GUAM POWER AUTHORITY

ATURIDÅT ILEKTRESEDÅT GUAHAN
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November 30, 2018

AMENDMENT NO.: VII

TO

INVITATION FOR MULTI-STEP BID NO.: GPA-034-18

FOR

BUILD, OPERATE & TRANSFER CONTRACT FOR 180MW OF NEW GENERATION CAPACITY
STEP 2 – TECHNICAL SPECIFICATIONS

Step 1 Qualified Bidders are hereby notified of the following responses to inquiries received from the following:

Qualified Bidder #1 dated 10/23/2018:

QUESTION:

1. Fuel
   IFMSB Section A, 1.1.3 Bidder's (Project company) scope
   As a result, the fossil fuel fired components of the Project must be designed to have dual fuel capabilities to burn both ULSD and natural gas

   1. The fuel switch from ULSD to Natural Gas will be done only once in the project lifetime or GPA may request a switch from Natural Gas to ULSD if necessary?

   2. If there is switch only once from ULSD to Natural Gas, Can bidder provide initially the turbines and engines which are operated using only ULSD then when Natural Gas is provided, replace the turbines and engines to only Gas fired units?

ANSWER:

   1. After Natural Gas becomes available for the Project the Facility shall have dual fuel capability during the remaining Term of the ECA. GPA may request the Facility to operate on ULSD or Natural Gas at any time depending on availability of each type of Fuel and other factors.

   2. After Natural Gas becomes available the Facility shall have dual fuel capability during the remaining Term of the ECA.

QUESTION:

2. Capacity
   IFMSB Section C, 2.2.4
   The governor transient response shall be fast enough such that following a frequency disturbance a change of at least 5% of a single unit's capability shall be achievable within 1 second, and at least 10% of single unit's capability shall be achievable within 2 seconds following the disturbance.

1. The IFMSB states the response time is required for a single unit. We assume that the required response time is only applicable for gas turbine / reciprocating engine unit and not for the steam cycle. Please clarify.

2. If steam turbine has to comply with this requirement as well, gas turbine can increase its output above this requirement in order to cover the capability of steam turbine. Please clarify if this is possible.

ANSWER:

1. This should apply to only gas turbines or reciprocating engines; the steam turbine capacity in combined cycle will change based on the change in gas turbine capacity with certain time delay required for the HRSG to react. Steam turbines will not be able to respond as rapidly as required.

2. Additional response from gas turbines is acceptable. The bids should clearly describe the response times, rates, and capabilities of all proposed equipment, and any variations caused by different dispatch or operating conditions. To further clarify, the response rates and timing must be obtainable over the full normal operating range of the units, not just near full output.

QUESTION:

3. Capacity
   IFMSB Section C, 2.2.4
   The governor transient response shall be fast enough such that following a frequency disturbance a change of at least 5% of a single unit's capability shall be achievable within 1 second, and at least 10% of single unit's capability shall be achievable within 2 seconds following the disturbance.

1. If any of gas turbine, engine or steam turbine does not comply with this requirement can bidder install extra equipment such as battery storage system in order to achieve the requirement of transient response?

2. If yes, for the design of such battery system we require the max. storage period. The specification requests a max. of 10% capacity for 2 sec. But how many disturbances within a given period must be assumed for the energy storage system?

3. Also, please clarify if the ESS system must have been used in combination of the installed gas turbines or engines for the commercial operation reference(requirement 3 sites in 3 years)

ANSWER:

1. Yes the battery system can provide the fast-response that would have been provided by turbine or engine. The battery energy shall be such that it provides the energy until the response of the turbine or engine unloads the battery system. The controls and response of the battery system shall be such that the battery shall not unload prior to the response of the turbine or engine. The unloading of the batteries following their activation shall be a controlled ramp that is coordinated with the capability and controls of the turbine/engine

2. The response specification is for the plant as a whole. If an energy storage system (ESS) is proposed, that is acceptable. The expectation is that the plant can respond as described, and will maintain that response (10% change in 2 seconds) after the transient with no reduction in output, even as frequency returns to nominal. Also, the turbine/engine has a required droop response that drives the response of the turbine/engine. The points in the specification provide an indication of the required droop response of the unit, but are not inclusive of the total droop response. For larger frequency deviations in the GPA system, a larger droop response is required from the turbine/engines and that droop response must follow the same response characteristics provided by the two sample points in the specification. If the turbine/engine cannot provide the response required, the battery system must provide the response for turbine/engine's droop characteristic until the machine can respond, not just for those two points listed. We would expect that if an ESS is used, the engine or turbine would quickly catch up in terms of the required change in output, and the ESS would then be unloaded. After the transient, GPA requires that the plant as a whole maintain the new output level without reduction. GPA expects the plant to respond like a conventional generating plant, i.e., the new plant will respond routinely to frequency excursions throughout normal operations, and will maintain that response. The use of ESS's and any associated cycling limits for the ESS should not degrade the ability of the overall plant to meet the transient response requirements.

   We cannot predict but design the ESS to provide up to one hour total in a 24 hour period. The spinning reserve of 15 mw is required for 30 minutes duration.

3. The operating experience requirement for the battery energy storage system can be relaxed to having similar technology used at 3 sites for at least 1 year.

QUESTION:

4. Scope of Supply
   1.3 Terminal Points/ 1.3.1 Fuel/ A. ULSD/ Page 102 of 595
   ...the Project Company is responsible for the design and construction of ULSD supply infrastructure including any modifications at the GPA Bulk Fuel Storage Facility Bulk Fuel Storage Facility and the new pipeline that will be built to transport ULSD from the GPA Bulk Fuel Storage Facility Facility to the plant site. [The interface point for design and construction will be at the outlet flange of the isolation valve installed in the existing ULSD pipeline supplying USLD from the port to the bulk storage facilities at the plant site.]

   1.2.5 Detailed Project Scope/ B. Scope of Supply for Fossil Fuel Fired Component
   Facility Fossil fuel fired components will comprise but not necessarily be limited to the following:
   * ULSD supply system including modifications to the GPA bulk storage facilities

Appendix B: ULSD and/or Natural Gas Storage and Pipeline Structure/ 1.2 ULSD Scope of Supply/ Page 194 of 595
The Fuel Transfer Station is located at the GPA Bulk Fuel Storage Facility Facility. The Fuel Transfer Station is comprised of eight (8) rotary screw pumps, three (3) of which are dedicated to the 8" RFO pipeline system. The Project Company shall review the pump equipment data and station design to validate that the existing pumps have the capability to meet the design conditions of the pipeline. If the existing pumps are not viable, then the Project Company shall be responsible for the design, permitting and construction of new transfer pumps, booster pumps and other associated equipment.

We assume that the scope of modifications are limited to "the design, permitting and construction of new transfer pumps, booster pumps and other associated equipment" if the existing pumps are not viable.
Please confirm.

GPA shall provide details on the ULSD pumping station which need to be reviewed by the Bidder to understand the technical details of the equipment available to be modified if any. Please provide layout, system drawing and data sheet of pumping station.

ANSWER:

a. New transfer pumps, booster pumps are required at the GPA Bulk Fuel Storage Facility.

b. GPA provided the datasheet of the existing pumps/motors, P&ID of fuel oil system in the following attachments:
   - GPA Fuel Oil System JP.pdf
   - TANGO TRANSFER PUMP.pdf
   - Tango Pump Motor Data Plates.pdf

   Three (3) pumps are assigned for fuel transfer to Tanguisson Power Plant. 1 to 2 pumps are operating at the same time depending on the demand for fuel transfer. One pump is always available as stand-by. The pumps are arranged in parallel and have capacity of 171 bbls/hr each operating at a maximum pressure of 750 psig. (500 SSU at 120 degree F).

   Two of the pumps are over 40 years old and one is over 10 years old. They were last operated about 3 years ago. Considering these factors GPA has decided to include replacement of the existing pumps with new ones in the project company scope of work.

QUESTION:

5. Scope of Supply
   1.2.5 Detailed Project Scope/ B. Scope of Supply for Fossil Fuel Fired Component/ Page 97 of 595
   * Provisions for optional Natural Gas pressure reduction, metering or compression and treatment station, as required.
   Please clarify this requirement.

ANSWER:

Regasificaton will be done outside this scope. Bidder should include the plant site equipment that will support LNG firing

QUESTION:

6. Bid Evaluation
   1.1 Project Description/ Page 93 of 595
   The Project shall provide 180 MW (net at the Point of Interconnection) of base loaded generation to meet GPA electrical demand. Because of the variability of technologies allowed and unit sizes, GPA will consider evaluating proposals that are within 10 % over or under the preferred range

   It is understood that a plant capacity between 90% (162MW) and 110% (198MW) is accepted.

   Is there any preference given to the Bidder who offer a higher plant capacity than others? We could not find any in the evaluation criteria.

ANSWER:

The Price evaluation will be based on calculating the present value of the total annual costs to GPA including the cost of operating the Facility and the costs of operating the existing power plants to cover the projected GPA system loads. Since some of the existing plants will likely have heat rates higher than the heat rates of the Facility, offering Facilities with higher capacities will result in overall fuel cost reduction. At the same, the total capacity charge for Facilities with higher capacities will be higher. Therefore, Bidders will have to analyze different options using the Evaluation Model to propose the Facility with capacity that would result in the lowest total evaluated price.

QUESTION:

7. Project scope
   1.2.5 Detailed Project Scope/ B. Scope of Supply for Fossil Fuel Fired Component/ Page 98 of 595
   Expansion/modification to the GPA Harmon substation

   We assume that the scope of expansion/modification is limited only to works necessary for tying-in the new 115 KV transmission interconnection lines (under the Project Company Scope) to the existing Harmon substation. Please confirm.

   GPA shall provide details on the existing Harmon substation which need to be reviewed by the Bidder to understand the technical details of the equipment available to be modified/expanded if any. Please provide layout, diagrams and relevant data of substation.

ANSWER:

a. See Amendment No l response to bidder #3 question 6 for details on interconnection at Harmon substation.
b. The new power plant will have 3-115 kV transmission lines. Two of the 115 kV lines will connect to existing H501 and new H503 breakers at Harmon Sub. The third 115 kV line will intercept the existing Tamuning-Harmon 115 kV line and be rerouted to the new Power Plant. Therefore, in the event that Harmon 115 kV bus is offline, the New Power Plant still has a line going to Tamuning Sub. Please see attached maps and layouts (Harmon Substation Layout.pdf., Pages from Substation Oneline Reference 11-30-2017.pdf, Transmission One Line 11-30-2017.pdf).

QUESTION:

8. Terminal Points
   1.3 Terminal Points/ 1.3.1 Fuel/ B. Natural Gas/ Page 102 of 595
   ...The interface point for design and construction will be a supply flange from bulk LNG storage at the GPA Bulk Fuel Storage Facility location.

   1. We understand that the LNG receipt and storage facility has not been available, and will only be constructed at some point in the future. We understand the following will be within the project companies scope:
      a) natural gas piping infrastructure
      b) regasification facility and following will be GPA scope
      c) LNG receipt
      d) LNG storage facility

   2. Please provide the layout drawing of the GPA Bulk Bulk Fuel Storage Facility Facility, with planned position of the future LNG receipt and storage facility and the said supply flange.
   3. Please provide:
      a) the planned storage capacity a of the future LNG receipt and storage facility.
      b) LNG specification

ANSWER:

1. Project Company is responsible for installing natural gas piping from Bulk Fuel Storage Facility to the plant under this issue for bid. The rest of the items listed will be covered in future projects. Regasification is not in this scope of work.

2. Drawing provided in attached pdf - GPA Fuel Oil System JP. LNG details are currently not known.

3. a.) The capacity of LNG receipt and storage facility will be determined at a later date based, in part, the requirements of the Project Company's lenders.

   b.) LNG specification is not available. Use 1000 btu/cf.

QUESTION:

9. Noise Level
   2.2 Performance Requirements for Fossil Fired Plants/ 2.2.8 Noise/ Page 108 of 595
   A. Noise level at the site boundary shall not exceed 45 dB(A), measured in the horizontal plane and at an elevation of 5 feet (1.5 meters) from grade with all equipment running at full capacity.

   We assume that this noise level is not inclusive of background noise.
   Please confirm.

ANSWER:

The noise level includes background noise such that the total noise level should not exceed 45 db(A).

QUESTION:

10. Piping Materials
    3.1.2 Plant Piping Systems/ Page 114 of 595
    1. Carbon steel piping materials shall be used for design temperatures less than or equal to 371 °C (700 °F).

    Some carbon steels (for example ASTM A106) have been widely used for water/ steam pipes up to 425oC.
    Please confirm acceptance of carbon steel for temperatures up to 425°C.

ANSWER:

Limit on 700 Degrees F for carbon steel is intended to avoid creep range in B31.1. Since GPA will have option to take ownership of plant after 25 years, carbon steel piping shall avoid creep range (above 700 °F).

QUESTION:

11. Codes and Standards
    3.1.1 Applicable Codes and Standards/ Page 110 of 595
    B. The codes and industry standards used for design, fabrication, and construction will be the codes and industry standards, including all addenda, in effect as stated in equipment and construction purchase or contract agreements.

    "in effect as stated in equipment and construction purchase or contract agreements" is understood as "in effect at the time equipment and construction purchase or contract agreements are entered into".
    Please confirm, or clarify otherwise.

ANSWER:

Confirmed.

QUESTION:

12. Engineering
    2.1.1 Engineering/ A. General/ Page 103 of 595
    4. All construction documents must be stamped by a licensed Professional Engineer registered by the Territory of Guam, in the appropriate discipline, in accordance with Territory of Guam Rules and Regulations.

    3.1.1 Applicable Codes and Standards/ Page 110 of 595
    C. All mechanical design shall be performed by or done under the supervision of a Professional Engineer registered in Guam.

    We assume that not only mechanical design but also other (electrical, civil, etc) design must be stamped by a licensed Professional Engineer registered in Guam, and that "supervision" means stamping the designs submitted to them.
    Please confirm, or clarify otherwise.

ANSWER:

Confirmed.

QUESTION:

13. Site Data
    5. SITE DATA/ Page 164 of 595

    Please also provide data on:
    + wind condition (velocity and frequency at different directions, maximum wind velocity);
    + rainfall: 24-hour probable maximum for different recurrence intervals.
    + seismic condition.

ANSWER:

Bidder is responsible for determining this data.

QUESTION:

14. EIA
    FORM 8- TECHNICAL DATA/ Page 445 of 595
    8. Bidder shall provide the following guaranteed data for environmental impact assessment.

    We assume that Environmental Impact Assessment for the Project is not under the Project Company's Scope.
    Please confirm or clarify otherwise.

ANSWER:

The Project Company is responsible for obtaining necessary environmental permits. Any activities associated with obtaining permits including preparation of the EIA, if required by the permitting authorities, are in Project Company's scope. However, in the context of the form 8, the term "environmental impact assessment" means Project environmental impact evaluation by GPA during the bid evaluation process.

QUESTION:

15. Forms
FORM 8- TECHNICAL DATA/Page 446 of 595
8. Bidder shall provide the following guaranteed data for environmental impact assessment.
C. Water discharge:
* Provide provisions made for treatment of wastewater and sanitary water.

i.e, Bidder has to provide a description of wastewater treatment system/process?
Please confirm or clarify otherwise.

ANSWER:

Confirmed.

QUESTION:

16. Forms
FORM 8- TECHNICAL DATA/ 8.10.1 Air Emissions
(Page 469 of 595) Provide total emissions for all air toxics on an aggregate basis, not on an individual basis

i.e, emissions from all the generating units (the plant as a whole)?
Please confirm or clarify otherwise.

ANSWER:

Confirmed. To provide total emissions for all air toxics on an aggregate basis for the whole plant.

QUESTION:

17. C&I
3.2.2 General Design Requirements/ Q. Plant Control System/ Page 128 of 595

Degree of automation is not clear; We would like to ask if the plant shall be operated in a fully automatic controlled mode e.g plant start up by single push botton or more System oriented upon Operators input for each system.

ANSWER:

Degree of automation should be consistent with prudent utility practices. Dependence on operator input should be minimal.

QUESTION:

18. C&I
    3.2.2 General Design Requirements/ Q. Plant Control System/ Page 128 of 595

    Instrument redundancy concept is not described;
    Instrumentation are not mentioned. We understand that plant instrumentation should be specified for 4-20mA and HART communication capable in consistency with DCS requirements. Please confirm.

ANSWER:

Confirmed.

QUESTION:

19. C&I
    3.2.2 General Design Requirements/ Q. Plant Control System/ Page 128 of 595

    Instrument redundancy concept is not described;
    A single failure should not cause a Unit trip which is common practice but not currently specified;
    Consequently the Plant reliability is increased by 2 out of 2 or 2 out of 3 requirement. Please confirm.

ANSWER:

The Project Company is responsibility for meeting reliability performance standards. When practical 2 out of 2 or 2 out of 3 should be applied, the bidder must generally apply prudent Utility Practices.

QUESTION:

20. GPA grid standard
    Page 242 of 595
    3.160 Network Integration Transmission Service - Service that allows an electric transmission customer to integrate, plan, economically dispatch and regulate its network reserves in a manner comparable to that in which the Transmission Owner serves Native Load customers.

    Network Integration Transmission Service describes the service to be provided; Integration of any hardware or software within Dispatch Company to integrate this power plant into the Dispatch Company is not within the scope of Project Company. Please confirm.

ANSWER:

Response shall be forthcoming.

QUESTION:

21. Emissions
Page 28
Environmental Requirements

The link provided for the EPA requirements does not lead to a clear statement on the emission limits on Guam. Can GPA provide the emission limits for the project for:
- Particulates (PM)
- Sulfur Dioxide (SO2)
- Nitrogen Oxides (NOx)

or provide a more details guidance where to find the particular requirements.

ANSWER:

US EPA says that the plant can apply for Minor Source Permit from Guam EPA. Minor Source Permit is the fastest way to obtain the permit.

Plant will be permitted as minor source therefore, whatever is required to reach minor source status levels should be done. Emissions must be below 250 tons per year (tpy) of NOx, SOx, CO, particulates, ozone, and lead.

Recommend hire an environmental consultant but GPA thinks permitting as a minor source is the fastest way to achieve permitting.

<u>Qualified Bidder #6 dated 10/29/2018:</u>

QUESTION:

1. Section A/1.1.3 Bidders Scope

Section notes that Bidders Financial Proposal must quote the Incremental Price associated with adding any necessary natural gas equipment and systems in the future. Is the Bidder to assume that this optional price will occur in a given year (please define in service date requirement) and include in the project pricing structure, or is this to be presented as an optional price payable to the Bidder (with escalation as required) without modification to the pricing structure?

ANSWER:

The Bidder shall quote the incremental Price associated with adding any necessary gas supply equipment in the future as an addition to the Fixed Capacity Charge (FCC) to be paid by GPA starting from the beginning of commercial operation on Natural Gas through the end of the Term. For the purposes of financial evaluation of the Proposal, it is assumed that Natural Gas will become available after three years from Phase 1 COD. The Bidder may provide either (i) a single amount to be added to the FCC which will be applicable regardless of when Natural Gas becomes available, or (ii) a table depicting different incremental increases to the FCC depending on the year in which Natural Gas becomes available.

QUESTION:

2. Section A/1.1.3 Bidders Scope, Section A/9.2 Natural Gas, Section C/1.2.7 ULSD Infrastructures and 1.2.8 Natural Gas Infrastructures

   Can you also clarify if both ULSD and Gas pipelines are required to be completed at the same time or whether ULSD pipeline structure is commissioned and completed ahead, and Gas pipeline infrastructure can be completed and commissioned on later date?

ANSWER:

Gas pipeline infrastructure must be completed at the same time as ULSD pipeline. The gas pipeline must be leaked tested upon completion. Full commission of the gas pipeline will be done later. The LNG interface point is defined as the area of the Bulk Fuel Storage Facility.

QUESTION:

3. Section A/1.2 Bidding Selection Process

   Section A/1.2 we noted that under the Second paragraph the following conflicting provision…"In the event that the Project Agreements are completed with the first-ranked Bidder, GPA may commence meetings with the second-ranked Bidder to complete the Project Agreements, and the next as may be required....." Please confirm if there is a typo as we believe the provision should state... "In the event that the Project Agreements are NOT completed with the first-ranked Bidder, GPA may commence meetings with the second-ranked Bidder to complete the Project Agreements, and the next as may be required...."

ANSWER:

Confirmed. The text should say “in the event that the Project Agreements are NOT completed…”.

QUESTION:

4. p46 Appendix E: Demand and Forecast

   Does GPA have any other assumptions to support demand forecast? For example, population, oil and gas fuel consumption, baseload and peaking units and renewables load profile for 25 years …

ANSWER:

The load forecast is an econometric model prepared by GPA's contractor Utility Financial Solution, LLC. It is an Autoregressive Moving Average model based on a number of independent variables as well as discussion and information provided by the Navy. Some of the more significant independent variables used in the model are listed below:

- Reviewed report on growth at Navy base and impacts on population located at the base and sub-contractors located in Guam
- Navy growth projections were for 10 years
- Model used a combination of population, CDD, Temperature, Solar installations and LEAC

LEAC (Levelized Energy Adjustment Charge) was projected using current fuel costs adjusted for under-recovery and projected changes in fuel prices

QUESTION:

5. Section B/1.3 Site Investigation.

   There are possible concerns that there might be potential sinkholes (or cavities) on the GPA site, we would like to ask that if ever there are sinkholes, will GPA be responsible for addressing them at GPA's cost since they are deemed Pre-Existing Site Condition as defined under the Draft ECA?

ANSWER:

Sinkholes that will not be revealed by the preliminary geotechnical investigation performed by GPA and not shown in the results of such geotechnical investigation provided by GPA to the Bidders shall be subject to the definition of Pre-Existing Site Condition in the draft ECA and treated in accordance with Article 6.6 of the draft ECA as applicable.

QUESTION:

6. Section B / 4.2.1.5 b) First Fill ULSD Onsite Storage

   It is noted that the first fill of the on-site storage (30 days equivalent supply) for ULSD are included in the Price while Section A/9.3 state the GPA will supply Fuel to the project company at no cost. Draft ECA Section 4.3 (g) requirement though is for ULSD facilities to hold 14 days requirements. Draft ECA Section 10.10 allows GPA to access the on-site ULSD Storage Facilities, without the need to prior notice, to fuel GPA's tanker trucks at no charge. Please confirm as it is our understanding that GPA will be providing the fuel to include the first fill, whether the requirement is for 14-days or 30-days, and also has access to the fuel in the ULSD tank storage.

ANSWER:

The cost of the first fill of the on-Site ULSD storage must be included in the Price. The on-site storage must be for 30 days. GPA will have to be provided access to the on-site ULSD storage.

QUESTION:

7. Section B / 4.2.1.5 d) Costs included in the price.

   It is noted that the cost of ULSD and Natural Gas used to generate electricity are included in the price. Please confirm as it is our understanding that GPA will be providing the fuel.

ANSWER:

GPA will provide ULSD and Natural Gas at no cost to the Project Company up to the quantities calculated based on the applicable Guaranteed Heat Rate associated with the dispatch loads. The cost of any ULSD or Natural Gas consumed in excess of the values calculated based on the Guaranteed Heat Rates will be paid by the Project Company.

QUESTION:

8. Section B / 4.2.1.5 f) Costs included in the price.

   It is noted that the cost of constructing additional facilities required to start operating on Natural Gas are included in the price. Please confirm as this seems to conflict with the request to provide an incremental price for this (Reference item 1 above).

ANSWER:

Depending on Bidders' approach, Bidders can either include the cost associated with constructing additional facilities required to start operating on Natural Gas in the proposed Fixed Capacity Charge (FCC) or propose FCC not including these costs and an incremental increase in FCC to cover these costs from the time when Natural Gas becomes available through the end of the ECA Term.

QUESTION:

9. Section B / 4.4.2.1 ULSD Fuel Charge.

Please confirm if "Hot Start" fuel consumption will be used for all startup/shutdown events, or if the corresponding fuel consumption will be derived from the startup type (Hot, warm, cold). Please also clarify how fuel usage will be determined for take or pay obligations or other operational events.

ANSWER:

Fuel component of the Startup Charges will be calculated based on the type of startup (cold, warm, or hot). Hot start fuel consumption will be used to calculate Fuel consumption for any Unit shutdown. There are no take or pay obligations under the ECA other than GPA obligation to pay Fixed Capacity Charge and Fixed O&M Charge. It is possible that GPA will have to assume take or pay obligations under the future LNG supply agreement; this obligation is expected to be met by proper Facility dispatch.

QUESTION:

10. Section B / 4.4.2.1 ULSD Fuel Charge.

In other sections startup time is defined as the time it takes the to reach full net capacity from initiation of start sequence. Please confirm if the startup/shutdown fuels noted in this section are from initial start sequence to synchronization and shutdown is from opening of breaker to unit not firing, or the full time that it would typically take to get to full load consistent with the startup time definition.

ANSWER:

Start for the purpose of calculating the startup fuel consumption is defined in the ECA as ""Start" means the process of starting up a Unit or the Facility until its synchronization, when the corresponding Unit or Facility has been shut down". Fuel consumption during the ramp up from the moment of synchronization to full load will be calculated based on the Facility Guaranteed Heat Rates.

QUESTION:

11. Section B / 4.5.1 Facility Start & Stop Charges.

    It is noted that "Any start-up or shut down due to reasons not attributable to GPA's request shall be to the Project Company's account. Please confirm if individual units are cycled by the Project Company to optimize Facility operation to follow GPA's load control setpoints that these are included as start and stop requests from GPA.

ANSWER:

GPA will compensate the Project Company for unit startups in excess of 360 starts per unit per year in case the startups are required to follow GPA's load control setpoint (dispatch instructions). Startups due to reasons other than the aforementioned (including, but not limited to, startups intended to minimize Facility heat rate or otherwise optimize plant operations) shall not be counted towards the 360 start threshold and shall not result in compensation to Project Company. Please note that "in excess of 360 starts per unit per year" means that the cumulative number of starts of all of the Units installed at the Facility is above the product of a) 360 and b) the number of Units installed at the Facility. In other words, the Project Company will not be able to claim compensation for additional starts by starting only one of the Units 360 times per year.

QUESTION:

12. Section B /Page 72 of 595 "4.8 Bid Guarantee" and 83 of 595 "7.3 Performance Bond"

    Is there any guidelines about guarantee issuing bank? Would a foreign bank be acceptable for GPA issuing a letter of credit?

ANSWER:

The Letter of Credit, Cash, Certified Check or Cashier's Check, Wire Transfer, Bid Guarantee Bond must be issued by any local surety or banking institution licensed to do business in Guam.

Additionally, GPA has included a list of performance bond insurance companies in the pdf attachment – Performance Bond Insurance Companies.

QUESTION:

13. Section C / 1.2.5 Detailed Project Scope.

    It is noted that there shall be 7 days of water storage for cycle makeup and cooling tower makeup if cooling tower is required. In Section A 8.1 it is noted that The Project Company shall also construct at its cost and within the Site boundaries raw water storage with sufficient capacity to store enough water to satisfy lenders' requirements for supporting the Facility's continuous operation at the Contracted Facility Capacity in case of temporary raw water supply interruption. Please confirm the requirement.

ANSWER:

GPA requires at least 7-day storage. Bidders shall satisfy both GPA and lenders' requirement, meaning that the Bidder must comply with the largest storage requirement among the two.

QUESTION:

14. Section C / 1.2.6 Detailed Project ScopeB.

Based on existing pipeline route, we noted that approximately half are above ground pipelines and are in military properties.
Can GPA please clarify if both ULSD and Gas pipelines are needed to be constructed 100% underground?

If both ULSD and Gas pipelines are be constructed 100% underground, are there any agreements or approval already from the military to allow underground construction into their properties? Are there any requirements to observe MEC at military properties and also other Environmental concerns?

ANSWER:

Response shall be forthcoming.

QUESTION:

15. Section C / 1.2.5 Detailed Project Scope.

It is noted that Main structures to house any Reciprocating Engine Generators and Combustion Turbine Generators, Steam Turbine Generators, Heat Recovery Steam Generators as required. Can associated emissions control systems be located outside?

ANSWER:

Yes.

QUESTION:

16. Section C / 3.6 Transmission Requirements

In Amendment 1 it was clarified that three transmission connections are required. One to H501 (existing), a second to H503 (new), and a third for intercept of the existing Harmon-Tamuning 115 kV line. Regarding the new breaker and bus extension for H503, please provide further clarification of the requirements including any known requirement for additional transformer capacity.

ANSWER:

A step-up transformer from generator voltage to 115 KV as defined in the specification is required.

QUESTION:

17. Section C /Appendix A: Grey Water Analysis

    Is quality data for additional constituents available? Constituents of interest include: Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Barium, Strontium, Aluminum, Sulfate, Chloride, Fluoride, Boron, Nitrite-Nitrate, Alkalinity, Silica, Total Phosphorous, Ortho-Phosphate, Conductivity, COD, Fecal Coliform, E.coli, and TOC. Attached link excel file could not be downloaded, can GPA have this posted on GPA website for download access by Bidders.

ANSWER:

Contact GWA for additional constituent analysis. The files contained in the embedded link are included in the subsequent pages in the appendix.

QUESTION:

18. Section C /Appendix E: Raw Water Analysis

    Is quality data for additional constituents available? Constituents of interest include: Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Barium, Strontium, Aluminum, Ammonia, Sulfate, Fluoride, Boron, Nitrite-Nitrate, Silica, Total Phosphorous, Ortho-Phosphate, TSS, TDS, and Oil and Grease.

ANSWER:

Contact GWA directly for additional constituent analysis.

QUESTION:

19. Section D/ p507 15.1 Schedule of Commercial Operation

    When is the GPA's expectation date of COD? In page 507 "COD must be December 31, 2021 in page or earlier"

ANSWER:

The Required Phase I COD is 20 months from Required Financial Closing Date and Phase II COD 30 months from required Financial Closing Date. Based on the current projected Financial Closing Date, Phase I COD is expected in the end of December 2021 and Phase II in the end of October 2022.

QUESTION:

20. Section D / P508 15.2 Proposed Fixed capacity charges

    It says FCC for Contract Year 2 should not vary by more than 10% compared to Contract Year 1. Is it correct to understand this criteria refers to Contract Year 1 Phase 2 only? E.g. is it ok to set $0 for Phase 1 and $100 for Phase 2, then $110 for Contract Year 2?

ANSWER:

Section B, Article 4.3.1.3, Price Restrictions states the following:

a) The FCC shall not be adjusted by more than 10% (plus or minus) from any one Contract Year to the next Contract Year, provided, however, that it may be adjusted by up to 20% (plus or minus) from Contract Year 1 to Contract Year 2 (from Phase 1 operation to Phase 2 operation).
b) A ratio of a maximum Fixed Capacity Charge to the minimum FCC over the Term [(excluding Contract Year 1)] shall not exceed 1.50.

QUESTION:

21. Draft ECA / 4.3.1 (g) and 4.3.2 Fuel Supply

    Please confirm if the requirement is 14-days for First Fill as this seem to conflict with Section A/9.11) requirement of 30-days.

ANSWER:

30 days is correct.

QUESTION:

22. Draft ECA / 4.3.1 (a)

    This article states that Project Company shall be responsible for the installation, operation and maintenance of the Fuel measurement facilities while Articles 13.3 and 13.4 indicate that GPA will be responsible at its cost for installing and maintaining primary fuel measurement equipment. Please clarify the intent for supply, installation, and operations and maintenance of Fuel measurement equipment.

ANSWER:

The Project Company will supply and install fuel measuring equipment as part of construction of ULSD and Natural Gas pipeline infrastructure. GPA will operate and maintain the measurement facilities after care, custody, and control of ULSD and Natural Gas pipeline infrastructure are transferred to GPA on Phase I COD. The Project Company may elect to install backup ULSD and Natural Gas meters within the Site and will own, operate, and maintain these facilities.

QUESTION:

23. Draft ECA / 4.3.2 (a)

This article indicates that GPA will procure and deliver fuel for start-up and commissioning, but then indicates that Project company must be responsible for the cost of the first fill of ULSD. Please clarify the intent. If the bidder is expected to provide the first fill, we assume that the MMBtu of start-up and commissioning fuel requested in this article should not include the quantity of the first fill of the storage?

ANSWER:

Bidder's understanding is correct. ULSD for startup and commissioning will be supplied by GPA and will not be the ULSD supplied by the Project Company as first fill.

QUESTION:

24. Draft ECA / 4.5

This article and the treatment of the Facility unavailability to operate at 100% load seems to allocate fuel cost to the Project Company associated with energy not produced and fuel not used. If this is incorrect, please clarify. It would seem that the penalties associated with Excess Outage Hours / Availability in article 9.3 should be the appropriate penalty for this situation. Please clarify the intent.

ANSWER:

Typically, power plant heat rates increase when they operate at partial load. In case the Facility operates at partial load due to fault of the Project Company, Project Company must be responsible for the cost of additional Fuel consumed by the Facility due to its inability to be dispatched at a higher load desired by GPA. Such excess Fuel consumption will be calculated based on the difference between the actual Heat Rates and the Heat Rates corresponding to desired GPA dispatch multiplied by the actual energy generated. This penalty does not duplicate the Excessive Outages LDs which are intended to return to GPA part of Capacity Charges paid to the Project Company.

QUESTION:

25. Draft ECA / 5.1 (a) Term of Agreement

There's an Error Reference source not found? Can you provide the missing information related to this Section?

ANSWER:

The reference is to Article 6.6.

QUESTION:

26. Draft ECA / 5.2

Suggest that our team review for reasonable durations. An example is that GPA has given themselves 30 days from payment due date for default in 5.3 (b), but given Project Company 15 days in 5.2 (m).

ANSWER:

This item will be negotiated with the winning Bidder.

QUESTION:

27. Draft ECA / 8.4

This is the only section of the document indicating that tests are required after every Major Overhaul. Please clarify the intent of this testing and what testing is required.

ANSWER:

The requirement is to provide a copy of the test results, not to perform the test after every Major Overhaul. The Project Company is required to provide copy of the test results after Unit major overhaul only if such test is performed.

QUESTION:

28. Draft ECA / 8.5 Deemed Commissioning

There's an Error Reference source not found? Can you provide the missing information related to this Section?

ANSWER:

Reference is to Article 6.6.c.

QUESTION:

29. Draft ECA / 9.3, Attachment 1B - Proposal Opening Form, Form 8 - Technical Data

This article defines penalties for excessive forced outage energy and excessive total outage energy with a requested guarantee of outage hours, but Attachment 1B - Proposal Opening Form is requesting Annual Availability and Forced Outage Rate Guarantees in %. Please clarify the requested format of this guarantee.

ANSWER:

Annual Availability Guarantee and Forced Outage Rate Guarantees should be provided in %. The guaranteed forced outage hours and guaranteed total outage hours will be calculated as a product of availability and/or forced outage rate guarantees divided by 100 and multiplied by 8760.

QUESTION:

30. Draft ECA / 9.3

Please clarify the intent and justification of the 1.4 value in the Capacity Damage calculations.

ANSWER:

The coefficient of 1.4 is intended to compensate GPA for the difference between the cost of electricity generated by the Facility and the existing plants.

Qualified Bidder #3 dated 11/01/2018:

QUESTION:

1. What is the status of the existing 8" HFO pipeline? Has it been flushed and drained?

ANSWER:

The current condition of the existing 8" HFO pipeline is unknown since it is no longer active for over 5 years. It has been drained except for the approximately 2 miles underground section from Barrigada to Micronesia Mall. It has not been drained.

QUESTION:

2. Regarding the natural gas pipeline terminal points described in Section C, Functional Technical Specifications, section 1.3.1 Fuel (pdf page 102): We respectfully request, for the reasons listed below, that GPA revise the terminal points so that the LNG regasification and compression equipment is not part of the project company scope for the natural gas pipeline.

- GPA has not provided a basis of design for the regasification equipment. A basis of design for the regasification equipment would be driven in part by the overall LNG facility design, which we understand will be developed at some future time. Without such a basis of design the bidders are likely to make inaccurate assumptions and add contingencies to their cost estimates.
- Information regarding the type, number, capacity, piping details, and location of the regasification equipment would be required to perform the vapor dispersion and heat flux analyses required in the IFB and necessary to support the permitting effort and inform an accurate and binding cost proposal.
- GPA may want to serve other power plants and customers when LNG becomes available. If so, it would seem to be more beneficial to GPA to size and design all the regasification and send-out equipment as part of an island-wide LNG facility project planning and development process.

- In summary, if we understand the IFB correctly, bidders are being asked to provide a firm price that includes a significant yet undefined component of a future LNG project. In our opinion, including this work in the pipeline scope requires bidders to assume significant permitting, development, and execution risk that will result in higher cost and less flexibility to GPA.

We believe that the natural terminal point between a future LNG project and the gas pipeline project is the upstream flange of a gas pipeline isolation valve located at a specific, named location.

ANSWER:

The terminal point should be downstream of the regasification station that will have to be provided by the LNG terminal contractor. The gas interface is near the Bulk Fuel Storage Facility for the purposes of this proposal.

QUESTION:

3. Is there any UXO/MEC on GPA's 59-acre parcel?

ANSWER:

Response shall be forthcoming.

<u>Qualified Bidder #4 dated 11/01/2018:</u>

QUESTION:

1. [A] 1.1.4 [ECA] 8.2; Fuel Supply

[A] 1.1.4 e) Supply Fuel to the Project during the operating period.

[ECA] 8.2 (f) iii. (C) Provision of Natural Gas by GPA to Project Company up to [ ] MMBtu of Natural Gas shall be at GPA's cost

Project Company is required to perform tests before switching to Natural Gas. Should the testing costs other than providing natural gas be taken into account in the project cash flow? For example, costs for inviting owner's engineer to the site for supervising test shall be considered in the operating costs of Project Company, or would it be reimbursed by GPA?

ANSWER:

All the costs associated with switching to Natural Gas other than the cost of Natural Gas supplied by GPA should be considered as part of the Project Company's costs and be included in the proposed tariffs.

QUESTION:

2. [A] 2.1; Delivery Point

   The location of connection of the Electrical Interconnection Facilities to the 115 kV bus bar at the Facility's switchyard where GPA receives the Net Energy Output from the Project Company, as to be specified in the ECA, Schedule 3

   Please provide ECA, Schedule 3 in order to clarify Delivery Point whether it will be located at the Site boundary before Electrical Interconnection Facilities or Harmon substation.

ANSWER:

   ECA specified the Delivery Point as the point whether the Electrical Interconnection Facilities are connected to the 115 KV Facility switchyard (in other words, at the new power plant switchyard, not at the Harmon substation).

QUESTION:

3. [A] 7.4; Labor Information

   Labor for construction and operation of the Facility may not be available locally. Select existing GPA plants are to be retired within one (1) year following the new power plant commissioning. The Project Company shall give existing GPA power facilities maintenance and operations employees who will be adversely affected or separated as a result of commissioning of the new power plant the right of first refusal for employment at the new power plant in positions for which they are qualified. For each case of hiring an existing GPA maintenance and/or operating employee the Project Company shall advise GPA about their plan for hiring such employee and allow a minimum of 6 months before beginning the employment period to allow GPA to adjust its' plant operation and maintenance activities. GPA may require assistance from the Project Company in finding a temporary labor pool for positions at their existing power plants that will be vacated

   Please provide organization charts and number of employees at the existing GPA plants to be retired.

ANSWER:

   Response shall be forthcoming.

QUESTION:

4. [A] 9.2; Tank Modification

   [A] 9.2 GPA intends to convert its bulk storage facility from heavy fuel oil to ULSD. The current storage capacity of the existing central storage facility is 500,000 barrels. It should be noted that this storage facility will be used for the Project as well as for other GPA power plants. The Bidder shall provide additional on-Site ULSD storage with storage capacity sufficient to support thirty (30) days of Facility operation at full load. During the term of the ECA GPA will be allowed to access Bidder's on Site ULSD storage facilities to fuel GPA's tanker trucks at no charge.

   [C] 1.2.7 The design, construction, and commissioning of the ULSD supply infrastructure, including, bulk storage at the plant, fuel truck loading and unloading facilities, new fuel oil and natural gas pipeline to the plant and modifications to existing pumps at the GPA Bulk Fuel Storage Facility Pump Station is the responsibility of the Bidder and will be included in the scope for any Facility which has a fossil fuel fired component.

   Is the GPA Bulk Fuel Storage Facility (tank) modification included in the Project Company's scope of work? What is specific scope of work in terms of "modification"?

ANSWER:

   Project Company will supply and install new pumps, valves, piping and equipment as required to supply ULSD from the Bulk Fuel Storage Facility to the new plant.

QUESTION:

5. [A] 9.2; Natural Gas facilities

   GPA, via the selected LNG provider, will be responsible for development of the LNG delivery, storage and regasification facilities including construction of a gas supply pipeline to deliver natural gas from the LNG terminal to the Project Site. The terminal (interface) point between GPA and the Project will be at the Site boundary. The Project Company shall make all provisions necessary to allow for the construction of the required Natural Gas facilities within the Site. The Project Company shall allocate sufficient space for the Natural Gas backup metering station to be located inside the fence. Gas handling facilities, including filtering, metering, pressure reducing equipment and heaters, will be constructed and operated by the Project Company within the Site boundary. Gas pressure at the interface point is expected to be approximately 60 bars. Natural Gas properties are provided in IFMSB Section C, Functional Technical Specification.

   When will the required Natural Gas facilities be built? Should relevant cost be included in CAPEX during the construction period?
   Or at a certain period during operation? With extra budget from GPA?

ANSWER:

Natural Gas pipeline will have to be built prior to Phase 1 Commercial Operation Date. The decision on when to construct other Natural Gas facilities should be made by the Bidder during the bidding stage. Bidder's proposed Fixed Capacity Charge shall be developed taking into consideration Bidder's decision on the timing and cost of constructing Natural Gas facilities.

QUESTION:

6. [A] 9.3; Reimbursement of excess Fuel Cost

The Project Company will reimburse GPA for the cost of any Fuel consumed in excess of the quantities calculated based on the Guaranteed Heat Rate and actual dispatch. The cost of excess Fuel will be equal to the Price of Fuel paid by GPA to their ULSD and/or Natural Gas suppliers (as applicable) plus operating and maintenance expenses associated with receipt, storage, and delivery of the excess quantities of Fuel to the Site.

Does Appendix F (fuel cost) include all associated cost? Or how can the reimbursement amount be calculated?

ANSWER:

Fuel cost will be calculated based on the actual price of Fuel paid by GPA and actual operating and maintenance expenditures during the relevant billing period.

QUESTION:

7. [B] 4.5.1; Facility Start & Stop Charges

GPA will compensate the Project Company for costs of start-ups in excess of 360 starts per Unit year.

Supplement charges shall not cover the startups and shut-downs cost less than 360 starts per Unit per Contract, is that correct?

ANSWER:

GPA will not begin paying supplemental startup charges for starts of Facility Units until the cumulative number of starts of all Facility units exceeds 360 per unit per Contract year.

QUESTION:

8. [C] 1.2.7; ULSD Supply Infrastructure

a) At the Site: bulk storage at the plant, fuel truck loading and unloading facilities
b) Pipeline: new fuel oil and natural gas pipeline to the plant from GPA Bulk Fuel Storage Facility Pump Station to the Plant. Ownership of the bulk storage, the plant site fuel truck loading facilities and the pipeline will be transferred to GPA after Commercial Operation Date.
c) GPA Bulk Fuel Storage Facility Pump Station: modifications to existing pumps at the GPA Bulk Fuel Storage Facility Pump Station is the responsibility of the Bidder and will be included in the scope for any Facility which has a fossil fuel fired component.

1) Ownership transferred assets are not clear. (Fuel storage within site boundary or storage facilities at GPA Bulk Fuel Storage Facilities?)

2) Work Scope of Modifications of existing GPA Bulk Fuel Storage Facility is not clear. Could project company only take care the modifications from the existing pump station point?

ANSWER:

1) ULSD facilities that will be transferred include ULSD infrastructure outside of the Site boundaries (GPA bulk storage facilities and ULSD pipeline to the Site). The plant site fuel truck Loading facilities will be transferred to GPA.

2) Project Company will supply and install new pumps, valves, piping and equipment as required to supply ULSD from the Bulk Fuel Storage Facility to the new plant.

QUESTION:

9. [C] 1.2.8; Natural Gas Supply Infrastructure

The fuel systems provided, the design, construction, and commissioning of the natural gas supply piping infrastructure beginning at an LNG receipt and storage facility at GPA Bulk Fuel Storage Facility, new natural gas pipeline to the plant will be included in the scope of this Project.

1) Where is the LNG receipt point?

2) How can project company manage the damage of pipe due to the fact that the piping infrastructure would not be operated until LNG receiving facilities operation start

ANSWER:

1) The LNG receipt point will be located near the GPA Bulk Fuel storage facility.

2) Care, custody and control for the Natural Gas pipeline will be transferred to GPA after Phase I Commercial Operation Date and the ownership at Phase II Commercial Operation Date. GPA will be responsible for the Natural Gas maintenance over the Term of ECA.

QUESTION:

10. [C] 1.3.1 Amend I Q. No.1; [C] Appendix B 1.2; Natural Gas Facility

The Project Company shall design the plant for future natural gas operation. If natural gas is selected by Project Company as a fuel source, the Project Company is responsible for the design and construction of natural gas supply infrastructure beginning at LNG regasification and compression and GPA Bulk Fuel Storage Facility

The natural gas piping infrastructure between the LNG receipt and storage facility at GPA Bulk Storage facility and the Project site included in the project Company's Scope

Project Company is responsible for natural gas system beginning at a flange between LNG storage and Project Company's regasification facility.

Please clarify LNG regasification facilities should be included for the IPP Project scope or not.

ANSWER:

Regasification facilities are not included in the Project Company's scope.

QUESTION:

11. [A] 2.1; Lump sum payment

means the lump sum payment in the amount of USD 50 million to be made by GPA to the Project Company upon Phase II Commercial Operation Date.

1) What forms of cash will be paid to the Project Company as Lump sum payment? Equity, Loan without Interest or Advance Payment?

ANSWER:

GPA will make a cash payment to the Project Company with an intent to lower the Fixed Capacity Charge proposed by the Bidders. It is Bidders decision to incorporate this payment into their financing plan in such a way that it would result in the Bidders offering to GPA the lowest possible Price while continuing to comply with the equity contribution requirement (the total equity should not be less than 20% of the total Project cost both prior to and after receipt of the lump sum payment).

QUESTION:

12. [ECA] 14.2; Lump sum payment

    GPA intends to make an initial lump sum payment of approximately $50 million upon COD to reduce interest fees and payments over the contract term.

    2) Qualified Bidder would like to know the reason of the lump sum payment

ANSWER:

GPA has insurance proceeds associated with a previous fire at the Cabras plant that has to be applied to construction of a new power generating plant. GPA considers that providing the Lump Sum payment to the Project Company will result in lower proposed Fixed Capacity Charge and the resulting reduction in the Price of electricity purchased from the Facility would allow to lower the tariff paid by GPA customers.

QUESTION:

13. [C] 1.2.10; Grid Study and PICES Analysis
    The size of the Facility's individual units shall be such that a trip of a single Unit will not result in a loss of 44MW.

    45 MW seems to be the correct size. Right?

ANSWER:

45 MW is correct.

QUESTION:

14. [D] 15.7; Evaluated Present Value

    The Present Value will be calculated using the simplified dispatch and cost spreadsheet to be provided as an Addendum to the IFMSB documents (the "Evaluation Model")

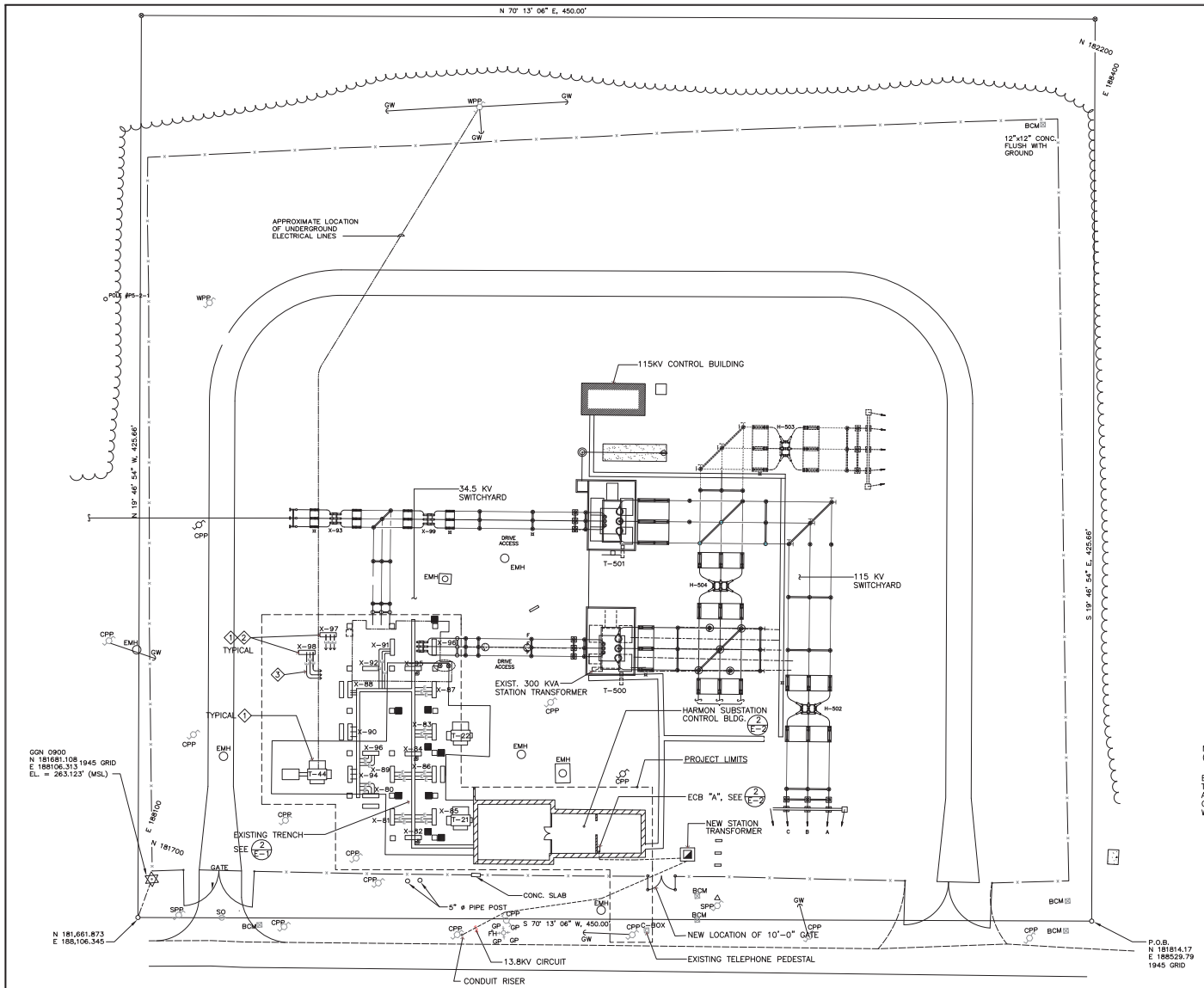
    Please provide the Evaluation Model.

ANSWER:

The Evaluation Model was provided to the Bidders on November 6 as part of Amendment V.

All other Terms and Conditions in the bid package shall remain unchanged and in full force.

FOR JOHN M. BENAVENTE, P.E.
General Manager

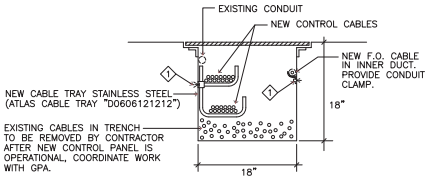


1 E-1 ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"

REVISIONS				
SYMBOL	DESCRIPTION	INT.	DATE	APP'D.

ELECTRICAL SYMBOL LIST

EXISTING	NEW	DESCRIPTION
		LIGHT, FLUORESCENT, CEILING SURFACE MOUNTED
		LIGHT, COMPACT FLOURESCENT, CEILING SURFACE MOUNTED
		LIGHT, COMPACT FLOURESCENT, WALL MOUNTED
		EMERGENCY LIGHT, W/ SELF CONTAINED BATTERY, STAND-BY FLOODLIGHT
		SWITCH, FLUSH TUMBLER, WALL MOUNTED
		SWITCH, FLUSH TUMBLER, 3 WAY, WALL MOUNTED, 20A, 120/277 VOLTS
"a"	"a"	LETTER INDICATES FIXTURE OR DEVICE CONTROLLED BY SWITCH "a", OTHER LETTERS SAME
		RECEPTACLE, DUPLEX, WALL MOUNTED, 15A, 125 VOLTS, NEMA 5-15R
		JUNCTION BOX, WALL MOUNTED
		EQUIPMENT CONNECTION
		EQUIPMENT DISCONNECT SWITCH, HP RATED
		ELECTRIC PANELBOARD
X-91		34.5 KV CIRCUIT BREAKER, X-91
T-22		TRANSFORMER, T-22
		CONCRETE POWER POLE
EMH		EMH-INDICATES ELECTRIC MANHOLE
	-S-	SURFACE TYPE RACEWAY, NUMBER OF WIRES AS REQUIRED INCLUDING GROUND.
-E-		EXISTING RACEWAY
		RACEWAY, CONCEALED BELOW FINISHED FLOOR OR GRADE. NUMBER OF WIRES AS REQUIRED INCLUDING GROUND.
		EXPOSED RACEWAY
		COMMUNICATION CABLE IN INNERDUCT
	ATS	AUTOMATIC TRANSFER SWITCH
	ECB	ENCLOSED CIRCUIT BREAKER
	GFI	GROUND FAULT INTERRUPTER
	WP	WEATHERPROOF



NOTES:
1. STAINLESS STEEL ANCHOR BOLTS AND WASHER.

2 E-1 TRENCH SECTION
NOT TO SCALE

NOTES:
1. CONTRACTOR VERIFIED EXISTING WIRING (INCLUDING DC SUPPLY, AC SUPPLY AND CONTROLS) TO EQUIPMENT. ALL CIRCUITS AND TERMINATION POINTS WAS IDENTIFIED AND DATA ARE SUBMITTED TO THE CONTRACTING OFFICER BEFORE STARTING ANY WORK.
2. REFER TO PANEL SCHEDULES FOR NEW AC AND DC SUPPLY CIRCUITS. FOR CONTROL WIRING, REFER TO DWGS. E-3, E-4 & E-5.
3. REUSE EXISTING CONDUITS. SWAB CONDUITS BEFORE PULLING IN NEW CONDUCTORS.

AS-BUILT

GRAPHIC SCALE
20' 10' 0' 20' 40'
SCALE: 1"=20'-0"

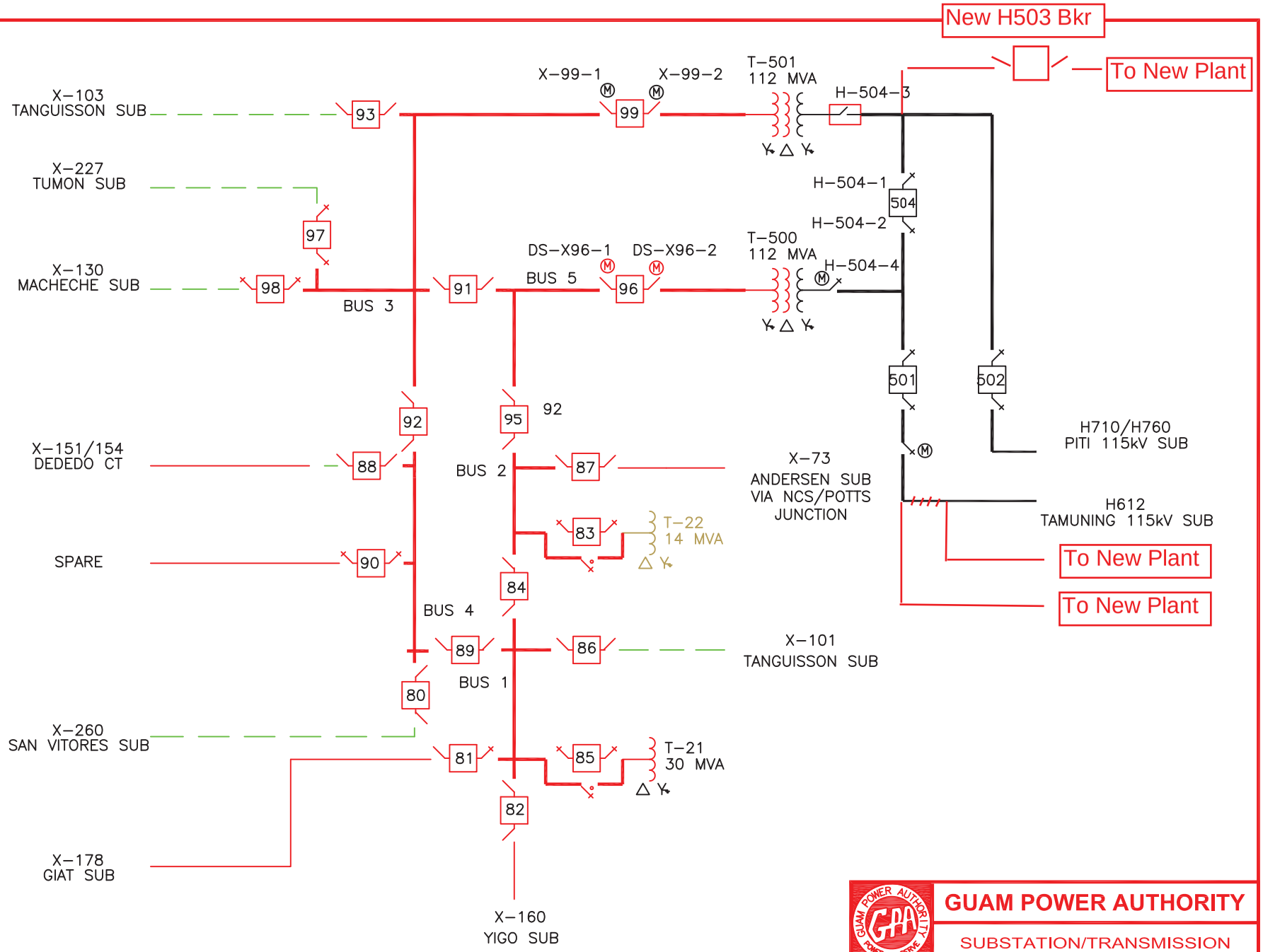
EXPIRATION (SEPT. 30, 2001)
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

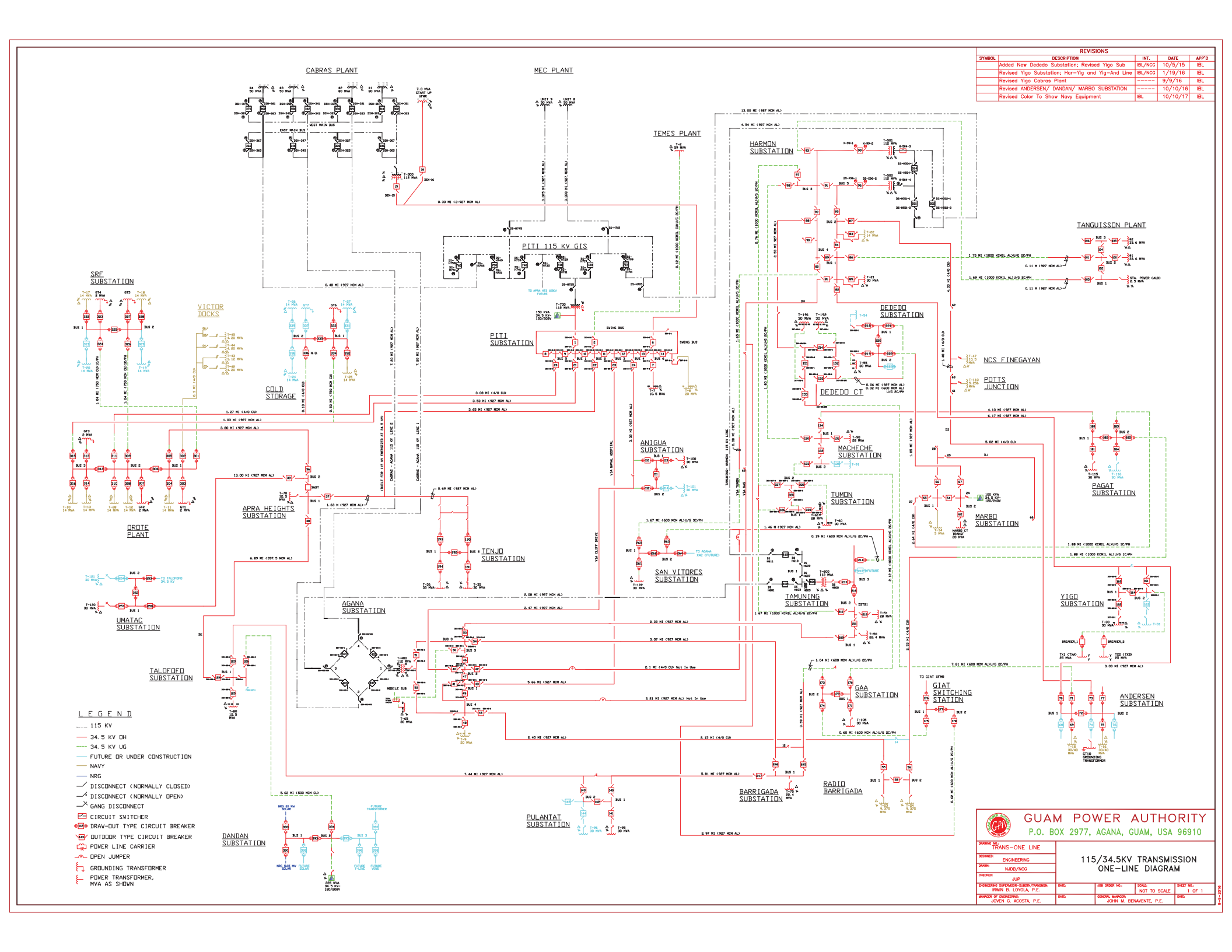
GUAM POWER AUTHORITY
P.O. BOX 2977, AGANA, GUAM USA 96910

DRAWING NO. GPA-185-6	HARMON SUBSTATION PROTECTION UPGRADE
DESIGNED AA	
DRAWN RS/FC	ELECTRICAL SITE PLAN AND SYMBOL LIST
CHECKED AA	
ENGINEERING SUPERVISOR-SUBSTATION AND TRANSMISSION / DATE	J.O. NO. / SCALE AS NOTED / SHEET 6 of 16
MANAGER OF ENGINEERING / DATE	GENERAL MANAGER / DATE

EMCE PROJECT No. 10-99-15
FINAL SUBMITTAL APR. 24, 2001

E-1


New H503 Bkr
To New Plant
X-103
TANGUISSON SUB
93
X-99-1
X-99-2
99
T-501
112 MVA
H-504-3
X-227
TUMON SUB
97
H-504-1
504
H-504-2
X-130
MACHECHE SUB
98
BUS 3
91
DS-X96-1
DS-X96-2
BUS 5
96
T-500
112 MVA
H-504-4
501
502
92
95
92
H710/H760
PITI 115kV SUB
X-151/154
DEDEDO CT
88
BUS 2
87
X-73
ANDERSEN SUB
VIA NCS/POTTS
JUNCTION
83
T-22
14 MVA
H612
TAMUNING 115kV SUB
SPARE
90
To New Plant
84
BUS 4
To New Plant
89
86
X-101
TANGUISSON SUB
BUS 1
80
X-260
SAN VITORES SUB
81
85
T-21
30 MVA
82
X-178
GIAT SUB
X-160
YIGO SUB
HARMON
SUBSTATION
GUAM POWER AUTHORITY
SUBSTATION/TRANSMISSION
SUBSTATION BREAKER TO BREAKER
REFERENCE DRAWING
HARMON SUBSTATION
DATE: 11/30/2017
DRAWN BY: MPO/NCG
CHECKED BY: IBL
APPROVED BY: JGA
SHEET NO. 14 OF 31



REVISIONS				
SYMBOL	DESCRIPTION	INT.	DATE	APP'D
	Added New Dededo Substation; Revised Yigo Sub	IBL/NCG	10/5/15	IBL
	Revised Yigo Substation; Har-Yig and Yig-And Line	IBL/NCG	1/19/16	IBL
	Revised Yigo Cabras Plant	------	9/9/16	IBL
	Revised ANDERSEN/ DANDAN/ MARBO SUBSTATION	------	10/10/16	IBL
	Revised Color To Show Navy Equipment	IBL	10/10/17	IBL

GUAM POWER AUTHORITY
P.O. BOX 2977, AGANA, GUAM, USA 96910

DRAWING NO.: TRANS-ONE LINE	115/34.5KV TRANSMISSION ONE-LINE DIAGRAM
DESIGNED: ENGINEERING	
DRAWN: NJDB/NCG	
CHECKED: JUP	
ENGINEERING SUPERVISOR-SUBSTN/RANGMSN: IRWIN B. LOYOLA, P.E.	DATE: / JOB ORDER NO.: / SCALE: NOT TO SCALE / SHEET NO.: 1 OF 1
MANAGER OF ENGINEERING: JOVEN G. ACOSTA, P.E.	DATE: / GENERAL MANAGER: JOHN M. BENAVENTE, P.E. / DATE:

9-6-2016