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Guam Power Authority
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BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF: The Petition of the Guam Power Authority for Modification of Current Net Metering Rider.	**GPA DOCKET NO. 19-04** **PETITION FOR MODIFICATION OF CURRENT NET METERING RIDER**

COMES NOW, the GUAM POWER AUTHORITY (GPA), by and through its counsel of record, D. GRAHAM BOTHA, ESQ., and hereby files GPA's Petition for the Public Utilities Commission of Guam to review and approve GPA's recommendation to modify the net metering rider from providing retail rate for net metering credits to avoided cost for net metering credits, with a five-year phase-in approach, as follows:

BACKGROUND

The current Guam Power Authority net metering policy was established in December 2008 under GPA Docket 08-10. The policy required that GPA would make the net metering rider available to all customers without limitation until the number of Customer-Generator installations exceeds 1000 customers. GPA currently has 1,764 net metering customers (August 2018) resulting in an approximate annual subsidy of $3,456,653.00. The CCU in Resolution 2018-17 has authorized GPA to petition the PUC to modify the net metering rider from providing retail rate for net metering credits to avoided cost for net metering credits, phased in evenly over a five-year period for all net metering customers, both old and new.

DISCUSSION

GPA hereby petitions the PUC, pursuant to the Contract Review Protocol for the Guam Power Authority, to review and approve GPA's recommendation to modify the net metering

credits which result in an annual subsidy of $3,456,653.00, which will increase with more net metering customers added to the grid. In support of this Petition, GPA hereby provides the PUC with Consolidated Commission on Utilities (CCU) Resolution No. 2018-17, which authorizes the General Manager to submit the petition the PUC for final review and approval of the change to the net metering credits. Said resolution and its exhibits are attached herein as Exhibit A, and incorporated by reference herein as if fully set forth.

CONCLUSION

The PUC should approve the modification of the net metering credits from retail rate to avoided cost over a five-year period, as it is reasonable, prudent, and necessary, and results in the gradual elimination of a subsidy which only benefits net metering customers.

RESPECTFULLY SUBMITTED this 4th day of October, 2018.

D. GRAHAM BOTHA, ESQ.
GPA General Counsel

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

RESOLUTION NO. 2018–17

AUTHORIZING MANAGEMENT OF THE GUAM POWER AUTHORITY (GPA) TO FILE NET METERING PROGRAM RECOMMENDATIONS ADDRESSING THE GUAM PUBLIC UTILITIES COMMISSION (PUC) ORDER DOCKET NO. 08-10 (DECEMBER 29, 2008), EXHIBIT A, PARAGRAPH 3

WHEREAS, Guam Public Law 27-132 (2004) created Net Metering for Guam and assigned the Guam Public Utilities Commission (PUC) the responsibility for setting the Net Metering Rate for excess renewable energy fed into GPA's Distribution System; and

WHEREAS, the Guam Public Utilities Commission (PUC) ordered GPA to execute the Interim Net Metering (NM) Rider under Docket No. 08-10 (December 29, 2008); and

WHEREAS, the Consolidated Commission on Utilities supported the net metering program through the years in full support of promoting renewable energy to offset fossil fuel energy production; and

WHEREAS, the Consolidated Commission on Utilities has been monitoring the growth of the Net Metering Program including the financial impact the program will have on non-net metering customers; and

WHEREAS, under Docket 08-10, Exhibit A (paragraph 1), the PUC states: "The NM Rider may be amended or modified in the future by GPA, with the approval of the Guam Public Utilities Commission (PUC)"; and

WHEREAS, under Docket 08-10, Exhibit A (paragraph 3), the PUC orders: "The NM Rider is available to all customers without limitation as to the aggregate capacity of Customer-Generator installations on the GPA System. However, at the time the number of Customer-Generators exceeds one-thousand (1000) customers this issue will be reviewed by the PUC and a determination made as to the continued offering of the NM Rider for new 'net metering' customers."; and

WHEREAS, GPA achieved the milestone of 1000 net metering (NEM) customers in June 2016; and

WHEREAS, NEM customers receive services from the grid subsidized by non-NEM customers including but not limited to: 1) Use of the grid to sell power (get credit at full retail rate for excess production); 2) Use of

the grid to energize their homes at night; 3) Frequency regulation absorbed by grid for intermittencies; 4) Reactive power supply; 5) Voltage regulation; and 6) Stand-by power on overcast days when the sun does not shine.

WHEREAS, GPA has 1,764 net metering customers (August 31, 2018) resulting in an approximate $3,456,653.00 annual subsidy going forward and from 2009 to 2017 a total subsidy of approximately $6,562,968.64 paid for by non-net metering customers; and

WHEREAS, as ordered by the Consolidated Commission on Utilities (CCU), GPA has conducted and completed several public meetings to: 1) Address net metering stakeholders' concerns and obtain feedback; 2) Evaluate stakeholder feedback; 3) Perform analysis regarding net metering impacts on the GPA especially on non-net metering customers; and, 4) Propose recommendations on whether or not changing the current net metering program is in the best interests of customers while insofar as possible alleviating net metering customer concerns; and

WHEREAS, the GPA General Manager presented the Authority's Net Metering (NEM) Credit Recommendation **(Exhibit A)** at the August 28, 2018 CCU Meeting held publicly; and

WHEREAS, GPA recommends the following Value of Solar (VOS) Policies as a replacement for the existing Net Metering Program including: 1) Grandfathering existing registered NEM customers for a period of 5 years allowing customers who own NEM systems to recover their investment while phasing in VOS rates over this extended 5-year time period; and filing for PUC approval a process to establish Value of Solar (VOS) rates;

WHEREAS, the process to establish Value of Solar (VOS) rates would: 1) Reassess VOS rates each LEAC for Avoided Energy Value; 2) Reassess VOS rates for other VOS components as applies on a) an annual basis; b) periodic basis over a set number of years; and 3) whenever there are material changes to GPA's generation mix; and

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 file a petition of its Value of Solar Policy Recommendations as shown in **Exhibit A**, including additional presentation and information to

the Guam Public Utilities Commission. The petition is to decrease net metering subsidy evenly to all NEM customers, existing and new, over a 5-year period beginning Calendar Year 2019.

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.

DULY and REGULARY ADOPTED this 28th day of August 2018.

Certified by:

JOSEPH T. DUENAS
CHAIRMAN

Attested by:

J. GEORGE BAMBA
SECRETARY

SECRETARY'S CERTIFICATE

I, J. GEORGE BAMBA, Secretary for the Consolidated Commission on Utilities do hereby certify that the foregoing is a full, true, and correct copy of the resolution duly adopted at a regular meeting of the members of Guam's Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: 5

Nays: 0

Absent: 0

Abstain: 0

GUAM POWER AUTHORITY 1963 TERRITORY OF GUAM

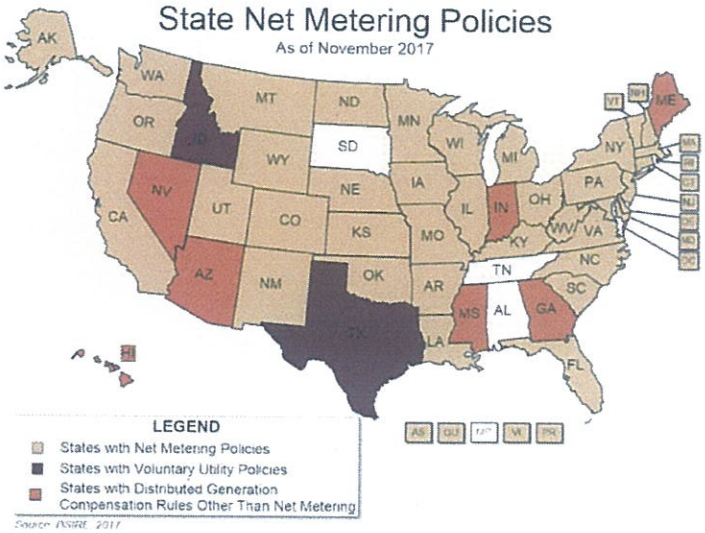
ISSUE FOR DECISION

Net Metering (NEM) Credit Recommendation

GUAM CCU

OVERVIEW – NET METERING POLICIES

- Thirty Eight (38) States, Washington D.C., and Four (4) Territories Offer Net Metering and utilities in two additional states (Idaho and Texas adopted Net Metering (Full Retail Credit).
- Arizona, Georgia, Hawaii, Indiana, Maine and Mississippi have compensation other than net metering.
- The Value of Solar (VOS) is an alternative to net metering. Customers buy from the grid at retail rate and sell to the grid at an established VOS rate. Only Minnesota and Austin Energy (Texas) has adopted a VOS rate.



Source: National Council of State Legislatures: 11/20/17

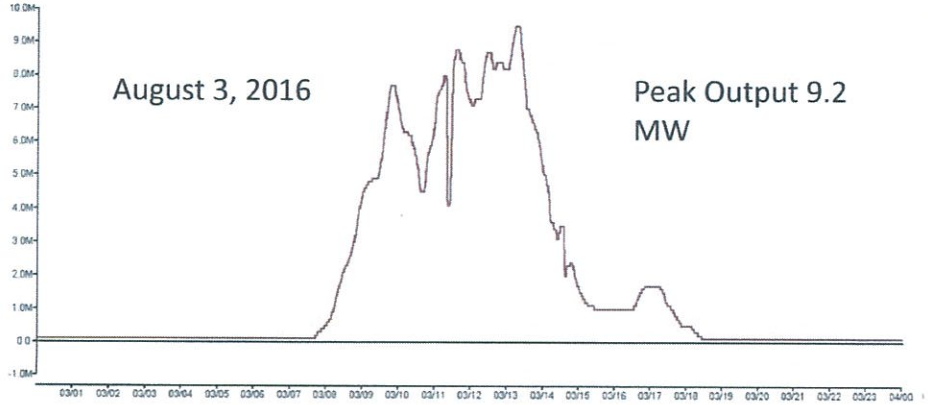
Guam NEM Program

- Program Mandated in 2004. Guam has been crediting NEM customers full retail rate over the past 13 years. Excess credit carried over or paid out annually at full retail rate.
- PUC to evaluate program and credits provided when GPA has 1,000 NEM Customers which occurred in June 2016.
- As of July 2018, GPA has 1,733 NEM Customers (94.7% Residential), with 18,315 KW of capacity. The revenue impact on non-NEM ratepayers is estimated at $3.4M annually.
- CCU/GPA conducted its first public hearing on NEM in August 2016 to gather input from stakeholders in order to prepare its filing to the PUC for changes in rate credits in order to achieve parity amongst all ratepayers.

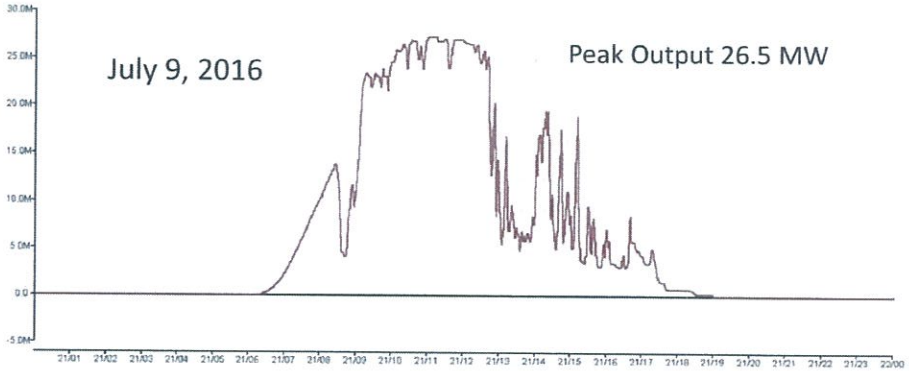
GUAM CCU

Solar PV Energy Production Characteristics

Utility Scale PV Output Look Like This …



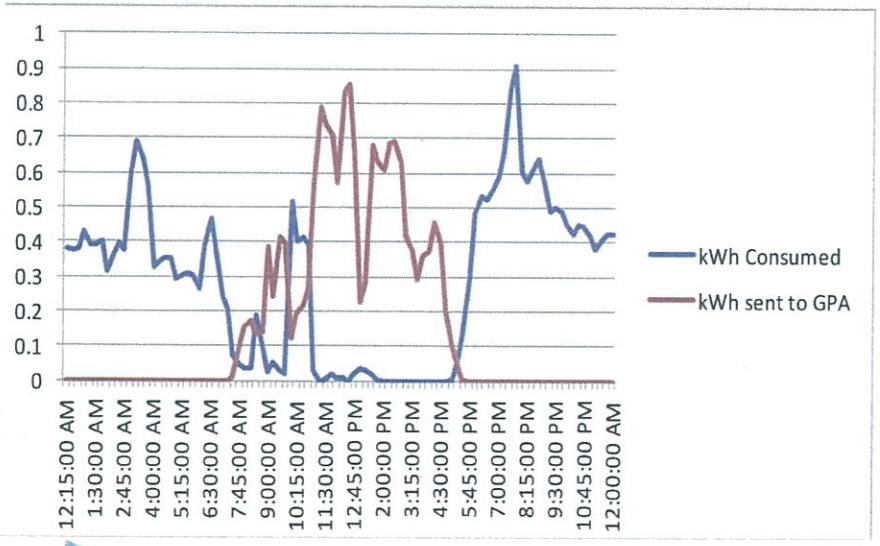
NEM does not eliminate need for capacity



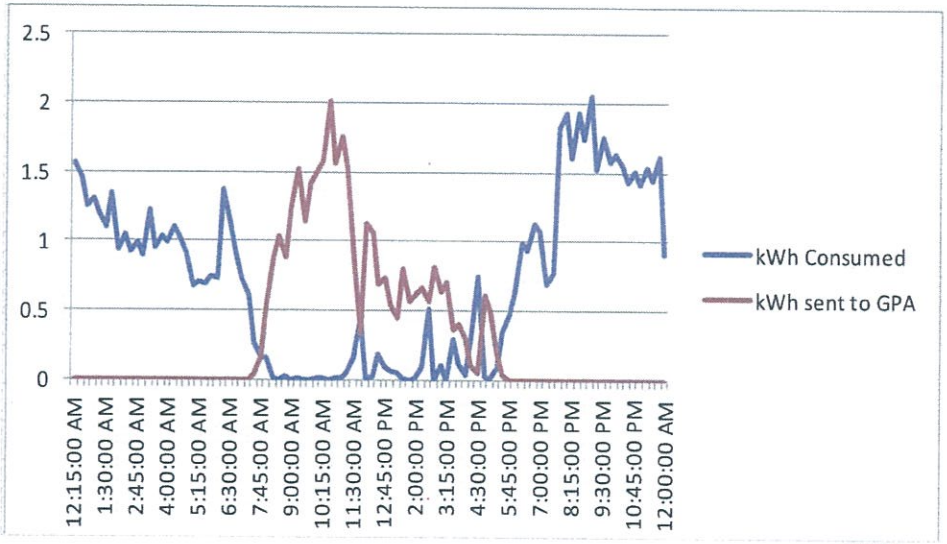
PV without adequate storage is not a capacity benefit. It is an energy benefit.

NEM Customer Profiles

Date:	14-Jun-16		
PV System KW Size	5.0		
GPA KWH 12am to 7am	11.05		
GPA KWH 7am to 6pm	3.66		
GPA KWH 6pm to 12am	**12.92**	**Evening Peak**	
NEM KWH 7am to 6pm	16.14		
Net GPA KWH	11.49		



Date:	14-Jun-16		
PV System KW Size	12.4		
GPA KWH 12am to 7am	28.9		
GPA KWH 7am to 6pm	6.1		
GPA KWH 6pm to 12am	**34.6**	**Evening Peak**	
NEM KWH 7am to 6pm	32.5		
Net GPA KWH	37.1		



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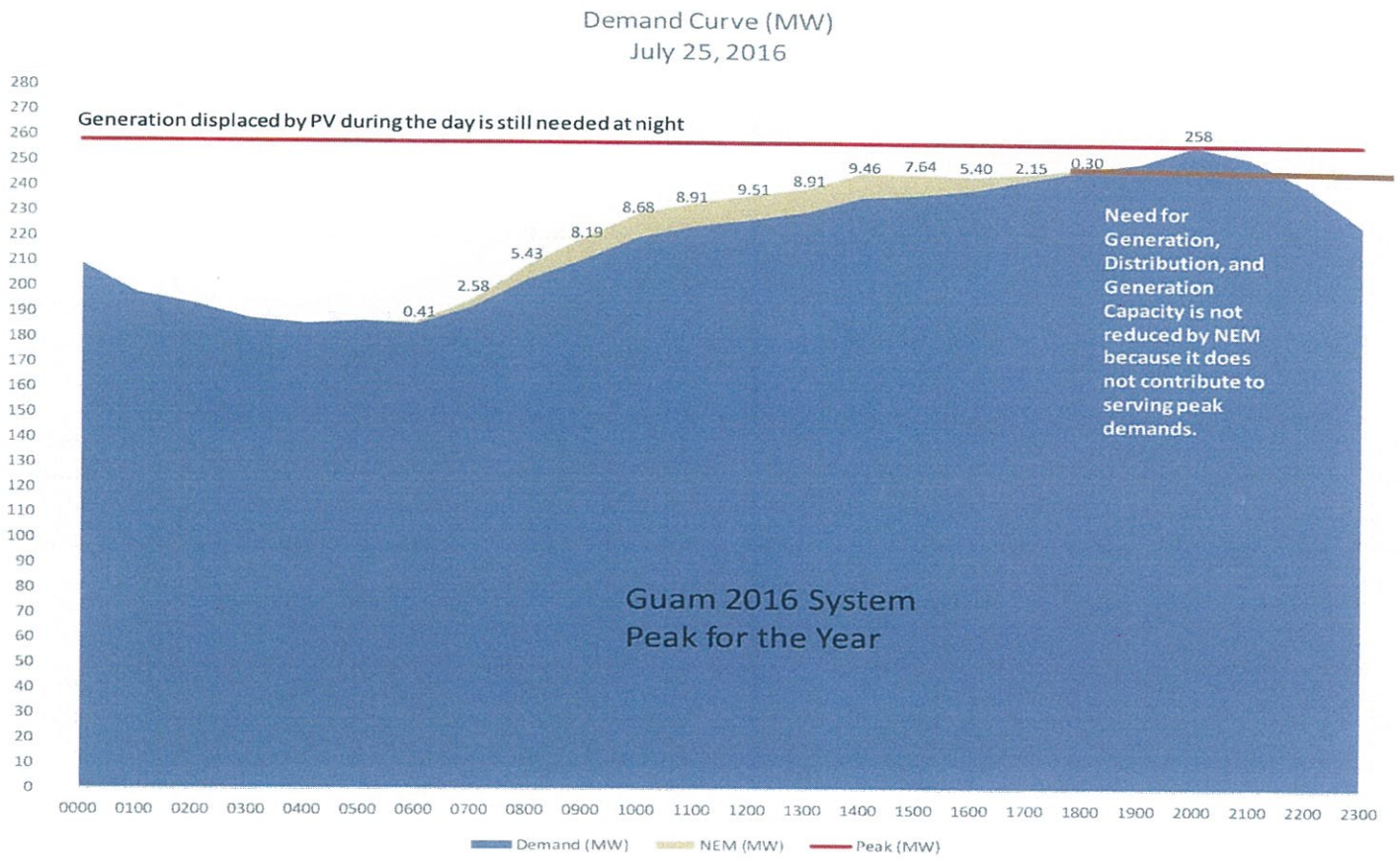
Does NEM Lower Guam Generation Capacity Requirements?

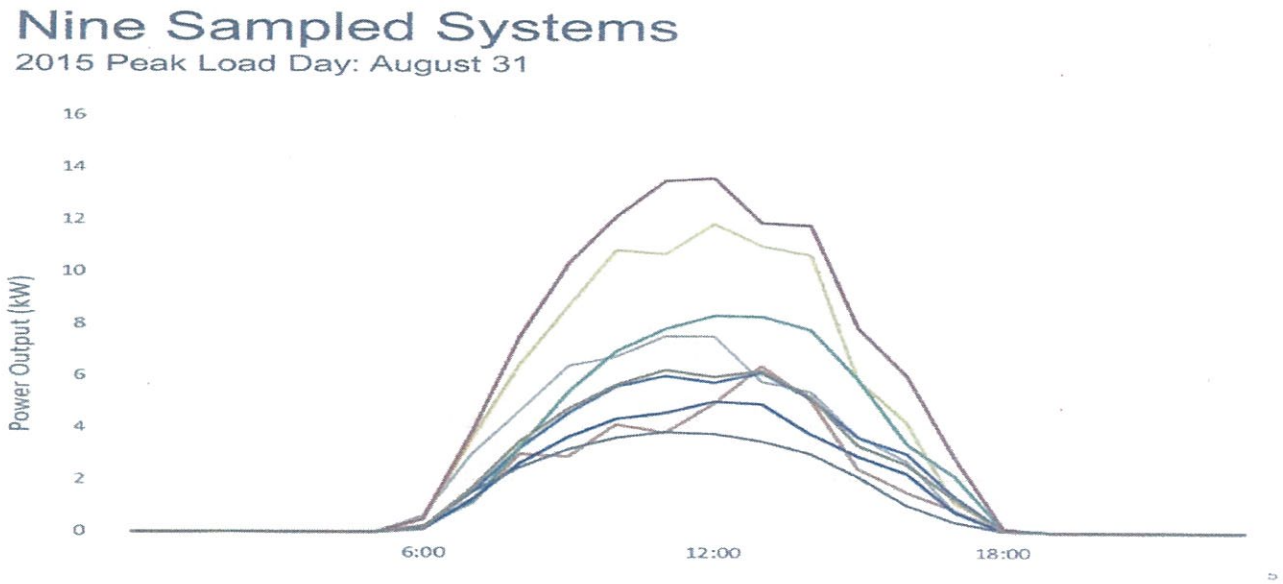
No. NEM Solar PV systems in Guam does not reduce peak demand and therefore does not eliminate conventional capacity needs

Transmission, Distribution, or Generation Capacity for Guam Not Reduced by PV



NEM Peak Production not at GPA Peak Demand Period

Source: Clean Power Resource Report



Net Metering Policy Issues

- Replacement for Net Metering Program
- Grandfathering existing registered NEM customers
  - Allow customers who own system to recover investment
  - Phase in to avoided cost rates over a 5 to 8 year period
- GPA files for PUC approval:
  - Reassessed NEM rates each LEAC for Avoided Fuel Value
  - Reassessed NEM rates for other components
    - Annually
    - Periodically over a set number of years
    - When GPA's generation mix changes

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Value of the Grid to NEM Customers

- NEM customers receive services from the grid including:
  - Use the grid to sell power (get credit at full retail rate for excess production)
  - Use the grid to energize their homes at night, but credited back from their production (Uses GPA Grid as storage)
  - Using Grid at night results in increased fuel cost to non-NEM Customers because costlier less efficient generation is used to generate their energy needs
  - Frequency regulation absorbed by grid for intermittencies
  - Reactive power supply
  - Voltage regulation
  - Stand-by power on overcast days when the sun does not shine

- Monthly fixed charge of $15 does not recover cost to serve from grid
  - Most of GPA fixed cost is recovered in the energy use (kWh) rate component which is typically zero for NEM customers

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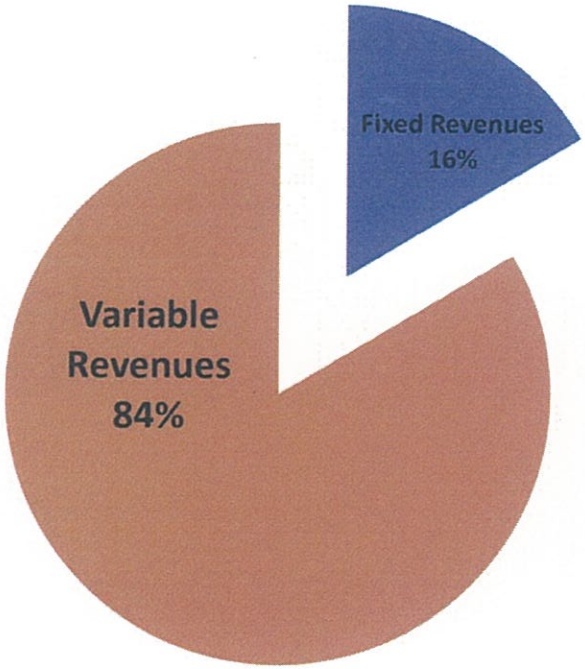
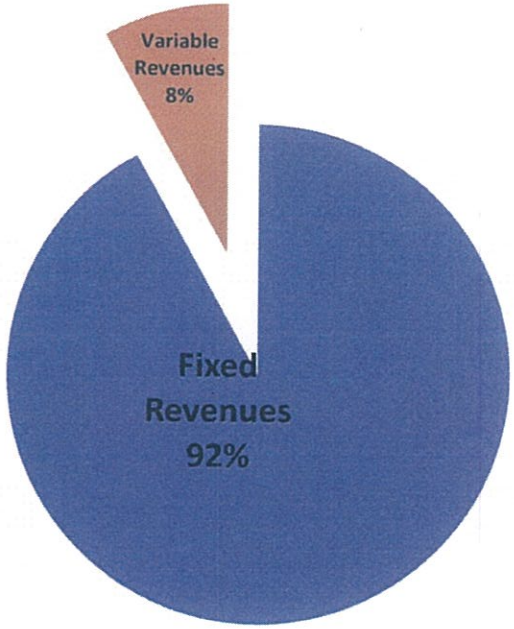
Rate Structure & Fixed Cost Recovery

Civilian Fixed vs Variable Revenues



Navy Fixed vs Variable Revenues



GPA Rate Structure Should Move Towards Recovering More Fixed Costs Through Fixed Charges.

- Civilian rate structure
  - Most of GPA fixed costs recovered in the variable rate
- Navy rate structure
  - Most of GPA fixed costs recovered in the fixed rate
- Hawaii has moved to fixed cost recovery predominantly through its fixed rate

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Net Metering Public Meetings Held to Gather Input from Stakeholders

Key Points from Public Meetings

- Solar PV providers opined the B&V report provides all the gain to GPA and did not represent true value of solar
- NEM Owner wants to recover his investment. Asked for grandfathering until he does so. He said it will take 7 years to recover his $60K investment
- NEM not meant to be money making business but a fair exchange of trade energy…some customers making money from units sized beyond their needs
- The applicability of NEM program to 3rd party providers need to be clarified
- Solar PV provider wants NEM program to continue up to 20% penetration similar to Hawaii
- Solar PV provider wanted more time to provide a report on Value of Solar and bring to GPA for information. Report was completed and presented by Clean Power Research on April 18, 2018

Key Points from Public Meetings (continued)

- Solar PV provider commented the NEM energy saves the utility cost on:
  - Maintenance cost for generations, poles, labor, lines, substations, transformers, etc.
  - Reduction of line losses because energy is near customers
  - Costs associated with fuel and fuel shipments
  - Helps GPA achieve energy portfolio reducing need for more renewable projects
  - Savings to environment; lessens carbon foot print
- Solar PV Provider-GPA should consider subsidies for home energy storage systems
- Solar PV Provider-GPA should consider grandfathering NEM customers through a phased approach
- No new points placed forward at the July 18, 2018 public meeting where the GM presented his recommendations which were previously presented to CCU

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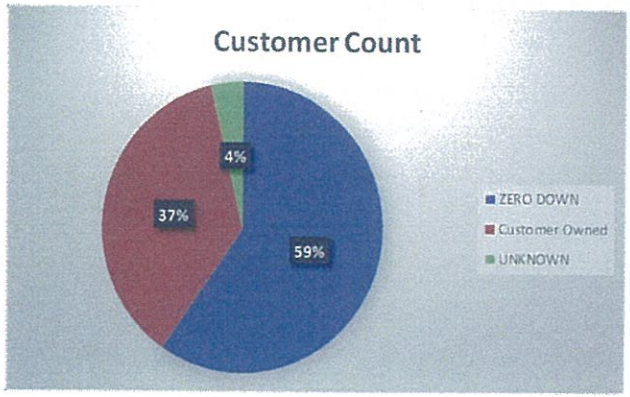
NEM – PV Statistics

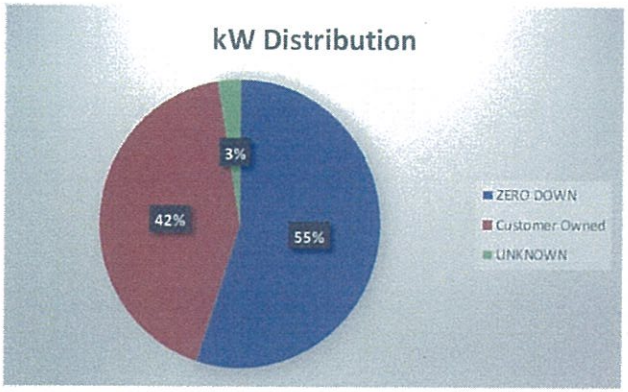


Customer Count

Description	Number of Customers
ZERO DOWN	979
Customer Owned	602
UNKNOWN	61
Grand Total	**1,642**

March 2018

Customer Class	KW	NEM	Customers	Percent of Customer Class
R - Residential	14,119	1,562	43,756	3.6%
J - Small General Service Demand	1,647	32	987	3.2%
K - Small Government Demand	318	9	348	2.6%
L - Large Government Demand	23	1	45	2.2%
P - Large General Demand	241	3	116	2.6%
G - Small General Non Demand	666	33	4,127	0.8%
S - Small Government Non-Demand	79	7	681	1.0%
Total	**17,092**	**1,647**	**50,060**	



kW Distribution

Description	kW
ZERO DOWN	9,326
Customer Owned	7,212
UNKNOWN	440
Grand Total	**16,978**

Projected FY 2018 Non-Fuel Revenue Loss				
Customer Rate Class	Renewable Energy Capacity (kW)	Annual kWh Generated (@5.092 hours/day)*	Average Non-Fuel Yield $/kWh	Estimated Annual Revenue Loss
R	13,693	25,447,071	0.09293	$ 2,364,822
J	1,647	3,059,970	0.13112	401,226
K	318	590,618	0.13932	82,286
L	23	42,373	0.13525	5,731
P	241	447,331	0.11539	51,617
G	636	1,182,853	0.15084	178,417
S	79	146,447	0.15334	22,456
Grand Total	**16,636**	**30,916,662**		**$ 3,106,555**

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

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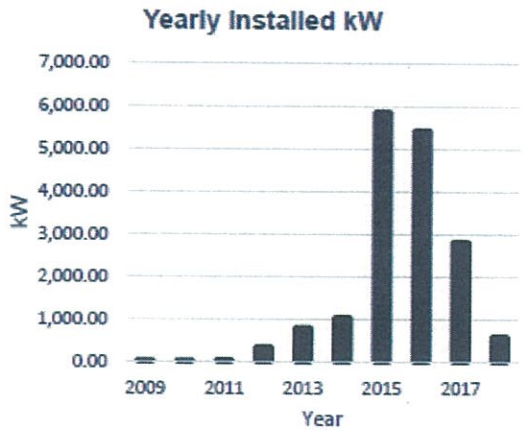
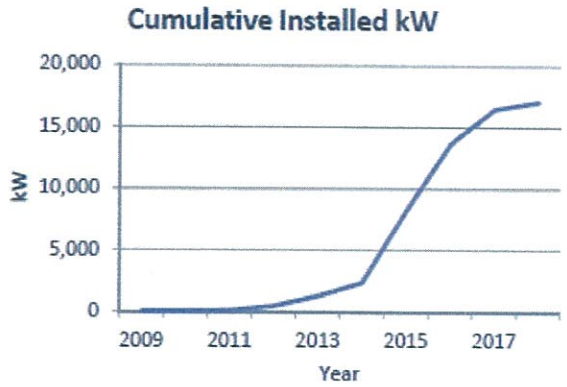
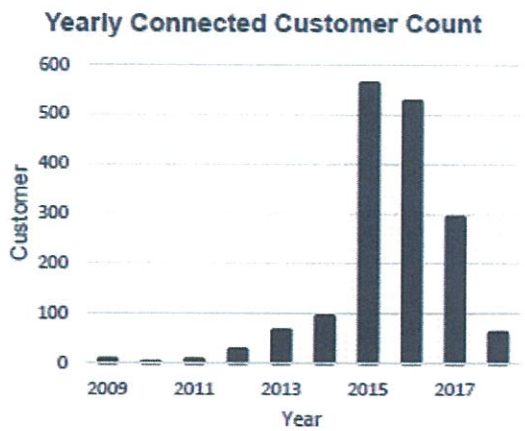
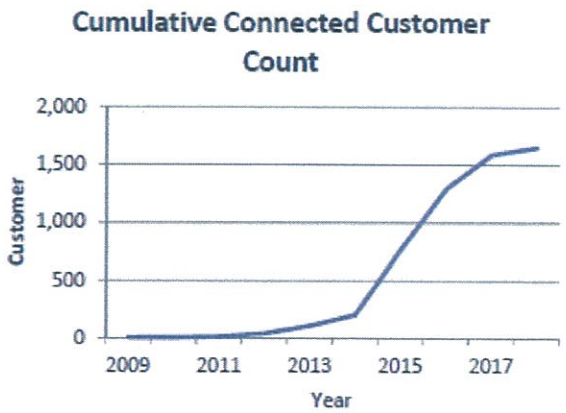


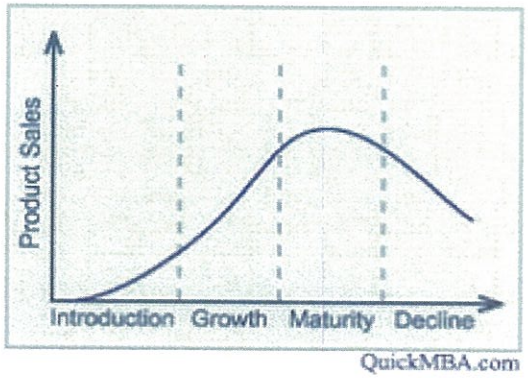






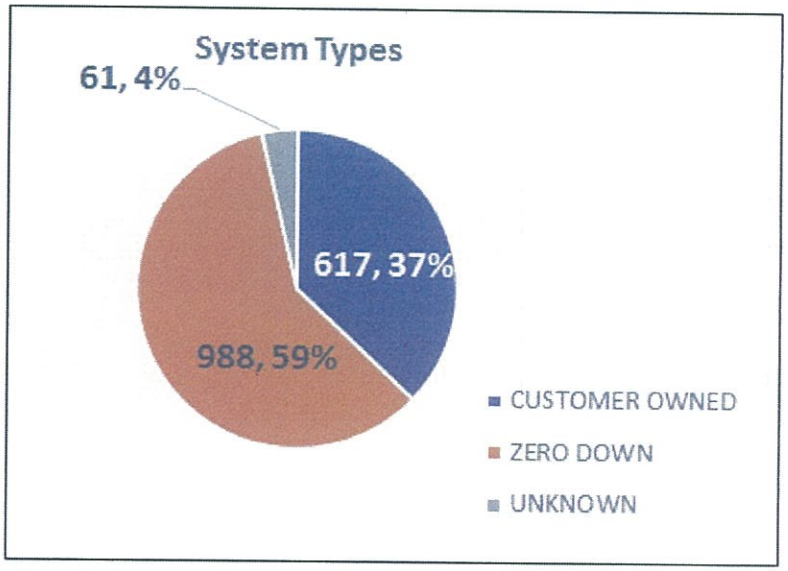
NEM Market Analysis

- Product Lifecycle Stages
  - 2009 -2011 Introduction
  - 2012 – 2014 Growth
  - 2015 – 2016 Maturity
  - 2017 – Present Decline



Market Share of Competitors

Firm	Count	Capacity (KW)	% of Installed System
Company A	747	6,882	40.3%
Company B	271	2,337	13.7%
Company C	229	2,426	14.2%
Company D	147	2,410	14.1%
Owner Installed	90	1,088	6.4%
Company E	29	470	2.7%
Company F	26	357	2.1%
Company G	13	100	0.6%
All Other Companies/Self Constructed Combined	35	576	3.4%
Unknown	62	449	2.6%
Totals:	1,649	17,095	100.0%



GPA Value of Solar from an Avoided Cost Perspective

Cost Category	FY 2017	Cost per kWh Sold	GPA Avoided Cost ($/kWh)
Generation + IPP Costs			
Other Production - Fixed O&M	$ 17,783,917	$ 0.0110	
IPP Costs - Fixed O&M	$ 16,958,770	$ 0.0105	
IPP Costs - Variable O&M	$ 2,976,564	$ 0.0018	$ 0.0018
Transmission & Distribution	$ 11,703,969	$ 0.0073	
Admin and General			
Payroll, benefits, retirement	$ 12,862,412	$ 0.0080	
Insurance	$ 7,252,504	$ 0.0045	
Contracts	$ 4,024,943	$ 0.0025	
Utilities	$ 1,817,009	$ 0.0011	
Office supplies & Others	$ 844,349	$ 0.0005	
Customer Accounting	$ 4,756,213	$ 0.0030	
Debt Service	$ 56,937,000	$ 0.0354	
CIPs/Others	$ 26,731,639	$ 0.0166	
Total (Base Rate Revenues)	$ 164,649,289	$ 0.1023	
Fuel Costs	$ 181,683,506	$ 0.1128	
Fuel Consumption, plus the under recovery of $15.3 M)	$ 165,692,714	$ 0.1029	$ 0.1029
Fuel Handling	$ 7,128,512	$ 0.0044	
Renewables	$ 8,862,280	$ 0.0055	
Total	346,332,795	$ 0.2151	
Energy losses at 3.5%		$ 0.0054	$ 0.0054
Environmental cost		$ 0.000039	$ 0.000039
Total Avoided Cost			**$ 0.1102**
Average cost in 2017 per kWh		$ 0.2151	$ 0.2151
Credit Beyond Avoided Cost			**$ 0.1049**

Energy Storage System (ESS) Cost Frequency Control

FY2019	
Total KWH Sales Projected:	1,610,093,011
ESS Annual Debt Service & O&M:	$ 2,829,348
$/kWh:	$0.0018

GPA provides low cost energy storage

New 40 MW Energy Storage System Commissioning December 2018

Value of Solar Comparison

Only Minnesota and Austin Energy (Texas) adopted VOS Model

Cost Category	Minnesota	Austin Energy	Clean Power Research (MRE)	GPA Avoided Cost FY 2017	Comments
Fuel Cost	X	X	$0.1260	$0.1029	Close Agreement
Energy Losses	X	X	$0.0054	$0.0054	In Agreement
Plant O&M-Fixed	X	X			
Plant O&M-Variable	X	X		$0.0018	Minor Cost Impact
Generation Capacity Cost	X	X	$0.0490		No Capacity Avoided
Reserve Capacity Cost	X				
Transmission Capacity Cost	X	X			
Distribution Capacity Cost	X	X			
Environmental Cost	X	X		$0.0001	Minor Cost Impact
Voltage Control Cost	X				
Solar Integration Cost	X				
Avoided Fuel Hedging Uncertainty Cost			$0.0590		N/A - GPA Does Not Hedge
Avoided Mandated RPS Cost			$0.0310		GPA meeting RPS at Savings not Cost
Total:			**$0.2704**	**$0.1102**	**Variance Subsidized by Non-NEM Ratepayers**

GUAM CCU

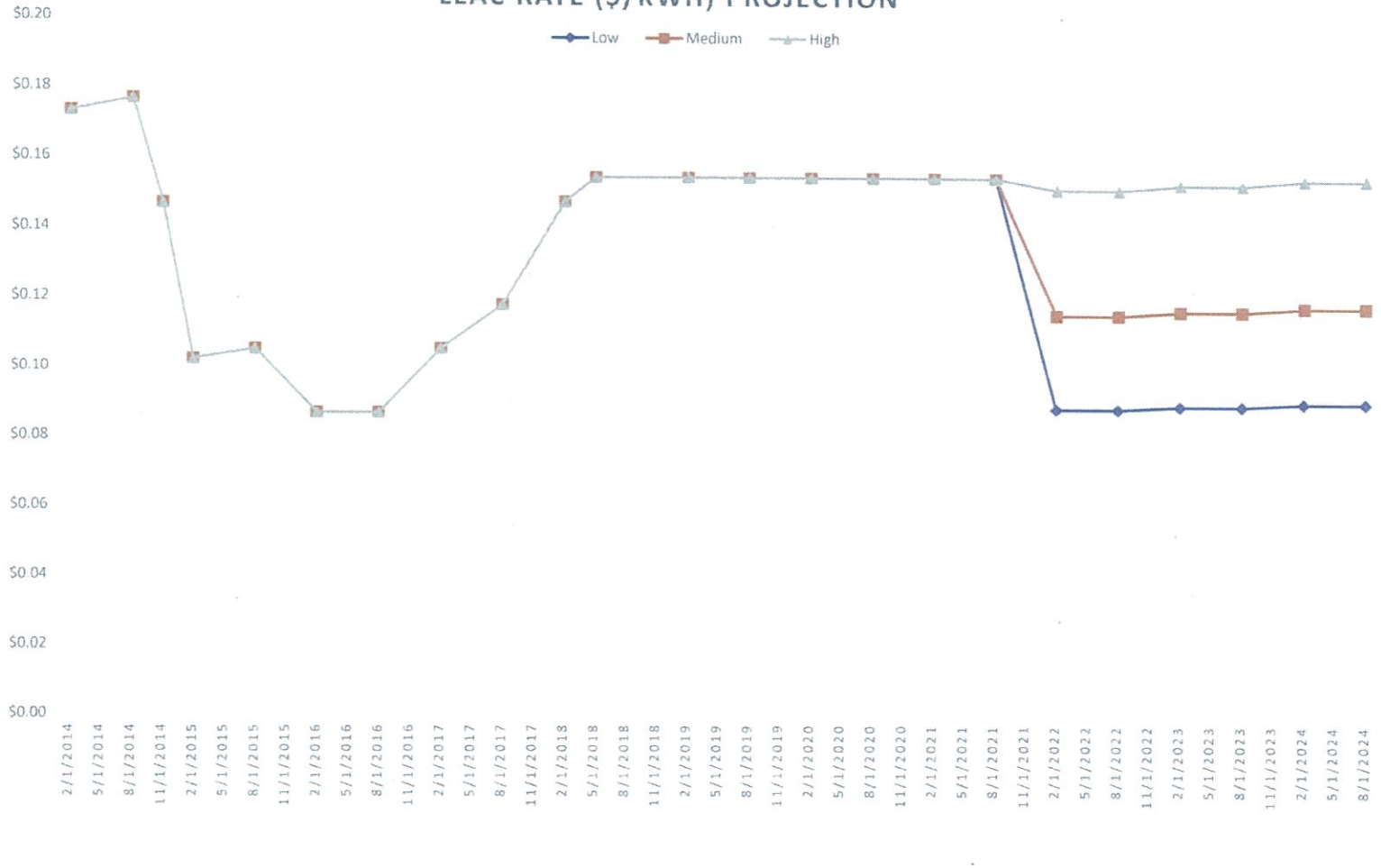
Value of Solar Comparison

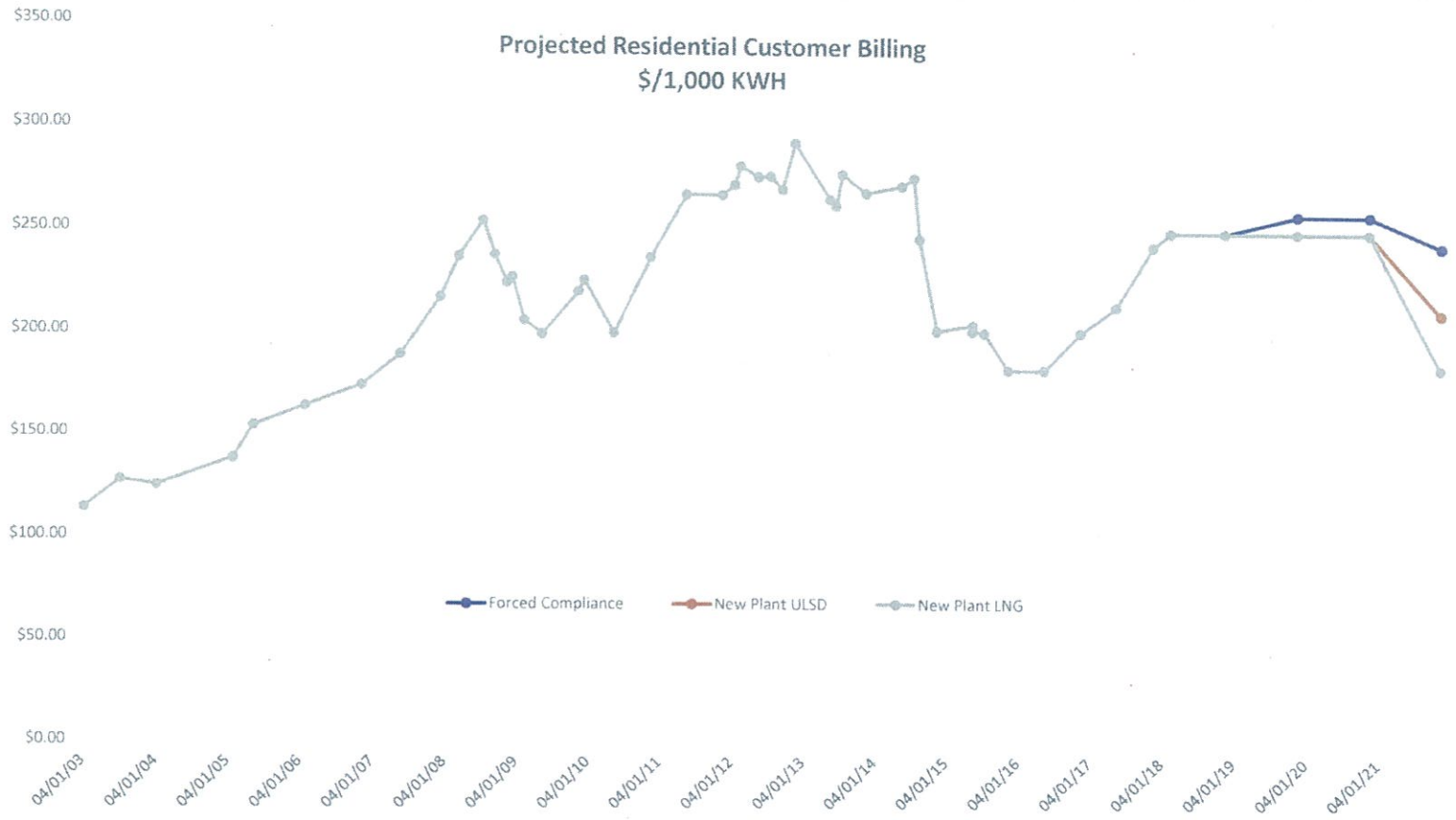
Adjusted to GPA Actual Cost

Cost Category	Clean Power Research (MRE)	Revised CPR/MRE Based on Comments	GPA Avoided Cost FY 2017	Comments
Fuel Cost	$0.1260	$0.1029	$0.1029	Adjusted based on LEAC for Similar FY 2017 Period
Energy Losses 4.6%	$0.0054	$0.0047	$0.0047	In Agreement
Plant O&M-Variable			$0.0018	GPA Determined Minor Cost Impact
Generation Capacity Cost	$0.0490	$0.0000	$0.0000	No Capacity Avoided because does not Reduce Peak Demand
Environmental Cost			$0.0001	GPA Determined Minor Cost Impact
Avoided Fuel Hedging Uncertainty Cost	$0.0590	$0.0000	$0.0000	Not Applicable - GPA Does Not Hedge, Therefore No Cost
Avoided Mandated RPS Cost	$0.0310	$0.0000	$0.0000	GPA meeting RPS at a Savings not a Cost
Total:	**$0.2704**	**$0.1076**	**$0.1095**	

GUAM CCU

LEAC RATE ($/KWH) PROJECTION




Projected Residential Customer Billing
$/1,000 KWH
$350.00
$300.00
$250.00
$200.00
$150.00
$100.00
$50.00
$0.00
Forced Compliance
New Plant ULSD
New Plant LNG
04/01/03
04/01/04
04/01/05
04/01/06
04/01/07
04/01/08
04/01/09
04/01/10
04/01/11
04/01/12
04/01/13
04/01/14
04/01/15
04/01/16
04/01/17
04/01/18
04/01/19
04/01/20
04/01/21

Net Metering Economics

When Do Customer-Owned NEM Recover their Investment?

Value of Solar Payment Versus Simple Payback						
$/Kwh Credit	$0.10		$0.12		$0.27	
ITC Valid	2018-2019		2018-2019		2018-2019	
	30.0% ITC		30.0% ITC		30.0% ITC	
Solar PV All-In Cost ($/W)	Simple Payback (years)	IRR (%)	Simple Payback (years)	IRR (%)	Simple Payback (years)	IRR (%)
1.00	6	18.8%	5	23.9%	2	53.0%
1.25	7	14.6%	6	18.8%	3	42.2%
1.50	8	11.6%	7	15.3%	3	35.0%
1.75	10	9.5%	8	12.7%	4	29.8%
2.00	11	7.8%	9	10.7%	4	25.9%
2.25	12	6.4%	10	9.1%	5	22.9%
2.50	**14**	**5.2%**	**11**	**7.8%**	**5**	**20.4%**
2.75	15	4.2%	12	6.6%	6	18.4%
3.00	17	3.4%	13	5.7%	6	16.7%
3.25	18	2.6%	14	4.8%	7	15.2%
3.50	20	1.9%	16	4.1%	7	13.9%
3.75	21	1.3%	17	3.4%	8	12.8%
4.00	**23**	**0.8%**	**18**	**2.8%**	**8**	**11.8%**
4.25	25	0.3%	19	2.2%	9	10.9%

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NEM Customer Owned Solar PV

At GPA Retail Rate Credit Recovers Investment in 5 to 8 Years

GPA Residential Retail Rate Credit:

Average $/W Installed	**$3.25/Watt**	**Annual Savings**	**Simple Payback Years**
PV KW Capacity	7.69		
Annual Capacity Factor	20.0%		
Annual Kwh Production	13,473		
Average LEAC	$0.147		
Average Base Rate	$0.093		
Total Average rate	**$0.240**		
Annual Energy Cost Avoided	$3,233.49		
Installation Cost - No Tax Credit	$24,993		**7.7**
15 Year Loan Annual Payment, 8%, 15 years	$2,919	$314.49	
With Tax Credit	$17,495		**5.4**
15 Year Loan Annual Payment, 8%, 15 years	$2,043	$1,190.49	

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NEM Customer Owned Solar PV

At GPA 2018 LEAC Rate Credit Recovers Investment in 8 to 12 Years

GPA 2018 LEAC Rate Credit:

Average $/W Installed	**$3.25/Watt**	**Annual Savings**	**Simple Payback Years**
PV KW Capacity	7.69		
Annual Capacity Factor	20.0%		
Annual Kwh Production	13,473		
Average LEAC	$0.154		
Average Base Rate	$0.000		
Total Average rate	**$0.154**		
Annual Energy Cost Avoided	$2,074.82		
Installation Cost - No Tax Credit	$24,993		**12.0**
15 Year Loan Annual Payment, 8%, 15 years	$2,919	-$844.18	
With Tax Credit	$17,495		**8.4**
15 Year Loan Annual Payment, 8%, 15 years	$2,043	$31.82	

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Summary

- Net Metering was established 13 years ago in 2004. Substantial Changes has occurred on GPA delivery cost and more changes expected by 2022.
- Customer Owned NEM System recovers its investment within 5 to 8 years from installation at GPA full Retail Rate Credit.
- Customer Owned NEM System recovers its investment within 8 to 12 years from installation at GPA LEAC Avoided Cost Rate Credit.
- It appears Zero Down Customers with 2.9% escalators will incur higher cost over the life of their 25 year contract. A $0.18/KWH rate in 2018 becomes $0.357/KWH in 2042.

Additional Information on Net Metering

Estimated Cost Impact to Non-Net Metering Ratepayers:

NEM Credit above avoided cost	Estimated Kwh	Estimated Subsidy	$/Kwh
FY 2009	23,912	$1,657	$0.0693
FY 2010	98,830	$8,483	$0.0858
FY 2011	170,070	$18,177	$0.1069
FY 2012	494,672	$58,546	$0.1184
FY 2013	1,556,949	$178,996	$0.1150
FY 2014	3,137,212	$410,559	$0.1309
FY 2015	7,383,621	$856,921	$0.1161
FY 2016	21,867,383	$2,200,795	$0.1006
FY 2017	28,242,917	$2,828,834	$0.1002
FY 2018	**33,921,230**	**$3,411,623**	$0.1006
Totals:	**96,896,796**	**$9,974,591**	

Net Metering Customers July 2018	1,733
Total GPA Customers	51,515
% NEM Customers	3.36%
Non-NEM Customers	49,782
% Non-NEM Customers	96.64%

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Jurisdiction	Years	Notes
Arkansas	20	
Neveda	20	
Utah	18	Until 2035
California	5	Residential, require application
	10	Other, require application
Arizona	20	Require application by June 12, 2018
Florida	20	March 31, 2018 final inspection, JEA
New Hampshire	22	Until 2040
Indiana	29	NEM customers prior to July 1, 2017 have until July 1, 2047
	14	NEM customers signing up prior to July 1, 2022 or their utility reaching a 1.5% peak summer load cap can continue net metering until July 1, 2032
Maine	15	Existing 2017 customers
Michigan	10	Limited to NEM that is already in the system
Hawaii (HECO, MECO, HELCO, Molakai, Lanai)	∞	NEM application was submitted to the utility postmarked 10/12/15 or earlier
Vermont	10	Net metering systems with a complete Certificate of Public Good application filed with the PSB prior to January 1, 2017 (as long as the application was filed at a time when the electric company was accepting net metering systems, based on the state's former aggregate capacity limit) are grandfathered

- Utilities and States Differ on Grandfathering NEM Customers
- Many Jurisdictions are Ending Net Metering

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Maine

- In early 2017, Maine became the fourth state to more appropriately compensate net metering. The Public Utilities Commission adopted a ramp-down policy, which gradually harmonizes the transmission and distribution charges for net metering customers, aligned with true avoided costs.
- The rules grandfather existing customers for 15 years.

Source: Tanton, Thomas. (April 2018) Net Metering in the States: Moving Toward Equitable and Sustainable Policies for Electric Customers. URL at http://sglf.org/wp-content/uploads/sites/2/2018/04/SGLF-Net-Metering-In-the-States-by-Thomas-Tanton-April-2018.pdf (August 17, 2018).

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Hawaii

- Marco Mangelsdor, president of installer ProVision Solar.
  - "... Hawaii's net energy metering (NEM) policy has "88% of the utility's ratepayers subsidizing the 12% who have net energy metered systems."
  - He believes utility's concern about that shift of costs for system maintenance is reasonable.
  - "The cost of NEM was $38 million in 2013 and it is estimated at $53 million in 2014. These are not trivial dollars."

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California

- One of the first studies to quantify the magnitude of the NEM subsidy was conducted by Energy+Environmental Economics (E3) for the California Public Utilities Commission (CPUC) in 2013.
- The E3 study estimated that NEM would result in a cost shift of $1.1 billion annually by 2020 from NEM to non-NEM customers if current NEM policies were not reformed in California.
- A cost shift of this magnitude–paid for by non-NEM customers–was unacceptable to California regulators.
- As a result, California regulators set to work to reform rates in their state; many other states followed suit and conducted similar investigations of the magnitude of the NEM subsidy.

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Nevada

- Recently, Arizona Public Service (APS), the state's largest utility, found that solar customers avoid on average around $1,000 annually in costs for operating the electric grid, costing the average power user, who must make up the cost, a $16.80 premium per year.

Louisiana

- Overall, the state found that its net metering structure resulted in an $89 million negative net benefits to electricity rate payers, meaning the net metering program costs are greater than program benefits, and that over $2 million of utility costs per year were being subsidized by non-solar consumers.

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See attached Article of May 18, 2018 by Institute for Energy Research (IER)

Subsidies uncheck will continue to impact Non-Net Metering substantially: Guam is at 3.36%; Hawaii is at 12 % NEM;

Description:	Jul-18	Future	Future	Future
% of All Customers	3.36%	5.00%	10.00%	15.00%
NEM Customers	1,733	2,576	5,152	7,727
Energy Produced	33,921,230	50,416,970	100,833,939	151,250,909
Annual Subsidy	$3,411,623	$5,071,652	$10,143,304	$15,214,955
Non-Nem Customers	49,782	48,939	46,364	43,788
Cost to each Non-NEM	**$68.53**	**$103.63**	**$218.78**	**$347.47**

Recommendation

1. CCU approve GPA filing a petition to the PUC as shown herein to consider changes to the existing net metering credit
2. Recommend an implementation plan for billing NEM customers on net billing: Buy All/Sell All or similar billing models
3. GPA files with GPUC for adjustment of net metering credits from retail to avoided cost
4. It is recommended that for existing NEM Customers, implement a Grandfather phase-in approach over 5 years to the GPA avoided cost credit as shown on the following page. Adjustments for LEAC, line loss and variable cost changes done annually.
5. For future NEM customers, credit set at the GPA avoided cost

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Migrate to Avoided Cost in Phases as Follows:

Year	Estimated Kwh	*$/Kwh	Subsidy
CY 2018	33,921,230	$0.1006	$3,411,623
CY 2019	33,921,230	$0.0805	$2,729,298
CY 2020	33,921,230	$0.0603	$2,046,974
CY 2021	33,921,230	$0.0402	$1,364,649
CY 2022	33,921,230	$0.0201	$682,325
CY2023	33,921,230	$0.0000	$0
Total Subsidy:			$10,234,869

*Subsidy decreased evenly over 5 years

Avoided Cost Credit set annually by PUC in a similar protocol as LEAC

All excessed credits trued up at the end of each year

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