



GUAM WATERWORKS AUTHORITY

The changing landscape of Guam's utilities

The Consolidated Commission on Utilities knows how deeply interested the business community and all residents on Guam are in its decisions and actions.

On any given day, management at the Guam Power Authority, the Guam Waterworks Authority and hundreds of employees work on a variety of projects to improve reliability and efficiency while delivering cost savings.

These vary from day-to-day challenges, to the business of running the utilities, to new and efficient infrastruc-

ture investments, to preparing the island for alternative sources of power and their distribution.

Likewise, the commission aims to do so in a prudent manner on behalf of all rate payers.

We hope that this in-depth feature on the work that takes place at the Gloria B. Nelson Public Service Building — our new home in Fadian, Mangilao — and in the field throughout the island will show how we are all working to manage the changing landscape of Guam's utilities.



The members of the Consolidated Commission on Utilities are (from left) Francis E. Santos, vice chairman of the CCU and chairman of the CCU Finance and Budget Committee; Simon A. Sanchez II; CCU Chairman Joseph T. Duenas; George Bamba, secretary and chairman of the CCU Information Technology and Cyber Security Committee; and Pedro S.N. Guerrero.

CCU Oversight and Management

When the first Consolidated Commission on Utilities commissioners were sworn into office more than a decade ago, the utilities were faced with various challenges, from mounting debts to a federal court lawsuit for water and wastewater violations and the threat of the Guam Waterworks Authority being placed in receivership. Since then, the CCU has grown, changing the utilities into robust, well-managed public corporations implementing multi-million improvements island-wide to the water, wastewater, and power infrastructure.

The CCU, a nonpartisan body elected by the public, was created by Public Law 26-76 in 2002 to provide policy oversight for the Guam Power Authority and Guam Waterworks Authority. After the enactment of the law, the five-member commission assumed oversight of the two utilities. Aside from creating the CCU, the public law also facilitated the transformation of GPA and GWA.

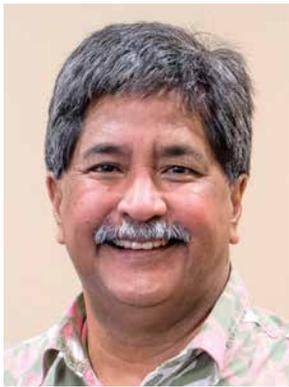
CCU Chairman Joseph T. Duenas noted that each of the commissioners brings a unique perspective to the CCU that has certainly steered both utilities forward. While the CCU has come up with the vision, the management and employees of both GWA and GPA have come together to better serve the ratepayers, he says.

Commission members are familiar with traveling to the U.S. mainland as part of the Government of Guam's team to meet with rating agencies, investors and underwriters.

About recent visits this year to bond companies, Duenas says, "GPA provided updates and a better understanding regarding the authority's finances and future plans that include repowering generation, more renewables along with cost cutting and efficiency goals."



Duenas



Santos

Insurance

Francis E. Santos, vice chairman of the CCU and chairman of the CCU Finance and Budget Committee, underscored the importance of adequately covering and protecting investments made by both GPA and GWA to improve island-wide utility infrastructure. He cites the recent example of the explosion at the Cabras 3 and 4 plants, which impacted power generating reserve capacity.

According to Santos, GPA has initiated the insurance claim process. "That process has started, and we hope for a successful outcome, but the importance of having insurance is very evident now. Because of [the accident], both GPA and GWA management teams have been tasked to

take a long, hard look at the insurance programs that we have and clearly evaluate the risk and the coverage and the policy that we have in place."

With the assistance of insurance companies, Santos said the CCU is evaluating policies and ensuring that utility investments and assets are adequately covered. "Millions of dollars have been invested today for both water and power infrastructure. The ratepayers own these."

Santos adds, "With my insurance background, the other board members are pretty much asking me to take the lead, examine the coverage and assess the type of insurance policy needed to adequately cover these assets."



Sanchez

The stipulated order

CCU Commissioner Simon A. Sanchez II sees the progression of the CCU, describing how the establishment of the body placed decision-making into the hands of power and water consumers by allowing them to elect their commissioners.

Placing fiscal and policy governance in the hands of the commission also established an arms-length relationship between the utilities and the executive branch of the government, he says.

"When the CCU took over, the government agencies owed the power authority over \$60 million," he says, with some errant accounts more than a decade old. At that time, the executive powers did not disconnect accounts. This spurred the development of the law that would create the commission. "They realized the utilities were get-

ting hurt, and it was time to get the utility [management] into the voters' hands. This political independence freed the utilities to become the progressive and independent bodies that they are today," Sanchez says.

Now, he says both GPA and GWA have earned investment grade ratings from credit evaluation agencies indicating confidence, ratepayers are seeing better service, and initiatives are geared toward protecting the environment.

"Fourteen years ago none of these conversations were happening and we were on the brink of receivership," he says, recalling the 2003 stipulated order and 2011 amended court order by the U.S. Environmental Protection Agency enforced against GWA, due to violations to the Clean Water and Safe Drinking Water Act.



Guerrero

Operations

Pedro S.N. Guerrero, CCU commissioner, says he looks at the profit side of the business of running both utilities. According to Guerrero, the two utilities earned approximately \$40 million each during the prior fiscal year. He said both GPA and GWA should set a goal annually of at least \$4 million to \$5 million in profits. Guerrero says this could be achievable if both utilities consistently implement cost-cutting measures moving forward.

These efforts include cutting overtime expenditures of personnel. GPA has reduced overtime payments by \$170,000 since last year (See charts on pages 7 and 8). He also emphasized the

fleet management efforts in regards to reducing fuel usage, which had been implemented in the past and which should be continued in the future. GPA reduced its fleet fuel consumption by almost \$50,000 from 2014 to 2015 (See charts on pages 7 and 8).

Both utilities should also continue monitoring their systems of generators and wells, Guerrero says. He says that the closure of non-performing/non-compliant wells or generators is essential to cutting costs. More importantly, he says these cost-cutting measures and savings should redound to the ratepayers.



Bamba

Security

George Bamba, secretary and chairman of the CCU Information Technology and Cyber Security Committee outlined the commission's planned projects to improve customer service, transparency and security.

Bamba says one way of facilitating customer service and transparency is by regularly updating the CCU, GPA and GWA websites to reflect current information, links to resources and projects, and online payment information. He says all three websites have been upgraded and are regularly maintained.

While CCU meeting agendas and minutes are now accessible online, Bamba says the CCU is planning to take this a step further by video streaming the meetings online. "The important thing is, information is knowledge and power. The more informed the customer is, the better for the utility because one of the things that we want to stress is customer engagement," he says.

In tune with evolving customer needs, Bamba says the CCU is working on improving email notifications of planned outages and is pushing for a smartphone application for a one-stop resource and payment site for both utilities. "You can do everything using the smartphone app. You can see how much you are consuming,

whether power or water. You can pay your bill online and get to the homepages to get more details on specific projects," he says.

While the idea is in development, Bamba says he hopes the CCU will go to beta testing soon. "We don't want to roll anything out until it is ready because it would be frustrating for the customers and for us. As I told them, we don't roll out a service until it is perfect, until it is done," he said.

"We always should be cognizant of the fact that we are here to serve our customers — the people of Guam. We provide a critical service, and because of that I think that transparency is important. The more our customers know what we are doing can only benefit both the utilities and customers," Bamba said.

Bamba also underscores the importance of bringing the utilities cyber-security program up to Department of Homeland Security standards.

He says the program should protect the utilities from potential attacks or intrusions from both the front and back ends. "Cyber security is important. We have always be on top of this," he says, adding, "Technology is driving all that we do — not just on Guam but worldwide."

The Guam Power Authority continues to make strides in its implementation of the Integrated Resource Plan or IRP — an energy blueprint outlining long-term and short-term resource options for the island — as it moves forward to the next phase by expanding its renewable energy portfolio and addressing intermittency and other issues.

According to GPA General Manager John M. Benavente, the power authority has a goal of installing 120 megawatts of renewables over the next five years as part of the plan. To accomplish this, GPA recently announced a Phase II renewable energy acquisition bid for 60 megawatts of renewables. While GPA is open to exploring different types of renewable energy aside from wind and solar, a prospective bid should have an integral component: an energy storage system and maintenance plan.

GPA has entered into a 25-year power purchase agreement with NRG Energy for solar production in Dandan. According to Benavente, the energy produced has been intermittent since power production depends on the weather. The surge and decline in production has caused power frequency and demand issues, which pushed online generators to compensate.

To address intermittency issues, GPA plans to procure an energy storage system that would be placed adjacent to the Talofofo Substation. According to Benavente, the location of the energy storage system facility is crucial since the NRG solar farm line goes into the southern substation and then feeds into the grid.

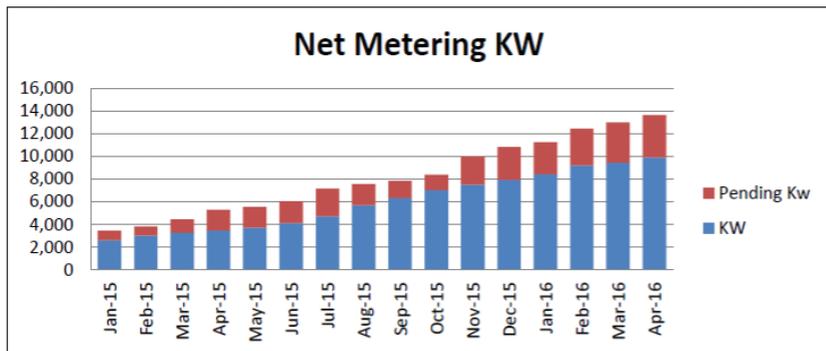
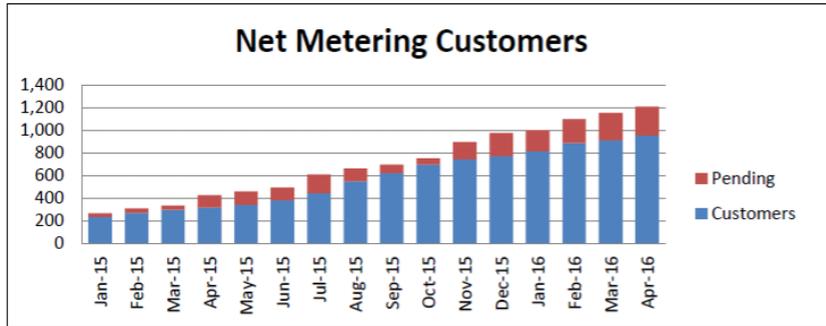
“The battery is just part of the system to make the system efficient. You have to generate power in the daytime, store it in a battery and then release the energy at night throughout the early morning,” he says.

Meanwhile, he says GPA’s Phase III plan includes leasing more than 190 acres of federal land from the Department of the Navy for the installation of photovoltaic systems. The proposed systems

Net Metering Summary Ending May 2, 2016

Description:	Count	Kw
Active	952	9,908
Pending	257	3,732
Totals:	1,209	13,640

Estimated Annual Non-Fuel Revenue Impact:	\$1,872,875
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would produce electricity that would be conveyed to GPA’s grid for public and military use.

“GPA is going to lease the property and put the renewables in. In the process, we are going to put in about 30 to 40 MW of renewables. ... This is for a 30-year contract,” Benavente says.

The proposed sites include South Finegayan, the former Tumon Tank Farm, the Harmon Booster Station and the Harmon Substation Annex. Four other sites are within Naval Base Guam.

GPA laid out the foundation for the IRP more than a decade ago but continues to review and update its provisions to address island-wide needs. However, GPA’s goal remains constant with each

revamping of the IRP — to provide a reliable, cost-effective power source that produces minimal environmental impact.

Aside from renewable energy acquisition, the updated IRP also ensures compliance with environmental regulations mandated by the U.S. Environmental Protection Agency under the Clean Air Act. Part of the plan includes diversifying fuel sources, to include those such as ultra-low diesel fuel, and retrofitting or retiring non-efficient plants like the Cabras units.

Public Law 29-62, which was passed in April 2008, required GPA to establish and meet Renewable Portfolio Standards, including an immediate goal of 5% of net sales to be generated from renewable resources by December 2015.

GPA: Tapping into Renewable Energy

Amid shifting global perspectives in power generation and utility management, the Guam Power Authority has started its transition from power provider into an energy services company by adopting renewable energy and cost-saving programs for the benefit of ratepayers.

GPA General Manager John M. Benavente says the power authority has become the biggest renewable energy provider in the region. In fact, GPA has a goal of installing 120 megawatts of renewables by 2035.

From its creation in 1968 as a public corporation, the Guam Power Authority has been forward looking. It invested in renewable energy acquisition, starting with the formal opening of an industry-scale 25 megawatt solar farm in Dandan in October 2015, a facility which produces enough capacity to power 6,000 to 10,000 homes. The power authority also recently unveiled its 233-foot wind turbine, which could generate up to 275 kilowatts of electricity for the island-wide grid.

Both projects represent GPA's move toward expanding its renewable energy portfolio. The power authority's first wind turbine — funded through a \$2.1 million grant from the U.S. Department of Interior's Office of Insular Affairs — was expected to provide data on wind generation and determine the viability of the technology on Guam. The solar farm, which was made possible through a power purchase agreement with NRG Renew, capped the completion of Phase I of the Integrated Resource Plan and provides a preview of the unique challenges posed by the adoption of the system.

According to Benavente, Phase II of its renewable acquisition plan would expand procurement requirements to include 60 megawatts of renewables, with emphasis on the inclusion of an energy storage system and maintenance plan. The battery solution was not incorporated into the Dandan solar farm agreement, thus Benavente says it is critical to incorporate this particular requirement to prevent power fluctuations in the future.

The renewable energy investments ushered in a new rate payer class of net metering customers, which continues to grow every year. These customers have photovoltaic or solar generated power that feeds excess power generated by



Guam Power Authority invested in an industry-scale 25 megawatt solar farm in Dandan, which began operation in October.

their systems back to the grid.

Benavente said as of May 2016, GPA has almost 1,000 net metering customers and is in the process of reviewing nearly 300 applications. Guam amended its net metering policies and limits system capacity to 25 kilowatts for residential and 100 kilowatts for commercial customers. Program policies also include a provision requiring a review once enrollment rates reach 1,000 customers.

Benavente said the power authority hopes to find a perfectly balanced program that would equally support net metering and non net metering customers.

"The total number of customers of GPA is 50,000. There are 1,000 net metering customers. It is not a problem early on, but later, as more and more come into play and they use the grid, then what happens is that other customers within the grid would have to pay the burden of other fixed costs within the system. That is the only issue with net metering," he says.

Recognition

Most recently, GPA received recognition as "one of the top 10 electric utilities that added the most watts of solar power per customer in 2015" by the Smart Electric Power Alliance an educational and nonprofit organization actively involved in the industry.

SEPA, which has more than 1,000 members that include electric utilities, independent system operators, large energy users and energy-related corporate and nonprofits, ranked GPA fifth among the top 10 "watts per customer" of private and public power utilities.

In response to the recognition, Benavente says, "It highlights the power authority's efforts to align with trends in the



Guam Power Authority held a ribbon-cutting ceremony on March 11 in Santa Rita for its first-ever wind turbine. (From left) David M. Smith, general superintendent; Peter Allen, president, both with Pernix Guam LLC; John M. Robertson, principal engineer, AmOrient Engineering; John J. Cruz Jr., strategic planning and operations research manager, GPA; and Rick Brown, operations manager, Pernix Guam LLC.

electric utility industry with the inclusion of renewable energy technologies."

Further he says, "With the inclusion of NRG's Dandan Solar Farm to the island-wide power system, net metering customers, our future plans with the U.S. Navy on their property for more solar energy and our upcoming Phase II renewable energy bids, GPA is well-poised to further expand our renewable energy portfolio."

Equally notably, Benavente says, "GPA is well on its way toward meeting the renewable energy goal(s) of 8% net electricity by Dec. 31, 2020, as outlined in Public Law 29-62."

Guam's Utilities Maintain Positive Fiscal Outlook

The Guam Power Authority and Guam Waterworks Authority maintain a positive fiscal performance while ensuring fair rates amid the high cost of improving island-wide power and water, and wastewater infrastructure at environmentally acceptable standards.

"The two utilities are doing well. They are working hard to deliver the best possible service at the most affordable cost to our rate payers. The management and employees of both utilities have taken that to heart," Consolidated Commission on Utilities Chairman Joseph T. Duenas says.

Both utilities will likely embark on capital improvement projects in the coming years based on their respective plans and in compliance with various environmental regulations. While these entail going to the bond market to fund improvements and incur debt service, Duenas says the commission and the utilities are working together to manage expenditures and rates and to ensure consumer affordability.

"We want to be as good of stewards as possible. The CCU has come up with the vision and said, 'Look, this is what we have to do,' and the employees and management are the ones that are coming together to improve service and control costs."

In February, GWA signed the closing documents for the \$143.3 million Series 2016 Water and Wastewater System Revenue Bonds, to fund needed capital improvements to the water and wastewater systems. The projects supported by this borrowing include construction of new water wells and concrete water tanks, installation of water lines and upgrading the Agat-Santa Rita Wastewater Treatment Plant.

After closing the bond, Duenas said the commission's guidance, the hard work of the GWA management team plus the island's solid economic outlook contributed significantly to the positive credit evaluation leading to the bond sale. The bond received three investment grade ratings: "A-" from S&P, "BBB-" from Fitch and "Baa2" from Moody's.

"We were able to successfully float a pretty large bond, which was earmarked for projects that are going to enhance and improve our water and wastewater infra-

structure here in the territory. I feel that this is part of the growth and expansion that you will see on the GWA side," Francis E. Santos, CCU vice chairman, says.

Financial solidity

"Based on the rate that we got and the successful sale of the bonds, that is all driven by the fact that GWA has its finances in order. We were able to work with our bond underwriters in a very quick time. I was very happy to be part of that group and successfully complete that," Santos says, adding from his financial standpoint that this is a good time for GWA to embark on the projects.

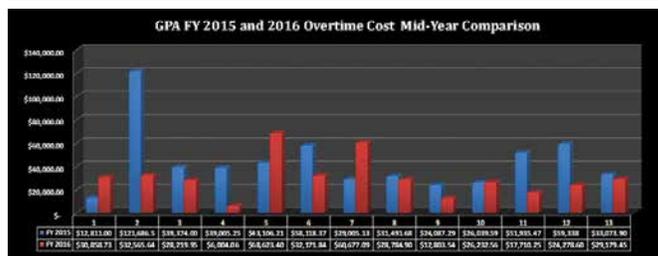
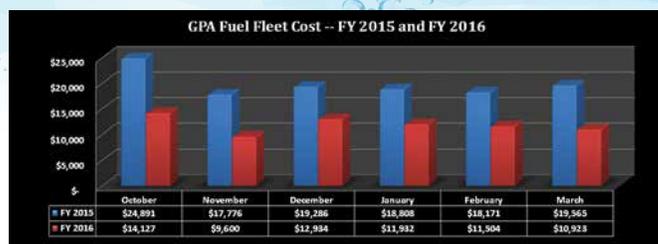
"Now that we have a new general manager on board and he's working hard on these projects that we have earmarked for these bonds, I think that the future is good for the waterworks authority," Santos said.

On GPA's part, in 2015, Fitch Ratings affirmed its \$566.5 million senior revenue bonds, 2014 series A, 2012 series A and 2010 series A at 'BBB-' and \$14.2 million subordinated revenue bonds, 2010 series A at 'BB+'. Standard & Poor's also provided a higher rating of 'BBB' and 'BBB-' for the senior revenue and subordinate revenue bonds, respectively. The group also upgraded its outlook to stable.

The Office of the Public Auditor lists several bond-funded projects of the power authority placed in service in 2015, including the Gloria B. Nelson Public Service Building, the Substation Automation project, the Customer Care and Billing System, Cabras 3 and 4 Smoke Stack replacement, and the GIS Implementation System. This year, the authority is preparing to embark on Phase II of its renewable acquisition plan and a project procuring an energy storage solution to mitigate fluctuations in power generation from its Dandan solar farm.

Audits show good standing

Fiscal 2015 ended positively for both GPA and GWA. According to audit re-



ports from the Office of Public Accountability, GWA closed 2015 with a net income of \$18.6 million after two successive annual net losses in fiscal 2014 and fiscal 2013.

GPA had a significant increase in net position of \$15.2 million from the prior year's restated net income of \$6.6 million.

For GWA, operating revenues outpaced operating expenses in fiscal 2015, the OPA says. GWA's operating revenues saw a 12.6% improvement, from \$82.7 million in fiscal 2014 to \$93.1 million in fiscal 2015. Operating costs showed a decrease of 2.9%, from \$65.9 million to \$64 million in fiscal 2015. GWA registered an increase of 73.1% in its net operating income — around \$29.2 million when compared to the prior year.

Meanwhile, the OPA reported GPA's total operating revenues significantly decreased by 15% or \$66.4 million — from \$436.4 million in fiscal 2014 to \$370 million in fiscal 2015. The decrease was attributed to reduction of the Levelized Energy Adjustment Clause, or LEAC, rate by nearly 41%, while kilowatt sales increased only by less than .5%. GPA's fuel cost and production also declined significantly — by 23% or \$66.3 million. The OPA says this is consistent with the global decline in fuel oil prices.

Duenas says this indicates more than a reduction in earnings for the power authority. "The revenues are down, but so is our cost," he says, underscoring the audit also shows an increased net position of \$15.2 million in fiscal 2015, doubling the prior fiscal year's figures.

GPA Fuel Fleet Consumption & Cost Comparison					
FY 2015			FY 2016		
Month	TOTAL COST	TOTAL GALLONS	Month	TOTAL COST	TOTAL GALLONS
Oct-14	\$ 24,891	7,640	Oct-15	\$ 14,127	6,713
Nov-14	\$ 17,776	5,923	Nov-15	\$ 9,600	4,797
Dec-14	\$ 19,286	7,046	Dec-15	\$ 12,934	6,790
Jan-15	\$ 18,808	7,965	Jan-16	\$ 11,932	6,829
Feb-15	\$ 18,171	8,785	Feb-16	\$ 11,504	7,105
Mar-15	\$ 19,565	8,398	Mar-16	\$ 10,923	7,030
Mid Year Total:	\$ 118,498	45,758	Mid Year Total:	\$ 71,019	39,264
					DECREASE
					Cost Gallon
					\$(47,478) (6,493)

GPA Overtime Comparison - Mid Year			
Pay Period	Month	FY 2015	FY 2016
#1	October	\$ 12,811	\$ 30,859
#2	October	\$ 121,687	\$ 32,566
#3	November	\$ 39,374	\$ 28,220
#4	November	\$ 39,005	\$ 6,004
#5	November	\$ 43,106	\$ 68,623
#6	December	\$ 58,118	\$ 32,172
#7	December	\$ 29,005	\$ 60,677
#8	January	\$ 31,492	\$ 28,785
#9	January	\$ 24,087	\$ 12,804
#10	February	\$ 26,040	\$ 26,233
#11	February	\$ 51,935	\$ 17,710
#12	March	\$ 59,338	\$ 24,279
#13	March	\$ 33,074	\$ 29,179
Mid-Year Total:		\$ 569,073	\$ 398,110
OT Budget		\$ 1,604,277	\$ 1,346,921
% Budget OT Used		35%	30%
OT Balance:		\$ 1,035,204	\$ 948,811
<p>Note: The Overtime cost presented does not include emergency overtime from typhoons and storms. The OT cost are regular overtime accrued in FY 2015 and 2016 as of the mid-year (#13 pay period).</p>			

Written by Louella Losinio. Images courtesy of the Consolidated Commission on Utilities, Guam Power Authority, Guam Waterworks Authority, Marianas Business Journal and Guam Business Magazine.