

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION



IN THE MATTER OF:) GPA Docket 21-07
)
The Application of the Guam Power)
Authority to Approve the Amendment to) **ALJ REPORT**
the Energy Conversion Agreement (ECA))
with KEPCO for the 198MW Power Plant.)
_____)

INTRODUCTION

This matter comes before the Guam Public Utilities Commission [“PUC”] upon the Guam Power Authority [“GPA”] Petition to Approve the Amendment to the Energy Conversion Agreement (ECA) with Korean Electric Power Company [“KEPCO”] for the 198MW Power Plant.¹

The essentials of the Proposed Amendment are set forth in Exhibit “1” hereto. Exhibit “1” is Attachment A to Guam Consolidated Commission on Utilities Resolution No. 2021-02.² GPA has also provided to the PUC five proposed Schedule Attachments to the Energy Conversion Agreement which specify the requirements for the proposed operation of a 41MW diesel facility at Cabras: Schedule 1, Functional Specifications for Reserve Facility; Schedule 2, Technical Limit and Contracted Characteristics; Schedule 3, Commissioning and Testing; Schedule 4, Determination of Tariff; and Schedule 10, ULSD and Natural Gas Metering System and Settlement.³

¹ GPA Petition to Approve the Amendment to the Energy Conversion Agreement (ECA) with KEPCO for the 198MW Power Plant, GPA Docket 21-07, filed February 5, 2021.

² Guam Consolidated Commission on Utilities Resolution No. 2021-02, Relative to Authorization of Ukudu Power Plant Energy Conversion Agreement (ECA) Amendment for Relocation of Emergency Diesel Units and Pursuit of Minor Source Air Permit, Attachment 1, adopted and approved on January 26, 2021; see Exhibit “1” attached hereto.

³ Copies of these Schedules were provided in an email from GPA Legal Counsel Graham Botha to PUC ALJ Fred Horecky dated February 5, 2021.

The Amendment negotiated by GPA and KEPCO contains three basic aspects: (1) in the original KEPCO Proposal, KEPCO was to build a diesel facility of 65MW of standby generation capacity at the Ukudu new plant site. The parties have now agreed that, instead of the construction of a 65MW standby generator facility at the Ukudu site, 41MW of diesel engines will be installed near the GPA Cabras Fuel Oil Storage Facility⁴; (2) The Commercial Operation Date (COD) for the 198MW Power Plant will be changed from October 31, 2022, to April 2024⁵; and (3) the air permitting for the new power plant will be “minor source” rather than “major source.”

BACKGROUND

A. Prior PUC Actions

On October 31, 2019, in GPA Docket 19-13, the PUC approved the Energy Conversion Agreement between GPA and KEPCO for the construction and operation of the 198MW Power Plant in Ukudu.⁶ On December 5, 2019, the PUC approved the Consent Decree between GPA and USEPA, which constituted a final resolution of environmental violations alleged by EPA.⁷ Both the Consent Decree and the ECA presently require the construction and operation of the new power plant burning ultra-low sulfur diesel (ULSD) by October 31, 2022.⁸ Based upon KEPCO’s bid proposal, the parties agreed that KEPCO would construct a 65MW reserve facility that would serve as a backup in the event that the new power plant could not operate. The site of the reserve facility was at Ukudu.

⁴ GPA Petition to Approve the Amendment to the Energy Conversion Agreement (ECA) with KEPCO for the 198MW Power Plant, GPA Docket 21-07, filed February 5, 2021, at p. 1.

⁵ Id., at p. 2.

⁶ PUC Order, GPA Docket 19-13, dated October 31, 2019, at p. 19.

⁷ PUC Order, GPA Docket 20-01, dated December 5, 2019, at p. 6.

⁸ GPA Petition to Approve the Consent Decree with the United States Environmental Protection Agency (EPA), GPA Docket 20-01, filed November 12, 2019, at p. 1.

B. GPA's Stated Justification for the Relocation of the Reserve Facility

GPA's justification for the relocation of the Reserve Facility is set forth in a Letter from GPA General Manager John Benavente to CCU Commissioners, dated December 14, 2020, which is attached hereto as Exhibit "2".⁹ The reason for relocation of the diesel standby generator facility from Ukudu to Cabras relates in part to the permitting process for the new power plant. KEPCO originally pursued "Major Source Permitting" to meet its performance obligations for the new power plant. USEPA expressed concerns that major source permitting would result in substantial delays in the construction of the new power plant. Subsequently, KEPCO and GPA agreed on a minor source permit process and the relocation of the diesel standby engine plant to a Cabras site directly adjacent to the GPA Bulk Fuel Oil Storage Tank Facility.¹⁰

A "minor source" permitting was not feasible if the 65MW facility continued to be located at the Ukudu site. With minor source, there is a 100 ton per year limitation on emissions. With the combination of both the 198MW combined cycle and the 65 MW diesels at Ukudu, the production capability of the Ukudu plant would have been significantly limited when the steam turbine is overhauled every four years.¹¹ The 65MW reserve facility was only intended to be used for short duration outages and was only capable of operating for 300 hours continuously.¹² The 65MW reserve facility could only operate at a maximum of 500 hours per year.¹³

⁹ Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, attached hereto as Exhibit "2".

¹⁰ Id. at p. 2.

¹¹ GPA Responses to PUC Requests for Information, GPA Docket 21-07, dated February 16, 2021, Response No. 5.

¹² Id., at Response No. 3.

¹³ Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at p. 2.

C. CCU Resolution No. 2021-02

On January 26, 2021, the Guam Consolidated Commission on Utilities, in Resolution No. 2021-02, authorized the Amendment of the Ukudu Power Plant Energy Conversion Agreement for relocation of the emergency diesel units and pursuit of minor source air permit.¹⁴ The CCU recognized that the USEPA had expressed concerns that the local company constructing the plant, Guam Ukudu Power ["GUP"] LLC, intended to pursue a major source air permit path, which would result in significant delays because of the lengthy air monitoring requirements before a major source permit could be issued. This delay could extend the Commercial Operation Date past 2025.

The USEPA encouraged GPA to work out an alternative which would permit the plant under minor source permitting.¹⁵ The CCU recognized that GPA and GUP LLC had reached an agreement to permit the Ukudu Combined Cycle Plant as a minor source air permit, to install a 41MW plant of diesel engines in Cabras, and to agree to fixed and variable O&M rates to compensate for the operation and maintenance of the new diesel plant.

The CCU also authorized GPA to amend the Ukudu Power Plant Energy Conversion Agreement for the relocation and operation of a 41MW diesel unit facility at Cabras, and to require GUP LLC to pursue a minor source air permit, with the new Commercial Operation Date of the Ukudu plant to be no later than April 2024. The parties also agreed to "best efforts" to achieve a target COD of November

¹⁴ Guam Consolidated Commission on Utilities Resolution No. 2021-02, Relative to Authorization of Ukudu Power Plant Energy Conversion Agreement (ECA) Amendment for Relocation of Emergency Diesel Units and Pursuit of Minor Source Air Permit, adopted and approved on January 26, 2021.

¹⁵ Id., at p. 1.

2023.¹⁶ The proposed diesel plant at Cabras would consist of 15 units of 2.75MW capacity each available for continuous operations.¹⁷ In accordance with the agreement between GPA and GUP LLC, GPA would pay a fixed O&M of \$2M annually, and a variable O&M of \$0.025/kWh. GPA would provide the ULSD for the diesel units.¹⁸

D. Contract Review Protocol

Pursuant to 12 G.C.A. § 12105, GPA may not enter into any contractual agreements or obligations which could increase rates and charges without the PUC's express approval. Furthermore, GPA's Contract Review Protocol requires that "[a]ll professional service procurements in excess of \$1,500,000" require "prior PUC approval. . . which shall be obtained before the procurement process is begun." The annual fixed management fees of \$2M for the 41MW plant alone will exceed the contract review threshold, thus requiring PUC review.

ANALYSIS

A. The 41MW Diesel Plant at Cabras provides significant advantages to GPA over the previously proposed 65MW facility at Ukudu.

41MW of continuous operating diesel units would be installed on GPA property next to the GPA Bulk Fuel Oil Storage Facility. The original KEPCO proposal was for 65MW of standby generators at the Ukudu site.¹⁹ The Reserve Facility at Ukudu

¹⁶ Id., at pgs. 2-3.

¹⁷ Proposed Amendment of the Ukudu Power Plant Energy Conversion Agreement, January 21, 2021, at p. 6.

¹⁸ Id.

¹⁹ Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at pgs. 1-2.

was a 65MW power generation plant consisting of twenty-six (26) high speed reciprocating engines operating on ULSD. However, the diesel units at Ukudu were “designed for operation of no more than 500 hours per year and of no more than 300 hours of continuous operation.”²⁰

The 65MW reserve facility had an extremely limited operating capacity of 500 hours annually. Only KEPCO, and not GPA, could dispatch the unit. The only purpose of the 65MW reserve facility was to provide backup to KEPCO when it was not meeting availability guarantees with the new power plant. GPA had absolutely no say as to when the facility would be run, and GPA could not use the 65MW facility for grid support.²¹

With the change to minor source permitting, the 41MW facility at Cabras would be permitted to run for a minimum of 2,600 hours and likely as much 5,000 hours.²² With the 41MW facility, GPA is in complete control as to when the facility is dispatched. The facility is continuously dispatchable throughout the year. It will provide generation capacity and grid support to the island-wide power system. The change in the proposed site of the diesel units to Cabras is clearly advantageous to GPA. Such change would allow the 41MW to be run continuously, as opposed to the limitation on the Ukudu site to 500 hours.²³

This advantageous change is premised upon KEPCO’s agreement to proceed with a minor source air permit application process rather than the major source permitting.

²⁰ GPA Workpaper on Proposed Amendment of the Ukudu Power Plant Energy Conversion Agreement, January 21, 2021, at p. 4.

²¹ Phone Conference between ALJ Horecky, Graham Botha, and Jennifer Sablan on February 17, 2021.

²² Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at p.2.

²³ Phone Conference between ALJ Horecky, Graham Botha, and Jennifer Sablan on February 17, 2021.

GPA provided KEPCO the alternative of relocating the diesel generator facility to Cabras and making “adjustments to the capacity factor of the combined cycle during the steam turbine overhaul years.”²⁴ GPA agreed to adjust the new plant availability from 85% to 66% during steam turbine overhaul once every 4 years.²⁵ The PUC should approve the change in location of the diesel units, the minor source permitting process, and the adjustments to the capacity factor of the combined cycle during the steam turbine overhaul years. USEPA has indicated that it is not opposed to change the diesel location, and the permitting process to minor source. It believes that the amendment would address the avoiding of delays in the permitting process.²⁶

- B. Although there are additional Costs resulting from placing the 41MW plant at Cabras, there does not appear to be any viable alternative; the relocation of the 41 MW facility to Cabras also will result in savings that will offset the costs. According to GPA, there was simply no way that the proposal for the 65MW reserve facility could be worked out. It was not cost effective for KEPCO to proceed with it under minor source permitting. GPA was concerned that, without a resolution to these issues, KEPCO may well have declined to proceed with the ECA.²⁷ Placing the 65MW facility at Ukudu is no longer realistic. Therefore, there is no alternative to location of the 41MW facility at Cabras.

²⁴ Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at p.2.

²⁵ GPA Workpaper on Proposed Amendment of the Ukudu Power Plant Energy Conversion Agreement, January 21, 2021, at p. 6.

²⁶ Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at p.2.

²⁷ Id. at p. 1.

As with the prior proposal for a 65MW facility, the 41MW facility will be constructed by KEPCO. GPA does not pay any additional amount for the construction of building the plant.²⁸ GPA will pay a fixed annual fee to KEPCO of \$2M to operate and maintain the plant. KEPCO will need about 35 personnel to operate and maintain the plant including overhauls throughout the plant life, which are funded from fixed cost.²⁹ Fixed O&M covers personnel costs for manning the plant, and other costs such as administration, permitting, licensing, etc. Variable O&M include such consumable items as oil, filters, equipment replacements, and other operation items.³⁰ GPA estimates that variable costs will be \$2.425M annually.³¹ The variable O&M will be \$0.025/kWh.³² There will likely be additional costs of \$4.425M annually for the operation of the 41 MW plant.³³ The annual cost for the 41MW facility is over \$400,000 less than that for the Aggreko plant.³⁴

The 41MW plant would result in cost savings, although it is difficult to quantify those at the present time. The 41MW plant would allow GPA to retire units which are already 30 years old.³⁵ Possible candidates include the Tenjo diesels, the Talofoto diesels, the Yigo CT, and Piti 8 & 9.³⁶ Savings would include the operation costs of such older plants. The 41MW plant would provide fuel saving and would be more efficient than the older plants. GPA has provided calculations showing that

²⁸ Phone Conference between ALJ Horecky, Graham Botha, and Jennifer Sablan on February 17, 2021.

²⁹ GPA Responses to PUC Requests for Information, GPA Docket 21-07, dated February 16, 2021, Response No. 9.

³⁰ Phone Conference between ALJ Horecky, Graham Botha, and Jennifer Sablan on February 17, 2021.

³¹ GPA Responses to PUC Requests for Information, GPA Docket 21-07, dated February 16, 2021, Response No.11.

³² GPA Workpaper on Proposed Amendment of the Ukudu Power Plant Energy Conversion Agreement, January 21, 2021, at p. 6.

³³ Id.

³⁴ Id.

³⁵ GPA Responses to PUC Requests for Information, GPA Docket 21-07, dated February 16, 2021, Response No. 5.

³⁶ Phone Conference between ALJ Horecky, Graham Botha, and Jennifer Sablan on February 17, 2021.

the 41MW plant is less expensive to run than the Aggreko plant, which both have similar energy production. Since the 41MW plant is close to the ULSD storage facility at Cabras, tanker transportation required to other plants (\$9.24/Bbl. Delivery costs) will be avoided.³⁷

C. The Amendment to Change Commercial Operation Date to April 2024 is justified by several Factors.

The parties have targeted a COD date as April 2024, although they have also agreed to “make all best efforts to reduce the COD to November 30, 2023.”³⁸

There are many factors that justify the amendment of the ECA to change the Commercial Operation Date. There had been several delays caused by the negotiations on major source/minor source permitting. Minor source permitting does result in a shorter commissioning period but is potentially not economically feasible to KEPCO due to higher capital investment requirements to meet contract performance.³⁹

According to GM Benavente, these economic feasibility issues had even led to a possibility of contract termination. However, the parties were able to work out an appropriate compromise. The environmental and construction permitting has presented challenges. This is the first new power plant construction in 23 years. The resources of applicable local permitting agencies have been taxed. There has been

³⁷ GPA Responses to PUC Requests for Information, GPA Docket 21-07, dated February 16, 2021, Response No. 5.

³⁸ Conditions for DG Plant relocation and Minor Air Permit Acquisition for Ukudu Project, dated December 11, 2020 and signed by GPA/Guam Ukudu Power, LLC, at p. 3 (Exhibit “1” hereto).

³⁹ Proposed Amendment of the Ukudu Power Plant Energy Conversion Agreement, January 21, 2021, at p. 5.

substantially increased scrutiny on historical preservation and environmental permitting due to the military build-up and other community concerns.⁴⁰

On top of the foregoing challenges, there have been delays related to the COVID-19 pandemic. The relevant local government permitting agencies have had reduced availability during the pandemic due to closures. Quarantine requirements and other travel restrictions made it difficult for KEPCO personnel to travel to Guam. There have been work inefficiencies resulting from the changes in the operating mode.⁴¹ KEPCO was unable to contract with its originally selected Engineering, Procurement, and Construction Contractor, Hyundai, because of the delays and uncertain schedules for the plant causing the contract cost to increase. KEPCO issued a new tender for its EPC, and is engaging a new EPC, Doosan Industries.⁴²

Therefore, the proposed change in the Commercial Operation Date is justified due to the legitimate delays that have occurred, which delays were beyond the ability of the parties to avoid.

RECOMMENDATION

Based upon the record before the Commission, and the review conducted herein, the Administrative Law Judge recommends that the PUC approve the changes agreed to by GPA and Guam Ukudu Power LLC for amendment of the Energy Conversion Agreement. The changes which PUC should approve include:

⁴⁰ Id.

⁴¹ Id.

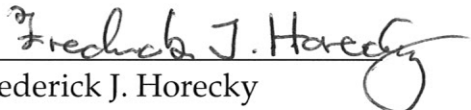
⁴² Letter from General Manager John Benavente to CCU Commissioners, Subject: Update on New Power Plant and USEPA Negotiations, dated December 14, 2020, at p.2.

- (1) Location of the 41MW diesel engine reserve facility at the Cabras site, and the agreement by the parties for Minor Source permitting for such facility and the new power plant; and
- (2) a change in the Commercial Operation Date from October 31, 2022, to April 2024, with the agreement by the parties to use best efforts to meet a November 30, 2023 target.

However, PUC approval of said changes should be conditioned upon approval of these changes by the USEPA, inclusion of such changes as are necessary to the Consent Decree, and approval of such changes by the District Court of Guam.

A Proposed Order is submitted herewith for the consideration of the Commissioners.

Respectfully submitted this 22nd day of February, 2021.


Frederick J. Horecky
Chief Administrative Law Judge

RESOLUTION 2021-02

ATTACHMENT A

EXHIBIT "1"

Conditions for DG Plant relocation and Minor Air Permit Acquisition for Ukudu Project

No.	Item	Issue
1.	Site and Pre-existing Condition	<p>GPA shall lease the site for Reserve Facility at Cabras and provide the rights of way and easement of the site to Guam Ukudu Power LLC. The Pre-existing Condition and Pre-existing Condition Period in ECA shall cover the Cabras site, fuel line, power interconnection line and water line.</p> <p>Pre-existing Reserve Facility (DG Site) Condition means any artificial obstructions on, under, in, or affecting the Reserve Facility Site or any contamination (whether occurring before or after the ECA Amendment Date, but not resulting from Project Company's or Contractor's activities on the Reserve Facility Site) that could not reasonably be discovered prior to the ECA Amendment Date by an experienced engineering and construction contractor using the most sophisticated devices and personnel available at the time of Reserve Facility Site investigation by such contractor but shall not, for the avoidance of doubt, include archaeological discoveries on the Reserve Facility Site.</p>
2.	Reserve Facility, DG Spec	<p>41MW (Gross) Continuous Operating Prime (COP) model shall be selected to maximize operating hours of diesel plant.</p>
3.	Commercial Operation Date	<p>Even though the COD for Facility and Reserve Facility shall be the same (FC + 29 months), however, the required construction period for Reserve Facility is EIA approval for Reserve Facility Site + 27 months. Irrespective of the Reserve Facility COD achievement, the Facility COD shall be achieved separately and the Capacity Charge shall be paid in accordance with ECA. For avoidance of doubt, payment of FOMC and VOMC for the Reserve Facility do not start until the COD for Reserve Facility is achieved.</p>



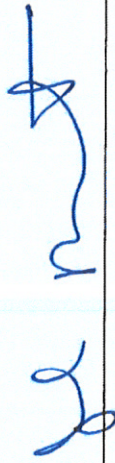

No.	Item	Issue
4.	FOMC and VOMC for DG plant	<p>FOMC: \$2M per year VOMC: \$0.025/kWh</p> <p>Both FOMC and VOMC shall be escalated as per ECA for 25 years and start to be paid from Reserve Facility COD.</p> <p>Same condition regarding Deemed Capacity for CAPP FOMC payment in ECA shall be applied to Reserve Facility as well.</p> <p>Above charges are based on the following conditions:</p> <ul style="list-style-type: none"> - The design assumption complies with GPA's requirement in the GPA proposal dated August 20, 2020 - The finalized design assumption shall be attached later in this document - Transmission, Fuel line and Communication line terminal points are at the Reserve Facility Site boundary. For avoidance of doubt, communication line for SCADA and PABX between the Reserve Facility and GPA dispatch center shall be provided by GPA. Project Company is responsible for telephone and internet line for office. - Project company is responsible for water and sewer connections.
5.	First Fill and Commissioning Fuel for DG Plant	The i) First Fill of 3-days-tank 840 m ³ and ii) Commissioning Fuel (ULSD) capped at 103,871 MMBtu based on 3-day Reliability Run Test shall be provided by GPA
6.	Electricity for Commissioning and Testing for DG	The electricity for commissioning and testing for DG to be provided by GPA capped at 369,375 kWh.
7.	Limitation of Annual Capacity Factor for CAPP Plant	<p>Annual Capacity Factor shall be limited to Air Permit condition.</p> <p>Currently,</p> <ul style="list-style-type: none"> - 85% on both ULSD and NG operation for Contract Years without steam turbine maintenance, and - 58% on ULSD, 83% on NG for Contract Years with steam turbine maintenance. <p>* 58%-64% capacity factor on ULSD based on the number of startup/shutdown, which is subject to GEPA's approval on equation basis permit application</p>

No.	Item	Issue
8.	ECA amendment	The items listed above are subject to GPA regulatory approvals. GPA will make best effort to obtain CCU, PUC and USEPA approvals for amendment to the ECA accommodating Minor Air Permit, relocation of the Reserve Facility and other issues by 31 Mar., 2021. The Construction Contract will be executed on Dec 17, 2020 based on Minor Air Permit and relocation of Reserve Facility.

The target COD for Facility and Reserve Facility shall be November 30, 2023. Guam Ukudu Power, LLC and GPA shall make all best efforts to reduce the projected April 2024 COD date to meet this target COD.

Acknowledged and Accepted by

Guam Power Authority



Name : John M. Benavente, P.E. – General Manager

Date : Dec 11, 2020

Guam Ukudu Power, LLC



Name : Jeong-irl Min – CEO of Guam Ukudu Power, LLC

Date : Dec. 17, 2020



GPA PROPOSAL FOR MINOR SOURCE PATH

AUGUST 20, 2020

OBJECTIVE:

Determine an alternative to expedite the completion of the new Ukudu Power Plant. KEPCO is proceeding on major source permitting which in GPA's opinion would delay project completion by more than 18 months. Delay of COD is not in either party's interest and is a significant issue to USEPA under the consent decree.

Cause of Delay:

- The permitting of the 198MW CCPP together with 65 MWs of Diesels is not practical under minor source because emissions would be substantially more than the 100 tons/year emission limitation of minor source. There will be severe limitation of CT simple cycle operations coupled with operations of the 65MW diesels whenever the 63MW steam turbine experiences a forced outage or is under its typically 23 days overhaul approximately every 4 years of operations.
- The Commercial Operations Date (COD) of October 2022 was premised on a minor source permitting process but plant capacity will be significantly limited during steam turbine outages and its overhaul every four years because of significant limitation on operations of plant on combustion turbine simple cycle coupled with 65 MW of diesel capacity due to maximum emission allowed under minor source.
- Major source permitting may potentially permit plant for intended use but the permitting requirements include stringent ambient air monitoring analysis which typically takes a minimum of 1 year. Therefore, this process would likely extend COD by 18 months to 30 months.
- USEPA is quite concerned by the potential significant delay of COD and is looking to both parties to work on an alternative solution which has the plant permitted under minor source.

GPA's PROPOSED ALTERNATIVE:

- **Permit UKUDU Combined Cycle Power Plant (CCPP) under minor source process as follows:**
 - Permit CCPP at Ukudu site for not less than 85% capacity factor under minor source. Plant availability of CCPP would remain as per ECA but for each of the steam turbine overhaul years plant capacity factor is reduced to 85%.
 - Plant to be permitted under a 12-month rolling average which would require coordination and planning between the parties to dispatch plant as necessary in combined cycle to insure simple cycle operations is achievable during planned steam turbine outages.

- Construct, operate and maintain the 49 MW (15 units @ 3.2 MW peaking capacity and 2.75 MW continuous capacity) of diesel generators (in accordance with the draft specifications provided herein as Attachment A) at a Cabras site which would be leased to KEPCO similar to conditions of the ECA.
 - GPA to provide KEPCO the property site for the 49 MW plant within one year of this agreement.
 - GPA to approve new plant generating unit specifications including layout and plant design within 6 months of ECA amendment.
 - Units are to be equipped with remote starting capabilities for startup from GPA power system control center.
- The COD of both the CCPP and the Diesel plant is to be reset to November 2023, subject to USEPA approval.
- **GPA would pay an annual fixed O&M Fee of \$2.0 M and a variable fee of \$0.025 / kWh for following:**
 - Plant Peaking Capacity Of 49 MW Gross
 - Continuous Operating Plant (COP) Capacity of 41 MW
 - KEPCO to pursue maximum permittable hours or ULSD fuel consumption under minor source
 - Plant availability 94%
- Plant to be dispatchable by GPA up to EPA approved minor source limitation.


Financial Closing and Performance Bond:

- An amendment of the ECA would be required of the parties
- The financial closing date is to be re-adjusted based on minor source permitting
- KEPCO will provide GPA a minimum of 50% (Approximately \$40M) of the performance bond amount set in ECA within 15 days after ECA amendment. The performance bond is currently due at financial closing in the amount of about \$78M. The balance of the bond to be provided at financial closing.
- All other provisions of the ECA contract remains in place.

ECA Amendment Process: The following is the process for the ECA amendment.

- KEPCO and GPA agree on proposed amendment
- GPA discusses agreement with USEPA in order to get their buy-in to the change in permit process and the proposed new COD schedule
- GPA pursues CCU and PUC approvals (typically accomplished within 1 to 2 months)
- Amendment signed. Both parties work together to achieve COD date.

Attachment A

No.	Item	Design Assumption
	Permits	KEPCO responsible for all construction and operating permits for plant and would be responsible for compliance until Plant turnover is made after 25 years. GPA will make best efforts to assist KEPCO.
A		Design Assumption
A-1	Location	<p>As per preliminary review about location, HEC assumed the project location to reduce fuel system and transmission line as follows.</p> 
A-2	Out of Scope	<p>Following items are not considered in scope of supply.</p> <ol style="list-style-type: none"> 1) Demolition work in existing area 2) New Transmission Line or Transmission line modification; KEPCO provides DG Substation and provides GPA 115KV terminal point for tie in of 115KV transmission line 3) ROW, Easement
A-3	MEC	MEC is not considered for site and ROW area for temp. facility
No.	Item	Design Assumption
A-4	Utility Design (Storm Water)	KEPCO Responsibility

A-5	Utility Design (Potable Water, well pump))	KEPCO Responsibility
A-6	Utility Design (Sewer)	KEPCO Responsibility
A-7	Utility Design (Oily Waste Water)	KEPCO Responsibility
No.	Item	Design Assumption
A-8	Utility Design (compressed air)	KEPCO Responsibility
A-9	Utility Design (Fuel Supply)	It is assumed that Diesel oil to be supplied from new ULSD pipeline. For standby, One (1) of Unloading connection point is considered. KEPCO to provide fuel oil line and valve at edge of property line for GPA to tie in supply line.
A-10	Capacity of fuel storage	Followings are assumed. 1) New fuel storage tank is not necessary 2) One day tank is considered for 3-day supply And each fuel tanks for DG will be installed additionally inside the container of DG for reliable operation.
A-11	Capacity of fire water tank	KEPCO Responsibility
A-12	Terminal point of electrical system	Terminal point of electrical system - Power Delivery Point : at cable terminal of transmission line of 115KV Breaker - Telecommunication (to SCADA) : at cable terminal of RTU located in 115 kV Substation Building - Communication (by PABX) : at cable terminal of PABX located in DG Control Building
A-13	Building List	KEPCO Responsibility; provide adequate buildings for management, operations and maintenance and ware housing needs.
A-14	Civil	1) Subsurface(geotechnical) condition of the site is suitable for cutting and excavation without any breaker, blasting and etc. 2) upon agreement, GPA to pursue boring data
A-15	115 kV Substation Telecommunication to SCADA	A RTU for 115 kV substation telecommunication to SCADA is considered.
A-16	Communication System	PABX, PA system, LAN system, CCTV are considered for DG Power Plant.
A-17	Lighting System	KEPCO Responsibility

A-18	Diesel Engine	<p>Followings are design for DG</p> <ul style="list-style-type: none"> - Emission Limit : Tier 4 Diesel Engine - To be permitted to maximum production under minor source - Diesel Engine Rating : COP (Continuous Power) - Gross Output : 2.75MW /unit x 15ea = 41.25 MW COP; Peaking plant capacity 48.75 MW Gross - Net Power : To be confirmed at future date
A-19	Control System	No integration of control system (Electrical & I&C) between CCPP in Ukudu and DG Plant in Cabras; DG to have remote starting capability and GPA will provide communications to DG remote starting terminal.
A-20	Operator	KEPCO Responsibility
A-21	Fire Fighting System	KEPCO Responsibility
A-22	Level Difference	KEPCO Responsibility
A-23	Maintenance Area	KEPCO Responsibility



GUAM POWER AUTHORITY

ATURIDÁT ILEKTRESEDÁT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Date: December 14, 2020

To: CCU Commissioners

From: General Manager

Subject: Update on New Power Plant and USEPA Negotiations

This memo is provided as an update on negotiations on the subject matters. As noted in a previous update, I needed to limit my public updates on these issues as I negotiated a manageable and achievable solution to the subject matters in order to avoid substantial delays in the new power plant commissioning date and further USEPA major concerns on delays. In addition, I was concern KEPCO could drop the contract because it would have meant substantial losses due to complex and complicated and stringent review and permitting requirements, COVID-19 impacts limiting availability of permitting agencies availability, high labor and housing cost not including difficulty in importing H2 labor among other delaying factors. The uncertain commissioning date under minor source was seen as being 2025 and beyond.

KEPCO and GPA has agreed on a minor source permit process and the relocation of diesel to a Cabras site directly adjacent to the GPA Bulk Fuel Oil Storage Tank Facility. Agreement now targets commissioning of new power plant by November 2023 but no later than April 2024.

Please see the attached signed agreement by the parties, subject to CCU and PUC approvals. I will be seeking CCU approval in January and hopefully PUC could act on it also shortly thereafter. I believe the agreement provides significant benefits to GPA. The following are the main parts of the agreement:

- The UKUDU Combined Cycle Plant is to be permitted under minor source. This would significantly limit delays on COD. The COD would be no later than April 2024. Under major source it would have been 2025 and most likely beyond.
- Forty-one megawatts (41 MW) of continuous operating units to be installed at a new site expected to be on GPA property next to the GPA Bulk Fuel Oil Storage Facility. The location eliminates costly fuel trucking cost because plant would be adjacent to the ULSD fuel tanks and also GPA transmission lines. The original KEPCO proposal was

for 65MW of standby generators. This agreement provides, although at a reduced capacity diesel machines with high efficiency and continuous operating capabilities which could be permitted for a minimum of 2,600 hours but most likely as much as 5,000 hours. This machine would have similar operating cost to Aggreko but much more efficient that the savings in fuel cost would likely off set operating cost. I believe this diesel plant plus the Aggreko plant would allow us to retire Piti 8&9 and other standby machines we have which would be over 30 years old by the time the new plant is commissioned. The machines to be retired would be recommended in the updated Integrated Resource Plan (IRP) to be completed in 2021.

- USEPA pleased with this path and has indicated they would not be opposed to an amendment of the consent decree to address delays.

Explanation and summary of events:

The Oct 2020 date was premised on a minor source air permit application process, although not specifically noted in the RFP, which would provide the shortest timeframe to commission a new power plant. To comply with reserve requirements of the bid KEPCO added 65 MW of standby generators with maximum 500 hours of operations to the site.

KEPCO decided to proceed on a major source permitting schedule because a permit under minor source would significantly limit plant operations every four years when the steam turbine of the combined cycle plant undergoes a 23-day overhaul. The emissions during this overhaul period substantially limited combined cycle operations for the rest of that year. The diesels, not only being limited to 500 hours also added to combined cycle operations limitation.

GPA and KEPCO attempted to agree on a minor source permit process early in 2020 but negotiations fell thru because of significant estimated cost overruns noted by KEPCO which made the project not economically feasible. KEPCO then decided to proceed on a major source path which certainly their right as per the contract.

During the summer as KEPCO began indicating to USEPA they were going to apply under Major Source, USEPA expressed concern to us of the significant delays which will occur because of lengthy monitoring requirements required before a major source permit could be issued. USEPA encouraged GPA to work out an alternative which would permit the plant under minor source. In August 2020 I again provided KEPCO an alternative which included relocating the diesels and adjustments to the capacity factor of the combined cycle during the steam turbine overhaul years. In the meanwhile, KEPCO began realizing the complexities of major source and its substantial delays and its impact on cost.

KEPCO was not able to contract with its original EPC Hyundai because of delays and uncertain schedules for the plant causing the contract cost to increase. KEPCO had to proceed to issue a new tender for their EPC and are expected to sign a contract with a new EPC, Doosan Industries, on December 17, 2020. Doosan industries, like Hyundai has significant experience building power plants. This is a significant milestone because now some construction could begin and orders for the machines and other critical path equipment could begin. The contract is being

issued under minor source with definitely clear reasonable timeline targets. The contract is also in line with my August 2020 proposal to KEPCO.

There has been substantial experience gain by KEPCO and its contractors and consultants over the past year, Substantial work on permitting and the preparation of the environmental Impact Assessment (EIA) has been done and which applies to the minor source permitting process. This makes the schedule proposed achievable. GPA would again have to request all permitting to prioritize the power plant work. This has been difficult to do during the pandemic period efforts made more challenging by stringent requirements related to the military buildup flowing over into our project. The new schedule reflects all delays which KEPCO could file for except for changes in law which is beyond their and our control.

USEPA Consent Decree Update:

- We had a conference call this last Friday, December 11, 2020. They were concerned of all the delays and of the path the permitting was taking and we expected the meeting to be quite contentious.
- USEPA's major red line was April 2023 compliance with the State Implementation Plan (SIP) requirement that emissions beginning April 2023 must be in compliance with the National ambient Air Quality 1-hour Standard for SO₂. The delay of the new power plant placed high risk of GPA not meeting this standard. Compliance was extremely important because environmental groups have filed a law suit against USEPA for non-compliance in addressing SIP requirements.
- GPA proposed to USEPA to meet the April 2023 emission standards in two ways:
 - Proceed as per consent decree to convert Piti 8&9 to ULSD by about July 2022. This would make plant compliant with the April 2023 emission standard. Although I wanted to retire Piti 8&9 and not have to convert the plant, because of this new emission standard, the lowest cost option for GPA was to convert the plant and still retire the Piti plant sometime after the commissioning of Ukudu. However, it would not be a requirement of the consent decree but more an opportunity to retire the plant on GPA timeline as determined by an approved updated IRP.
 - Import low sulfur Residual fuel Oil no later than April 2023 to be burned at the Cabras Plant in order to be compliant with the April 2023 regulations. I believe this is achievable.
 - These action plan provided assurance to USEPA that we could and plan to meet the April 2023 emission standard and provided them much relieve. They noted that they would be amenable to changes on the datelines currently in the consent decree in consideration that we would meet the April 2023 deadlines.
 - We agreed on monthly meetings henceforth beginning January 14, 2021. We would be providing our updated timelines to them before then.
 - I have requested for an updated proposal from Rino Manzano for the conversion of Piti 8&9. I have received the proposal and in the process of reviewing. I hope to sign a contract on the conversion in January, 2021.

In summary, it was a substantial effort to reach an agreement with KEPCO and USEPA on the way forward. I will openly present the plan to CCU and PUC in January in hopes all will approve and we could proceed forward in completing the requirements of the consent decree and the commissioning of the new plant so that we could add more renewables into the system.

Please let me know if there are any questions at this time. I wanted the commissioned to at least be updated at this point. I am sending each commissioner this memo under separate cover.

John Benavente