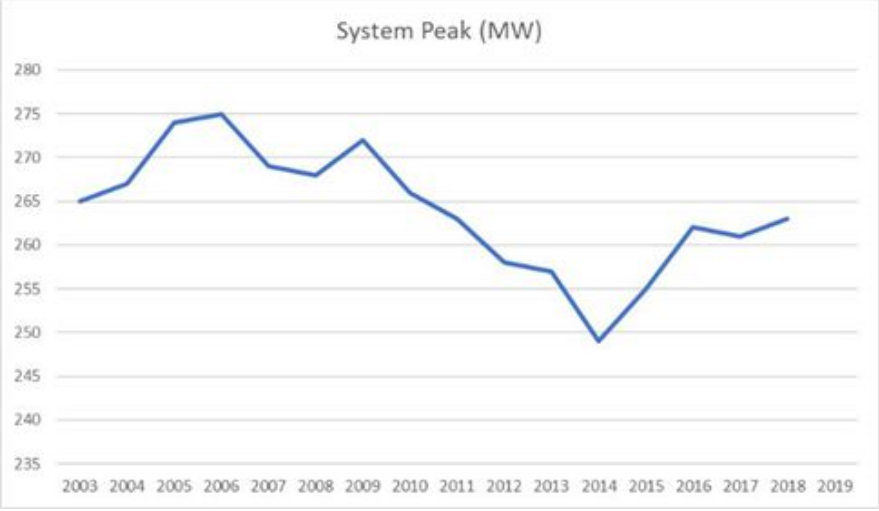

Figure A-3. System Peak (MW)

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Issues for Decision

Resolution Nos. GPA 2019-04 & GWA 15-FY2019

Relative to Adoption and Implementation of a Unified Holiday Personnel Management Policy for the Guam Power Authority

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

The CCU has directed GPA and GWA ("GPWA") to review their existing policies regarding personnel management, wage obligations and official recognition of holidays set by statute and those set by executive order. GPWA management has determined that a unified policy for both utilities should be in place to set forth how the various holidays shall affect GPWA's management, employees and customers. The CCU has solicited comments from GPA & GWA General Managers, General Counsels and Assistant General Managers regarding the proposed UNIFIED HOLIDAY PERSONNEL MANAGEMENT POLICY. Management of GPA and GWA request the Consolidated Commission on Utilities to adopt the proposed UNIFIED HOLIDAY PERSONNEL MANAGEMENT POLICY.

GPWA's holidays shall follow the holiday schedule listed at **1 GCA §1000 (a)** as it may be amended from time to time and shall be posted on each agency's website at the beginning of the calendar year. In the event a non-permanent holiday is declared by Executive Order of the Governor of Guam as allowed by **1 GCA §1000 (c)**, GPWA shall recognize said declaration and observe the holiday accordingly. Although GPWA will be observing the holiday, the policy of the utilities will be to provide customer service and GPWA's General Managers shall determine each agency's business needs for holidays declared by Executive Order, and ensure that employees and ratepayers are duly notified. GPWA Management is requesting the CCU to delegate to the General Managers the power to determine each agency's business needs on permanent and non-permanent Government of Guam holidays.

Where is the location?

Guam Power Authority and Guam Waterworks Authority

REFERENCE:

1 GCA §1000. HOLIDAYS

(a) The holidays of Guam are:
(1) New Year's Day;
(2) Martin Luther King, Jr. Day, the third Monday in January;
(3) Guam History and Chamorro Heritage Day, the first Monday in March;
(4) Memorial Day, the last Monday in May;
(5) Independence Day, July 4th;
(6) Liberation Day, July 21st;
(7) Labor Day, the first Monday in September;
(8) All Souls' Day, November 2;
(9) Veterans' Day, November 11;
(10) Thanksgiving, the fourth Thursday in November;
(11) Our Lady of Camarin Day, December 8; and
(12) Christmas, December 25th.

(b) Whenever a holiday listed in Subsection (a) of this Section falls on a Saturday or Sunday, the government of Guam shall follow the Federal government's practice for that holiday.

(c) In addition to the holidays specified in Subsection (a) of this Section, I Maga'lahen Guåhan may declare by Executive Order additional non-permanent holidays for special purposes. No holiday declared by Executive Order shall be continued beyond the year in which the Executive Order is issued.

CONSOLIDATED COMMISSION ON UTILITIES
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GPA RESOLUTION NO. 2019-04
GWA RESOLUTION NO. 15-FY2019

ADOPTION AND IMPLEMENTATION OF A UNIFIED HOLIDAY PERSONNEL MANAGEMENT POLICY FOR THE GUAM POWER AUTHORITY AND THE GUAM WATERWORKS AUTHORITY

WHEREAS, the CCU has directed GPA and GWA ("GPWA") to review their existing policies regarding personnel management, wage obligations and official recognition of holidays set by statute and those set by executive order; and

WHEREAS, GPWA management has determined that a unified policy for both utilities should be in place to set forth how the various holidays shall affect GPWA's management, employees and customers; and

WHEREAS, the CCU has solicited comments from GPA & GWA General Managers, General Counsels and Assistant General Managers regarding the proposed UNIFIED HOLIDAY PERSONNEL MANAGEMENT POLICY; and

WHEREAS, management of GPA and GWA request the Consolidated Commission on Utilities to adopt the proposed UNIFIED HOLIDAY PERSONNEL MANAGEMENT POLICY.

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES as follows:

(1) GPWA's holidays shall follow the holiday schedule listed at 1 GCA §1000 (a) as it may be amended from time to time and shall be posted on each agency's website at the beginning of the calendar year;

(2) In the event a non-permanent holiday is declared by Executive Order of the Governor of Guam as allowed by 1 GCA §1000 (c), GPWA shall recognize said declaration and observe the holiday accordingly;

(3) Although GPWA will be observing the holiday, the policy of the utilities will be to provide customer service and GPWA's General Managers shall determine each agency's business needs for holidays declared by Executive Order, and ensure that employees and ratepayers are duly notified;

(4) The CCU hereby delegates to the General Managers the power to determine each agency's business needs on permanent and non-permanent Government of Guam holidays.

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

DULY and REGULARLY ADOPTED AND APPROVED THIS 26th day of February, 2019.

Certified By:	**Attested By:**
_____	_____
Joseph T. Duenas	**Michael T. Limtiaco**
Chairperson	Secretary
Consolidated Commission on Utilities	Consolidated Commission on Utilities

SECRETARY'S CERTIFICATE

I, Michael T. Limtiaco, 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 a resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSENT: _____

ABSTAIN: _____

GENERAL MANAGER'S REPORT

FEBRUARY 2019

1. **Generation System:** The following summarizes the generation forecast for March 2019:
   Projected Available Capacity: 335 MW
   Projected Demand: 235 MW
   Anticipated Reserve Margin: 100 MW
   - MEC 9 scheduled for overhaul Feb. 20th to March 5th.
   - Demand expected to be lower than March 2018 (244MW)

2. **Demand Side Management (DSM)** – DSM Program reduces a customer's consumption without impacting their quality of life. Additionally, peak demand and LEAC cost are reduced for all customers. GPA needs to add funding to DSM because the current funding of $2.9M is nearly exhausted.

DSM PROGRAM SUMMARY

Description	FY16	FY17	FY18	FY19 thru 1/31/19*	Total to Date
Regular/OT Pay	$11,348.80	$22,256.00	$26,121.83	$14,397.99	$74,124.62
Other Contractual	$28,278.50	$85,550.05	$116,977.50	$3,025.00	$233,831.05
Bank Fees	$ 155.00	$ 1,032.06	$ 1,085.08	$ 80.00	$2,352.14
Paid Rebates-Split AC	$ 154,700.00	$ 557,275.00	$1,247,000.00	$ 318,900.00	$2,277,875.00
Paid Rebates- Central AC	$ 3,400.00	$ 8,200.00	$ 4,400.00	$ -	$16,000.00
Paid Rebates- Washer/Dryer	$ 2,800.00	$ 7,425.00	$ 48,800.00	$ 27,000.00	$86,025.00
Total Expenses	**$200,682.30**	**$681,738.11**	**$1,444,384.41**	**$363,402.99**	**$2,690,207.81**

3. **LEAC Update :** The Public Utilities Commission approved at its January meeting for the LEAC rate to remain at **$0.154242/kWh** effective for the period from February 1, 2019 thru July 31, 2019. The next LEAC filing is due June 15, 2019 for the period August 2019 thru January 2020.

4. **Renewables Portfolio Standard:** We will present at the March CCU meeting a summary of renewables alternatives for CCU consideration towards increasing GPA's energy mix portfolio to 50% renewable energy. A critical factor in this decision is the type and cost of the new power plant since it delineates how much more renewables the system could reliably accept and how much more investments can we make in the grid without increasing rates. We hope to have an updated draft CCU policy for your consideration this summer.

5. **10-Year Capital Improvement Plan:** The executive team is working to prepare this plan for consideration at the August 2019 CCU meeting. We need to determine what are the critical infrastructure needs over the next ten years and how could we fund them without increasing rates. This plan would at minimum address the construction of the new power plant, the rehabilitation of existing generating units as reserves, the grid upgrades necessary to achieve 50% renewable energy, and the conversion of the grid to underground.

6. **Workforce Sustainability Plan:** The following table shows the retirement eligibility demographics for GPA company wide. Fifty-Seven (57%) of the workforce are eligible for retirement within the next ten (10) years. We will provide the CCU with a summary of alternatives and potential programs we would like to implement in order to mitigate this significant issue and to achieve a sustainable workforce. We are targeting the April 2019 CCU meeting to present management findings and recommendations for a CCU policy consideration. This policy will be important as we prepare our Fiscal Year 2020 budget.

Workforce Retirement Eligibility Summary:

Sections:---------->	Finance	Customer Service	Engineering	SPORD	T&D	Generations	Others	Totals
Retirement Plans:								
Employee Count	**40**	**34**	**31**	**9**	**108**	**127**	**98**	**447**
Eligible at 30 years Service								
DB 30 Plus Years of Service	3	1	2	1	5	6	3	21
DB 25 Plus Years of Service	7	5	6	2	19	29	13	81
Sub-Total:	**10**	**6**	**8**	**3**	**24**	**35**	**16**	**102**
Eligible at 62 Years of Age								
DB1.75 60 Plus Age Group	2	3	2	0	1	20	5	33
DB1.75 55-59 Age Group	7	2	2	1	7	14	11	44
Sub-Total:	**9**	**5**	**4**	**1**	**8**	**34**	**16**	**77**
Eligible at 55 Years of Age								
DC 50 Plus Age Group	4	4	2	0	9	15	13	47
DC 45 Plus Age Group	2	2	0	4	9	12		29
Sub-Total:	**6**	**6**	**2**	**4**	**18**	**27**	**13**	**76**
Grand Total	**25**	**17**	**14**	**8**	**50**	**96**	**45**	**255**
% Eligible for Retirement within 10 years	**62.5%**	**50.0%**	**45.2%**	**88.9%**	**46.3%**	**75.6%**	**45.9%**	**57.0%**

Eligible Retirement Breakdown:	Count	%
DB Plan	102	40.0%
DB1.75	77	30.2%
DC	76	29.8%
Totals:	255	

7. **GPUC Dockets:** The petition for changes to the Net Metering Credit is currently under review. GPA has had conferences calls with and has responded to request for information by the PUC consultant.

8. **New Power Plant**: The deadline for receipt of technical proposals has been extended to March 21, 2019. Price proposals for approved proposals are due by April 29th. Price opening is now targeted for May 20, 2019.

9. **Saipan Yutu Recovery Assistance:** Saipan is now substantially recovered. GPA is now able to bring home employees and equipment. All employees will be back by this Saturday, February 23rd. A wrap-up presentation summarizing our efforts is attached. We will like to thank CNMI Governor Torres, Lt. Governor Palacios, CNMI Senate and Legislature, Mayors, CUC Board, CUC Executive Director Gary Camacho, employees of CUC and the Community of the Northern Marianas Islands for their hospitality and acknowledgement of the excellent efforts of the GPA teams. Our GPA teams worked tirelessly over the past four months assisting our brothers and sisters of the Marianas recover from the devastation of Yutu.

   We thank our GPA employees and their families for their hard work, dedication and sacrifices and our ratepayers for their patience and understanding for any inconveniences during the recovery period as we assisted in Saipan's recovery.

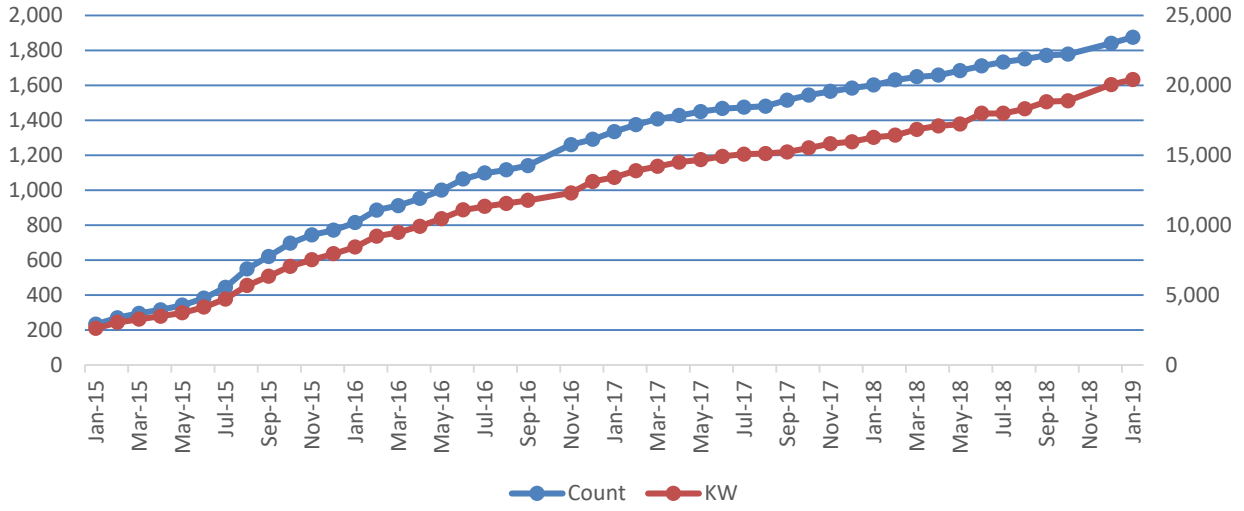
10. **Net Metering (NEM) Credit Adjustment:** CCU approved GPA filing a petition to the PUC to consider changes to the existing net metering credit. GPA filed with PUC for adjustment of net metering credits from retail to avoided cost with a Grandfather phase-out approach over 5 years to the GPA avoided cost credit. PUC has engaged its consultant Daymark to review the petition and work is on-going at this time. The following summarizes Net Metering Customers as of January 2019:

Net Metering Summary Ending January 2019:

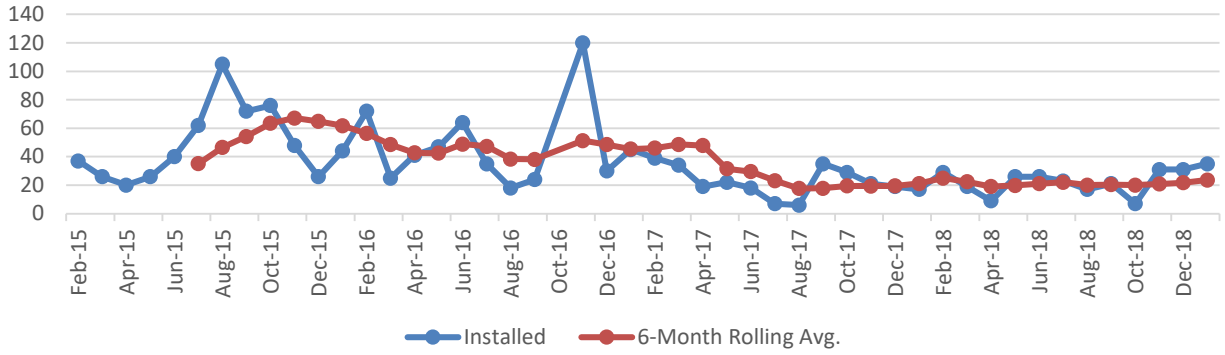
Description:	**Count**	**Kw**
Active	**1,875**	**20,415**
Pending	19	241
Totals:	1,894	20,656

Service:	**Count**	**KW**	**Kw/Customer**
Residential	1,774	16,077	9.1
Others	101	4,338	43.0
Total:	1,875	20,415	10.9
% Residential	**94.6%**	**78.8%**	
Estimated 12 Months Revenue Impact:	**$3,248,217**		

NEM Growth



NEM Installed Monthly



11. **Briefings:** A briefing on GPA was conducted for Speaker Tina Muna Barnes on Wednesday, January 30, 2019. The briefing for the Governor and Lt. Governor has been scheduled for March 15th . A briefing to the Legislative Oversight Chairman, Senator Clynt Ridgell is being scheduled with the Senator's office.

12. **GPWA Tumon Office Renovation:** The notice to proceed for design services has been issued to Architect Andy Cristobal with a completion date of July 30, 2019. We plan to budget for the renovation in FY2020 so that it could be completed by next year. The Tumon GPWA Customer Service Center has the most customer traffic of all our service centers. The following two slides consist of the preliminary schedule and the initial layout of the center.

    The Disaster Recovery Center (DRO) is not included within this scope of work. The team is rethinking the location which may instead be best to place at the Dededo T&D compound. The team has determined that there isn't adequate space in Tumon. We would have to build a new building to accommodate DRO and a SCADA remote site. We plan to engage an engineering firm to design the project this fiscal year.

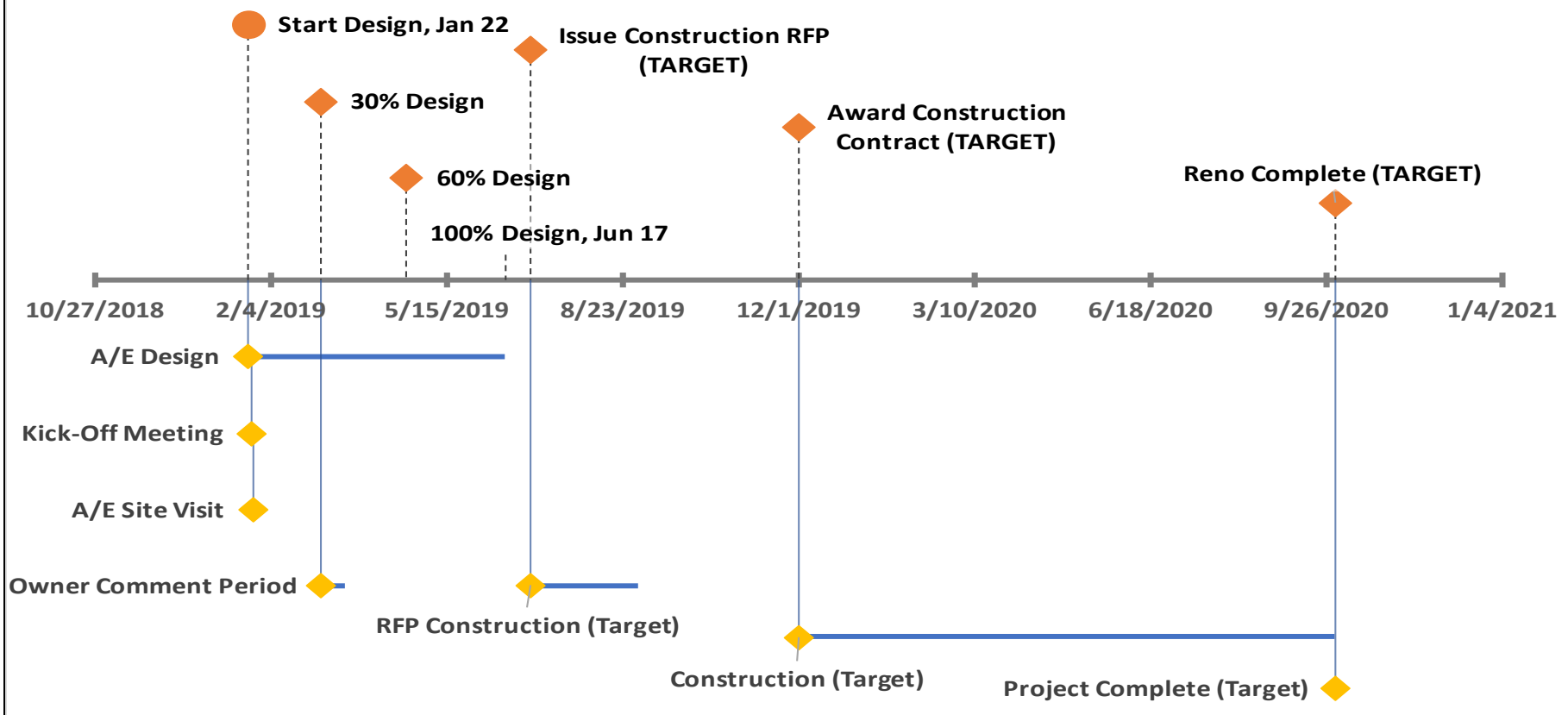
13. **GPA's Vendor Outreach**: GPA Procurement will hold its **First Annual Vendor Fair** to expand prospective vendor and supplier awareness of GPA's potential business opportunities and procurement process, and allow GPA to expand its prospective vendor/supplier listing. This event will promote transparency and accountability. The Vendor Fair will be held on Thursday & Friday, March 21 & 22 from 9 am to 4 pm at the Procurement Multi-Purpose Room.

UPPER TUMON CUSTOMER SERVICE LOBBY RENOVATION

9

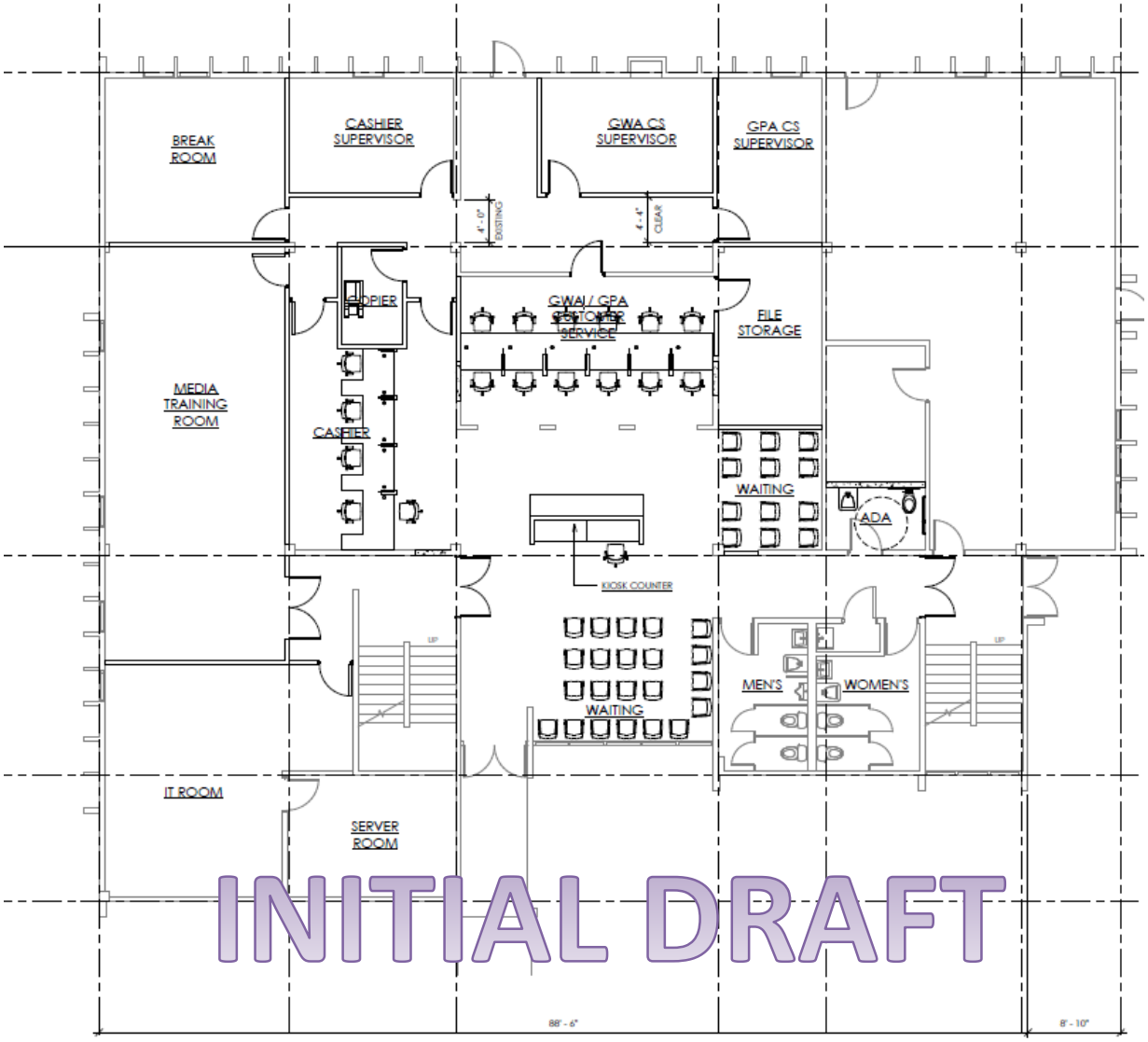
PROJECT:	Phase I: DESIGN - Upper Tumon Renovation, Customer Lobby (1st Fl)	STATUS:	STARTED/ ON SCHEDULE
OWNER:	GPA Engineering		
LEAD:	Manny Minas (GPA) & Barbara Cruz (GWA)	REPORT DATE:	2/18/2019

NOTES:
1. 2/15/19 - GPWA team reviewed as-built, demolition, and initial design with Architect Cristobal.
2. Submitted verbal comments, including relocation of Cash Mgmt (security reasons), CS expansion, & addition of nursing room.
3. Owners comments due 2/19/19.
4. Next meeting: 2/20/19.



Upper Tumon Renovation: Customer Lobby (1st Fl)

UPPER TUMON CUSTOMER SERVICE LOBBY RENOVATION



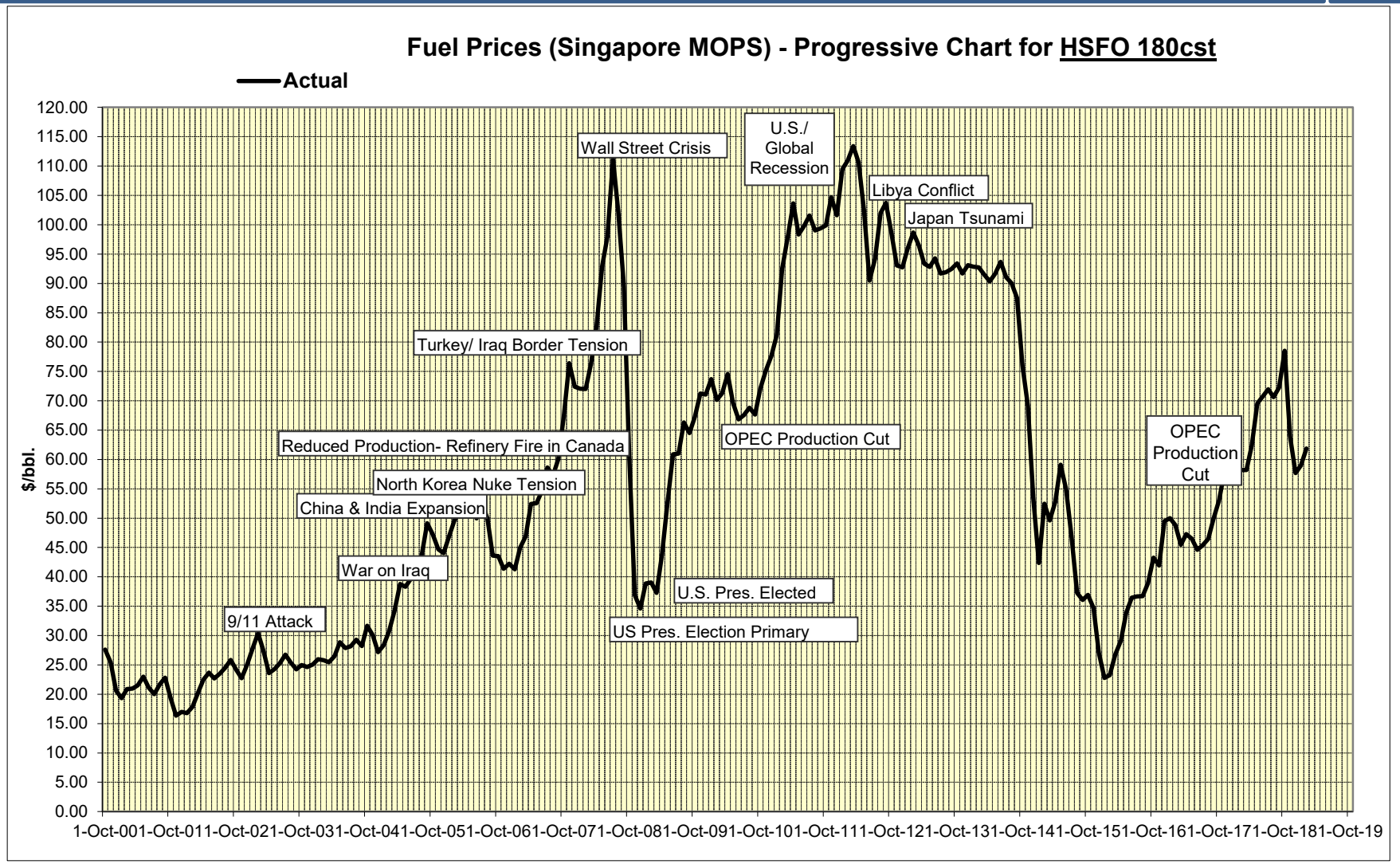
1 GROUND FLOOR PLAN - NEW

A/E SCOPE OF WORK:

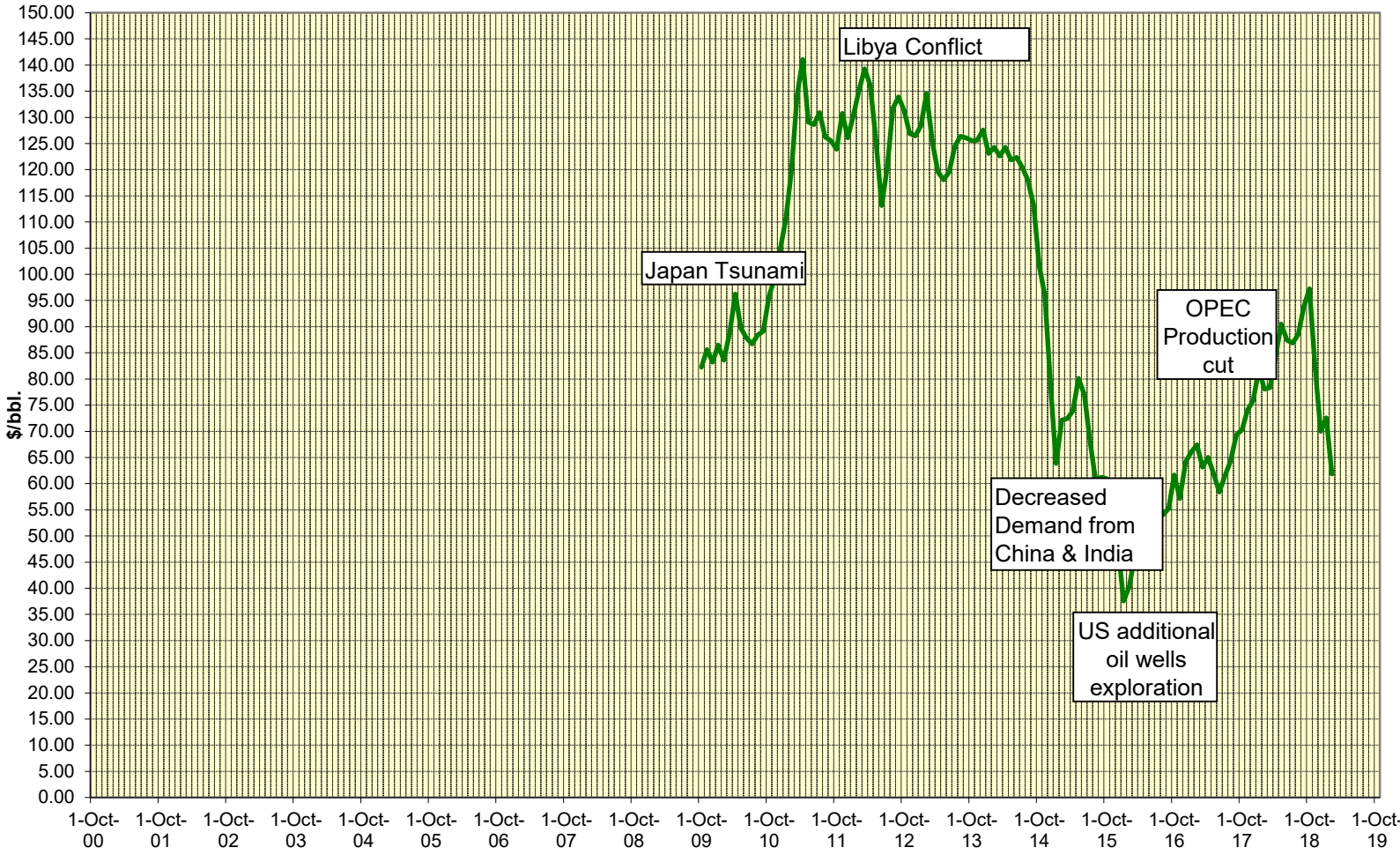
- Redesigned and expanded Customer Service & Cash Management areas
- Upgraded IT area
- Expansion of restrooms
- Inclusion of training room, nursing room, etc.
- Roof repair (leak)
- As-Built Drawings

Project Leaders:
Manny Minas, GPA
Barbara Cruz, GWA

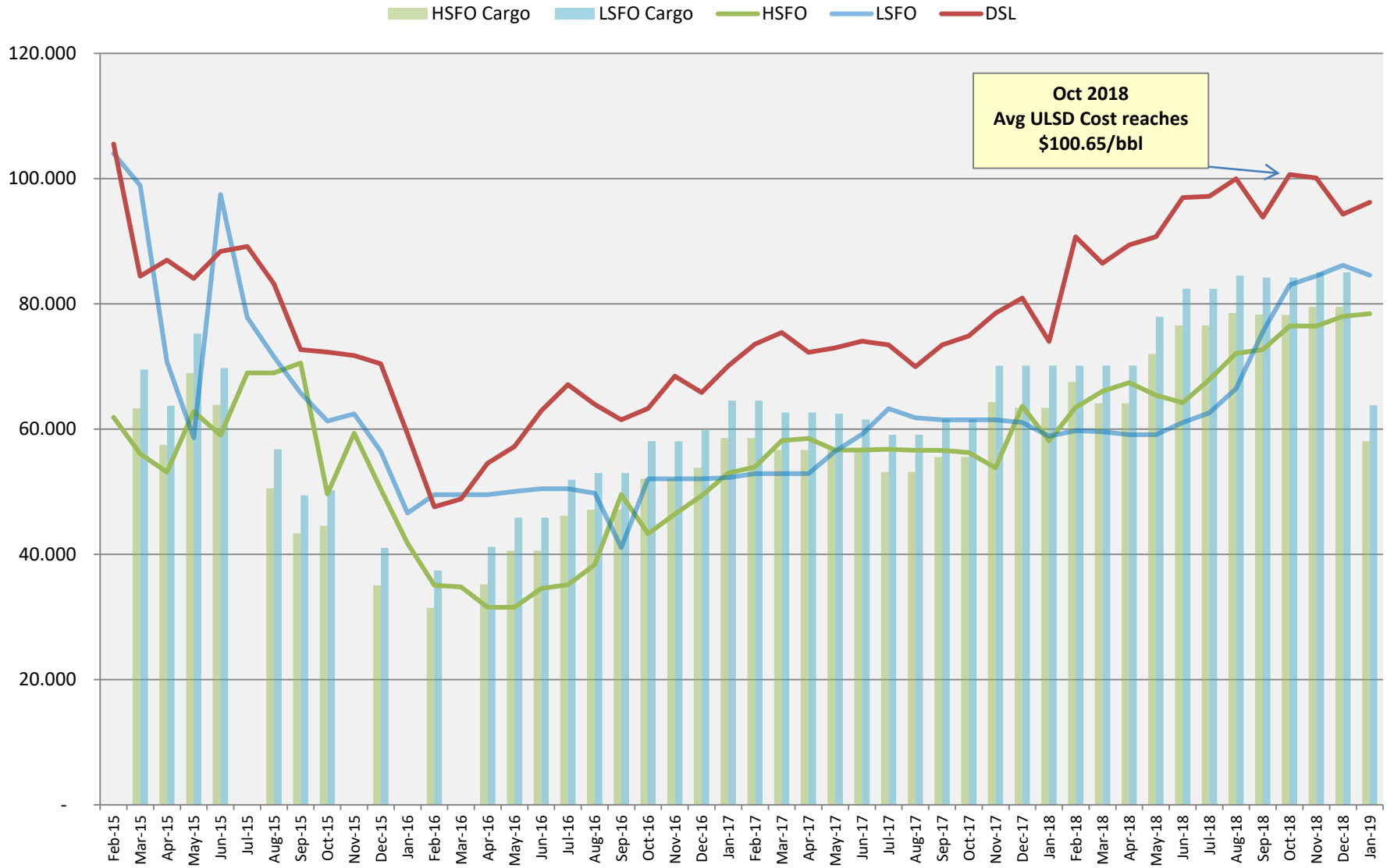
January 2019 Data


Fuel Prices (Singapore MOPS) - Progressive Chart for HSFO 180cst
Actual
$/bbl.
120.00
115.00
110.00
105.00
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1-Oct-00
1-Oct-01
1-Oct-02
1-Oct-03
1-Oct-04
1-Oct-05
1-Oct-06
1-Oct-07
1-Oct-08
1-Oct-09
1-Oct-10
1-Oct-11
1-Oct-12
1-Oct-13
1-Oct-14
1-Oct-15
1-Oct-16
1-Oct-17
1-Oct-18
1-Oct-19
9/11 Attack
War on Iraq
China & India Expansion
North Korea Nuke Tension
Reduced Production- Refinery Fire in Canada
Turkey/ Iraq Border Tension
Wall Street Crisis
U.S./ Global Recession
US Pres. Election Primary
U.S. Pres. Elected
OPEC Production Cut
Libya Conflict
Japan Tsunami
OPEC Production Cut

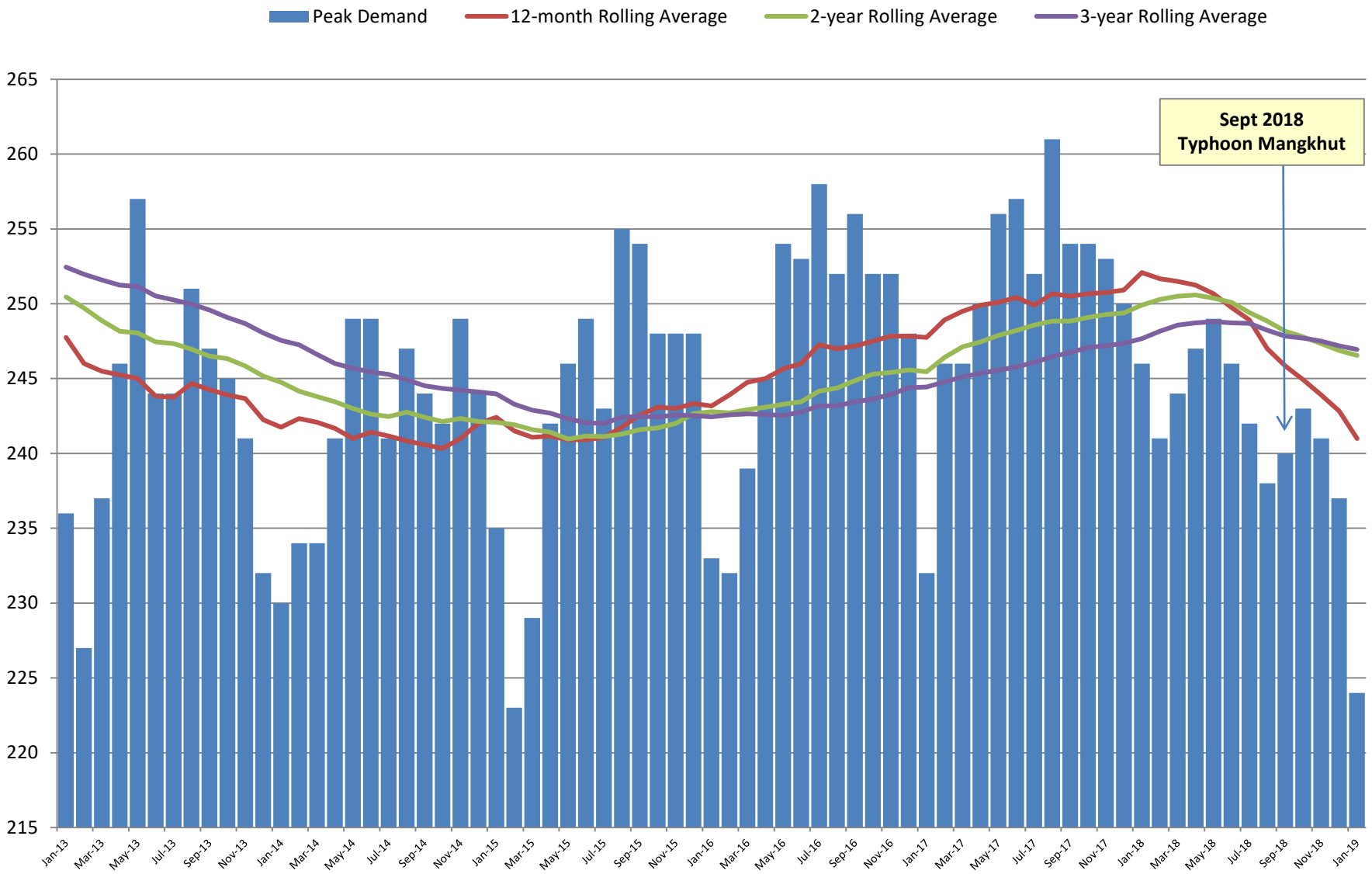
Fuel Prices (Singapore MOPS) - Progressive Chart for ULSD 15ppm



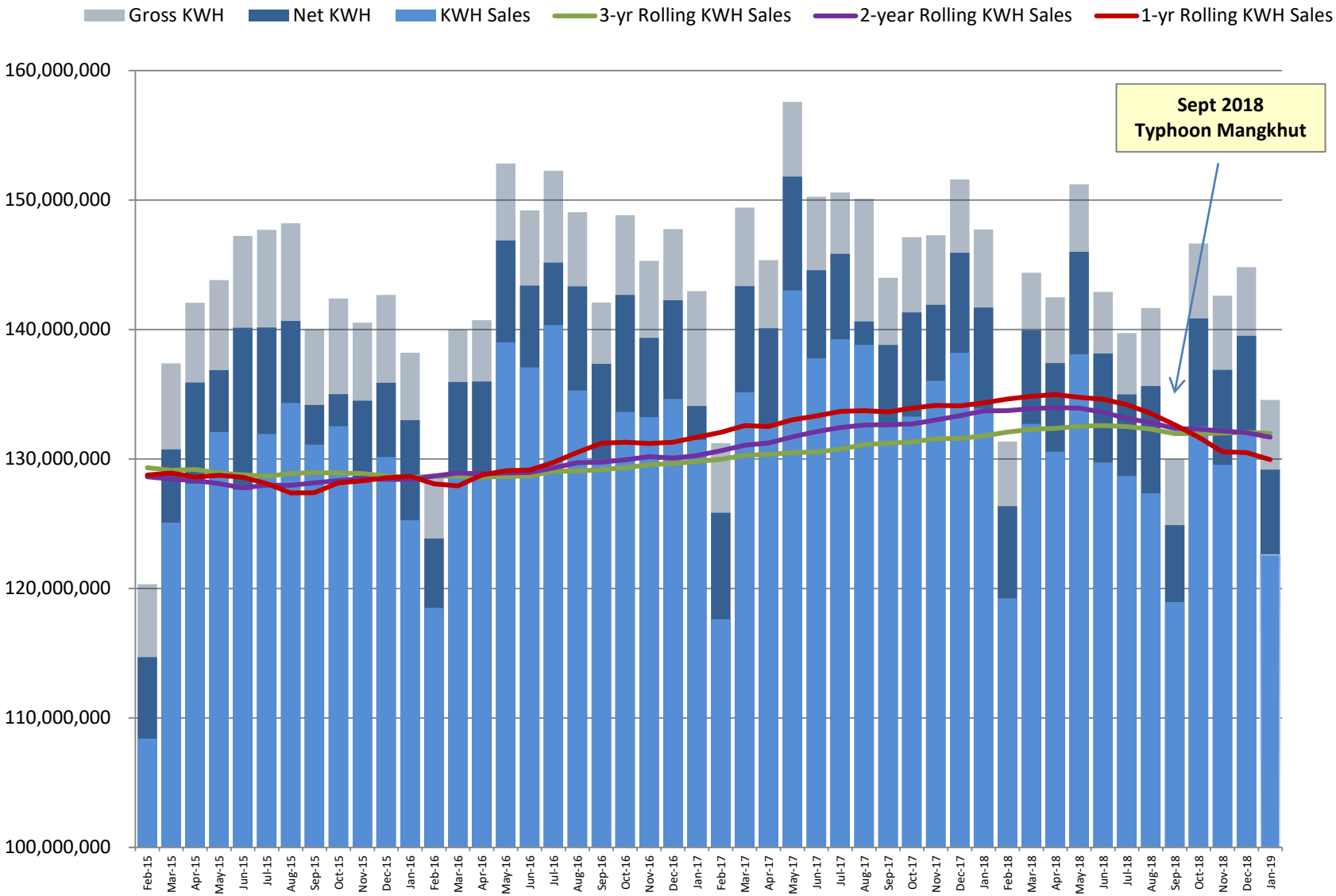
Fuel Cargo and Fuel Consumption Costs ($/bbl)
Feb 2015 - Jan 2019



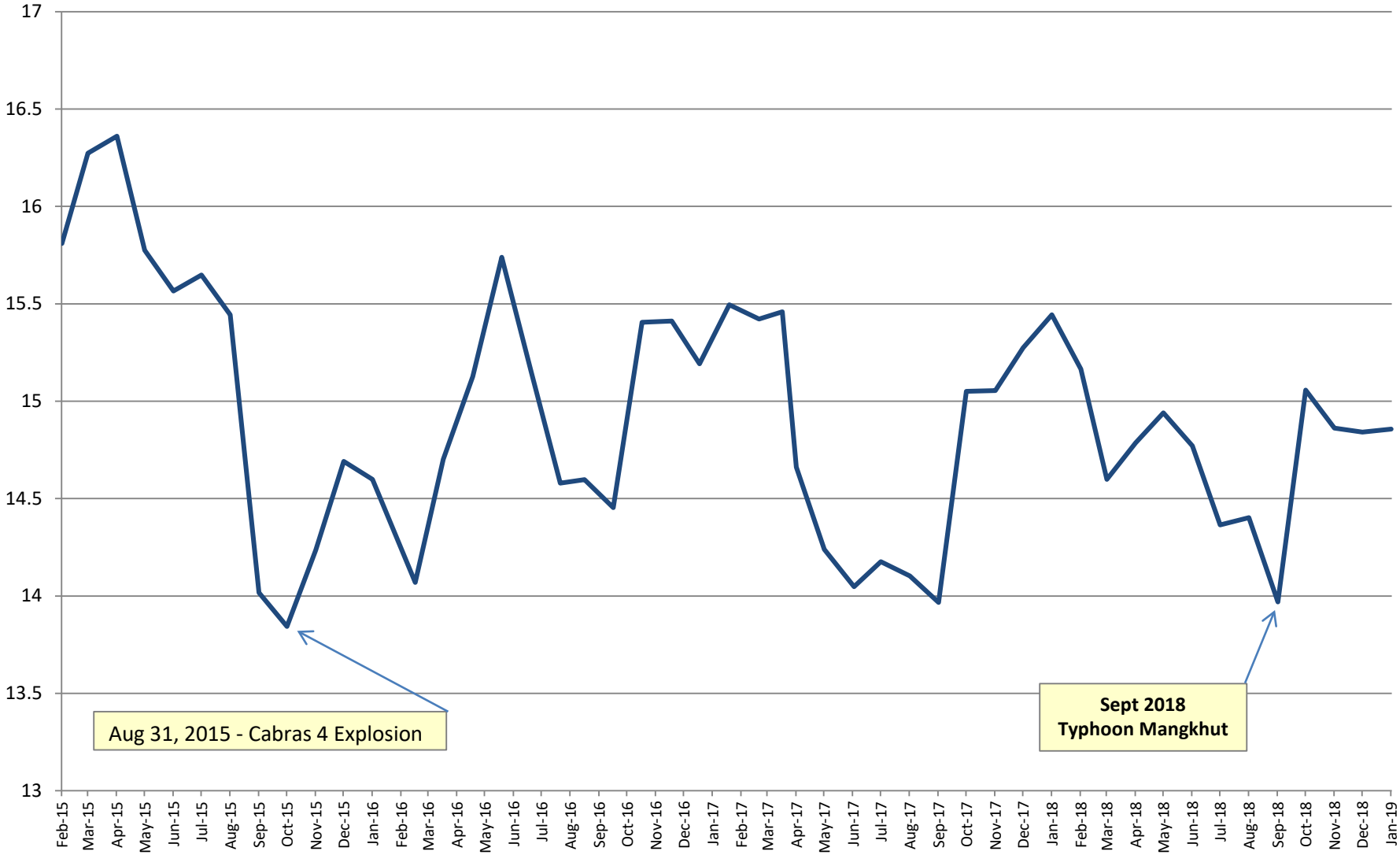
Historical Monthly Peak Demand
Jan 2013 - Jan 2019



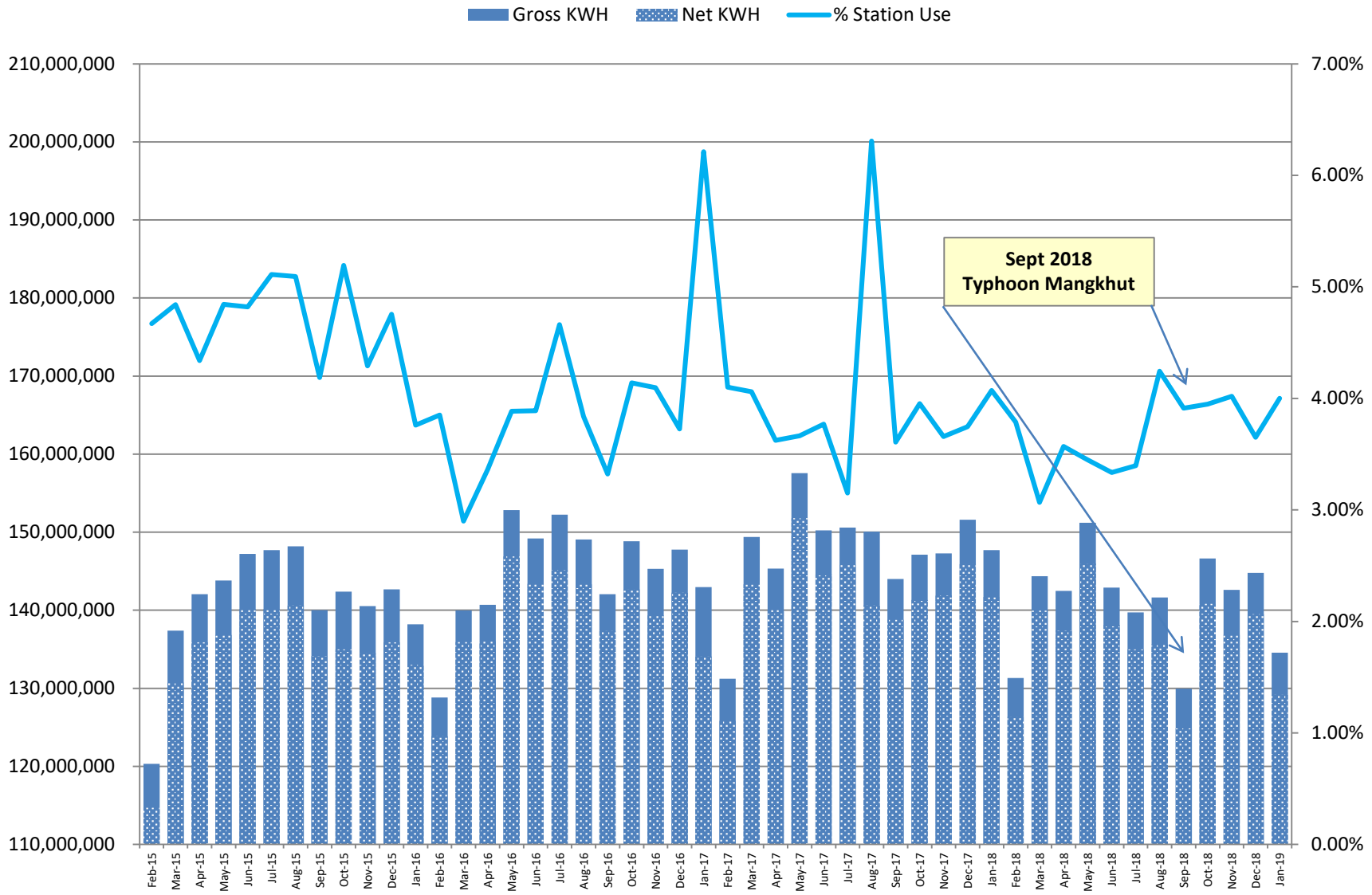
Historical KWH Sales
Feb 2015 - Jan 2019



SYSTEM GROSS HEAT RATE
(KWH/Gal)
Feb 2015 - Jan 2019



Gross and Net Generation (KWH)
Feb 2015 - Jan 2019



GPA Saipan Recovery Efforts

Typhoon Yutu Deployment

Sunday, Oct 28th

7 member Forward Team departed for Saipan via USCG C-130 out of AAFB

Tuesday, Oct 30th

John "Kadi" Manibusan and Rick Quidachay began pole installations

Tuesday, Oct 30th

Bucket trucks, flatbed, and utility trucks and vans are loaded on to the Russian Antonov and arrived in Saipan early evening

Typhoon Yutu Deployment

Thursday, Nov 2nd
1st Wave of employees, 26 member team departed for Saipan to join Forward Team

Tuesday, Nov 6th – GPA materials delivered to AAFB for delivery to Saipan and Tinian

Saturday, Nov 10th
Feeder Kiya 1 energized by GPA crews for the first time since the storm

Typhoon Yutu Deployment

Thursday, Dec 27
2nd Wave of employees, 32 member team departed for Saipan to continue typhoon recovery

Friday, January 25th
Critical materials arrived on Saipan for the completion of Kiya 2 & 4

Monday, Feb 17th
GPA Crews will de-mobilize, preparation and coordination of the return of equipment, tools and the safe return of all of GPA personnel

GPA YUTU SUPPORT

Man Power

Total Personnel: 64

- T&D Manager
- T&D Assistant Manger
- 26 Linemen
- 10 Operators
- 10 Engineers
- 04 Substation Electricians
- 02 Relay Technician
- 02 Generation Mechanics
- 02 Generation Electricians
- 04 Heavy Equipment Mechanics
- 02 Safety Officers

Equipment

- 6 Bucket Trucks
- 2 Vans
- 1 Light Cart
- 1 Flatbed
- 3 Utility Trucks

Materials

- 439 Power Poles
- 350,000 LF of Primary & Secondary Wire
- 92 Transformers
- 1,020 Crossarms
- Insulators, Connectors, Clamps, Nuts, Bolts

GPA Restoration Team

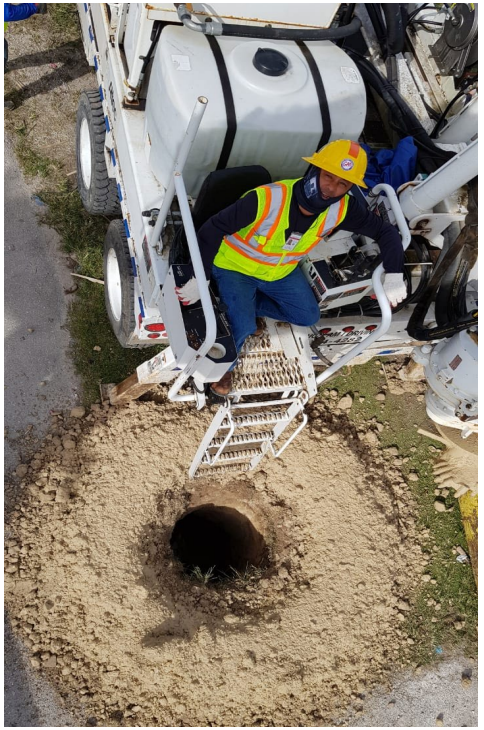
Forward Team and 1st Wave

GPA Restoration Team

2nd Wave

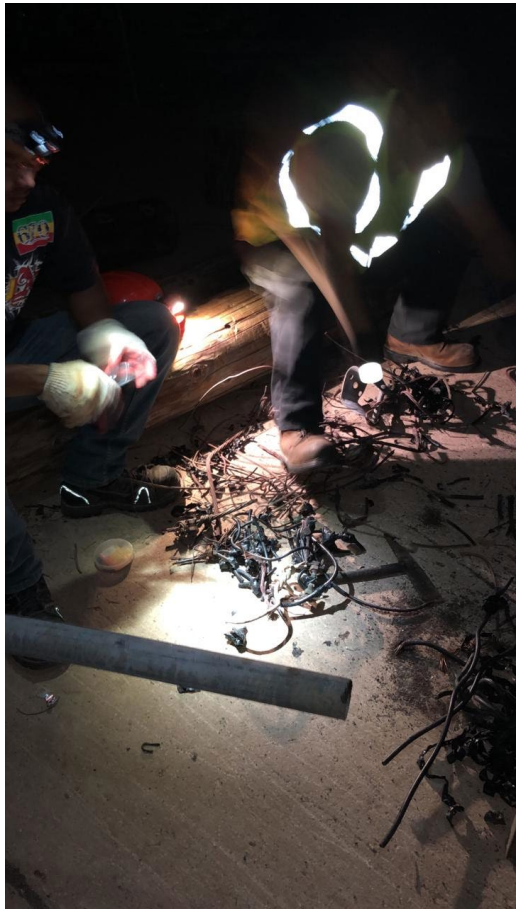
Restoration Progress

Operators



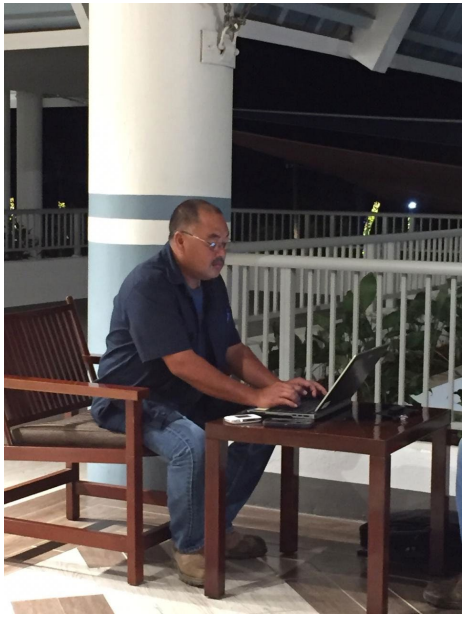
Restoration Progress

Material Recovery



Restoration Progress

Line Crews

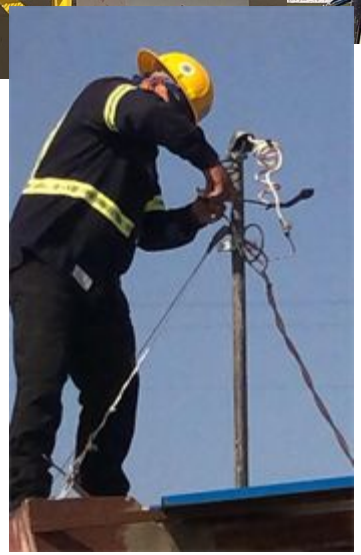


GUAM CCU

GPA 50 YEARS 1963-2013

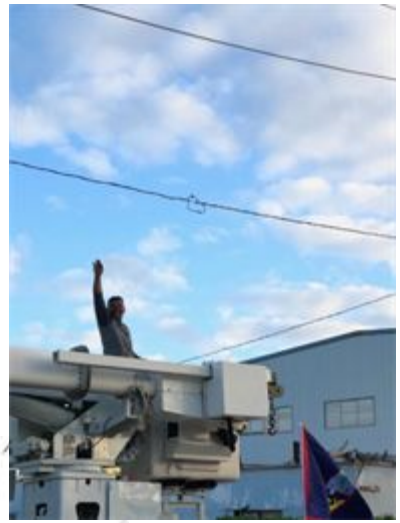
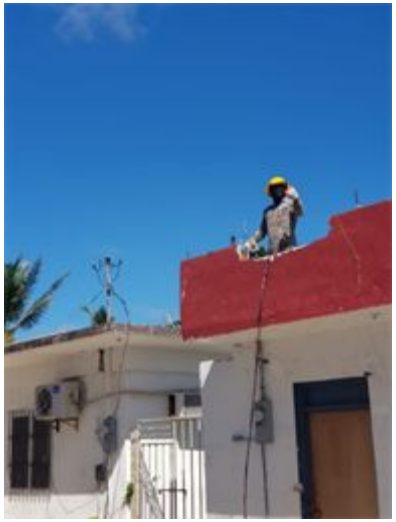
Restoration Progress

Line Crews

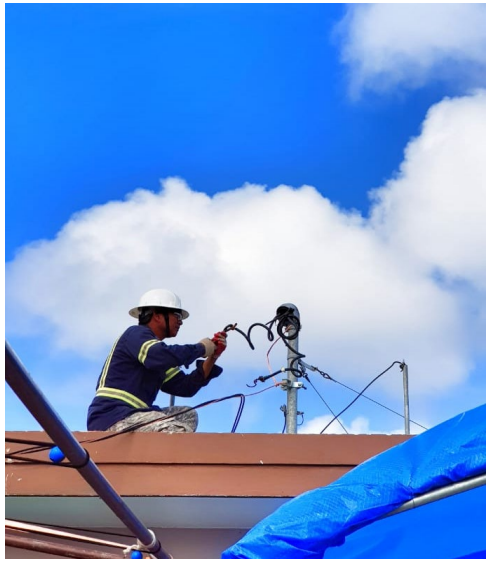


Restoration Progress

Line Crews





STATUS OF RECOVERY

POLES

Down and Damaged = 1,772

Installed = 1,374

FEEDERS

Total = 9

Energized = 9

METERS (since 1/8/19)

Damaged = 2,700

Energized = 988

GENERATION

Available = 59.4 MW

Recoverable = 33.0 MW

Gross Demand = 27.5 MW

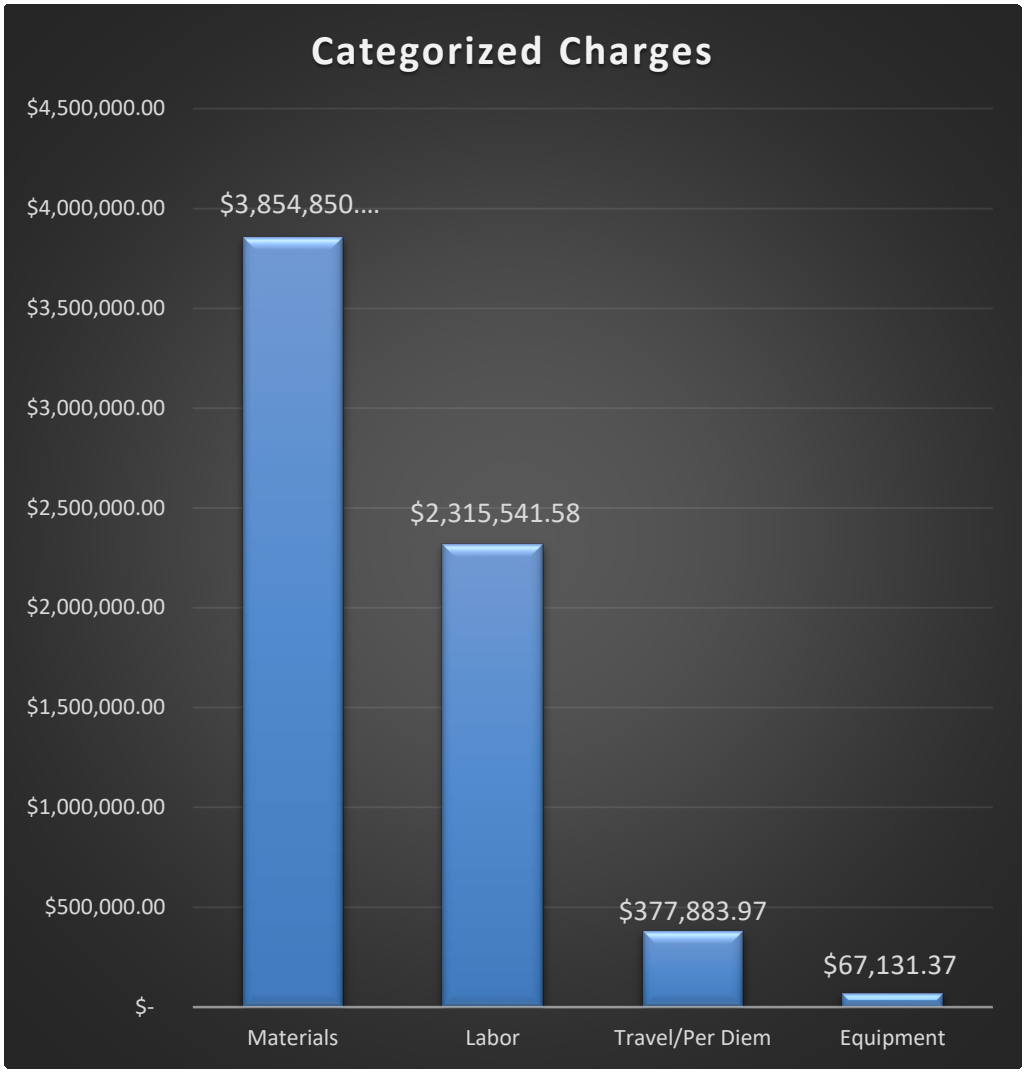
TRANSFORMERS ASSESSED (since 1/8/19)

Total Qty. = 295

Failed = 115

Passed = 180

INVOICE SUMMARY



Materials	$ 3,854,850.51
Labor	$ 1,839,922.16
Travel/Per Diem	$ 177,499.97
Equipment	$ 67,131.37
Estimated Labor	$ 475,619.42
Estimated Travel/Per Diem	$ 200,384.00
Total	**$ 6,615,407.43**
Payments	$(4,010,480.58)
	$ 2,604,926.85

SUMMARY

- GPA has made a significant contribution to Saipan recovery efforts.
- The GPA Saipan team continues to work hard and has contributed to the restoration of critical services and businesses.
- The team on Guam at T&D, Generation, Engineering, Transportation, & Safety have had to multi-task and pick up extra duties to ensure continuity of services on Guam.
- GPA Executive Management has continuously worked in coordination with the CUC to ensure smooth operations.
- The 2nd wave demobilized on February 17th and began preparation for return.
- All personnel will be home by February 23rd.
- GPA will continue to invoice CUC for labor, equipment, materials, and expenses.

Si Yu'os Ma'åse'

CUSTOMER SERVICE DIVISION - Jan 2019

SITE	Less than 10 Mins.	%	10-15 Mins.	%	15-30 Mins.	%	30-45 Mins.	%	TOTAL	Location %
GBN	1,185	37%	1,521	47%	438	14%	68	2%	3,212	37%
HAGATNA	2,150	69%	466	15%	260	9%	225	7%	3,101	35%
UPPER TUMON	1,437	59%	661	27%	242	10%	89	4%	2,429	28%
TOTAL:	4,772	55%	2,648	30%	940	11%	382	4%	8,742	100%

Government Accounts Receivable: CSD reports invoices for the month of December 2018, for 71 active government accounts with an overall total of $6,896,685.04. 67 accounts were current (94%), 4 accounts arrears (6%). 5 fax/emails issued to government accounts totaling $2,436,679.14. December 2018 invoices, 65 accounts paid in full.

CREDIT AND COLLECTION

Delinquent Ratio: As of Jan 2019 the authority reported a total 48,161 active customers. The "Delinquent Ratio" was recorded at 8.32% with 4,008 total delinquent accounts, total arrears of 2,154,616.84; 1,890,018.68; 3,736(7.76% / 28-45 days) category; 142,073.06; 283(0.59% / 46-60 days); 26,399.49; 123(0.26% 61-90 days); and 96,125.61 (0.45% / Over 90 days).

Bankruptcy: During Jan 2019 the Bankruptcy reports four (4) customer account filed, totaling $1,832.68.

ACTIVE DELINQUENT – NON PAYMENT

COMMAND CENTER /DISCONNECTIONS/RECONNECTIONS

Single Phase Meters: Credit and Collection issued orders to Command Center to perform remote disconnect/reconnect for a total of 1,228 customers; 877(71%) were disconnected; 300(24%) deferred; 51(4%) incompletes.

3 Phase Meters: Credit and Collection issued orders to Disconnect Reconnect crew to perform truck roll out disconnect/reconnect for a total of 22 customers; 9(41%) were disconnected; 13(59%) deferred; 0(0%) incompletes.

FY 2019 (Jan 01-31,2019)

	Scheduled	Disc	Deferred	Complete Vs. Scheduled	Incomplete Disconnections	Disc Vs. Scheduled	Deferred Vs. Scheduled	Incomplete Vs. Scheduled
Jan-19	1,250	886	313	1,199 96%	51	71%	25%	4%
1st	8,855	2,720	6,013	8,733 99%	122	31%	68%	1%
TOTAL:	10,105	3,606	6,326	9,932 98%	173	36%	63%	1%

FY 2018 (October 01, 2017 – September 30, 2018)

QTR	Scheduled	Disc	Deferred	Complete Vs. Scheduled	Incomplete Disconnections	Disc Vs. Scheduled	Deferred Vs. Scheduled	Incomplete Vs. Scheduled
4th	2,923	2,137	768	2,905 99%	18	73%	26%	1%
3rd	4,824	2,635	2,167	4,802 100%	22	55%	45%	0%
2nd	4,092	2,010	2,032	4,042 99%	50	49%	50%	1%
1st	3,890	2,237	1,646	3,883 100%	7	58%	42%	0%
TOTAL:	15,729	9,019	6,613	15,632 99%	97	57%	42%	1%

This concludes the Summary Report for Customer Service Division for the month of Jan 2019.

Respectfully submitted,
Marissa Fernandez
Marissa Fernandez, Admin. Officer

Reviewed / Approved by:
Richard J. Bersamin, ACSM

Run Date: 2/6/2019
Run Time: 9:18:49PM

Guam Power Authority
Delinquent Active Accounts Summary Report
As of - 02/06/2019

Report ID: DELRATIO

Rate Classification	Total Cust	Del Cust	Del 28-45	Del 46-60	Del 61-90	Over-90	Curr Balance	28-45 Days	46-60 Days	61-90 Days	>90 Days	Total Arrears	Total Due
Residential(ERES-R)	42,390	3,632	3,394	231	105	181	4,980,949.34	762,338.70	39,773.16	22,313.79	81,702.33	906,127.98	5,887,077.32
		8.57%	8.01%	0.54%	0.25%	0.43%							
Small Gen Non Demand(EGEN-G)	4,148	253	232	21	8	15	953,089.41	137,747.75	8,566.99	3,160.07	11,339.29	160,814.10	1,113,903.51
		6.10%	5.59%	0.51%	0.19%	0.36%							
Small Gen Demand(EGEND-J)	980	65	53	8	0	14	2,384,732.57	239,636.43	33,450.41	0.00	1,438.92	274,525.76	2,659,258.33
		6.63%	5.41%	0.82%	0.00%	1.43%							
Large General(ELPS-P)	119	12	11	2	0	1	5,971,803.68	748,146.37	59,584.38	0.00	237.35	807,968.10	6,779,771.78
		10.08%	9.24%	1.68%	0.00%	0.84%							
Private Streetlight(EPOL-H)	524	46	46	21	10	4	18,626.77	2,149.43	698.12	925.63	1,407.72	5,180.90	23,807.67
		8.78%	8.78%	4.01%	1.91%	0.76%							
Sub-Total (Private)	**48,161**	**4,008**	**3,736**	**283**	**123**	**215**	**14,309,201.77**	**1,890,018.68**	**142,073.06**	**26,399.49**	**96,125.61**	**2,154,616.84**	**16,463,818.61**
		8.32%	**7.76%**	**0.59%**	**0.26%**	**0.45%**							
Small Gov Non Demand(ESGS-S)	694	74	71	25	2	8	495,796.51	85,843.70	20,631.20	495.25	922.50	107,892.65	603,689.16
		10.66%	10.23%	3.60%	0.29%	1.15%							
Small Gov Demand(ESGSD-K)	338	83	82	69	0	77	3,052,749.92	646,790.49	301,600.60	0.00	10,336.03	958,727.12	4,011,477.04
		24.56%	24.26%	20.41%	0.00%	22.78%							
Large Government(ELGS-L)	42	24	24	20	0	21	3,008,269.94	913,334.50	465,982.72	0.00	12,180.82	1,391,498.04	4,399,767.98
		57.14%	57.14%	47.62%	0.00%	50.00%							
Gov Streetlight(ESTL-F)	629	16	15	4	0	0	468,438.12	10,540.14	186.59	0.00	0.00	10,726.73	479,164.85
		3%	2.38%	0.64%	0.00%	0.00%							
Sub-Total (Government)	**1,703**	**197**	**192**	**118**	**2**	**106**	**7,025,254.49**	**1,656,508.83**	**788,401.11**	**495.25**	**23,439.35**	**2,468,844.54**	**9,494,099.03**
		11.57%	**11.27%**	**6.93%**	**0.12%**	**6.22%**							
GRAND TOTAL	**49,864**	**4,205**	**3,928**	**401**	**125**	**321**	**21,334,456.26**	**3,546,527.51**	**930,474.17**	**26,894.74**	**119,564.96**	**4,623,461.38**	**25,957,917.64**
		8.43%	**7.88%**	**0.80%**	**0.25%**	**0.64%**							

DATA: CSD PERSONNEL WORK ACTIVITIES
COMPILED BY: RITA BLAS (CSR)

MTD CONSOLIDATED REPORT

APPROVED BY:
BETH MENDIOLA (CSS)

REPORTING MONTH: JANUARY 2019

BUSINESS OFFICE/ SATELLITE EMPLOYEE MTD (CONSOLIDATED) REPORT TRANSACTION (TYPE)	GLORIA B. NELSON	% MTD	HAGATNA	% MTD	UPPER TUMON	% MTD	MTD TOTAL
APPLICATION							
NEW INSTALL-PERMANENT (NI1)	8	12%	3	5%	55	83%	66
NEW INSTALL- TEMP (NI2)	13	59%	7	32%	2	9%	22
NEW INSTALL - ST LIGHT (NI3)	4	100%	0	0%	0	0%	4
REC W/OUT METER (NI4)	6	35%	6	35%	5	29%	17
REC W/METER (NI5)	96	26%	119	32%	156	42%	371
NAME CHANGE (NC1)	107	29%	127	34%	135	37%	369
NAME CHANGE ST LIGHT (NC2)	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0
TERMINIATION							
TERMINATION REGULAR (TE1)	196	42%	106	23%	160	35%	462
TERMINATION N/C (TE2)	0	0%	0	0%	1	100%	1
TERMINATION NON/PAYMENT (TE3)	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0
TERMINATION TYPHOON (TE4)	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0
TERMINATION REMOVAL (TE5)	2	100%	0	0%	0	0%	2
TERM (TE6)	1	100%	0	0%	0	0%	1
OTHER(S)							
WORK CLEARANCE (WCE)	3	21%	7	50%	4	29%	14
WORK CLEARANCE (UG)	21	95%	0	0%	1	5%	22
WORK CLEARANCE (OH)	7	39%	3	17%	8	44%	18
INVESTIGATION (INV)	5	42%	4	33%	3	25%	12
METER C/O - CALIBRATION (MC1)	3	27%	2	18%	6	55%	11
METER UP/DOWN GRADE (MC3)	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0
MISC PUBLIC SRVC (MPS)	26	58%	4	9%	15	33%	45
REFUND (RFD)	13	35%	11	30%	13	35%	37
RELOCATE METER (RM1)	8	80%	1	10%	1	10%	10
ST LIGHT REPAIR (ST1)	26	96%	1	4%	0	0%	27
OFFICIAL RECEIPT (OR)	55	20%	98	35%	126	45%	279
UPDATE SPECIAL CHARGE (USC)	0	0%	21	11%	167	89%	188
INSPECTION REPORT (IR)	16	16%	14	14%	68	69%	98
COPY OF BILL (COB)	401	20%	676	34%	902	46%	1979
BILL INQUIRY (BILL INQ)	376	19%	830	41%	817	40%	2023
BILL ADJUSTMENT (BILL ADJ)	10	56%	3	17%	5	28%	18
ADDRESS CHANGE	21	14%	34	23%	91	62%	146
EFERRED PAYMENT AGREEMENT (DPA)	1	20%	1	20%	3	60%	5
PREPAID	14	14%	21	21%	66	65%	101
REBATE	166	45%	113	31%	91	25%	370
ACH/EFT	0	0%	2	25%	6	75%	8
NO ANSWER	234	50%	40	9%	190	41%	464
INQUIRY TYPE VISIT	256	16%	690	44%	608	39%	1554
INQUIRY TYPE OTHER	90	22%	101	24%	227	54%	418
ACTIVE DELINQUENTS							
INQUIRY (INQ)	402	37%	386	35%	308	28%	1096
PAYMENT (PYMT)	290	35%	386	47%	151	18%	827
DO NOT DISCONNECT (DND)	1	50%	0	0%	1	50%	2
EXTENSION (EXT)	203	33%	164	26%	254	41%	621
RECONNECT(REC)	60	24%	125	50%	67	27%	252
INACTIVES							
INQUIRY (INQ)	31	31%	26	26%	44	44%	101
PAYMENT (PYMT)	4	11%	16	44%	16	44%	36
TRANSFER BALANCE (TRF BAL)	10	26%	13	33%	16	41%	39
TOTAL TRANSACTION(S)	3186		4161		4789		12136
VISIT (V)	1870	31%	2001	34%	2095	35%	5966
TELEPHONE (T)	25	4%	500	76%	130	20%	655
MAIL (M)	0	0%	250	70%	109	30%	359
FAX (F)	0	0%	50	100%	0	0%	50
TRANSFER CALL (TRF CALL)	12	5%	150	67%	63	28%	225
OTHER (OTHER)	1305	88%	150	10%	32	2%	1487
TOTAL INQUIRIES	3212		3101		2429		8742
SERVICE LEVEL							
LESS THAN 10 MINUTES	1185	25%	2150	45%	1437	30%	4772
10-15 MINUTES	1521	57%	466	18%	661	25%	2648
16-30 MINUTES	438	47%	260	28%	242	26%	940
> 30 MINUTES	68	18%	225	59%	89	23%	382
TOTAL SERVICE LEVEL	3212		3101		2429		8742

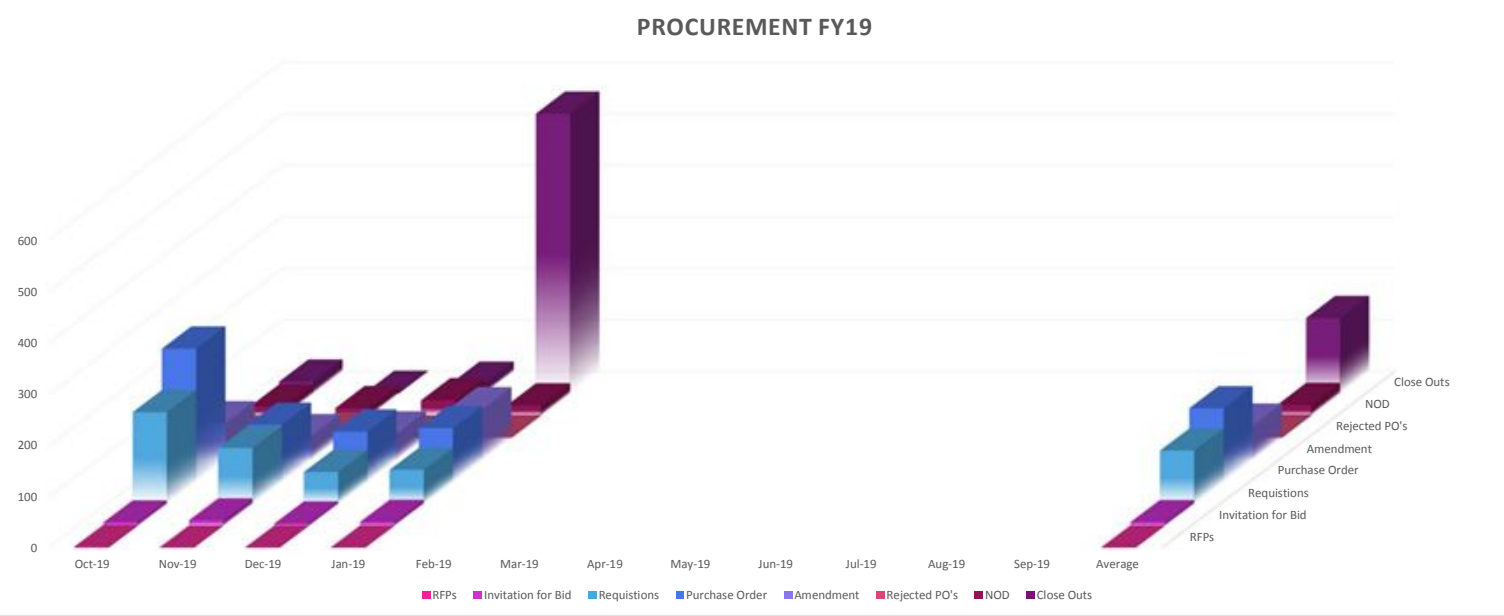
NOTE: INQUIRY TYPE (OTHERS) = INCLUSIVE OF DESK WORK (E.G., NON PAYMENT COMPLETIONS, COMMERCIAL COMPLETIONS, ETC.)

DATA: CSD PERSONNEL WORK ACTIVITIES
COMPILED BY: RITA BLAS (CSR)

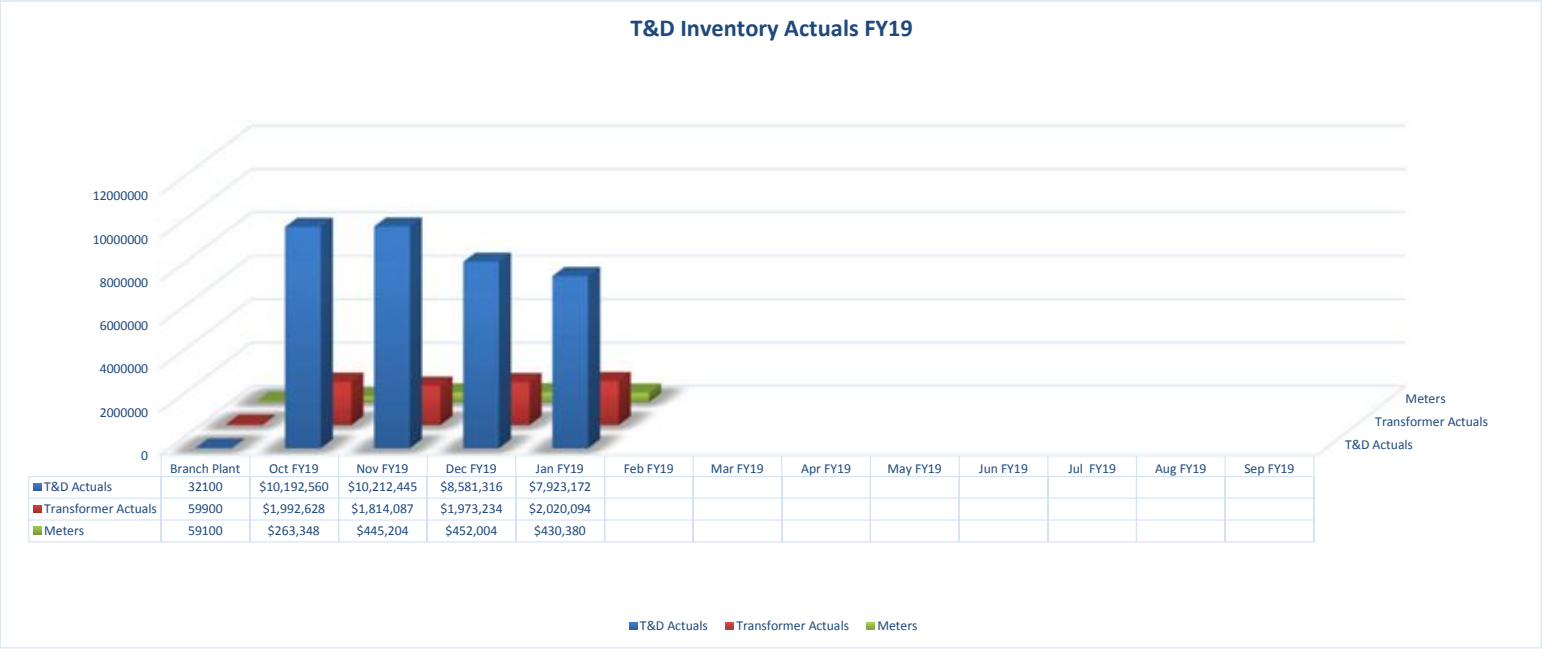
MTD CONSOLIDATED REPORT

APPROVED BY:
BETH MENDIOLA (CSS)

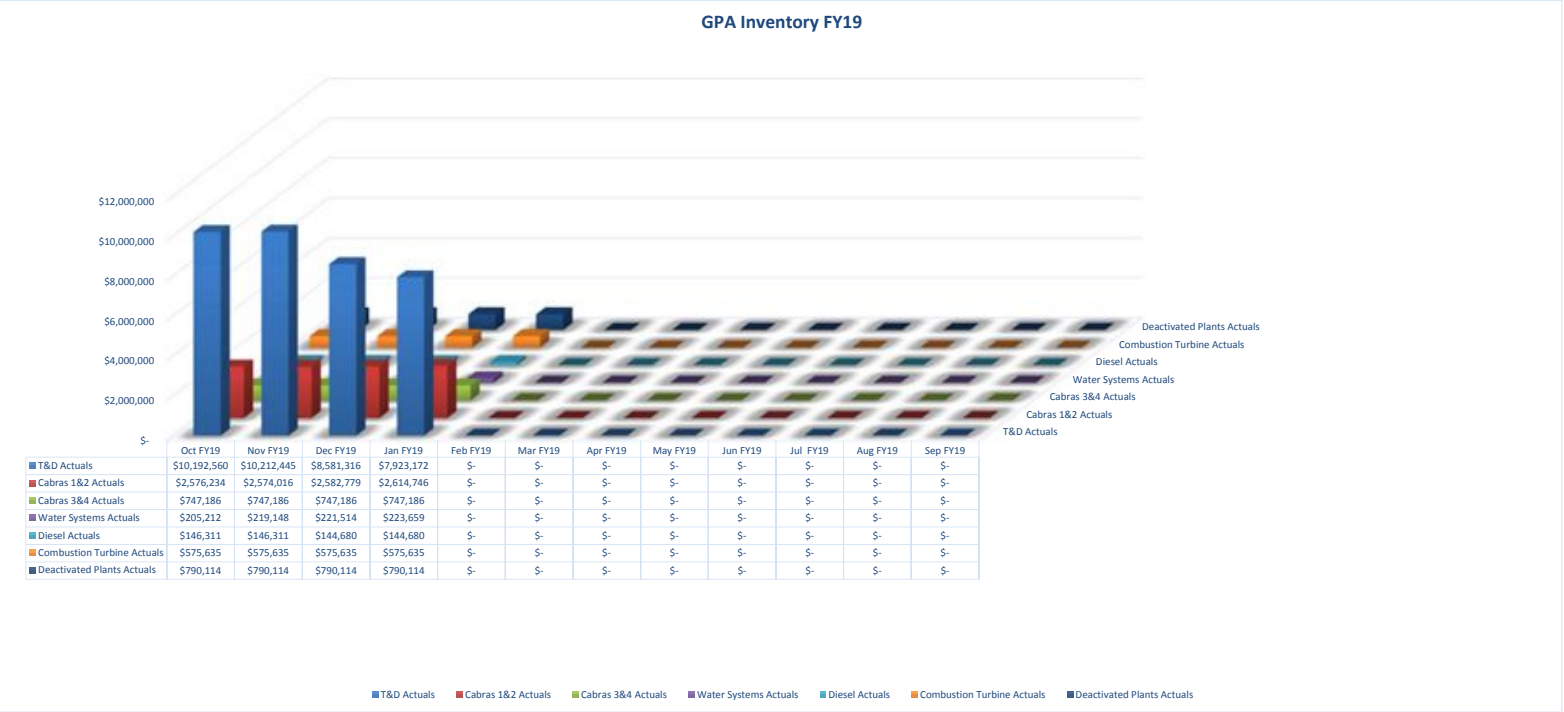
REPORTING MONTH: JANUARY 2019



	Oct-19	Nov-19	Dec-19	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Average
RFPs	2	1	1	1									1.25
Invitation for Bid	7	11	5	8									7.75
Requistions	180	110	63	67									105
Purchase Order	260	112	99	106									144.25
Amendment	72	47	52	99									67.5
Rejected PO's	1	6	1	2									2.5
NOD	18	15	30	20									20.75
Close Outs	23	1	19	543									146.5



	Branch Plant	Oct FY19	Nov FY19	Dec FY19	Jan FY19	Feb FY19	Mar FY19	Apr FY19	May FY19	Jun FY19	Jul FY19	Aug FY19	Sep FY19
T&D Actuals	32100	$10,192,560	$10,212,445	$8,581,316	$7,923,172								
Transformer Actuals	59900	$1,992,628	$1,814,087	$1,973,234	$2,020,094								
Meters	59100	$263,348	$445,204	$452,004	$430,380								



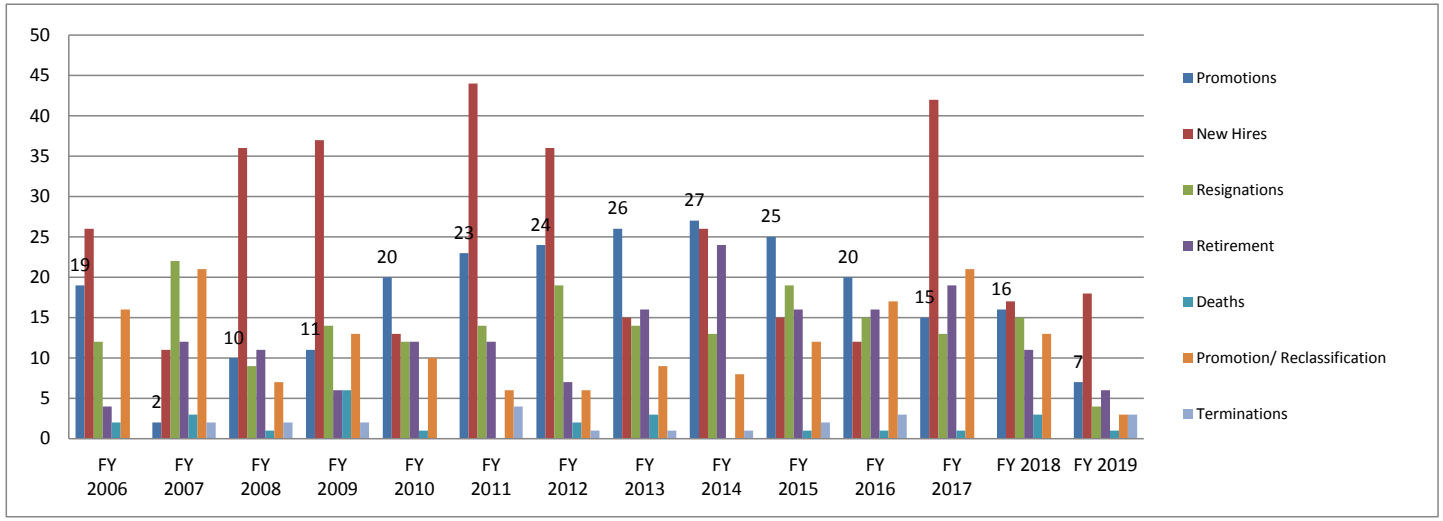
	Oct FY19	Nov FY19	Dec FY19	Jan FY19	Feb FY19	Mar FY19	Apr FY19	May FY19	Jun FY19	Jul FY19	Aug FY19	Sep FY19
T&D Actuals	$10,192,560	$10,212,445	$8,581,316	$7,923,172	$-	$-	$-	$-	$-	$-	$-	$-
Cabras 1&2 Actuals	$2,576,234	$2,574,016	$2,582,779	$2,614,746	$-	$-	$-	$-	$-	$-	$-	$-
Cabras 3&4 Actuals	$747,186	$747,186	$747,186	$747,186	$-	$-	$-	$-	$-	$-	$-	$-
Water Systems Actuals	$205,212	$219,148	$221,514	$223,659	$-	$-	$-	$-	$-	$-	$-	$-
Diesel Actuals	$146,311	$146,311	$144,680	$144,680	$-	$-	$-	$-	$-	$-	$-	$-
Combustion Turbine Actuals	$575,635	$575,635	$575,635	$575,635	$-	$-	$-	$-	$-	$-	$-	$-
Deactivated Plants Actuals	$790,114	$790,114	$790,114	$790,114	$-	$-	$-	$-	$-	$-	$-	$-

RECRUITMENT ANALYSIS

Fiscal Year	Promotions	New Hires	Resignations	Retirement	Deaths	Promotion/ Reclassifi-cation	Termina-tions	Total Author-ized FTE	Attrition Rate	Total Filled FTE at end of Fiscal Year	Percentage of Filled FTE at end of Fiscal Year
2006	19	26	12	4	2	16	0	584	3.3%	536	91.8%
2007	2	11	22	12	3	21	2	584	7.2%	510	87.3%
2008	10	36	9	11	1	7	2	592	4.5%	525	88.7%
2009	11	37	14	6	6	13	2	592	5.3%	534	90.2%
2010	20	13	12	12	1	10	0	592	4.7%	522	88.2%
2011	23	44	14	12	0	6	4	592	5.7%	536	90.5%
2012	24	36	19	7	2	6	1	568	5.4%	543	95.6%
2013	26	15	14	16	3	9	1	568	6.3%	524	92.3%
2014	27	26	13	24	0	8	1	568	7.3%	512	90.1%
2015	25	15	19	16	1	12	2	539	7.4%	489	90.7%
2016	20	12	15	16	1	17	3	510	7.2%	466	91.4%
2017	15	42	13	19	1	21	0	510	7.1%	476	93.3%
2018	16	17	15	11	3	13	0	510	6.1%	464	91.0%
2019	7	18	4	6	1	3	3	500	3.0%	467	93.4%

Recruitment Analysis (FY 2019) ..1 of 2

as of 01/31/19



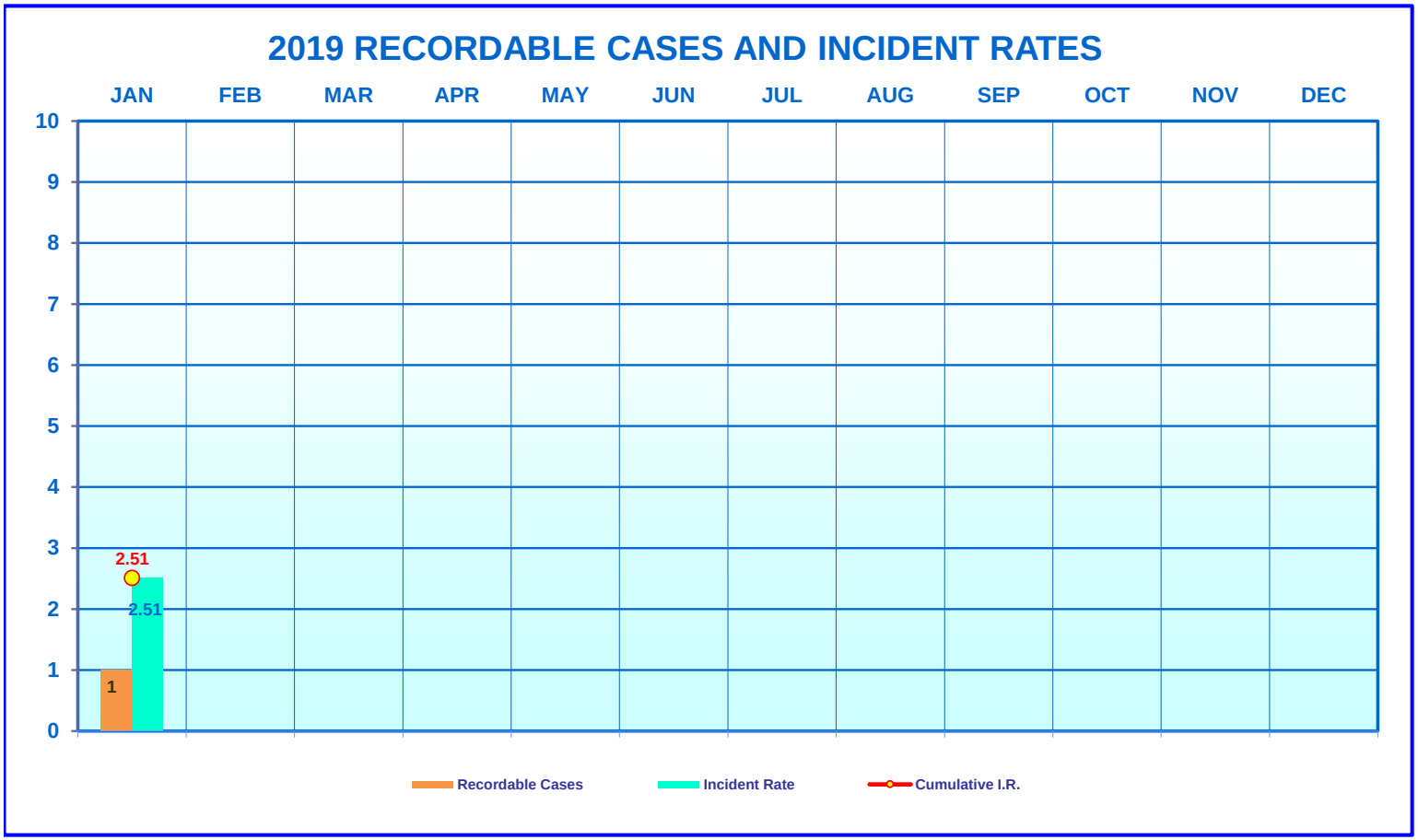
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Promotions	19	2	10	11	20	23	24	26	27	25	20	15	16	7
New Hires	26	11	36	37	13	44	36	15	26	15	12	42	17	18
Resignations	12	22	9	14	12	14	19	14	13	19	15	13	15	4
Retirement	4	12	11	6	12	12	7	16	24	16	16	19	11	6
Deaths	2	3	1	6	1	0	2	3	0	1	1	1	3	1
Promotion/ Reclassification	16	21	7	13	10	6	6	9	8	12	17	21	13	3
Terminations	0	2	2	2	0	4	1	1	1	2	3	0	0	3

TOTAL NO. OF EMPLOYEES	**536**	**510**	**525**	**534**	**522**	**536**	**543**	**524**	**512**	**489**	**466**	**476**	**464**	**467**

Recruitment Analysis (FY 2019) .. 2 of 2

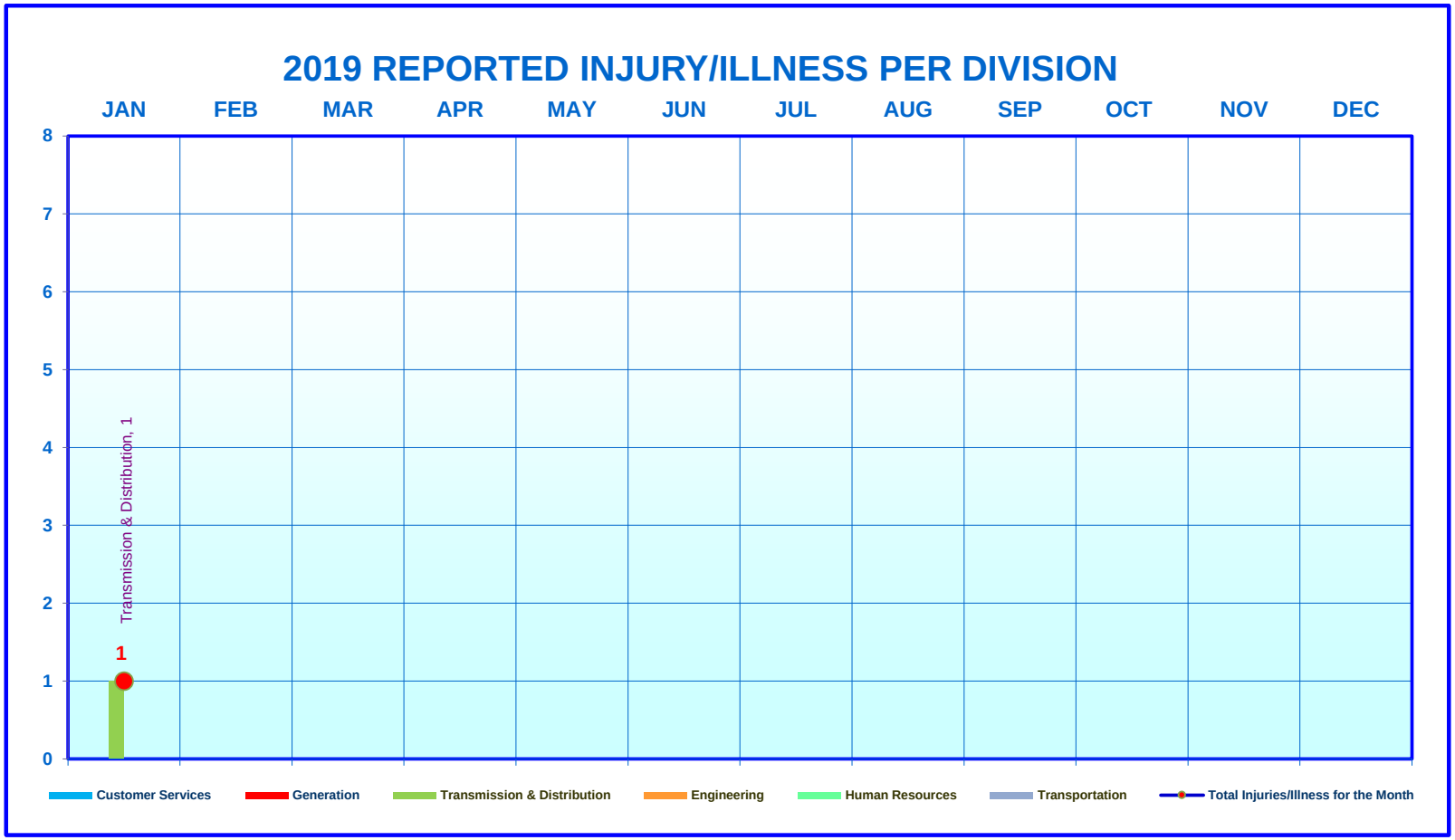
as of 01/31/19

SAFETY DIVISION MONTHLY REPORT

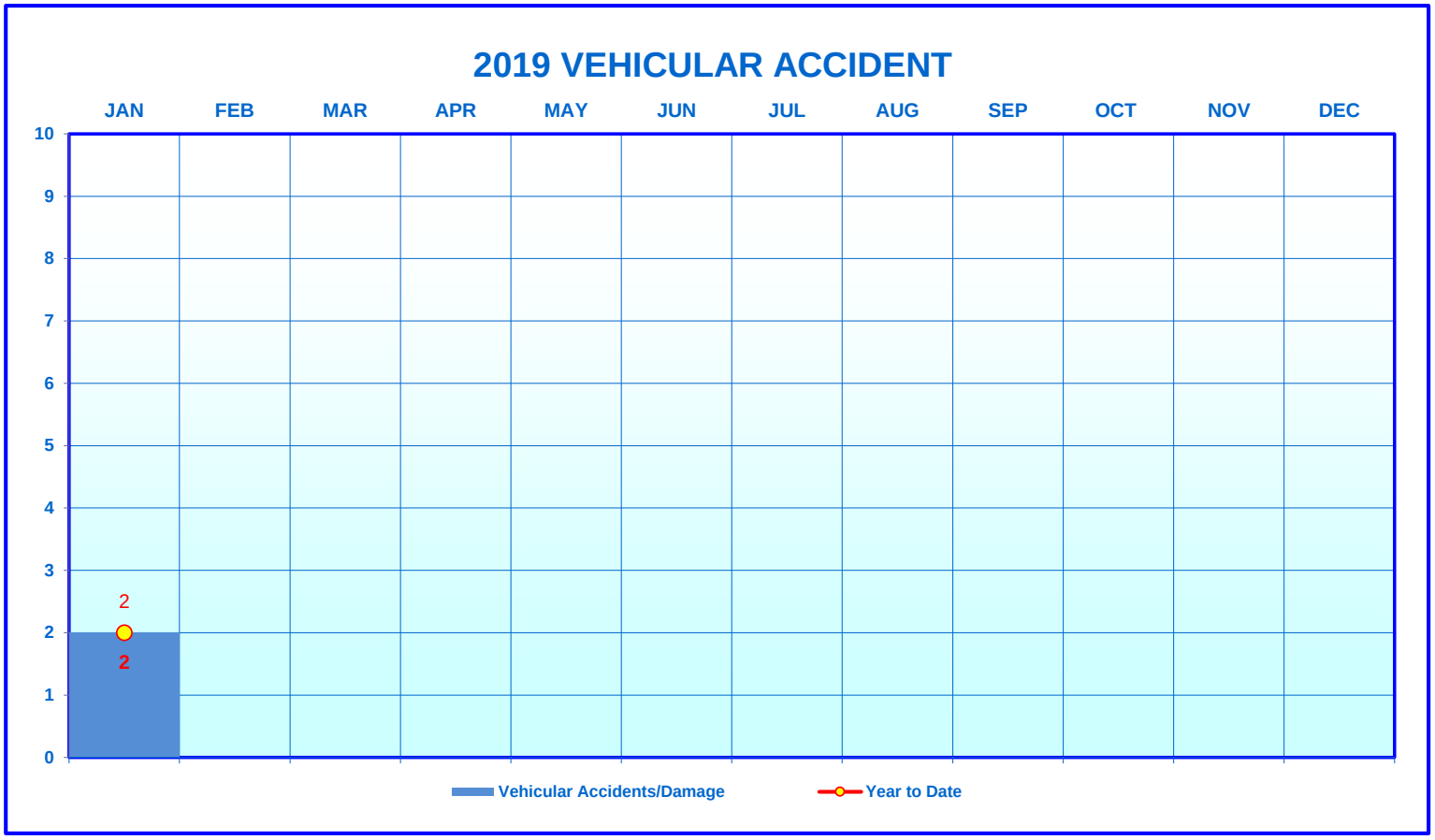


Total Case Incident Rates = (# recordable cases x 200,000 hours) / # total annual work hours

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Recordable Cases	1											
Incident Rate	2.51											
Cumulative I.R.	2.51											


2019 REPORTED INJURY/ILLNESS PER DIVISION
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
8
7
6
5
4
3
2
1
0
Transmission & Distribution, 1
1
Customer Services
Generation
Transmission & Distribution
Engineering
Human Resources
Transportation
Total Injuries/Illness for the Month

SAFETY DIVISION MONTHLY REPORT



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Vehicular Accidents/Damage	2											
Year to Date	2											

Accidents attributed to Employee fault	1											

GUAM POWER AUTHORITY
HUMAN RESOURCES DIVISION
STAFFING REPORT (FY 2019)
AS OF JANUARY 31, 2019

DIVISION	B1 ACTIVE EMP	B2 LAST EMP	C PROMOTE /TRANS	D PROM. RECLASS	E NEW HIRES	F RESIGN/ TERM	G RETIRE	H CURR VAC	I LAST VAC	(B1+H=K) TOTAL STAFFING
INTERNAL AUDIT/REVENUE PROTECTION	3	3	0	0	0	0	0	0	0	3
BOARD(10200)	2	2	0	0	0	0	0	0	0	2
GENERAL MANAGER (CUS) [10100]	0	0	0	0	0	0	0	0	0	0
GENERAL MANAGER (20500)	4	4	0	0	0	0	0	0	0	4
PUBLIC INFORMATION OFFICE	2	2	0	0	0	0	0	0	0	2
ASSIST GM-ENG/TECH SVCS (30500)	1	1	0	0	0	0	0	0	0	1
ASSISTANT GENERAL MGR (30800)	2	1	0	0	1	0	0	0	1	2
ASSISTANT GENERAL MGR (AGMO) 50900	2	2	0	0	0	0	0	0	0	2
STRAT PLANN & OPTNS RESEARCH DIV	9	9	0	0	0	0	0	2	2	11
FACILITIES	9	9	0	0	0	0	0	0	0	9
HUMAN RESOURCES	8	8	0	0	0	0	0	2	1	10
CUSTOMER SERVICES	32	32	0	0	0	0	0	0	4	32
INFORMATION TECHNOLOGY	16	16	0	0	0	0	0	1	1	17
FINANCE	39	39	0	0	1	1	0	5	5	44
PROCUREMENT	21	22	0	0	0	1	0	1	0	22
TRANSPORTATION	11	11	0	0	0	0	0	0	0	11
SAFETY	6	6	0	0	0	0	0	1	1	7
PLANNING & REG	8	8	0	0	0	0	0	0	0	8
ENGINEERING	38	37	0	0	1	0	0	1	2	39
GENERATION	126	127	0	0	0	0	1	6	5	132
TRANSMISSION/DISTRIBUTION	104	104	0	0	0	0	0	11	7	115
POWER SYSTEM CONTROL CENTER	24	24	0	0	0	0	0	3	4	27
	467	467	0	0	3	2	1	33	33	500
JOBS/SCSEP/GETP PARTICIPANTS	0	0								0
WORK EXPERIENCE PROGRAM	3	4								
APPRENTICESHIP PROGRAM	20	0								20
SUMMER ENGINEERING INTERNS	0	0								0
TEMPORARY (P.L. 34-116)	4	1								4
GRAND TOTAL WORKFORCE:	494	472	0	0	3	2	1	33	33	524

FTE Count per FY19 FMP: 500

Current vacancies adjusted to reflect FTE of 500

** JOBS = Job Opportunities and Basic Skills (individuals under the Public Health assistance program)

** GETP = Guam Employment & Training Program (individuals under the Public Health assistance program)

** SCSEP = Senior Community Service Employment Program

** APPRENTICESHIP TRAINING PROGRAM - Generation, PSCC and T&D combined total

** JOBS/SCSEP/GETP and Apprentice program participants are not included in the total annual budgeted FTE (Full-Time Employee) count.

** P.L. 34-116

Staffing Report as of January 31, 2019 - PREPARED BY: C. Aguilar

PLANNING & REGULATORY DIVISION REPORT

The following summarizes P&R's activities for the month of January 2019

INSPECTIONS/MONITORING

- Best Management Practices (BMP) Weekly Inspection/Report – Cabras Power Plant
- Monthly Spill Prevention, Control and Countermeasures (SPCC) Inspection/Report – Cabras Power Plant, Macheche, Dededo, Yigo CT, Talofofo, MDI, Tenjo Diesel, Piti 7 Power Plants, IP&E fuel Farm.
- Reviews monthly Continuous Emissions Monitoring System (CEMS) report and monitors TRC's O & M for Tenjo Diesel
- Took soil samples in Cabras Pavillion and IPE Tank farms soil mounds
- Toil samples in the Cabras Used Oil Facility Oil and Water Separator
- Inspected and trouble shoot RICE MACT monitoring equipment at Tenjo, Talofofo and MDI
- Inspected Tanguisson pipeline took pictures, GPS data and mapping report
- Monitoring CO and NOx emissions of the Aggrekko generators not to exceed the allowable limit.

ENERGY RECOVERY

- Took oil samples at Delta Drums 1-4
- Took used oil samples at Delta
- Used oil from Dededo Sub and Transportation

REPORTING

- New Source Performance Standards (NSPS) Monthly Report– Submitted reports to GEPA for Dededo CT, Macheche CT, Yigo CT, Talofofo, Manenggon and Tenjo Diesel Plants.
- Prepared and submitted Quarterly Fuel Switching report to USEPA
- Prepared and submitted NPDES Quarterly and Annual report to USEPA
- Prepared and submitted Annual Air Compliance Certification to GEPA
- Tanguisson UIC/ORS 4th Quarterly Report

SPILL/ENVIRONMENTAL RESPONSE

- Responded to oil spill at Marbo power plant and coordinated the clean up

PROCUREMENT

- Committee review for RFP 19-001 Engineering and Technical services for Power System Analysis and Studies
- GPA-023-19_Old Piti Power Plant 1-5 Cleanup 050118 Bid

- GPA IFB-118-18 Reprocessed Used Oil
    - Set up meeting with Guam EPA to discuss GPA Plans
    - Main Agenda was the proposed bill from Senator Taitague on prohibiting the use on used (waste) oil and RFO. However, the bill itself only pertains to ULSD Standards
- GPA-034-18 New 180 MW Plant
    - responded to questions from the ECPM regarding spills and the pipeline
    - Attended conference call with SPORD

Emissions and Limits Tracking for GPA and Aggreko Power Plants

- Sent December update on GPA and Aggreko Facilities Emissions to PSCC, Generation, Upper Management and others

Decommissioning Plan

- Brownfield Grant
    - Meeting with Guam EPA DSMOA Program for guidance/assistance regarding Brownfield Grants 2019.
    - After research and communicating with Guam EPA, we learned that GPA is not qualified to apply for a Grant. In some cases, we were the source of the contamination which disqualifies us

OTHERS

- Conference call with TRC regarding SIP
- Disposal of >1700 pcs. fluorescent lamp or 1400 feet total from old Piti PP.
- Assisting PUC Commissioner Cantoria with her presentation for the 2019 Energy, Utility & Energy Conference
- Updated EGU MACT and RICE MACT estimated penalties for Finance (Cora Montellano)
- Finalized and Submitted Fuel Usage Summary for Deloitte
- Reviewed and updated information on GWA Water/Wastewater facilities for Engineering in connection with Typhoon Mangkhut
- MET Tower Semi Annual Audit – AMS Tech Inc. conducted audit of Meteorological Tower
- Leak Detection at Piti Fuel Farm
    - TMI technician was on island and tried to get the Data Logger back on line. We were partially successful in getting communication back for a few hours. In the end, however we lost communication.
- Senator Taitague Bill No. 25-35
    - Amendment to 10 GCA Ch 49 Section 49119 Ultra-Low Sulfur Diesel Fuel Standards
    - Had internal discussions with management on how this will affect our current and future plans regarding used oil
    - Had Meeting with Guam EPA to discuss the bill

<table>
<tr><td>REGULATION</td><td colspan="2">National Ambient Air Quality Standards (NAAQS)</td></tr>
<tr><td>REQUIREMENTS</td><td colspan="2">New Short-term NAAQS:
Sulfur Dioxide (2010) - 1 Hour Average (3,24 and Annual)
Nitrogen Dioxide (2010) - 1 Hour Average (Annual)

Other New NAAQS:
Ozone (2008) - Reduced 8 Hour Average -Proposed (2014) Further Reduction
Lead (2008) - Reduced Quarterly Average (1/10)
PM2.5 (2006) - Reduced 24 Hour Average (1/2)
(2013)- Reduced annual average (12)
Carbon Monoxide - No change</td></tr>
<tr><td></td><td>FOR:</td><td>LIMITS</td></tr>
<tr><td></td><td>SO2</td><td>75 ppb (New 1-hour standard)</td></tr>
<tr><td></td><td>NO2</td><td>100 ppb (New 1-hour standard)</td></tr>
<tr><td></td><td>PM 2.5</td><td>35 µg/m³ (New 24-hour standard)</td></tr>
<tr><td></td><td></td><td>12 µg/m3 (New annual Standard)</td></tr>
<tr><td></td><td>PM 10</td><td>150 µg/m3 (24 Hour Standard)</td></tr>
<tr><td></td><td>CO</td><td>9 ppm (8 Hour Average)
35 ppm (1 Hour Average)</td></tr>
<tr><td>GPA Subject to Regulatory Requirements?</td><td colspan="2">YES, all units</td></tr>
<tr><td>Applicable Penalties</td><td colspan="2">$44,881 per unit for each day of non-compliance</td></tr>
<tr><td>Additional Information / Remarks</td><td colspan="2">2011/2012 Modeling results show difficulty meeting NAAQS for the following:
• Cabras – Piti Area</td></tr>
<tr><td>DEADLINES / MILESTONES / EFFECTIVE DATES</td><td colspan="2">Control devices should be installed or fuel switch effected by April 9, 2023. See below for specific milestones for each standard.</td></tr>
<tr><td></td><td>Standard</td><td>Deadlines/Milestones</td></tr>
<tr><td></td><td>1-HR SO2</td><td>Final Rule: June 22, 2010
Initial Designation: June 22, 2011 (Guam requested “unclassified, no response from EPA)
Final Designation: December 31, 2017. Cabras-Piti area designated as “Non-Attainment”. The rest of Guam “Unclassified/Attainment”.
Designation released: April 9, 2018
State Implementation Plan due to USEPA/Guam EPA: Oct. 9, 2019
Compliance Deadline: April 9, 2023</td></tr>
<tr><td></td><td>1-HR NO2</td><td>Final Rule: Feb. 9, 2010
Effective Date of Rule: Feb. 29, 2011</td></tr>
</table>

		The EPA has designated Guam as a single "Unclassifiable/Attainment" area at this time, meaning that there is no adequate information to indicate that the air quality in these areas exceed the 2010 NO2 NAAQS.
	24-HR PM2.5	*EPA's 2006 24-hr PM2.5 standard and 2013 annual average standard designates Guam as "Unclassifiable/Attainment" area. New NAAQS will affect permitting of new units.*

IMPACT	These combined make existing and new sources subject to reduction in operations, penalties, etc. Compliance requires addition of expensive control devices or change in fuel.	
	UNIT	**IMPACT**
	Cabras 1&2	Will not meet SO2, NO2 requirements.
	Piti 8&9	Will not meet SO2, NO2 requirements.
	Piti 7	Will not meet SO2, NO2 requirements.
	Dededo CT, Macheche CT, Yigo CT	Meet all NAAQS requirements.
	MDI, Talofofo, Tenjo Diesel Units	Tenjo and Manenggon will have difficulty meeting requirements.
	Temporary Power Station (Aggreko)	Controls installed to address NO2 requirements; SO2 requirements met because of ULSD utilization.
	New CCT Power Plant	Will meet all NAAQS requirements
	**Dededo Diesel Units retirement/deactivation on September 3, 2013. **Cabras 3&4 explosion in Aug. 31, 2015. **Tanguisson 1&2 retirement/deactivation effective February 1, 2015.	

GPA COMPLIANCE REQUIREMENTS	Reduction of emissions through installation of control devices, such as scrubbers or converting to cleaner fuel.	
	UNIT	**COMPLIANCE REQUIREMENT**
	Cabras 1&2	FOR SO2: Installation of control devices such as scrubbers, or convert to cleaner fuel. FOR NO2: Installation of Selective Catalytic Reduction Controls. FOR PM: (addressed w/ SO2 emission control)
	Piti 8&9	FOR SO2: Installation of control devices such as scrubbers, or convert to cleaner fuel. FOR NO2: Installation of Selective Catalytic Reduction Controls. FOR PM: (addressed w/ SO2 emission control)
	Piti 7	Change permit to ULSD

	Dededo CT, Macheche CT, Yigo CT	No NAAQS compliance requirements
	MDI, Talofofo, Tenjo Diesel Units	Tenjo and Manenggon will have difficulty meeting requirements. SCR likely to be needed. Talafofo and MDI have no NAAQS compliance requirements.
	New CCT Power Plant	Modeling will demonstrate no NAAQS compliance requirements when SCR and oxidation catalyst are used.
GPA Options for COMPLIANCE	**1-HR SO2**	**99th Percentile < 75 ppb**
	UNIT	**COMPLIANCE REQUIREMENT**
	Cabras 1&2	**OPTION 1:** Installation of Control Devices – Dry or Wet Scrubbers. Control devices will also allow Cabras 1&2 to meet MATS requirements. *CAPITAL COST* • Wet FGD System = $86M per unit • Lime Spray Drying System = $136.5M per unit *O&M COST* • Wet FGD System = $10M per year • Dry Scrubbers = $4M per year
		OPTION 2: Convert to ULSD *CAPITAL COST* • Cost for converting unit to ULSD-firing *O&M COST* • Increase in Fuel Cost
		OPTION 3: Convert to LNG *CAPITAL COST:* • Cost for converting unit to LNG-firing *O&M COST* • Increase in Fuel Cost
		OPTION 4: Retire Units. • Cost for unit retirement – *Capacity Issues!*
	Piti 8&9	OPTION 1: Installation of Control Devices – Dry or Wet Scrubbers. Control devices will not address RICE MACT compliance. *CAPITAL COST* • Wet FGD System = $65M per unit • Lime Spray Drying System = $106M per unit *O&M COST* • Wet FGD System = $10M per year • Dry Scrubbers = $4M per year
		OPTION 2: Convert to ULSD *CAPITAL COST* • Cost for converting unit to ULSD-firing *O&M COST* • Increase in Fuel Cost
		OPTION 3: Convert to LNG *CAPITAL COST* • Cost for converting unit to LNG *O&M COST* • Increase in Fuel Cost
		OPTION 4: Retire Units.

	• Cost for unit retirement – *Capacity Issues!*
MDI, Talofofo and Tenjo	No SO2 compliance issues burning ULSD
Piti # 7	
Dededo, Macheche and Yigo	No SO2 compliance issues burning ULSD
New Units	No SO2 compliance issues burning ULSD
1-HR NO2	**98th Percentile < 100 ppb**
Cabras 1&2	Applicable to all units as they are built or modified. All new units or modifications of existing units will need Selective Catalytic Reduction controls to comply. No action currently needed by GPA.
Piti 8&9	Applicable to all units as they are built or modified. All new units or modifications of existing units will need Selective Catalytic Reduction controls to comply. No action currently needed by GPA.
MDI, Talofofo and Tenjo Units	Applicable to all units as they are built or modified. All new units or modifications of existing units will need Selective Catalytic Reduction controls to comply. No action currently needed by GPA.
Piti # 7	Applicable to all units as they are built or modified. All new units or modifications of existing units will need Selective Catalytic Reduction controls to comply. No action currently needed by GPA.
Dededo, Macheche and CT Units	Applicable to all units as they are built or modified. All new units or modifications of existing units will need Selective Catalytic Reduction controls to comply. No action currently needed by GPA.
NEW UNITS	Must demonstrate compliance for permit. Purchase with SCR.
24-HR PM2.5	**98th Percentile and Annual Mean < 35 µg/m³ and < 12ug/m3**
Cabras 1&2	Compliance with MATS or SO2 requirements.
Piti 8&9	Compliance with RICE MACT or SO2 requirements.

	MDI, Talofofo and Tenjo Units	Compliance with RICE MACT or SO2 requirements.
	Piti #7	
	Dededo, Macheche and CT Units	Compliance with SO2 requirements.
	NEW UNITS	Compliance with SO2 requirements.

<table>
<tr><th>REGULATION</th><th colspan="2">EGU MACT</th></tr>
<tr><td>REQUIREMENT</td><td colspan="2">Requires all Steam Electric Generating Units (EGU) to meet very low air emission rates of 11 toxic metals, including Mercury and emissions of chlorides and fluorides (surrogates for dioxins and furans) Status of rule in doubt after June 2015 Supreme Court ruling. Cabras Units 1 & 2 would be subject to the rule.</td></tr>
<tr><td></td><td>FOR:</td><td>LIMITS</td></tr>
<tr><td></td><td>PM</td><td>Filterable PM < 0.03 lb./MMBtu (surrogate for metal HAP)</td></tr>
<tr><td></td><td>Metals</td><td>Total non-mercury metals < 0.0006 lbs./MMBtu</td></tr>
<tr><td></td><td>Halides</td><td>Hydrogen Chloride 2.0E-4 lb/MMBtu

Hydrogen Fluoride 6.0E-5 lb/MMBtu</td></tr>
<tr><td>GPA Subject to Regulatory Requirements?</td><td colspan="2">YES if promulgated, for Cabras 1&2.</td></tr>
<tr><td>Applicable Penalties</td><td colspan="2">$44,881 per unit for each day of non-compliance</td></tr>
<tr><td>Additional Information / Remarks</td><td colspan="2">Testing Fees in 2014:
• Cabras 1&2: $100,000 each
*Start-ups, Shutdown and tune-up requirements must be considered.
**CEM for PM not recommended by TRC due to unreliability of available monitors.
Halides below limits from chemical testing.</td></tr>
<tr><td>DEADLINES / MILESTONES / EFFECTIVE DATES</td><td colspan="2">Initial Notification sent: 7/6/2012
Compliance Deadline: 4/16/2015</td></tr>
<tr><td>IMPACT</td><td colspan="2">Rule would be applicable to Cabras 1&2, and plant is currently not meeting emission limits. May require change in fuel or reduction in operations, penalties, etc. Compliance requires addition of expensive control devices or change in fuel.
**Tanguisson 1&2 retirement/deactivation effective February 1, 2015.</td></tr>
<tr><td>GPA COMPLIANCE REQUIREMENTS</td><td colspan="2">Meet emission limits through control devices or cleaner fuel.</td></tr>
<tr><td>GPA Options for COMPLIANCE</td><td colspan="2">OPTION 1: Continue using RFO but reduce metal content to meet standard. Reduction of metals in current RFO may lead to significant increase in fuel costs.
CAPITAL COST
• Expenses for reconfiguration that may be needed for new metal specifications.
O&M COST
• Additional fuel costs for reduction in metal content.</td></tr>
<tr><td></td><td colspan="2">OPTION 2: Installation of Control Devices such as Electrostatic Precipitators. Baghouses are not recommended for RFO fuel. This control device will not allow unit to meet NAAQS.
CAPITAL COST
• $17.4M per unit</td></tr>
</table>

	O&M COST • $11M annually
	OPTION 3: Convert to ULSD *CAPITAL COST* • [undetermined] *O&M COST* • Differential Cost of Fuel
	OPTION 4: Convert to LNG *CAPITAL COST* • [undetermined] *O&M COST* • Differential Cost of Fuel
	OPTION 5: Retire units. • Cost for unit retirement – *Capacity Issues!*
	TESTING COSTS: Quarterly Stack Testing for Metals: $200,000 per year for both units

REGULATION	RICE MACT	
REQUIREMENT	Requires all Diesel Engines greater than 500 HP to emit less than 23 ppm Carbon Monoxide. If emissions > 23 ppm, reduce emission to <23 ppm or 70% control.	
	FOR:	LIMITS
	CO	< 23 ppmv @15% O_2
GPA Subject to Regulatory Requirements?	**YES, for Piti 8&9, and MDI, Talofofo and Tenjo Units**	
Applicable Penalties	$44,881 per unit for each day of non-compliance	
Additional Information / Remarks	Does not require fuel switching	
DEADLINES / MILESTONES / EFFECTIVE DATES	• Final Rule: Aug 20, 2010 • Initial Notification Deadline: Feb 11, 2011 (completed April 2012, late filing) • Extension request for fast track diesels, July 2012 • Exemption request for slow speed diesels, July 2012 (denied) • Compliance Date May 3, 2013 • One-year Extension Compliance Date (fast track): May 3, 2014 (request approved) • Oxidation catalysts were installed on all fast track diesels by compliance date. Performance tests to demonstrate compliance were performed by compliance date (December 16, 2014) • Slow Speed Diesels not yet in compliance	
IMPACT	Rule is applicable to Slow Speed Diesel Units (Piti 8&9) and Fast Track Diesel Units. **Cabras 3&4 Slow Speed Diesel Units catastrophic failure on Aug. 31, 2015.	
GPA COMPLIANCE REQUIREMENTS	Meet emission limits through Oxidation Catalysts.	
GPA COMPLIANCE ACTIVITIES	**MDI, Talofofo and Tenjo Units**	
	CAPITAL COSTS • Tenjo $641,000 • Dededo retired • Manenggon 1&2 $313,000 • Talofofo 1 and 2 $240,000 TOTAL Equipment COST = $1,194,000 • Engineering and Construction COST = $2,815,000	
	ANNUAL O&M COSTS • Tenjo $183,000 • Dededo $72,000 • Manenggon 1&2 $74,000 • Talofofo 1 and 2 $61,000 TOTAL COST = $390,000	

	Piti 8 & 9
GPA Options for COMPLIANCE	**OPTION 1:** Stay on RFO, install oxidation catalysts. ***ISSUES:*** ***(1) Unable to find oxidation catalyst that can handle RFO.*** ***(2)*** *Sending exhaust gases directly to catalyst will oxidize SO2, creating sulfuric acid – need to reduce Sulfur content. Oxidation can be up to 40% SO2; more fuel would be needed to heat exhaust gases to temperature high enough to convert to CO (very expensive)* ***(3)*** *Will not address NAAQS issues*
	OPTION 2: Convert to ULSD and install oxidation catalysts. Also addresses NAAQS issues. *CAPITAL COST* • $3.441M for oxidation catalyst installation • Additional cost for converting power plant to ULSD firing *O&M COST* • Differential cost of fuel • O&M cost for catalyst
	OPTION 3: Convert to LNG --- **Not subject to rule, and also addresses NAAQS issues** *CAPITAL COST* • $3.441M for oxidation catalyst installation • Additional cost for converting power plant to ULSD firing *O&M COST* • Differential cost of fuel • O&M cost for catalyst *if converted to LNG, start-up will need ULSD, therefore catalyst would still need to be installed

<table>
<tr><th>REGULATION</th><th colspan="2">NEW SOURCE REVIEW – MAJOR MODIFICATION FOR CT PLANTS</th></tr>
<tr><td>REQUIREMENT</td><td colspan="2">New Source Review (Prevention of Significant Deterioration / PSD) permit from EPA needed if units are modified in such a way as to trigger a PSD permit. For Dededo CT, NSR was not required due to critical requirement for units to be online as soon as possible, following catastrophic failure of Cabras 3&4. This section outlines what the requirements would be if CT plants are modified in such a way as to trigger PSD permit. PSD permit will require BACT analysis to control emissions specified below.

<table>
<tr><th>FOR:</th><th>LIMITS</th></tr>
<tr><td>SO2</td><td>< 40 TPY</td></tr>
<tr><td>NO2</td><td>9 ppmvd</td></tr>
<tr><td>PM</td><td><25 TPY</td></tr>
<tr><td>CO</td><td><100 TPY</td></tr>
<tr><td>VOC</td><td><40 TPY</td></tr>
<tr><td>Formaldehyde</td><td>91 ppmvd@15% Oxygen</td></tr>
</table></td></tr>
<tr><td>GPA Subject to Regulatory Requirements?</td><td colspan="2">YES, for new or modified units</td></tr>
<tr><td>Applicable Penalties</td><td colspan="2">$44,881 per unit for each day of non-compliance</td></tr>
<tr><td>Additional Information / Remarks</td><td colspan="2">Modified Unit emissions more than above limits would require PSD permit from US EPA</td></tr>
<tr><td>DEADLINES / MILESTONES / EFFECTIVE DATES</td><td colspan="2"></td></tr>
<tr><td>IMPACT</td><td colspan="2">Causes costs of modifications to rise.</td></tr>
<tr><td>GPA COMPLIANCE REQUIREMENTS</td><td colspan="2">PSD Permit
Application = $65,000
Applicability Determination = $15,000</td></tr>
<tr><td>GPA Options for COMPLIANCE</td><td colspan="2">Formaldehyde (Oxidation Catalyst)
CAPITAL COSTS = $1,989,439 per turbine
ANNUAL O&M COSTS= $627,000 per turbine

NOx Control (SCR)
CAPITAL COSTS
$4,573,000 per unit
ANNUAL O&M COSTS
• $1,542,000 per unit (relatively high due to short catalyst life)</td></tr>
</table>

<table>
<tr><th>REGULATION</th><th colspan="2">GREENHOUSE GAS REQUIREMENTS</th></tr>
<tr><td>REQUIREMENT</td><td colspan="2">o New Source or Major Modification Permitting Rules: Requires Best Available Control Technology at permitting. Generally requires energy efficiency.

• New Source Performance Standards: Current proposal does not apply to oil fired non-continental sources.

• Each Title V facility must apply to add GHG to Title V permit by July 1, 2012</td></tr>
<tr><td></td><td>FOR:</td><td>LIMITS</td></tr>
<tr><td></td><td>CO2</td><td>>75,000 TPY requires BACT</td></tr>
<tr><td>GPA Subject to Regulatory Requirements?</td><td colspan="2">YES, all units as they are built or modified. For existing units, will need to modify Title V Permit.</td></tr>
<tr><td>Applicable Penalties</td><td colspan="2">$44,881 per unit for each day of non-compliance</td></tr>
<tr><td>Additional Information / Remarks</td><td colspan="2"></td></tr>
<tr><td>DEADLINES / MILESTONES / EFFECTIVE DATE</td><td colspan="2">• New Source or Major Modification Permitting Rules: Jun 3, 2010
• New Source Performance Standards: Do not apply to oil firing
• Existing units need TitleV permit modifications.</td></tr>
<tr><td>IMPACT</td><td colspan="2">None</td></tr>
<tr><td>GPA COMPLIANCE REQUIREMENTS</td><td colspan="2">Controls for emissions of CO2, such as Carbon Capture and Sequestration (CCS), are not required. There is no market for CO2 on Guam or within reasonable shipping distance (special ships would have to be built or bought). Drilling wells and pumping CO2 below ground on Guam would be a dangerous and expensive sequestration method.</td></tr>
<tr><td>GPA Options for COMPLIANCE</td><td colspan="2"></td></tr>
</table>

REGULATION	CLEAN WATER ACT Section 316B Requirements ***Based on inputs from Planning & Regulatory Division and Clean Water Act Consultant***	
REQUIREMENT	• New Source or Major Modification Permitting Rules: Requires Best Technology Available (BTA) at permitting or permit revision. •Existing Facilities: Requires extensive operational changes to the existing cooling water intakes.	
	FOR:	**LIMITS**
	Cabras 1 & 2	Minimal fish impingement
GPA Subject to Regulatory Requirements?	Cabras 1&2 are subject to the rule.	
Applicable Penalties	(not provided)	
Additional Information / Remarks		
DEADLINES / MILESTONES / EFFECTIVE DATES	• Final Rule promulgated in Fall of 2014 • Compliance required at NPDES permit renewal. Cabras received NPDES permit with 316(b) requirements written in. Requirement for study and mitigation in new permit. .	
IMPACT		
GPA COMPLIANCE REQUIREMENTS	3 Options: • Option1: Demonstrate minimal fish impingement. • Option 2: reduce inflow to 0.5 feet per second. • Option 3: Close Units 1 & 2	
GPA Options for COMPLIANCE		

<table>
<tr><th>FOR</th><th>NEW POWER PLANT: COMBUSTION TURBINES</th></tr>
<tr><td>REQUIREMENT</td><td>New combustion turbines would require full Prevention of Significant Determination (PSD) Permitting, including modeling and Best Available Control Technology (BACT) Determination, unless the use of Oxidation Catalyst and Selective Catalytic Reduction controls decrease facility emissions below 250 tons per year.

If PSD permit is needed, it must address GHG Emissions and may require the use of Heat Recovery Supplemental Generation (HRSGs, after burners). Because USEPA is the permitting authority, the permit will require endangered species and cultural resources consultations as well as environmental justice evaluation. BACT analysis to control emissions required illustrated below:

<table>
<tr><th>FOR:</th><th>LIMITS to Avoid PSD Permit</th></tr>
<tr><td>SO2</td><td>< 250 TPY, ULSD</td></tr>
<tr><td>NO2</td><td>9 ppmvd</td></tr>
<tr><td>PM</td><td>< 250 TPY, ULSD</td></tr>
<tr><td>CO</td><td><250 TPY, oxidation catalyst</td></tr>
<tr><td>CO2</td><td>No limit</td></tr>
<tr><td>VOC</td><td><250 TPY</td></tr>
<tr><td>Formaldehyde</td><td>91 ppmvd@15% Oxygen</td></tr>
</table>
</td></tr>
<tr><td>DEADLINES / MILESTONES / EFFECTIVE DATES</td><td>PSD Permit needs to be filed no less than 9 months before the estimated operational date for the turbines.</td></tr>
<tr><td>GPA COMPLIANCE REQUIREMENTS</td><td>Reduce emissions below 250 tons per year to avoid the need to obtain PSD permit.</td></tr>
<tr><td>GPA Options for COMPLIANCE
GPA Options for COMPLIANCE
*Based on TRC Environmental estimates</td><td>Formaldehyde (Oxidation Catalyst)
CAPITAL COSTS
• $1,989,439 per turbine

ANNUAL O&M COSTS
• $627,000 per turbine

NOx Control (SCR)
CAPITAL COSTS
$4,573,000 per unit

ANNUAL O&M COSTS
• $1,542,000 per unit (relatively high due to short catalyst life)</td></tr>
</table>

FOR	NEW POWER PLANT: WASTE-TO-ENERGY FACILITY	
REQUIREMENT	Propose to build a new power plant to use the waste energy available in waste oils being collected on island and sludge generated by the wastewater treatment plant. Sewage sludge incinerator emissions are currently regulated under 40 CFR Part 60, Subpart LLLL and Part 62—Subpart LLL	
	FOR:	**LIMITS**
	SO2	15 ppm
	NO2	150 ppm
	PM	18 milligrams/m3
	CO	64 ppm
	CO2	none
	Dioxins/Furans	1.2 Nanograms/m3
	Mercury	0.037 milligrams/m3
	Cadmium	0.0016 milligrams/m3
	Lead	0.0074 milligrams/m3
DEADLINES / MILESTONES / EFFECTIVE DATES	Siting Analysis (equivalent to a Risk Assessment) must be completed before construction and Operator licensing must be completed before operation.	
GPA COMPLIANCE REQUIREMENTS	Costing for compliance has not yet occurred	
GPA Options for COMPLIANCE		
	CAPITAL COSTS • $	
	ANNUAL O&M COSTS • $	

FOR	Use of Bio-Diesel as Primary Fuel (mixed with ULSD)	
REQUIREMENT	Because bio-diesel is a new fuel it would have to appear in the permit for any facility which uses it or mixes it with ULSD. Guam EPA of 15 ppm of Sulfur would still apply. No other regulatory requirements.	
	FOR:	**LIMITS**
	SO2	15 ppm sulfur in fuel Guam requirement.
	NO2	None.
	PM	None
	CO	<23 ppm for diesels
	CO2	None
	VOC	None
	Formaldehyde	Only if required for CT
DEADLINES / MILESTONES / EFFECTIVE DATES	Permit in place before use.	
GPA COMPLIANCE REQUIREMENTS	Follow permit monitoring and recordkeeping requirements	
GPA Options for COMPLIANCE *Based pm cost estimates provided by TRC Environmental		
	CAPITAL COSTS • $300,000 for alternate tankage at power site	
	ANNUAL O&M COSTS • $ 50,000 for tankage upkeep and monitoring	

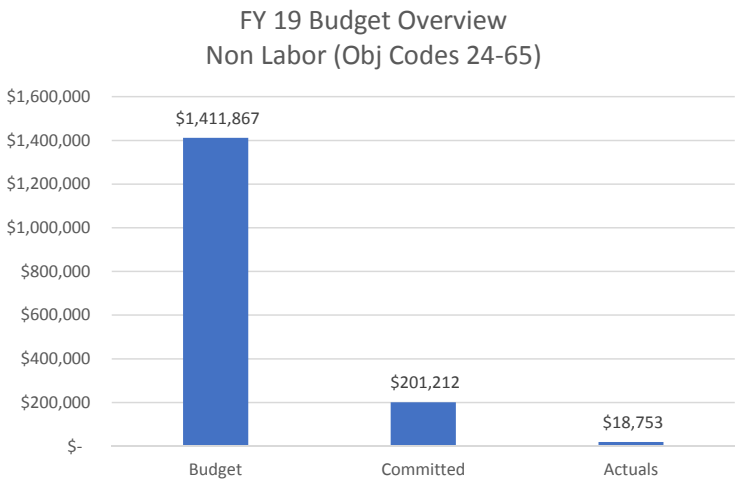
FOR	RE-PROCESSING WASTE OIL	
REQUIREMENT	Oil reprocessing facilities are regulated under 40 CFR Part 63, Subpart DD	
	FOR:	**LIMITS**
	VOC	Tank construction and leak limits, leak detection and repair for processing piping.
DEADLINES / MILESTONES / EFFECTIVE DATES	Construction requirements. Permit if required.	
GPA COMPLIANCE REQUIREMENTS	Ongoing monitoring and leak detection plus reporting requirements.	
GPA Options for COMPLIANCE GPA Options for COMPLIANCE	CAPITAL COSTS • $ Not yet costed. ANNUAL O&M COSTS • $ Not yet costed. CAPITAL COSTS • $ Not yet costed. ANNUAL O&M COSTS • $ Not yet costed.	

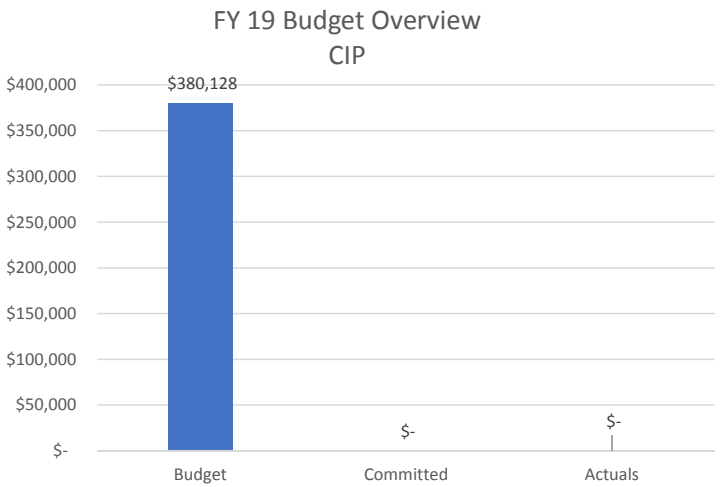
SPORD CCU Report

Update thru January 31, 2018

SPORD FY 2019 Budget Status

thru January 2019





Note: EPCM costs previously captured under SPORD falls under Engineering. Funds were transferred and budget adjusted.

SPORD FY 2019 Budget Status

- Major Contracts (Non-O&M) thru January 2019

	Budgeted Amount	Committed Amount	Actuals	PO Balance
Aggreko Contract	$ 12,822,000	$ 12,414,831	$ 2,823,201	$ 9,591,630
Fuel Contracts	$ 272,011,115	$ 108,663,778	$ 59,422,219	$ 49,241,559
MEC IPP (Piti 8&9)	$ 21,183,000	$ 13,243,050	$ 7,998,393	$ 5,244,657
NRG Contract (Renewable)	$ 10,463,361	$ 10,178,157	$ 3,022,096	$ 7,156,061

Note: Not all contracts and purchase orders have been issued or processed as new contract terms for RFO and Diesel fuel contracts and MEC IPP extension are effective in January 2019.

SPORD FY 2019 Budget Status

Description	FY16	FY17	FY18	FY19 thru 10/31/18*	Total to Date
Regular/OT Pay	$ 11,348.80	$ 22,256.00	$ 26,121.83	$ 14,397.99	$ 74,124.62
Other Contractual	$ 28,278.50	$ 85,550.05	$ 116,977.50	$ 3,025.00	$ 233,831.05
Paid Rebates-Split AC	$ 154,700.00	$ 557,275.00	$ 1,247,000.00	$ 318,900.00	$ 2,277,875.00
Paid Rebates- Central AC	$ 3,400.00	$ 8,200.00	$ 4,400.00	$ -	$ 16,000.00
Paid Rebates- Washer/Dryer	$ 2,800.00	$ 7,425.00	$ 48,800.00	$ 27,000.00	$ 86,025.00
Total Expenses	**$200,527.30**	**$680,706.05**	**$1,443,299.33**	**$ 363,322.99**	**$2,687,855.67**
Bank Interest (+)	$ 1,676.42	$ 1,722.74	$ 1,222.29	$ 366.28	$ 4,987.73
Bank Fees	$ 155.00	$ 1,032.06	$ 1,085.08	$ 80.00	$ 2,352.14
				Total Approved Budget:	$ 2,945,203.00
				Ending Balance	$ 259,982.92

** Expenses for January 2019 are preliminary pending closing of January books and above includes an update for Dec 2018 actuals.*

4

Ongoing Activities

- Contract Performance Management (IPP, Agrekko)
- Generation Fuel Supply & Fuel Farm Management
- DSM Rebate Processing & UESC Program
- Renewables (Wind Turbine Maint & DOAg MOA, NRG Invoicing)
- Smart Grid/Network Support
- Project Management
  - Procurement
  - *Jan. Project Activities*

PROCUREMENT ACTIVITIES

PENDING AWARD / NTP

Responsible	PROJECT	Description	CCU Date Approved (Resolution No.)	PUC Date Approved (Docket No.)	Projected Start*	Projected Completion	Status
SPORD (RAC)	SMART GRID	Mobile Workforce Management System (MWMS) **RE-BID**	MS Bid	GPA-023-17	3/30/2019	12/31/2019	Contract Negotations
SPORD (MAT)	OPERATIONS	MEC Waste Oil Hauling	*not required*	*not required*	Est. 3/1/2019	1/30/2024	Final stages of procurement processes.

ONGOING PROCUREMENT

Responsible	PROJECT	Description	Bid or RFP	Bid/RFP No	Announced	Bid Opening / Due	Notes
SPORD (RAC)	PLANNING	MV90 Integration Services	RFP	GPA-RFP-18-001	1/30/2018	3/6/2018	Vendor acquiring business license
SPORD (RAC)	PLANNING	Milsoft Systems Software Services	RFP	GPA-RFP-18-003	2/1/2018	3/7/2018	PO processing
SPORD (FJI)	NEW POWER PLANT	Build, Operate & Transfer Contract for 120-180MW of New Generation Capacity. **(PHASE II - TECHNICAL)**	MS Bid	GPA-034-18	10/1/2018 (Tech specs provided)	(3/21/2019	Bid opening for technical proposal.
SPORD (ANF)	FUEL	Supply of Diesel Fuel Oil No. 2	MS Bid	GPA-008-18	11/16/2017	9/18/18 (Step 1) / TBD	Step 1- Stay of Procurement as of Oct 2018 due to Protest. Awaiting Legal determination & lifting of Proc Stay.
SPORD (ANF)	FUEL	Bulk ULSD Supply	MS Bid	GPA-001-19	Aug-18	Dec-18	No bid. For Re-bid with revised specifications
SPORD (ANF)	FUEL	ULSD Hauling and Delivery Services for WSD and other plant sites	MS Bid	GPA-017-19	Nov-18	Dec-18	No bid. For Re-bid with revised specifications

PROCUREMENT ACTIVITIES

ONGOING PROCUREMENT (continued)

Responsible	PROJECT	Description	Bid or RFP	Bid/RFP No	Announced	Bid Opening / Due	Notes
SPORD (JTL)	RENEWABLES	Renewable Energy Resource Phase III	MS Bid	GPA-007-18	11/16/2017	4/12/2019 (Tech Proposal Due)	
SPORD (MAT)	FUEL / OPERATIONS	Handling and Hauling of GPA Used Oil and Supply of GPA Used Oil Meeting GPA Specifications	MS Bid	GPA-118-18	Sep-18	3/22/2019	Issues w/ Environmental Compliance, being resolved
SPORD (MAT)	SPORD Software	Planning & Optimization Software	RFP	RFP-19-004	(pending OR approvals)	Target June/July 2019	Pending OR approvals & scheduling of announcement.
SPORD (RAC)	SCADA	DNP3 SA training	RFP		Oct-18		Committee Scoring
SPORD (RAC)	STUDIES	Consulting Services for Distribution Study using Smart Grid Analytics	RFP		Oct-18		Re-Bid 3 bidders disqualified
SPORD (LOS)	STUDIES	Power System Analyses and Studies	RFP		Oct-18	11/9/2018	Price Proposal from most qualified Offeror due 2/22/19
ENGINEERING	FUEL	GPA Tank Farm DFO Pipeline Upgrade - Design / Build	Bid	GPA-027-19	1/24/2019	2/26/2019	Solicitation in progress. To install new diesel line from Navy Tie-in to the Bulk Fuel Tanks and replace diesel line to TEMES CT
ENGINEERING	FUEL	Tank 1934/1935 API 653 Internal Inspection	Bid	GPA-028-19	1/24/2019	3/7/2019	Solicitation in progress. Inspection and Upgrade to include appurtenances

PROCUREMENT ACTIVITIES

DEVELOPING PROCUREMENT

Responsible	PROJECT	Description	Bid or RFP	Projected Start	Projected Completion	Status
SPORD (RAC)	ELECTRIC VEHICLE	Electric Vehicle Infrastructure	RFP	Oct-18	Jun-19	Developing Requirements
SPORD (RAC)	SMARTWORK SYSTEMS	Smartworks Systems Software Services	RFP	Aug-18	Continous	Developing RFP
Responsible	**PROJECT**	**Description**	**Bid or RFP**	**Projected Start**	**Projected Completion**	**Status**
SPORD (ANF/MAT)	FUEL	GPA Bulk Fuel Storage Facility PMC	Bid	FY2019	Sep-19	Developing Specifications to convert to PMC
SPORD (LOS)	WIND TURBINE	Wind Turbine O&M Supervision and Materials	RFP	FY2019	FY2019	Developing RFP documents
SPORD (ANF)	FUEL	Bulk ULSD Supply	Re- Bid	FY2019	FY2019	Developing/revising specifications
SPORD (ANF)	FUEL	WSD ULSD Supply	Re- Bid	FY2019	FY2019	Developing/revising specifications

Project Activities

No.	Project Description	January 2019 Activities	Status / Est. Completion	RFP/Bid No
1	Energy Storage System (Phase I)	Finalizing Final design. Clearing and grading permit work commenced in November 2017. Foundation permit work commenced in January 2018. Construction is 75% completed.	3/31/2019 (reviewing schedule and progress for project delays)	MS Bid GPA-082-15
2	Renewable Energy Resource Phase II	On-going review for KEPCO-LGCNS substation design drawings. Hanwha working on interconnection scope and design.	KEPCO PV plant COD is APR 2021. Hanwha's COD is NLT Aug 22, 2021.	MS Bid GPA-070-16
3	New Power Plant Bid (EPCM)	Bidders' question submittal phase completed. Bid proposals extended to March 21, 2019. Draft preliminary geotechnical assessment report, environmental assessment reports and noise survey are completed. Assessments and survey are to be forwarded to bidders as part of bid documents.	Technical Proposals Due: 3/21/19 Projected Award (2019 Q3) COD (2022 Q2)	MS GPA-034-18
4	DSM Marketing	No additional activities funded this year.	Continuous	
5	DSM Rebate Program	Processed about 790 equipment in applications for rebates totaling ~ $175K	Continuous	
6	Wireless Network Expansion	Commenced Southern Expansion in collaboration with GWA: 30% Assessment of GWA Well Locations: Completed Assessment of Existing Tropos Units: 100% Router Equiqment and Accessories purchase Routers programming Preparing next router order and installation documents	Dec-18 Completed Completed Received routers - May 2018 Completed - June 2018 Accessories - May 2018 October 2018	GPA-019-18
7	Electric Grid Analysis Software	Additional training for users Realtime Voltage Module Training on Planning and Analysis Cases	Completed Completed (July 2018) November 2018	GPA-064-16

Project Activities

No.	Project Description	January 2019 Activities	Status / Est. Completion	RFP/Bid No
8	GDOE BEST Schools	**Pilot Project: Carbullido Elementary School** Investment Grade Audit at designated school scheduled between 1/28/19 and 2/6/19. Scope includes an audit for all internal and exterior lights, installing data loggers on ACs, temperature loggers in classrooms, roof structure accessment, etc. **Lighting Grant Project: Southern High and George Washington High** Room by room lighting audit for designated schools scheduled between 1/28/19 and 2/6/19. Scope includes documentation of all lighting equipment, data logging, spot measurements, etc. Siemens will perform and furnish a detailed cost and energy savings analysis of lighting solutions to GPA. Proposal for turn-key installation services to follow. Coordinating with DOI for guidance on obtaining Notice of Approval for construction of grant funded project. Siemens initiated audits. Planned construction is for Summer 2019 for all 3 three schools.	Ongoing	GPA-RFP-16-013
9	Services to Develop Business Performance Indices using iDashboards	Dashboard builds 95%	Ongoing	GPA-RFP-16-008
10	Supervisory Control and Data Acquisition (SCADA) System	Completed Firewall Server Setup and Commissioning Completed Point-to-Point testing and connections to all sites Completed Network Equipment Site Acceptance Test (SAT) Received SCADA Webserver	January 31, 2019 Estimated Completion Date	GPA-066-16
11	Mobile Workforce Management System	Contract Negotiations	Dec-19	GPA-023-17

Project Activities

No.	Project Description	December 2018 Activities	Status / Est. Completion	RFP/Bid No
12	Consulting Services for Smart Grid Analytics Enabled Distribution System Planning, Technical, and Economic Feasibility Studies	Re-Bid 3 bidders disqualified	Ongoing	GPA-RFP-18-011
13	MEC Piti &8 and #9 - ECA Extension	Contract Extension commenced 12:00 Noon January 29, 2019. (No issues) Need to request PUC approval for Retrofit to ULSD ASAP, to be able to start planning and procurement.	IN PROGRESS	
14	Generation Software (GADS open software)	Pending data entry from Generation & SPORD.	IN PROGRESS	
15	IFB for ULSD Supply for Baseloads and Peaking Units	Solicitation in progress. Bid package revised to include delivery requirements.	Start Date: Nov 2017 Est. completion: FY2019	IFB GPA-008-18
16	EV Infrastructure	Fast charge station scope for Mangilao offices. Developing fast charge station scope for Mangilao offices.	6/1/2019	
17	Renewable Energy Resource Phase III	Completed pre-bid conference and site visits January 23-24 2018. Clarifications being received and responses being developed.	(Update on Schedule TBD) Tech Proposal Due 4/12/19	
18	Utility Energy Services Contract (UESC)	Supporting BEST Schools program. Continued discussions with Navy on potential energy conservation projects and audit schedules.	Ongoing	
19	GPA Fuel Farm RFO Pipeline Repair & Upgrade	c/o Engineering Project Mgt. Design completed. For permitting.	Permitting in progress. Project Implementation to follow. Estimated completion: FY 2019	IFB GPA-047-18
20	GPA Fuel Farm ULSD Pipeline Upgrade	c/o Engineering Project Mgt. Solicitation for Contractor(s) services in progress.	Solicitation in progress Bid Due: 2/26/19 Estimated Start: Feb 2019 Est. Completion: Feb 2020	IFB GPA-027-19

Project Activities

No.	Project Description	December 2018 Activities	Status / Est. Completion	RFP/Bid No
21	Tk 1934 & Tk1935 API 653 Internal Inspection	c/o Engineering Project Mgt. Solicitation for Contractor(s) services in progress.	Solicitation in progress Bid Due: 3/7/19 Estimated Start: Feb 2019 Est. Completion: Feb 2020	IFB GPA-028-19
22	Milsoft Systems Software Services	PO processing	Continuous	GPA-RFP-18-003
23	MV90 Integration Services	Vendor acquiring business license	May-19	GPA-RFP-18-001
24	Grant Proposal Development and Proposal Application Management Services	Contract was not extended for this FY due to funding shortage.	Feb 2018 (Contract signed)	Re-Solicitation GPA-RFP-16-011
25	Redesignation of Cabras-Piti / Guam	Re-designation received 12/2018. TRC standing assisting with SIP Modeling, SIP draft. AAQM Installation/Implementation on hold, will depend on USEPA approval of SIP after submission on/before July 2019	Start: October 2011 Est. Completion: July 2019 *Submitted to EPA by completion date	RFP-11-001
26	Environmental Strategic Planning	Final draft signed by GM, AGMETS, SPORD, preparing for distribution.	Start: April 2018 Completion: Feb 2019	RFP-11-001
27	GPA Fuel Farm- OWS Upgrading	c/o Engineering Project Mgt. Scope included in Tk 1934 & Tk1935 API 653 Internal Inspection and repair.	Solicitation in progress Estimated Start: Feb 2019 Est. Completion: Feb 2020	IFB GPA-028-19
28	GPA Fuel Farm- LD System Upgrading	c/o Engineering Project Mgt Scope included in Tk 1934 & Tk1935 API 653 Internal Inspection and repair.	Solicitation in progress Estimated Start: Feb 2019 Est. Completion: Feb 2020	IFB GPA-028-19
29	MSB for Supply of Reprocessed Waste Oil Meeting GPA's ULSD Specifications	Multi-step Bid for the Supply of Reprocessed Waste Oil Meeting GPA's ULSD Specifications. Supplier will haul Waste Oil from GPA WOF, reprocess waste oil to meet GPA's ULSD Specifications, and supply to designated GPA Power Plants	Announced : Sept 19, 2018 Tech Proposals Due: Apr 2, 2019 Est. Award: September 2019	MS GPA-118-18

Project Activities

No.	Project Description	January 2019 Activities	Status / Est. Completion	RFP/Bid No
30	IFB for MEC Waste Oil Hauling	Bid for the Hauling of MEC Waste Oil.	Recommendation approved, awaiting completion of admin requiremrents c/o procurement. Est. Commencement March 1, 2019	GPA-019-19
31	Energy Storage Development Support	Consultant preparing proposal for third-party commissioning services	December 31, 2018	GPA-RFP-13-007
32	Wind Turbine Maintenance Supervision and Materials	Consultant to supervise turbine repairs & replacement parts. Turbine returned to service on 1/16/19.	Estimated Start: Jun 2018 Est. Completion: FY2019	Sole Source
33	Planning Software Contract	Procurement of Planning Software, including installation, design, implemenation, training and consulting services.	Pending Procurement (Est. Award: Sept 2019)	RFP-19-004
34	Strategic Planning	On-going discussions for final & detailed SOW with consultant.	Estimated Start: Mar 2019 Est. Completion: Sept 2019	(c/o Finance Contract w/ Mark Beauchamp)

CCU Report- DSM

As of January, 2019

All Expenses – Fiscal Year

Description	FY16	FY17	FY18	FY19 thru 1/31/19*	Total to Date
Regular/OT Pay	$ 11,348.80	$ 22,256.00	$ 26,121.83	$ 14,397.99	$ 74,071.78
Other Contractual	$ 28,278.50	$ 85,550.05	$ 116,977.50	$ 3,025.00	$ 233,831.05
Paid Rebates-Split AC	$ 154,700.00	$ 557,275.00	$ 1,247,000.00	$ 318,900.00	$ 2,277,831.05
Paid Rebates- Central AC	$ 3,400.00	$ 8,200.00	$ 4,400.00	$ -	$ 16,000.00
Paid Rebates- Washer/Dryer	$ 2,800.00	$ 7,425.00	$ 48,800.00	$ 27,000.00	$ 86,025.00
Total Expenses	**$200,527.30**	**$680,706.05**	**$1,443,299.33**	**$ 363,322.99**	**$2,687,855.67**
Bank Interest (+)	$ 1,676.42	$ 1,722.74	$ 1,222.29	$ 366.28	$ 4,987.73
Bank Fees	$ 155.00	$ 1,032.06	$ 1,085.08	$ 80.00	$ 2,352.14
			Ending Balance		$ 259,982.92

** Expenses for January 2019 are preliminary and may be subject to adjustment during reconciliation process.*

FY 2017- Rebate Amount Paid Monthly

Month	Total	Split A/C Units	Central A/C Units	Washers/ Dryers
OCT '16	$ 25,250.00	$ 23,450.00	$ 800.00	$ 1,000.00
NOV '16	$ 57,525.00	$ 55,625.00	$ 1,600.00	$ 300.00
DEC '16	$ 19,625.00	$ 18,225.00	$ 800.00	$ 600.00
JAN '17	$ 49,650.00	$ 48,050.00		$ 1,600.00
FEB '17	$ 43,175.00	$ 42,850.00	$ 325.00	
MAR '17	$ 25,550.00	$ 25,875.00	$ (325.00)	
APR '17	$ 33,875.00	$ 30,950.00	$ 800.00	$ 2,125.00
MAY '17	$ 57,675.00	$ 54,275.00	$ 2,400.00	$ 1,000.00
JUN '17	$ 76,175.00	$ 74,675.00	$ 1,300.00	$ 200.00
JUL '17	$ 30,975.00	$ 30,975.00		
AUG '17	$ 69,400.00	$ 69,200.00		$ 200.00
SEP '17	$ 84,025.00	$ 83,125.00	$ 500.00	$ 400.00
TOTALS	$ 572,900.00	$ 557,275.00	$ 8,200.00	$ 7,425.00

FY 2018- Rebate Amount Paid Monthly

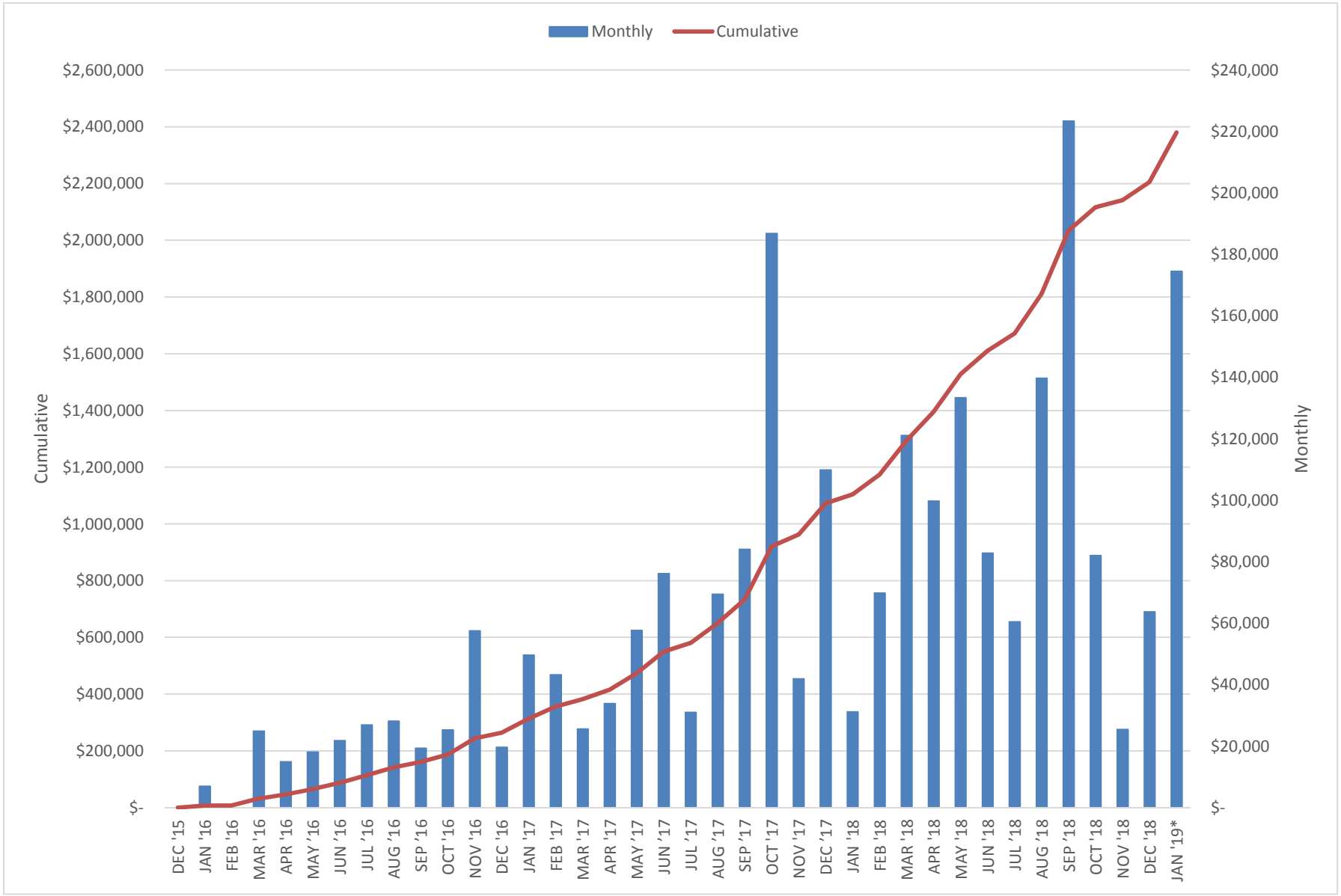
Month	Total	Split A/C Units	Central A/C Units	Washers/ Dryers
OCT '17	$ 186,850.00	$ 185,850.00	$ 800.00	$ 200.00
NOV '17	$ 41,900.00	$ 41,700.00		$ 200.00
DEC '17	$ 109,875.00	$ 108,475.00		$ 1,400.00
JAN '18	$ 31,175.00	$ 31,175.00		
FEB '18	$ 69,825.00	$ 68,825.00		$ 1,000.00
MAR '18	$ 121,100.00	$ 120,100.00		$ 1,000.00
APR '18	$ 99,700.00	$ 94,400.00	$ 500.00	$ 4,800.00
MAY '18	$ 133,350.00	$ 127,150.00		$ 6,200.00
JUN '18	$ 82,800.00	$ 77,600.00		$ 5,200.00
JUL '18	$ 60,475.00	$ 56,475.00	$ 1,000.00	$ 3,000.00
AUG '18	$ 139,750.00	$ 129,650.00	$ 1,300.00	$ 8,800.00
SEP '18	$ 223,400.00	$ 205,600.00	$ 800.00	$17,000.00
TOTALS	$1,300,200.00	$1,247,000.00	$ 4,400.00	$48,800.00

FY 2019- Rebate Amount Paid Monthly

Month	Total	Split A/C Units	Central A/C Units	Washers/ Dryers
OCT '18	$ 82,000.00	$ 75,400.00	$ -	$ 6,600.00
NOV '18	$ 25,425.00	$ 23,425.00	$ -	$ 2,000.00
DEC '18	$ 63,725.00	$ 62,325.00	$ -	$ 1,400.00
JAN '19*	$ 174,550.00	$ 157,550.00	$ -	$ 17,000.00
FEB '19				
MAR '19				
APR '19				
MAY '19				
JUN '19				
JUL '19				
AUG '19				
SEP '19				
TOTALS	$ 345,700.00	$ 318,700.00	$ -	$ 27,000.00

** Expenses for January '19 are preliminary*

FY'17- FY'19 Rebate Amount Paid



FY 2017- Number of Applications Received By Customer Service and Paid Monthly

Month	Rec'd By CS	Paid By Finance
OCT '16	92	77
NOV '16	68	160
DEC '16	141	54
JAN '17	109	138
FEB '17	92	120
MAR '17	144	84
APR '17	147	104
MAY '17	215	178
JUN '17	322	252
JUL '17	295	105
AUG '17	339	224
SEP '17	270	282

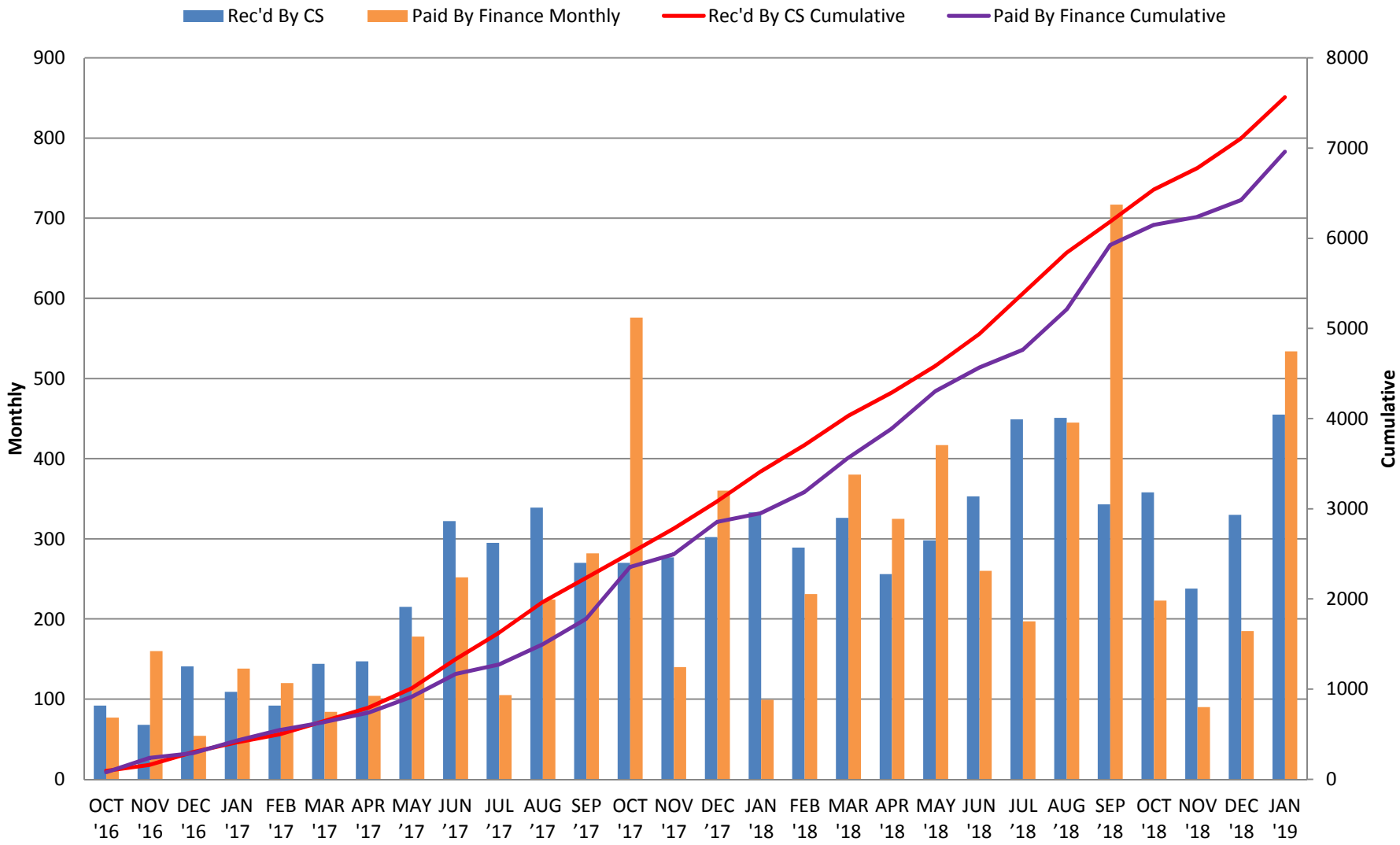
FY 2018- Number of Applications Received By Customer Service and Paid Monthly

Month	Rec'd By CS	Paid By Finance
OCT '17	270	576
NOV '17	277	140
DEC '17	302	360
JAN '18	333	99
FEB '18	289	231
MAR '18	326	380
APR '18	256	325
MAY '18	298	417
JUN '18	353	260
JUL '18	449	197
AUG '18	451	445
SEP '18	343	717

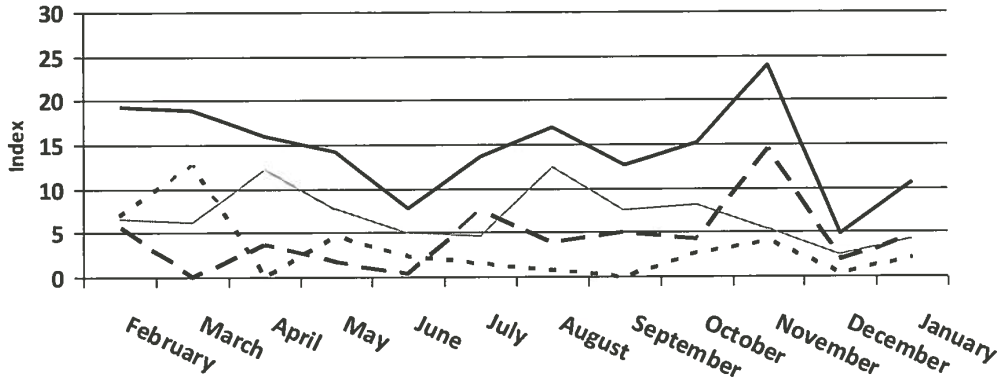
FY 2019 Number of Applications Received By Customer Service and Paid Monthly

Month	Rec'd By CS	Paid By Finance
OCT '18	358	223
NOV '18	238	90
DEC '18	330	185
JAN '19	455	534
FEB '19		
MAR '19		
APR '19		
MAY '19		
JUN '19		
JUL '19		
AUG '19		
SEP '19		

FY'17- FY'19 Number of Applications Received By Customer Service and Paid



(Item 1.1,1.2,1.5) January 2019 SAIDI = 174.33 ↑ (171.81)



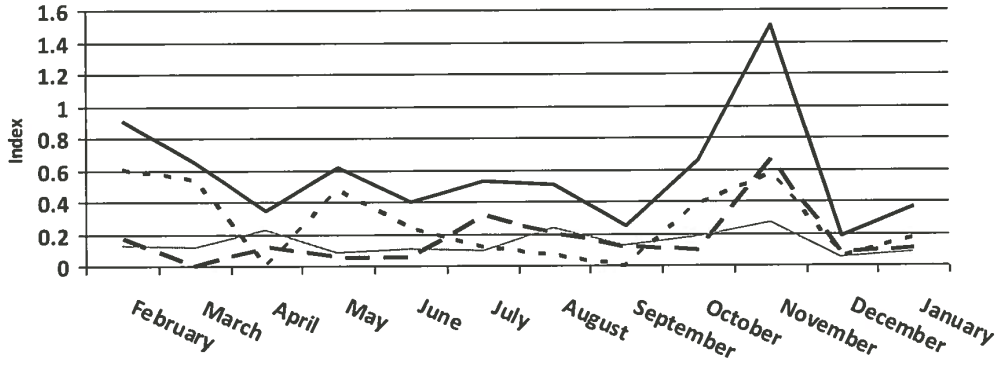
ALL

GEN=38.33 ↓
(38.54)

TRANS=53.07 ↓
(53.37)

DIST=82.93 ↑
(79.91)

(Item 1.1,1.2,1.5) January 2019 SAIFI = 6.91 ↓ (6.97)



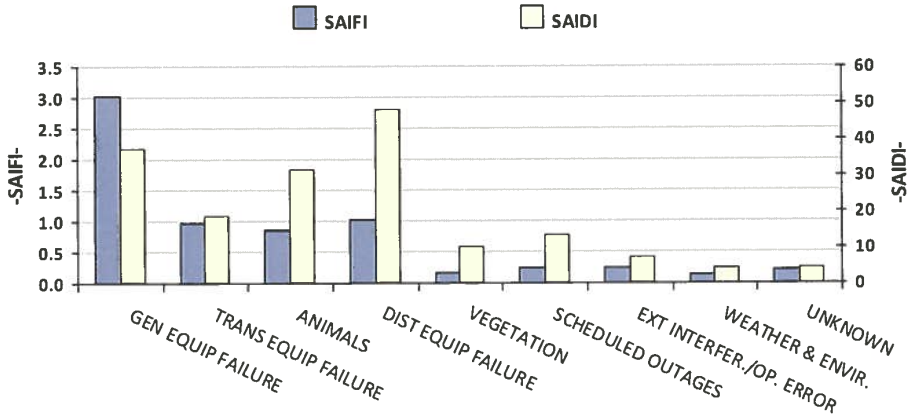
ALL

GEN=3.22 ↓
(3.37)

TRANS=1.97 ↑
(1.97)

DIST=1.72 ↑
(1.64)

(Item 1.9) 12 Month Cause Contributions to Reliability

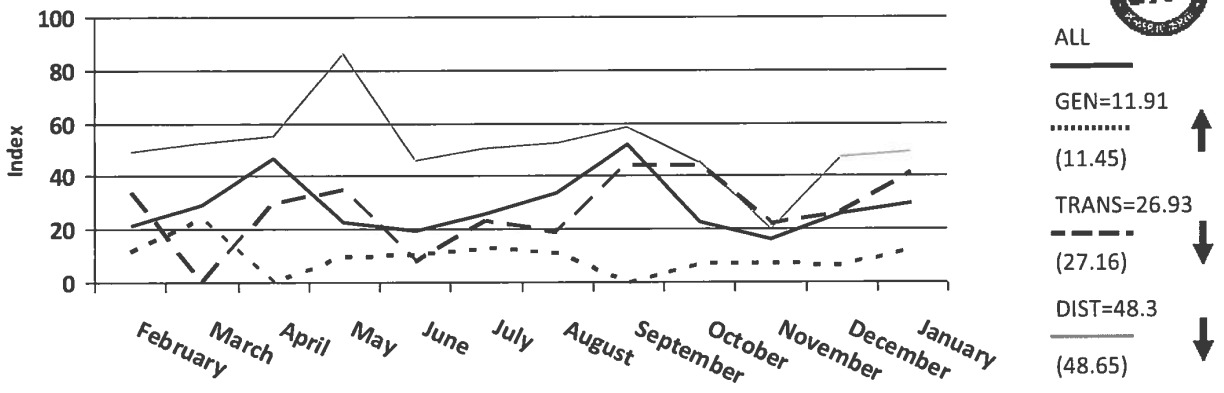


GEN EQUIP FAILURE
F:40.6% D:21.2%
TRANS EQUIP FAILURE
F:13.7% D:10.7%
ANIMALS
F:13.7% D:17.9%
DIST EQUIP FAILURE
F:14.1% D:27.6%
VEGETATION
F:2.2% D:5.8%
SCHEDULED OUTAGES
F:6.8% D:7.7%
EXT INTERFER./OP. ERROR
F:3.6% D:4.0%
WEATHER & ENVIR.
F:2.6% D:2.5%
UNKNOWN
F:2.8% D:2.6%

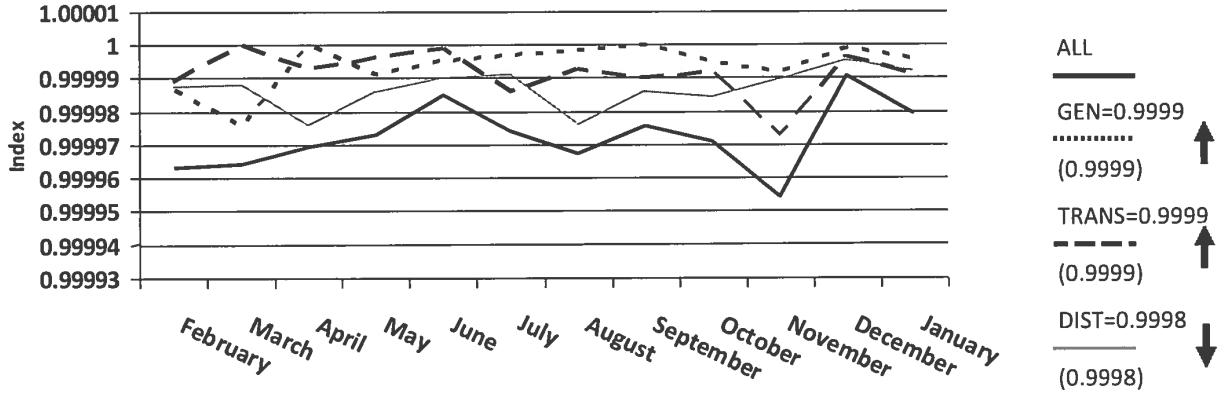
ATTACHMENT #1

As of January 31, 2019

(Item 1.1,1.2,1.5) January 2019 CAIDI = 25.24 ↑ (24.64)



(Item 1.1,1.2,1.5) January 2019 ASAI = 0.9997 UNC



(Item 1.4) Top 5 Worst Feeders Distribution Causes

#	Feeder	Outage Count
1	P262	11
2	P340	10
3	P330	9
4	P046	9
5	P244	9

(Item 1.4) Top 5 Distribution Outage Causes

#	Outage Cause	Count
1	Wind	96
2	Overhead Equipment	55
3	Substation Equipment	19
4	Underground Equipment	10
5	Vegetation	9

(Item 1.3) Outage Count

TOTAL	UFLS	Non-UFLS
683	271	412

(Item 1.3) UFLS Contribution to Reliability

SAIDI	SAIFI	CAIDI
44.77	3.88	11.54

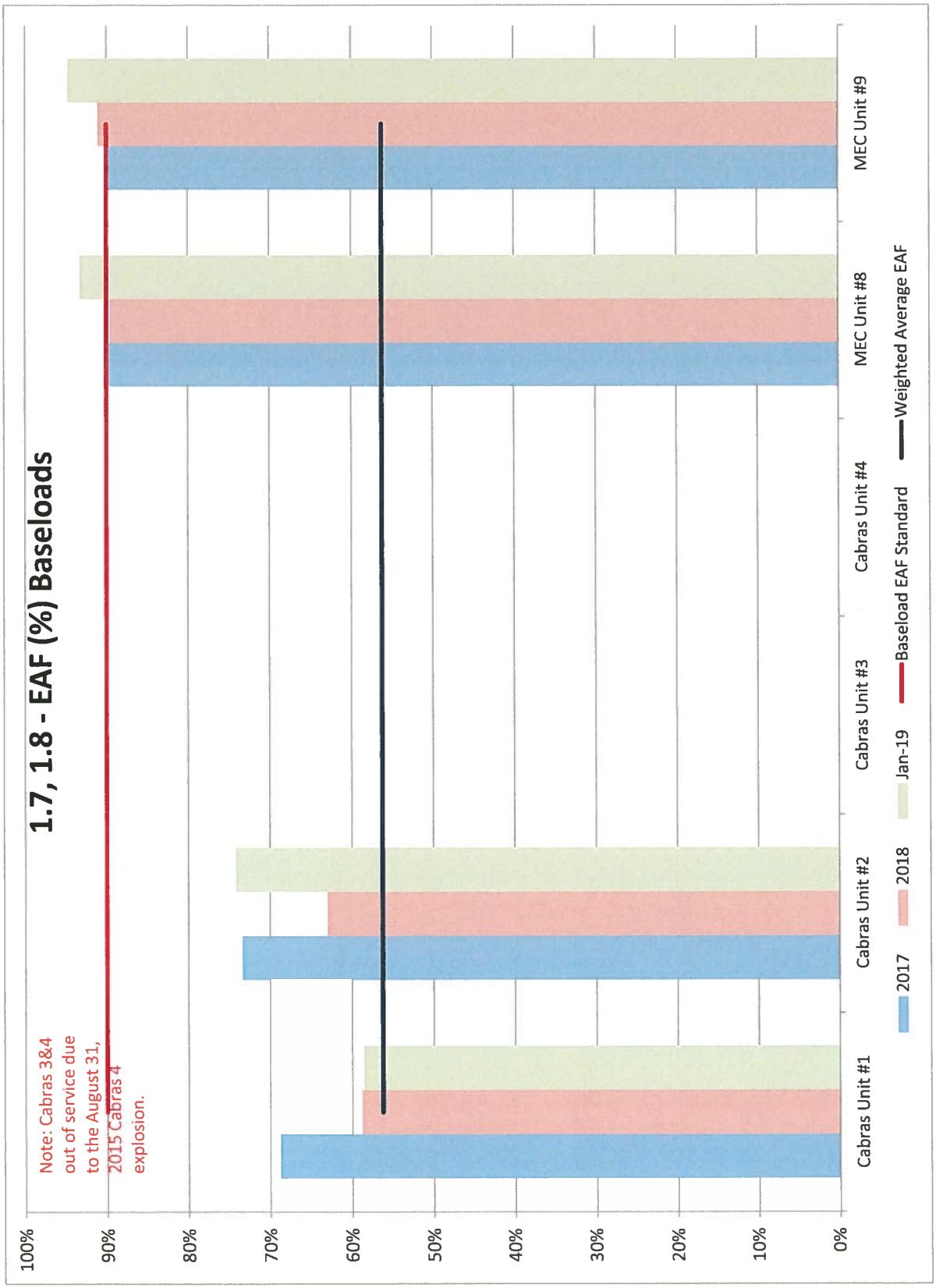
ATTACHMENT #2

As of January 31, 2019

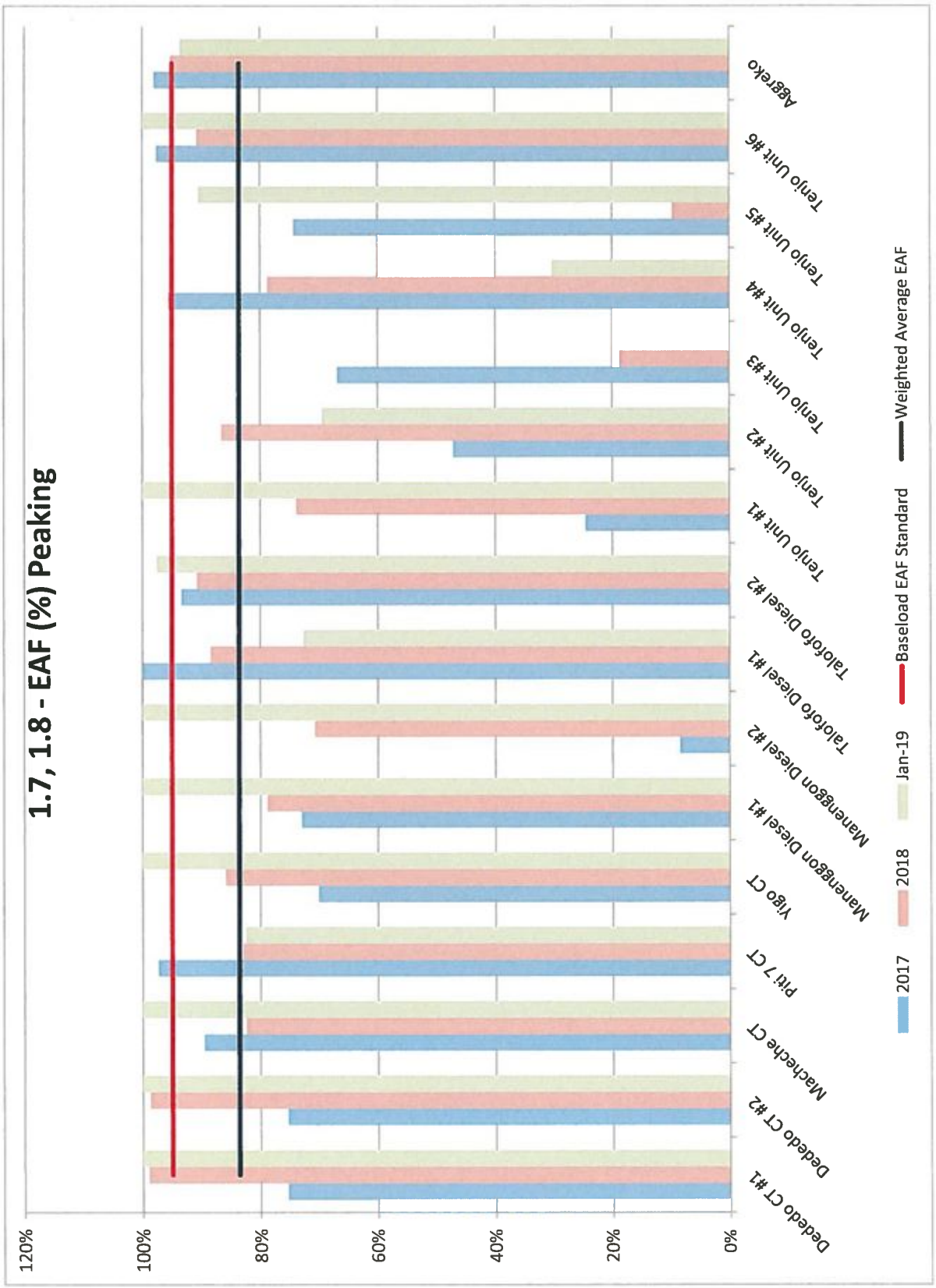
Item 1.6: Generation Report
Trip Dates from Tuesday, 1/1/2019 0:00 to Thursday, 1/31/2019 23:59

Facility	Trip		Close		Outage Duration (hr)	Situation	Root Cause
	Date	Time	Date	Time			
MEC 9	1/31/2019	0:00	1/31/2019	19:01	19.02	Forced	Equipment
Tenjo 5	1/30/2019	17:25	1/31/2019	13:05	19.67	Forced	Equipment
Talofofo 2	1/29/2019	15:45	1/30/2019	9:11	17.43	Forced	Equipment
MEC 9	1/29/2019	14:59	1/29/2019	17:02	2.05	Forced	Equipment
MEC 8	1/29/2019	7:27	1/29/2019	9:29	2.03	Scheduled	Normal Operation
MEC 9	1/29/2019	1:41	1/29/2019	5:41	4.00	Forced	Equipment
MEC 8	1/28/2019	17:56	1/28/2019	19:25	1.48	Forced	Equipment
MEC 8	1/28/2019	3:26	1/28/2019	12:15	8.82	Scheduled	Normal Operation
MEC 8	1/26/2019	18:08	1/26/2019	19:30	1.37	Scheduled	Testing
Dededo CT 1	1/26/2019	16:41	1/26/2019	17:42	1.02	Forced	Equipment
Dededo CT 2	1/26/2019	16:41	1/26/2019	20:39	3.97	Forced	Equipment
Cabras 1	1/26/2019	7:58	1/31/2019	7:51	119.88	Forced	Equipment
Talofofo 1	1/24/2019	22:57	1/25/2019	12:00	13.05	Unexpected	Unknown
Yigo CT	1/24/2019	0:23	1/24/2019	10:08	9.75	Forced	Equipment
Tenjo 5	1/23/2019	13:17	1/25/2019	15:32	50.25	Scheduled	Repair
MEC 9	1/19/2019	2:36	1/19/2019	5:12	2.60	Forced	Equipment
Tenjo 5	1/16/2019	18:20	1/17/2019	13:01	18.68	Forced	Equipment
Tenjo 4	1/16/2019	14:40	1/29/2019	11:42	309.03	Forced	Equipment
MEC 9	1/16/2019	11:20	1/17/2019	2:47	15.45	Unexpected	Equipment
MEC 9	1/13/2019	11:34	1/13/2019	13:39	2.08	Forced	Equipment
Tenjo 2	1/9/2019	17:36	1/17/2019	13:20	187.73	Forced	Equipment
MEC 9	1/7/2019	6:47	1/7/2019	14:24	7.62	Scheduled	Repair
MEC 9	1/4/2019	18:54	1/4/2019	20:34	1.67	Forced	Equipment
Tenjo 2	1/2/2019	13:25	1/2/2019	15:08	1.72	Forced	Equipment

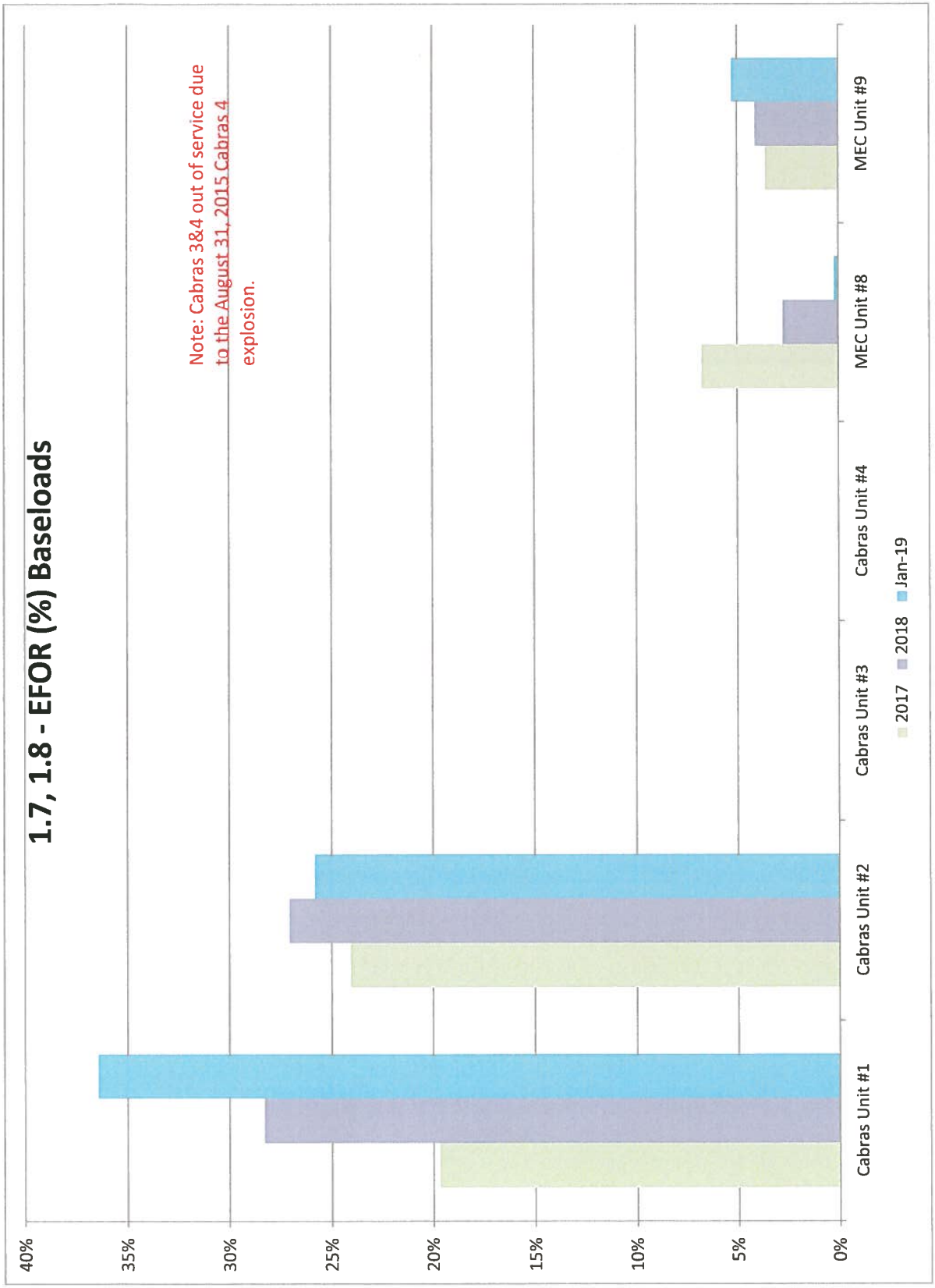
ATTACHMENT #3



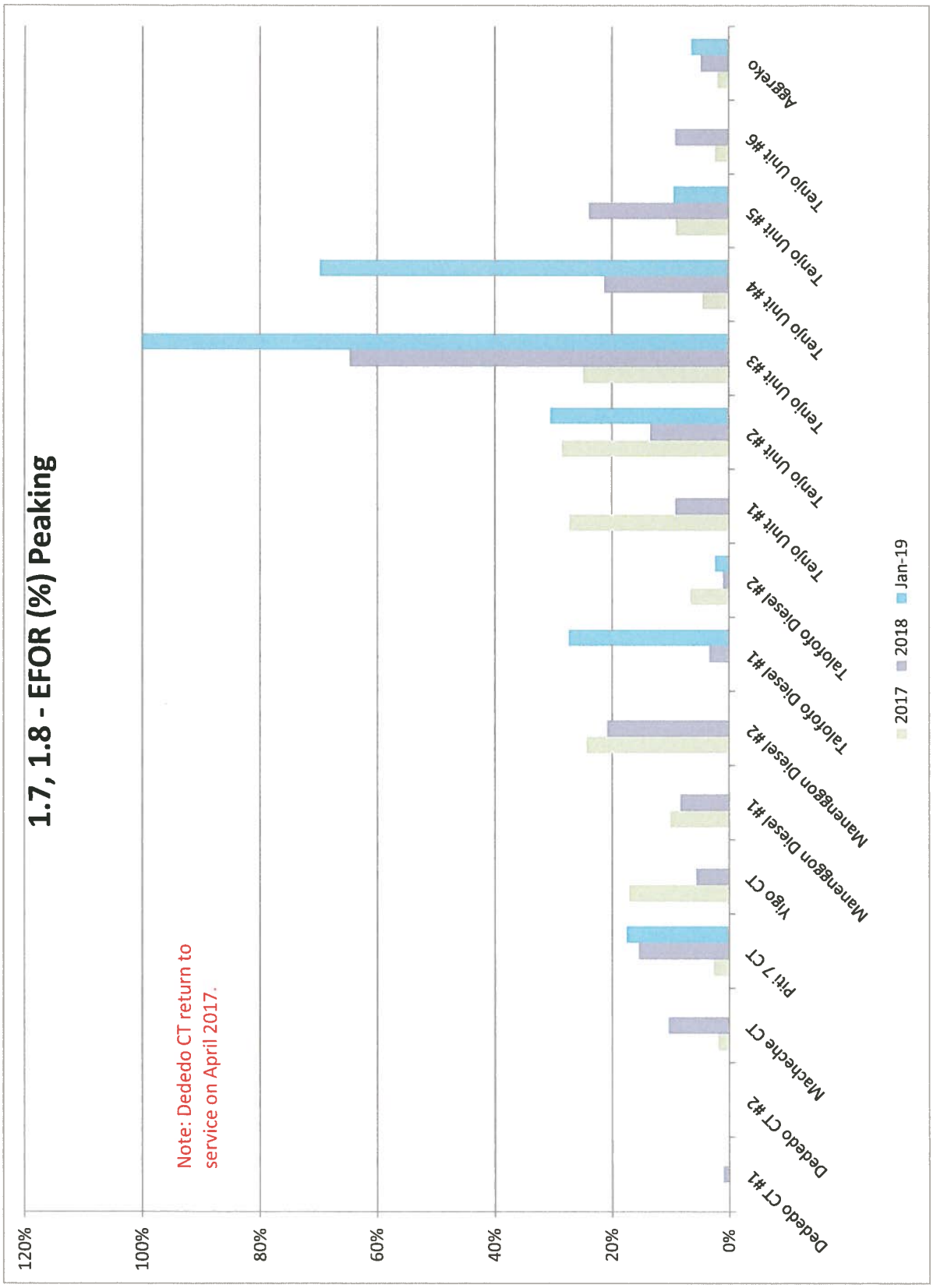
ATTACHMENT #4



ATTACHMENT #5



ATTACHMENT #6



ATTACHMENT #7

EN

	Project Name	Scheduled Completion
1	HANWHA - Substation and Transmission Lines	Aug-21
2	KEPCO - Substation and Transmission Lines	Aug-21
1	Distribution System Improvements	Sep-19
2	Tumon Bay Lateral Underground Conversion	Jun-20
3	Line Reclosing and Load Profiling	Sep-19
4	Distribution System Improvements II	Sep-20
5	Fire Protection Upgrades at Power Plants (Manenggon)	Dec-20
6	Facilities Physical Security	Sep-20
8	Remote Start Capability of Generation Peaking Units (Tenjo)	Sep-19
9	Generator Protection Upgrade with Fault Recorders	Sep-20
10	Piti 115 kV GIS Major Maintenance	May-19
11	Substation Major Refurbishment - Power Transformer	Sep-19
12	Agat Shoreline Pole Restoration	Mar-20
13	System Protection Improvement & Capacitor Bank Controllers	Dec-20
15	Network Communications - Fiber to Fadian Complex	Oct-19
16	GPA/PAG Access Road Repair	Oct-19
17	T&D Building	Jun-21
18	Transportation Building	Dec-20
19	Disaster Recovery Office	Sep-21
20	Typhoon Mangkhut Permanent Repairs (WSD, Substations, Gen.)	Jun-20
21	GBN Additional UPS	Dec-19
22	Tank Farm Fuel Pipeline Upgrade	Sep-19
23	Fuel Tank Farm OOS Inspection/Refurbishment	Jun-21
24	New ULSD Fipeline System	Jun-20
25	Cabras 3 Salvage Bid	Apr-20
26	Upper Tumon Customer Service Renovation	Sep-20

GINEERING PR(

% Complete
2%
2%
87%
10%
97%
45%
83%
10%
10%
35%
59%
60%
10%
10%
34%
10%
8%
7%
5%
10%
10%
15%
10%
10%
7%
5%

ɔJECTS

Status/Milestones
Design work coordination in progress.
Design work coordination in progress.
Capacitor bank installations, fault circuit indicators on 16 feeders, reconductoring, load transfer, etc.
Pending Award of Construction PO
Installation of substation feeder metering/line reclosing relays
Load redistribution, capacitor bank installations P340 and P261, sectionalizing switches P220/P260
Completed (Macheche CT, Yigo CT, Dededo Diesel, Tenjo, Talofofo / Pending - Manenggon
Finalizing design specifications
On Bid
Upgrade of existing generator relays to SEL700G
On-going work
Completed Barrigada Substation
Design completed, obtaining signatures.
Verifying substation as-built drawings for relaying protection
Awarded construction.
On Bid
Finalizing design specifications
Finalizing design specifications
Specifications development in progress (target date June 2019)
On Bid
On Bid
On going construction
On Bid
On Bid
Bid package development in progress (target date April 2019)
On-going design in progress 25% (EA Cristobal & Associates)

GUAM POWER AUTHORITY ENVIRONMENTAL STRATEGIC PLAN DECEMBER 2018

Overview of Updates, Changes and Progress

February 2019

Environmental Strategic Plan Dec 2012

- Established to consolidate recommendations and decisions affected by current and upcoming environmental regulations
- Began as a living document regarding the re-designation of the Cabras-Piti area, and an update of GPA's environmental policy
  - *Alongside Ambient Air Quality Monitoring Plan (separate document)*
- Expanded to include impact of other regulations (EGU MACT, RICE MACT, NAAQS, etc.)
- ***IRP recommendations considered the progress of re-designation of Cabras-Piti area and compliance with current/upcoming regulations***

Environmental Strategic Plan Dec 2012

KEY RECOMMENDATIONS

- Section 4.1.1.4 Proposed Actions for National Ambient Air Quality Standards:
  - Establish Ambient Air Quality Monitoring System
  - Track activities related to designation of Guam, and work on State Implementation Plan with Guam EPA
- Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA
- Initiative #5 – Continue work on decreasing hazardous emissions, such as expansion of Demand-Side Management Program

Progress

KEY RECOMMENDATIONS

- **Section 4.1.1.4 Proposed Actions for National Ambient Air Quality Standards:**
  - **Establish Ambient Air Quality Monitoring System**
  - **Track activities related to designation of Guam, and work on State Implementation Plan with Guam EPA**
- Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA
- Initiative #5 – Continue work on decreasing hazardous emissions, such as expansion of Demand-Side Management Program

Progress

KEY RECOMMENDATIONS

- **Section 4.1.1.4 Proposed Actions for National Ambient Air Quality Standards:**
  - **Establish Ambient Air Quality Monitoring System**
  - **Track activities related to designation of Guam, and work on State Implementation Plan with Guam EPA**

✓ *Ambient Air Quality Monitoring Plan completed and filed with USEPA & Guam EPA, awaiting decision*

✓ *Re-designation received December 2017*

✓ *GPA assisting Guam EPA in State Implementation Plan, due 7/2019*

Progress

KEY RECOMMENDATIONS

- Section 4.1.1.4 Proposed Actions for National Ambient Air Quality Standards:
  - Establish Ambient Air Quality Monitoring System
  - Track activities related to designation of Guam, and work on State Implementation Plan with Guam EPA
- **Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA**
- Initiative #5 – Continue work on decreasing hazardous emissions, such as expansion of Demand-Side Management Program

Progress

KEY RECOMMENDATIONS

- **Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA**
  - ✓ *RICE MACT*
    - ➢ *Installed Oxidation Catalysts at Tenjo, MDI and Talofofo (5.2014)*
    - ➢ *Considering conversion of Piti 8&9 to ULSD*
  - ✓ *EGU MACT*
    - ➢ *Deactivated Tanguisson Power Plant (2.2015)*
    - ➢ *Considering retirement of Cabras 1&2*
  - ✓ *Proactive coordination with USEPA, Guam EPA with support of environmental consultant, for updates to current and upcoming regulations*

Progress

KEY RECOMMENDATIONS

- **Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA**
  - ✓ *Active discussions with USEPA and Guam EPA regarding Consent Decree*

Progress

KEY RECOMMENDATIONS

- **Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA**
  - ✓ *On-going solicitation for new power plant (ULSD or LNG fired)*
    - ➢ *Resulting from 2012 IRP recommendations, with potential retirement of Cabras 1&2 Power Plant, potential conversion of Piti 8&9 to ULSD, and with the loss of Cabras 3&4*

Progress

KEY RECOMMENDATIONS

- Section 4.1.1.4 Proposed Actions for National Ambient Air Quality Standards:
  - Establish Ambient Air Quality Monitoring System
  - Track activities related to designation of Guam, and work on State Implementation Plan with Guam EPA
- Initiative #4 – Consider options for compliance such as installation of control devices, conversion to cleaner fuel and discussion of Consent Decree with EPA
- **Initiative #5 – Continue work on decreasing hazardous emissions, such as expansion of Demand-Side Management Program**

Progress

KEY RECOMMENDATIONS

- **Initiative #5 – Continue work on decreasing hazardous emissions, such as expansion of Demand-Side Management Program**

  - ✓ *DSM program expanded to Residential Customers (2015)*
  - ✓ *Renewable Resource Contracts, 26.5 MW (2015), 120 MW (in progress)*
  - ✓ *Pilot program for use of Electric Vehicles*

Environmental Strategic Plan Dec 2018

- Includes updates, progress and changes made between 2012 and 2018:
  - Modeling and other studies done for the new power plant, 2016 through 2018
  - Changes in Compliance Chart, 2012 through present (active document)
  - Progress with Initiatives, Recommendations and Proposed Actions
    - RICE MACT
    - EGU MACT
    - Other GPA Power Plants
    - Other GPA Plans

Environmental Strategic Plan Dec 2018

PROPOSED ACTIONS / FUTURE COMPLIANCE CONSIDERATIONS

RE: NAAQS

- Present plan to reduce emission in non-attainment area & demonstrate that NAAQS will be *attained and maintained*
- If considering NO2 and PM2.5, Tenjo Power Plant stack height might need to be increased, or operating parameters changed
- For Piti 8&9, convert to ULSD, install Oxidation Catalyst & Selective Catalytic Reduction to address CO and NO2 emissions respectively
- For Aggreko units, install Ox-Cat or split 39 units between Yigo site and alternate site

** No changes to ESP 2012 recommendations for EGU MACT Compliance & RICE MACT Compliance*

Environmental Strategic Plan Dec 2018

PROPOSED ACTIONS / FUTURE COMPLIANCE CONSIDERATIONS

RE: NAAQS / **STATE IMPLEMENTATION PLAN**

- Present plan to reduce emission in non-attainment area & demonstrate that NAAQS will be *attained and maintained*
  - Close Cabras 1&2; Piti 8&9 fuel's sulfur content should be at least 1.7% by weight or lower; update Piti 7 permit to indicate use of ULSD
  - Reduce sulfur content of all fuels sufficiently to meet NAAQS
  - Other current power plants need not be included in SIP, but GPA should make sure any changes made to these plants allow compliance with updated, applicable NAAQS

Environmental Strategic Plan Dec 2018

PROPOSED ACTIONS / FUTURE COMPLIANCE CONSIDERATIONS

RE: INFRASTRUCTURE AND ASSET MANAGEMENT

- Fuel Facility & Pipelines – GPA plans to initiate a program for continuous improvement of oil pipeline system
  - Fuel Facility – proper maintenance, constant vigilance for leaks and spills, and up-to-date & accurate SPCC plan and FRP
  - More aggressive approach to the maintenance and operation of fuel pipelines
- Automotive Fleet – use of electric vehicles for emission reduction
- Retirement and Deactivation of power plants – Tanguisson, Dededo Diesels, Marbo, Cabras 3&4
  - Deactivation Plan currently being drafted by AGMETS and P&R

Environmental Strategic Plan Dec 2018

KEY INITIATIVES AND RECOMMENDATIONS

- Expanded, aggressive compliance program
- Inclusion of Fuel Supply System in GPA Continuing Obligations
- Compliance Review for Temporary Power Generation
- Asset Retirement or De-activation
- Continue work on decreasing hazardous air emissions – DSM programs, electric vehicles, renewable energy contracts, execution of compliance options for current/older power plants
- Investigation of Utility-scale and Island-wide use of Electric Vehicles
- Investigation on proper disposal of Solar PV Panels and Lithium Ion Batteries
- Continue tracking, monitoring of compliance requirements, CPP, ACE Plan

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Environmental Strategic Plan (ESP)

~~AUGUST~~ DECEMBER 2018

DRAFT Environmental Strategic Plan (ESP)

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GENERAL MANAGER

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John J. Cruz, Jr. PE
Assistant General Manager for Engineering & Technical Services

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TABLE OF CONTENTS

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1. BACKGROUND

In December 2012, the Guam Power Authority (GPA) adopted an Environmental Strategic Plan (ESP) ~~to guide its actions through the next five years as it strives to continue to maintain an environmentally sound effort to provide safe, affordable electrical power to the people of Guam~~as a guide for achieving environmental compliance over the next five years especially in light of proposed U.S. EPA regulations.~~.~~

The document set out a road map for the next five years to provide context for individual compliance decisions. Among the initiatives recommended were:

1. Inclusion of Environmental Compliance in GPA's Integrated Resource Plan
2. Communicating key environmental compliance requirements with internal and external stakeholders
3. Establishment of a process for ensuring each major activity undergoes review for compliance with environmental requirements stated in the ESP
4. As recommended by TRC, the filing or request of a consent decree to exempt GPA from various regulations; and a recommendation from Guam EPA for 325 Waiver for various sections of the Clean Air Act
5. Continued actions decreasing hazardous air emissions from the utility and the Guam community:
    a. Transition to ULSD
    b. Acquisition of a Renewable Energy Supply Contracts
    c. Establishment of a demand-side management program

GPA acted on these recommendations as follows:

Recommendation #1 – The Integrated Resource Plan included a section specifically for Environmental Compliance. Resource options investigated during the study included associated expenses and activities necessary to ensure compliance with applicable regulatory requirements.

Recommendation #2 – GPA presented the 2012 Environmental Strategic Plan, to:

- Internal stakeholders such as the Generation Division;
- External stakeholders, such as the Independent Power Producers; and,
- Key customers such as the Department of Navy (Naval Base Guam Command)

GPA, also, put into place a process for constant collaboration with key partners such as the IPPs to better coordinate and consolidate efforts for complying with US EPA and Guam EPA requirements, such as the RICE MACT and Boiler MACT.

~~Recommendation #2 – After the completion of the 2012 Environmental Strategic Plan, GPA presented the upcoming requirements to internal stakeholders such as the Generation Division, and external stakeholders, such as the Independent Power Producers and key customers such as the Department of Navy on Guam. Constant collaboration with certain partners such as the IPPs were also put in place to~~

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~~coordinate and consolidate efforts in complying with requirements, such as the RICE MACT and Boiler MACT.~~

Recommendation #3 – M~~m~~ost major activities concerning Generation already undergo compliance review. GPA's Planning and Regulatory Division have stepped up its communication and coordination with both US EPA and Guam EPA to ensure professional trust based on absolute transparency and candor.~~are actively ensuring that all requirements are fulfilled, and that USEPA and Guam EPA are aware of any activity that may require environmental compliance.~~ Recent activities include GPA's active communication and coordination with USEPA and Guam EPA during the repair and recommissioning of Dededo CT Plant, and in the solicitation for a contract for Temporary Power.

Recommendation #4 – GPA's Legal Counsel and Environmental Manager regularly communicate with USEPA and Guam EPA regarding environmental compliance matters including but not limited to a Consent Decree and waiver or considerations~~ for certain requirements~~. Examples of these are the one-year extension granted to GPA for the installation of control equipment to ensure the fast-track diesel units comply with RICE MACT. The parties have also been discussing a potential Consent Decree~~ but as of the 2nd Quarter of 2018, there has been no official communication or public documentation regarding Consent Decree nor what would be required of GPA~~.

Recommendation #5 -GPA has transitioned to ULSD for all its ULSD-fired units. A 20-year contract for 25 MW of renewable energy is in place, ~~and GPA has just commenced another contract for a total of 80 MW of renewable energy. Demand-side Management Program is also actively in place~~as well as a Demand-side Management Program. GPA has also awarded 120 MW of Renewable Energy Supply Contracts.

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2. PURPOSE OF THE PLAN

2.1 PURPOSE

~~It is~~ GPA's intention is to meet the regulations under each of the Environmental Acts of the United States. GPA intends to do this in a way that maximizes the environmental benefits, preserving or enhancing Guam's environment. ~~of its actions to the people of Guam and preserves or enhances the environment of Guam.~~

This ESP first reviews the known objectives and requirements of the environmental agencies and then presents the GPA plan for meeting those objectives and requirements. The ESP is a living document changing and adapting~~document will continually develop~~ as new environmental requirements and regulations are introduced, or as current environmental requirements and regulations are updated.

2.2 HISTORY

The ESP was first published in 2012 and considered the compliance issues faced by GPA at that time. Regulations had just been promulgated by the United States Environmental protection Agency (USEPA) requiring control of emissions from most generation units. Cabras 1&2 and Tanguisson 1&2 were required to reduce emissions of particulate matter including hazardous metals. Cabras 3&4 as well as MEC 8&9 were required to reduce carbon monoxide (CO) emissions to control organic compound emissions. The smaller diesel engines at Dededo, Tenjo, Manenggon, and Talofofo all needed similar CO controls. The combustion turbines (TEMES, Macheche, Marbo, Yigo and Dededo) were not under regulation for emission reductions. The Dededo and Marbo combustion turbines were, however, in various states of disrepair and the requirements to restart them were in doubt.

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In 2012 the most serious issue facing GPA was control of Sulfur Dioxide (SO_2) emissions from the burning of residual oil at the major generation units. USEPA had promulgated significant more stringent National Ambient Air Quality Standards (NAAQS) for both Sulfur Dioxide and Nitrogen Dioxide (NO_2) in 2010 and the Cabras/Piti and Tanguisson areas could not meet those new limits. Various mechanisms to meet those NAAQS were discussed in detail in the 2012 ESP. Additionally, USEPA was preparing to limit emission of Carbon Dioxide (CO_2) from power plants to meet Climate Change goals and GPA needed to prepare for those initiatives. USEPA was also preparing new rules for discharge of cooling waters to the ocean which could require extensive revisions to the Cabras and Tanguisson outfalls.

The background for this revised ESP is decidedly different. GPA undertook and accomplished the retrofitting of the Tenjo, Manenggon, and Talofofo diesel engines with catalyst control devices which meet the regulatory requirements. The closure of the Tanguisson power plant and the removal of the Dededo diesels has eliminated the need for air pollution controls on those units and refurbishing of the Tanguisson outfall. The loss of Cabras units 3&4 has lowered the cost associated with adding pollution controls to those units. The USEPA has not moved forward with controls on power plants for CO_2 and thus that potential set of requirements is not in this current plan.

The other issues remain and this revised ESP will outline the requirements that are still to be met and the options for attaining compliance, in addition to a discussion of the tasks already completed. The ESP shall also provide guidance on upcoming regulations and challenges that may impact GPA, such as new technologies or alternate solutions to on-going issues.

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4.3. US EPA STRATEGIC PLAN

The US EPA published its Strategic Plan in April of 2018 ("FY 2018-2022 EPA Strategic Plan", February 12, 2018). The plan outlines a wide range of objectives, some of which apply to Guam and others which do not. The following is a summary of the objectives and potential issues for Guam and GPA.

4.13.1 PROVIDE REAL RESULTS ON CLEAN AIR, LAND WATER

US EPA's plan is to work to attain the standards for clean air, land and water that are already in place.

4.1.13.1.1 Improving Air Quality

The strategy is to prioritize the effort to reduce the number of areas around the country that are non-attainment. US EPA has already taken several actions to strengthen the compliance planning for the National Ambient Air Quality Standards (NAAQS) and contemplates further actions. These have significant effects for air quality on Guam and for GPA. By pollutant, these are the changes:

1. **Sulfur Dioxide (SO_2)**: EPA added a new 1-hour average NAAQS which, for the Cabras/Piti power plants, is 4 times more restrictive than the old NAAQS, i.e. requiring at least four times greater reduction in emissions to meet the NAAQS. This adds to the current problem that the Cabras/Piti area is non-attainment for the old NAAQS. Additionally, EPA required that non-attainment with the NAAQS would be determined by modeling alone. This NAAQS is a significant challenge for GPA and will be discussed in more detail later. On January 9, 2018 the US EPA declared that a circle 6.074 kilometers in diameter

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centered on the Cabras power plant is "nonattainment" for SO2. The remainder of the island was designated as "unclassified/attainment". "Unclassified/attainment" means that "available information does not indicate that the NAAQS is exceeded." The Guam EPA is required by the rule to submit to US EPA a compliance plan by October 9, 2019 after EPA declared a new non-attainment area for the new NAAQS. Compliance with the NAAQS is required by April 9, 2023.

2. **Nitrogen Dioxide (NO_2)**: EPA has added a new 1-hour average NAAQS which is more than seven times more restrictive than the old NAAQS. NO_2 concentrations have never previously been addressed on Guam. It is expected that the Cabras-Piti plants and Tenjo will have trouble complying with this new NAAQS. On February 17, 2012 EPA designated Guam as "unclassified/attainment" as it did for the entire country. EPA's definition of "unclassifiable/attainment" is that "available information does not indicate that the NAAQS is exceeded." In general this means that the area is in attainment until some measured or modeled data is used to change the classification. EPA required major cities to monitor NO_2 air quality near major roadways. To date, no such monitoring has revealed a violation of the NAAQS. It is not clear what further steps the agency expects to take to require compliance with this NAAQS. Should a compliance requirement arise, Cabras/Piti and Tenjo may need to address this NAAQS.

3. **Particulate Matter**: EPA has promulgated a new NAAQS for particulate matter less than 2.5 microns in size. There are both stringent annual average and 24 hour average NAAQS. There have never been $PM_{2.5}$ measurements taken on Guam. There were some PM_{10} measurements taken in 1996 and again in 1999-2000 at Apra Heights which were relatively low but were unlikely to have measured the impact of the power plants. Because of fugitive dust sources and the presence of significant sea salt in the air, the situation may be important. EPA promulgated a further reduction to the annual average NAAQS to 12 $\mu g/m^3$.

   US EPA has a goal of studying and promulgating regulations directed at the emissions of black carbon (California has already done so). Since the emissions of residual oil firing contain black carbon, GPA's plants may be subject to such a rule. Rulemaking schedule has not yet been set. Control of particulate emissions would be expected.

   Should EPA take further actions on the $PM_{2.5}$ NAAQS, residual fuel oil firing would need to be reviewed for compliance. Ultra-Low Sulfur Diesel (ULSD) fuel would not interfere with compliance with the NAAQS.

4. There are also NAAQS for ***Carbon Monoxide, Ozone and Lead***. Keeping in mind that RICE MACT required reduction in carbon monoxide for reciprocal internal combustion engines, the CO NAAQS is not expected to be attainment issue on Guam. The constant winds of Guam do not allow for the formation of ozone. The relatively small content of lead in residual fuel oil and ULSD mean that exceeding the lead NAAQS is unlikely.

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5. The US EPA strategy de-emphasizes control of ***Greenhouse Gas (GHG) emissions***. Current regulations require GPA to provide an annual report on its GHG emissions from its two largest stations; these are public and can be found on the EPA website (https://ghgdata.epa.gov/ghgp). GPA is complying with the reporting provisions having submitted its first report in March of 2011 and each successive March.

   The EPA data base shows that in 2016 1,053,548 Metric Tonnes (MT) of Carbon Dioxide Equivalent (CO2e) were reported for power plants on Guam. These include Cabras, Piti, Macheche, Dededo, and Yigo. The other power plants are not required to report because their emissions are below the reporting threshold, 25,000 tonnes CO2e.

   The Tanguisson emissions have ended. The Marinas Energy Company also reports independently but will be reported by GPA starting ~~t~~in 2019. GPA is complying with the reporting requirements and needs to ~~insure~~ ensure that each year these are complete and calculated correctly. Fines are possible for misreporting. No emission limits flow from this reporting rule.

   The EPA proposed the Affordable Clean Energy (ACE) plan in August of 2018. This plan would reduce GHG emissions by requiring energy efficiency improvements at subject power plans. The proposal would include Cabras 1 & 2. Example energy improvement projects are listed in the proposal. The proposal also proposes to eliminate the need for a New Source Review or Prevention of Significant Deterioration permit for such projects.

6. Construction of new power plants and modifications to the existing major power plants would trigger New Source Review (significant increases in emissions) or new fossil fuel major power plants may require Best Available Control Technology (BACT) determinations for GHG emissions. In general, BACT has been confined to use of the most energy efficient practices which harmonize energy goals and GHG goals. So far, the requirements do not specify a change in fuel, i.e. if the proposed project is for oil firing, the BACT process does not require consideration of natural gas, but that may change. Every effort to increase fuel efficiency (reducing CO_2 emissions) should be taken in these projects so that permitting can go smoothly. GPA current plans are to construct only minor sources and not be subject to these rules. The modifications planned for MEC 8 & 9, however, may trigger these rules.

7. US EPA has promulgated a New Source Performance Standard (NSPS) for electric generation sources specifically for GHG emissions reductions which would apply to new power plant construction. The final rule was promulgated in October of 2015. The limit is 1000 lbs of CO_2 per Megawatt hour for combustion turbines greater than 250 Million BTU per Hour and 1,100 lbs/ MWhr for smaller combustion turbines. The rule, however, exempts combustion turbines which do not have natural gas available. Thus no Guam power plants would be subject to the rule unless natural gas is imported. This rule is currently under court review and GPA should follow this litigation closely.

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8. US EPA has also promulgated a separate NSPS for modified or reconstructed fossil fuel steam electric plants. Units subject to this rule would include the steam units at Cabras. If these units were to be modified or reconstructed the proposal would require heat rate efficiency improvements of at least 2% and an emissions limit of no less than 2100 lbs CO_2 per MWh. Modifications of the steam electric units at Cabras #1 and #2.. This rule is currently in litigation and GPA should follow this litigation closely.

9. US EPA promulgated (March 5, 2004) and then stayed (August 18, 2004) the National Emissions Standards for Hazardous Air Pollutant Emissions (NESHAP or MACT Standards) for combustion turbines. That rule would have controlled Hazardous Air pollutant (HAP) emissions from a facility that would emit more than 25 tons per year of HAPs. Currently, none of GPA's existing CTs exceed 25 tons per year of HAPs and would not be subject to the rule. For facilities that are subject to the rule it would have required that formaldehyde emissions be limited to 91 parts per billion. That generally would have required an oxidation catalyst be installed. US EPA is currently working on this rule and may lift the stay in the near future. In order to be a minor source of HAPs, the new power station would install oxidation catalysts.

10. US EPA proposed an Existing Source Performance Standard (ESPS) for carbon dioxide emissions on June 18, 2014. This is generally called the Clean Power Plan (CPP). The proposed rule was supplemented on November 4, 2014 with specific targets for Guam. This proposed regulation would have required the Guam EPA to develop a plan to reduce carbon dioxide emissions from Cabras #1 and #2 on a schedule stretching until 2030. Those targets were to reduce emissions from the four steam electric units from 1948 pounds of CO_2/MW Hour (2012 baseline) to 1733 pounds of CO_2/MW Hour during the period from 2020 to 2029 and reach a final goal of 1586 pounds of CO_2/MW Hour in 2030. The plan that Guam EPA devises could include increase in energy efficiencies or changes to lower emitting fuels at the steam units. Alternatively the plan could be to reduce the use of these steam plants by replacement of their power with solar power, wind power or demand side management. EPA noted in its proposal that renewable energy goals had been set by the Guam legislature. Final promulgation was in June 2015. The final rule did not require any reductions on Guam. The Supreme Court has stayed the implementation of this rule and it seems likely that the current administration will not go forward with the rule. The CPP has been replaced by a new proposal, ACE (see above).

11. US EPA's goals include assisting communities in making adaptations to potential global warming effects. The potential effects on Guam would primarily be increased sea surface temperature. This would lead to increased atmospheric temperature on Guam and air conditioning load. Whether increase in sea surface temperature would lead to more frequent typhoons is a matter of scientific debate, but it is possible. The other potential global warming effect on Guam is an increased sea surface height. There are significant consequences for the Cabras/Piti power plants themselves if there are significant sea level rises, but there are also consequences for the entire island. There is presently no timeline on this EPA effort.

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~~4.1.2~~3.1.2 Water Quality Goals

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The goal for EPA is timely completion of NPDES permits. Cabras has a recently issued NPDES permit. None of the other plants need one (Tanguisson had one that has been terminated). The Cabras~~only~~ new permit conditions ~~that are expected in the next few years~~ are those flowing from Section 316(B) of the regulations which cover the diminished effect of cooling water withdrawals from the ocean. Cabras/Piti still withdraw~~al~~ cooling water from the ocean although at reduced quantities with the loss of Cac~~o~~bras 3&4. GPA completed required ~~The current NPDES permit requires~~ studies to determine the effects of the withdrawals on sea life. GPA and Guam EPA have agreed to an alternate compliance schedule which anticipates the closure of Cabras 1 & 2 by 2022. A revised NPDES permit application has been submitted to that effect.

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~~4.1.3~~3.1.3 General Goals

The broad goal of "Cooperative federalism" is to return more power to make decisions on environmental goals and methods to the various states and territories. This means that rather than imposing methods and guidance on the Guam EPA, there is more opportunity for the Guam EPA to decide how to meet environmental objectives.

~~4.2~~3.2 GUAM ENVIRONMENTAL PROTECTION AGENCY

The Guam EPA seeks to enforce the US Environmental laws and provide a safe, clean environment for Guam.

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~~5.~~4. GPA'S ENVIRONMENTAL STRATEGIC PLAN

This ESP illustrates GPA's progress in complying with current and upcoming regulatory requirements. It includes GPA's plans to address or mitigate the potential issues from and impacts of these regulatory requirements.

~~5.1~~4.1 AIR QUALITY COMPLIANCE

~~5.1.1~~4.1.1 National Ambient Air Quality Standards (NAAQS)

~~*5.1.1.1*~~*4.1.1.1 Regulatory Requirements*

Compliance with the goal of meeting the NAAQS is primarily accomplished by reductions of emissions from each generating station as required by the air quality permits issued by the Guam EPA. Appendix C lists all the activities undertaken by GPA to meet these emission limitations.

The following descriptions of air pollutants being measured under NAAQS is from the U.S. Environmental Protection Agency website.

Sulfur Dioxide

SO_2 is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO_2 is linked with a number of adverse effects on the respiratory system.[1]

[1] http://www.epa.gov/airquality/sulfurdioxide/

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Nitrogen Dioxide

NO_2 is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NOx)." Other nitrogen oxides include nitrous oxide and nitric oxide. While EPA's National Ambient Air Quality Standard covers this entire group of NO_x, NO_2 is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO_2 forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO_2 is linked with a number of adverse effects on the respiratory system.[2]

Particulate Matter

"Particulate matter," also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. EPA groups particle pollution into two categories:

- "Inhalable coarse particles," such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter.
- "Fine particles," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air.[3]

Table 4.1: NATIONAL AMBIENT AIR QUALITY STANDARDS

APPLICABLE TO GUAM

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POLLUTANT	AVERAGING TIME	CONCENTRATION	ATTAINMENT STATUS	STATE IMPLEMENTATION PLAN EFFECTIVE DATE	COMPLIANCE DEADLINE
Sulfur Dioxide (SO2)	1 Hour	75 ppb	Cabras/Piti= Nonattainment Remainder of Island =	19-Oct-19	9-Apr-23

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[2] http://www.epa.gov/air/nitrogenoxides/

[3] http://www.epa.gov/airquality/particlepollution/

			Unclassifiable / Attainment		
	3 Hour	500 ppb	Cabras/Piti= Non-Aattainment Remainder of Island = Unclassifiable / Attainment		
Nitrogen Dioxide (NO2)	1 Hour	100 ppb	Unclassified / Attainment ~~Unclassified / Attainment~~	EPA has not required Guam EPA to develop a SIP for attainment or maintenance of the NO_2 -	
	1 Year	53 ppb		-	
Particulate Matter (PM 2.5)	1 year	12 µg/m3	Unclassified / Attainment ~~Unclassified / Attainment~~	EPA has not required Guam EPA to develop a SIP for attainment or maintenance of the PM- -PA has not required Guam EPA to develop a SIP for attainment or maintenance of the NO_2 -	
	24 Hours	35 µg/m3			

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~~5.1.1.2~~4.1.1.2 *Status and Progress*

Nitrogen Dioxide

EPA first set standards for NO_2 in 1971, setting both a primary standard (to protect health) and a secondary standard (to protect the public welfare) at 0.053 parts per million (53 ppb), averaged annually. All areas in the U.S. meet the current (1971) NO_2 1 Year average standards.

On January 22, 2010, EPA strengthened the health-based NO_2 NAAQS by setting a new 1-hour NO_2 standard at the level of 100 parts per billion (ppb). This level defines the maximum allowable concentration anywhere in an area. It will protect against adverse health effects associated with short-term exposure to NO_2.[4] This new standard is expected to be much stricter than the annual standard and it is likely that many major sources of NO_2 emissions will find it difficult to demonstrate compliance through dispersion modeling procedures. Considering the potential need to support an attainment demonstration, it seems prudent to include monitoring of NO_2 in any proposed monitoring plan. GPA should wait for guidance from USEPA to Guam EPA before proceeding with strategies to control NO2 emissions. Depending on the status of generation in the Cabras/Piti area. It is possible that the NAAQS is exceeded on Nimitz Hill. Additionally a few inland diesel engine sites with nearby higher terrain may have difficulty meeting the NAAQS.

The deadline for compliance with the NAAQS is 5 years from promulgation or in this case 2015. EPA has not required Guam EPA to develop a SIP for attainment or maintenance of the NO_2 1 Hour NAAQS and will not do so until it has evidence that the NAAQS is being exceeded. GPA should be sure to watch developments on the NO_2 NAAQS compliance plans.

Particulate Matter

Based on its review of the air quality criteria and NAAQS for particulate matter, EPA promulgated revisions to the primary and secondary NAAQS for PM on October 16, 2006. With regard to primary standards for fine particles, EPA revised the level of the 24-hour $PM_{2.5}$ standard to 35 micrograms per cubic meter ($\mu g/m^3$) and (in 2013) revised the level of the annual $PM_{2.5}$ standard at 12 $\mu g/m^3$. With regard to primary standards for particles generally less than or equal to 10 µm in diameter (PM_{10}), EPA retained the 24-hour PM_{10} and revoked the annual PM_{10} standard. With regard to secondary PM standards, EPA made them identical in all respects to the primary PM standards, as revised.[5] It is expected that residual fuel oil fired

[4] http://www.epa.gov/air/nitrogenoxides/pdfs/20100122fs.pdf

[5] http://www.gpo.gov/fdsys/pkg/FR-2006-10-17/html/06-8477.htm

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facilities would have difficulty meeting this NAAQS if EPA began to actively pursue it. ULSD fueled facilities will not have any difficulty meeting NAAQS.

EPA declared Guam unclassified/attainment for the PM NAAQS. The deadline for compliance with the NAAQS is 5 years from promulgation or in this case 2017. EPA has not required Guam EPA to develop a SIP for attainment or maintenance of the PM NAAQS and will not do so until it has evidence that the NAAQS is being exceeded. GPA should be sure to watch developments on the PM NAAQS compliance plans,

Sulfur Dioxide

In March of 1999, GPA, the US EPA and the Guam EPA signed a consent agreement which establishes that compliance with the NAAQS for SO2 be maintained by a system which allows use of 2% sulfur residual oil fuel when the winds are blowing the emissions out to sea and the use of 1.19% sulfur residual oil when the winds are blowing toward the land.

The portions of Guam that are located within a 3.5 kilometer radius of the Cabras-Piti and Tanguisson power generating facilities were designated as non-attainment areas for the 3-hour and 24-hour average SO_2 NAAQS. That determination was made in the 1980's. GPA pursued having EPA declare the area around the shuttered Tanguisson Station as attainment.

GPA has provided ambient air quality monitoring of SO_2 between 1995 and 2001. Much of this monitoring preceded the changes in emissions resulting from the Consent decree. The maximum concentrations measured at several locations during these various monitoring programs are as follows:

Table 4.2 Maximum Concentrations Based on AAQM Data 1995-2001

LOCATION	MAXIMUM CONCENTRATION
Nimitz Hill (3 hour)	270 ppb (707 µg/m^3)
Apra Heights (3 hour)	189 ppb (495 µg/m^3)
Piti mayor's Office (3 hour)	171 ppb (448 µg/m^3)
Dededo (1 hour)	160 ppb (419 µg/m^3)

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~~Nimitz Hill (3 hour) 270 ppb (707 µg/m^3)~~
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~~Piti mayor's Office (3 hour) 171 ppb (448 µg/m^3)~~
~~Dededo (1 hour) 160 ppb (419 µg/m^3)~~

These results show compliance with the 3 Hour average NAAQS. The results are, however, in excess of the new one-hour average NAAQS.

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In 2017, GPA performed air quality dispersion modeling in preparation for the submittal under the Data Requirements Rule (DDR) as required by US EPA region 9. A complete modeling protocol was approved by both USEPA and Guam EPA. This modeling was performed with the model AERMOD at actual emission rates for 2011-2013 for island power plants SO_2 sources. The results of the modeling are shown on Table 4.~~1~~3.

These model results estimate the difficulty in meeting the NAAQS for SO_2 on Nimitz Hill. Even without the Cabras units 3 & 4, the results are more than twice the NAAQS. Included in the modeling were ship emissions from the harbor which have no effect on Nimitz Hill. The background concentration derived in the report is 29 µg/m³.

Table 4.~~2~~ 3 Culpability Analysis of GPA Applicable Sources' Modeled H4H Result; No Background Added

Source	H4H (2011-2013)								COMPLIANCE COMPARISON			
	2011		2012		2013		3-yr Average		Modeled + Background (29 µg/m3)		NAAQS	
	µg/m³	ppb	µg/m³	ppb	µg/m³	ppb	µg/m³	ppb	µg/m³	ppb	µg/m³	ppb
GPA	478	182	571	218	619	236	556	212	585	223	196	75
Cabras 1	164	63	321	122	298	114	261	100				
Cabras 2	162	62	204	78	180	69	182	70				
Cabras 3&4	132	50	37	14	81	31	83	32				
Piti 8&9	20	8	9	3	60	23	29	11				
Piti 7	0	0	0	0	0	0	0	0				

~~These model results estimate the difficulty in meeting the NAAQS for SO_2 on Nimitz Hill. Even without the Cabras units 3 & 4, the results are more than twice the NAAQS. Included in the modeling were ship emissions from the harbor which have no effect on Nimitz Hill. The background concentration derived in the report is 29 µg/m³.~~

On June 29, 2017 the Guam EPA requested designation of an area nearby Cabras/Piti as non-attainment for the 1 Hour SO_2 NAAQS. The area is a circle of 6.074 kilometers (~3.4 miles) from the center of the SO_2 sources at the power plants. On August 22, 2017 US EPA agreed with the Guam EPA suggested designation and added that all other areas of Guam would be designated unclassified/attainment. On January 9, 2018 US EPA published in the Federal Register (FR 83, No. 6, page 1171) those results for designations for Guam. That final rule was effective April 9, 2018. The designation requires Guam EPA to develop a State Implementation Plan (SIP) for the Cabras/Piti area and establish rules and regulations to safeguard the NAAQS on the rest of the Island.

By virtue of the January 9, 2018 Federal register notice, the fact of the Tanguisson power plant shut down has been accepted by EPA and no separate SIP for the Tanguisson area is needed. The old 3.5 kilometer

non-attainment area around Tanguisson has been replaced by the designation of "unclassified/attainment".

~~5.1.1.3~~4.1.1.3 *Future Compliance Considerations*

Guam EPA is required to develop and submit by October 9, 2019 to US EPA a State Implementation Plan (SIP) to attain the SO_2 NAAQS. The SIP must present a plan to reduce emissions in the non-attainment area and demonstrate that the NAAQS will be attained and maintained. The deadline for completing the plan and coming into attainment is five years after approval of the plan by USEPA or as early as October 9, 2024. The required SIP deals only with SO_2. Compliance issues with the NO_2 and $PM_{2.5}$ NAAQS await EPA action.

Should USEPA and Guam EPA act on compliance requirements for NO_2 and $PM_{2.5}$, GPA should ensure the following:

- For the Tenjo Power Plant, NO_2 and $PM_{2.5}$ emissions would not meet NAAQS. Stack height should be increased or operating parameters changed.
- For the Piti 8 & 9 Power Plant, GPA should consider installation of Oxidation Catalyst and Selective Catalytic Reduction (SCR) that would address both CO emissions and NO_2 emissions. Use of ULSD would comply with PM standards.
- For the Piti 7 Power Plant alone, no changes needed to meet NO_2 or $PM_{2.5}$ NAAQS. If Piti 8&9 are not revised to comply Piti 7 does not add sufficient NO_2 or PM to change the situation and no controls on Piti 7 would be needed.
- For GPA's northern CT Plants, no revisions necessary.
- For GPA's Manenggon and Talofofo fast-track diesel plants, no revisions are necessary.
- For the new power plant to be located at the ~~,~~ Harmon ~~Tanguisson~~ area, use of ULSD will be incompliance with the SO_2 and $PM_{2.5}$ NAAQS and use of SCR will allow compliance with the NO_2 NAAQS.
- For the 40-MW temporary power station located beside the Yigo Combustion Turbine Power Plant, installation of Oxidation Catalyst for compliance with CO emissions are needed to ensure compliance. Alternatively, the thirty-nine (30) individual engines could be split between Yigo site and other sites to attain compliance.
- ~~Oxidation Catalyst, for compliance with CO emissions~~
- ~~. Alternatively the forty engines could be split between two CT sites to attain compliance.~~

~~5.1.1.4~~4.1.1.4 *Proposed Actions and Economic Impact*

State Implementation Planning

GPA will assist Guam EPA in the development of the SO_2 SIP. Air pollution emission control options include the following:

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1. Close Cabras Units 1 and 2, leaving only Piti 7, 8 & 9 in the Cabras/Piti complex. Switch major generation to new power plant. Residual Fuel sulfur content at MEC 8 & 9 would also have to be reduced at least below 1.7 %. Switching to 1.19% sulfur residual oil (already on hand and regularly purchased) would meet the requirements as would ULSD. TEMES permit should be changed to firing ULSD which it already does. ~~Not involved in the SIP unless located at Cabras/Piti.~~
2. Reduce the sulfur content of all the fuels sufficiently to meet the NAAQS. Under this option the cost of fuel goes up. The current consent decree allows the use of lower sulfur fuel only on days with winds toward Nimitz Hill.
3. The other power plants such located in northern Guam and southern Guam, including GPA's Temporary Power Station located beside Yigo CT Power plant, outside of the Cabras/Piti area will not be included in the SIP. Any changes made to these unit should ensure compliance with NAAQS.

Without further action by EPA, GPA does not need to address compliance with the NO_2 or $PM_{2.5}$ NAAQS in the near future. If EPA requires further action, then the compliance considerations outlined in the previous section should be considered.

The deadline for compliance with the one hour SO_2 NAAQS is five years after the effective date of the area designation or April 9, 2023.

~~5.1.2~~4.1.2 Green House Gas (GHG) Reporting

~~5.1.2.1~~4.1.2.1 *Regulatory Requirements*

GPA is required to provide an annual report on its GHG emissions that will be made public. GPA has been complying with the reporting provisions since March of 2011. GPA needs to ensure that these are complete and calculated correctly.

~~5.1.2.2~~4.1.2.2 *Status and Progress*

Given the current regulatory agenda, there is nothing in addition to reporting GHG emissions that is required of GPA, unless a new power generation unit is constructed or significant changes are made to existing generation units such as Dededo. In either case, GPA may be required to reduce GHG emissions by either increasing energy efficiency at existing stations or consider only natural gas as a fuel for new generation units (Guam is currently exempt from that proposed requirement).

~~5.1.2.3~~4.1.2.3 *Future Compliance Considerations*

The current manpower requirements for reporting GHG emissions on a yearly basis will continue for the foreseeable future. No additional cost for GHG regulatory efforts would be needed unless a triggering change is made at an existing generation unit. If, so, a major capital cost may be incurred to build any required energy efficiency project, but that cost may be offset by the energy efficiency savings. If GPA changes fuel, the reporting requirements would remain the same.

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From 2011 onward, modifications which require new source review permits and have increases in emissions of GHG greater than 75,000 tons per year of CO_2 equivalent emissions at any existing power plant facility will trigger permitting requirements for GHG emissions. This permit activity will include Best Available Control technology determinations for GHG emissions and force, at a minimum, fuel efficiency requirements and at most, changes in fuels to those which emit less GHG, i.e. LNG.

~~Gale: Can we estimate~~

~~5.1.2.4~~4.1.2.4 *Proposed Actions & Economic Impact*

There are no current limits on GHG emissions for the existing generation fleet. Any energy efficiency projects undertaken now by GPA can be used as credits against future GHG requirements. There is no significant cost in reporting GHG emissions. No additional manpower or budget is required to support his requirement.

~~5.1.3~~4.1.3 Maximum Achievable Control Technology

~~5.1.3.1~~4.1.3.1 *Regulatory Requirements*

There are three promulgated MACT standards which apply to GPA power units on Guam. These are:

- **Steam Electric Generation**: On December 16, 2011 EPA promulgated MACT standards for steam electric generation units (also referred to as the Mercury Air Toxics Rule (MATS)). Cabras 1 and 2 are subject to this rule. The standards require a significant reduction of metals emissions from these units. The compliance date was March 2014. The rule is currently stayed, but EPA is considering reinstituting the rule. GPA will have to control metals emissions based on a recent CAA Information Collection Request ICR test at Cabras 1. Options for emissions controls are discussed further later in this plan. Further information is in Appendix C.

Commented [PAT3]: Gale, please correct me if I'm wrong, but wasn't this standard put on hold?

Commented [HG4R3]: Yes. See additional sentence.

- **Diesel Engines**: EPA's MACT standard for diesel engines applies to all the diesel engines of GPA. It requires that Carbon Monoxide (CO) emissions be controlled by 70%. The compliance date was May 2013 with the possibility of an extension to May 2014. By May 2014, all GPA fast track diesels (Tenjo, Talafofo and Manenggon) were outfitted with the appropriate control devices and meet the MACT standard. Cabras 3# and #4 and MEC #8 and #9 (slow diesels) cannot meet the MACT with the current fuel. Cabras 3 and 4 are now closed and MEC 8 & 9 are being researched for a change to ULSD which would allow the use of oxidation catalyst to meet the Standard.

  The MACT standard does not apply to the diesel engines used for temporary Power at Yigo. These engines are less than 500 horsepower and are thus not subject to the rule. The permit limits NO_x and CO emissions to less than 250 tons per year. Difficulties in meeting this limit will need to be

Commented [PAT5]: But based on most recent discussion, CO emissions are becoming an issue. Please clarify if we need to install ox-cat?
Hopefully my additions help.

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addressed. SCRs are currently installed in the units to meet NO_2 limits. If operation will continue to be the same as it is as of August 2018, installation of oxidation catalyst need to be considered.

- **Combustion Turbines**: EPA has not finalized its rule for combustion turbines. As proposed, EPA's MACT standard for combustion turbines (CT) would not apply directly to the current GPA combustion turbines because none are located at major sources for Hazardous Air Pollutants (HAP). The existing combustion turbines at Dededo might become subject to the rule if it is finalized and GPA seeks to increase the operating frequency of the units beyond the current permit limits. Because that would be a major modification it would trigger New Source review. Under New Source Review, it is probable that CO emissions would be limited to reduce HAP emissions. Any new combustion turbines built by GPA would have to comply with the CT MACT if finalized, but otherwise would employ the technology to reduce emissions below New Source Review and HAP emission triggers.

~~5.1.3.2~~4.1.3.2 *Status and Progress*

Steam Electric Generation

Based on ICR testing results, GPA is currently not complying with Non-Continental US Standards for Steam Electric Generation. TRC has provided options for GPA to consider in complying with this standard. One of the options is to close the units and switch major generation to a new power plant. For Tanguisson 1 and 2, GPA has decided to de-activate the power plant due to operational requirements at that time (2016). For Cabras 1&2, GPA has decided to keep the plant operating until a new power plant operating on cleaner fuel is online, by which time Cabras 1&2 can be retired.

GPA has filed a notice of applicability for the EGU MACT. The units subject to the rule are Cabras 1 & 2 and Tanguisson 1&2. Compliance requirements using the current fuel include the installation of Electrostatic Precipitators (ESP) on each unit. However, the NAAQS compliance requirements would require simultaneous installation of scrubbers that would also address compliance issues with the EGU MACT. The installation of the ESP only would only delay the additional equipment to address the SO_2 and other air quality standards five years later, however the scrubbers could address both but would require an earlier installation at much higher costs. The initial compliance date for the Boiler MACT was April 2015; the only other option left is to retire the units. In 2014, GPA decided to de-activate Tanguisson 1&2. In 2016, the solicitation for a new power plant was finally approved and in 2017 GPA issued a solicitation for a new power plant or plants up to 180 MW capacity. Once in operation, the plan is to retire Cabras 1&2, eliminating the need to install controls that would allow compliance with EGU MACT and NAAQS standards.

Commented [PAT6]: For P&R – requesting for copy of notice so we can attach to ESP as Appendix

Diesel Engine

GPA is also subject to the RICE MACT for all fast track (medium speed) diesel units and the Cabras 3&4 and MEC 8&9 slow speed diesel units, but not for the 39 1.1-MW temporary power generation units. GPA

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has complied with the MACT for the fast track diesels by installing oxidation catalysts. These control devices will need to be maintained and the reporting and recordkeeping conditions complied with. The slow diesels cannot meet this MACT standard with the current fuel and discussions with US EPA are ongoing. Cabras 3&4 had a major catastrophic failure in August 2015 and will not be returning online.

In August 2012 GPA filed a request for a one year extension from the RICE MACT for all the units burning Ultra Low Sulfur Diesel Fuel because there was not enough time to comply. Compliance was achieved by the end of the one year extension. In this same filing, GPA has requested an exemption for the slow diesel units (Cabras 3 & 4 and Piti 8 &9) firing residual fuel oil because compliance requires the changing of fuel or several hundred million dollars for compliance equipment. The extension for the fast speed diesels was granted and the controls were installed before the deadline. The exemption for the slow speed diesels request was denied.

Commented [PAT7]: P&R, could you provide letters to USEPA/Guam EPA re: RICE MACT and our units?

GPA is in discussions with EPA over the compliance path for the slow speed diesels.

~~5.1.3.3~~4.1.3.3 *Future Compliance Considerations*

Appendices B and C illustrate GPA's options for complying with the Steam Electric Generation MACT rule and the RICE MACT.

~~5.1.3.4~~4.1.3.4 *Proposed Actions & Economic Impact*

The EGU MACT (also called the Mercury Air Toxics Rule) will cost approximately $48,400,000 for ESP installations at Cabras Units #1 and #2. As indicated earlier, GPA could remove this cost entirely by advancing the installation of the NAAQS compliance equipment, scrubbers. The cost for the scrubbers is estimated at $220,000,000 for wet scrubbers or $362,000,000 for dry scrubbers. In addition, quarterly testing is estimated to cost $200,000 per year for all four steam units. Another method is reducing mercury and other metals in the purchased fuel. That method is expected to be extremely expensive although it has not been costed. Another option is to close Units 1 & 2 and switch major generation to a new power plant site.

Commented [PAT8]: I recall we also evaluated changing the fuel specifications so the RFO Supply we have can meet this regulations, could we include this option in the discussion? Can we also include the proposed specs provided by TRC (around 2012/2013)?

Commented [HG9R8]: Added

The RICE MACT compliance cost was $3,464, 000 in capital costs and additional O&M costs per year for compliance at the Ultra-Low Sulfur Diesel Units. At the slow speed diesels however, the cost would be $3.5 to 4 million capital costs for control. There would also be additional costs for fuel due to transition from RFO to ULSD, and annual O&M costs of about $212,000 for maintenance and replacement of the oxidation catalyst. Another option is to close MEC 8 & 9 and switch major generation to a new power plant site.

Commented [PAT10]: I recall we also evaluated changing the fuel specifications so the RFO Supply we have can meet this regulations, could we include this option in the discussion? Can we also include the proposed specs provided by TRC (around 2012/2013)?

~~5.1.4~~4.1.4 Community Right to Know Act

~~5.1.4.1~~4.1.4.1 *Regulatory Requirements*

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GPA is required to file a Tier 2 and a Toxic Release Inventory annually for the previous year's emissions. The Toxic Release Inventory is submitted normally by July 1st, while the Tier 2 deadline is every March 1st.

~~5.1.4.2~~4.1.4.2 *On-going Compliance Activities*

Annual development of the emissions inventory and submission of the forms is required.

~~5.1.4.3~~4.1.4.3 *Future Compliance Considerations*

There are no foreseen changes in the Community Right to know Act requirements expected at this time.

~~5.1.4.4~~4.1.4.4 *Proposed Actions & Economic Impact*

Emission inventory and submission costs are included in the annual Planning and Regulatory Division Budget. There are no additional economic impacts expected in complying with the regulatory requirements.

~~5.2~~4.2 WATER QUALITY COMPLIANCE

~~5.2.1~~4.2.1 Regulatory Requirements

GPA is required to maintain and comply with a National Pollutant Discharge and Elimination System (NPDES) permit for Cabras because of the use of seawater in cooling and the discharge of heated water back to the ocean. Cabras has recently received its NPDES permit.

Renewal of the permit includes the requirements to meet the proposed changes to cooling water intake structures.

~~5.2.2~~4.2.2 On-going Compliance Activities

Protecting America's Waters

GPA has federal NPDES permit for its uses of water at Cabras. EPA proposed in March, 2011 to add to the requirements for steam electric utilities the elimination of once through cooling systems. Since Cabras uses ocean water gathered offshore and returned at higher temperature to the ocean environment, these proposed rules could require a major shift in water intake structures or the selection of a closed cycle cooling system (cooling towers). The Final 316(b) Phase II and Phase III Entrainment and impingement rule was promulgated in June of 2013. Currently available evaluations of impingement of fish on the cooling water intakes suggest that GPA does not have to revise its cooling water intake system to meet the requirements of this final rule. Compliance would need to be determined within the facility NPDES permit.

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The Spill Prevention Control and Countermeasures (SPCC) program is a significant point of emphasis with EPA and GPA is working to strengthen its SPCC plans.

~~5.2.3~~4.2.3 Future Compliance Considerations

A detailed survey of the impacts of the cooling water intake system to the environment should be completed. The following details regarding extent of damage done to the environment should be included, such as:

- How many species and what quantity of species are taken into the system;
- The status and effectiveness of the current systems to avoid such intakes;
- Design recommendations to solve issues and adverse impacts; and
- Any exceedance of the limits set in the proposed rule were included in the Final rule.

~~5.2.4~~4.2.4 Proposed Actions & Economic Impact

GPA Water Resources

GPA has completed the 316(b) studies and filed for and obtained an Alternate Compliance Schedule. If Cabras 1 & 2 are closed by the end of 2022 GPA will no longer need to submit 316(b) characterization data.

GPA has completed the 316(b) studies and filed for and obtained an Alternate Compliance Schedule.

Information required under part122.21 including the following were submitted:

- 122.21(r) (2) Source water physical data;
- 122.21(r) (3) Cooling water intake structure data;
- 122.21(r) (4) Source water baseline biological characterization data;
- 122.21(r) (5) Cooling water system data;
- 122.21(r) (7) Performance studies; and
- 122.21(r) (8) Operational status.

Impingement Report was submitted in October 2015.

Jamie Marincola of USEPA is waiving the requirements for the following:

- 122.21(r) (9) Entrainment Characterization Study;
- 122.21(r) (10) Comprehensive Technical Feasibility and Cost Evaluation Study;
- 122.21(r) (11) Benefits Valuation Study;
- 122.21(r) (12) Non-Water Quality Environmental and Other Impacts Study;
- 122.21(r) (13) Peer Review

If Cabras 1 & 2 are closed by the end of 2022 GPA will no longer need to submit 316(b) characterization data.

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GPA did submit an application for permit renewal on July 15, 2017.

~~GPA did submit an application for permit renewal on July 15, 2017.~~

~~5.3~~4.3 MAJOR MODIFICATIONS OR UPGRADES

~~5.3.1~~4.3.1 *Regulatory Requirements*

Whenever GPA decides to modify existing units, a determination should be made by GPA of the need for a federal New Source Review (NSR) permit. In an attainment area the NSR permit is often called a Prevention of Significant Deterioration (PSD) permit.

An NSR permit requires that Best Available Control Technology (BACT) be used to control emissions. Emissions subject to such controls include SO2, NOx, Particulate Matter, CO, hydrocarbons, metals and chlorine and fluorine. Most importantly, the BACT requirements now extend to GHG emissions. BACT is almost always more stringent than the New Source P~~p~~erformance Standards (NSPS) for the subject source.

Currently, any SO2 emissions from Cabras-Piti would be subject to additional requirements including off setting any new SO2 emissions. These requirements must be strictly adhered to because many utilities across the US have been sued by US EPA for non-compliance with these rules.

~~5.3.2~~4.3.2 *Future Compliance Considerations*

Most modifications at existing power plants which are major sources (greater than 250 tons per year of any pollutant) would be subject to these rules. Routine maintenance and repair is one category of changes that are exempt. So too are increases in emissions allowed by the permit which are not accomplished through a capital project. The definition of a modification is highly complex but in general any modification which is a capital project which results in a change to the equipment and increases emissions is a modification. In addition, restarting a unit after virtual non-use for more than 5 years require an NSR/PSD permit and a BACT evaluation. When considering changes outside of the permit allowable, the agency should be consulted.

~~5.3.3~~4.3.3 *Proposed Actions & Economic Impact*

GPA should ensure that all modifications for existing power generation and other air pollutant emitting units are evaluated by the Planning and Regulatory Division.

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If applicable, GPA should request an "applicability determination" from US EPA. Such determinations can take on the order of 60-90 days.

If GPA is pressed for time, a NSR application can be prepared under the assumption that an NSR permit is needed. Most straight forward NSR applications take 60-90 days to prepare and 6-9 months for US EPA to review and issue. The key point of the analysis is the BACT requirements for each pollutant and the modeling to demonstrate attainment.

The Planning and Regulatory Division will establish standard operating procedures and process maps to guide various GPA divisions in this process.

~~5.4~~4.4 INSTALLATION OF NEW RESOURCES OR INFRASTRUCTURE

~~5.4.1~~4.4.1 *Regulatory Requirements*

Whenever GPA decides to build a new unit, a determination should be made by GPA of the need for a federal New Source Review (NSR) permit. An NSR permit requires that Best Available Control technology (BACT) be used to control emissions. Emissions subject to such controls include SO2, NOx, Particulate Matter, CO, hydrocarbons, metals and chlorine and fluorine. Most importantly, the BACT requirements now extend to GHG emissions. BACT is almost always more stringent than the New Source P~~p~~erformance Standards (NSPS) for the subject source. Currently, any SO2 emissions from Cabras-Piti or Tanguisson would be subject to additional requirements including off setting any new SO2 emissions. These requirements must be strictly adhered to because many utilities across the US have been sued by US EPA for non-compliance with these rules.

~~5.4.2~~4.4.2 *Situation Analysis*

New units, at existing sites or new sites, are subject to permitting and control technology rules dependent on the emission increases from the proposed units.

GPA is proposing a new power plant in the northern area of Guam near the site of the old Tanguisson plant. It would be north and west of Dededo near the current GWA waterworks and would use the waterworks outflow for cooling. As proposed such a plant would have three nominal 60 MW combustion turbines. These could be single cycle or combined cycle units. Combined cycle units re-burn the first pass exhaust to create more power. They would be fueled by ULSD. If outfitted with Selective Catalytic Reduction (SCR) and oxidation catalysts, emissions of nitrogen dioxide and carbon monoxide would be low enough to make the plant a minor source of air emissions. This would avoid the need for an analysis of BACT, MACT, GHG and NSR requirements. A discussion of environmental impacts of such a facility are provided in Appendix F.

~~5.4.3~~4.4.3 *Proposed Actions & Economic Impact*

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GPA should ~~insure~~ ensure that all new generation units and other air pollutant-emitting units, including fuel facilities (new or expansion of existing), are analyzed to determine if a permit is needed. If there are questions about applicability GPA should request an "applicability determination" from US EPA. Such determinations can take on the order of 60-90 days.

A NSR application can be prepared under the assumption that an NSR permit is needed. Most straight forward NSR applications take 60-90 days to prepare and 6-9 months for US EPA to review and issue. The key point of the analysis is the BACT requirements for each pollutant and the modeling to demonstrate attainment. The cost of preparing a NSR permit application ranges from $50,000- $200,000 depending on the complexity of the project and the complexity of the modeling required by US EPA.

The currently proposed NSPS for new electric generating units would impose the use of natural gas, however "non-continental" sources are currently exempted.

Changes in fuel pipelines and fuel storage facilities are subject to SPCC plans and construction requirements that vary with the nature and size of the operation or tank.

The Planning and Regulatory Division will establish standard operating procedures and process maps to guide various GPA divisions in this process.

~~5.5~~4.5 RENEWABLE RESOURCES

Commented [PAT11]: We have installed 26.5MW of Solar Power, and will be installing another 120 MW in the next couple of years. Are there any regulations on Renewable Resources from EPA that we should be aware of?

There are currently no Federal environmental mandates or requirements for the use of renewable resources. GPA has installed 26.5 MW of solar power and plans to install another 120 MW. There are no EPA regulations that apply to these units.

~~5.6~~4.6 ALTERNATIVE ENERGY RESOURCES

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~~5.6.1~~4.6.1 *Energy Storage Systems*

Storage systems such as batteries and flywheels as well as pumped hydropower storage systems may be needed as the reliance on solar power increases. Battery systems and flywheels would not require air permitting, but permitting of new transmission lines would be needed. Hydropower storage systems would require permitting of a new dam.

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~~5.6.2~~4.6.2 *Alternative Fuels – Biodiesel*

The substitution of biological oils in fuels that are called bio-diesel does not fall under the federal rules. On Guam, the only requirement of such a fuel would be that it contain less than 15 ppm of sulfur and that it be shown as an alternative fuel in the permit for any facility using such fuel. It is not expected that any

off-island bio-diesel source could be competitive with ULSD. An on-island source might well be competitive. The plant to produce such a fuel would be subject to environmental permits.

~~5.6.3~~4.6.3 *Alternative Fuels – Reprocessed Waste Oil*

The reprocessing of waste oils for use as a fuel is covered by 40 CFR Part 63, Subpart DD. The primary emission controls on such processes are control of VOC emissions from tankage and process equipment such as pipelines, flanges, pumps etc. The rule requires leak detect and repair programs to insure control of fugitive emissions of VOCs. Again, use in engines would be as an alternate fuel in the facilities permit and sulfur content below 15 ppm. GPA currently follows 40 CFR 279.11 for accepting waste oil to burn.

~~5.6.4~~4.6.4 *Waste-to-Energy Facilities*

Because various wastes (waste oil and sewage sludge for example) need to be disposed of on island and landfill space is limited, the potential to produce power from burning these wastes exists. Such combustion facilities are covered by NSPS and MACT standards and are highly regulated.
The primary regulations which deal with the burning of wastewater treatment sludge Is 40 CFR Part 60 Subpart LLLL and 40 CFR Part 62 Subpart LLL. These regulations require a health risk assessment be conducted before construction of such a facility. There is a long list of emission limits for both criteria and Hazardous Air Pollutants which must be met. The list includes SO_2, NO_2, CO, Particulate ~~matter~~Matter, lead, mercury, cadmium and dioxins. The addition of oil waste may or may not allow compliance with these emission limits. Significant operator training and certification is also required.
The primary regulations which deal with the burning of municipal solid waste are covered by three sets of regulations:

- > 250 tons/day – 40 CFR part 60, Cb, Ea, Eb and FFF
- 35-350 tons/day – 40 CFR part 60, AAAA, BBBB and JJJ
- Other Solid Waste Incinerators are covered by 40 CFR Part 60, EEEE and FFFF

~~An initial review suggests that there is insufficient sludge and waste oil to make such a power plant~~

~~5.6.5~~4.6.5 *Carbon Capture Technology*

GPA is not required under any current rule to reduce emissions of GHG, especially carbon dioxide (CO_2). Because there is no requirement to reduce Carbon Dioxide (CO_2) emissions, any technology would be an unnecessary expense. Carbon capture technology removes CO2 from the exhaust stream generally through the use of amines. To start with, an exhaust stream from a power plant (boiler, diesel or CT) must be cleansed of all criteria and Hazardous Air Pollutants before being introduced to currently available carbon capture systems. Therefore, carbon capture technology does not help GPA in meeting the real and pressing NAAQS compliance issues that it faces. There is also an issue of what to do with the CO_2 once it is captured. Some systems collect CO_2 for a buyer. There is no such buyer on Guam. Even if an export buyer could be found the CO_2 would have to be cryogenically liquefied and put on special ships (none built yet) for export. Otherwise, the CO_2 would have to be sent down a well and put in an underground reservoir.

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~~5.7~~4.7 CLEAN AIR OPERATING PERMITS

Operating Permits are issued for 5 years by the Guam EPA. The operating permits for GPA sources were due to be renewed in September 2014. Applications for these renewal permits were prepared by GPA and submitted in September of 2013. To date, these permits have not been renewed by Guam EPA. GPA continues to comply with the old permits and is in complete compliance with the Clean Air Act by doing so.

However, GPA should ensure that continuous and timely tracking of emissions are completed diligently, given the operational challenges GPA faces today, and will face for the next few years until the new power plants are online. Failure to comply with permit limits will require GPA to apply for PSD permit from Guam EPA/USEPA, and the installation of best available control technology. As of August 2018, some of the plants that have reached or are nearing the permit limits are GPA's Talofofo Diesel Units and GPA's Temporary Power Station (Aggreko Units).

~~5.8~~4.8 OIL POLLUTION ACT OF 1990

~~5.8.1~~4.8.1 *Regulatory Requirements*

Any oil pipeline including those in the Cabras oil storage area, pipelines from the storage area to the power plants and the pipeline to Tanguisson are subject to the requirement to have and maintain both a Facility Response Plan (FRP) for the actions to be taken in the event of an oil spill into waters of the US and a Spill Prevention and Control Plan (SPCC). The requirements for the contents of these documents change from time to time and GPA must keep up with the latest requirements and keep the documents up to date. Any new pipeline would have to have a FRP and SPCC.

For the closure or deactivation of GPA power plants, such as Tanguisson and the lack of further need for that fuel oil pipeline triggers the need to investigate the line to see if remediation is necessary.

~~5.8.2~~4.8.2 *Situation Analysis*

Currently GPA has the FRP and SPCC plans that are required.

~~5.9~~4.9 GPA ENERGY RESOURCES

~~5.9.1~~4.9.1 *Fuels and Air Quality*

About 95% of GPA's Installed Capacity are fossil fuel generation units, with 67% using RFO and the rest fueled by ULSD. An objective of this plan is to make headway toward a wider option of fuels for electric power generation.

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The most logical environmental alternative is natural gas which would have to be imported as liquefied natural gas (LNG). LNG would have several environment advantages:

- No sulfur in the fuel and therefore a complete resolution of the SO_2 non-attainment issue.
- Lower NO_2 emissions because there is no nitrogen in the fuel (there would still be NOx emissions from the nitrogen involved in combustion of air).
- Lower Green House Gas (GHG) emissions because of more efficient use of the carbon in the fuel.
- Near elimination of particulate matter emissions, including metals.
- Replacement of oil pipelines with natural gas pipelines to the various plants, reducing the potential environmental impact of the pipelines.

Another option is to convert to Ultra-Low Sulfur Diesel. ULSD Conversion would have several environmental advantages:

- Lower sulfur content that will allow compliance with NAAQS requirements, resolving non-attainment issue.
- Compliance with RICE MACT for Piti #8 and #9, if Oxidation Catalyst and Selective Catalytic Reduction Equipment are installed.

Continued reliance on oil will force several key environmental compliance decisions:

~~1.~~ **Compliance with the SO_2 NAAQS will require reductions in SO_2 emissions.**

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This can be done in three ways:

A. Reduce sulfur content of oil to ppm ranges at significant cost to show attainment with current EPA modeling requirements. Can be done two ways, by reducing sulfur content of RFO, or transitioning to Ultra Low Sulfur Diesel for all plants.
B. Adopt emissions controls on SO_2 emissions (scrubbers) to reduce emissions.
C. Close Cabras/Piti facilities and move ULSD generation elsewhere.

The selection of one of these three options must be made prior to Guam EPA's submission of a control plan the meet the SO_2 NAAQS to EPA. GPA's SPORD and P&R Divisions are actively coordinating with Guam EPA with regards to significant dates and requirements regarding the NAAQS.

GPA must make decisions on meeting the MACT standards which have earlier deadlines than the SO_2 compliance. Work on compliance with the MACT for fast track diesel engines was completed by the compliance date of May 2014. Oxidation catalyst control devices were installed. The status of the slow speed diesels is the subject of consent decree discussions with the US EPA. Compliance with the steam electric MACT (if it ever becomes final) at Cabras using the current fuel requires a scrubber or electrostatic precipitator to remove metals. Discussions are underway with US EPA to resolve these issues.

The need to address the air quality issues at specific plants can arise at any point in time if modifications to a specific plant are proposed which trigger New Source Performance Standards (NSPS), MACT and/or

New Source Review (NSR). When these programs are triggered, the specific plant must come into compliance with all of the air quality regulations before the modifications can be implemented. For instance, the potential for refurbishing the combustion turbines at Dededo and bringing them back on line may require NSR and would thus require MACT and modeling analysis showing that it meets all the NAAQS. This would be a significant burden on the project and could lead to delays of 6 to 9 months while the permit was obtained. Such projects could trigger changes in fuel or controls before the overall strategy is set.

Renewable Energy.

The appropriate environmental strategy is to support, encourage and participate in any new generation from alternative sources of energy. GPA will continue its current Renewable Acquisition plan, with Phase I completed and already in effect, and Phase II awarded and scheduled for completion in 2020. Guam has significant wind resources on the eastern side of the island and efforts to tap this source of energy will be pursued. However, biomass and waste to energy technologies may offer firm power which is more desirable.

GPA will watch advances in wave power, solar power and nuclear power for advances which would make them viable options for Guam. The development of new modular (less than 60 MW) nuclear plants has the potential to make construction easier and cheaper and provide for much lower generation costs.

~~2.~~ **Energy Use Reduction.**

GPA has already invested in energy use reduction programs ~~(the Demand Side Management Program and Net Metering Program)~~ and will continue to invest in these programs in order to reduce the demand and growth of demand. GPA's program includes: Demand-Side Management Energy Appliance Rebate Program, Utility Energy Services Contracting (UESC) Program for Navy and Large Customers; and the Bringing Energy Savings to Schools (BEST) Program, promoting energy efficiency and water conservation. GPA also has a net metering program, and filed for modifications of the program with the Guam Public Utilities Commission.

~~5.10~~4.10 INFRASTRUCTURE AND ASSET MANAGEMENT

~~5.10.1~~4.10.1 *Fuel Facility Management*

The Planning and Regulatory Division is responsible for ~~insuring~~ ensuring that the Clean Water Act Spill Prevention, Control ~~-~~and Countermeasures (SPCC) plans for the fuel supply operation are up to date and accurate. Additionally, the Oil Pollution Act requires a Facility Response Plan (FRP) because of the proximity to the ocean of the facility. GPA recognizes the responsibility to e~~i~~nsure that oil is not spilled and is appropriately contained. Proper maintenance of the facility and its pipelines and constant vigilance for leaks or spills is essential to this compliance.

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~~5.10.3~~4.10.2 *GPA Pipeline Management*

The Planning and Regulatory Division completed yearly pipeline assessments for GPA's Fuel Supply System. The Central Maintenance Division is responsible for daily/continuous maintenance and inspections.

GPA recognizes the need for a more aggressive approach to the maintenance and operation of its fuel pipelines, in preparation for potential compliance requirements from federal agencies such as EPA or Department of Transportation. This depends on the future use of the pipeline system given the closure of Tanguisson Power Plant. ~~-~~

GPA intends to initiate a program for continuous improvement of its oil pipeline system. Activities may include pipeline assessment, smart pigging, integrity testing, and other activities related to improving pipeline condition, making it safer and less prone to leakage.

~~5.10.4~~4.10.3 *GPA Automotive Fleet Management*

GPA will manage its automotive fleet to take advantage of new opportunities for energy use and emission reduction. In 2010 and 2011, GPA actively supported the transition to Ultra-Low Sulfur Diesel. The use of electric vehicles is another effort GPA could adopt in support of energy use and emission reduction for its automotive fleet.

~~4~~.10.4 *Retirement and Deactivation of Power Plants*
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~~5.10.5.2~~4.10.4.1 *Tanguisson*

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GPA has retired the Tanguisson power plant and has continuing obligations to handle environmental problems at the plant. The issues include the requirements for removing and disposing of asbestos from the plant interior, cleanup and removal of the oil pipeline from the port, piping in the facility and tankage. Because there is underground oil in the area of the facility and an ongoing monitoring and removal system, GPA must conclude these activities in a manner that meets Guam EPA requirements. There are also minor hazardous waste issues in the building and storage areas which must be addressed.

~~5.10.5.3~~4.10.4.2 *Dededo Diesels*

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GPA has removed the Dededo diesel engines from their building. An investigation is needed ~~to i~~to ensure that oil has not seeped below the cement pad on which the diesels sat and provide any cleanup that is needed. The tanks and pipelines that served the diesel engines must be cleaned up in the appropriate way.

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~~5.10.5.4~~4.10.4.3 *Marbo*

GPA has not used the Marbo diesels in many years. The site should be cleaned by removal of the equipment including engine, tanks and pipelines. An investigation into any spills should be conducted and remediation completed as necessary. An asbestos survey would also need to be conducted. Any minor hazardous waste should be removed from the site and disposed of correctly.

~~5.10.5.5~~4.10.4.4 *Cabras 3 and 4*

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These two units have been declared out of service. The site should be cleaned by removal of the equipment including engine, tanks and pipelines. An investigation into any spills should be conducted and remediation completed as necessary. An asbestos survey would also need to be conducted. Any minor hazardous waste should be removed from the site and disposed of correctly.

~~5.10.5.6~~4.10.4.5 *Cabras Units 1 & 2*

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GPA is contemplating the potential closure of Unit 1 and 2 at Cabras. The site should be cleaned by removal of the equipment including boilers, tanks and pipelines. An investigation into any spills should be conducted and remediation completed as necessary. An asbestos survey would also need to be conducted. Any minor hazardous waste should be removed from the site and disposed of correctly.

~~5.10.7~~4.10.5 *Good housekeeping*

The Planning and Regulatory Division ensures Good Housekeeping through regular inspection of the various GPA facilities, the purpose of which is to ensure that pollutants are not making their way into storm water runoff from GPA sites.

4.11 CLEAN POWER PLAN

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US EPA proposed an Existing Source Performance Standard (ESPS) for carbon dioxide emissions on June 18, 2014. This is generally called the Clean Power Plan (CPP). The proposed rule was supplemented on November 4, 2014 with specific GHG reduction targets for Guam. This proposed regulation would have required the Guam EPA to develop a plan to reduce carbon dioxide emissions from Cabras #1 and #2 on a schedule stretching until 2030. Those targets were to reduce emissions from the four (Cabras and Tanguisson) steam electric units from 1948 pounds of CO_2/MW Hour (2012 baseline) to 1733 pounds of CO_2/MW Hour during the period from 2020 to 2029 and reach a final goal of 1586 pounds of CO_2/MW Hour in 2030. The plan that Guam EPA needed to devise could include increase in energy efficiencies or changes to lower emitting fuels at the steam units. Alternatively the plan could be to reduce the use of these steam plants by replacement of their power with solar power, wind power or demand side management. EPA noted in its proposal that renewable energy goals had been set by the Guam legislature. Final promulgation was in June 2015. The final rule did not require any reductions on Guam. The Supreme Court has stayed the implementation of this rule and the current administration has proposed not to go forward with the rule.

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4.12 ~~AAF~~AFFFORDABLE CLEAN ENERGY (ACE) PLAN

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US EPA proposed on August 21, 2018 that the CPP be replaced by a new rule called the Affordable Clean Energy (ACE) plan. ACE would require that Guam EPA chose from a number of options to increase the efficiency of power production from Cabras 1 & 2. That is, reduce GHG emissions by creating more electricity with the same amount of fuel. The proposal does not exempt Guam or oil-fired power plants. The proposal does, however, include exemption from the New Source Review permitting process for such energy efficiency projects. This was an issue that stymied prior efforts by GPA to upgrade Cabras 1 & 2. The proposal requires Guam EPA to prepare a State Implementation Plan (SIP) within three years of promulgation, roughly 2021 and compliance by 2023.

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~~5.12~~4.13 COMMUNITY INVOLVEMENT

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~~5.12.1~~4.13.1 *GPA Waste and Recycling Programs*

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GPA has been working toward complete recycling of its power plant and office wastes and will continue adding to it as opportunities for recycling become available and cost effective.

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~~5.12.2~~4.13.2 *Cleaning up Communities and Advancing Sustainability*

Clean up means remediation or reuse of contaminated properties in environmentally sound ways and land preservation. EPA's goals with respect to electric utility wastes are directed at fossil fuel combustion wastes. GPA currently has no combustion wastes but may acquire such wastes as a result of using control devices for air emissions control. Such wastes are generally treated by Federal rule as exempt from the solid waste requirements. Should GPA begin producing such wastes, every effort should be made to either reuse the material or find acceptable ways to store or dispose of the material.

~~5.12.3~~4.13.3 *Ensuring Chemical Safety and Preventing Pollution*

This EPA goal is focused on product chemical safety and not related to GPA activities. Pollution prevention, however, would be focused on the integrity and safety of GPA's oil pipelines. These programs also cover each generation location, the offices and any other operational property of GPA. GPA currently provides Toxic Release Inventory (TRI) reporting for the cleaning materials it uses.

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~~12.~~5. ENFORCEMENT OF ENVIRONMENTAL LAWS

EPA enforcement can be avoided by always complying with environmental laws and seeking constantly to keep the environment clean. GPA is involved in the community and the environment of Guam in a way that preserves and protects the people and environment so that no EPA enforcement is necessary. It is important to GPA to keep the lines of communication open and active.

Region 9 of US EPA is the regional office in San Francisco which covers activities of the agency through the Pacific Islands Program office. Region 9 has been supportive and appreciative of the GPA efforts to import low sulfur diesel fuel to Guam. The Office also is taking a keen interest in SO_2 non-attainment situation, which it would like to resolve. GPA's Strategic Planning and Operations Research Division supported the resolution of this non-attainment situation by working with Guam EPA, Sen. Telo Taitague and representatives from US EPA Region 9 in the conversion of the combustion turbine and fast-track diesel power plants from Regular Diesel to Ultra-Low Sulfur Diesel. GPA's Strategic Planning and Operations Research Division together with the Planning and Regulatory Division actively collaborated with US EPA and Guam EPA in the re-designation of the Cabras-Piti Area; the divisions continue to support Guam EPA in drafting the State Implementation Plan for submission in 2019.

Region 9 is a significant supporter of Green House Gas emission reductions, pollution prevention and sustainability initiatives. Expect support for any GPA initiatives in these areas.

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~~16.~~6. INITIATIVES AND RECOMMENDATIONS

GPA's Environmental Strategic Planning Team, composed of representatives from GPA's Strategic Planning & Operations Research Division, and Planning & Regulatory Division, ~~recommends the~~ have the following initiatives and recommendations to be able to provide safe, reliable, and responsive energy services in an environmentally sensitive and responsible manner:

Initiative 1: **Expanded Aggressive Compliance Program.** Compliance with current and upcoming Environmental Regulations should continue to be included in planning for GPA's generation, transmission and distribution resources, as well as energy services. This initiative has commenced and is ongoing with the inclusion of Environmental Compliance in GPA's Integrated Resource Plan. Future Compliance Considerations and Proposed Actions recommended in this plan should be considered and actively updated by the Environmental Strategic Planning Team. Timely, responsible and diligent tracking should also be done to ensure compliance with all permit requirements particularly those that immediately impacts operations, such as the permit requirements, emission limits and running hours

Initiative 2: **Continuous Communication.** Key Environmental Compliance Requirements shall be communicated regularly to internal partners (other GPA Divisions), and externally through meetings or discussions with stakeholders. This initiative has commenced and is ongoing through two internal Environmental Strategic Plan Presentations and conference calls with GPA's Environmental Consultant,

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and with a Stakeholder Meeting with representatives from the US Navy, Guam EPA and the Governor's Office. Continuous communication shall also be practiced on a daily, operational level, to ensure that operation is completed while maintaining regulatory compliance.

Initiative 3: Review Process. GPA should establish a process that ensures each major activity (CIP or Major O&M) undergoes review for compliance with environmental requirements stated in this Strategic Plan (such as PSD Applicability Determination). In complying with the various regulatory requirements, GPA shall consider the installation of control devices, the use of a different fuel type, and others such as to request exemption from USEPA. Process maps and SOPs will be created by the Planning and Regulatory Division to support various GPA divisions in this activity.

Initiative 4: Inclusion of Fuel Supply System in GPA Continuing Obligations. GPA should ensure that the fuel supply system is included in the continuing obligations and day-to-day O&M activities related to ensuring compliance with Environmental Regulations.

Initiative 5: Compliance Review for Temporary Power Generation. GPA should investigate and find solution(s) for the compliance issues currently affecting the temporary power generation units. In developing the plan for these units post contract period, GPA must consider the current issues and environmental compliance requirements.

Initiative 6: ~~Plant~~ Asset Retirement~~s~~ or De-activation. GPA should plan for the proper retirement or de-activation of various assets that are not in use, and to establish processes to ensure that the retirement or de-activation requirements are completed as required, including the recommendations illustrated in this ESP. The Assistant General Manager for Engineering & Technical Services (AGMETS) initiated this process through the establishment of Decommissioning Plan Guidelines.

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Initiative 7: GPA shall continue working on actions decreasing hazardous air emissions from the utility and the Guam Community. Some of the actions completed between 2010 and today were the transition from 0.5% Sulfur Diesel to Ultra-Low Sulfur Diesel (15ppm or less) for GPA's inland diesel-fired units, and the acquisition of 26.5 MW of Renewable Energy Contracts. GPA's leadership and facilitation of the effort to transition to ultra-low sulfur diesel decreased sulfur dioxide emissions in the Guam Transportation, Construction, Power Generation and other economic sectors. Furthermore, GPA has undertaken a Demand-side Management Program for residential customers, and large customers. These programs have created a virtual power plant of energy savings and hazardous air emission reductions.

Initiative 8: Skills Upgrade for Environmental Team. The AGMETS outlined skills upgrade for the Environmental Strategic Team, to reduce reliance on environmental consultants and service contracts. GPA shall build up its professional competency on Environmental Air Quality Modeling, Environmental Engineering Studies & Analysis including technical report writing, Environmental Law and managing Stakeholder Engagement.

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Initiative 9: Investigation on the Use of Electric Vehicles (Utility-scale and Island-Wide) for reduction of Emissions. GPA shall investigate the impact of conversion of diesel-fueled and gasoline-fueled vehicles to electric vehicles, and its impact on emissions and GPA operations.

Initiative 10: Investigation on Proper Disposal of Solar PV Panels and Lithium-Ion Batteries. In 2019, GPA is scheduled to start operating its Energy Storage System to help mitigate the impacts of intermittency from renewable energy resources and the impacts of under-frequency load shedding. Additionally, GPA awarded a contract for renewable energy supply of 120 MW. In line with these efforts, GPA shall look into the process for proper disposal of lithium-ion batteries and solar PV panels (including metals, chemicals and batteries) as part of the process for managing these assets.

The GPA Environmental Strategic Plan also recommends:

RECOMMENDATION 1: Regulatory Compliance and Solicitation for New Generation. Between 2016 through 2018, GPA and its environmental consultant, TRC, completed various studies regarding regulatory compliance for the new power plant, as well as the impact to the Guam environment. These studies were completed to support GPA's effort in getting approval and issuing a solicitation for New Generation to be located in the northern part of the island. Appendix G of the ESP summarizes the studies completed.

RECOMMENDATION 2: Continue tracking/monitoring developments for:

- Compliance requirements for NOx and PM emissions
- EGU MACT
- Clean Power Plan
- Affordable Clean Energy Plan

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~~**Initiative 7: GPA shall continue working on actions decreasing hazardous air emissions from the utility and the Guam community.** Some of the actions completed between 2010 and today were the transition from 0.5% Sulfur Diesel to Ultra Low (15 ppm or less) Sulfur Diesel for GPA's inland diesel-fired units, and the acquisition of 20 MW Renewable Energy Contract. GPA's leadership and facilitation of the effort to transition to ultra-low sulfur diesel decreased sulfur dioxide emissions in the Guam Transportation, Construction, Power Generation and other economic sectors. Furthermore, GPA has undertaken a Demand-Side Management Program with Large Customers and is working on programs for residential customers. GPA should provide additional resources (such as staffing and funding) to support these efforts under the Strategic Planning and Operations Research Division. These programs have created a virtual power plant of energy savings and hazardous air emission reductions.~~

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APPENDIX A

GUAM POWER AUTHORITY ENVIRONMENTAL POLICY

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APPENDIX B

LISTING OF CONTINUING OBLIGATIONS

1. AIR Act
    a. Annual Emission Testing
    b. Continuous Emission Monitoring and Relative Accuracy Test Audits
    c. Annual Emission Inventory and Fees
    d. New Source Performance Standards reporting
    e. Intermittent Control Strategy, Cabras-Piti Area, Fuel Switching and Reporting Requirements
    f. Title V permit reporting requirements
2. Water Act
    a. Section 316(b) Phase I and Phase II requirements
    b. Effluent Discharge Monitoring
    c. Discharge Monitoring Reports
    d. Toxicity Testing
    e. Best Management Practice Plan
    f. Annual Chemical Usage Report
    g. Spill Prevention Control and Countermeasures Plan
    h. Oil Pollution Prevention Response Plan

3. Resource Conservation and Recovery Act
    a. Solid/Hazardous Waste Management Plan
    b. Used Oil Recycling Plan

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4. Toxic Substance Control Act
    a. PCB Management Program
    b. Asbestos Operation and Management Plan

5. Environmental Planning and Community Right to Know
    a. Annual Toxic Release Inventory Report
    b. Oil Spill Emergency Response and Facility Response Plan

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APPENDIX C

CURRENT ENVIRONMENTAL COMPLIANCE FEES

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APPENDIX D

OFFICIAL COMMUNICATION – REDESIGNATION AND AAQM

- Ambient Air Quality Monitoring Plan
- Redesignation
  - Data Requirements Rule
  - Request for Redesignation of Tanguisson

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APPENDIX E

OFFICIAL COMMUNICATION – REGULATORY COMPLIANCE REQUIREMENTS

- EGU MACT Notice of Applicability
- RICE MACT Notice of Applicability and Compliance Deadline Extension
- PSD Permit Request, Dededo CT

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APPENDIX F

COMPLIANCE CHART

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APPENDIX G

STUDIES COMPLETED FOR THE PROPOSED NORTHERN POWER PLANT

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ATTACHMENT A: DRAFT HARMON MODELING, 04-15-16

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ATTACHMENT B: PRELIMINARY AIR QUALITY IMPACT ANALYSIS – PROPOSED NORTHERN POWER PLANT

~~1.~~ INTRODUCTION

GPA has proposed that a nominal 180 MW power plant be built consisting of three 60 MW combustion turbines. These are currently expected to be single cycle combustion turbines. The likely location is shown in Figure 1.

Figure 1: Proposed Site for New Power Plant in the Harmon Area.

The new plant would burn Ultra Low Sulfur Diesel (ULSD) fuel. The units would have the capability to burn natural gas, should gas become available. The new plant would be built with two add on control devices, presumably on each unit. The control devices would be Selective Catalytic Reduction (SCR) to remove nitrogen dioxide emissions and oxidation catalysts to remove carbon monoxide emissions.

These add on control devices will accomplish several objectives:

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~~a.~~ Reduction of emissions of nitrogen dioxide (NO_2) and carbon monoxide (CO) both of which are criteria pollutants and have NAAQS which must be met in order to protect the public.

a.

b. Reduction of emissions of volatile organic compounds, especially formaldehyde, which are products of combustion of oil. Some reduction of particulate matter emissions would also occur.

c. The reduced emissions would qualify the entire plant to be a "minor" source which means less than 250 tons per year of any one pollutant. The permitting of a minor source is easier, quicker and can be done by the Guam EPA. It avoids the New Source Review requirements for Best Available Control Technology (BACT), Maximum Achievable Control Technology (MACT) for major sources and detailed modeling analysis.

EMISSIONS

~~2.~~

Emissions were estimated using data for GE LM6000 combustion turbines for data were on file. These data are for the criteria pollutants from oil firing assuming SCR and oxidation catalysts are being used. Emissions for natural gas firing would be lower.

~~6000~~Table 1: Estimated Emissions Using GE LM6000 Combustion Turbine Data Provided by GPA

Load	100% VFR Scaling Factor	Volume Flow Rate	Stack Diameter	Stack Velocity	Stack Temp	NO_X	CO	SO_2	$PM_{10}/PM_{2.5}$
%		ACFM	ft	m/s	ºF	lb/hr	lb/hr	lb/hr	lb/hr
100	-	312,304	10	20.1999998	212	7.4	6.52	0.7	5.91
75	0.84	263,132	10	17.02	212	5.95	5.24	0.56	4.74
50	0.73	226,477	10	14.65	212	4.51	3.98	0.42	3.6
25	0.58	179,704	10	11.62	212	3.11	2.75	0.29	2.49

Data for Hazardous Air Pollutants were determined using US EPA's emission factor documents. Again, emissions for natural gas would be far lower or non-existent. They are as follows:

Table 2: Estimated HAPs Using GE LM6000 Combustion Turbine Data Provided by GPA

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Hazardous Air Pollutant	Pounds/1000 gallons	Pounds/Hour
Benzene	0.000214	0.00020152
Formaldehyde	0.033	0.0310761
Naphthalene	0.00113	0.00106412
111 Trichloroethylene	0.000236	0.00022224
Toluene	0.00062	0.00058385

Table 3: Estimated Metal Emissions Using GE LM6000 Combustion Turbine Data Provided by GPA

Metals	Pounds per trillion BTU	Pounds/Hour
Arsenic	4	0.00522
Beryllium	3	0.003915
Cadmium	3	0.003915
Chromium	2	0.00261
Lead	9	0.011745
Mercury	3	0.003915
Nickel	3	0.003915
Selenium	15	0.019575

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~~Hazardous Air Pollutant~~ ~~Pounds/1000 gallons~~ ~~Pounds/Hour~~

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~~Benzene~~	~~0.000214~~	~~0.00020152~~
~~Formaldehyde~~	~~0.033~~	~~0.0310761~~
~~Naphthalene~~	~~0.00113~~	~~0.00106412~~
~~111 Trichloroethylene~~	~~0.000236~~	~~0.00022224~~
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~~Metals~~	~~Pounds per trillion BTU~~	
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~~Lead~~	~~9~~	~~0.011745~~

~~Mercury~~	~~3~~	~~0.003915~~
~~Nickel~~	~~3~~	~~0.003915~~
~~Selenium~~	~~15~~	~~0.019575~~

~~3. Modeling~~

Modeling of these emissions was accomplished by the standard methods following the Guideline on Air Quality models and the methods in the modeling for the DRR which were approved by Guam EPA and USEPA region 9. Meteorological data from the Guam Airport was used. The modeling results for the criteria pollutants can be summarized as follows:

Table 4: Modeling Results for Criteria Pollutants, GPA Proposed Power Plant Using GPA data for GE LM6000 Combustion Turbine

Pollutants	Cabras 1&2 (RFO-Fired) µg/m³	Proposed Power Plant, Notional Emissions (ULSD-Fired) µg/m³	NAAQS ~~Standards~~ (1-HOUR) µG/M³	Emissions Improvement over NAAQS %	Emissions Improvement over Cabras 1&2 %
Sulfur Dioxide (SO_2)	443	0.78	196	99.60%	99.82%
Nitrogen Oxides (NO_x)	80.8	6.51	188	96.54%	91.94%
Carbon Monoxide (CO)	8.6	9.42	40,000	99.98%	-9.53%
Particulate Matter	26.9	3.54	35	89.89%	86.84%

~~The~~ The table contains a comparison to the modeling results for Cabras 1& 2 on Refinery fuel Oil. Note that the maximum air quality impacts from the new plant are substantially below the NAAQS for each pollutant and that there would be a substantial air quality improvement over the impact of Cabras 1 & 2. CO emissions are much lower than NAAQS requirements, however, there is a slight increase in CO emissions for Combustion Turbine compared to Steam Turbine units.

Modeling for the Hazardous Air Pollutants was done in the same manner. The results are compared to the USEPA Region 9 residential Risk Concentration despite there being no residences in the area.

Table 5 and 6: Modeling Results vs. USEPA Region 9 Residential Risk Concentration; Comparison to Toxic Endpoints

~~Comparison to Air Toxic Endpoints~~

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Volatile Organic Compounds (VOCs)	Predicted Concentration µg/m³	EPA Regional Residential Risk Concentration µg/m³	Times lower than the Risk Concentration
Benzene	1.40E-05	0.36	25,713
Formaldehyde	0.002159	0.22	101
Naphthalene	7.39E-05	0.082	1,109
Trichloroethylene	1.54E-05	0.048	3,116 ~~3,116~~
Toluene	4.06E-05	5200	128,078,817 ~~128,078,817~~
~~METAL~~	~~Predicted Concentration~~ ~~µg/m³~~	~~EPA Regional Residential Risk Concentration~~ ~~µg/m³~~	~~Times lower than the Risk Concentration~~
~~Arsenic~~	~~0.000363~~	~~0.00065~~	~~2~~
~~Beryllium~~	~~0.000272~~	~~0.0012~~	~~4~~
~~Cadmium~~	~~0.000272~~	~~0.0016~~	~~6~~
~~Lead~~	~~0.000816~~	~~0.15~~	~~184~~
~~Mercury~~	~~0.000272~~	~~0.0031~~	~~11~~
~~Nickel~~	~~0.000272~~	~~0.011~~	~~40~~
~~Selenium~~	~~0.00136~~	~~21~~	~~15439~~

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METALS	Predicted Concentration µg/m³	EPA Regional Residential Risk Concentration µg/m³	Times lower than the Risk Concentration
Arsenic	0.000363	0.00065	2
Beryllium	0.000272	0.0012	4
Cadmium	0.000272	0.0016	6
Lead	0.000816	0.15	184
Mercury	0.000272	0.0031	11
Nickel	0.000272	0.011	40
Selenium	0.00136	21	15439

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Figures showing the isopleths of concentration for some of the pollutants modeled are show below~~:~~.

~~Conclusions~~

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~~The new power plant burning ULSD and with controls will have little to no impact on air quality and be well below any regulatory standards that apply. If natural gas becomes available, even less impact can be expected.~~

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Figure 2: Harmon Modeling for Three (3) LM6000 Engines, ULSD Firing

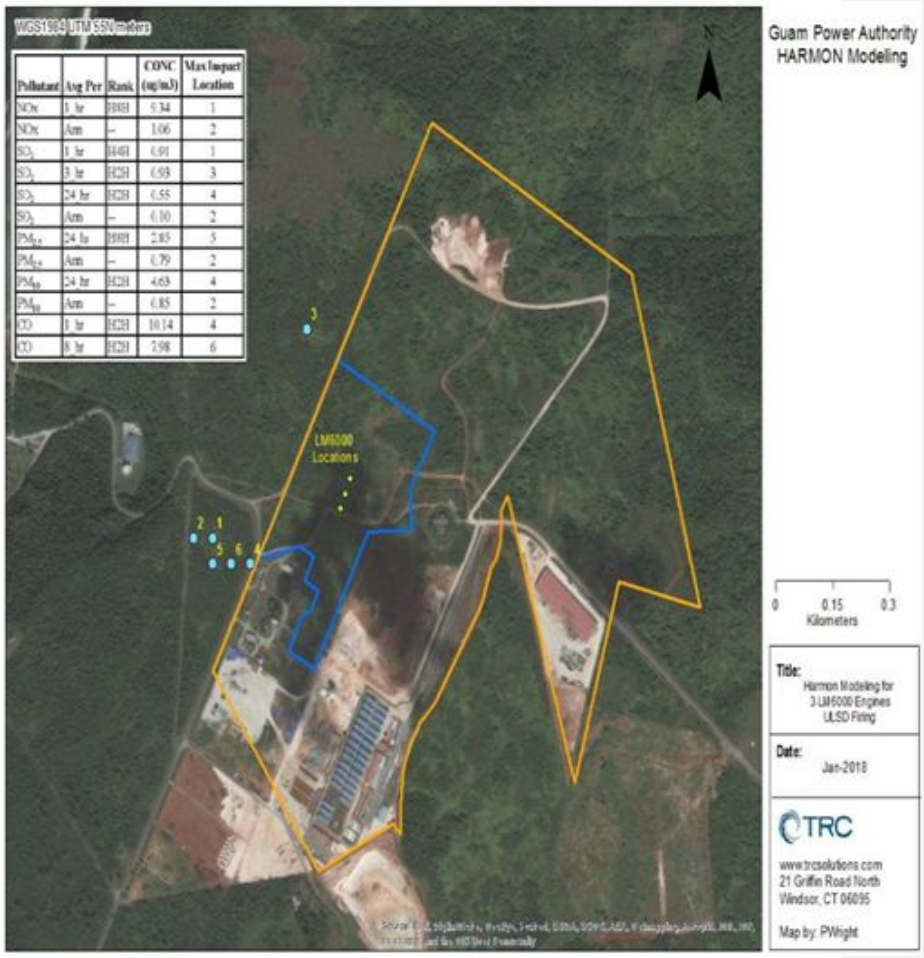

Figure 3: Harmon Modeling PM2.5 24-Hour HBH Isopleths

~~Conclusions~~

~~Conclusions~~CONCLUSION

The new power plant burning ULSD and with controls will have little to no impact on air quality and be well below any regulatory standards that apply. If natural gas becomes available, even less impact can be expected.

~~4.~~

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~~The new power plant burning ULSD and with controls will have little to no impact on air quality and be well below any regulatory standards that apply. If natural gas becomes available, even less impact can be expected.~~

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GPA INFORMATION TECHNOLOGY

JANUARY 2019

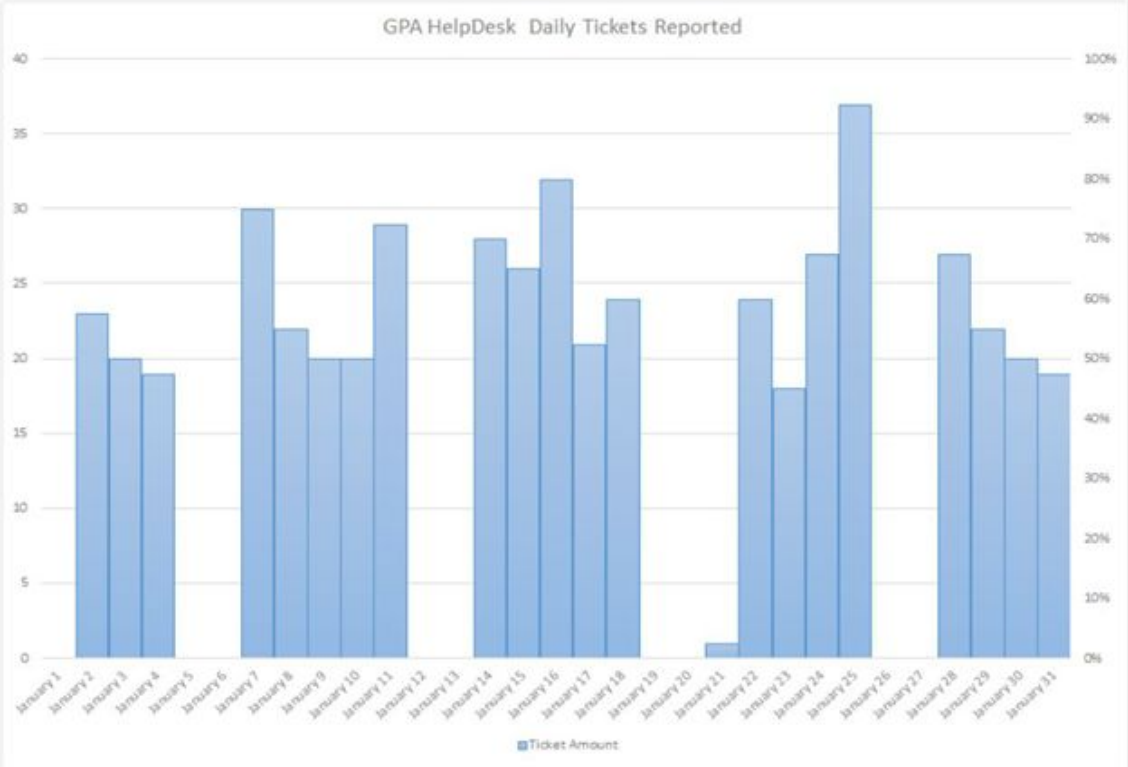
SUMMARY:

The Information Technology Department continues to improve services, monitoring processes and system infrastructure utilization as guided by Cyber-Security initiatives and regulatory compliance. We strive and continue to improve all areas. Computer Services continues to seek new technology with networking, system access and utilization. We also strive to meet target levels of uptime, to include the IBM i-Series AS400, Virtual Machine environment, (VMware V-Sphere), (Blade Servers and Disk Array Storage), and Physical Servers, (non-Virtual Machines).

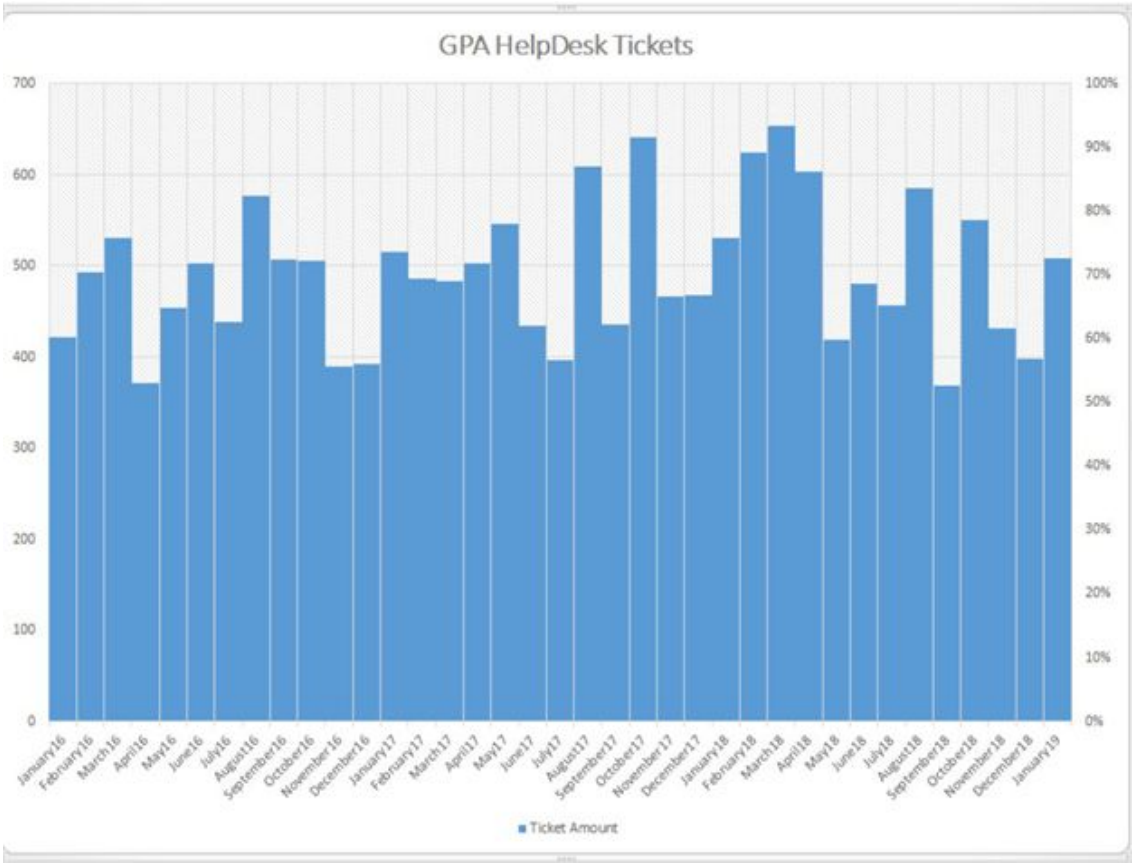
INCIDENT CALL SUMMARY:

The significance to record and utilize the Helpdesk Incident Handling Tool (ChangeGear) is to manage, track and measure workloads and assignments of customer reported IT incidents. The tracking of incidents is paramount. Measurements will be used for IT Customer Feedback survey in the future.

JANUARY 2019 TICKETS



22 MONTH COMPARATIVE

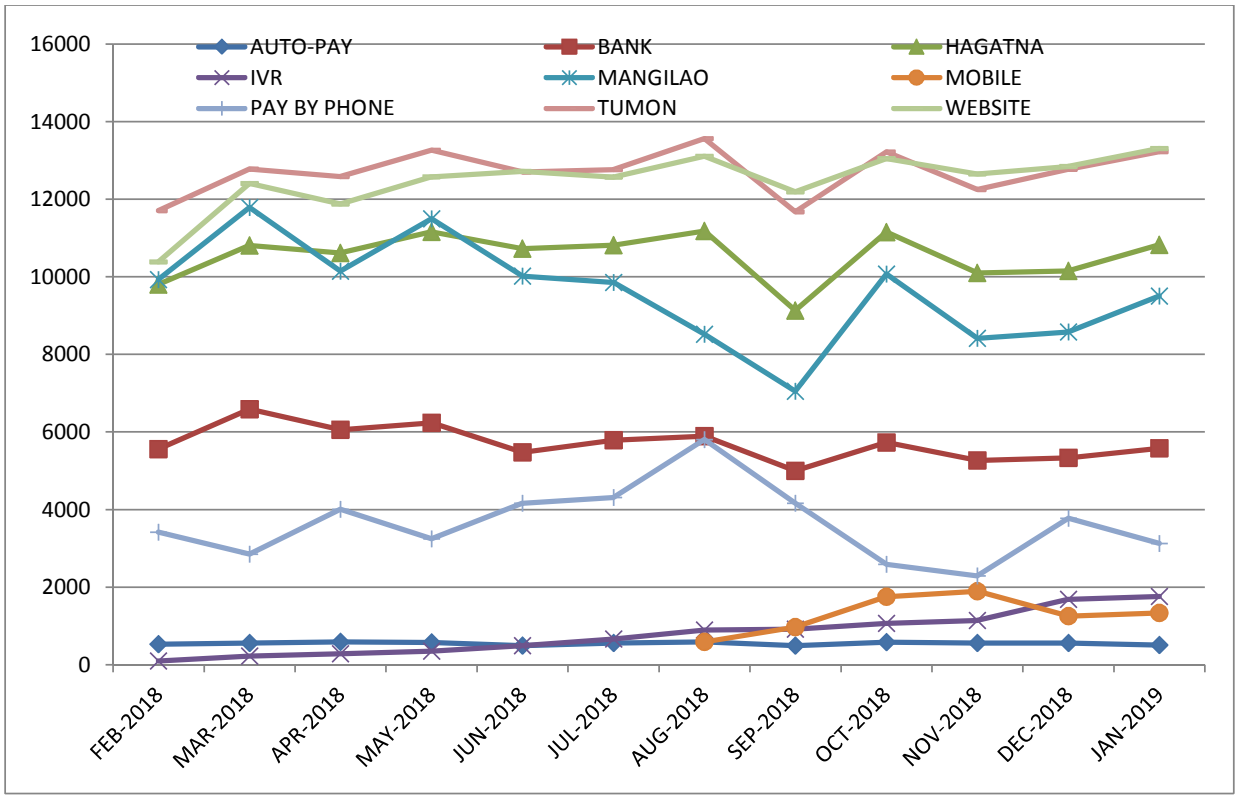


For January 2019, Computer Services responded to 521 help desk calls from GPA internal and external customers. Breakdown as follows:

CLOSED TICKETS			
Low	**Medium**	**High**	**Critical**
263	120	125	1
TICKET TYPES			
End User	**Hardware**	**Software**	**Network**
464	13	30	2
OPEN TICKETS			
Low	**Medium**	**High**	**Critical**
3	3	6	0
TICKET TYPES			
End User	**Hardware**	**Software**	**Network**
8	1	3	0

CC&B PAYMENT SUMMARY TRANSACTIONS:

Payment Transactions by On Site/Website/Auto-Pay/BANK/Mobile



Payment Transactions by Count:

Row Labels	AUTO-PAY	BANK	HAGATNA	MOBILE	MANGILAO	IVR	PAY BY PHONE	TUMON	WEBSITE
FEB-2018	531	5559	9801	98	9930		3418	11701	10379
MAR-2018	562	6582	10807	220	11783		2851	12773	12399
APR-2018	589	6059	10609	284	10139		4006	12580	11875
MAY-2018	571	6231	11158	348	11493		3246	13262	12576
JUN-2018	493	5476	10723	490	10018		4160	12698	12712
JUL-2018	557	5787	10812	661	9852		4312	12761	12563
AUG-2018	590	5890	11178	895	8517	588	5804	13562	13102
SEP-2018	493	4995	9127	916	7050	966	4158	11668	12189
OCT-2018	582	5728	11151	1069	10067	1755	2587	13218	13047
NOV-2018	558	5267	10095	1139	8410	1893	2290	12246	12646
DEC-2018	562	5330	10152	1683	8577	1254	3777	12766	12840
JAN-2019	506	5577	10824	1761	9502	1333	3128	13223	13303
Grand Total	**6594**	**68481**	**126437**	**9564**	**115338**	**7789**	**43737**	**152458**	**149631**

MAJOR APPLICATION ISSUES FOR JANUARY 2019

1. ORACLE CUSTOMER CARE & BILLING
   Database merge completed on Dec. 2, 2018.

2. LANDIS & GYR AMI METERS (SMART METERS)
   No system issue reported.

3. ORACLE JDE
   No system issue reported.

4. METER DATA MANAGEMENT SYSTEM (MDMS)
   No system issue reported.

5. SHORETEL VOIP PHONE SYSTEM
   No system issue reported.

6. EMAIL EXCHANGE SERVER
   No system issue reported.

7. ONLINE PAYMENT SYSTEM (PAYGPA.COM)
   No system issue reported.

8. GEOGRAPHIC INFORMATION SYSTEM (GIS)
   No system issue reported.

9. MILSOFT OUTAGE MANAGEMENT SYSTEM (OMS)
   No system issue reported.

10. ADVANCED GRID ANALYTICS (AGA)
    Application is currently undergoing a system upgrade.

11. Mobile APP Payment Program
    No system issue reported.

ONGOING PROJECT UPDATES:

Customer Care & Billing (CC&B) Upgrade: Upgrade of the current Oracle CC&B program from version 2.4 to version 2.6. The current version of CC&B 2.4 will be end of life by Sept. 30, 2017 and support thereafter will be limited. Completed the Database and Application update as of July 2018. Final part of database merge is currently ongoing. Expected completion by Dec. 3, 2018.

Update: CC&B final database merge was completed on Dec. 2, 2018.

Disaster Recovery Site: Project to procure a Disaster Recovery (DR) site to provide redundancy for critical GPA applications and databases in case of disruption of the primary Fadian Data Center. Incorporating GWA requirements into proposal.

Update: RFP has been released as of Feb. 12th.

Physical Security: Project to provide additional surveillance monitoring for Fadian, T&D, Dededo CT and Transportation Warehouse. Kickoff meeting was on Oct. 9 and camera and PA system installation is scheduled to start in October and currently ongoing.

Update: Phase 1 – Installation of Camera's and Public Announcement (PA) system is currently ongoing at the Fadian.

GPWA Website Upgrades: Project to revamp GPA and GWA websites for the following, GUAMPOWERAUTHORITY.COM, PAYGPA.COM, GUAMWETERWORKS.ORG and PAYGWA.COM. RFP Responses has been reviewed and awaiting clarification of proposals. PO has been awarded and project is ongoing.

Update: Project is ongoing.

Oracle CHAT-BOT: Project to provide Oracle Chat Bot services to GPA's PAYGPA.COM, Mobile APP and Facebook Program. This will allow customers to utilize a CHAT program to make inquiries to frequently asked questions and inquiries on their account. Project has started and expected completion by Oct. 31. Project has just completed testing and looking to transfer into production by Nov. 2018.

Update: Because of the CC&B database merge, additional configuration changes needed to be made. Vendor is working on the changes.

Landis & Gyr Command Center upgrade from ver. 6.5 to 7.2: Project to upgrade GPA AMI Smart Meter Program to the latest version of 7.2. This will allow new functionality for the Command Center and Smart Meter Integration. Revised completion by October 2018. Delayed due to the ongoing CC&B Database Merge project to Jan. 2019.

Update: Upgrade is scheduled for end of Feb. 2019.

JDE OneWorld to E1 Upgrade: License review is currently being done for both GPA and GWA to determine software and hardware requirements. Vendor is expected to start Process Review and Scoping for the project from Dec. 10 to Dec. 21.

Update: Vendor has completed the initial workshop and review of Scope of Work.

Submitted by:
Melvyn Kwek
Chief Information Technology Officer

Guam GPA & GWA EMS/SCADA System

SIEMENS

GUAM POWER AUTHORITY
Bringing Energy Solutions to You

GUAM WATERWORKS AUTHORITY

Monthly Project Report

January 2019

Grow together and WIN

Unrestricted

Project Progression Summary

1. SAT punch list pending items completed as follows
    a) SP5 functionality SAT
        i. All punch list items completed
    b) Server SAT
        a) Installation of the replacement web server completed

2. Advance Applications Integration
    a) Outage Management System (OMS)
        i. OMS integration requires more time
            a) Siemens Germany (Head office) working with OMS vendor (Milsoft) to achieve full integration
                1) SP5 and OMS native programming language incompatible
                    I. Middleware solution proposed and pending procurement, deployment and testing

3. Siemens Germany to connect to GPWA SCADA via VPN connection
    a) VPN connection currently under construction
    b) Siemens Germany personnel coursing vetting process IAW cyber security requirements
        i. Access will be granted upon completion of items a & b

4. Meeting and discussion with GPWA for extension to complete advance application integration

GPWA SCADA EMS Project Bid No. GPA 066-16

Contract Administrator: Monito Co

Overall Status				G
Burn Rate	This Month	Last Month	Incremental	
Scope (%)				
Budget (%)	13.2%			
Milestones Achieved	1, 3-12, & 14 of 18			

Resources

1. Benson/Siemens
2. GPWA

Risks & Issues	G	Schedule	G	Scope	G	Financial	G

Updates & Accomplishments -- Month of January 2019	Resource	Upcoming Tasks / Open Items	TCD/ECD
1. Punch list items identified for SP5 functionality SAT and Server SAT completed	GPWA Benson/Siemens	Setup of VPN connection	Feb. 8, 2019
	GPWA Benson/Siemens	OMS Integration	Jan. 31, 2019
	GPWA Benson/Siemens	Issuance of SAT Acceptance Certificates	Mar. 31, 2019
	GPWA Benson/Siemens	Commencements: 1. 1000 hours availability testing 2. 1-year Warranty period	Mar. 31, 2019

Risks and Issues	DATE IDENTIFIED	Resolution	RESOLUTION DEADLINE

Legend:

G No corrective action required

Y Near-term corrective action required

R Requires immediate attention

GPWA SCADA EMS Project
Bid No. GPA 066-16

Contract Administrator: Monito Co

Overall Status — G

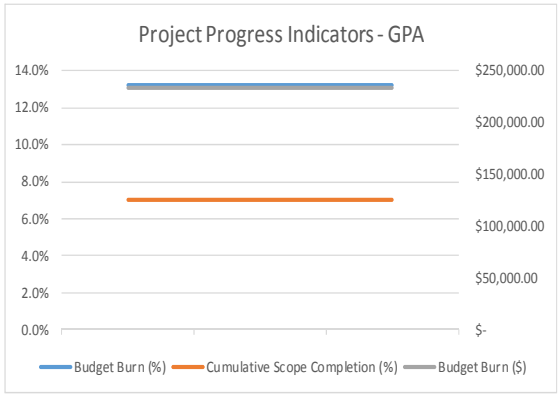
Burn Rate	This Month	Last Month	Incremental
Scope (%)			
Budget (%)	13.2%		
Milestones Achieved	1, 3-12, & 14 of 18		

Resources

1. Benson/Siemens
2. GPWA

Risks & Issues	Schedule	Scope	Financial
G	G	G	G

Project Progress Indicators



Phase I	$ 1,518,769.00		$ 1,518,769.00	6
Phase I	$ 1,518,769.00	$ 250,537.38	$ 1,769,306.38	6

Project Schedule & Budget Performance Indicators

Factory Activities (In Taiwan / Germany)	9-Jul-18
Approval of revised documentation	4-Dec-17
Preliminary Factory Acceptance Test (Pre-FAT) in Taiwan	2-May-18
- Base Applications	27-Apr-18
- Advanced Applications	2-May-18
Factory Acceptance Test (FAT) in Taiwan	10-Jun-18
- Advanced Applications	7-May-18
- Hardware delivery to Site	31-May-18
Site Activities (In Guam)	1-Oct-18
Site Commissioning (Point to point testing)	29-Aug-18
Site Commissioning (GPA - Point to point testing)	28-Aug-18
Issuance of Site Commissioning Completion Certificate	28-Aug-18
Site Acceptance Test (SAT)	14-Dec-18
- Advanced Applications	17-Dec-18
Investigation of variance / bug (SAT if any - Advanced Applications)	15-Dec-18
Issuance of Site Acceptance Certificate	31-Dec-18
Availability Test (AVT) - 1000hrs (42 Calendar Day, 28 working day)	11-Feb-19
Issuance of AVT Certificate	11-Feb-19
Handover of System to end customer	11-Feb-19
Commencement of warranty (12 months)	11-Feb-19
Issuance of Final Acceptance Certificates (FAC)	11-Feb-20

Legend:

G — No corrective action required

Y — Near-term corrective action required

R — Requires immediate attention

GPWA SCADA EMS Project
Bid No. GPA 066-16

Contract Administrator: Monito Co

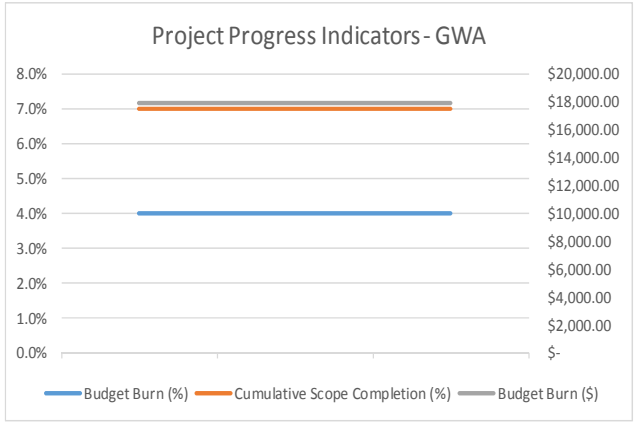
Overall Status				G
Burn Rate	This Month	Last Month	Incremental	
Scope (%)				
Budget (%)	13.2%			
Milestones Achieved	1, 3-12, & 14 of 18			

Resources

1. Benson/Siemens
2. GPWA

Risks & Issues	Schedule	Scope	Financial
G	G	G	G

Project Progress Indicators



Phase I	$ 432,705.00		$ 432,705.00	6
		$ 18,000.00	$ 450,705.00	6

Project Schedule & Budget Performance Indicators

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Legend:

G No corrective action required

Y Near-term corrective action required

R Requires immediate attention

5

GPWA SCADA EMS Project
Bid No. GPA 066-16

Contract Administrator: Monito Co

Overall Status			G
Burn Rate	**This Month**	**Last Month**	
Scope (%)			
Budget (%)			
Milestones Achieved	1, 3-12,& 14 of 18		
1. Mobilization			
2. Project Management			
3. Permits, Bonds and Codes			
4. Project Installation Site Survey			
5. Interconnection and Integration Design			
6. Communications and Networking Design and Execution Plan			
7. Installation Design			
8. Software Cost, Procurement and Delivery			
9. Third Party Software Cost, Procurement and Delivery			
10. Software Installation			
11. Equipment Cost, Procurement and Delivery			
12. Construction, Equipment Installation and Interconnection			
13. Commissioning, Quality Assurance and Performance Testing			
14. Training			
15. Demobilization			
16. Warranty			
17. Documentation			
18. Annual Maintenance			

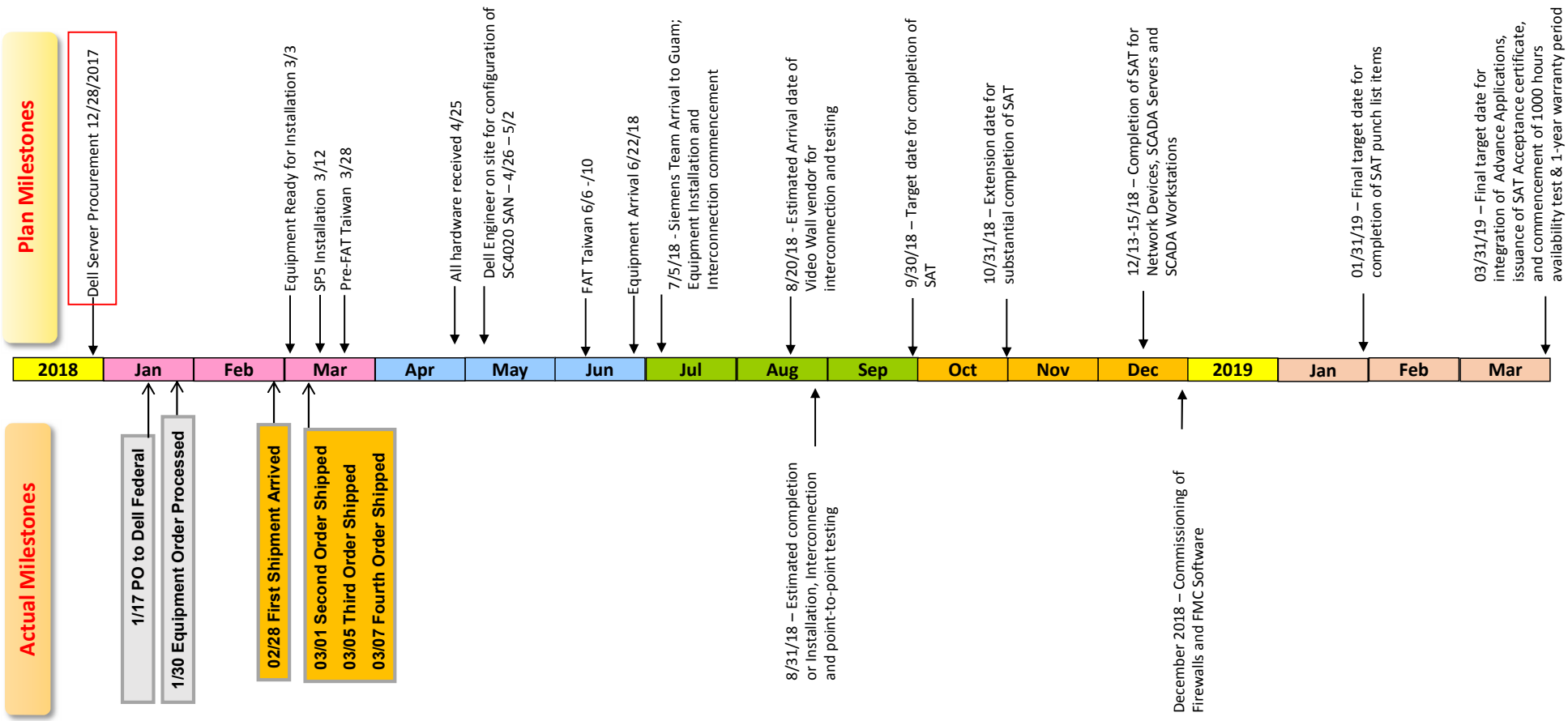
Legend:

G — No corrective action required

Y — Near-term corrective action required

R — Requires immediate attention

Project Timeline



NET METERING
January 2019

	Quantity	Connected kVA
Completed	1,875	20,415
Pending	19	241
Grand Total	1,894	20,656

Rate Class and Technology

Technology	Schedule	Customer Count	Total kW
Solar Energy	R - Residential	1,774	16,424.68
	J - Gen Service Dmd	34	1,823.91
	K - Small Gov Dmd	9	317.80
	L - Large Government	2	122.80
	P - Large Power	4	340.70
	G - Gen Serv Non-Dmd	43	1,302.96
	S - Sm Gov Non-Dmd	7	78.80
Wind Turbine	R - Residential	2	3.60
Grand Total		**1,875**	**20,415.24**

Projection Date Ending 12/31/2019

Customer Rate Class	Sum of Size (kW)	Sum of Projected Annual kWh Generated	Min of under recovery (subsidy) / kWh	Sum of Estimated Annual Subsidy
R	16,428.28	27,179,601	0.087492	$ 2,377,998.41
J	1,823.91	3,003,796	0.125682	$ 377,523.23
K	317.80	523,052	0.133883	$ 70,027.73
L	122.80	205,378	0.129809	$ 26,659.90
P	340.70	559,102	0.109950	$ 61,473.28
G	1,302.96	2,172,411	0.145397	$ 315,862.08
S	78.80	126,250	0.147902	$ 18,672.63
Grand Total	**20,415.24**	**33,769,589**	**0.087492**	**$ 3,248,217.25**

*Estimated number of hours from NREL for Guam (13.4 degrees North and 144 degrees East).

Estimated Annual Revenue Loss (prior to 2019 model changes)

Description	Estimated kWh	*Total Estimated Cost
FY18	34,981,036	$ 3,521,130.12
FY17	28,242,917	$ 2,828,834.71
FY16	21,867,383	$ 2,200,794.56
FY15	7,383,621	$ 856,921.27
FY14	3,137,212	$ 410,558.94
FY13	1,556,949	$ 178,996.00
FY12	494,672	$ 58,545.89
FY11	170,070	$ 18,177.13
FY10	98,830	$ 8,483.27
FY09	23,912	$ 1,656.87

*Source for effective yield rate from the Year End Revenue Reports (12 month Average Yield)

NET METERING

January 2019

Customer Count and Connected kW by Feeder

Status	Feeder	Net Metering Connected kW	Customer Count	% of Feeder Maximum kW	% of Feeder Minimum Daytime kW
Completed	P-005	263.73	25	15.3%	30.7%
	P-046	257.06	31	6.1%	9.3%
	P-088	661.12	72	11.0%	17.4%
	P-089	568.74	71	12.7%	30.6%
	P-111	90.00	2	1.7%	2.9%
	P-203	452.98	36	6.0%	17.2%
	P-204	135.63	16	2.9%	6.0%
	P-205	36.40	4	0.8%	1.3%
	P-210	534.77	54	10.5%	14.2%
	P-212	985.87	95	23.8%	61.7%
	P-213	303.83	12	11.6%	15.6%
	P-220	179.22	20	29.4%	92.4%
	P-221	598.28	61	13.6%	27.1%
	P-223	553.43	60	23.2%	33.2%
	P-240	58.55	2	0.9%	7.9%
	P-245	135.00	3	2.7%	5.8%
	P-250	1,112.74	112	17.1%	30.1%
	P-251	145.50	7	5.9%	9.0%
	P-253	549.90	57	12.2%	19.3%
	P-262	1,071.60	109	28.1%	67.5%
	P-270	392.20	33	7.7%	15.5%
	P-271	129.78	12	2.2%	4.7%
	P-272	263.81	19	10.3%	23.4%
	P-280	339.07	27	18.9%	35.1%
	P-281	189.70	4	6.8%	18.9%
	P-282	31.75	4	0.8%	2.6%
	P-283	550.18	51	15.2%	26.1%
	P-294	1,184.00	112	27.4%	54.2%
	P-301	213.66	23	15.1%	26.9%
	P-311	1,009.49	55	25.3%	43.3%
	P-322	1,277.08	101	16.8%	33.4%
	P-323	308.35	20	6.5%	20.3%
	P-330	617.79	77	11.4%	22.8%
	P-331	760.48	86	12.1%	19.5%
	P-332	541.27	61	9.6%	14.0%
	P-340	534.38	47	29.5%	64.9%
	P-087	1,222.42	130	31.1%	48.8%
	P-252	599.13	32	14.2%	29.0%
	P-321	288.73	27	5.2%	5.8%
	P-260	70.96	7	10.3%	35.5%
	P-067	86.20	10	1.0%	1.3%
	P-312	82.24	5	4.9%	5.7%
	P-206	18.33	2	1.9%	3.4%
	P-242	23.75	2	0.4%	1.1%
	P-310	181.57	8	6.6%	12.1%
	P-261	438.76	47	15.8%	27.2%
	P-201	45.00	6	1.3%	2.3%
	P-007	85.86	8	11.9%	25.3%
	P-244	36.56	2	2.1%	2.1%
	P-202	39.50	3	1.2%	2.9%
	P-341	4.30	1	0.4%	1.6%
	P-401	117.00	2	10.3%	17.3%
	P-400	37.64	2	3.9%	4.0%
Completed Total		**20,415.24**	**1,875**		
Pending	P-322	100.00	1	1.3%	2.6%
	Pending	129.41	17	0.0%	0.0%
	P-341	11.25	1	1.0%	4.3%
Pending Total		**240.66**	**19**	**2.3%**	**6.9%**
Grand Total		**20,655.90**	**1,894**		

Feeders highlighted in red indicates renewable energy capacity has exceeded 25% of minimum daytime load.

Feeders highlighted in yellow indicates renewable energy capacity has reached 15% to 24% of minimum daytime load.

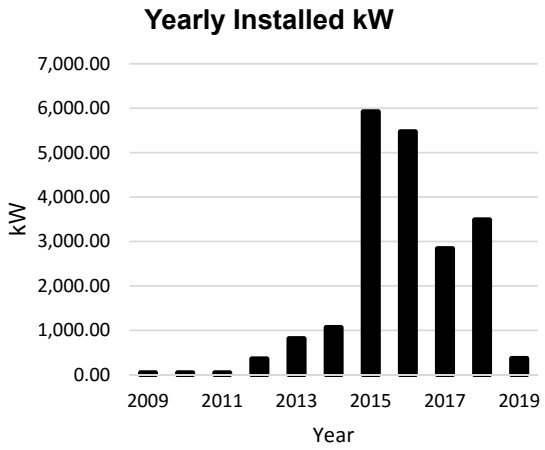
NET METERING
January 2019

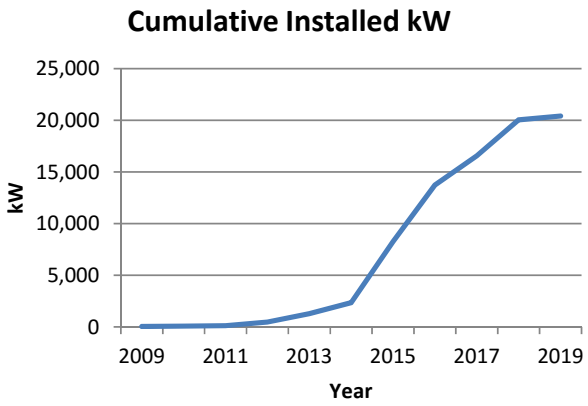
Installed kW by Year

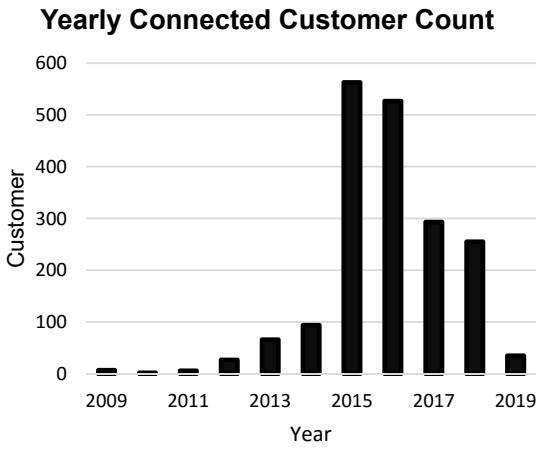
Year	Total	Cumulative
2009	39.46	39.46
2010	39.20	78.66
2011	41.61	120.27
2012	354.61	474.88
2013	808.15	1,283.03
2014	1,060.04	2,343.07
2015	5,920.39	8,263.46
2016	5,468.49	13,731.94
2017	2,836.10	16,568.04
2018	3,485.23	20,053.27
2019	361.97	20,415.24
Grand Total	20,415.24	

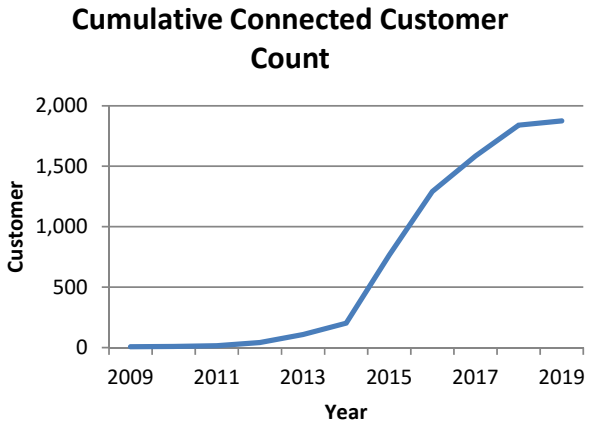
Customer Count by Year

Year	Total	Cumulative
2009	7	7
2010	2	9
2011	6	15
2012	27	42
2013	66	108
2014	94	202
2015	563	765
2016	527	1,292
2017	293	1,585
2018	255	1,840
2019	35	1,875
Grand Total	1,875	







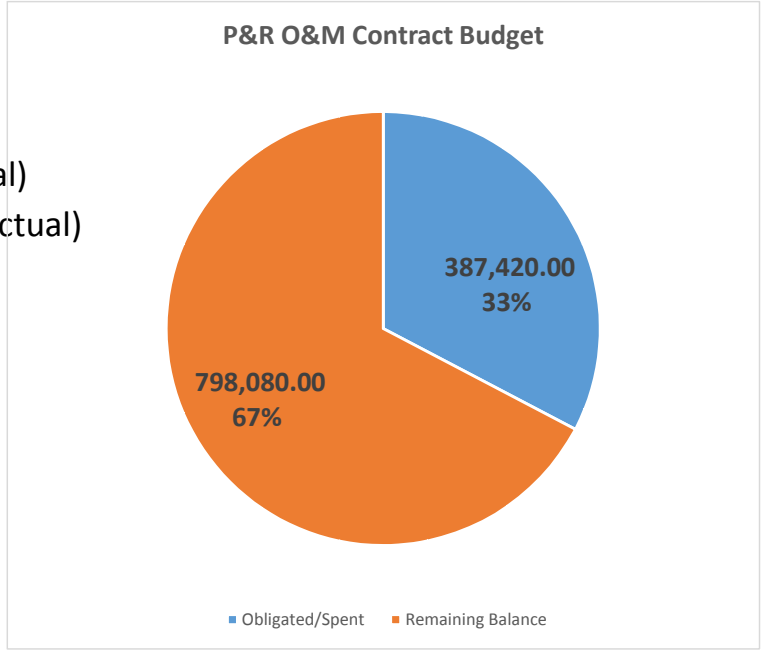


Planning & Regulatory CCU Report

January 31, 2019

Planning & Regulatory O&M Contract Budget

- Revenue Funded
- Target
  - 0.10% O&M Obligation as of October 31, 2018 (Actual)
  - 24.24% O&M Obligation as of November 30, 2018 (Actual)
  - 32.68% O&M Obligation as of Dec. 31, 2018 (Actual)
  - 77.71% O&M Obligated by March 31, 2019



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P&R Weekly & Monthly Inspection Reports

- Best Management Practices (BMP) Report Summary [Weekly]
- Generation Spill Prevention, Control, and Countermeasures (SPCC) Report Summary [Monthly]
- T&D Spill Prevention, Control, and Countermeasures (SPCC) Report Summary [Monthly]

- GPA is responsible to employees, the island environment, and the community to take all reasonable steps necessary to prevent spills from its facilities in order to protect human health and the environment

P&R Inspection Report Purpose

- The purpose of these inspections is to catch discrepancies and violations internally and correct them before inspections by Guam EPA and US EPA
- Regulatory Agencies can conduct scheduled or un-scheduled (surprise) inspections any time
- Any major discrepancies or violations cited can lead to issuance of a Notice of Violation (NOV), possible fines, and/or other enforcement action
- P&R conducts routine SPCC inspections in compliance with the requirements of 40CFR 112.7(a)(3)(ii), Discharge Prevention Measures

WEEKLY BMP REPORT SUMMARY
CABRAS POWER PLANT
MONTH OF JANUARY 2019

LEGEND OF TRACKING

- Notification Date
- Within Scheduled Remediation Period
- Completed
- Deadline is Past Due

INSPECTOR: NOEL P. CRUZ

LOCATION	WE 01/04/19 FINDINGS	WE 01/11/19 FINDINGS	WE 01/18/19 FINDINGS	WE 01/25/19 FINDINGS	RECOMMENDATION/ REMARKS	INITIAL FINDINGS DATE	DUE DATE	DATE COMPLETED	RESPONSE
Infiltration Pond (Cabras 3&4)	Debris next to ponding basin	Debris next to ponding basin	Debris next to ponding basin	Debris next to ponding basin	Remove debris	11/9/2018	ASAP		
	Container van with used insulation	Container van with used insulation	Container van with used insulation	Container van with used insulation	Remove	11/16/2018	ASAP		
	Overgrown grass	Overgrown grass	Overgrown grass	CORRECTIVE ACTION COMPLETED	Cut grass	1/2/2019	ASAP	1/25/2019	*1/11 Inspection - to be scheduled with Facility*
Power Plant Bldg/Grounds Facility (Cabras 1, 2, 3, & 4)	Corroded metal debris and container vans near Admin building	Corroded metal debris and container vans near Admin building	Corroded metal debris removed & container van currently being painted with rust-inhibiting paint.	Corroded metal debris removed & container van currently being painted with rust-inhibiting paint.	Remove	11/2/2018	ASAP		
Cabras 1&2 Basement	Water accumulation in the basement	Water accumulation in the basement	Water accumulation in the basement	Water accumulation in the basement	Water were pumped out. Condition recurs and will require major repair according to Operations.	10/19/2018 1/10/2014	Dec. 2018		*Major repair by end of 2018*
	Uncovered used oil drum	Uncovered used oil drum	Oil from used oil drum moved to WOF	CORRECTIVE ACTION COMPLETED	Place cover on drum	11/2/2018	ASAP	1/1/2019	
	Flourescent bulbs and light fictures inside crate at basement	Flourescent bulbs and light fictures inside crate at basement	Flourescent bulbs and light fictures inside crate at basement	Flourescent bulbs and light fictures inside crate at basement	Schedule for proper disposal	1/2/2019	ASAP		
Pavillion Area (Cabras 3&4 side, generator building)	Various debris and soil pile	Various debris and soil pile	Various debris and soil pile	Various debris and soil pile	Remove debris and spread out soil if not contaminated. Oil present. Schedule disposal	2/8/2013	ASAP		
			Pavilion near outfall & SPCC bldg. all rusted/deteriorated	Pavilion near outfall & SPCC bldg. all rusted/deteriorated	NPDES samples test result high in Fe.	1/18/2019	ASAP		

T&D SPCC Inspection Report

SUMMARY OF SPCC MONTHLY INSPECTION REPORT
MONTH OF JANUARY, 2019

LEGEND OF TRACKING

- Notification Date
- Within Scheduled Remediation
- Completed
- Deadline is Past Due

SUBSTATIONS

LOCATIONS	FINDINGS		RECOMMENDATIONS/REMARKS	STATUS	RESPONSIBLE	COMPLETION DATE	DUE DATE	INITIAL FINDINGS DATE
DEDEDO SUBSTATION	*Facility Area*	NO CORRECTIVE ACTION						
DEDEDO SUBSTATION WAREHOUSE	*Facility Area*	Improper storage of oil drums	Relocate oil drums to proper storage area. Catchment is for PCB contaminated electrical equipment storage only and must not be mixed with good oil				ASAP	January 2019
	Tanks 1 & 2 gauges	*Gauges are not clearly visible*	Replace gauge				ASAP	January 2019
	Transformer Storage Area	*Old drums stored and showing signs of leak*	Dispose oil and discard old drums				ASAP	January 2019
MACHECHE SUBSTATION	*Secondary Containment*	Algae accumulation	Conduct cleanup				ASAP	January 2019
TALOFOFO SUBSTATION	*Facility Area*	NO CORRECTIVE ACTION						
TENJO SUBSTATION	*Security Fence*	Tilting on the side	Fix and secure fence and gate				ASAP	December 2018
YIGO SUBSTATION	*Facility Area*	NO CORRECTIVE ACTION						

Generation SPCC Inspection Report

SUMMARY OF SPCC MONTHLY INSPECTION REPORT
MONTH OF JANUARY, 2019

LEGEND OF TRACKING

- Notification Date
- Completed
- Within Scheduled Remediation
- Deadline is Past Due

POWER PLANT

LOCATIONS	FINDINGS		RECOMMENDATION/REMARKS	STATUS	RESPONSIBLE	COMPLETION DATE	DUE DATE	INITIAL FINDINGS DATE
CABRAS POWER PLANT	Used Oil Tank	Corroded and damaged tank shell coating	Chip corrosion and recoat				ASAP	Sept 2018
	Secondary Containment (Tanks 3&4)	Water accumulation, debris and vegetation in tanks 3&4	Drain water, remove vegetation and contact cleanup				ASAP	January 2019
	HS & LS Service Tanks	Water accumulation, oil sheen present	Drain water and remove oil sheen				ASAP	November 2018
	Cylinder Oil & Lube Oil Tanks	Water accumulation and debris	Remove water and debris				ASAP	November 2018
	Tank Nos. 1&2 (Cabras 1&2)	Corroded pipes and valves	Need immediate attention. Conduct repair				ASAP	August 2018
	Tank No. 4 (Cabras 3 & 4)	Leaking pipe	Repair pipe				ASAP	Sept 2018
	Supply Pipeline	Pipeline crossing the outfall	Install secondary means of containment on the pipeline				ASAP	Sept 2018
	Outfall Line+B16	Corroded pipe	Conduct immediate repair & recoat pipeline				ASAP	January 2019
	Lube Oil Tank (Cabras 3 & 4)	Corroded lube oil pipe	Conduct repair				ASAP	February 2018
	Cabras 3 & 4 OWS	Heavily corroded pipeline	Remove and blank the pipe if pipeline will not be in service				ASAP	February 2018
	Used Oil Facility Pipelines	Corroded pipelines	Chip corrosion and recoat				ASAP	October 2018
DEDEDO CT	*OWS Secondary Containment*	Algae accumulation	Conduct cleanup				ASAP	January 2019

Generation SPCC Inspection Report (cont.)

SUMMARY OF SPCC MONTHLY INSPECTION REPORT
MONTH OF JANUARY, 2019

LEGEND OF TRACKING

- Notification Date
- Completed
- Within Scheduled Remediation
- Deadline is Past Due

POWER PLANT

LOCATIONS	FINDINGS		RECOMMENDATION/REMARKS	STATUS	RESPONSIBLE	COMPLETION DATE	DUE DATE	INITIAL FINDINGS DATE
MACHECHE CT	Facility Area	Corrosion at tanks T-130/140 (paint applied over rust only)	Remove rust and repaint				ASAP	October 2015
		Corroded tank support T-130/140 (paint applied over rust only)	Remove rust and repaint				ASAP	October 2015
		Rust buildup on seam and tank belly	Remove rust and paint.				ASAP	November 2015
		Oil leak observed on oil purifier room	Fix leak and conduct cleanup				ASAP	August 2018
YIGO CT	Fuel Storage Tank	Fuel storage tank 130 & 140	Chip corrosion & recoat tanks				ASAP	April 2018
	Secondary Containment	Algae and dried weeds accumulation	Conduct cleanup				ASAP	November 2018
	Drum Storage Area	Scrap metals located in drum storage area	Dispose scrap metals				ASAP	January 2019
MANENGGON DIESEL	*Secondary Containment*	Crack on secondary containment	Apply with sealant and repaint	Repair ongoing			ASAP	January 2019
TALOFOFO DIESEL	*Facility Area*	NO CORRECTIVE ACTION						
TENJO DIESEL	*Facility Area*	NO CORRECTIVE ACTION						
PITI #7	*Main Fuel Tank, Day Tank # 1 & 2*	No integrity test	Integrity testing is reqauired				ASAP	January 2018
	Main Fuel Tank	Corrosion forming under pipes & pipe support	Chip corrosion and recoat				ASAP	October 2018

Production Data
31-Jan-19

SYSTEM											
YEAR	MONTH	# of DAYS	GROSS GENERATION	FUEL CONSUMPTION		GROSS FUEL EFFICIENCY (Target ≥ 15.99 kWh/gal)	COST per GROSS kWh	GROSS HEAT RATE (Baseloads) PUC Target less than 9,600	GROSS HEAT RATE (Peaking) PUC Target less than 13,600	Ave. MW	Peak MW
				(gal)	(bbl)						
2016	July	31	151,248,202	10,443,028	248,644	14.48	$ 0.0920	9,477.71	12,208.87	203	258
	Aug	31	149,051,031	10,210,429	243,105	14.60	$ 0.0935	9,431.70	11,155.10	200	252
	Sept	30	142,069,206	9,829,773	234,042	14.45	$ 0.0956	9,509.75	11,393.73	197	256
	Oct	31	148,824,965	9,660,319	230,008	15.41	$ 0.0729	9,749.38	10,738.69	200	252
	Nov	30	145,293,562	9,427,636	224,468	15.41	$ 0.0901	9,714.47	10,786.30	202	252
	Dec	31	147,753,552	9,725,521	231,560	15.19	$ 0.0934	9,661.13	10,645.44	199	248
2017	Jan	31	142,960,618	9,226,278	219,673	15.49	$ 0.0913	9,620.29	10,965.71	192	234
	Feb	28	113,499,400	7,270,830	173,115	15.61	$ 0.0900	9,609.08	11,503.12	195	246
	Mar	31	149,402,182	9,664,440	230,106	15.46	$ 0.1014	9,719.35	11,440.45	201	246
	Apr	30	145,351,026	9,913,757	236,042	14.66	$ 0.1101	9,750.73	11,392.12	202	250
	May	31	157,573,506	11,065,930	263,475	14.24	$ 0.1170	10,067.14	11,323.20	212	256
	June	30	150,240,751	10,654,196	253,671	14.10	$ 0.1101	10,209.74	11,248.62	209	257
	July	31	150,580,050	10,622,458	252,916	14.18	$ 0.1169	9,544.54	11,837.62	202	252
	Aug	31	150,084,827	10,642,044	253,382	14.10	$ 0.1177	9,206.15	11,917.58	202	261
	Sept	30	143,990,208	10,309,304	245,460	13.97	$ 0.1152	9,541.20	13,107.05	200	254
	Oct	31	147,122,071	9,774,857	232,735	15.05	$ 0.1079	9,590.71	11,375.81	198	254
	Nov	30	147,284,781	9,783,352	232,937	15.05	$ 0.1061	9,563.85	11,257.17	205	253
	Dec	31	151,600,064	9,925,003	236,310	15.27	$ 0.1122	9,607.13	11,035.82	204	250
2018	Jan	31	147,704,057	9,563,641	227,706	15.44	$ 0.1078	9,755.40	11,029.21	199	246
	Feb	28	131,329,470	8,660,044	206,192	15.16	$ 0.1150	9,763.94	11,125.15	195	241
	Mar	31	144,370,550	9,889,634	235,467	14.60	$ 0.1345	9,183.77	11,853.09	194	244
	Apr	30	142,493,891	9,636,757	229,447	14.79	$ 0.1232	9,558.86	11,901.02	198	247
	May	31	151,201,454	10,120,017	240,953	14.94	$ 0.1342	9,549.70	11,703.13	203	249
	June	30	142,902,259	9,674,924	230,355	14.77	$ 0.1399	9,563.51	11,494.36	198	246
	July	31	139,718,862	9,726,750	231,589	14.36	$ 0.1468	9,647.53	11,909.20	188	242
	Aug	31	141,640,237	9,834,936	234,165	14.40	$ 0.1437	9,817.09	13,623.96	190	238
	Sept	30	129,965,486	9,303,709	221,517	13.97	$ 0.1526	9,383.54	13,625.29	181	240
	Oct	31	149,090,501	10,752,842	256,020	13.87	$ 0.1592	9,870.49	12,783.94	200	243
	Nov	30	139,840,706	9,348,494	222,583	14.96	$ 0.1446	9,772.22	12,091.07	194	241
	Dec	31	144,799,157	9,756,460	232,297	14.84	$ 0.1497	9,443.41	11,943.41	195	237
	Jan	31	134,551,799	9,056,271	215,626	14.86	$ 0.1172	9,675.19	11,506.72	181	224
	Feb	28									

Project Status Updates (2/15/19)

New Generation (SPORD)
Phase III (SPORD)
SCADA (SPORD/IT)
ESS Phase I (SPORD)

New Power Plant

Ongoing Bid: GPA-038-18

No.	Activity	Duration (Days)	Cumulative Duration (Days)	Expected Completion
1	IFB Issued to Potential Bidders			10/1/2018
2	Pre-Bid Meeting with Bidders	30	30	11/5/2018
3	Site Visit	1	31	11/6/2018
4	Cut-Off Date for Receipt of Questions	1	32	12/19/2018
	STEP 2 - TECHNICAL PROPOSAL EVALUATION			
5	Bid Date - Envelope I and II with exception of Fixed Cap Charge submitted to GPA.	171	171	3/21/2019
6	Complete Evaluation of Technical Proposals & Notify Bidders	46	217	5/6/2019
7	Submittal of Price Proposal Deadline Fixed Capacity Charge (Envelope III)	210	210	4/29/2019
	STEP 3 - PRICE PROPOSAL EVALUATION			
8	Conduct Envelope II & III Public Bid Opening Meeting	14	231	5/20/2019
9	Complete Evaluation of Envelope II & III; Invite the First-Ranked Bidder to Clarification Meeting	14	245	6/3/2019
10	Conduct Clarification Meeting(s) with First-Ranked Bidder and other top-ranked Bidders as required and selection of the Selected Bidder.	28	273	7/1/2019
11	Complete Negotiations of ECA with the Selected Bidder.	70	343	9/9/2019
12	***GPA Rate Impact Study***			9/9/2019
13	***CCU Worksession***	Sept'19 Session		
14	***CCU Meeting***	Sept '19 Meeting		
15	***PUC Meeting***			10/30/2019
16	Obtain CCU and PUC approval	51	394	10/30/2019
17	Sign the ECA with the Selected Bidder.	1	395	10/31/2019
18	IPP achieves financial close and starts construction.	180	575	4/28/2020
19	Phase 1 Commercial Operation Date	600	1175	12/19/2021
20	Phase 2 Commercial Operation Date	300	1475	10/15/2022

Phase III Renewable

Ongoing Bid: GPA-007-18

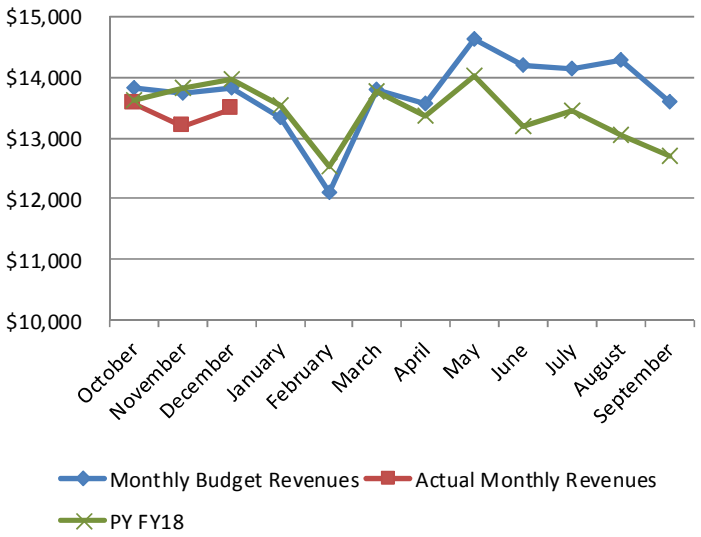
Bid Process Milestones		From Date	To Date
Bid Announcement		11/16/2017	
Vendors Submit Questions		11/16/2017	1/6/2018
Deadline for registration for Naval Base Guam Site Visit		12/20/2017	
Pre-Bid Conference at GPA Procurement Office		1/23/18,9:00 A.M.	
Site Visit 1-South Fineqavan Site on Route 3		1/23/18,1:00 P.M.	
Site Visit 2 - Naval Base Guam		1/24/18,9:00 A.M.	
Cut-Off Date for Vendor Question Submittals		2/23/18, 4:00 P.M.	
GPA Review and Answer Questions		11/16/2017	1/31/2019
Cut-Off Date to Submit Clarification Queries		2/19/19 @ 4:00PM	
GPA Response to Clarification Queries		3/18/2019	
Cut-Off Date for Receipt of Technical Proposals (Unpriced)		4/12/2019 @ 4:00 P.M.	
EVALUATION	Technical Proposal Evaluation	4/15/2019	5/7/2019
Step One:	Notification of Qualified Bidders	5/8/2019	
EVALUATION	Cut-Off Date for Receipt of Priced Proposals	5/23/19 @ 2:00PM	
Step Two:	Opening of Priced Proposals (Public Opening)	5/24/2019	
	Evaluation of Priced Proposals	5/28/2019	6/10/2019
	Notification of Successful Bidder(s)	6/11/2019	
System Impact Study		TBD (6/25/19)	TBD (7/25/19)
Contract Neqotiation		TBD (6/25/19)	TBD (7/25/19)
Contract Approval & Recommendationto Award (GPAMgmt. & CCU)		TBD (August 2019)	
Public Utilities Commission Review		TBD (September 2019)	
Contract Signing		TBD (October 2019)	
Commissioning of Solar Projects (2 Yrs after Contract Signing)		TBD (October 2021)	

Other Projects:

- SCADA
  - System operational and in use.
  - Remaining work expected to be completed by 2/28/19
- Energy Storage System
  - Clearing and grading permit work commenced in November 2017.
  - Foundation permit work commenced in January 2018. Construction is 75% completed.
  - Finalizing Final design.
  - Construction is 75% completed
  - Current contract completion date is 3/31/19.

December 2018 Monthly Financial Highlight

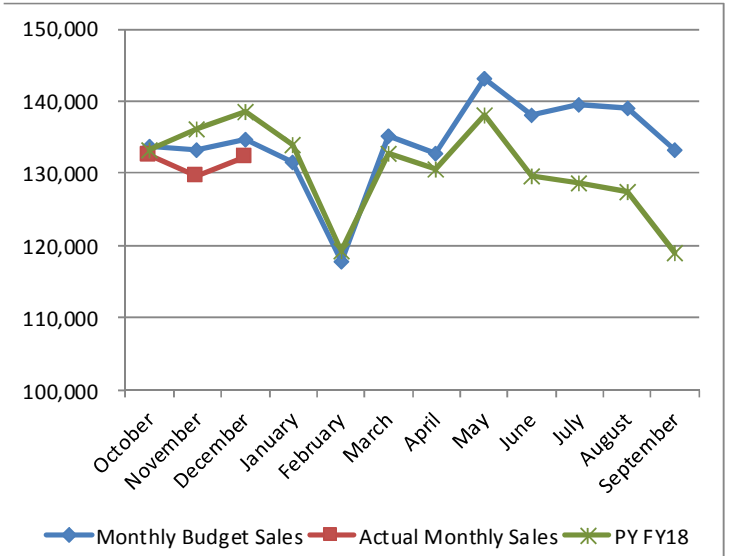
Base Rate Revenue $000



Through December 31, 2018

$000	Monthly Budget Revenues	Actual Monthly Revenues	Variance		PY FY18	CY vs PY Variance	
October	$ 13,811	$ 13,564	$ (246)	↓	$ 13,625	$ (61)	↓
November	13,723	13,203	$ (519)	↓	13,827	$ (624)	↓
December	13,833	13,467	$ (365)	↓	13,968	$ (501)	↓
January	13,321				13,534		
February	12,114				12,522		
March	13,790				13,776		
April	13,562				13,351		
May	14,630				14,011		
June	14,196				13,201		
July	14,152				13,446		
August	14,280				13,041		
September	13,590				12,707		
Total	**$ 165,002**	**$ 40,235**	**$ (1,131)**		**$ 161,010**	**$ (1,185)**	

MWh Sales

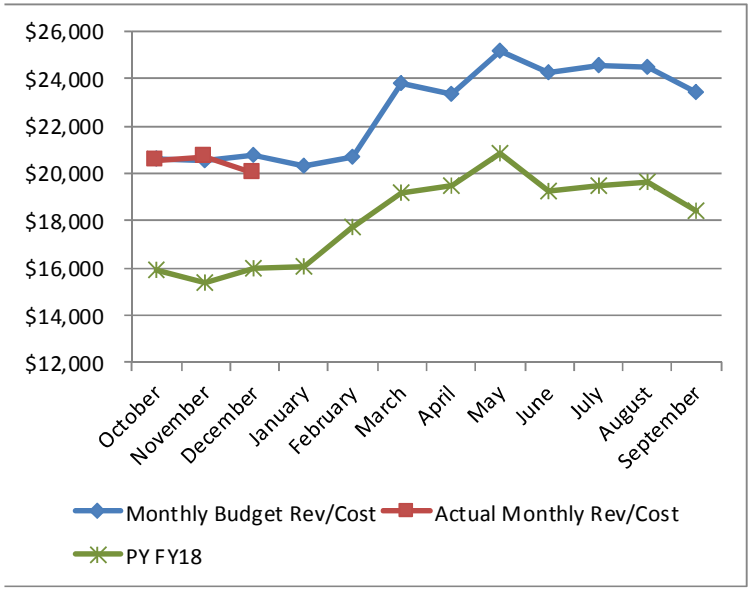


Through December 31, 2018

mwh	Monthly Budget Sales	Actual Monthly Sales	Variance		PY FY18	CY vs PY Variance	
October	133,797	132,489	(1,308)	↓	133,262	(773)	↓
November	133,346	129,537	(3,809)	↓	136,044	(6,506)	↓
December	134,715	132,190	(2,525)	↓	138,587	(6,397)	↓
January	131,547				133,882		
February	117,775				119,241		
March	135,196				132,693		
April	132,763				130,565		
May	143,236				138,085		
June	138,016				129,728		
July	139,434				128,681		
August	139,030				127,348		
September	133,149				118,935		
Total	**1,612,003**	**394,216**	**(7,642)**		**1,567,052**	**(13,677)**	

December 2018 Monthly Financial Highlight (Continued)

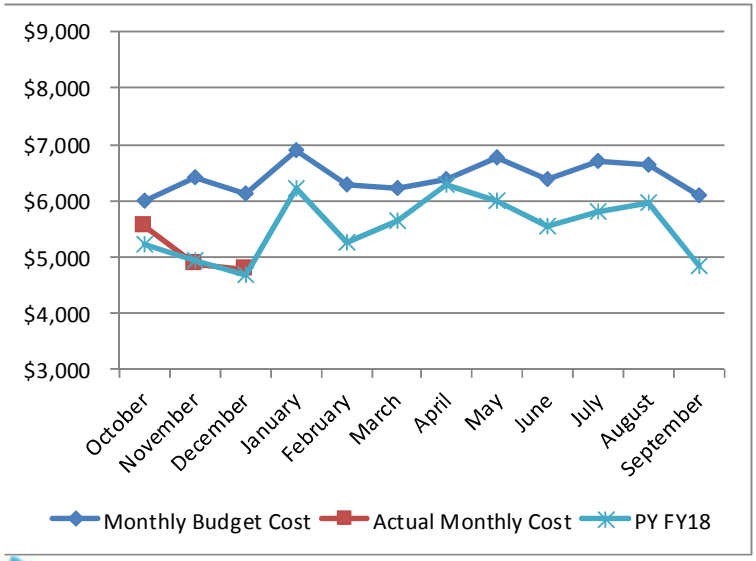
Fuel Revenue/ Cost $000



Through December 31, 2018

$000	Monthly Budget Rev/Cost	Actual Monthly Rev/Cost	Variance		PY FY18	CY vs PY Variance	
October	$ 20,637	$ 20,550	$ (87)	↓	$ 15,936	$ 4,615	↑
November	20,568	20,711	$ 143	↑	15,400	$ 5,310	↑
December	20,779	19,969	$ (810)	↓	16,007	$ 3,961	↑
January	20,290				16,036		
February	20,718				17,763		
March	23,783				19,180		
April	23,354				19,441		
May	25,197				20,854		
June	24,279				19,252		
July	24,528				19,457		
August	24,457				19,608		
September	23,422				18,390		
Total	**$ 272,011**	**$ 61,230**	**$ (754)**		**$ 217,324**	**$ 13,886**	

O&M Cost $000



Through December 31, 2018

$000	Monthly Budget Cost	Actual Monthly Cost	Variance		PY FY18	CY vs PY Variance	
October	$ 5,986	5,551	435	↑	5,239	(312)	↓
November	6,419	4,875	1,544	↑	4,941	66	↑
December	6,119	4,762	1,358	↑	4,694	(68)	↓
January	6,882				6,204		
February	6,291				5,252		
March	6,231				5,638		
April	6,374				6,269		
May	6,753				6,005		
June	6,373				5,558		
July	6,710				5,797		
August	6,648				5,961		
September	6,079				4,836		
Total	**$ 76,866**	**$ 15,188**	**$ 3,337**		**$ 66,394**	**$ (314)**	

December 2018 Monthly Financial Highlight (Continued)

Through December 31, 2018

	4Q2017	1Q2018	2Q2018	3Q2018	4Q2018	1Q2019
Residential	43,991	43,898	44,065	44,074	43,887	43,920
Commercial	5,226	5,231	5,262	5,278	5,261	5,273
Government	1,073	1,076	1,086	1,092	1,077	1,090
Streetlights	823	908	1,005	1,091	1,152	1,151
Navy	1	1	1	1	1	1
Total	51,114	51,114	51,419	51,536	51,378	51,435

Debt service coverage (DSC) calculation-indenture	2013	2014	2015	2016	2017	2018	YTD Dec. 2018
Senior lien coverage	3.36	3.16	3.62	3.28	2.65	2.68	1.98
Aggregate debt service coverage	1.88	1.98	2.62	3.28	2.65	2.68	1.98
Debt service coverage (DSC) calculation-IPP as O&M							
Senior lien coverage	2.16	2.55	2.56	2.45	1.79	1.80	1.38
Aggregate debt service coverage	1.21	1.41	1.85	2.45	1.79	1.80	1.38

- Under recovery of LEAC - $12.4 million

GUAM POWER AUTHORITY
GOVERNMENT ACCOUNTS RECEIVABLE
BILLING UP TO 01/31/2019 and Payment Applied as of 02/15/2019

Current (01/19 Billing due 02/28/19
30 days Arrears (12/18 due 01/31/19)
60 days and over Arrears (11/18 billing due 12/31/18)

CC&B ACCT NUMBER	CC&B New Acct Numer	DEPARTMENT	BALANCE 12/31/2018	CANCEL/REBILL/ SPEC CHARGE 2/15/2019	BILLING 1/31/2019	PAYMENT 2/15/2019	BALANCE 2/15/2019
		Line Agencies					
0237100000	1073430238	Dept. of Corrections	$ 81,036.75		$ 76,587.83	$ (81,036.75)	$ 76,587.83
0437100000	0040515913	Dept. of Parks & Rec.	$ 18,140.89	$ (359.52)	$ 18,573.15	$ (18,140.89)	$ 18,213.63
0537100000	0453170939	Guam Fire Department	$ 16,340.69		$ 14,524.71	$ (16,340.69)	$ 14,524.71
6995000000	8564647941	DOA Supply Mgmt (NET METERED)	$ 1,531.52		$ 903.60	$ (1,531.52)	$ 903.60
7895000000	4211873236	Dept. of Administration	$ 4,639.58		$ 4,439.27	$ (4,639.58)	$ 4,439.27
1337100000	4554808900	Nieves Flores Library	$ 8,776.89		$ 9,002.37	$ (8,776.89)	$ 9,002.37
2206200000	9541109130	General Services Agency	$ 264.93		$ 257.29	$ (264.93)	$ 257.29
2237100000	1621790133	DOA-Data Processing	$ 8,598.22		$ 8,161.02	$ (8,598.22)	$ 8,161.02
2337100000	1896187753	Dept. of PH&SS	$ 64,915.67		$ 61,342.96	$ (64,915.67)	$ 61,342.96
3237100000	7252821074	Dept. of Education	$ 3,399,356.79	$ 9,250.61	$ 1,011,314.90	$ (1,259,318.53)	$ 3,160,603.77
3337100000	0266069082	Guam Police Department	$ 51,737.49		$ 47,584.39	$ (51,737.49)	$ 47,584.39
3569100000	6069461950	Dept of Youth Affairs (Federal)	$ 849.95		$ 895.00	$ (849.95)	$ 895.00
4437100000	2913461537	Dept. of Youth Affair* (Local)	$ 11,631.18		$ 10,626.10	$ (11,631.18)	$ 10,626.10
4737100000	3404311949	Guam Environmental Protect	$ 6,639.80		$ 6,451.11	$ (6,639.80)	$ 6,451.11
5437100000	3227759982	Mental Health/Subst.	$ 82,414.72		$ 37,742.96	$ (82,414.72)	$ 37,742.96
7200300000	0070861777	Veteran Affairs	$ 828.57		$ 804.55	$ (828.57)	$ 804.55
7437100000	8300435373	Civil Defense (Military Affairs)	$ 12,423.09		$ 12,577.89	$ (12,423.09)	$ 12,577.89
7463300000	7813165805	Pacific Energy Resource Center	$ 662.94		$ 755.85	$ (662.94)	$ 755.85
8137100000	1595188609	Dept. of Agriculture	$ 10,538.61		$ 10,106.31	$ (10,545.01)	$ 10,099.91
8337100000	2535590089	DPW-FAC Adm Account	$ 24,954.73		$ 24,272.92	$ (24,954.73)	$ 24,272.92
8437100000	7928924534	Guam Visitors Bureau	$ 4,409.82	$ 64.87	$ 4,239.26	$ (8,649.08)	$ 64.87
8446300000	7663706771	Yona Senior Citizen Center	$ 694.90		$ 688.97	$ (694.90)	$ 688.97
9437100000	4129948191	Dept of Chamorro Affairs/Chamorro Village	$ 4,341.81	$ 63.62	$ 4,141.17	$ (4,341.81)	$ 4,204.79
5247210000	5247210000	Mayors Council	$ 2,225.59		$ 2,235.07	$ (2,225.59)	$ 2,235.07
6293410000	6293410000	Office of the Governor	$ 24,191.84		$ 24,129.63	$ (24,191.84)	$ 24,129.63
8555858369	8555858369	Dept of Chamorro Affairs (Guam Museum)	$ 22,917.82		$ 21,937.17	$ (22,917.82)	$ 21,937.17
		Sub Total	**$ 3,865,064.79**	**$ 9,019.58**	**$ 1,414,295.45**	**$ (1,729,272.19)**	**$ 3,559,107.63**
		MAYORS					
0637100000	3832327736	Santa Rita Mayor	$ 3,645.63		$ 3,394.49	$ (3,645.63)	$ 3,394.49
0737100000	9351070242	Ordot/Chalan Pago Mayor	$ 897.69		$ 1,253.66	$ (897.69)	$ 1,253.66
1537100000	6393530237	Hagatna Mayor	$ 1,562.66		$ 1,373.85	$ (1,562.66)	$ 1,373.85
1637100000	3293808984	Piti Mayor	$ 1,209.90		$ 1,068.85	$ (1,209.90)	$ 1,068.85
1737100000	8715052935	Mongmong/Toto/Maite Mayor	$ 1,338.59		$ 1,221.20	$ (1,338.59)	$ 1,221.20
2637100000	0492244686	Asan/Maina/Adelup Mayor	$ 798.74		$ 674.55	$ (798.74)	$ 674.55
2737100000	8433959204	Sinajana Mayor	$ 4,287.37		$ 4,100.92	$ (4,287.37)	$ 4,100.92
3637100000	8041715847	Dededo Mayor	$ 7,323.58		$ 6,264.08	$ (7,323.58)	$ 6,264.08
4637100000	7037924246	Yigo Mayor	$ 3,806.90		$ 4,052.13	$ (3,806.90)	$ 4,052.13
5637100000	7202265287	Umatac Mayor	$ 1,086.65		$ 1,039.89	$ (1,086.65)	$ 1,039.89
6537100000	8472200165	Agana Hts. Mayor	$ 5,019.68		$ 4,774.46	$ (5,019.68)	$ 4,774.46
6637100000	4469579998	Merizo Mayor	$ 1,012.05		$ 964.45	$ (1,012.05)	$ 964.45
6737100000	5763167341	Barrigada Mayors Office	$ 2,344.36		$ 2,788.53	$ (2,344.36)	$ 2,788.53
7537100000	7247791682	Agat Mayor	$ 3,213.78	$ (28.32)	$ 2,157.76	$ (3,213.78)	$ 2,129.44
7637100000	6078244037	Inarajan Mayor	$ 2,451.00		$ 2,082.70	$ (2,451.00)	$ 2,082.70
8537100000	6957205325	Tamuning Mayor	$ 6,311.06		$ 5,798.01	$ (6,311.06)	$ 5,798.01
8637100000	1880297633	Talofofo Mayor	$ 2,846.86		$ 2,523.46	$ (2,846.86)	$ 2,523.46
9537100000	3631627996	Mangilao Mayor	$ 4,519.88		$ 4,269.58	$ (4,519.88)	$ 4,269.58
9637100000	1837525565	Yona Mayor	$ 1,067.52		$ 891.30	$ (1,067.52)	$ 891.30
		Sub Total	**$ 54,743.90**	**$ (28.32)**	**$ 50,693.87**	**$ (54,743.90)**	**$ 50,665.55**
		DPW ACCOUNTS					
4337100000	3045433600	DPW-Village St. Lights	$ 369,976.20		$ 357,958.07	$ (369,976.20)	$ 357,958.07
5337100000	0930959866	DPW- Primary St. Lights	$ 86,701.44		$ 87,983.25	$ (97,236.03)	$ 77,448.66
6337100000	3088040552	DPW-Sec/Coll St. Lights	$ 26,199.70		$ 25,367.04	$ (26,199.70)	$ 25,367.04
7337100000	0832698062	DPW-Signal Lights	$ 10,759.50	$ (392.26)	$ 12,432.26	$ (10,759.50)	$ 12,040.00
		Sub Total	**$ 493,636.84**	**$ (392.26)**	**$ 483,740.62**	**$ (504,171.43)**	**$ 472,813.77**
		(B) AUTONOMOUS/PUBLIC CORP					
1437100000	1540692986	Retirement Fund	$ 5,967.25		$ 5,828.70	$ (5,967.25)	$ 5,828.70
1915500000	0563872892	Guam Housing Corp Rental Division	$ -	$ 25.00	$ 1,546.70		$ 1,571.70
2437100000	5434075703	University of Guam	$ 707.66	$ 1,252.87	$ 166,341.70		$ 168,302.23
4237100000	7736362694	Guam Airport Authority	$ 537,455.10		$ 513,923.80	$ (537,455.10)	$ 513,923.80
5357510000	5357510000	University of Guam (NET METERED)	$ -		$ 78,541.55		$ 78,541.55
6237100000	1699407298	G H U R A	$ 12,794.44		$ 23,263.72	$ (24,988.40)	$ 11,069.76
6437100000	6518220019	Guam Community College	$ 47,397.28	$ 428.01	$ 47,393.67	$ (47,397.28)	$ 47,821.68
7237100000	8302337726	Guam Memorial Hospital	$ 76,492.86	$ 861.65	$ 38,393.65		$ 115,748.16
8426836906	8426836906	Guam Memorial Hospital (NET METERED)	$ 300,256.51	$ 2,251.92	$ 150,035.96		$ 452,544.39
9137100000	4474308144	Port Authority of Guam	$ -		$ 97,517.38		$ 97,517.38
9157510000	9157510000	Guam Community College (NET METERED)	$ 35,729.01		$ 34,200.08	$ (35,729.01)	$ 34,200.08
9173210000	9173210000	Guam Solid Waste Authority	$ 6,565.29	$ (14.16)	$ 6,057.53	$ (6,565.29)	$ 6,043.37
9337100000	0838495949	Guam Waterworks Authority	$ 869,345.64		$ 1,295,692.30	$ (876,246.55)	$ 1,288,791.39
		Sub Total	**$ 1,892,711.04**	**$ 4,805.29**	**$ 2,458,736.74**	**$ (1,534,348.88)**	**$ 2,821,904.19**
		(C) OTHERS					
0337100000	7541928173	Guam Legislature	$ 276.78	$ 2.00	$ 259.61	$ (272.99)	$ 265.40
9503154359	9503154359	Guam Legislature (NET METER)	$ 7,570.27		$ 6,836.38	$ (7,570.27)	$ 6,836.38
1237100000	8353274954	Superior Court of Guam	$ 70,399.02		$ 66,527.58	$ (70,399.02)	$ 66,527.58
2537100000	8108458168	Guam Post Office (Agana)	$ -		$ 6,577.63	$ (6,577.63)	$ -
2570200000	8972267005	Customs & Quarantine Agency	$ 911.57		$ 902.74	$ (911.57)	$ 902.74
3537100000	4530787043	U.S. Post Office	$ -		$ 41,518.70	$ (41,518.70)	$ -
5537100000	8607446612	Dept. of Military Affairs	$ 77,842.40		$ 76,790.45	$ (77,842.40)	$ 76,790.45
3209463043	3209463043	Dept. of Military Affairs	$ 16,594.88		$ 16,157.91	$ (16,594.88)	$ 16,157.91
5737100000	6000770566	KGTF	$ 7,162.29		$ 7,009.74	$ (7,162.29)	$ 7,009.74
7281000000	6602566745	Tamuning Post Office	$ -		$ 4,757.50	$ (4,757.50)	$ -
		Sub Total	**$ 180,757.21**	**$ 2.00**	**$ 227,338.24**	**$ (233,607.25)**	**$ 174,490.20**
		GRAND TOTAL	**$ 6,486,913.78**	**$ 13,406.29**	**$ 4,634,804.92**	**$ (4,056,143.65)**	**$ 7,078,981.34**

GPA Communications/PIO KPI Status

18 February 2019

Ratepayer Newsletter

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. February "Insights" newsletter content being compiled;
2. Standard features of recipe, village fiesta schedule for newsletter content;
3. Inclusion 2018 Citizen Centric Report to be included

Accomplishments

1. Completed February *Insights* Ratepayer Newsletter
2. March issue planning; will meet deadline

Risks and Issues	Resolution
1. None to report;	

Financial	
Budgeted for FY19	

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention

2018 Annual Report Projects

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. FY2018 Annual Report bid awarded to vendor;
2. Inclusion of Citizens Centric Report on project bid;
3. Theme: Half a Century of Service to Ratepayers;
4. Content Materials compiled and ready to transmit to vendor

Accomplishments

1. Completed GPA FY2017 Report;
2. FY 2017 Annual Report prepared for and distributed to all government officials – Executive and Legislative branches to include all 19 Mayors and 7 Vice Mayors

Risks and Issues	Resolution
1. None to Report	

Financial

None to report	Within Budget	

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention

UOG Conference on Island Sustainability

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. Preparing subject topics for approval by GM;
2. Attending planning meeting on 19 Feb 2019 at UOG

Accomplishments

1. None to report at this time

Risks and Issues

1. None to report

Resolution

Financial

Within budget		

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention

Energy Sense Marketing

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. Preparing Customer Service Survey under Guam Energy Sense;
2. Completing requisitions for continued marketing with radio, print and electronic bill boards

Accomplishments

1. Continuing DSM advertising on various mediums

Risks and Issues

Risks and Issues	Resolution
1. SPORD support pending additional funding;	PIO supporting DSM marketing in pending additional SPORD funding

Financial

Budget Support for SPORD for Phase II	

Legend:

No corrective action required | Near-term corrective action required | Requires immediate attention

Live Streaming of CCU Meetings & Work Sessions

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. Change order for inclusion of control room specifications completed.
2. Negotiating for construction costs of control room completed

Accomplishments

1. None to report at this time

Risks and Issues

1. None to report at this time

Resolution

Financial

Funding with IT Division & GWA for audio & video equipment expected

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention

50th Anniversary Activities

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. Video production of GPA Retirees in progress;
2. 50th Anniversary Wall in progress – communicating with vendor for final design and timeline for completion;
3. 50th Anniversary Fadian Lighting project in specification phase – to be requisition in February 2019;
4. Completed photo survey of Tanguisson Beach Park for possible park adoption for 50th Anniversary/Typhoon Yutu Appreciation Picnic.

Accomplishments

1. Forwarded Tango Beach Park Survey photos to GM for review.

Risks and Issues	Resolution
1. None to report at this time	

Financial	
None to report	

Legend:

No corrective action required | Near-term corrective action required | Requires immediate attention

Super Typhoon Yutu Recovery Documentary Video

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. Video Documentary Project Phase II in progress. Outline being developed with Red Dragon Productions;

Accomplishments

1. Shared video project with American Public Power Association;
2. Posted video project on YouTube

Risks and Issues	Resolution
1. None	

Financial	
1. None to report	

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention

Miscellaneous Activities

Overall Status	Risks & Issues	Schedule	Scope	Financial
G	G	G	G	G

Status

1. GPA Web page redesign work online and updated as necessary
2. Monitoring of CS Business Centers
3. Standard Media Releases for scheduled and emergency outage reporting is on-going;
4. Education Outreach – random requests; ongoing;
5. Exploring additional educational and general outreach via video production highlighting GPA (and CCU) mission, GPA operations, customer service reading bill, understanding LEAC, etc.
6. Reaching out to GDOE Curriculum & Instruction regarding exploring building 4th grade level and 10th grade level "Knowing Your Guam Power Authority – utility basics and career building

Accomplishments

1. Completed CCU Oath of Office Ceremony Outreach activities

Financial

None to report	

Risks and Issues	Resolution
1. None to report at this time;	

Legend:

No corrective action required

Near-term corrective action required

Requires immediate attention