

**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

**IN THE MATTER OF:** ) **GPA Docket 13-02**  
**GPA INTEGRATED RESOURCE PLAN** ) **ORDER**  
)

**INTRODUCTION**

On February 22, 2013, the Guam Power Authority (GPA) filed its Petition for Review and Approval of the GPA 2013 Integrated Resource Plan (IRP). The plan was approved by the Consolidated Commission on Utilities (CCU) on December 12, 2012, in Resolution No. 2012-79. In accordance with P.L. 29-62, the objectives of the IRP are primarily to identify the timing, size, and technology of future power generating units, and to address issues such as fuel diversification and the renewable portfolio standards.

**BACKGROUND**

GPA develops its IRP every five years. Its previous IRP was filed on June 14, 2008 in Docket 08-06. The objectives recommended in the 2008 IRP were to identify a fuel diversity program that was consistent with reliability, dispatchability, and economic risk to consumers to be implemented at the earliest date possible; mitigate both, the high costs and volatility due to GPA's dependence on fuel oil; lessen this dependence by increasing fuel diversification; and providing customers with a road map that demonstrates how GPA will move from its current situation of being fully dependent on fuel oil to a more fuel diversified and efficient generation resource base.

On December 15, 2008, the PUC's consultant, Georgetown Consulting Group<sup>1</sup>, entered into a Memorandum of Understanding (MOU) with GPA regarding Integrated Resource Implementation Planning Protocols for the Guam Power Authority to provide implementation oversight in order to ensure timely implementation of the fuel diversity objectives included in the IRP<sup>2</sup>. On December 29, 2008, the PUC approved GPA's IRP subject to the protocols set forth in the MOU.

The U.S. Environmental Protection Agency (EPA) recently promulgated a number of clean air regulations, which will require costly compliance requirements for GPA. GPA and its consultants determined meeting the EPA requirements would cost approximately \$500M in environmental capital expenditures, including life extension costs for some of its units. In the alternative, GPA considered

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<sup>1</sup> Georgetown Consulting Group was acting on behalf of the GPUC.

<sup>2</sup> The fuel diversity objectives included potential conversion of GPA's TEMMES generating units to liquefied natural gas (LNG) and to add a diversity of renewable resources to GPA's portfolio.

transitioning to alternative fuels, for which LNG was seen as the alternate fuel of choice. GPA filed its 2013 IRP on February 22, 2013 with conversion to LNG as its primary focus.

Lummus Consultants was asked by the GPUC to review the IRP. After engaging in discovery and collaborative discussions with GPA, Lummus issued its Letter Report and Appendix thereto on July 23, 2013.

## **DETERMINATIONS**

In accordance with the Lummus Consultants' findings, the PUC makes the following determinations:

### **I. General Issues**

- A. Economic evaluations conducted by GPA indicate LNG conversion will result in lower costs to rate payers than continued operation on RFO based on the fuel price projections developed in the LNG Study conducted by R. W. Beck in November 2011. However, converting the bulk of GPA generation units to LNG does not necessarily meet its objective of having increased fuel diversity.<sup>34</sup>
- B. GPA should proceed with the recommendations in the IRP; however the conversion to LNG requires a cautious approach, with multiple check-points along the project development path. Also, this path should address diversification of fuel supply to reduce risks of disruption or price spikes to customers. The decision criteria used in the implementation plan should more directly address how diversity will be achieved prior to moving along the recommended path in this IRP.
- C. GPA's IRP does not provide detailed information concerning how the required infrastructure changes and other costs associated with a conversion to LNG will be funded, or what the rate impact of such a plan will be upon ratepayers. The PUC cannot give unqualified approval to a plan without fully understanding how the plan will be funded and how it will impact ratepayers.
- D. R.W. Beck's LNG study was admittedly a preliminary feasibility study. A logical next step is the development of a detailed LNG Project Implementation Plan. This would include a delineation of each of the key steps necessary to move toward a final decision relative to GPA's resource future with a detailed implementation schedule that defines durations and interfaces of key project activities (e.g. permitting, engineering to support permitting, Front End Engineering Design (FEED) studies, equipment procurement, project construction, start-up activities, etc.). The plan would provide projections of project expenditures consistent with the project schedule.
- E. The LNG Project Implementation Plan would identify key decision-making milestones and expected expenditures to reach these milestones. One of the initial tasks is to further investigate the feasibility and project economics of using a lower design volume of LNG, for

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<sup>3</sup>In workpapers submitted by GPA, for the top LNG alternative, by 2040 over 98% of the Authority's thermal input is projected to be LNG.

<sup>4</sup>Public Law 29-62 requires GPA to establish preliminary renewable energy portfolio standards of five percent of its net electricity sales by December 31, 2015 and increasing by various increments over a 20-year period to 25 percent of its net electricity sales by December 31, 2035.

example sufficient to replace the slow speed diesels and to supply a new NGCC plant. These results could be compared with the concept of complete conversion of the GPA system as currently planned.

- F. As the whole LNG transition plan for Guam hinges on the availability and delivered pricing of LNG to the Island, the most important issue for justifying a “go forward” decision is the sourcing and pricing of LNG delivered to Guam. It would be beneficial to identify specific potential suppliers of LNG to Guam and conduct discussions with such suppliers including preliminary indicative price discussions based on preliminary project specifications. The R. W. Beck report is approaching two years old and although it looked in general at the LNG market in that area, it doesn’t appear to include communication with specific LNG suppliers and discussions regarding preliminary indicative price offerings specific to Guam.
- G. Based on review and discussion with GPA, it is apparent that little analytical work was performed on assessing alternative low sulfur fuels other than LNG. Investigation of the availability, delivered price forecasts, and required plant modifications for use of methanol, dimethyl ether (DME) at GPA generating units would serve as useful decision criteria to assess the attractiveness of delivering LNG to the island.
- H. The IRP does not address system and plant reliability issues. The focus appears to be solely upon generation and fuel source, without discussion of the transmission and distribution system. Recent outages have raised issues concerning the efficiency and reliability of the plants/system. Such reliability concerns could become even more significant in a period of system transformation to a new fuel source such as LNG.

## II. Environmental Issues

- A. The United States Environmental Protection Agency (USEPA) has promulgated regulations since the last IRP filed by GPA, which provide added incentives for certain GPA generating units to convert from residual fuel oil (RFO) to lower sulfur fuels such as liquefied natural gas (LNG).
- B. The USEPA’s Reciprocating Internal Combustion Engine (RICE) Maximum Achievable Control Technology (MACT) standards have near-term impacts on GPA’s peaking diesel units as well as the base-load slow speed diesels. The impact of the RICE MACT standards on the peaking diesel units does not have a material impact on the IRP results and the PUC has issued an Order authorizing the procurement of equipment for the peaking diesel units for compliance with the RICE MACT standards. GPA obtained a one-year compliance extension from the USEPA until May 3, 2014 for the peaking diesel units.
- C. The RICE MACT standards have a significant impact on the future operations of the base-load slow speed diesels. Compliance with these standards using RFO will require complex, high capital cost air quality control system (AQCS) retrofits or switching from RFO to very low sulfur fuels (e.g. low sulfur diesel or LNG) plus AQCS retrofits with much lower capital costs. GPA is seeking an extension of the RICE MACT compliance deadline from USEPA for the slow speed diesels to coincide with LNG conversion of these units.
- D. The USEPA Mercury and Air Toxics Standards (MATS) affect the base-load steam boilers at Cabras Units 1&2 and Tanguisson Units 1&2 and have a compliance deadline of April 16, 2015.

Compliance deadlines for MATS may be extended by one to two years with proper agency approvals. Tanguisson Units 1&2 can avoid MATS requirements by derating the units from 26.5 to 25 MW. It is possible Cabras Units 1&2 could be required to retrofit electrostatic precipitators (ESPs) at an estimated cost of \$34M. GPA is evaluating stack test results to better understand the need for ESPs at Cabras Units 1&2.

- E. There are other USEPA regulations, such as the recently promulgated 1-hour SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS), which could require additional AQCS retrofits at Cabras Units 1&2 and Tanguisson Units 1&2 in the future, if Guam or portions of Guam are determined to be “non-attainment” with the 1-hour SO<sub>2</sub>NAAQS.

### **ORDERING PROVISIONS**

The PUC conditionally approves GPA’s 2013 Integrated Resource Plan, subject to the following:

1. Within 120 days of this Order or sooner, GPA shall prepare and submit a detailed Resource Implementation Plan to the PUC for approval. This Plan shall identify the acquisition strategy GPA intends to utilize to bring LNG resources to Guam, including: a detailed implementation schedule; projected project expenditures consistent with the project schedule; identification of key decision-making milestones, criteria, and expenditures to reach those milestones; and identification of the expected schedule milestones for establishing contracts for the LNG supply. The Resource Implementation Plan should also address appropriate business models for adoption of LNG and other resources in the future.
2. GPA shall continue negotiations with the USEPA related to compliance with the RICE MACT standards for the slow speed diesels.
3. GPA shall continue with the recommendations of the IRP, with additional investigations performed in parallel as suggested in the Lummus Letter Report, including:
4. Further investigation of renewable fuels
5. Further investigation of alternative low sulfur fuels.
6. Early identification and discussions with potential suppliers of LNG to Guam including expressions of interest in serving this size market.
7. In parallel, GPA will continue to investigate the economics of diversification of fuels and a project plan for this path will be included in the Resource Implementation described in 1 above. This should include investigation of lower sulfur fuel, renewables including battery storage technology, and identification of the preferred level of diversification for Guam including the economic impact.
8. GPA’s efforts on these activities will be monitored by PUC, with the assistance of Lummus Consultants, as it moves forward. The GPUC will consider the inclusion of reasonable costs associated with a well thought out Resource Implementation Plan, either in the LEAC or a budgeted item in the FY2014 rate proceeding, after review.

9. In proceeding ahead with IRP and the activities outlined in this Order, GPA shall seek review by the PUC of all matters for which prior PUC review is required under the Contract Review Protocol.
10. GPA will investigate as part of the next steps how to enhance system reliability in order to encourage inclusion of renewable technologies and to enhance service to customers and will submit reports to the GPUC semiannually on its progress.
11. GPA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses of conducting the hearing proceedings. Assessment of the PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §12002(b) and 12024(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

Dated this 30th day of July, 2013.

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Jeffrey C. Johnson  
Chairman

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Joseph M. McDonald  
Commissioner

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Rowena E. Perez  
Commissioner

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Peter Montinola  
Commissioner

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Michael A. Pangelinan  
Commissioner