

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:) GPA Docket 21-12
)
The Application of the Guam Power)
Authority for Approving the Contract) **ORDER**
with TEMES, Inc. for Yigo CT Repairs.)
_____)



INTRODUCTION

1. This matter comes before the Guam Public Utilities Commission ["PUC"] upon the Petition of the Guam Power Authority ["GPA"] for Approval of the Contract with TEMES, Inc. for the Yigo CT Repairs.¹
2. GPA has identified \$4,581,577.00 in 2010 and 2014 Open Bond Projects, and requests that the PUC approve the reallocation of such bond funds for the Yigo CT Repair.²
3. GPA also requests that Revenue Funded CIP funds in the amount of \$1,458,423, be used to pay for the Yigo CT repairs.³
4. The total estimated cost for the Yigo CT repairs is \$6M.⁴

BACKGROUND

5. On May 14, 2021, at 16:03, the Yigo Combustion Turbine [CT] tripped off-line. The unit tripped on high vibration on an attempt to re-start and was "tagged out."⁵ The

¹ GPA Petition for Approval of the Contract with TEMES, Inc. for the Yigo CT Repairs, GPA Docket 21-12 filed May 21, 2021.

² Guam Consolidated Commission on Utilities Resolution No. 2021-15 Authorizing Management of the Guam Power Authority to Implement and Complete the Repairs Required to Place Yigo Combustion Turbine Power Plant in Service, adopted and approved on May 25, 2021, Exhibit A.

³ Id.

⁴ Id.

⁵ Yigo 20MW CT Summary, presented to Guam Consolidated Commission on Utilities for the CCU Regular Meeting on May 25, 2021, regarding Resolution No. 2021-15.

unit tripped due to “high vibration”; a subsequent borescope inspection revealed broken turbine blades near the turbine mid-frame.⁶ Photographs showed turbine damages, including metal shavings, cracks, and broken pieces of the turbine. The TRIP INCIDENT findings were that several HP Turbine blades were damaged, and that the Turbine hot end section was damaged. The turbine was determined to be inoperable.⁷

6. GPA’s recommendation is that the current turbine unit be exchanged with a fully refurbished LM2500 Gas Turbine. GPA has a contract with TEMES, Inc. for PMC services for the Yigo CT. TEMES also recommends that the CT Turbine engine be replaced.⁸
7. General Electric International, Inc. [“GE”] supplied an estimate for the cost of the Engine Exchange to TEMES on May 21, 2021 (attached to the ALJ Report as Exhibit 1).⁹ GE’s proposal includes provision of an overhauled LM2500 SAC gas turbine, which would be shipped to Guam. The damaged turbine would be shipped to GE. A new engine warranty is provided by GE for 18 months from delivery or 12 months from first use, whichever occurs first.¹⁰ In its Yigo CT Engine Exchange Cost Estimate, GPA has estimated that the total cost for this repair, will be \$5,827,500.00.¹¹
8. TEMES has apparently requested proposals from multiple suppliers, but only GE has provided a proposal to date. Due to the immediate need to restore the Yigo CT power generation, TEMES intends to proceed with the GE proposal. GE is the

⁶ GPA Petition at p.1.

⁷ Yigo 20MW CT Summary, Trip Incident.

⁸ GPA Petition at p. 1.

⁹ A true and correct copy of the proposal is attached to the ALJ Report as Exhibit “1”.

¹⁰ Yigo 20MW CT Summary, Yigo CT Engine Exchange Cost Estimate.

¹¹ Yigo CT Engine Exchange Cost Estimate (See CCU GPA Work Session Packet, May 20, 2021).

original equipment manufacturer ["OEM"] for the LM2500 Engine. GM Benavente is confident that GE is a highly qualified supplier.¹²

9. GPA estimates that the project will be completed in approximately five weeks.¹³

This procurement is not subject to the government of Guam Procurement law, as the PMC TEMES, a private-non-governmental entity, is responsible for procuring the contractor.

10. On May 25, 2021, the Guam Consolidated Commission on Utilities authorized the GPA General Manager to implement and complete the repairs needed for the Yigo CT through the CT PMC contract with TEMES, Inc., to reallocate 2010 and 2014 Bond Funds for the repair of the Yigo CT, and to utilize revenue capital improvement project funds for the repairs.¹⁴

11. GPA's Petition in this docket was not filed until late on May 21, 2021. The late filing is because this event occurred on May 14, 2021. The matter was first considered by the CCU at the GPA work session on May 20, 2021. CCU did not approve the repairs until its Meeting on May 25, 2021. Due to the emergency nature of this situation, GPA requests that the PUC consider the matter at its meeting on May 27, 2021. The PUC will proceed to address the matter.

12. The ALJ filed his Report herein dated May 25, 2021; the PUC adopts the conclusions and recommendations therein.¹⁵

¹² Telephone conference between GPA Counsel Graham Botha, GM John Benavente, AGMO Melinda Mafnas and PUC ALJ Fred Horecky on May 25, 2021.

¹³ Yigo 20MW CT Summary, Trip Incident; the ALJ believes that such estimate of completion may be optimistic. In 2016, a similar turbine replacement for the Yigo CT was estimated to take three months. See PUC Order, GPA Docket 16-07, dated April 28, 2016.

¹⁴ CCU Resolution No. 2021-15, *supra*.

¹⁵ ALJ Report, GPA Docket 21-12, dated May 26, 2021.

DETERMINATIONS

A. Cost and Operational Concerns regarding the Yigo CT

13. This project will cost nearly \$6M. This is also not the first time that GPA has been required to replace the turbine engine for the Yigo CT. On April 28, 2016, in GPA Docket 16-07, the PUC authorized GPA to replace the existing gas turbine where there was material loss, corrosion and other issues, with a renewed gas turbine of the same model and specifications. The estimated cost for the installation of the overhauled gas turbine engine at that time was \$2.3M.¹⁶

14. A question arises as to why the Yigo CT turbine needs to be replaced so often, and once again after only a five-year period. GM Benavente indicates that the operating conditions of the Yigo CT have not been “ordinary” since 2016. GPA had to run the machine almost daily as spinning reserve to absorb the intermittency that renewables placed on the system. He indicates that the Yigo CT turbine was never replaced between 1993 and 2016. However, the operation since 2016 has been strenuous on the machine and is a type of operation that is likely not experienced in many places except small island communities such as Guam. The Yigo CT has operated well over the last five years despite adverse operating conditions.¹⁷

15. A concern has also been raised that the Yigo CT may be affected by the fact that it operates in the vicinity of the Yigo Diesel Exhaust.¹⁸

¹⁶ PUC Order, GPA Docket 16-07, dated April 28, 2016.

¹⁷ GM Benavente’s Comments to Questions raised by ALJ Horecky, dated May 25, 2021.

¹⁸ Telephone conference between GPA Counsel Graham Botha, GM John Benavente, and AGMO Melinda Mafnas and PUC ALJ Fred Horecky on May 25, 2021.

16. The Yigo CT and the Macheche CT, are the most heavily utilized combustion turbines. See Run Hour figures for the Combustion Turbine Engines from January 2016 through April 2021, attached as Exhibit “2” to the ALJ Report. GPA has relied extensively upon the Yigo CT for energy production.

17. To save money, could GPA utilize other combustion turbines or diesels than the Yigo CT, such as the Dededo CT 1 & 2, and the Yigo Diesels (Aggreko)? GPA AGMO Melinda Mafnas indicates that the full rated capacity of all of GPA’s combustion turbines are already included in the determination of peak demand and available capacity. Without the 20MW provided by the Yigo CT, GPA may be hard pressed to ensure that there is an adequate reserve balance to meet peak demand.¹⁹ Reliance upon other units by GPA would not cure the reserve load deficiency caused by the loss of the Yigo CT.

B. The Justification for Repair of the Yigo CT

18. The repair cost of \$6M is a considerable amount. Nevertheless, GPA takes the position that the Yigo CT is critically needed from now until the new powerplant is commissioned. The island is experiencing load growth not only from the military base buildup but also from increased home and other construction. The demand of this growth will not be met without the Yigo CT.²⁰

19. The loss of Cabras 3 & 4 also has placed a substantial amount of additional running hours on the emergency CT and peaking units. Such additional usage will continue

¹⁹ Telephone conference between GPA Counsel Graham Botha, GM John Benavente, AGMO Melinda Mafnas and PUC ALJ Fred Horecky on May 25, 2021.

²⁰ GM Benavente’s Comments to Questions raised by ALJ Horecky, dated May 25, 2021.

until the new baseload unit is commissioned. Therefore, all units are critically needed until the new power plant is commissioned.²¹

20. The PUC has, on many occasions, referenced the fact that the explosion of Cabras Units 3 & 4 in 2015 resulted in the loss of 78MW of baseload capacity, “which places GPA in a difficult position of meeting system demand if there is an outage in one of the baseload or other large units. The outage of one of the Cabras Steam Units could result in insufficient generation reserve. GPA would have no reserve capacity and would be short approximately 40 to 60MW.”²²

21. GPA submits that the Yigo CT Repair project “is urgent because the Yigo CT is needed to support the demands of the island wide power system.”²³

22. Cabras 1, which was carrying 47MW, went off-line on May 11, 2021, due to a reported MCC panel fire.²⁴ With the loss of Cabras 1 (55MW) and Yigo CT (20MW), GPA’s reserve margin has been further reduced by 75MW.²⁵ For the next 30 days, the power system will be particularly vulnerable at peak time (6pm to 10pm).²⁶

23. GPA indicates that demand has been going up recently, and at a projected demand of 258MW for May 2021, this represents the highest demand in over five years.²⁷ The GM has clarified that some of the demand is a result of charging for the new ESS battery systems.²⁸ The net generation for April 2021, at 140,000,000kWh, is at approximately the same level as net generation for April FY2019.²⁹

²¹ Id.

²² PUC Order, GPA Docket 15-05, dated October 29, 2015, at p. 3.

²³ Issues for Decision (Resolution No. 2021-15), GPA Work Session, May 20, 2021.

²⁴ General Manager Report, GPA Work Session, May 20, 2021, at p. 102.

²⁵ Yigo 20MW CT Summary, May 25, 2021.

²⁶ Id.

²⁷ Generation Status in GM Report to CCU, GPA Work Session, May 20, 2021.

²⁸ Telephone conference between GPA Counsel Graham Botha, GM John Benavente, AGMO Melinda Mafnas and PUC ALJ Fred Horecky on May 25, 2021.

²⁹ Generation Status in GM Report to CCU, GPA Work Session, May 20, 2021.

24. GPA calculations indicate that, due to the loss of Cabras 1 & Yigo CT, the additional loss of GPA's largest unit (i.e., Cabras 2) would result in a **negative** reserve balance of minus 13MW. See Generation Status Due to Losses of Cabras 1 & Yigo CT, attached hereto as Exhibit "3".³⁰

25. GPA concludes that repair of the Yigo CT is "essential to the island wide power system."³¹ Without the availability of the unit, there is the possibility of load shedding.

C. Funding for the Yigo CT Repair

26. The entire cost for the Yigo Repair project will be approximately \$6,000,000. See Exhibit "4" attached hereto (Exhibit A to CCU Resolution No. 2021-15).

27. GPA requests approval to reallocate \$3,697,143 in 2014 Open Bond Projects to the cost of the Yigo CT repairs. GPA Chief Financial Officer John Kim indicates that none of these funds are needed for further application to the bond projects. For several of the projects there has been no activity since 2014; on a few there has been no action since 2018.³²

28. In addition, there is available interest earned in the amount of \$844,434 from 2010 Open Bond Projects. This amount accrued is derived from bank interest that was paid to GPA on its bond proceeds. CFO Kim also indicates that such amounts are not needed for bond projects and are available to apply to the Yigo CT repairs.³³

³⁰ Yigo 20MW CT Summary, Generation Status Due to Loss of Cabras 1 and Yigo CT.

³¹ GPA Petition at p. 2.

³² Phone conference between GPA CFO and John Kim and PUC ALJ Fred Horecky on May 25, 2021.

³³ Id.

29. CFO Kim further states that there are available funds from Revenue Funded CIPs in the amount of \$1,458,423. He provided a listing of CIP revenue funds which can be reallocated to the Yigo CT repairs, which is attached as Exhibit "5" to the ALJ Report.
30. CFO Kim has certified in a written letter to ALJ Horecky that the expenditure of these funds has been approved by the GPA General Manager and GPA Management.³⁴
31. In Resolution No. 2021-15 the CCU approved the reallocation of \$4,541,577 in 2010 and 2014 bond funds for the repair of the Yigo CT. The CCU also approved the use of \$1,458,423 in revenue capital improvement project funds for the Yigo CT repairs.
32. Given the urgent necessity to repair the Yigo CT, GPA's funding plan for the Yigo CT repairs in the amount of \$6M should be approved.

ORDERING PROVISIONS

Upon consideration of the record herein, the Petition of GPA for Approval of the Contract with TEMES, Inc. for the Yigo CT Repairs, the ALJ Report, and for good cause shown, on motion duly made, seconded, and carried by the affirmative vote of the undersigned Commissioners, the Commission hereby **ORDERS** that:

1. The General Electric International Inc. Proposal and the Contract with TEMES for the Yigo CT repairs are approved.

³⁴ Letter from GPA CFO John Kim to PUC ALJ Fred Horecky, Bond Reallocation Request-Yigo Combustion Turbine Project, dated May 25, 2021.

2. GPA is authorized to expend an amount not to exceed \$6,000,000.00 for the Yigo CT repairs.
3. GPA is authorized to reallocate the amount of \$4,541,577 in 2010 and 2014 bond funds for the repair of the Yigo CT in accordance with its proposal.
4. GPA is authorized to use \$1,458,423 in revenue capital improvement project funds for the Yigo CT repairs in accordance with the listing provided by GPA CFO John Kim in Exhibit "5".
5. 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 PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §§12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

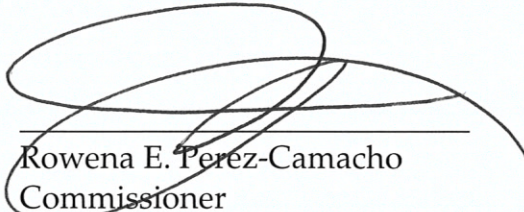
[SIGNATURES TO FOLLOW ON NEXT PAGE]

Order
Approval for the Contract with TEMES
for Yigo CT Repairs
GPA Docket 21-12
May 27, 2021

Dated this 27th day of May 2021.



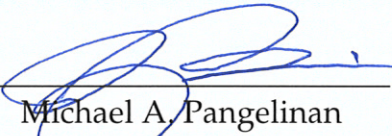
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