



BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:) GPA Docket 22-19
)
The Application of the Guam Power)
Authority for Approving the Contract) **ORDER**
with TEMES, Inc. for Macheche CT)
Repairs.)
_____)

INTRODUCTION

1. This matter comes before the Guam Public Utilities Commission [“PUC”] upon the Petition of the Guam Power Authority [“GPA”] for Review and Approval of GPA’s request to contract with TEMES, Inc. for the Macheche CT Repairs.¹
2. GPA seeks to replace the Macheche turbine package with a fully refurbished gas turbine.²
3. The turbine replacement and repairs will cost \$3,953,417.60, using revenue funds.³

BACKGROUND

4. TEMES, Inc. is presently GPA’s Performance Management Contractor to provide services for the Macheche CT.⁴

¹ GPA Petition for Approving the Contract with TEMES, Inc. for Macheche CT Repairs, GPA Docket 22-19, filed September 6, 2022.

² Id. at p. 1.

³ Id.

⁴ Id.

5. The Macheche Combustion Turbine (CT) power plant was commissioned in 1993 and has been in operation for approximately 29 years.⁵
6. TEMES has been the Performance Management Contractor for the Macheche Combustion Turbine power plant since March 1, 2016.⁶
7. TEMES recommended to GPA that it replace the turbine package with a fully refurbished gas turbine to prevent catastrophic failure caused by existing operations over the maximum run time.⁷
8. The Macheche power plant is rated at 22MW and consists of one GE LM2500 combustion turbine generator with 26,757 operating hours, which is beyond the recommended service life of 25,000 hours.⁸
9. At present, the Macheche unit is available but limited in operation to only emergency use.⁹

⁵ Guam Consolidated Commission on Utilities GPA Resolution No. FY2022-28, Authorizing the Management of the Guam Power Authority to Implement and Complete the Turbine Exchange for the Macheche Combustion Turbine Power Plant, adopted and approved on August 23, 2022, at p. 1.

⁶ See PUC Orders, GPA Docket 15-22, dated January 25, 2016, at p. 4, and GPA Docket 21-03, dated November 30, 2020.

⁷ GPA Petition for Approving the Contract with TEMES, Inc. for Macheche CT Repairs, GPA Docket 22-19, filed September 6, 2022, at p. 1.

⁸ Guam Consolidated Commission on Utilities GPA Resolution No. FY2022-28, Authorizing the Management of the Guam Power Authority to Implement and Complete the Turbine Exchange for the Macheche Combustion Turbine Power Plant, adopted and approved on August 23, 2022, at p. 1.

⁹ Id.

10. TEMES issued a request for bids for this project and 3 bids were submitted for consideration from Field Source-Energy Services, Trans Canada Turbine, and Gas Turbine Investments.¹⁰

11. A GPA/TEMES Evaluation Committee determined that Gas Turbine Investments was the lowest responsible bidder at a cost of \$3,953.417.60.¹¹

12. GPA and the PMC intend to minimize the down time of the unit, complete the necessary work, and return the unit to service as soon as possible to support the Island Wide Power System (IWPS).¹²

13. GPA anticipates that the engine will be delivered within 100 days with the installation scheduled for three (3) weeks.¹³

14. In CCU GPA Resolution No. FY2022-28, the Guam Consolidated Commission on Utilities authorized the implementation and completion of the Gas Turbine Exchange project for the Macheche CT through the CT PMC Contract with TEMES, Inc.¹⁴

¹⁰ Id.

¹¹ Id.

¹² Id.

¹³ CCU Commissioners' Board Packet, CCU meeting on August 23, 2022, Issues for Decision [Implementation and Completion of the Turbine Exchange for the Macheche Combustion Turbine Power Plant].

¹⁴ Id.

15. The Administrative Law Judge ["ALJ"] filed his Report in this Docket dated September 17, 2022. The PUC adopts the conclusions and recommendations in the Report.¹⁵

DETERMINATIONS

16. The Administrative Law Judge issued Requests for Information to GPA concerning the Macheche CT on September 9, 2022. See Exhibit "1" attached to the ALJ Report.

17. On September 14, 2022, GPA submitted its Responses to the Requests for Information.¹⁶ The Responses are attached to the ALJ Report as Exhibit "2".

18. In Attachments 2 and 3 to its Responses, GPA provides a "Running Hours breakdown" for the Macheche CT from November 2016 through August 2022. GPA indicates that since 2016, the "run time" hours of the Macheche CT have been substantial, more than 27,000 hours. Over the past year GPA has relied to an even greater extent upon the Macheche CT. Usage was high for the months of February through May of 2022, with totals per month ranging from 279.70 hours up to 693.48 hours. See Exhibit "3" attached to the ALJ Report.

19. Since 2016, GPA has maximized the use of the refurbished gas turbine. According to Assistant General Manager of Operations Melinda Mafnas, this increased use has resulted from decreased capacity (loss of Cabras 3 & 4), decrease in baseload availability due to forced and unforced outages, and operations necessary to

¹⁵ ALJ Report, GPA Docket 22-19, dated September 17, 2022.

¹⁶ Email from Graham Botha, GPA Legal Counsel, to Fred Horecky, PUC ALJ, dated September 14, 2022, with Responses to PUC Request for Information and Four Attachments.

respond to solar intermittency. When more battery storage becomes available and when the new power plant is operational, GPA expects plant usage to decrease.¹⁷

20. GPA has demonstrated that there is a need to maintain the availability of the Macheche CT until the new power plant is constructed.

21. Unless the refurbished gas turbine is installed, and the repairs undertaken, the Macheche unit will only have limited availability for emergency use operation.¹⁸

22. A borescope inspection of the CT in August 2021 determined that the thermal element of the hot section has been damaged in many places. The hot section components have recently been running over-time, which will lead to damage to the hot section and to the rear LP turbine. For these reasons, the PMC TEMES recommends that a refurbished turbine be installed to prevent catastrophic loss.¹⁹

23. The HP turbine and LP turbine have serious damages and can no longer be operated safely, according to TEMES.²⁰

24. For both safety reasons and for the avoidance of a catastrophic failure, the CT turbine package should be replaced with a fully refurbished gas turbine.²¹

¹⁷ Exhibit "2", GPA Responses to PUC Request for Information, dated September 14, 2022 (prepared by Melinda C. Mafnas P.E.), at Response No. 5.

¹⁸ Guam Consolidated Commission on Utilities GPA Resolution No. FY2022-28, Authorizing the Management of the Guam Power Authority to Implement and Complete the Turbine Exchange for the Macheche Combustion Turbine Power Plant, adopted and approved on August 23, 2022, at p. 1.

¹⁹ Email from Plant Manager of Macheche CT to Melinda C. Mafnas, GPA AGMO, dated August 12, 2022.

²⁰ Email from Macheche CT Plant Manager to Melinda C. Mafnas, GPA AGMO, dated August 10, 2022.

²¹ GPA Responses to PUC Request for Information, dated September 14, 2022 (prepared by Melinda C. Mafnas P.E.), at Response No. 5.

25. The LM2500 turbine manual requires turbine inspection at a minimum of 25,000 hours. When operating hours exceed 27,000 hours, the blades are at risk of breakage.²²

26. The turbine generator has exceeded the recommended service life of 25,000 hours.²³

27. The Purchase Order/Contract for the Macheche Combustion Turbine with Gas Turbine Investments is attached to the ALJ Report as Exhibit “4 “. Under the Performance Management Contract, TEMES is responsible for purchase of the CT, and GPA pays for the same as a Performance Improvement Project/Capital Improvement Project under the Performance Management Contract.

28. The ALJ notes in his Report that the Macheche turbine engine was replaced previously in November of 2016 at a cost of \$2.7M.²⁴ In the Requests for Information, the ALJ inquired of GPA whether it was “normal, reasonable and ordinary in a power system for a turbine engine to be replaced after 6 years.”

29. GPA responded that the requested replacement of the gas turbine was normal, reasonable and ordinary based upon the operating hours. There is already damage to the turbine, the manufacturer General Electric has recommended the replacement of the engine, and the blades are at risk of breakage when operating hours exceed 27,000.²⁵

²² Id.

²³ GPA Petition for Approving the Contract with TEMES, Inc. for Macheche CT Repairs, GPA Docket 22-19, filed September 6, 2022, at p. 1.

²⁴ See PUC Order, GPA Docket 16-11, Petition of the Guam Power Authority for Approval of Macheche CT repairs, dated July 28, 2016.

²⁵ GPA Responses to PUC Request for Information, dated September 14, 2022 (prepared by Melinda C. Mafnas P.E.), at Response No. 5.

30. Based upon the considerable usage of the Macheche CT over the past 6 years, it is reasonable and prudent to replace the existing turbine with a fully refurbished gas turbine and for the undertaking of the repairs specified in the PMC-Gas Turbine Investments Contract.

31. The Macheche CT unit is essential to the island wide power system, and the contract is reasonable, prudent and necessary.²⁶

ORDERING PROVISIONS

After review of the record herein, including GPA's Petition for Approval of the Contract with TEMES, Inc. for the Macheche CT Repairs and the ALJ Report, for good cause shown, on motion duly made, seconded and carried by the undersigned Commissioners, the Guam Public Utilities Commission **HEREBY ORDERS** that:

1. The Macheche Combustion Turbine repairs requested in the GPA Petition and the replacement of the existing turbine package with a fully refurbished gas turbine are approved.
2. GPA is authorized to expend up to the amount of \$3,953,417.60, using revenue funds, for the Macheche CT repairs and the refurbished gas turbine.
3. GPA is ordered to pay the Commission's regulatory fees and expenses,

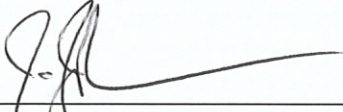
²⁶ GPA Petition for Approving the Contract with TEMES, Inc. for Macheche CT Repairs, GPA Docket 22-19, filed September 6, 2022, at p. 2.

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.

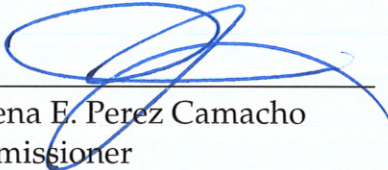
[SIGNATURES TO FOLLOW ON NEXT PAGE]

Order
Approving the Contract with TEMES, Inc.
for Macheche CT Repairs
GPA Docket 22-19
September 29, 2022

Dated this 29th day of September, 2022.



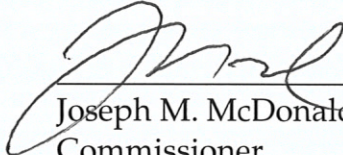
Jeffrey C. Johnson
Chairman




Rowena E. Perez Camacho
Commissioner

Michael A. Pangelinan
Commissioner

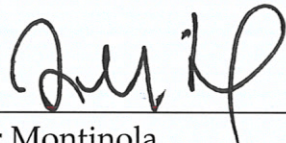
Pedro S.N. Guerrero
Commissioner



Joseph M. McDonald
Commissioner



Doris Flores Brooks
Commissioner



Peter Montinola
Commissioner