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10 **BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**
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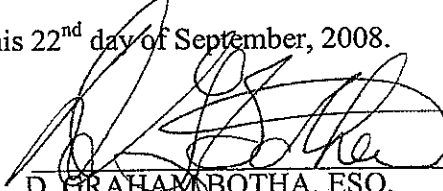
9 **IN THE MATTER OF:**
10 **GPA INTEGRATED RESOURCE PLAN**

DOCKET NO. 08-06

**FILING OF GPA'S RESPONSE TO GCG
IRP REPORT**

14 **COMES NOW**, the GUAM POWER AUTHORITY (GPA), by and through its counsel
15 of record, D. GRAHAM BOTHA, ESQ., and hereby submits GPA's response to the GCG report
16 on the GPA Draft Integrated Resource Plan (IRP). GPA's Integrated Resource Plan intends to
17 provide the lowest cost power for customers, fuel diversity, in an environmentally responsible
18 manner. GPA agrees with most of the recommendations contained in the GCG report, but
19 believes that additional studies are needed to determine the appropriate LNG strategy, and that
20 other renewal energy projects could be completed prior to the completion of wind siting studies.

21 **RESPECTFULLY SUBMITTED** this 22nd day of September, 2008.

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25 **D. GRAHAM BOTHA, ESQ.**
26 **GPA Legal Counsel**
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GUAM POWER AUTHORITY

ATURIDÁT ILEKTRESEDÁT GUAHAN
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September 22, 2008

Mr. Harry Boertzel, Esq. ALJ
Guam Public Utilities Commission
Suite 207, GCIC Building
Hagatna, Guam 96932

RE: Response to GCG Staff Report on "Draft" Integrated Resource Plan (dated 9/15/08)

Dear Mr. Boertzel,

The Authority has reviewed the staff report and summarizes below the topics requiring action from GPA as recommended by Georgetown Consulting Group (GCG):

- Undertake, at the earliest date possible, all activities required to expedite the use of wind energy for the purpose of integrating into GPA's generation resource mix.
- Formally petition expedited RFP process for the purpose of potentially acquiring other renewable energy at an earlier date than it believes it can acquire wind energy.
- Prior to proceeding with the development of its LNG strategy, provide the PUC with a report indicating the economic and financial viability of proceeding with a single unit (TEMES) strategy, inclusive of any consideration to supply natural gas to industrial, commercial, and residential consumers.
- Restrict activities to develop the Guam Sea Water Air Conditioning Project to serving in a facilitator role.
- Present a table showing the average consumer rates for each scenario by year for the period 2008-2020 during IRP presentation at September 29, 2008 public hearing.
- In addition GCG recommends a process to guide regulatory involvement in implementing the IRP including using competitive bids, requiring PUC review and approval of procurement documents for power supply and demand-side management resources or services and all resource development contracts, and complying with PUC contract review protocol. GCG further recommends quarterly project schedule updates for all resources and two-week notifications of anticipated delays to the ALJ.

GPA initiated the contract for siting wind monitoring stations since PUC's order dated May 30, 2008 authorizing use of excess bond funds. However, progress on this project was slowed due to candidate areas falling on private or other government agency owned properties. Although GPA has concentrated efforts on obtaining access to the government agency owned properties to minimize property acquisition delays, GPA has only recently received approval to access property for site evaluation. GPA now anticipates a site evaluation with Global Energy Concept consultant during week of October 13, 2008.

GPA believes its customers could see more immediate relief if an "other than wind" renewable acquisition is done in advance of a wind resource acquisition. GPA has prepared a resolution for its next Consolidated Commission on Utilities meeting to formally petition this request.

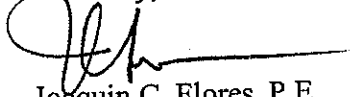
GPA has discussed the LNG strategy with its consultants on the IRP and will conduct further modeling as well as firming of capital costs required to convert existing GPA units. GPA believes that the conversion of existing units and an update of the TEMES plant to a combined cycle will improve the LNG facility throughput which will justify LNG fuel costs. GPA requests some time to complete this.

In regards to the Guam Sea Water Air Conditioning (GSWAC) Projects, GPA would like to further evaluate the impact of revenue loss if PUC requires GSWAC be independent of GPA. Existing debts may have to be reallocated which may impact other GPA customers. GPA had also hoped that this type of project may be counted towards renewable policy goals as required by Public Law 29-62.

GPA will make every effort to present the IRP customer impact which will be the \$/MWh rate impacts associated with the IRP as compared to the total GPA historical \$/MWh (CY 2007 actual retail \$/MWh to be was used for comparison). This impact evaluation considers only the incremental costs of the new resource additions and variable operating costs of generation supply and does not represent rates fully allocated by customer class. GPA will work with its consultant to evaluate and prepare this request.

Finally, GPA concurs with the recommended procedures from GCG on the IRP implementation and project monitoring. GPA would like to work with the ALJ and GCG to develop a timeframe to meet fuel diversification objectives.

Sincerely,



Joaquin C. Flores, P.E.
General Manager

DRAFT

Guam Power Authority
PO Box 2977
Hagåtña, GUAM 96932

Guam Power Authority

Integrated Resource Plan



FY 2008

DRAFT—May 28, 2008

EXECUTIVE SUMMARY

The Authority's Integrated Resource Plan (IRP), in order to increase the well-being of customers and stakeholders, aims to provide:

- ◆ Lowest cost power in the long run for customers;
- ◆ Fuel Diversity; and
- ◆ Electric power supply in an environmentally responsible manner

Integrated Resource Planning is an exercise in strategic as well as capital planning. It is an ongoing activity that does not end with the submission of a report. The business situation is dynamic and uncertain. It is especially when rapid change is anticipated that continued planning and analysis becomes even more critical. Additionally, the IRP must be folded with other long-range and medium-range studies into a cost-of-service study.

The Strategic Issues behind this Integrated Resource Planning effort include:

- Fuel diversity that considers fuel supply risk, renewable energy, reduced environmental and greenhouse gas footprints, and energy conservation/DSM;
- Supporting the electric power service requirements for the impending Department of Defense (DOD) build-up and its economic consequences; and
- Acquisition of new electric energy supply and its implication on human resource requirements and the Authority business model;

The primary recommendations of this IRP include:

- Award wind or other renewable energy projects by December 2009;
- Bring LNG as a substitute fuel for diesel fuel oil by 2012;
- Plan and permit for an additional gas-fired plant or non-petroleum-fired plant as a hedge for the uncertainty in the scope of the DOD buildup and related economic activity — GPA should construct this plant based upon high load growth triggers and work with the Department of Defense to mitigate rate impacts to other customers; and,
- Find a business partner to develop the Guam Sea Water Air Conditioning Project.

Other recommendations of this IRP include:

- Ensure that all generation plants meet the performance standards agreed with the PUC;
- Examine life extension of its existing plants in a comprehensive and integrated manner;
- Continue to evaluate renewable and energy efficiency technologies in order to obtain the lowest energy prices for its customers;
- Work collaboratively with the Guam PUC and stakeholders to improve the Authority's financial position relative to obtaining funding for these projects;
- Continue to investigate geothermal, Ocean Thermal Energy Conversion (OTEC), Integrated Gasification Combined Cycle (IGCC), and other technologies;
- Work with Guam Waterworks Authority (GWA) on an interruptible load arrangement in order to hedge against the risk of higher than baseline load growth;
- Work with the Guam PUC to establish the rules of engagement for and rates for net metering;
- Work with the Guam PUC on implementing economically and socially viable Demand-Side Management Programs; and
- Add to its web site Enercom's packaged set of Internet energy tools called Energy Depot®¹ as part of an initial small DSM project and customer outreach.

Bringing LNG as a substitute fuel for diesel requires the Authority to:

- Work with the Department of Defense to support the paradigm change at the Japan Bank for International Cooperation's (JBIC) pledge for infrastructure funding for the DOD marine move from supplying electric energy to supplying LNG;
- Renegotiate the Taiwan Electrical and Mechanical Engineering Services (TEMES) Energy Conversion Agreement to include converting its plant to use natural or synthetic gas and combine cycle operation; and

Examine supplying natural gas for industrial, commercial, and residential use as a utility under the CCU and the Guam PUC.

Table 1 shows the capital requirements for the primary recommendations of this IRP. Note that the CLNG Project is contingent upon accelerated load growth.

¹ Online Energy Audits & Information. Accessed at <http://www.hometownconnections.com/utility/enercom.html> on May 27, 2008

Table 1, Recommended Capital Requirements (thru 2018)

Project	Description	Construction Schedule	Commission Year	Capital Requirement (\$ 000)
WIND	Wind Farm - 20x2MW	18 Months	2011	97,076
WIND	Wind Farm - 20x2MW	18 Months	2012	97,076
TEML	TEMES Conversion to LNG - 40MW		2012	8,633
GSWAC	Guam Sea Water Air-conditioning	60 months	2013	100,000
CLNG	CC w/ LNG / LM6000	43 Months	2013 to 2021 Depending on Load Growth	334,000
SSD	Reciprocating Engine (Slow Speed Diesel) - 2x20MW	30 Months	2017	70,980
WIND	Wind Farm - 20x2MW	18 Months	2018	97,076
TOTAL				804,841

**BEFORE THE
PUBLIC UTILITIES COMMISSION
OF GUAM**

**STAFF REPORT
ON THE
"DRAFT" INTEGRATED RESOURCE PLAN
OF THE
GUAM POWER AUTHORITY**

**Prepared by
GEORGETOWN CONSULTING GROUP, INC.**

September 15, 2008



**STAFF REPORT
ON THE
"DRAFT" INTEGRATED RESOURCE PLAN
OF THE
GUAM POWER AUTHORITY**

This report provides the Public Utilities Commission (PUC) with our findings and recommendations concerning the potential implementation of the "Draft" Integrated Resource Plan (IRP or Plan) filed by the Guam Power Authority (GPA) on June 14, 2008. A public hearing is scheduled for the week of September 29, 2008 to consider the IRP.

Georgetown Consulting Group (GCG) was authorized to review, conduct necessary discovery and to file a report with the PUC regarding the IRP. The PUC's August 13, 2007 Regulatory Order specified that GCG's report should recommend a process, which would guide regulatory involvement in implementing the IRP, including a position on whether the IRP establishes the basic planning characteristics which PUC should consider in its review of future GPA applications for approval of new generating facilities. This report addresses these matters and more and presents GCG's findings and recommendations.

IRP BACKGROUND

The IRP report comes at a time when GPA has seen its LEAC rate rise sharply over the course of the past 30 months, primarily due to its lack of fuel diversified resources and its dependence on fuel oil. The Draft IRP was designed to evaluate a full range of energy resource alternatives, including new generating capacity, energy conservation and efficiency, cogeneration, power production efficiency enhancements, and renewable energy resources, in order to provide customers in the future with adequate and reliable electric service at the lowest cost. In addition, one of the principal objectives of the IRP was to present a fuel diversification program consistent with reliability, dispatchability, and other factors of risk that could be implemented at the earliest date possible.

The PUC's objective is to assure ratepayers that GPA has in place a detailed and transparent plan (a road map) demonstrating how it will move to a more fuel diversified and efficient power generation resource base. Such road map is critical to insure that GPA set a course of action to lessen its dependence on high cost fuel oil and increase its level of fuel diversification. Such action by GPA will mitigate the high costs and volatility resulting from this continued dependence on high cost fuel oil.

A stakeholder program was designed with the objective to gain input from stakeholders into the IRP process and to assist in the determination of the optimal type of future generating resources and demand-side management programs required to meet the needs of Guam customers. The stakeholder meetings were actively attended by a cross section of interests including territorial government, military, retail customers, residential customers and others. GPA held four stakeholder meetings. These meetings gave stakeholders the opportunity to help structure the IRP planning processes, review planning results, and

participate in the process. Briefly, the first IRP stakeholder meeting was held on October 18, 2007. At that meeting the overall IRP process, its objectives, schedule of activities, and related background information was presented to and discussed with the participants. The second IRP stakeholder meeting was held on November 29, 2007. That meeting focused on five of the most critical components of IRP development—load forecast considerations, fuel supply and future pricing considerations, load and resource balance issues, most probable future generating resource options, and ranking of potential demand-side management programs. The third stakeholder meeting was held on February 1, 2008. At that meeting GPA covered and shared preliminary results, discussed key development scenarios and risk issues, and initial recommendations on the timing and type of recommended resource additions. The fourth and final stakeholder meeting was held on April 4, 2008 at which time the key results and findings, expected resource acquisition and regulatory processes were presented.

The IRP identified three alternative futures and an optimal resource plan for each alternative future. The three alternative futures are defined as normal, baseline, and high. It is anticipated that in the near-term GPA decision-making will be based upon the baseline scenario which assumes significant Department of Defense (DoD) impacts; but, recognizes DoD impacts could be more significant than those contained in the baseline scenario. Under the baseline scenario GPA has sufficient capacity to meet customer demand well into the future; however, the primary resource challenge facing GPA in the near-term is related to fuel diversification and the economic displacement of oil fired generation.

RECENT DEVELOPMENTS

The IRP indicates that renewable energy from wind technology is the fuel diversification resource of choice in the near-term. Accordingly, GPA has requested PUC funding approval and initiated studies to determine the optimal sites for wind monitoring towers and initiated activities to obtain adequate wind monitoring data enabling it to pursue a wind strategy, promote reasonable competition among wind developers, and minimize the risk associated with turbine siting and wind operations. Unfortunately, the wind turbine industry worldwide is growing today at rates that adversely impact the ability of the industry to supply turbines to an increasing demand. The result has been a lengthening of the delivery dates for new turbines. Since the turbine market is not expected to soften anytime soon early action by GPA is required to allow it and its ratepayers to achieve the benefits of fuel diversification at the earliest date possible. However, even under the most aggressive schedule GPA will be fortunate to award a wind development contract by December 2009 putting it into a position of bringing its first wind farm online by 2011.

Meanwhile, other renewable developers (most notably solar) have approached GPA indicating they can be competitive with wind technology and supply solar resources at an early date. GPA has indicated an interest in pursuing an aggressive implementation of renewable energy and is desirous of explore strategies to consider a greater range of renewable alternatives.

In recent discussions with GPA we have verified that it is currently GPA's intent to use the competitive RFP process for acquisition of proposals for the turn-key development of renewable energy projects. This is positive news since this method of acquisition will

enable GPA to acquire these resources competitively at the earliest date possible. GPA has also informally indicated it is seriously examining the "White Creek" development model which combines the advantages of a public/private undertaking. This approach was outlined at the 3rd stakeholder meeting. It is believed this approach may save ratepayers about 15% versus traditional approaches to development.

GPA currently is proceeding with the necessary wind studies and a wind RFP, partly in response to the recommendation contained in the GCG staff report on May 16, 2008. In a recent informal request (to be followed up with a formal petition) GPA has indicated it would like to pursue other renewable energy projects via a second RFP which could be issued more quickly for the purpose of potentially acquiring "renewable energy projects" excluding wind technology. The primary objective of this latest request by GPA is to accelerate the procurement of renewable energy other than wind. GPA anticipates that acquiring wind energy will take 2 to 3 years to implement. In the meantime, GPA has been approached by developers of other renewable (non-wind) resources whom have indicated they can meet or beat the price of wind energy and can do so in less time than required to bring wind energy to fruition.

While the IRP indicates that wind technologies are more economic than other renewable technologies recent cost and scheduling information from non-wind proponents indicate that certain renewable energy projects could be cost competitive with wind. In addition, these non-wind technologies do not have to wait for baseline studies (i.e., wind studies) in order to submit a proposal nor does there exist a large equipment backlog of orders leading to the long lead times for wind turbine delivery.

GPA is suggesting that given other potential renewable technologies may be cost competitive with wind it should prepare immediately an RFP for renewable energy. This new RFP would allow GPA to test the renewable market and determine whether other renewable technologies can be developed at a lower delivered power costs and on a more aggressive schedule than wind. In doing such GPA would structure the RFP in a manner that would not be restricted to a specific renewable technology, but would be open to all renewable technologies including, but not limited to, solar (photovoltaic and thermal), biomass, wind, geothermal, and others. Wind developers during this new RFP may be somewhat at a disadvantage because there is little baseline wind data available for developers (this higher risk this may affect their proposal costs); however, once baseline wind data is developed a wind only RFP is anticipated. It is critical that this later, wind only RFP proceed as soon as possible given the major role wind is expected to play in GPA's future.

As part of this new RFP process project proponent outreach efforts would be undertaken by GPA for the purpose of maximizing interest in potential renewable development on Guam and obtaining a large number of competitive project proposals. In addition, the primary emphasis during the proposal evaluation phase will be to determine which renewable proposals submitted in response to the RFP are cost competitive with wind and which can be available more quickly than the estimated date on-line date for wind power.

IRP ISSUES AND CONCERNS

There are a number of questions that need to be further addressed concerning the recommendations contained in the IRP document. These include as a minimum the following five questions:

- Fuel diversification—currently the baseline scenario includes the addition of 80 mW of wind capacity and 40 mW of LNG at the TEMES managed combustion turbine. While 120 mW's of capacity sounds like a sizeable commitment to fuel diversification in reality it is far less a commitment than the number (120 mW) would seem to imply since both wind and combustion turbines have very low operating capacity factors. For instance, wind at best would be expected to have a capacity factor of somewhere between 25-30 percent, while combustion turbines typically operate at about 10-12 percent. The resultant fuel diversification on an actual energy consumption basis would be in the order of 10-11 percent once the second 40 mW wind farm is operational in 2012. While the plan represents a step in the right direction, more fuel diversification is desirable. In addition, while LNG for combustion turbines does diversify GPA from fuel oil, LNG is a natural gas derivative and still subjects GPA ratepayers to a degree of potential price volatility.
- LNG—the baseline scenario includes the conversion of the TEMES combustion turbine from number 2 fuel oil to natural gas. GPA proposes that it purchase LNG (liquefied natural gas) from regional suppliers, transport the LNG, unload, store, re-gasify the LNG to natural gas, and burn in the TEMES peaking combustion turbine. LNG may be an attractive alternative to fuel oil; however, we are concerned that the investment costs in LNG infrastructure is considerable and would believe it worth examining the conversion of one or more of GPA's base load units to natural gas. This would allow the investment cost in LNG infrastructure to be allocated over a greater number of kWh's which should reduce the costs of production to a greater number of GPA generating units. We would recommend that GPA perform a study optimizing the use of natural gas for firing base load generators before any expenditures are made to install LNG infrastructure.
- Solar and other renewable energy resources—as mentioned above GPA is considering proceeding with an RFP for the acquisition of renewable energy prior to the completion of the ongoing wind studies. We believe this is a positive move and support this plan. We would encourage GPA to submit a formal petition so that this matter can be considered by the PUC at its earliest opportunity.
- Business Partner for Guam Sea Water Air Conditioning (GSWAC)—is a large scale demand-side management project proposed to cost in the range of \$100 million and slated for installation in 2013. The project would provide air conditioning for large scale building such as hotels and related facilities. While we believe the technology to be acceptable, we have a number of concerns about this project. First and foremost, it is an area where GPA has no experience or a track record of performance. It would have to somehow acquire this experience. Second, unless GPA's existing ratepayers are somehow shielded from the risk of this investment it

would appear to represent an imprudent investment. Lastly, we would suggest a role for GPA as a facilitator. In that role it could assist in finding a potential private sector investor or help structure and recommend a new governmental entity that could undertake this project. This new entity would be comprised solely of customers benefiting from the output (A/C) of this project and would not have GPA ratepayers providing the underlying financial credit for developing this project.

- Consumer Rates—while the IRP report presents the total revenue requirements for the various supply and demand-side alternatives, nowhere in the report does it provide ratepayers with a rate comparison showing the average consumer rates (\$/kWh) associated with any of the proposed scenarios. We recommend that as part of its presentation of the IRP at the public hearing during the week of September 29 that it present a table showing the average consumer rates for each scenario by year for the period 2008-2020.

BASIC PLANNING CHARACTERISTICS

The August 13, 2007 Regulatory Order requested that GCG provide a position on whether the IRP establishes the basic planning characteristics the PUC should consider in its review of future GPA applications for approval of new generating facilities. The IRP included a number of planning objectives and characteristics necessary to evaluate the full range of energy resource alternatives, including new generating capacity, energy conservation and efficiency, cogeneration, power production efficiency enhancements, and renewable energy resources, in order to provide customers in the future with adequate and reliable electric service at the lowest cost. These same objectives and characteristics will be required during the implementation phase of the IRP. Principal among these are consideration of:

- Policy matters such as fuel diversification considering fuel supply risk, renewable energy, energy conservation, and the use of alternative fuels.
- System matters such as load growth, planning reserve margins, operating reserve criteria, fuel and operating costs assumptions, capital cost assumptions, and other related parameters.
- Economic and financial matters such as financibility, consumer rates, and system revenue requirements as evaluation criteria.
- Evaluation matters include consideration of planning criteria such as:
 - Length of planning period.
 - Forecasting methodologies for demand and energy forecasts
 - Evaluation of existing resources.
 - Alternative reserve margins.
 - Contingency or scenario planning
 - Evaluations performed on a comparable and consistent basis.
 - Use of net present value techniques.
 - Projected emission considerations.
 - The effect of approval on the prudence of resources for which rate revenue recovery will be later sought.

The planning characteristics used by GPA in the development of the IRP are prudent and represent the key characteristics the PUC should consider in its review of future GPA applications for approval of new generating facilities.

CONCLUSIONS AND RECOMMENDATIONS

Based upon GCG's review of the "Draft" IRP we offer the following observations, conclusions, and recommendations.

1. The IRP defines three alternative futures. GPA has indicated that in the near-term it will base its decisions upon the baseline scenario. We believe this is a approach to near-term resource planning is reasonable.
2. GPA has initiated certain wind studies and procurement activities for the purpose of integrating wind energy into GPA's resource mix at the earliest date possible. We reiterate our earlier recommendations that all activities required to expedite the use of wind energy be undertaken by GPA at the earliest date possible.
3. GPA has recently notified the PUC it would like to implement an expedited RFP process for the purpose of potentially acquiring renewable energy at an earlier date than it believes it can acquire wind energy. While the PUC has not yet received a formal petition, subject to review of a petition and supporting information, we are favorable inclined to support such activity.
4. We recommend GPA prior to proceeding with the development of its LNG strategy provide the PUC with a report indicating the economic and financial viability of proceeding with a single unit (TEMES) strategy, inclusive of any consideration to supply natural gas to industrial, commercial, and residential consumers.
5. PUC require GPA that its activities to develop the Guam Sea Water Air Conditioning Project be restricted to serving in a facilitator role.
6. The August 13, 2007 Regulatory Order requested that GCG's report should recommend a process, which would guide regulatory involvement in implementing the IRP. We would recommend that the PUC require GPA comply with the process below:
 - a. Utilization of the private sector (power generators) for the purpose of implementing the IRP. The process would start with the use of fully transparent and competitively bid RFP's for the purpose of having the private sector compete for the future development of GPA power production facilities.
 - b. Submitting to the PUC for review and approval prior to their release all RFP used for the purpose of acquiring power supply and demand-side management resources or services.
 - c. Submitting to the PUC for approval all contracts for resource development including contracts for construction, fuel supply, operations, and management.

- d. Complying with the PUC long-established contract review protocol as it would relate to the procurement of power supply resources and related services.
7. Finally, we recommend that the IRP implementation process be undertaken by GPA in accordance with a defined timeframe closely overseen by the ALJ. This will allow for the timely implementation of IRP fuel diversification objectives. For the ALJ to undertake this role, GPA should:
- a. Quarterly provide an updated schedule similar to that found in Figure 13-1 of the Draft IRP. This schedule should include all resources—renewable, supply-side, and demand-side.
 - b. Notify the ALJ within two-weeks of any event resulting in a delay to any previously approved PUC resource and the course of action being undertaken by GPA to bring the event back into compliance with its earlier schedule.