

**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

<b>IN THE MATTER OF:</b>	)	
	)	<b>GPA DOCKET 12-07</b>
	)	
<b>THE APPLICATION OF THE GUAM</b>	)	
<b>POWER AUTHORITY REQUESTING</b>	)	<b>PUC COUNSEL REPORT</b>
<b>APPROVAL AND USE OF 1999 BOND</b>	)	
<b>FUNDS FOR THE CABRAS 1 &amp; 2</b>	)	
<b>DISTRIBUTED CONTROL SYSTEM</b>	)	
<b>(DCS) CONVERSION</b>	)	
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**INTRODUCTION**

1. This matter comes before the Guam Public Utilities Commission [“PUC”] upon the Guam Power Authority’s [“GPA”] Petition for approval and use of 1999 Bond Funds for the Cabras 1 & 2 Distributed Control System (DCS) Conversion.<sup>1</sup>

**BACKGROUND**

2. The existing pneumatic control systems at the Cabras 1 & 2 power plant are the original controls systems installed in 1975 and are now obsolete.<sup>2</sup>
3. Taiwan Electrical and Mechanical Engineering Services, Inc. [TEMES] is the Performance Management Contractor for GPA for Cabras Units 1 & 2.<sup>3</sup>
4. TEMES has submitted a feasibility study and cost estimate for upgrade of the controls at Cabras 1 & 2 to a distributed control system.<sup>4</sup>The new DCS will allow the plant to operate within tighter control set points on key parameters including superheater temperature, reheater temperature, steam pressure, oxygen levels and combustion control, and respond more quickly to system changes. The result is the more efficient operation of the plant resulting in improvement in heat rate. The DCS will also provide improvements in data acquisition, data logging, trending and alarms which allow operators to be more proactive in responding to potential system failures, leading to improved plant availability.<sup>5</sup>

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<sup>1</sup> GPA Petition for Approval and Use of 1999 Bond Funds for the Cabras 1 & 2 Distributed Control System Conversion, GPA Docket 12-07, filed June 29, 2012.

<sup>2</sup> Guam Consolidated Commission on Utilities Resolution No. 2012-32, adopted June 5, 2012.

<sup>3</sup> Id. at p. 1.

<sup>4</sup> TEMES, DCS & BMS Proposal for Cabras Units 1 & 2 (May 2012).

<sup>5</sup>GPA Cost-Benefit Analysis [Justification] attached to GPA Petition in GPA Docket 12-07, and filed June 29, 2012.

5. GPA, through the support of its Program Management Office (PMO) R.W. Armstrong, has evaluated the TEMES proposal and determined that the scope and cost is fair and reasonable; the estimated total cost for the project is \$6M.<sup>6</sup>
6. GPA indicates that the project was originally approved as part of the 1999 bond series in the amount of \$1.3M.<sup>7</sup>
7. GPA now requests that the PUC approve the use of additional excess 1999 bond funds to fully fund this DCS project in the total amount of \$6M; the Consolidated Commission on Utilities has approved the request and authorized GPA to Petition for use of 1999 bond funds for the \$6M project.<sup>8</sup>

### ANALYSIS

8. The proposed project will provide a new Distributed Control System (DCS) for Cabras 1 & 2. The scope of work involves the following: supply of DCS System Hardware and Software; Integration of current control functions into DCS; Field Instrumentation and Cabling; Central Control Room Console and Rack Room Upgrade; Site Installation and Services; Project Management, Engineering Services, Training and Commissioning; and DCS Spare Parts.<sup>9</sup>
9. GPA has presented a convincing justification to the project. The pneumatic systems are obsolete, expensive to replace, and limit the ability to operate the plant within the original design parameters due to slower controller response times. The project addresses some of the recommendations of the recent McHale Report. Conversion from pneumatic controls to a DCS will generate savings through improved heat rate, reduced operations and maintenance costs, and improvements in availability resulting in payback in less than 4 years.<sup>10</sup>
10. If no action is taken, operation and maintenance costs associated with the pneumatic system will continue to increase as these parts become obsolete and more costly to replace, resulting in unplanned downtime.<sup>11</sup>

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<sup>6</sup>Guam Consolidated Commission on Utilities Resolution No. 2012-32, adopted June 5, 2012, at p.1.

<sup>7</sup> GPA Petition for Approval and Use of 1999 Bond Funds for the Cabras 1 & 2 Distributed Control System Conversion, GPA Docket 12-07, filed June 29, 2012, at p. 1.

<sup>8</sup> Id. at p. 2.

<sup>9</sup> GPA Cost-Benefit Analysis [Project Description] attached to GPA Petition in GPA Docket 12-07, and filed June 29, 2012.

<sup>10</sup> Id [Justification], at p.1.

<sup>11</sup> Id [Alternative], at p.2.

11. TEMES represents that a major benefit provided by DCS & BMS is the reduction in fuel use. It guarantees that plant efficiency will be increased by 1.17% and the savings for this improvement is estimated to be \$1,197,259 USD annually after the project is completed.<sup>12</sup>
12. GPA projects that the discounted payback on the project will be between 2.8 and 3.7 years.<sup>13</sup>
13. GPA concludes that the DCS project will contribute to the efficient operation of the Cabras Power Plants.<sup>14</sup>

### RECOMMENDATION

14. Counsel recommends that the PUC approve GPA's Request for Approval to use 1999 Bond Funds in the amount of \$6M for the Cabras 1 & 2 Distributed Control System [DCS] conversion project.
15. An Order is submitted herewith for the consideration of the Commissioners.

Dated this 10<sup>th</sup> day of July, 2012.

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FREDERICK J. HORECKY  
PUC Legal Counsel

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<sup>12</sup> TEMES, DCS & BMS Proposal for Cabras Units 1 & 2, at p.1-1.

<sup>13</sup> Cost-Benefit Analysis Id. at p.2.

<sup>14</sup> GPA Petition, GPA Docket 12-07, Id. at p. 3.