

Re-Bid For Multi-Step Bid

No. GPA-013-07

PERFORMANCE MANAGEMENT CONTRACT

FOR THE

**GUAM POWER AUTHORITY
CABRAS #1 AND #2 STEAM POWER PLANT**



Handwritten signature/initials

Handwritten signature of Joaquin C. Flores

**JOAQUIN C. FLORES, P.E.
General Manager**

APRIL 2009



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Volume I

Commercial Terms & Conditions

APRIL 2009



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1. Introduction

The Guam Power Authority (GPA), hereinafter referred to as GPA, is inviting Private Management Teams to participate in the re-bid of a Multi-Step Bid for a Performance Management Contractor (PMC), hereinafter referred to as PMC or CONTRACTOR, to manage, operate, and maintain the Cabras Steam Power Plant (Cabras Units #1 & #2).

The PMC shall be responsible for the following items:

- Management, Operation, and Maintenance of Cabras Units #1 & #2;
- Accomplishment of the Plant Performance Improvement Projects and Capital Improvement Projects;
- Engineering assessment and recommendations for overall plant improvements;
- Training (Classroom and OJT) and Supervision of Plant Staff;
- Review and updating as required of Plant Standard Operating Procedures
- Meeting Specified Performance Standard Objectives including but not limited to Heat Rate and Availability;
- Inventory control and management; and,
- Other Responsibilities and Duties as cited in the Invitation for Bid Documents.

This bid shall be a Two Step process. Step One will establish a Qualified Bidders List (QBL) based on acceptable submitted Proposals (or Unpriced Technical Offers). Step Two will evaluate the Priced Offers from the vendors identified on the QBL and award a contract. Step One is the period from IFB announcement through Notification of Qualified BIDDERS. Step Two is the period after completion of the Technical Proposal Evaluation and notification of the QBL to the contract award date.

GPA will qualify the BIDDERS based on their proposal and the Qualitative Scoring Workbook Sheet. The BIDDERS selected will be notified and GPA will proceed with the second step of the bid process to open the sealed proposal price offers. GPA will perform a comprehensive evaluation of each proposal and select the BIDDER with the best proposal based on the submitted Price Proposal Evaluation Workbook Sheet. If the selected vendor cannot proceed with the contract, GPA may elect to 1) go to the next best BIDDER or 2) cancel the BID.

Table 1 indicates the milestones for the Bid process. GPA reserves the right to change the Bid process schedule at its sole discretion.

Table 1: Bid Milestones

Bid Process	Milestone	From Date	To Date
	Bid Announcement	04/21/09	04/24/09
	Bid Documents Available	04/21/09	06/11/09
	Submit Questions	04/21/09	05/19/09
	Mandatory Pre-Bid Conference	05/06/09	05/06/09
	Mandatory Plant Tour	05/07/09	05/07/09
	Cut Off Date for Receipt of Questions	05/19/09	05/19/09
	GPA Review and Answer Questions	05/20/09	05/26/09
	Vendor Prepare Bids	05/08/09	06/10/09
	Plant Tour (Optional)	05/13/09	05/14/09
	Cut Off Date for Receipt of Bids/Bid Opening	06/11/09	06/11/09
Step One:	Technical Proposal (Bid) Evaluation	06/12/09	07/01/09
	Determine & Notify Qualified Bidders	07/02/09	07/02/09
Step Two:	Cut Off Date for Receipt/Opening of Price Proposal	07/13/09	07/13/09
	Evaluation of Price Proposal	07/14/09	07/15/09
	Evaluation Approval/Recommendation	07/16/09	07/24/09
	Contract Terms Negotiation	07/25/09	07/28/09
	Contract Approval & Award	07/29/09	09/19/09
	Contract Signing	09/30/09	09/30/09
	Transition Period/Contract Mobilization	09/30/09	10/30/09
	PMC Operational Commencement	10/30/09	10/30/09

1.1. Invitation for Bid (IFB) Document Organization

Invitation for Bid documents are organized into five separate volumes, as follows:

- Volume I — Commercial Terms and Conditions
- Volume II — Technical and Functional Requirements
- Volume III — Cabras Units #1 & #2 Plant Technical Description
- Volume IV — Proposal Scoring Mechanism
- Volume V — Appendices

In addition, the IFB documents include two sets of electronic spreadsheets (Microsoft Excel Workbooks):

- Qualitative Proposal Scoring.xls
- Price Proposal Evaluation.xls.

BIDDERS are reminded to submit the Price Proposal Evaluation Workbook in a separate sealed envelope marked "PRICE PROPOSAL" for Step Two of the IFB process.

1.2. Project Overview and Scope

This section describes the Performance Management Contract (CONTRACT) in general functional terms. Volume II, Technical and Functional Requirements, shall describe the contractual relationship between GPA and the PMC in greater detail.

The CONTRACT between the PMC and GPA shall be constructed as a Fixed Management Fee Contract, whereby the parties establish the mutually agreed contract and performance guarantees. In addition, the CONTRACT shall include provisions for operations and maintenance supplies and services and the inventory management and control of Cabras Units #1 & #2 material inventory.

1.2.1. GPA Overview

GPA is a public utility corporation that provides electric power service throughout the entire island of Guam. GPA, in conjunction with Private Partners, operates and maintains 13 power plants, with a total rated capacity of 552.4 MW. The authority also has installed and maintains an estimated combined total of 188 miles of 115 kV and 34.5 kV transmission lines and an estimated 495 miles of primary distribution lines, and 26 substations. In addition, the authority operates and maintains a total capacity of 18 MW for emergency generators to support 128 Guam Waterworks Authority water and sewage pump stations and sewage treatment facilities situated at various locations throughout the island and 10 portable units.

GPA is comprised of several departments or divisions, which include Executive/Administrative, Finance, Computer Services (ISD), Engineering, Strategic Planning and Operation Research Division, Procurement, Planning & Regulatory (Environmental), Safety, Human Resources, Customer Service, Facilities, Generation, Transmission & Distribution (T&D), and Transportation. Majority of the departments are located in a central office building, however T&D, Generation, and Transportation Offices and buildings are located throughout the island.

1.2.2. Plant (Cabras Units #1 & #2) Overview

The Cabras Units #1 & #2 generating plant is wholly owned by the Guam Power Authority and operated by the PMC - TEMES. GPA completed construction and commissioned Cabras Units #1 & #2 in 1973 and 1974 respectively. Both units are rated at a 66,000 kW gross output capacity.

A full description of the plant can be found in Volume III.

1.2.3. Plant (Cabras Units #1 & #2) Staff

GPA currently has a total of 50 filled and 1 vacant positions at the Cabras Units #1 & #2 plant, which includes an assistant plant superintendent, plant shift supervisors, plant maintenance supervisors, control board operators, operators (I / II / III), instrument technician, electrician, plant maintenance mechanics, and apprentices. Bid Proponents must provide the staff levels required to operate this plant as part of their bids.

An organizational chart can be found in Appendix H.

1.2.4. Scope of the Performance Management Contract

The PMC shall utilize best operation and maintenance practices, training, and management techniques to accomplish key performance indicators (KPIs) for Cabras Units #1 & #2 such as:

- Equivalent Availability Factor as defined by NERC/GADS Standards
- Equivalent Force Outage Rate as defined by NERC/GADS Standards
- Relative Heat Rate

In addition to the KPIs, the CONTRACT scope includes functional requirements that cover several key areas related to the operations and maintenance of the Cabras Units #1 & #2 Power Plant:

- Financing;
- Budget;
- Compensation Structure;
- Staffing;
- Training;
- Operations;
- Maintenance;
- Performance Improvement Projects;
- Operations and Maintenance of Goods and Services;
- Plant Engineering;
- Inventory Management and Control;
- Contract Terms;
- Communications and Reporting; and,
- Environmental Compliance.

1.3. IFB Document Media

The five-volume set of IFB documents and all Amendments to this IFB shall be made available to BIDDERS in electronic forms including:

- CD-ROM (inclusive of electronic spreadsheets);
- Downloadable files posted on the Internet at <http://www.guampowerauthority.com/procurement/index.html>

2. Instructions to Bidders

These instructions to bidders are intended to provide guidance in the preparation of bids and do not constitute part of the bid or of the contract document.

This is a multi-step bid procurement. In Step One, only the submitted Technical Proposals will be evaluated. In Step Two, the Price Offers based upon Technical Proposals that are determined to be acceptable, either initially or as a result of discussions, will be considered for award.

2.1. Correspondence

2.1.1. Language

The official language of Guam is English. The bid and all accompanying documents shall be in English.

2.1.2. Commercial and Technical Correspondence

Any prospective BIDDER desiring an explanation or interpretation of the solicitation, commercial terms, Technical Specification, etc., must make a request in writing to GPA at the address listed below, referencing the Invitation for Bid No.

ATTENTION: JOAQUIN C. FLORES
GENERAL MANAGER

GUAM POWER AUTHORITY
POST OFFICE BOX 2977
HAGATNA, GUAM 96932-2977

FAX: 1 (671) 648-3165

In addition, BIDDERS may also make this request by writing to the GPA PMC Procurement Officer at gpa-pmc-itb@gpagwa.com.

All inquiries must be received by Procurement no later than May 19, 2009. Oral explanations or instructions given will not be binding. Any information given to a prospective BIDDER concerning a solicitation will be furnished promptly to all parties recorded by Procurement as having received the Invitation for Bid as an amendment to the solicitation if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective BIDDERS.

2.2. Examination of Technical and Functional Requirements and Tender Documents

Before submitting their proposal, BIDDERS must familiarize themselves with the nature and extent of the work, duly noting any local conditions that may affect the work to be done and the labor, materials, and equipment required.

BIDDERS are also required to carefully examine all tender documents inclusive of all technical and functional requirements and to inform themselves of all conditions and requirements for the

execution of the proposed work in accordance with the laws and regulations of the Territory of Guam. Ignorance on the part of BIDDERS of any part of the tender documents and Technical and Functional Requirements will in no way relieve them of the obligations and responsibilities assumed under the contract.

2.3. Plant Tours

All prospective BIDDERS are required, at their own expense, to visit Guam and the Cabras Units #1 & #2 Power Plant site to study local conditions, facilities available, craft wages, roads, communications, and transport facilities available. BIDDERS should also acquaint themselves with the relevant laws, rules, and regulations of Guam.

For the purpose of familiarizing BIDDERS with the Cabras Units #1 & #2 Power Plant, GPA will schedule mandatory Plant Tour on May 07, 2009. Additional Plant Tours (optional) will also be scheduled on May 14, 2009. Arrangements for all tours shall be made by written correspondence with the GPA PMC Procurement Officer via facsimile or email.

2.4. Solicitation Amendment

Any amendment, modification or addendum issued by the Guam Power Authority, prior to the opening of the proposals, for the purpose of changing the intent of the Technical and Functional Requirements, clarifying the meaning or changing any of the provisions of this Invitation for Bid, shall be binding to the same extent as if written in the tender documents.

Any amendment issued will be made available to all BIDDERS via mail, fax, e-mail or posting to the GPA Website at <http://www.guampowerauthority.com/procurement/index.html>. The BIDDERS shall acknowledge receipt of the amendment by a signature on one copy, which is to be returned to the GPA Procurement Manager. Acknowledgement may also be made by fax or e-

2.5. Familiarity With Laws

The BIDDER shall be familiar with all Federal (U.S.) and local laws, ordinances, rules and regulations of Guam that in any manner affect the work. Ignorance of law on the part of the BIDDER will not relieve the BIDDER from responsibility.

2.6. Cost of Bidding

BIDDERS shall bear all costs associated with the preparation and submission of its proposal. GPA will not be responsible or liable for those costs, regardless of the outcome of the IFB process.

2.7. Basis of Price/Cost Data Furnished with Technical Proposals

The Vendors are required to submit their price offers as found in the MS EXCEL Workbook, Price Proposal Evaluation.xls with their technical proposals in a **separate sealed envelope marked "PRICE PROPOSAL" and indicating the date and time of bid package remittance**. The vendors are required as part of the data requirements to furnish a fixed management fee, an O&M

Spending Budget, and Equivalent Availability Factor (EAF) Performance Guarantees for each year of the contract as specified in the IFB documents.

2.8. Price/Cost Data

BIDDERS shall provide prices/costs in U.S. Dollars. The BIDDER shall provide any equipment and material prices on the basis of CIF to the Guam job site unloaded and shall provide a breakdown of the price/cost data.

The Price/Cost Data Sheet is contained in Appendix G and the MS EXCEL Workbook found in the CD #1.

2.9. Documents Executed Outside Guam

The Power of Attorney, performance bond guarantee, and documents defining the constitution of the joint venture, consortium, company or firm, if executed outside Guam, whether required to be submitted with the proposals or after the award of the contract, must be authenticated by a Notary Public or other official authorized to witness sworn statements. For those electing to use the Electronic Proposal Submittal Process, receipt of an electronic copy of these documents will suffice to meet the submittal deadline. However, the original must be sent to GPA and post-marked no later than the proposal due day.

2.10. Step One Procedures

The following outlines the requirements for technical (non-price) proposal submittals.

2.10.1. Submission of Bids

2.10.1.1. Proposal Contents

Each Proposal shall contain a complete and clear description of the proposed fixed management fees, BIDDER management organization allocated for the CONTRACT, technologies, methodologies, key performance indicator guarantees and all resources at its disposal that the BIDDER will use to meet all functional requirements as set forth in the tender documents. Each proposal shall include the following:

- Cover and proposal checklist forms defined in Appendix A;
- Responses and supporting information to the questions raised in the Qualitative Scoring Workbook;
- Completed electronic copy of the **Proposal Evaluation Workbook in a separate sealed envelope marked "PRICE PROPOSAL"**; and,
- Supplementary information described below.

Each proposal shall be submitted in the format and quantities outlined elsewhere.

2.10.1.2. Responses and Supporting Information to Qualitative Questions

The BIDDER shall provide all responses and supporting information in writing to answer the questions raised in the Qualitative Scoring Workbook.

2.10.1.3. Electronic Copies of the Proposal Scoring Workbook

BIDDERS shall complete and submit one electronic copy each of the Qualitative Scoring Workbook and the Price Proposal Evaluation Workbook in **separate sealed envelopes**.

2.10.1.4. Supplementary Information

Each BIDDER shall submit with their proposal all the supplementary information required by the tender documents. The information submitted must be in sufficient detail and clarity to permit a complete comparison of the proposal with the Technical Specifications. The supplementary information included with each Proposal shall include the following:

1. A sufficient number of drawings, diagrams, catalogs, illustrations, and such other information as necessary to clearly support responses to the Qualitative requirements.
2. A PMC organization chart with the qualifications of each key project position category, plus a listing of the number of employees by category and their percent commitment on the CONTRACT for each calendar year over the lifetime of the contract. Categories shall include project management, engineering, analysis, programming, training, and field support.
3. Three or more client references and project description summaries for work performed under similar scope to this project.

Submittal of the following supplementary information is mandatory. **GPA shall automatically disqualify any proposal submitted without the supplementary information listed below:**

4. A copy of the BIDDER's Articles of Incorporation or other applicable forms concerning business organization (i.e. partnership, sole proprietorship, etc.) and By-Laws;
5. Affidavit of Disclosure of Major Shareholder (Appendix D);
6. Audited financial information on BIDDER's firm and all subcontractors that will be used in the performance management of Cabras Units #1 & #2 Power Plant. This information shall be complete for the last five-years. BIDDERS must include their Dunn and Bradstreet Number or Other Major Credit Rating Agency rating.
7. Certificate of Good Standing to conduct business in jurisdiction of residence;
8. Non-collusion Affidavit (Appendix E);
9. Information regarding outstanding claims against the BIDDER, if any; and,
10. Bid Bond (Appendix J)

11. Current Guam Business License (applicable to this multi-step IFB and other additional requirements) shall be submitted at the time of bid closing.

2.10.2. Proposal Submittal

2.10.2.1. Manual And Electronic Options For Proposal Submittal

BIDDERS shall execute the submittal of their proposals using one and only one of the following procedures:

- Manual;
- Electronic.

Each prospective BIDDER will be given an ftp account and password on the <http://www.guampowerauthority.com/procurement/index.html> domain and up to 50 MB of storage space on the server hosting that domain. If the BIDDER elects to submit his proposal electronically, he may do so by uploading his proposal via ftp in an acceptable electronic format.

2.10.2.2. Non-repudiation Issues

GPA has structured both its Manual and Electronic IFB submittal procedures to ensure non-repudiation of the submitted proposals. In this IFB, non-repudiation is strong and substantial evidence of the identity of the sender and owner of the proposal and of proposal's integrity in so far as it being unaltered from its original sent state, sufficient to prevent a party from successfully denying the origin, submission or delivery of the proposal and the integrity of its contents. Non-repudiation applies to both parties to this IFB transaction. It binds the sender as well as precludes the recipient from denying the exchange of information and material upon the receipt of secure acknowledgement from the recipient.

GPA and the BIDDER shall manage the Manual IFB Submittal Process to address non-repudiation, security and confidentiality inclusive but not limited to the following:

- Manually executed signatures and printed media documents;
- Chain of custody receipts;
- Manual time-stamps for receipt of IFB materials;
- Machine generated Fax confirmation reports;
- Secure notification e-mail;
- Electronic Postings on the [guampowerauthority.com](http://www.guampowerauthority.com) domain;
- Physical delivery of printed material proposals;
- Physically secured area storage of IFB materials.

2.10.2.3. Signature of BIDDER

A duly authorized person must sign the BIDDER's proposals. All names shall be typed or printed below the signature. A proposal submitted by a corporation must bear the seal of the corporation, be attested to by its Secretary, and be accompanied by necessary Power-of-Attorney documentation.

Associated companies or joint ventures shall jointly designate one Power-of-Attorney person authorized to obligate all the companies of the association or joint venture. A proposal submitted by a joint venture must be accompanied by the document of formation of the joint venture, duly registered and authenticated by a Notary Public, in which is defined precisely the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it, the participation of the several firms forming the joint venture, the principal member of the joint venture, and address for correspondence for the joint venture. BIDDERS are advised that the joint venture agreement must include a clause stating that the members of the joint venture are severally and jointly bound.

Wherever a legal signature is required, receipt of an electronic signature will suffice to meet the submittal deadline for those electing to use the Electronic Proposal Submittal process. The original signed documents must be reproduced electronically and be placed in the submitted compressed archive file. However, the original documents must be sent to GPA via post or courier and post-marked no later than the bid-opening date. In addition, GPA receipt and acceptance of an electronic scanned copy of Notarized documents in Adobe Acrobat PDF with the compressed archive submitted prior to the opening of bids as meeting the proposal deadline. However, the original documents must be sent to GPA via post or courier and post-marked no later than the bid-opening date.

2.10.2.4. Manual Proposal Submittal Package Format And Handling

This section describes the proposal package format and content required by GPA that is specific to manual submittal of proposals. The Manual IFB Proposal Submittal Process is characterized by a preponderance of the submitted material in tangible printed media form that is hand-delivered by an authorized agent of the BIDDER to an authorized agent of the Guam Power Authority. Both the BIDDERS and GPA agents are live human beings. In addition, both parties perform non-repudiation of the proposal through the execution of manually executed signatures, seals and time stamps.

BIDDERS are required to submit one original and six (6) bound copies of their proposal including one completed electronic copy on one disk of the Qualitative Scoring Workbook and another on another disk of the Price Proposal Evaluation Workbook. The BIDDERS are advised to keep a copy of the completed Workbooks and test the electronic copy on disk prior to sending it off to GPA.

2.10.2.5. Marking and Packaging of Proposals

As a general rule, the manually submitted Proposals shall be submitted in separate sealed packages with the following information clearly marked on the outside of each side:

- 1) "TECHNICAL (UNPRICED) PROPOSAL" OR "PRICE PROPOSAL"
- 2) "PERFORMANCE MANAGEMENT CONTRACT CABRAS UNITS #1 & #2";
- 3) The BIDDER's Name;
- 4) INVITATION FOR BID NUMBER;
- 5) CLOSING DATE and TIME (Guam Standard Time).
- 6) Addressed As follows:

ATTENTION:

JOAQUIN C. FLORES
GENERAL MANAGER
GUAM POWER AUTHORITY
POST OFFICE BOX 2977
HAGATNA, GUAM 96932-2977

If the BIDDER's Proposal cannot fit within one box or chooses to submit more than one box, each box must be labeled with the following:

- i. Box Number Within the Set of Submitted Boxes
- ii. The Total Number of Boxes Submitted.

2.10.2.6. Receipt and Handling of Manually Submitted Proposals

Upon receipt, each Proposal submittal package will be time-stamped. The only acceptable evidence to establish the time of receipt at the GPA is the date/time stamp of the Guam Power Authority's procurement office on the wrapper or other documentary evidence of receipt maintained by GPA. Proposals will be stored in a secure place until the date and time set for proposal opening.

GPA procurement personnel and the BIDDERS must ensure that the outside of the sealed package is stamped received using the GPA Procurement Stamp. In addition, GPA procurement personnel must officially log the time and date that the BIDDER's sealed proposal package has been received.

2.10.2.7. Electronic Proposal Submittal Package Format and Handling

This section describes the proposal package format and content required by GPA that is specific to electronic submittal of proposals. The Electronic IFB Proposal Submittal Process is characterized by a preponderance of the submitted material in intangible electronic form that is delivered by an electronic agent of the BIDDER to an authorized electronic agent of the Guam Power Authority. The electronic agents are machines.

GPA and the BIDDER shall manage the Electronic IFB Submittal Process to address non-repudiation, security and confidentiality using the following:

- Manually executed signatures and printed media documents;
- Digital Signatures and certificates;
- Chain of custody receipts;
- Manual time-stamps for all printed documents received by GPA;
- Machine generated Fax confirmation reports;
- Secure notification e-mail;
- E-mail receipt notification;
- Electronic Postings on the guampowerauthority.com domain;
- Password protected and encrypted electronic files;
- Electronic delivery of IFB proposals to a disclosed, secured electronic ftp folder;

- Physically and electronically secured computers for storage of IFB materials.

GPA makes no warranties on these processes manual or electronic.

2.10.2.8. Electronic Proposal Submittal Package Format and Handling

The BIDDER must submit his entire proposal by performing the following:

- Creating a password protected, single compressed archive of his proposal using PKWARE's PKZIP 4.5 using a digital signature
- By uploading this archived entire proposal to his assigned account.

The digital signature must have the same force of law as that of signature of a person duly authorized to commit the BIDDER to its proposal. By its use of this digital signature, the BIDDER commits itself to its proposal and signifies that it has been delivered to GPA whole, complete and unaltered.

The BIDDER shall send the password to only the following authorized GPA persons via e-mail:

The GPA Procurement Officer at gpa-pmc-ifb@gpagwa.com.

The BIDDER shall send this password prior to June 11, 2009, Guam Standard Time. In addition, the BIDDER shall send directions on how to retrieve the protected files from the archive, and an assurance that the BIDDER has tested the archive files.

2.10.3. Technical Proposal Submission Date

The Technical Proposal opening date and time is June 11, 2009, 2:00 p.m. Guam standard time. This opening time and date is also referred to as the Proposal submittal deadline or submittal date. Technical Proposals shall not be accepted after the proposal opening date.

2.10.4. Proposal Changes During Bid Process

Changes may be made to the Technical Proposal(s) prior to the proposal submittal due date.

2.10.5. Evaluation of Technical Proposals

After the Close of the Technical Proposal submission date, GPA will evaluate the Proposals.

GPA will use the score from the Qualitative Scoring Workbook to evaluate the contents of Proposals and categorize the Proposals as:

- a. acceptable;
- b. potentially acceptable, that is reasonable susceptible of being made acceptable; or

- c. unacceptable. The Procurement Officer shall record in writing the basis for finding an offer unacceptable and make it part of the procurement file.

The Procurement Officer may initiate Step Two if there are sufficient acceptable Unpriced Technical Proposals to assure effective price competition in the second phase without technical discussions. If the Procurement Officer finds that such is not the case, the Procurement Officer shall issue an amendment to this Invitation for Bid or engage in technical discussions with BIDDERS as set forth below.

The Procurement Officer may conduct discussions with any bidder who submits an acceptable or potentially acceptable technical Offer. During the course of such discussions, the Procurement officer shall not disclose any information derived from one Unpriced Technical Proposal to any other BIDDER. Once discussions are begun, any BIDDER, who has not been notified that its Offer has been finally found acceptable, may submit supplemental information amending its technical Offer at any time. Such submission may be made at the request of the Procurement Officer or upon the BIDDER's own initiative.

2.10.5.1. Discussions of Proposals

GPA may conduct discussions with any BIDDER to determine such BIDDERS qualifications for further consideration and explore with the BIDDER the scope and nature of the required services, method of performance and the relative utility of alternative methods of approach. During the course of such discussions, the Procurement Officer shall not disclose any information derived from a technical offer to any other BIDDER.

Each BIDDER is requested not to contact GPA on any matter relating to its proposal, from the time of submission of the Proposals to the time the contract is awarded, except to respond to inquiries by GPA.

2.10.5.2. Notice of Unacceptable Proposal

A notice of unacceptability will be forwarded to the BIDDER upon completion of the Technical Proposal evaluation and final determination of unacceptability. When the Procurement Officer determines a BIDDER's unpriced technical offer to be unacceptable, such BIDDER shall not be afforded an additional opportunity to supplement its technical offer.

2.11. Step Two Procedures.

Upon completion of evaluation of Technical Proposals, qualified bidders will be notified and GPA will proceed with the Step Two of the multi-step bid.

2.11.1. Request for Price Proposal/Offer and Performance Guarantees

Each selected BIDDER from the Qualified Bidders list will be notified and GPA will open their submitted Price Offer in the MS EXCEL workbook Priced Proposal Evaluation.xls. GPA will select a vendor based on a comprehensive evaluation of the price offer and performance guarantees as specified in Volume IV.

2.11.1.1. Proposal Changes During Bid Process

Changes may be made to the Price Offer prior to the proposal submittal due date.

2.11.1.2. Proposal Validity

All price/cost data submitted with the BIDDERS' proposals shall remain firm and open for acceptance for a period of not less than six (6) months after the Proposal submittal date defined elsewhere and thereafter shall be subject to renewal by mutual agreement between the BIDDER and GPA. BIDDER shall state the actual date of expiration in their proposal.

2.11.2. Preliminary Examination of Priced Offer

GPA will examine the Priced Offer on the opening date to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Priced Offers are generally in order.

Arithmetical errors will be rectified on the following basis. If there is discrepancy between the unit price and the total price, including any discounts, that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the error, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.

Evaluation Criteria and Comparison of Priced Offers

GPA will evaluate and compare the Priced Offers for Bidder's Technical Proposals that were determined during Step One to be responsive to the tender document requirements. GPA's comparison of price offers shall compare Fixed Management Fees, O&M Spending Budget and performance guarantees. The Scoring Mechanism is further explained in Volume IV.

2.12. General Proposal Guidelines And Requirements

2.12.1. Amendments to the Tender Document

GPA may elect to change the IFB documents in whole or part. GPA shall send all Amendments to the IFB documents via fax and/or e-mail. In addition, GPA will make all Amendments available on the Internet at <http://www.guampowerauthority.com/procurement/index.html>.

2.12.2. Proprietary Data

For the purposes of this solicitation and submitted proposals, the laws, rules and regulations of Territory of Guam governing confidentiality shall govern. BIDDERS may designate those portions of the Proposal that contain trade secrets or other proprietary data that are to remain confidential.

The Procurement Officer shall examine the proposals to determine the validity of any request for nondisclosure of trade secrets and other proprietary data identified in writing. If the BIDDER and GPA do not agree as to the disclosure of data, the Procurement Officer shall inform the BIDDER

in writing and in e-mail within five working days of the closing date for Proposal submittal what portions of the Proposal will be disclosed and that, unless the BIDDER protests under the Conditions of Contract Disputes clause the information will be so disclosed. The proposal shall be opened to public inspection subject to any continuing prohibition of the disclosure of confidential data.

2.12.3. Acceptance of Proposals

GPA reserves the right to reject any or all proposals and to waive minor informalities if it appears in GPA's best interest to do so.

Any effort by a BIDDER to influence GPA in the proposal evaluation, proposal comparison or contract award decisions may result in the rejection of the proposal. Once GPA has arrived at a decision regarding the award of the contract, it will notify promptly the successful BIDDER in writing.

2.12.4. Solicitation Cancellation or Delay

The Guam Power Authority reserves the right to delay award or to cancel the Invitation for Bid, or to reject all proposals or any individual proposal in whole or in part, at any time prior to the final award. When a solicitation is canceled or rejected prior to final award, notice of cancellation or rejection shall be sent to all BIDDERS and all proposal materials will be promptly returned. The reasons for cancellation or rejection shall be made a part of the procurement file that is available for public inspection. After opening, but prior to award, all proposals may be rejected in whole or in part when the Procurement Officer determines that such action is in the Territory's best interest for reasons including but not limited to:

- a) The supplies and services being provided are no longer required;
- b) The solicitation did not provide consideration of other factors of significance to the Territory;
- c) All otherwise acceptable proposals received have clearly unreasonable price/cost data;
- d) There is reason to believe that the proposals may not have been independently arrived at in open competition, may have been collusive and may have been submitted in bad faith;

Any individual proposal may be rejected in whole or in part when in the best interest of the Territory.

2.12.5. Disqualification of BIDDER

When, for any reason, collusion or other anticompetitive practices are suspected among BIDDERS or offerors, a notice of the relevant facts shall be transmitted to the Guam Attorney General. BIDDERS suspected of collusion or other anticompetitive practices may be suspended or debarred from participating in future procurement opportunities for a specified period.

2.12.6. False Statements In Proposal

BIDDERS must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in any proposal or bid is prescribed in 18 U.S.C. 1001 and Title 9, Guam Code Annotated. Note, by use of a digital signature to sign the proposal, the BIDDER agrees that this act legally binds the BIDDER to his proposal.

2.13. Award of Contract

The contract will be awarded to the BIDDER evaluated as being qualified and with the best-priced proposal.

The successful BIDDER will be notified in writing (letter or e-mail or fax) of the intent to award the contract, and will be required to send to Guam, within ten (10) days of the date of receipt of such notice, a representative or representatives with proper Power-of-Attorney for the purpose of executing a contract with such alterations or additions thereto as may be required to adopt such contract to the circumstances of the proposal.

The successful BIDDER shall provide the required Performance Bond within ten (10) working days of receipt of the GPA Notice of Intent to Award.

Failure on the part of the successful BIDDER to provide a Performance Bond and/or to enter into a contract with GPA shall be sufficient grounds for the annulment of the award. The negotiations resumed with the next most qualified BIDDER.

2.14. Bid and Performance Bond Requirements

2.14.1 Performance Bond Form, Amount and Duration

The performance bond shall be in the form as prescribed in Appendix B. At the beginning of the CONTRACT and at the beginning of each GPA Fiscal Year during which the CONTRACT is in effect, the PMC shall provide and maintain a performance bond in the amount equal to:

- (1) the Annual Fixed Management Fee

for that full or partial fiscal year within the term of the contract. If the PMC is declared by GPA to be in default under the CONTRACT, GPA may exercise any or all rights and remedies it possesses under the provisions of the performance bond.

The GPA Fiscal Year begins on October 1 and ends on September 30 of the following calendar year.

2.14.2. Requirement for Performance Bond Execution by a Guam Licensed Surety Company

The PMC shall provide a Performance Bond executed by a surety company licensed to do business on Guam. A list of surety companies licensed to do business on Guam is provided in Appendix C.

2.14.3. Bid Bond Form and Amount

A bid bond for an amount of \$150,000.00 (USD) is required and may be in the following form:

- a. Cash, Bank Draft or Certified Check made payable to the Guam Power Authority;
- b. By wire transfer to Guam Power Authority (Account Name - Guam Power Authority Revenue Account), Account No. 0601-007247, Routing No. 121405115, Bank of Guam, P. O. Box BW, Hagatna, Guam 96932
- c. Letter of Credit;
- d. Surety Bond -- valid if accompanied by:
 - (1) Current Certificate of Authority to do business on Guam issued by the Department of Revenue and Taxation;
 - (2) Power of Attorney issued by the Surety to the Resident General Agent
 - (3) Power of Attorney issued by two (2) major officers of the Surety to whoever is signing on their behalf.

Bonds, submitted as Bid Guarantee, without signatures and supporting documents are invalid and bids will be rejected.

If a BIDDER desires to submit a bid bond with an acceptable bonding company, the BIDDER must submit original copies of Appendix J.

3. Proposal Forms

This Section describes the forms required for submission of the Proposal.

The following forms in Appendices A, D, E, and K and MS EXCEL Workbooks must be completed:

- a) Appendix A, Proposal Checklists
- b) Appendix B, Performance Bond
- c) Appendix C, List of Surety Companies Licensed To Do Business In Guam
- d) Appendix D, Major Shareholders Disclosure Affidavit
- e) Appendix E, Non-collusion Affidavit
- f) Appendix F, Performance Guarantees
- g) Appendix G, Incentive & Penalty Assessments
- h) Appendix H, Cabras Units #1 & #2 Organization Chart
- i) Appendix I, Fuel Specifications
- j) Appendix J, Bid Bond Form and Instructions
- k) Appendix K, Local Procurement Preference Application
- l) Qualitative Proposal Scoring.xls
- m) Price Proposal Evaluation.xls

These Forms and Workbooks will be available in electronic format in the CD-ROM provided to BIDDERS and on the web site <http://www.guampowerauthority.com/procurement/index.html>.

3.1. Technical Proposal Forms

The following referenced forms are contained in Appendix A, Appendix D, Appendix E, and Appendix K shall be completed and submitted with the Proposal.

3.1.1. Document Receipt Checklist

The BIDDER shall complete Form A-1 by initialing the Invitation For Bid Documents received from Guam Power Authority, including the latest IFB Amendment received. This Form is an acknowledgement of receipt, review and understanding of the IFB documents.

3.1.2. Proposal Submittal Checklist

The BIDDER shall complete Form A-2. This Form provides an inventory of documents submitted by the BIDDER in response to the Proposal requirements.

3.1.3. Major Shareholders Disclosure Affidavit

The BIDDER shall fill out the Major Shareholders Disclosure Affidavit form in Appendix D and submit it with its Proposal.

3.1.4. Non-collusion Affidavit

The BIDDER shall fill out the Non-collusion Affidavit form in Appendix E and submit it with its Proposal.

3.1.5. Local Procurement Preference Application

The BIDDER shall fill out and sign the Local Procurement Preference Application in Appendix K and submit it with its Proposal.

3.2. Price Proposal Form

3.2.1. Annual Fixed Management Fee Price and O&M Spending/Cost Data Sheet

The qualified BIDDERS shall complete the Annual Fixed Management Fee Price and O&M Spending/Cost Data Sheet contained in the MS EXCEL Workbook Price Proposal Evaluation.xls. This workbook outlines the BIDDER's Annual Fixed Management Fee, O&M Spending proposal and performance guarantees.

Qualified BIDDERS shall propose a Fixed Management Fee and an O&M budget based on the object codes as specified in the form for each contract year.

3.2.2. Performance Guarantee Proposal

The BIDDER shall complete the Performance Guarantee Proposal contained in the same workbook above. This workbook outlines the BIDDER's minimum performance guarantees.

4. Conditions of Contract

4.1. Definitions

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

4.1.1. Approved

The word "Approved," when applied by ENGINEER to CONTRACTOR's drawings or documents, shall mean that the drawings or documents are satisfactory from the standpoint of interfacing with GPA-furnished components, and/or that ENGINEER has not observed any statement or feature that appears to deviate from the Specification requirements.

4.1.2. Approved As Revised

The words "Approved As Revised," when applied by ENGINEER to CONTRACTOR's drawings or documents shall mean that the drawings or documents are approved as defined above, except that the corrections shown are required for the proper interfacing with GPA-furnished components or are necessary to be in conformance with the Specification's requirements.

4.1.3. Change Order

A written instrument to CONTRACTOR signed by GPA authorizing an addition, deletion, or revision in the goods or special services, or an adjustment in the purchase order price or the delivery time, issued after the effective date of the Contract Agreement (Agreement).

4.1.4. Seller

The CONTRACTOR

4.1.5. Day

A calendar day of twenty-four (24) hours measured from midnight to the next midnight

4.1.6. Delivery Time

The total number of days or the dates stated in the Agreement for furnishing the Goods and/or Special Services

4.1.7. Defective

An adjective which when modifying the words Goods or Special Services refers to Goods or Special Services which are unsatisfactory, faulty, deficient, do not conform to the Contract Documents, or do not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents.

4.1.8. Drawings

Drawings are all official drawings approved by the ENGINEER and showing the character and scope of the Goods to be furnished.

4.1.9. Effective Date of the Contract Agreement

The date indicated in the Purchase Agreement on which it becomes effective, or if no such date is indicated, the date by which the Purchase Contract is signed by both parties.

4.1.10. ENGINEER

Wherever the words "ENGINEER" or "ENGINEERS" appear in the CONTRACT Documents, it shall mean GPA's engineer duly appointed as "ENGINEER". GPA shall assign several ENGINEERS as required to cover specialized areas of expertise.

4.1.11. ENGINEER's Instructions

Written instructions issued by ENGINEER which clarify or interpret the CONTRACT Documents or order minor changes or alterations in the Goods or Special Services to be furnished but which do not involve a change in the Purchase Price or the Delivery Time.

4.1.12. General Manager

The General Manager is the Chief Executive Officer of the Guam Power Authority. The office and title of General Manager shall apply to any person acting in a regular or in an acting capacity as the Chief Executive Officer of the Guam Power Authority.

4.1.13. Goods

All property required to be furnished by CONTRACTOR under the procurement documents.

4.1.14. Modification

A written amendment of the Purchase Agreement signed by both parties, or Change Order, or ENGINEER's Instructions.

4.1.15. OWNER

The Guam Power Authority (An autonomous instrumentality of the Government of Guam).

4.1.16. Point of Delivery

The place at which property in the goods shall pass to GPA shall be CIF landed at job-site, Guam, unloaded.

4.1.17. Project

The plant, facilities, or works the Goods and Services are to be used for or incorporated into.

4.1.18. PURCHASER

The Guam Power Authority with whom CONTRACTOR has entered into the Contract Agreement.

4.1.19. Contract Agreement (Agreement)

The written agreement between GPA and CONTRACTOR covering the furnishing of the Goods, Special Services, and other services in connection therewith evidencing what is contemplated and agreed to between the parties including any other Contract Documents either attached to the Agreement or made a part thereof by reference therein.

4.1.20. Contract Documents

The Contract Agreement, Bonds (where required), these General Conditions, any Supplementary Conditions, the Specifications, the Drawings and any other documents specifically identified in the Contract Agreement, together with all Modifications issued after execution of the Contract Agreement.

4.1.21. Procurement Officer

The General Manager of the Guam Power Authority or the General Manager's designee.

4.1.22. CONTRACTOR

The PMC with whom GPA has entered into the Contract Agreement.

4.1.23. SITE or Site

The SITE is the area where the Project is to be constructed or executed. In this case, the SITE is the Cabras Units #1 & #2 Power Plant as delineated in Volume II Technical and Functional Requirements and Volume III Cabras Units #1 & #2 Plant Technical Description.

4.1.24. Special Services

Services to be furnished by CONTRACTOR at the Cabras Units #1 & #2 Power Plant as required by the Contract Agreement.

4.1.25. Territory

The Territory of Guam.

4.2. Agreement

Prior to entering into a formal agreement, GPA and CONTRACTOR shall resolve and document any differences between the CONTRACTOR's proposal and the tender documents.

The Agreement between GPA and CONTRACTOR shall consist of the tender documents, as resolved by the CONTRACTOR's final negotiated Proposal and by GPA amendments, and the CONTRACTOR's proposal, as adjusted by a prioritized list of documents generated during the evaluation and negotiation processes and agreed to and acknowledged in writing by both parties. These documents may consist of, but are not limited to, written answers to questions, letters, and written clarifications to the proposal.

Any formal contract document shall reference GPA tender documents and the CONTRACTOR's proposal. No oral understanding or statement shall modify the Agreement. Changes to the above documents can only be made in accordance with the procedure for modifications as defined in **Section 4.15 Changes**.

The resolved tender documents shall take priority over and shall govern in all cases of conflict with the adjusted proposal. The CONTRACTOR's contractual obligation shall be to fulfill all requirements of the tender documents, as resolved, and to provide all features of the CONTRACTOR's proposal, as adjusted.

The tender documents are intended to be complementary, what is called for by one shall be as binding as if called for by all. If not otherwise specified in the tender documents, these General Conditions shall apply. If, during performance of the Agreement CONTRACTOR detects a discrepancy in the tender documents, CONTRACTOR shall so report to ENGINEER in writing at once and shall obtain a written interpretation or clarification from ENGINEER before proceeding further; however, CONTRACTOR shall not be liable to GPA for failure to report any conflict, error, or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

All materials, equipment, and services that may reasonably be inferred from the tender documents, as being required to produce the intended result will be supplied whether or not specifically called for. When words that have a well-known technical or trade meaning are used to describe materials, equipment, or services, such words will be interpreted in accordance with such meaning. Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the code of any Governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, or code in effect on the effective date of the Agreement except as may be otherwise specifically stated in the Specification or Agreement. ENGINEER as provided in **Section 4.1.11 ENGINEER's Instructions** shall issue clarifications and interpretations of the tender documents.

4.3. Indemnity

CONTRACTOR shall indemnify and hold GPA and ENGINEER harmless from any claim, liability or product liability, loss, damage, demand, cause of action or suit, expense, or fee of legal counsel arising out of or in connection with the Goods or Special Services provided by the CONTRACTOR.

4.4. Shipment, Delivery, and Acceptance of Goods

Shipment and delivery of the Goods shall be in accordance with this Paragraph except as otherwise provided or specified in the CONTRACT Documents.

All goods will be delivered at the point of delivery set forth in the Purchase Contract. CONTRACTOR shall select the means and methods of transportation. All charges necessary to effect shipment to the point of delivery, including but not limited to export packing, switching, trucking, lighter age, and special handling will be paid by CONTRACTOR.

GPA and/or ENGINEER reserve the right to inspect the Goods upon delivery for the purpose of identifying the Goods and general verification of quantities.

4.5. Accounting

For accounting purposes and for use in establishing property records, GPA may require CONTRACTOR to provide a reasonable price breakdown of the total price into separate prices applying to the individual items supplied under the Agreement.

Where the Agreement covers the reimbursement of the traveling or living expenses of the CONTRACTOR's employees or agents, the CONTRACTOR agrees to furnish complete itemization and breakdowns of such expenses when requested by GPA.

In the event of any changes to or termination of the Agreement, or the furnishing of goods or services on a labor hour or a cost reimbursable basis, CONTRACTOR shall supply information in such detail as may be reasonably required by GPA to support all applicable charges. GPA, or an independent auditor designated by GPA, shall have the right to audit, during normal working hours, CONTRACTOR's accounts and records relating to such charges. The expense of such audit will be borne by GPA.

4.6. Waiver of Claims

The making and acceptance of final payment will constitute:

A waiver of all claims by GPA against CONTRACTOR, except claims arising from unsettled liens, claims relative to defective Goods or special services appearing after final payment, or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; nor will final payment constitute a waiver by GPA of any rights in respect of CONTRACTOR's continuing obligations under the Procurement Documents; and

A waiver of all claims by CONTRACTOR against GPA other than those previously made in writing and still unsettled.

4.7. Supervision and Coordination by CONTRACTOR

CONTRACTOR shall competently and efficiently manage, supervise, and direct production of the Goods and furnishing of Special Services and coordinate all operations required to deliver the Goods and furnish any required Special Services.

CONTRACTOR shall designate, in writing to GPA, a person with authority to act on behalf of CONTRACTOR with respect to CONTRACTOR's obligations under the CONTRACT

Documents, and all communications given to or received from that person will be binding on CONTRACTOR.

CONTRACTOR shall perform all such activities as an independent contractor and not as an agent of GPA. When others furnish materials and equipment for assembly by the CONTRACTOR, CONTRACTOR shall receive, unload, store, and handle it and become responsible therefore as though CONTRACTOR was furnishing such materials and/or equipment under the Agreement.

4.8. Substitutions

If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof certifying that the proposed substitute will perform adequately the function as called for by the general design, be similar and of equal substance to that specified, and be suited to the same use and capable of performing the same function as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's warranty or timely delivery of the Goods, whether or not acceptance of the substitute will require a change in any of the Contract Documents to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the production of the Goods is subject to payment of any license fee or royalty.

All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair, and replacement service will be indicated. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense such additional data about the proposed substitute as is required by ENGINEER. GPA may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

4.9. Documentation and Drawings

The Agreement will not be deemed satisfactorily completed until all requirements have been complied with including, but not limited to, proper material documentation, final drawings and reproductions, and other requirements stated in the Contract Documents. GPA may withhold final payment hereunder, pending completion of all such requirements by the CONTRACTOR.

At the time of each submission, CONTRACTOR shall in writing call ENGINEER's attention to any deviations that the drawings or documents may have from the requirements of the Specification or Contract Documents. CONTRACTOR shall also direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals. CONTRACTOR's submission of any drawing or document bearing CONTRACTOR's approval shall constitute a representation to GPA and ENGINEER that CONTRACTOR assumes full responsibility for having determined and verified the design criteria, quantities, dimensions, installation requirements, materials, catalog numbers, and similar data and that CONTRACTOR has reviewed or coordinated each drawing or document with the requirements of the Contract Documents.

ENGINEER's review and approval of CONTRACTOR's drawings or documents will be only for conformance with the design concept of the Goods and for compliance with the information given

in the Contract Documents. Such review and approval will not extend to design data reflected in drawings or documents that is peculiarly within the special expertise of CONTRACTOR or any party dealing directly with CONTRACTOR. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER when drawings or documents are marked "Approved As Revised" and shall return the required number of corrected copies.

GPA and/or ENGINEER shall have the right to reproduce any and all drawing, prints, or other data or documents received from CONTRACTOR that are considered necessary for engineering, construction, or other purposes, despite any notice to the contrary appearing on the item. When a drawing or document approval is required by the Specifications, CONTRACTOR shall not commence production of any part of the Goods affected thereby until such drawing or document has been reviewed and approved by ENGINEER.

ENGINEER's review and approval of CONTRACTOR's drawings or documents will not relieve CONTRACTOR from responsibility for any deviations from the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to such deviation at the time of submission and ENGINEER has given written concurrence and approval to the specific deviation, nor will any concurrence or approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the drawings or documents submitted.

4.10. Continuing Performance

CONTRACTOR shall continue its performance under the Agreement during all claims, disputes, or disagreements with GPA. Production of Goods will not be delayed or the timely delivery of Goods or furnishing of Special Services be prejudiced, delayed, or postponed pending resolution of any claims, disputes, or disagreements, except as CONTRACTOR and GPA may otherwise agree in writing.

4.11. Access to Goods in Production

CONTRACTOR shall provide representatives of GPA, testing agencies, and governmental agencies with jurisdictional interests proper and safe access to Goods in the process of production at reasonable times as is necessary for the performance of their functions in connection with the Contract Documents.

4.12. Expediting

CONTRACTOR shall expedite delivery of the Goods and any related work of subcontractors. When requested or required by the Contract Documents, CONTRACTOR shall also provide GPA with an itemized schedule for engineering, outsourcing, fabrication, and shipping, which shall be followed by expediting reports including status of deliveries of materials and/or equipment purchased from subcontractors, if any, each month during its performance under the Agreement. If CONTRACTOR encounters delay in obtaining materials, or foresees any delay in its own manufacturing works, CONTRACTOR shall immediately inform GPA of such situation.

GPA and/or its designee shall be allowed reasonable access to CONTRACTOR's and its subcontractor's works for the purpose of expediting project progress. Any expediting done by

GPA shall not relieve CONTRACTOR from its obligations as to the Delivery Time specified in the Agreement.

4.13. Compliance with Law

CONTRACTOR shall comply, and secure compliance by its subcontractors, with all applicable laws or regulations in connection with the Goods and services furnished hereunder. This includes the securing of any business or other licensing, certifications, or permits required.

If CONTRACTOR discovers any variance between the provisions of applicable laws and regulations and the drawings, Specifications, and other technical data furnished by the GPA, CONTRACTOR shall promptly notify GPA in writing thereof and obtain necessary changes from GPA before proceeding with the work affected thereby.

4.14. Price Adjustment

4.14.1. Price Adjustment Methods

Any adjustment in contract price within the parameters of this contract shall be made in one or more of the following ways:

- a) By agreement on a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable;
- b) By unit prices specified in the contract or subsequently agreed upon;
- c) By the costs attributable to the event or situation covered by the clause, plus appropriate profit or fee, all as specified in the contract or subsequently agreed upon;
- d) In such other manner as the parties may mutually agree; or
- e) In the absence of agreement between the parties, by a unilateral determination by the Procurement Officer of the costs attributable to the event or situation covered by the clause, plus appropriate profit or fee, all as computed by the Procurement

4.14.2. Submission of Cost or Pricing Data

The CONTRACTOR shall provide cost or pricing data for any price adjustments subject to the provisions of Section 3-403 (Cost or Pricing Data) of the Guam Procurement Regulations.

4.15. Changes

4.15.1. Change Order

By a written order, at any time, and without notice to surety, the Procurement Officer may, subject to all appropriate adjustments, make changes within the general scope of this contract in any one or more of the following:

- a) Drawings, designs, or Specifications, if the supplies to be furnished are to be specially manufactured for the Territory in accordance therewith;
- b) Method of shipment or packing; or
- c) Place of delivery.

4.15.2. Time Period for Claim

Within 30 days after receipt of a written change order under **Paragraph 4.15.1 Change Order**, unless the Procurement Officer extends such period in writing or e-mail, The CONTRACTOR shall file notice of intent to assert a claim for an adjustment. Later notification shall not bar the CONTRACTOR's claim unless the Territory is prejudiced by the delay in notification.

4.15.3. Claims Barred After Final Payment

No claim by the CONTRACTOR for an adjustment hereunder shall be allowed if notice is not given prior to final payment under this contract.

4.15.4. Other Claims Not Barred

In the absence of such a change order, nothing in this clause shall be deemed to restrict the CONTRACTOR's right to pursue a claim arising under the contract if pursued in accordance with the clause entitled, "Claims Based on the General Officer's Actions or Omissions, - Notice of Claim", or for breach of contract.

4.16. Contract Price

The Contract Price constitutes the total consideration to be paid by GPA to THE CONTRACTOR for the complete delivery of the Goods, Special Services, and for performing other services in connection therewith in accordance with the Contract Documents as amended by the parties pursuant to the Agreement. Unless expressly provided otherwise in the Contract Documents, the Contract Price is not subject to escalation in respect of materials and/or labor cost or any other factor or variation in rates of exchange, and all duties, responsibilities, and obligations assigned or undertaken by THE CONTRACTOR shall be at its expense without change in the Contract Price. Charges, fees, CONTRACTOR's profit, and all other expense shall be deemed to be included in the Contract Price. Furthermore, the Contract Price includes management fees and incentive/penalty payments. Therefore, the Contract Price is dynamic but bounded.

Only a formal Change Order, accepted by GPA, may change the Contract Price. THE CONTRACTOR shall make any claim for an increase in the Contract Price in advance of performance of any such changes. However, GPA reserves the right to challenge or refute such claims.

4.17. Payment Milestones and Schedule

Payment milestones have been selected to clearly identify the actual status of the portion of the Work completed rather than anticipated project progress schedules. Payments will be based on actual completion of each milestone event, where applicable, and not on the scheduled completion

date. When a change in the Agreement is approved, the total contract price will be altered to the new total, and the remaining milestone payments will be adjusted.

Milestones shall not be scheduled more frequently than once every month. GPA will not approve a milestone payment until all preceding milestones have been approved. GPA will make payments within thirty (30) days from receipt and approval of the invoice for the completed milestone.

The payment milestones for monies due to the CONTRACTOR from GPA are as follows:

- Fixed Monthly Management Fees;
- Reimbursement Payments for Operations and Maintenance related expenditures as agreed to and scheduled between GPA and the CONTRACTOR.
- Reimbursement Payments for Performance Improvement Projects (PIP) and Capital Improvement Projects (CIP) related expenditures as agreed to and scheduled between GPA and the CONTRACTOR.
- Incentive Compensation Payments due to CONTRACTOR's meeting above it's the minimum performance guarantees
 - EAF - Annually
 - EFOR - Annually
 - Relative Heat Rate - Bi-annually

The payment milestones for monies due to GPA from the CONTRACTOR are as follows:

- Penalty Compensation Payments due to CONTRACTOR's failure to meet its minimum performance guarantees.
 - EAF - Annually
 - EFOR - Annually
 - Relative Heat Rate - Bi-annually

4.18. Forced Majeure

Force Majeure referred to herein shall mean an occurrence beyond the control and without the fault or negligence of the party affected including, but not limited to, acts of God or the public enemy, expropriation or confiscation; changes in law procedures, war, rebellion, or riots; floods, unusually severe weather that could not reasonably have been anticipated; fires, explosions, epidemics, catastrophes, or other similar occurrences which are not within the control of the party affected. However, the following shall not be considered as Force Majeure:

- a) Delay caused by lack or inability to obtain raw materials, congestion at CONTRACTOR's or its subcontractor's facilities, or elsewhere; market shortages, or similar occurrences, or
- b) Delay, either on the part of THE CONTRACTOR or its subcontractors, caused by shortages of supervisors or labor, inefficiency, or similar occurrences, or
- c) Sabotage, strikes, or any other concerted acts of workmen, which occur only in the facilities of THE CONTRACTOR or its subcontractors.

Should the circumstances of Force Majeure continue over a period of ninety (90) days, GPA has the right, if no other understanding is reached, to terminate the whole Agreement or any part thereof in accordance with Paragraph 4.28. Any delay or failure in performing the obligations under the Contract Documents of the parties hereto shall not constitute default under the Purchase Contract or give rise to any claim for damages or loss or anticipated profits if, and to the extent, such delay or failure is caused by Force Majeure, and if a claim is made therefore.

4.18.1. Invocation of Force Majeure

The party invoking Force Majeure shall perform the following:

- a) Notify the other party as soon as reasonably possible by facsimile, e-mail, telex, cable or Messenger/courier of the nature of Force Majeure, anticipated exposure time under Force Majeure, and the extent to which the Force Majeure suspends the affected party's obligations under the CONTRACT;
- b) Consult with the other party and take all reasonable, prudent steps to minimize the losses of either party resulting from the Force Majeure;
- c) Resume the performance of its obligations as soon as possible after the Force Majeure condition ceases.

4.18.2. Delivery Time and Force Majeure

Only a Change Order may change contractual Delivery Times. THE CONTRACTOR as provided in **Paragraph 4.15** and its sub-paragraphs shall file all claims for an extension in the Delivery Time.

The Delivery Time will be extended in an amount equal to time lost due to delays caused by Force Majeure if a claim is made therefore as provided in this Paragraph. No amendment to the Contract Price, however, shall be allowable because of Force Majeure occurrences.

Notwithstanding the foregoing, all time limits stated in the Purchase Order documents are of the essence in the agreement. The provisions of this Paragraph shall not exclude recovery for damages (including compensation for additional professional services) for delays not caused by Force Majeure.

4.19. Warranty

THE CONTRACTOR'S obligation to furnish the Goods and Special Services and to perform other services in connection therewith in accordance with the Agreement is absolute, and THE CONTRACTOR warrants and guarantees to GPA that all Goods will be in accordance with the Contract Documents and will be new, fit for the purpose for which they are intended, and free from any defects, including faulty design, materials, or workmanship.

THE CONTRACTOR shall provide GPA with all warranties and guarantees in writing. GPA and the BIDDER shall negotiate the manner in which claims against these warranties are addressed

including any remedies for non-responsiveness. This may include retention of contract amounts, performance bonds, etc.

THE CONTRACTOR shall be responsible for remedying all defects, without limitation, in design, materials, workmanship, operating characteristics, or performance of the Goods developing within twelve (12) months from the date on which GPA has placed the Goods in continuous service, or within twenty-four (24) months from the date of final payment, whichever date shall first occur, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee or by any specific provisions of the Contract Documents.

Any part(s) supplied in replacement of the defective part(s) of the Goods or any Goods repaired pursuant to the provisions of this Paragraph shall be supplied or repaired on the same terms and conditions as provided for herein for the supply of the Goods and in particular a new warranty period shall apply. Such new warranty period shall expire on the date twelve (12) months from the date of such replacement or repair or on the expiration date of the warranty for the original Goods that were replaced or repaired, whichever is later.

In the event the CONTRACTOR furnishes special services for installation and startup, such services shall be rendered in a competent and diligent manner and in accordance with the Contract Documents, accepted industry practice and any applicable professional standards.

4.20. Tests and Inspections

GPA or its designee shall have the right to inspect or observe the production, inspection, or testing of the Goods at any time and place including the CONTRACTOR's facilities and those of its subcontractors where the Goods are being produced.

THE CONTRACTOR shall conduct, at its responsibility and expense, all tests and inspections called for by the Contract Documents. In the event that witness inspection by GPA is required under the Contract Documents, the costs and expense arising therefrom shall be borne by the CONTRACTOR, including inspector's fees, transportation, hotel, and general flying expenses. In the event that CONTRACTOR's inspection is required at the site, CONTRACTOR's transportation, hotel, and general living expenses shall be borne by THE CONTRACTOR.

Any inspection made by the inspector of GPA and/or its designee will be final. Such inspections or the witnessing of CONTRACTOR's test and inspection by GPA and/or its designee shall not relieve THE CONTRACTOR of any of its responsibilities or liabilities under the Contract Documents, nor be interpreted in any way as implying acceptance of the Goods.

THE CONTRACTOR shall repair and replace, without cost or delay, anything found defective by tests and inspections, and also to bear all costs of re-inspection.

The CONTRACTOR must carry out at its authority and expense any inspection required by statutory Authority, governmental regulation, or other similar Authority on the codes or standards.

4.21. Remedying Defective Goods

If at any time after GPA's acceptance of delivery under Paragraph 4.4, and before expiration of the correction period under **Paragraph 4.19**, GPA determines that the Goods are defective, THE CONTRACTOR shall, upon written notice from GPA, do all things necessary, at its expense, to make good the defects as soon as possible after being notified to do so by GPA. THE CONTRACTOR warrants that THE CONTRACTOR, unless otherwise agreed, shall remedy any defects.

It is understood, that if so instructed by GPA, THE CONTRACTOR shall make shipment by the fastest available method.

In the event that THE PMC does not take prompt action to fulfill its obligations hereunder as required by GPA and to the satisfaction of GPA, GPA may, after ten (10) days written notice to THE PMC, and without prejudice to any of its rights under the Agreement, accept the defective Goods and carry out the remedial work itself instead of requiring correction or removal and replacement, and charge THE CONTRACTOR for the costs of the work. In an emergency where delay would cause serious risk of loss or damage, GPA may take such action without prior notice to or waiting for action by THE CONTRACTOR.

4.21.1. Remediating Defective Special Services

If at any time GPA notifies THE CONTRACTOR in writing that any of the Special Services are defective, THE CONTRACTOR shall promptly provide acceptable services. If THE CONTRACTOR fails to do so, GPA may obtain the Special Services elsewhere.

4.21.2. Cost of Remediating Defects

All direct, indirect, and other costs of correcting, removing, and replacing defective Goods or of obtaining Special Services elsewhere and of exercising GPA's rights and remedies under **Paragraph 4.4, 4.19**, and other sections as they apply, will be charged against THE CONTRACTOR and, if incurred prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Purchase Price, or if incurred after final payment, an appropriate amount will be paid by THE CONTRACTOR to GPA. Such direct, indirect, and other costs will include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of Goods, or property of GPA or others destroyed or damaged by correction, removal, or replacement of defective Goods. THE CONTRACTOR shall not be allowed an extension of the Delivery Time because of any delay in performance attributable to the exercise by GPA of GPA's rights and remedies under this paragraph.

4.22. Stop Work Order

4.22.1. Order to Stop Work

The Procurement Officer may, by written order to the CONTRACTOR, at any time, and without notice to any surety, require the CONTRACTOR to stop all or any part of the work called for by this contract. This order shall be for a specified period not exceeding ninety-days (90-days) after the order is delivered to the CONTRACTOR, unless the parties agree to any further period. Any such order shall be identified specifically as a stop work order issued pursuant to this clause. Upon

receipt of such an order, the CONTRACTOR shall forthwith comply with its terms and take all reasonable steps to minimize the occurrence of costs allocable to the work covered by the order during the period of work stoppage. Before the stop work order expires, or within any further period to which the parties shall have agreed, the Procurement Officer shall either:

- a) Cancel the stop work order; or
- b) Terminate the work covered by such order, as provided in the 'Termination for Default Clause' or the 'Termination for Convenience Clause' of this contract.

4.22.2. Cancellation or Expiration of the Order

If a stop work order issued under this clause is canceled at any time during the period specified in the order, or if the period of the order or any extension thereof expires, the CONTRACTOR shall have the right to resume work. An appropriate adjustment shall be made in the delivery schedule or contract price shall be modified in writing accordingly, if:

- a) The stop work order results in an increase in the time required for, or in the CONTRACTOR's cost properly allocable to, the performance of any part of this contract; and
- b) The CONTRACTOR asserts a claim for such an adjustment within thirty (30) days after the end of the period of work stoppage; provided that, if the Procurement Officer decides that the facts justify such action, any such claim asserted may be received and acted upon at any time prior to final payment under this contract.

4.22.3. Termination of Stopped Work

If a stop work order is not canceled and the work covered by such order is terminated for default or Convenience, the reasonable costs resulting from the stop work order shall be allowed by adjustment or otherwise.

4.23. Termination for Convenience

4.23.1. Termination

The Procurement Officer may, when the interest of GPA or the Territory so require, terminate this contract in whole or in part, for the Convenience of the Territory. The Procurement Officer shall give written notice of the termination to the CONTRACTOR specifying the part of the contract terminated and when termination becomes effective. **[GSA Procurement Regulations 6-101.10.]**

4.23.2. CONTRACTOR's Obligations

The CONTRACTOR shall incur no further obligations in connection with the terminated work and on the date set in the notice of termination the CONTRACTOR will stop work to the extent specified. The CONTRACTOR shall also terminate outstanding orders and subcontracts as they relate to the terminated work. The CONTRACTOR shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated work. The

Procurement Officer may direct the CONTRACTOR to assign the CONTRACTOR's right, title, and interest under terminated orders or subcontracts to the GPA. The CONTRACTOR must still complete the work not terminated by the notice of termination and may incur obligations as are necessary to do so.

4.23.3. Right to Supplies

The Procurement Officer may require the CONTRACTOR to transfer title and deliver to GPA in the manner and to the extent directed by the Procurement Officer:

- a) Training material;
- b) Any completed supplies; and,
- c) Such partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information and contract rights (hereinafter called "manufacturing material") as the CONTRACTOR has specifically produced or specially acquired for the performance of the terminated part of this contract.

The CONTRACTOR shall, upon direction of the Procurement Officer, protect and preserve property in the possession of the CONTRACTOR in which the Territory has an interest. If the Procurement Officer does not exercise this right, the CONTRACTOR shall use best efforts to sell such supplies and manufacturing materials in accordance with the standards of **Uniform Commercial Code of Guam (UCCG), Section 2706**. Utilization of this Section in no way implies that the Territory has breached the contract by exercise of the Termination for Convenience Clause.

4.23.4. Compensation Under Termination for Convenience

The CONTRACTOR shall perform the following for compensation under termination for convenience.

- a) The CONTRACTOR shall submit a termination claim specifying the amounts due because of the termination for Convenience together with cost or pricing data to the extent required by **Section 3-403 (Cost or Pricing Data) of the Guam Procurement Regulations** bearing on such claim. If the CONTRACTOR fails to file a termination claim within one year from the effective date of termination, the Procurement Officer may pay the CONTRACTOR, if at all, an amount set in accordance with subparagraph (c) of this Paragraph.
- b) The Procurement Officer and the CONTRACTOR may agree to a settlement provided the CONTRACTOR has filed a termination claim supported by cost or pricing data to the extent required by **Section 3-403 (Cost or Pricing Data) of the Guam Procurement Regulations** and that the settlement does not exceed the total contract price plus settlement costs reduced by payments previously made by GPA, the proceeds of any sales of supplies and manufacturing materials, and the contract price of the work not terminated.

- c) Absent complete agreement under Subparagraph (b) of this Paragraph, the Procurement Officer shall pay the CONTRACTOR the following amounts, provided payments agreed to under Subparagraph (b) shall not duplicate payments under this subparagraph:
- i. Contract prices for supplies or services accepted under the contract;
 - ii. Costs incurred in preparing to perform and performing the terminated portion of the work plus a fair and reasonable profit on such portion of the work (such profit shall not include anticipatory profit or consequential damages) less amounts paid or to be paid for accepted supplies or services; provided, however, that if it appears that the CONTRACTOR would have sustained a loss if the entire contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss;
 - iii. Costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to **Paragraph 4.23.2** of this clause. These costs must not include costs paid in accordance with other subparagraphs of this Paragraph;
 - iv. The reasonable settlement costs of the CONTRACTOR including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the contract for the termination and settlement of subcontracts there under, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to the terminated portion of this contract. The total sum to be paid to the CONTRACTOR under this Subparagraph shall not exceed the total contract price plus the reasonable settlement costs of the CONTRACTOR reduced by the amount of payments otherwise made, the proceeds of any sales of supplies and manufacturing materials under subparagraph (b) of this Paragraph, and the contract price of work not terminated.
- d) Cost claimed, agreed to, or established under subparagraph (b) and (c) of this Paragraph shall be in accordance with **Chapter 7 (Cost Principles) of the Guam Procurement Regulations. 13 GCA 2796 (UCCG)** states:

2706. SELLER's Resale Including contract for Resale

- (1) Under the conditions stated in **Section 2703** on CONTRACTOR's remedies, the CONTRACTOR may resell the goods concerned or the undelivered balance thereof. Where the resale is made in good faith and in a commercially reasonable manner the CONTRACTOR may recover the difference between the resale price and the contract price together with an incidental damages allowed under the provisions of this division (Section 2710), but less expenses saved in consequence of the buyer's breach.
- (2) Except as otherwise provided in Subsection (3) or unless otherwise agreed resale may be at public or private sale including sale by way of one or more contracts to sell or of identification to an existing contract of the CONTRACTOR. Sale may

be as a unit or in parcels and at any time and place and on any terms, but every aspect of the sale including the method, manner, time, place and terms must be commercially reasonable. The resale must be reasonably identified as referring to the broken contract, but it is not necessary that the goods be in existence or that any or all of them have been identified to the contract before the breach.

- (3) Where the resale is at private sale the CONTRACTOR must give the buyer [i.e., GPA] reasonable notification of his intention to resell.
- (4) Where the resale is at public sale:
 - (01) Only identified goods can be sold except where there is a recognized market for a public sale of futures in goods of the kind; and
 - (02) It must be made at a usual place or market for public sale if one is reasonably available and except in the case of goods which are perishable or threaten to decline in value speedily the CONTRACTOR must give the buyer [i.e., GPA] reasonable notice of the time and place of the resale; and,
 - (03) If the goods are not to be within the view of those attending the sale, the notification of sale must state the place where the goods are located and provide for their reasonable inspection by prospective BIDDERS; and
 - (04) The CONTRACTOR may buy.
- (5) A purchaser who buys in good faith at a resale takes the goods free of any rights of the original buyer [i.e., GPA] even though the CONTRACTOR fails to comply with one or more of this section's requirements.
- (6) The CONTRACTOR is not accountable to the buyer [i.e., GPA] for any profit made on any resale. A person in the position of a CONTRACTOR (**Section 2707**) or a buyer who has rightfully rejected or justifiably revoked acceptance must account for any excess over the amount of his security interest, as hereinafter defined (Subsection 3) of Section 2711."

4.24. Termination for Defaults

4.24.1. Default

If the CONTRACTOR refuses or fails to perform any of the provisions of this contract with such diligence as will ensure its completion within the time specified in this contract, or any extension thereof, otherwise fails to timely satisfy the contract provisions, or commits any other substantial breach of this contract, the Procurement Officer may notify the CONTRACTOR in writing of the delay or non-performance and if not corrected in ten days or any longer time specified in writing by the Procurement Officer, such officer may terminate the CONTRACTOR's right to proceed with the contract or such part of the contract as to which there has been delay or a failure to properly perform. In the event of termination in whole or in part the Procurement Officer may procure similar supplies or services in a manner and upon terms deemed appropriate by the

Procurement Officer. The CONTRACTOR shall continue performance of the contract to the extent it is not terminated and shall be liable for excess cost incurred on procuring similar goods or services.

4.24.2. CONTRACTOR's Duties

Notwithstanding termination of the contract and subject to any directions from the Procurement Officer, the CONTRACTOR shall take timely, reasonable, and necessary action to protect and preserve property in the possession of the CONTRACTOR in which GPA has an interest.

4.24.3. Compensation

Payment for completed supplies delivered and accepted by the GPA shall be at the contract price. Payment for the protection and preservation of property shall be in an amount agreed upon by the CONTRACTOR and the Procurement Officer; if the parties fail to agree, the Procurement Officer shall set an amount subject to the CONTRACTOR's rights under Chapter 9 (Legal and Contractual Remedies) of the Guam Procurement Regulations. The GPA may withhold from amounts due the CONTRACTOR such sums as the Procurement Officer deems to be necessary to protect the GPA against loss because of outstanding liens or claims of former lien holders and to reimburse the PURCHASER for the excess costs incurred in procuring similar goods and services.

4.24.4. Excuse for Nonperformance or Delayed Performance

Except with respect to defaults of subcontractors, the CONTRACTOR shall not be in default by reason of any failure in performance of this contract in accordance with its terms (including any failure by the CONTRACTOR to make progress in the prosecution of the work hereunder which endangers such performance) if the CONTRACTOR has notified the Procurement Officer within fifteen (15) days after the cause of the delay and the failure arises out of causes such as: acts of God; acts of the public enemy; act of the Territory and any other governmental entity in its sovereign restrictions; strikes or other labor disputes; freight embargoes; or unusually severe weather. If the failure to perform is caused by the failure of a subcontractor to perform or to make progress, and if such failure arises out of causes similar to those set forth above, the CONTRACTOR shall not be deemed to be in default, unless the supplies or services to be furnished by the subcontractor were reasonably obtainable from other sources in sufficient time to permit the CONTRACTOR to meet the contract requirements. Upon request of the CONTRACTOR, the Procurement Officer shall ascertain the facts and extent of such failure, and, if such officer determines that any failure to perform was occasioned by any one or more of the excusable causes, and that, but for the excusable cause, the CONTRACTOR's progress and performance would have met the terms of the contract, the delivery schedule shall be revised accordingly, subject to the rights of the GPA under the clause entitled "Termination For Convenience", Paragraph 4.23. (As used in the Paragraph of this clause the term "subcontractor" means subcontractor at any tier.)

4.24.5. Erroneous Termination for Default

If, after notice of termination of the CONTRACTOR's right to proceed under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of this clause, or that the delay was excusable under the provisions of Paragraph

4.24.4 (Excuse for Nonperformance or Delayed Performance) of this clause, the rights and obligations of the parties shall, if the contract contains a clause providing for termination for Convenience of GPA, be the same as if the notice of termination had been issued pursuant to such clause. If, in the foregoing circumstances, this contract does not contain a clause providing for termination for Convenience of GPA, the contract shall be adjusted to compensate for such termination and the contract modified accordingly subject to the CONTRACTOR's rights under Chapter 9 (Legal and Contractual Remedies) of the Guam Procurement Regulations.

4.24.6. Additional Rights and Remedies

The rights and remedies provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

4.25. Disputes

All controversies between GPA and the CONTRACTOR, which arise under, or are by virtue of, this contract and which are not resolved by mutual agreement, shall be resolved under Guam Procurement Law and the Government Claims Act.

4.26. Consequential Damages

Unless expressly provided for otherwise in this Agreement, neither party, including their agents and employees, shall be liable to the other party for consequential damages, including, but not limited to, loss of use, loss of profit and interest due to breach of contract, breach of warranty, negligence, or any other cause whatsoever, provided nothing herein shall relieve CONTRACTOR from its liability for injury to persons or property, including property of GPA, whether such liability arises in contract, including breach of warranty, or tort, including negligence.

4.27. Notices

Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

4.28. Computation of Time

When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the time computation.

4.29. Language and Trade Terms

All communications, documents, and execution of services hereunder, unless otherwise designated, shall be in the English language. INCOTERMS (International Rules for the Interpretation of Trade Terms) published by the International Chamber of Commerce in 1980 and

any subsequent revisions thereto shall govern interpretation of trade terms in the Contract Documents

4.30. Governing Law

The laws of Guam shall govern the validity and interpretation of these conditions, the Agreement and legal relations of the parties.

CONTRACTOR shall not transfer or assign to any third parties any obligations or rights under the Agreement, nor any claims against GPA arising directly or indirectly out of the Agreement.

CONTRACTOR shall not sublet the Agreement in whole or in part without the prior written consent of GPA. Written consent of GPA for subletting shall not relieve CONTRACTOR of any of his obligations under the Agreement.

4.31. Non-waiver

GPA shall not consider any provisions of this Agreement waived unless GPA gives notice of such waiver in writing. Even if such notice has been given, such waiver shall not be construed as being a waiver of any other past or future right of GPA under the provisions of this Agreement, unless otherwise expressly stipulated therein. Failure of GPA to insist upon strict performance of any of the terms and conditions hereof, or failure or delay of GPA to exercise any acts, rights, or remedies provided herein or by law shall not relieve CONTRACTOR of liability under any guarantees or of obligations under the Agreement and shall not be deemed a waiver of any right of GPA to insist upon strict fulfillment of the Agreement or of any of GPA's rights or remedies as to the Goods or special services furnished.

4.32. Severability

If any work, phrase, clause, article, or other provision of this Agreement is or is deemed or adjudicated or otherwise found to be against public policy, void, or otherwise unenforceable, then said work, phrase, clause, article, or other provision shall be deleted or modified, in keeping with the express intent of the parties hereto as necessary to render all the remainder of this Agreement valid and enforceable. All such deletions or modifications shall be the minimum necessary to effect the foregoing.

4.33. Rights and Remedies

The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, will be in addition to, and shall not be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available by law or contract, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply. All representations, warranties, and guarantees made in the Contract Documents will survive final payment and termination or completion of this Agreement.

4.34. New material

Unless this contract specifies otherwise, the CONTRACTOR represents that the Goods and components are new. If the CONTRACTOR believes that furnishing used or reconditioned Goods or components will be in GPA's interest, the CONTRACTOR shall so notify GPA in writing. The CONTRACTOR's notice shall include the reasons for the request along with a proposal for any consideration to GPA if GPA authorizes the use of used or reconditioned Goods or components.

4.35. Claims based on the General Manager's Action or Omissions

If any action or omission on the part of the General Manager, or his/her designee, requiring performance changes within the scope of the contract constitutes the basis for a claim by the CONTRACTOR for additional compensation, damages, or an extension of time for completion, the CONTRACTOR shall continue with performance of the contract in compliance with the directions or orders of such officials, but by so doing, the CONTRACTOR shall not be deemed to have prejudiced any claim for additional compensation, damages, or an extension of time for completion; provided:

- (1) The CONTRACTOR shall have given written notice to the General Manager, or his/her designee:
 - i. Prior to the commencement of the work involved, if at that time the CONTRACTOR knows of the occurrence of such action or omission;
 - ii. Within thirty (30) days after the CONTRACTOR knows of the occurrence of such action or omission, if the CONTRACTOR did not have such knowledge prior to the commencement of the work; or
 - iii. Within such further time as may be allowed by the Procurement Officer in writing. This notice shall state that the CONTRACTOR regards the act or omission as a reason that may entitle the CONTRACTOR to additional compensation, damages, or an extension of time. The Procurement Officer or designee of such officer, upon receipt of such notice, may rescind such action, remedy such omission, or take such other steps as may be deemed advisable in the discretion of the Procurement Officer or designee of such officer.
- (2) The notice required by subparagraph (1) of this Paragraph describes as clearly as practicable at the time the reasons why the CONTRACTOR believes that additional compensation, damages, or an extension of time may be remedies to which the CONTRACTOR is entitled; and
- (3) The CONTRACTOR maintains and, upon request, makes available to the Procurement Officer within a reasonable time, detailed records to the extent practicable, of the claimed additional costs or basis for an extension of time in connection with such changes.

4.35.1. Limitations of Clause

Nothing herein contained shall excuse the CONTRACTOR from compliance with any rules of law precluding GPA and its officers and any CONTRACTORS from acting in collusion or bad faith in issuing or performing change orders that are clearly not within the scope of the contract.

4.35.2. Standards of Design and Workmanship

The finished Work shall be complete in all respects. The intent of the Specifications is to acquire or purchase management services, training, operations and maintenance materials and services, and supply and inventory management and control. All hardware shall be manufactured, fabricated, assembled, finished, and documented with quality workmanship throughout, and all of its components shall be new and suitable for the purposes specified. All firmware/software shall be designed, implemented, tested, and documented in accordance with the best and recognized correct practices and shall be suitable for the purpose specified. All work shall conform to industry best practices.

4.36. Standard Work Schedule

Work scheduled and performed by the CONTRACTOR on GPA's premises shall conform to published GPA working hours and shall account for GPA's observed holidays.

4.37. Interference with Operation

Interference with normal operation of GPA's facilities or equipment, or that of any CONTRACTORS or subcontractors on GPA's premises, shall be avoided. The GPA's representative will determine in advance whether such interference is unavoidable and will establish the necessary procedures under which the interferences will be allowed.

4.38. Release of Information

The CONTRACTOR shall not release any information, including the contract price concerning this project or any part thereof in any form, including advertising, news releases, or professional articles, without written permission of GPA.

4.39. Liens

In the event that a lien of any nature shall at any time be filed against the hardware, firmware, or software or the CONTRACTOR's facility by any person, firm, or corporation which has supplied material or services at the request of the CONTRACTOR, and for the cost of which the CONTRACTOR is liable under the terms of the Agreement, the CONTRACTOR agrees, promptly on demand of GPA and at the CONTRACTOR's expense, to take any and all action necessary to cause any such lien to be released or discharged therefrom. The CONTRACTOR agrees to hold GPA harmless from all liens, claims, or demands in connection with the Work.

4.40. Title

Title to any of the hardware, firmware, and software, management practices, training and other documents and/or processes required by GPA to continue the improved operations and maintenance of the Cabras Units #1 & #2 Plant will pass to GPA upon placement of the equipment within GPA's premises prior to commencement of its installation, subject to GPA's inspection thereof.

The CONTRACTOR shall retain title and be responsible for movement of the equipment from the delivery carrier onto the premises and the subsequent unpacking of the equipment.

If, for any reason, the Work is terminated prior to its completion, the title to all the Work performed to that time including all hardware, firmware, software, management practices, training and other documents and/or processes required by GPA to continue the improved operations and maintenance of the Cabras Units #1 & #2 Plant, whether in the CONTRACTOR's facility, in transit, or on GPA's premises, shall immediately pass to GPA.

4.41. Insurance

Contractor shall not commence work under this contract until he has obtained all insurance required under this section and owner has approved such insurance, nor shall the Contractor allow any Subcontractor to commence work on this subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. He shall maintain all insurance required during the course of the work.

4.42. Contractors and Subcontractors Insurance

Prior to commencing the work, contractor shall obtain and thereafter maintain during the course of the work Insurance with companies acceptable to GPA. The contractor shall not allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved. The limits of insurance shall be as follows unless a higher limit is required by statute:

1. General Liability including products, completed operations and contractual coverage for this Agreement in the amount of \$1,000,000 combined limit. GPA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPA.
2. Auto Liability covering bodily injury and property damage in the amount of \$1,000,000 combined single limit. GPA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPA.
3. Excess Liability with limits of \$5,000,000 or higher. GPA shall be an additional insured. Waiver of subrogation shall be granted in favor of GPA.
4. Worker's Compensation and Employer's Liability - Statutory limits and \$1,000,000/\$1,000,000/\$1,000,000 respectively. Add Waiver of Subrogation endorsement in favor of GPA.

5. Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor, which shall include GPA as named insured.

4.42.1. Indemnification

The Contractor shall indemnify, defend and hold harmless owner against all loss, damage, or expense (including reasonable attorney's fees incurred by owner) arising out of the performance of the work, including injury or death to any person or persons resulting from the acts or omission of the Contractor or the Contractor's employees, servants, agents or subcontractors and from mechanics and materialism liens

4.42.2. Certificate of Insurance

Contractor shall furnish certificates of insurance and waiver of subrogation endorsement to GPA prior to commencement of work showing evidence of such coverage, including the statement to the effect that cancellation or termination of the insurance shall not be effective until at least (10) days after receipt of written notice to GPA. At all times Contractor's insurance shall be primary to any other insurance that may be carried by GPA. The statement of limits of insurance coverage shall not be construed as in any way limiting the Contractor's liability under this agreement. GPA shall be an additional insured on all liability coverage and certificates of insurance shall clearly indicate such.

4.42.3. Insurance Company and Agent

All insurance policies herein required of the Contractor shall be written by a company duly authorized and licensed to do business in the State or Territory where work under this contract is being performed and be executed by some agent thereof duly licensed as an agent in said State or Territory.

4.43. GPA Insurance

GPA agrees that it will keep the property and machinery and equipment insured, at a minimum, against loss or damage by fire with extended coverage endorsement for full replacement value as determined by GPA from time to time. Such insurance shall be issued by financially responsible insurers duly authorized to do business in the state or territory where the property is located and shall contain the standard form of waiver of subrogation. The insurance company shall be required to give GPA not less than thirty days (30) notice in the event of cancellation or material alteration of such coverage. Nothing contained herein shall be construed as creating any liability or responsibility on the part of the PMC for the adequacy of insurance coverage on the property. As to any insurable risks of loss or damage to the property and machinery and equipment not required to be insured hereunder, GPA shall bear the cost of the same. GPA shall be deemed to be self-insured as to the deductible or co-insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

4.44. Waiver of Subrogation

The parties hereby release each other and their respective officers, employees, and agents from all loss or damage to the Premise property, machinery and equipment and to the fixtures, personal property, equipment and improvements of either GPA or PMC in or on the Property,

notwithstanding that any such loss or damage may be due to or result from the negligence of either of the parties or their respective officers, employees or agents. This waiver does not apply to maintenance and repair assumed under this contract by the PMC.

Re-Bid for Multi-Step Bid

No. GPA-013-07

PERFORMANCE MANAGEMENT CONTRACT

FOR THE

**GUAM POWER AUTHORITY
CABRAS #1 & #2 STEAM POWER PLANT**



Volume II

Technical & Functional Requirements

APRIL 2009



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1. Introduction

This document describes the functional and technical requirements of the Performance Management Contract. It establishes the rules of engagement and delineates the responsibilities between the Guam Power Authority (GPA) and the Performance Management Contractor (PMC or CONTRACTOR).

2. Financing

2.1. Performance Management Contractor Financing Responsibilities

2.1.1. Capital and Expense Funding

Guam Power Authority (GPA) may from time to time negotiate with the PMC for short-term debt financing for necessary capital or expense expenditures. This participation may include direct loans and/or indirect involvement through guarantees or some other form of participation. GPA includes the scoring of this option in the qualitative portion of the Proposal review.

2.1.2. Working Capital

The PMC shall have sufficient working capital to support its cash flow requirements including any cash flow requirements associated with its operations and maintenance (O&M) procurement responsibilities as defined elsewhere. The minimum working capital acceptable during each contract period shall be no less than 50% of the agreed combined O&M and CIP budgets for the respective period. The PMC is responsible to fund all operation, maintenance, and capital improvements and will be reimbursed by the Authority upon the successful documentation of such expenditures.

2.1.3. Document the Management of Operations and Maintenance

The PMC shall optimally manage the O&M spending not to exceed the authorized budget amount for each contract year. The PMC shall provide appropriate justifications and auditable records of all O&M procurement activities.

2.1.4. Performance Management Contractor Expenses

All PMC direct and indirect expenses and taxes, including all PMC employees related expenses and taxes are the sole responsibility of the PMC.

2.2. Guam Power Authority Financing Responsibilities

2.2.1. Guam Power Authority Capital and Expense Funding Intent

GPA intends to totally fund all capital and O&M expenditures, but reserves the option to seek funding assistance from the PMC. In the event that the PMC provides funding assistance, the PMC and GPA shall negotiate a mutually acceptable compensation structure.

2.2.2. Reimbursement of Contractor for Procurement of O&M Materials and Contracts

GPA will make timely reimbursements to the PMC for the expenses incurred by the PMC in conjunction with the PMC's O&M procurement responsibilities. The PMC shall include invoices, certifications, receipts, and proof of payment and delivery on site of materials and services in order to be entitled for reimbursable compensation. The PMC shall invoice GPA for these expenses no more than once monthly.

2.2.3. Reimbursement of Contractor for Performance Improvement Projects (PIP) and Capital Improvement Projects (CIP)

Payments for PIP and CIP will be made on a reimbursable basis. GPA will make timely reimbursements to the PMC for actual cost and a charge for administration, finance fees and interest not to exceed five percent (5%) cumulatively of the actual project cost. Payments shall not exceed the amounts agreed to and approved by GPA and the PMC or as otherwise agreed to by the parties through a change order. The PMC shall invoice GPA for progress payments for work completed upon such PIP or CIP no more than once monthly.

3. Budget

3.1. Performance Management Contractor Budget Responsibilities

3.1.1. Optimize Spending Within Authorized Limits

The PMC shall optimize O&M spending (excluding Cabras 1&2 Employees base salaries, premiums and benefits but including overtime) for each contract year within authorized limits.

The PMC shall optimize overtime at Cabras 1&2 to lower total plant costs. As a guide, overtime for Cabras 1&2 Employees shall not exceed 15% of base annual salaries, except during emergency response for force majeure situations, such as Typhoon Recovery and other critical support periods, which does not constitute normal operations. The allowance for overtime during these situations will require approval from GPA for Cabras 1&2 employees. The PMC shall track and report overtime expenses to GPA monthly and at the end of each contract year.

3.1.2. Historical Data

The PMC shall track all O&M costs based on the format provided in Volume III Historical Expenses by Object Code. The PMC shall track O&M expenses against the GPA approved budget and submit data to GPA monthly and at the end of each contract year.

3.2. Guam Power Authority Budget Responsibilities

3.2.1. Authorize O&M Spending Budget

GPA shall authorize the proposed O&M spending budgets for each contract year by the PMC. GPA reserves the right to negotiate bid amounts prior to contract commencement. The negotiated amounts shall establish the maximum spending limit for O&M expenses.

The PMC will prepare and submit to GPA a five-year plant budget beginning with the next fiscal year by March 31 of each contract year. GPA shall review and negotiate the next fiscal year budget with the PMC by June 30 of each contract year.

4. Staffing

4.1. GPA Employees & PMC Management

4.1.1. Performance Management Contractor Staffing Responsibilities

4.1.1.1. PMC Utilization of Existing GPA Employees

The PMC shall utilize all Cabras 1&2 employees beginning on the Commencement Date and continuing through the Termination Date of the Contract.

4.1.1.2. Adjust Staffing Levels

The PMC has the responsibility to adjust staffing levels, with GPA's approval, for optimal operation and maintenance of the plant. Staffing level shall not exceed the Full Time Employees (FTEs) currently employed at Cabras Units #1 & #2.

4.1.1.3. Performance Management PMC Staffing Level

The PMC shall provide appropriate staffing levels of PMC employees to provide overall plant management, resident technical expertise for steam power plant operation and maintenance, procurement oversight, engineering, and administrative support as necessary. These employees must have a minimum of twenty (20) or more years in steam plant operation and maintenance experience. The Qualitative Scoring will evaluate the PMC's proposed staffing level. Suggested staffing levels:

- Plant General Manager;
- O&M Manager;
- Outage Planner/Materials Manager;
- Administrative Procurement and Supply Assistant;
- Performance Engineer; and
- Operations and Maintenance Plant Engineer.

4.1.1.4. Line Management Responsibility

The PMC management is responsible for supervising the Cabras 1&2 classified work force. The PMC shall have the authority, with consultation and coordination with GPA, to establish work rules, assign and direct the work of the GPA work force, make work schedules, establish safety procedures, prescribe training and approve attendance at training, and any other necessary management actions in performing the requirements of this contract. The PMC shall have discretion in selecting methods and means in the management of GPA employees to accomplish the repair, operation, and maintenance of the plant.

4.1.1.5. Chain of Command

The PMC, in dialog with and with the consent of GPA, will be responsible for creating an appropriate reporting structure that is consistent with the established organization chart of the FTE assigned to the power plant.

4.1.1.6. Employee Performance Review

The PMC will have the authority and discretion to counsel or issue written warnings to individual employees for unsatisfactory work performance and violations of work rules, conduct rules, safety procedures, or other conduct the PMC determines to be detrimental to the safe and efficient repair, management, operation, and maintenance of the Cabras 1&2 Plant. The disciplinary action procedure will be implemented through the Authority's established Personnel Rules and Regulations.

At its sole discretion, GPA may take disciplinary actions it deems appropriate. The PMC shall cooperate and assist GPA by providing such witnesses and evidence as GPA may reasonably request to support any disciplinary action. The PMC may request disciplinary action but shall not have authority to initiate or direct disciplinary action against any individual GPA employee; provided, however, that GPA shall use its best efforts to proceed promptly, diligently, and thoroughly to process all requests and take such disciplinary action as requested by the PMC if reasonable under the circumstances, including, but not limited to the immediate suspension of GPA employees during the notice period of GPA's disciplinary procedures, or placing employee on administrative leave pending adverse action, if their continued presence would interfere with the safe and efficient operation of Cabras 1&2 Plant or the safety and health of persons or if the suspension was necessary to eliminate the possibility of deliberate damage to equipment, property, or important documents.

The PMC will conduct regular performance reviews of each employee, which will be coordinated with GPA Human Resources Division. In addition, the PMC will provide input for setting annual personnel development goals. The employee performance reviews and development goals setting made by the PMC do not replace the formal performance reviews performed by GPA supervisors. However, they provide one of the key inputs to the formal GPA review process. These PMC inputs will drive promotion and demotion decisions and standards for job performance. Documentation of both good and unacceptable employee performance shall be the responsibility of the PMC and/or those GPA employees that report directly to the PMC.

The PMC, at its own discretion, may have the authority to make cash awards or other means of compensation to GPA employees using PMC funds as an incentive for superior work performance or other significant contribution by an individual GPA employee to the safe and efficient repair, management, operation, and maintenance of the Cabras Steam Power Plant at the discretion of the PMC. The cost of which is not reimbursable by GPA.

4.1.1.7. Responsibility for Direct Hires from Outside the Guam Power Authority

The PMC must participate in the interview and selection process of all new Cabras Units #1 & #2 employees for positions not filled by the normal internal transfer of employees by GPA but rather through direct hire from the outside labor pool. The PMC will have a voice in the interview and selection process of the new employee, including but not limited to the use of standardized aptitude testing. This action is subject to the standard Government of Guam hiring practices in accordance with local and federal laws, personnel rules and regulations, and other administrative orders, policies and procedures.

The PMC is encouraged to review and suggest changes in job position descriptions and in the recommendation of the application of any testing to the interview and selection process.

4.1.1.8. Authority to Promote and Demote Personnel

The PMC may provide GPA recommendations for appropriate promotions or demotions. GPA shall retain all authority and responsibility for promotions and demotions – recognizing PMC recommendations, GPA system needs and Guam civil service rules and regulations. The PMC shall establish a standardized procedure documenting the promoting and demoting of employees at the plant.

4.1.1.9. Safety Compliance Personnel

The PMC is responsible for air quality monitoring. This is specifically referring to the confined / enclosed space issues as defined by OSHA/GOSHA. The PMC will not rely on GPA for these type of services unless in the case of an emergency. However, all safety equipment and test procedures shall be reviewed and approved by GPA Safety Division.

In addition, the PMC shall allow GPA Safety Division Inspectors to conduct periodic scheduled and unscheduled facilities inspections to detect potential hazards so that proper remediation activities can be implemented. GPA Safety Division Inspectors shall document and forward all inspection results through GPA and the PMC chain of command. The PMC shall be responsible to properly address and make correction to discrepancies as noted by the GPA Safety Division Inspectors.

4.1.1.10. Manage Scheduling of Leave Time

The PMC will manage and approve the scheduling of vacation, holiday and other leave time to minimize overtime and other O&M costs, subject to the constraints of GPA Leave Policies and in accordance with Personnel Rules & Regulations, public laws and executive orders as amended or

established. The PMC will also have authority to schedule extended hours, staggered hours, flexible hours and Sunday working hours as the PMC may determine necessary to ensure the safe and efficient management, operation, maintenance and repair of Cabras 1&2 Plant.

The PMC shall not unreasonably deny employee requests for authorized absence. PMC's disapproval of GPA employee requests for authorized absence shall be based solely upon scheduling needs to ensure the safe and efficient repair, management, operation, and maintenance of the plant.

4.1.1.11. Overtime

In the event that PMC requires GPA personnel to perform overtime, PMC shall follow established GPA personnel rules and regulations, policies and procedures, guidelines, and applicable local and federal laws in the requesting and reporting of overtime.

4.1.1.12. Equipment Clearance System – Safety

The PMC will develop and train employees on the use of GPA's established equipment clearance system. This clearance system shall apply to all equipment associated with units 1 & 2 except for the following:

- 1) The line of demarcation regarding the high voltage transformer and natural areas of O&M responsibility shall be defined; and,
- 2) Some overlap of equipment commonly used for combined systems such as the waste oil handling for Cabras 1 & 2 and Cabras 3 & 4 that may require careful coordination.

This training shall adhere to the OSHA/GOSHA mandated training program peculiar to the employees' job and environment, operating practices and procedures with a practical understanding of prevention strategies.

The PMC shall design the training program in a manner that will instruct employees in the safe and healthful performance of their work.

The PMC shall tailor this training and evaluation to the employee's job requirements and level of responsibility.

The PMC shall keep all Occupational Safety and Health training records for the contract duration. As a minimum, the training records shall indicate the following information:

- Subject matter;
- Duration; start and stop time;
- Names of attendees;
- Date of Training.

The PMC shall ensure that all employees, upon assignment to positions involving potential exposures to hazardous or toxic substances, including asbestos exposure equal to or exceeding the permissible exposure limits (PEL) undergo proper medical examination and are entered into a medical surveillance program as required by GOSHA.

The PMC shall ensure that all employees assigned to positions involving potential exposures to hazardous or toxic substances are issued and are required to wear equipment and/or devices such as (but not limited to):

- Welding or wire mesh gloves;
- Respirators;
- Hard hats;
- Goggles;
- Foot protection;
- Face shields;
- Rubber gloves and coveralls;
- Safety glasses.

4.1.1.13. Disciplinary Action Documentation

The PMC will document and forward recommendations of any suggested disciplinary action to the Assistant General Manager of Operations through the Manager of Generation. All recommendations for disciplinary action must comply with requirements set forth by the GPA Personnel Rules & Regulations, Civil Service laws and other administrative policies as amended or established. The Manager of Generation shall make recommendation to the Assistant General Manager of Operations who in turn will forward such recommendations to the General Manager of GPA for further disposition as required.

4.1.1.14. Dispute Resolution Process Usage

Should the PMC have a problem that is not resolved to their satisfaction, regarding personnel or disciplinary action, it will have the right to have the issue reviewed as part of the dispute resolution process.

4.1.1.15. Utilization of Employees/Consultants

PMC may, with approval from GPA, have PMC employees or consultants perform functions, duties, and responsibilities at the Cabras Units #1 & #2 plant as the PMC determines in accordance with the scope of this contract. Reimbursement for salaries and benefits shall be based on the rates approved by GPA. The PMC shall demonstrate due process to ensure the credibility of the personnel identified to fulfill these responsibilities. Reimbursement shall only be for the period the PMC hired Employees/Consultants are employed and performing work up to the termination date of their employment/contract with PMC.

4.1.1.16. Cooperation with GPA Personnel Administration

PMC shall cooperate with GPA in GPA's personnel administration to the extent that PMC has a role in the supervisory process.

4.1.2. Guam Power Authority Staffing Responsibilities

4.1.2.1. Personnel Administration

GPA shall perform all personnel administration functions for GPA employees assigned to the Cabras Units #1 & #2 plant. GPA shall have access to its employees assigned to the Cabras Units #1 & #2 plant for the purpose of performing its administrative functions. Personnel administration functions shall include, but not be limited to:

- (a) Computation and payment of compensation as authorized by administrative laws, rules, policies and procedures; GPA shall retain its standard responsibilities for all GPA employee payroll expenses and disbursements;
- (b) Administration of sick leave, maternity leave, paternity leave, annual leave, military leaves of absence and such other programs providing GPA employees authorized absences;
- (c) Recruitment, examination and appointment of new hires;
- (d) Administration of employee benefit plans, health insurance, retirement plans, worker compensation plans, the Drug Free Workplace Policy, and such other programs for the welfare of GPA employees;
- (e) In-service training programs and such other training programs for which GPA employees are eligible; and,
- (f) Such other personnel matters not related to the maintenance, operation, and repair of the Transportation section.

4.1.2.2. Select, Provide, Promote and Demote All Classified Employees

GPA shall select, provide, promote and demote all classified employees for normal operation and maintenance of the plant, in accordance with Civil Service Commission policies, personnel rules and regulations, administrative orders, local and federal laws. The CONTRACTOR may submit recommendations for promotions and demotions of classified employees.

4.1.2.3. Administer Salary, Benefits & Disciplinary Actions

While GPA is not responsible for the direct line management of the O&M of the facility, it is responsible for functions such as disciplinary action. All salary and benefit administration will continue to be the responsibility of the GPA and consistence with other standard practices. GPA supervision will continue to have the same responsibility to enforce disciplinary action type issues as present.

4.1.2.4. Cross Training of Transitional Employees

The responsibility for any cross training of transitional employees will reside in the GPA divisions that utilize them.

4.1.2.5. Resource Allocation of Central Maintenance Personnel

The PMC will have an opportunity to utilize the Central Maintenance section personnel subject to GPA's specified minimum and maximum acceptable performance standards. GPA shall provide reasonable support from the Central Maintenance Section to the PMC under the direct authorization of the Manager of Generation. The PMC must follow GPA guidelines in the reporting and request of overtime or off-shift work.

4.1.2.6. Resource Allocation of Plant Engineering Personnel

At the PMC's request, GPA may supply Plant Engineering Personnel services as required on a case-by-case basis consistent with the GPA Generation Department mission and availability of staff and skill sets. In the event that the PMC requires the need for overtime or off-shift work from GPA Plant Engineering Personnel, the associated overtime or shift differential pay (based on prevailing rates) shall be treated as cost adders to the actual O&M Spending Budget. The PMC must follow GPA guidelines in the reporting and request of overtime or off-shift work.

4.1.2.7. Resource Allocation of Planning Personnel

GPA will provide two (2) full time equivalents of Plant Planning Personnel each year. In the event that the PMC requires the need for overtime or off-shift work from GPA Plant Planning Personnel, the associated overtime or shift differential pay (based on prevailing rates) shall be treated as cost adders to actual O&M Spending Budget. The PMC must follow GPA guidelines in the reporting and request of overtime or off-shift work.

4.1.2.8. Resource Allocation of Engineering Department Personnel

At the PMC's request, GPA may supply Engineering Department project management and other engineering and technical services as required on a case-by-case basis consistent with the GPA Engineering Department mission and availability of staff and skill sets. The labor costs (based on prevailing rates) of such additional utilization shall also be treated as cost adders to the actual O&M Spending Budget.

4.1.2.9. Grievance Reporting Procedure and Arbitration

GPA will provide copies of the Grievance reporting and resolution procedures to the PMC. Disputes will be handled in accordance with the existing GPA policies. GPA will develop a specific process of handling higher-level disputes between the PMC and GPA personnel. Cost associated with disputes requiring payment to non-PMC employees may require the PMC to adjust the monthly invoice payments

4.1.2.10. Disciplinary Actions and Procedures, Including Poor Performance

GPA will be responsible for administering disciplinary actions against GPA employees per GPA standard policies and procedures. GPA management will determine and apply the degree of penalty to employees as appropriate. Should the PMC's O&M activities be impacted, then the degree of required payment will be discussed with GPA and possibly adjusted to reimburse the PMC for only fair actual losses, not to include the loss of production or electrical output or consequential damages.

4.1.2.11. Communicating of Reporting Structure

GPA shall communicate and inform all employees of the newly adopted and reporting system and the associated process to handle and resolve any possible future disciplinary action processes.

4.1.2.12. Replacement of Employees

GPA shall use best efforts to replace all employees who resign, retire, transfer or upon any official personnel action that will cause departure. The required replacement date shall be twenty-four (24) weeks from the departure of the predecessor employee or upon any official personnel action that will cause the departure. In cases of emergency, GPA may at its discretion, assign GPA employees on a temporary basis to the Cabras Units #1 & #2 plant until vacant positions are filled with permanent employees.

GPA shall notify the PMC thirty (30) days prior to the final replacement date that GPA's best efforts to replace employees were unsuccessful. Upon receipt of this notice, PMC may hire personnel, upon mutual agreement, to replace GPA employees at wage rates and benefits subject to approval by GPA. Reimbursement shall only be for the period of time PMC hired employees are employed and performing work up to the termination date of their employment with PMC.

4.1.2.13. Guam Power Authority Employee Payroll

GPA shall retain its standard responsibilities for all employee payroll expenses and disbursements.

5. Training

5.1. Performance Management Contractor Training Responsibilities

The PMC shall be responsible for all training and associated costs necessary to perform contract obligation, adhere to OSHA or GOSHA requirements, or other courses for personnel enhancement or certification for GPA employees or others under PMC management. The PMC shall include estimated training costs in their O&M price proposal for GPA's consideration and approval.

The PMC shall create and retain a skills check-out book for each non-clerical plant position. The skill check-out process must provide evidence and a record that the employee demonstrates general, specific, and practical knowledge of the equipment and systems they have the responsibility to maintain or operate. The intent is to ultimately provide a record of how much

mastery an employee possesses over the knowledge, experience, operations, troubleshooting, repair, and maintenance of equipment that is required of personnel holding a specific job and title. The skills check-out book must be very detailed and comprehensive as required for each specific job, classification, and level. The employee receives credit for fulfilling an element of the skills check-out under the following conditions:

- The element is completed under the direct supervision of a qualified instructor or expert for that element.

General knowledge includes but is not limited to:

- The names of the equipment, components, and subsystems
- The purpose of the equipment, components and subsystems
- The general principles of operation
- The controls, inputs, and outputs of the equipment
- The general manner in which the equipment is used
- Interpretation of alarms, measurements, and readings of the equipment
- Differentiate between normal, emergency, and poor or failed operations
- Safe versus unsafe operation
- Modes of operation
- How the equipment relates to other plant equipment.

Specific knowledge includes but is not limited to:

- The theory of operation of the equipment
- Detailed schematics and diagrams
- Modes of operation
- Regular preventive maintenance
- Special maintenance
- Typical failure modes, their diagnosis, and repair
- Special failure modes, diagnosis, and repair
- Emergency procedures

Practical knowledge includes:

- Record of successfully completed work and test results demonstrating successful operation, troubleshooting, and repair of equipment.
- Record of successfully completed work demonstrating evidence of trade craft, theoretical and practical knowledge of required systems, evidence of troubleshooting ability on required systems and equipment, evidence of ability to operate required systems and equipment, evidence of knowledge and practice of normal, safe, and unsafe operation, and evidence of ability to repair and maintain required systems and equipment.

The PMC shall participate and support GPA's Apprentice program to ensure a work force is available and that positions vacated due to termination, resignation or other reasons would not

compromise the ability to operate and maintain the power plant. This program shall incorporate the operations and maintenance sections of the plant and shall be in accordance to the U.S. Department of Labor standards of an Apprenticeship program, to include theory courses and on the job training.

The PMC shall be responsible to provide Trade Theory courses quarterly specific to the Operations and Maintenance of the Power Plant and retain training records and certificates of all GPA employees under PMC Management. The PMC shall submit copies of GPA employees' records, including but not limited to certificates, recordings of actual training hours per event (OJT and/or classroom training), individual training assessments, progress reports, evaluations and other related documents upon completion of each training activity for filing into employees' official personnel files. Upon PMC's completion of training, all original documents, i.e. training certificates, recordings of training hours, individual assessments, progress reports, evaluations and other related forms will be turned over to GPA Human Resources Division.

5.1.1. Operational Line of Progression (Traditional & On-the-Job Training)

The PMC will be required to develop the elements required for a successful operational line of progression for non-supervisory personnel. This standard will then be used to develop the procedure to govern this activity. Each operating position shall have a specific check listing of duties requiring support from both formal training (CD interactive or traditional class environment) and on the job training (OJT). Subject to civil service rules and regulations, employees will be required to successfully pass and progress to the highest level of each position and not be allowed to "Freeze" themselves in a lower position.

5.1.2. Maintenance Apprenticeship Style Training (Traditional & OJT)

Trade Theory support to the Apprenticeship employee development program for the Operator, Mechanical, Electrical and Instrument & Control maintenance functions. This program shall have specific training aspects associated with achievement and not be a time based only, system. The program should have a blend of practical and theoretical concepts and exercises that are demonstrative and reflective of the responsibilities of the specific target audience. It is envisioned that this can be accomplished through a combination of class environment (CD, interactive) and on the job training (OJT). Subject to civil service rules and regulations, employees will be required to successfully pass and progress to the highest level of each position and not be allowed to "Freeze" themselves in a lower position. Formal and documented training courses shall be implemented quarterly.

5.1.3. Leadership – Management

It is recognized that the Assistant Plant Superintendent, production shift Supervisors, maintenance leaders (mechanical, electric and I&C) will benefit from specialized training focused on leadership. The PMC shall organize and present to GPA the content, activities, proposed time frame and deliverables of a training program to increase the "Leadership Skills" of these important plant leaders. The PMC shall institute the training program and complete it within the first 36 months of the contract. The same training / development program will be provided to all future

permanent "leader" personnel. The PMC may offer this training to selective personnel, to be determined at their discretion.

5.1.4. Five Year Targeted Personnel Development Plan

The PMC shall summarize the individual aspects of the training modules, as outlined in the individual items of training responsibility described elsewhere, into an all-inclusive comprehensive five year training program. This five-year view of the total training needs will be reviewed with GPA personnel to monitor the progression of the training activities, in meeting the needs of the plant personnel. Successes and failures of the overall training efforts, along with the rate of completion, will be measured and documented as part of the incentive payout system.

5.2. Guam Power Authority Training Responsibilities

5.2.1. Establish Cross Training between Power System Operators & Generation Plant Control Room Operators (CRO)

To better understand the complexities and demands of each others work, a cross training program between the Cabras 1&2 Control Room Operators and the Power System Operators is desired. This activity is intended to help each group better understand the demands of each other's work and improve short and long term communications. GPA will be responsible for establishing the details, time frame and specific activities to be included in the cross-training activities. GPA will further require flexibility of personnel availability in order to schedule personnel into and out of the station in order to fulfill the training needs.

6. Operations

6.1. Performance Management Contractor Operations Responsibilities

6.1.1. Use of the Computerized Maintenance Management System (CMMS)

The PMC must utilize the GPA Computerized Maintenance Management System (CMMS).

6.1.2. Environmental Compliance

The PMC shall operate in compliance with all environmental requirements and shall be responsible for compliance in the following areas:

- Comply with the Consent Decree requirements in the Fuel Switching Enforcement Action (Appendix J);
- Document and review emission test data and take corrective action;
- Monitor emission tests and results to be in compliance with all applicable rules and regulations;
- Conduct testing on all water and air sources to comply with all Standard Operating Procedures and develop Standard Operating Procedures as required;
- Monitor all low volume waste streams to be within compliance with all local, federal and

- international regulations;
- Comply with all existing environmental permits and plans that include, but are not limited to, the PSD permit, NPDES permit, SPCC plan and BMP plan.
- Remediation of all oil spill incidents to the satisfaction of local and federal regulatory bodies.

6.1.3. Manage Waste Oil Handling System

The PMC shall manage and refine GPA policies and procedures in the operation and maintenance of the Cabras 1 & 2 waste oil-handling system. Operation and Maintenance of this system is critical to the cost-effective performance of the Cabras 1 & 2, Cabras 3 & 4 and MEC Units 8 & 9 facilities.

It is estimated that this operation requires one full-time person working approximately three to four days each week during normal day shift to handle the waste oil. The PMC shall train, assign and manage normal shift personnel to this duty. In addition, the PMC shall properly dispose of this waste oil in a safe manner consistent with GPA agreements, local and federal environmental regulations and industry best practices. This may include incineration by the Cabras 1&2 generation units only if it does not materially impair plant safety, operational integrity and efficiency.

6.1.4. Performance Management Contractor Responsibility for Maintaining Proper Water Quality

The PMC will be responsible for properly operating and maintaining the existing water production facility. GPA fully anticipates that a new water treatment facility is required to replace the existing water production facility. The procurement of this new facility will be one of the first priorities for the PMC to be completed no later than the second year of the contract period. GPA had conducted significant research and evaluated multiple options ranging from a one-to-one replacement to a Reverse Osmosis System. The information related to this evaluation shall be available to the PMC for their use. Currently the construction of this new facility is progress. The PMC shall ensure that the quality of the output from the new facility performs to designed specifications and shall contact the designated vendor in the event of problems.

6.1.5. Improve Existing Operating Procedures

The PMC shall audit all operational procedures turned over at time of contract award, revise to proper "best in class" operating standards, train employees to the proper use of all procedures, audit employees to their use of all procedures and take corrective action of variances relating to operational performance deficiencies.

6.1.6. Create Additional Operational Procedures (OP's) as required to Cover all Major Operating Functions

The PMC shall develop new operating procedures throughout the term of the contract as required. All operating procedures generated by the PMC will become the property of the GPA. The PMC will grant GPA access rights to all procedures during the term of the contract for review, usage and possible replication at other operating units. . The PMC shall conduct annual review of the

OP to validate their applicability and effectiveness as new technologies are introduced into the power plant as part of the modernization of the plant.

6.1.7. Plant Operating Procedure Multimedia and Content Format

The PMC shall provide GPA with five bound, high-quality hardcopies of all Plant Operating Procedures. In addition, all Plant Operating Procedures shall be available on CD-ROM format. Content format shall be optimized for the latest version of Microsoft Internet Explorer and for development using Macromedia Contribute 3.

Two sets of Plant Operating Procedures will be kept at all times in the Cabras 1&2 control room. One set each will be given to the following:

- Assistant General Manager, Operations;
- Manager of Engineering;
- Manager of Generation;
- Manager of Strategic Planning and Operations Research.

6.1.8. Internet File Formats

All Plant Procedures shall make use of the following Internet file formats: Hypertext mark-up language (HTML), Joint Photographers Expert Group (JPEG), Graphic Interchange Format (GIF), Shockwave Flash (SWF) and Realmedia files (RM). The PMC shall supply all code and software required to produce and edit the Plant Procedure files.

6.1.9. Transformer Maintenance

The PMC shall perform all maintenance (predictive and preventive) and testing including dissolved gas analysis (DGA) for all transformers listed in Volume III, Section 3.7. The PMC shall provide a report of maintenance activities and test results to GPA monthly. In the interest of cost savings, the PMC is encouraged to utilize GPA T&D Substation personnel whenever available.

6.1.10. Physical Boundaries of Cabras 1 & 2

The attached edited map identifies the physical boundaries of the Cabras 1 & 2 units. The PMC is responsible for the upkeep of the property grounds, associated buildings, and janitorial services. The electrical demarcation is such that PMC will be responsible for all equipment associated with the plant. Although plant electrical maintenance personnel are only qualified to handle equipment with an operating voltage of 5000 volts and below, the PMC shall be responsible to ensure that other capable and qualified personnel, whether from GPA T&D section or private companies, maintain, repair, and/or reset all other electrical equipment.

6.1.11. Minimize the Start-up Times and Ramp Rates

The PMC shall optimize unit startup and ramp rates while preventing any short or long term damage to the equipment. The PMC will describe industry "best practices" in its proposal. The PMC shall inform system operators and the GPA Strategic Operations Committee of any revisions to these operating restrictions.

6.1.12. Compliance with Quality Management Plan for Prudent Fuel Use / LEAC Plan for Performance Goals

The PMC shall comply with the criteria defined within the Quality Management Plan for Prudent Fuel Use and LEAC Plan for Performance Goals.

6.2. Guam Power Authority Operations Responsibilities

6.2.1. Provide Start-up Power & Aux. Power during Outages

GPA will provide all power for start-up and outage related activities.

7. Maintenance

7.1. Performance Management Contractor Maintenance Responsibilities

7.1.1. Maintain Required Spare Parts Inventory

The PMC will manage the spare parts associated with the Cabras 1 & 2 facility. This will require the PMC to replace all material, parts, components and equipment currently placed in stock as it is used at the facility. Any spare parts consumed by any plant other than Cabras 1 & 2 will be responsible for replacing these items in the same fashion as the PMC. The PMC shall be responsible for the management of the spare parts inventory and for replacing any losses. The PMC will be responsible for the security and proper storage of the spare parts. The PMC will be responsible for annual inventory counts and will report the year prior as well as current year's inventory to GPA. The PMC shall use the same standards for inventory valuation and item count currently used by GPA. Large items removed from stock such as motors, pump assemblies, circuit breakers, etc. shall be repaired to like new condition and returned to stock if the repair option is the best option in support of the plant's operation. If the original item removed from the plant is not repairable, then new or like new equipment or parts must be procured by the PMC to replenish the stock items.

The PMC shall determine whether items in the inventory are "active" or "inactive". The PMC may sell off the inactive items if they have no value to the GPA or station, and only after it has secured GPA's agreement to do so. The PMC shall use proceeds of the sale to secure needed items for stock. Lastly, the PMC shall take all active inventory items and tie them to the equipment as listed in the CMMS. This tying of items and their description to specific equipment will aid the planners efforts in better matching materials to maintenance requirements

7.1.2. Recommended Store's Inventory Optimization

The PMC shall be responsible for the following actions to optimize the inventory for Cabras Units #1 & #2:

- Review and provide a recommended list of spare parts and inventory requirements for all systems associated with Cabras Units #1 & #2.
- Determine inventory requirements to ensure continuous rotation, refurbishment, and/or replacement of parts.
- Identify and make necessary adjustments to the existing safety stock levels and ordering schedules.
- Track and account all inventory proceedings.
- Ensure parts specifications are updated for system upgrades.
- Correct discrepancies related to all inventory issues.

GPA and the PMC shall discuss and agree, in writing, on all inventory proceedings. For example: Prior to any decision not to reorder any stock item, both parties must fully discuss the matter and both, in writing, must agree to such decisions. If both parties mutually agree not to reorder an item, the PMC must still keep detailed records for future usage in the event that the item is required in future years. These records must accompany a copy of the written agreement of both parties, including those responsible parties involved in the decision. The records must continue to reflect the equipment details in order to support reordering. The PMC shall not remove these items from the inventory master listing. However, the PMC must code these items to reflect the inventory level at zero.

All inventories at the beginning and end of the contract duration will be the property of the GPA.

7.1.3. Quality of Refurbishing of Stock Items after Usage

The PMC shall carefully consider the quality of all refurbishment activities performed on items returned to stock. Quality of repairs often times will not be realized until the component is placed into service. This activity often times is many years past the date of the actual repair. The PMC shall keep record of any associated warranties and request extended warranties where applicable, based on commencement from "In service" dates not delivered dates. All warranties shall be transferred to GPA at the end of the contract period.

7.1.4. Account for the "Whereabouts of" Specialized Tools & Assets

The PMC and GPA shall perform an inventory of all tools, non-stock parts, material and equipment assigned to the plant, at the time of turn over of management responsibilities. The PMC will be responsible for the safe use and control of all tooling during the contract terms. Should additional tooling or equipment be required the PMC may first request to use tooling from the central maintenance group or other GPA sites, however GPA is not obligated to supply such tooling or devices if they need such for other GPA projects. The PMC may be required to secure tooling and equipment on its own to support the safe and reliable O&M practices of the plant.

7.1.5. Create Improved Outage Planning Process Procedures

The PMC will be required to develop outage-planning procedures and utilize best-in-class aspects of planning, managing, controlling and financial management of outages. Successful outage planning will result in improved equivalent availability performance and thereby be recognized in the compensation structure. Additionally, the PMC shall work with the Authority's Planning Group to account for the dollar value of early or late completion of outages.

The PMC will track and report the cumulative net savings or loss due to early or late planned outage completion.

7.1.6. Optimize Outage Scheduling & Planning

The PMC will be responsible for the outage scheduling and planning. The PMC will be required to manage outages to the mutually agreed upon schedule. Should the outage schedules slip it will be the responsibility of the PMC to inform GPA. Should this occur, the PMC shall exercise the best possible option to pull the outage back to, or as close to the originally agreed to schedule as possible. The PMC will be primarily responsible for planning the outage but may ask for and shall receive input from knowledgeable GPA personnel.

The PMC shall provide a daily and annual Plant Outage schedule to the Manager of Generation and post this schedule on the Authority's web site using Macromedia Contribute 3. The schedule must account for planned and actual performance, as well as net savings or losses due to early or late completion of planned outages."

"The Authority's Planning Group (SPORD) will provide access to the Authority's web site for these purposes."

The Unit Commitment information shall include the following information for each generation unit:

- Heat Rate Variances (MBTU/MWh);
- Capacity Derations (MW); And,
- Upper and Lower unit commitment levels (MW);
- Forbidden Regions;
- Any Conditions That May Limit The Dispatching Of The Unit.

The PMC is required to:

- Make Critical Path Management (CPM) part of all Project Planning
- Train Plant Maintenance Planners and plant managers in project management.
- Provide incentives (Performance Bonuses) for GPA personnel to obtain or renew Project Management Institute certification (http://www.pmi.org/info/PDC_CertificationsOverview.asp?nav=0401).

7.1.7. Procure OEM & Non-OEM Support as Required

The PMC will be required to procure all OEM and Non-OEM assistance it requires to support the daily operation and maintenance of the plant. GPA personnel may assist the PMC with issues and historical perspective, but their availability cannot be guaranteed.

7.1.8. Create a Quality Improvement / Root Cause Analysis Culture

GPA requires the PMC to institute a training program to introduce and establish a Quality Improvement Process for the plant personnel. The PMC shall structure this process to minimize the "rework" of items and have a high focus on "Prevention" techniques. The PMC shall structure quality improvement techniques around proven Deming type principles of:

- 1) Reason for Improvement;
- 2) Current Situation Documentation;
- 3) Analysis;
- 4) Countermeasures;
- 5) Results;
- 6) Standardization; and,
- 7) Future Plans.

These seven steps shall employ proven statistical processes and improve employee skill in determining the root cause of failures. Failures may occur with equipment, people, process, materials, or many other items. Once training has been completed, the PMC must actively support this aspect of the plant culture and report on the success or failures to the GPA oversight team. The PMC must provide follow up training in future years based on employee knowledge retention and employee turnover.

7.1.9. Attain National Boiler Inspection Code (NBIC) Compliance

GPA requires that the PMC must bring the two (2) boilers to comply with the National Boiler Inspection Code (NBIC) by the fourth contract year. By the first contract year the PMC must establish a plan that will guide it to meet the requirements for compliance such as establishing a Quality Assurance/Control (QA/QC) manual or program, auditing system, etc. By the end of the third contract year the PMC should start to implement these requirements.

7.1.10. Facility Maintenance and Improvement

The PMC is responsible for maintenance and improvement of all facilities within its physical boundary. In addition to upkeep of property grounds and housekeeping services the PMC and GPA shall conduct an assessment all facilities and recommend any necessary improvement at the beginning of the first contract year. The proposed improvements will become the basis for further refinement of both the O&M Expense Budget and CIP. GPA and PMC representatives will annually determine and negotiate which items GPA will fund for the next fiscal and contract year.

7.2. Guam Power Authority Maintenance Responsibilities

7.2.1. Assignment of Central Maintenance Services Support

GPA will provide timely and effective service support from Central Maintenance in accordance with the Central Maintenance utilization requirements described elsewhere. This support shall report to the PMC or plant personnel as requested in accordance with GPA's guidelines for requesting overtime or off-shift work. If the support personnel do not report as required, the PMC may exercise options to obtain support services from alternative resources. GPA and the PMC shall resolve the cost of these alternative resources in accordance with the proper dispute resolution procedures.

7.2.2. Tool and Equipment inventory

GPA shall inventory all tools, equipment and vehicles, and develop a master inventory listing prior to the arrival of the PMC. The final proposal package shall include this listing.

7.2.3. Parts Warehouse Supervision

GPA shall continue to provide warehouse supervision as currently being provided. The PMC is encouraged to utilize this level of support.

8. Capital and Improvement Performance Projects (PIP/CIP)

Capital Improvement Projects (CIPs) are defined as major maintenance projects that help maintain or improve GPA's assets. To be included in the CIP budget projects must meet one of the requirements specified in Appendix L, Capital vs. Expense Transaction Standard Operating Procedure. Performance Improvement Projects (PIPs) are defined as major non-routine maintenance projects that are not classified as Capital Expenses under Generally Accepted Accounting Principals. PIPs shall not be treated as normal O&M expenses and shall be approved by GPA prior to their commencement. PIPs and Capital Improvement Projects (CIPs) are discussed in more detail in Volume III.

The PMC and the Authority's Planning Group (SPORD) will evaluate all proposed PIPs for review by the Authority's Central Project Review Committee. The PMC in coordination with GPA must provide a well-thought out business case for performing each project over \$100,000.

In cases where the value of the project approaches the Guam Public Utility Review Protocol amount currently set at \$1,500,000, the Authority demands greater diligence in the planning, and documenting of the business case. GPA may require the PMC to provide expert testimony in support of the business case.

Additionally, after completion of each CIP/PIP project the PMC shall perform evaluations to confirm that the purpose or objectives of the projects are met and provide a report to GPA.

8.1. PMC Performance Improvement Project Responsibilities

8.1.1. Identify and Recommend Additional Performance Improvement Projects

The PMC shall identify and bring to GPA's attention future PIP requirements. The proposed PIP's will become the basis for further refinement of both the O&M Expense Budget and the Capital Budget. Annual dialog among GPA and PMC representatives will determine which items GPA will fund. GPA and PMC personnel shall use net present value, discounted cash flow financial analysis to determine which proposed activities would provide the greatest return to the GPA customer. The financial assumptions such as discount rate will be provided by GPA's Finance Division.

The PMC and GPA shall perform all economic feasibility studies with respect to additional Performance Improvement Projects together. Financial analysis shall include the use of GPA's planning tools and internal cost models wherever appropriate. The PMC will provide GPA with adequate information to develop and maintain its models. GPA will perform any needed simulations using its planning tools.

The economic analysis methodologies used to gauge the return on investment shall include an assessment of costs and benefits within the context of dynamic power system requirements. In addition, the analytical methodologies shall account for the sensitivities of the preferred decisions with respect to externalities such as fuel prices, system demand and energy requirements and any other variables as the PMC and GPA may wish to investigate.

8.1.2. Identify and Recommend Additional Capital Improvement Projects

The PMC is responsible for identifying and recommending to GPA all future Capital Improvement Projects (CIP's). If a CIP contributes to performance improvement then it will also be included in the list of PIP's; however, not all CIP's are PIP's. The proposed CIP's will become the basis for further refinement of GPA's Capital Budget. Annual dialog between GPA and PMC representatives will determine which items GPA will fund. GPA and PMC personnel shall use net present value, discounted cash flow financial analysis to determine which proposed activities would provide the greatest return to the GPA.

The economic analysis methodologies used to gauge the return on investment shall include an assessment of costs and benefits within the context of dynamic power system requirements. In addition, the analytical methodologies shall account for the sensitivities of the preferred decisions with respect to externalities such as fuel prices, system demand and energy requirements and any other variables and scenarios the PMC and GPA may wish to investigate.

The PMC and the Authority's Planning Group (SPORD) will evaluate all proposed PIPs for review by the Authority's Central Project Review Committee. The PMC in coordination with GPA must provide a well-thought out business case for performing each project over \$100,000.

In cases where the value of the project approaches the Guam Public Utility Review Protocol amount currently set at \$1,500,000, the Authority expects a high degree of professional diligence in the planning, and documenting of the business case.

8.1.3. Project Management for All Accepted PIP's / CIP's

The PMC shall accept project management duties for all PIP's and CIP's. Should the PMC elect to hire a third party to perform this activity, the PMC will be fully responsible for the third party's actions, performance and payment under the PMC's fixed management fee. Payment for such election is not reimbursable by GPA.

8.1.4. Field Installation

The PMC bears the responsibility for field installation-type activities of all assigned PIP and CIP items. In the event of CIP items, the GPA Engineering Department has first right of refusal to perform this function. Should the PMC elect to hire a third party to perform this activity, the PMC will be fully responsible for the PMC's actions, performance and payment.

8.1.5. Acceptance Testing

The PMC will be responsible for performing acceptance testing for PIP and CIP items. Acceptance testing must include a detailed written planning document with structured and non-structured procedures with pass/fail criteria for all important elements of the PIP or CIP. The PMC shall submit electronic and hard copies of the proposed acceptance test document sufficiently in advance of actual testing to the following:

- Assistant General Manager – Operations
- Manager of Generation
- Manager of Engineering
- Manager of Strategic Planning and Operations Research (SPORD).

The Authority shall provide a timely review and approval of these documents in a reasonable time frame.

For any CIP activities managed by the GPA Engineering Department, the GPA Engineering Department will perform this acceptance testing function. Should the PMC elect to hire a third party to perform this activity, the PMC will be fully responsible for the third-party's actions, performance and payment.

8.1.5. Associated Outage Scheduling

The PMC will coordinate the scheduling of all its outage requirements through the Manager of Generation which will be in turn coordinated with the GPA Power System Control Center (PSCC). Total system wide demands will primarily dictate the optimal dates for scheduling outages. The "major outage" dates must be established (between GPA and PMC) and planned for, far enough in advance, that they will support quality outage planning efforts as described elsewhere.

GPA and PMC shall agree to major outage dates based on analysis performed by the Authority's Planning Group (SPORD). This process is required to optimize outage costs.

8.2. Guam Power Authority Performance Improvement Project Responsibilities

8.2.1. Provide Listing of Recommended Performance Improvement Projects (Including Capital Improvement Projects)

Both GPA and the PMC shall re-evaluate the list and upon the recommendation with the incoming PMC shall mutually agree to the overall priority and scheduling of these activities. The goals of 1) safety and insurance issues 2) minimization of total cost to the GPA, 3) Improvement of plant reliability and/or efficiency and 4) Effective outage scheduling, shall drive the PIP and CIP activities and their schedule.

8.2.2. Updated Performance Improvement Plan

GPA reserves the right to change the projected Performance Improvement Plan project schedule prior to Phase Two Proposal submittals.

8.2.3. PIP/CIP Funding and Project Oversight

GPA has the responsibility for PIP and CIP project funding. However, expensed PIP's shall be funded through the O&M expenditures. In the event of project overruns, the PMC can issue a compensation exception petition to GPA for review. Should both parties not be able to resolve the issue, both parties shall enter into a dispute resolution process as discussed elsewhere.

8.2.4. Compensation

Payments for CIPs will be made on a reimbursable basis. GPA will reimburse the PMC for actual cost and a charge for administration, finance fees and interest not to exceed five percent (5%) of the actual project cost. Payments shall not exceed the amounts agreed to and approved by GPA and the PMC or as otherwise agreed to by the parties through a change order.

9. Procurement Authority

9.1. Performance Management PMC Procurement Outsourcing Responsibilities

9.1.1. Operations and Maintenance Outsourcing

The PMC shall implement procurement methods to ensure cost controls remain within the authorized O&M Spending Budget. The PMC shall allow GPA access to all procurement and cost records. All procurement and cost records and processes are subject to audit by GPA.

9.1.2. Recommend & Pre-qualify Vendors for Authorization

PMC shall frequently provide a listing of those vendors who they have experienced solid success with and wish for GPA to allow bidding on upcoming work required by the PMC. This pre-qualification of vendors will expand the normally available pool of high quality vendors and ensure these vendors are informed of GPA's intent to bid out work in their core competency.

9.1.3. Procure Operating & Maintenance Supplies

The PMC will require normal as well as special materials to support the operation and maintenance of the facility. These supplies in most all cases will be pre-qualified and approved in the budget process. Those items that are pre-qualified and approved will be processed through the normal PMC directed process.

The PMC will obtain the best terms, conditions, pricing, and availability to meet the needs of the station and ensure high levels of reliability as well as keep outages to a minimum with this process.

9.1.4. Third-Party O&M Outsource Contracts

The PMC will have unilateral freedom to develop relationships with external third-party resources to support the O&M needs of the plant. The PMC will direct the procurement functions as required and utilize what ever third-parties as best required, when required. The PMC will be responsible for payment of these third-parties.

The PMC will obtain the best terms, conditions, pricing, and availability to meet the needs of the station and ensure high levels of reliability as well as keep outages to a minimum.

9.1.5. Create or Improve Procurement Procedures to Expedite Repairs

The PMC will develop its own internal procurement procedures to support the purchase and acquisition of emergency materials and professional services. The PMC will direct the procurement functions as required and utilize what ever outside PMCs as best required, when required. The PMC will be responsible for payment of these PMCs.

The PMC will obtain the best terms, conditions, pricing, and availability to meet the needs of the station and ensure high levels of reliability as well as keep outages to a minimum.

9.1.6. Performance Testing

The PMC will procure performance testing services for each unit at the beginning of the first contract year and within 30 days of the 4th contract year anniversary date to establish performance baselines. The PMC and GPA will agree on the testing scope and on the selection of the third-party firm to perform the services prior to contracting these services.

The minimum tests include:

- Fuel oil sampling testing
- Net and gross heat rate at minimum, 50%, 75% and maximum unit loading using boiler losses and input/output methods under test and normal operating conditions
- Air Heater Leakage and Boiler Performance
- Boiler Feed Pump Performance
- Condenser and Steam Turbine Performance

- Feedwater Heater Performance
- Ramping Rate.

All testing must conform to all applicable ANSI and ASME standards. Additionally, this scope must include the identification of any operational issues associated with performance below design specifications. The scope must include detailed recommendations for bringing systems back to design conditions. Furthermore, the recommendations must include the following:

- An engineering estimate of the life cycle cost of remediation or upgrade;
- A planning schedule for implementing each recommendation;
- An engineering estimate of the benefits for each recommendation;
- Estimation of life expectancy for each recommendation;
- Expected degradation of benefits over recommendation lifecycle;
- An engineering estimate of affect on heat rate, FOR/EFOR, AF/EAF and other performance indicators;
- Categorization of costs as O&M or Capital.

9.1.7. Right to Performance Testing Results

GPA shall have full rights to all testing results without modification from the independent third-party contractor.

9.2. Guam Power Authority Procurement Responsibilities

9.2.1. Fuel Procurement and Delivery, Including Quality Assurance

GPA will provide procurement and delivery services of fuel to the PMC for Cabras 1 & 2. This service will include and guarantee the fuel's quality in such a manner that it will not disrupt the normal operation of the plant. Problems with the fuel's quality, if any, shall be well documented and submitted by the PMC to GPA, along with the cost impact and any problems.

GPA will cover all costs associated with the delivery of required fuels, and guarantee in uninterrupted fuel delivery.

Fuel analysis conducted by GPA through its contractors will be accepted as the sole authority on all fuel issues.

9.2.2. Recommendation Listing of Available Local Vendors

GPA will provide a complete listing of all vendors, suppliers and consulting organizations utilized in the past two years, to the PMC for their consideration and use. The listing shall include company name, address, and phone and fax numbers. A summary of the basic services provided will be included in the listing of vendors and any basic rates charged to GPA in the past two years.

9.2.3. Authorize Recommended Vendors

GPA will determine and create a listing of those vendors it has authorized and recommends to perform services as well as supply goods for the PMC. This listing should contain only those vendors who have actually performed work in the past two years and who have achieved good performance ratings.

GPA shall document, certify and store the mode of selection of these vendors and all supporting documents related to the recommendation or non-recommendation of vendors.

10. Communications and Reporting

10.1. Performance Management Contractor Communications and Reporting Responsibilities

10.1.1. Auditable Reporting of Performance Measurements

The PMC shall provide comprehensive weekly and monthly reporting of actual historical measurements for all performance measures and information on fuel deliveries and consumption. The report shall include detailed explanations of any violations of minimum guaranteed performance.

10.1.2. Weekly and Monthly Performance Improvement Project Status

The PMC will incorporate a full or adapted Critical Path Method (CPM) project management methodology. As part of this, the PMC shall provide Gantt charts identifying task level percent-completion and critical paths. The PMC shall provide these Gantt charts with annotations using Microsoft Project. If the PMC should chose to deliver these charts using other acceptable project management software, it shall provide a copy of the software to GPA, and provide training in the use of this software without charge. The PMC shall provide monthly project status reports during the planning stage and weekly project status reports during the actual project implementation until the completion of the project.

10.1.3. Monthly Expenditures

The PMC shall provide summaries of compliance/non-compliance regarding monthly expenditures. The accounting and reporting of these monthly expenditures shall conform to generally accepted accounting standards.

10.1.4. Incentive/Penalty Calculations

The PMC shall provide monthly reports with detailed calculations of incentive / penalty payments for GPA's review and approval.

10.1.5. Personnel Performance Reviews

The PMC shall provide regular personnel performance reviews as required by standard GPA / Government of Guam rules and regulations. The PMC shall coordinate these regular reviews with the GPA Human Resource Division.

10.1.6. Documentation in Support of Disciplinary Procedures

The PMC shall document and archive all evidence supporting all recommendations for disciplinary action against GPA personnel under their purview as required by standard GPA / Government of Guam rules and regulations.

10.1.7. Conduct Spare Parts Inventory & Variance Reporting

The PMC shall conduct annual reporting of spare parts inventory and variances in accordance with generally accepted accounting standards. Schedule of annual inventory shall be coordinated with GPA Accounting.

10.1.8. Improve Communications with System Dispatch

The PMC shall strive to improve communications with system dispatch – especially with regard to achieving the optimal economic dispatch and/or reliability dispatch of Cabras units 1 and 2 and thereby minimization of overall system production cost.

10.1.9. Provide “Off Spec Conditions” & Variance Reporting

The PMC shall provide the power system operators with the minimum and maximum unit commitment capabilities for the next 24 hours everyday at midnight. The PMC shall provide detailed explanations of any inability to meet desired operational levels – e.g. partial forced or scheduled capacity derations.

10.2. Guam Power Authority Responsibilities

10.2.1. Monthly Review of Reported Performance Measurements

GPA or a mutually acceptable third party will verify the PMC’s actual performance and the PMC’s adherence to best practices in order to assure long-term plant viability. Thus, GPA or a third party shall critically review, in cooperation with the PMC, the PMC’s reported measured performance in order to reach agreement on the actual level of achieved performance improvement. Discovered variances may trigger compensation dispute procedures or, in an extreme case, contract termination procedures.

10.2.2. Compensation - External Influences

GPA shall monitor, record and report the observed measurements of all external variables that are used in the determination of PMC compensation. GPA and the PMC shall identify these exogenous variables.

10.2.3. Incentive/Penalty Calculations Review

GPA will review and verify the PMC's calculations of incentive / penalty payments. GPA and the PMC shall, in their best efforts, reach an agreement on the actual incentive penalty payments. Discovered variances may trigger compensation dispute procedures or, in an extreme case, contract termination procedures.

10.2.4. Improve Communication with System Dispatch

GPA shall seek to improve communications between system dispatch and Cabras 1 and 2 operations and maintenance - especially in the areas that directly impact the PMC's ability to implement performance improvements and to measure actual performance.

11. Contract Fees

11.1. Proposed Fixed Management Fees

A portion of the PMC's compensation may be in the form of fixed monthly management fees. The PMC may propose either a constant fee for the life of the contract, or an escalating fee. Front-end loaded fees will be expressly prohibited. Higher proposed management fees will result in lower scoring in the IFB process.

Services to be provided under the Fixed Management Fee include:

- On-site Technical and Management Services
- Office Space (if not available on-site)
- Office expenses
- Engineering Services for CIP/PIP development & feasibility studies
- Plant Engineering (Section 14 of this Volume)
- Etc..

Specialized technical services required to directly support projects such as technical support for boiler chemical cleaning shall be included in the project cost.

11.2. Proposed O&M Spending Budget

The PMC shall propose an O&M Spending Budget, based on the object codes specified in Volume III for each contract year. Compensation for O&M Spending will be made on a reimbursable basis not to exceed the proposed Annual O&M Spending Budget. Cost plus reimbursement is not allowed. Higher proposed O&M Spending Budget will result in lower scoring in the IFB process.

12. Contract Terms

12.1. Contract Period

GPA intends for this contract to be a minimum of five years with an option for a five-year contract extension. Bidders may propose additional contract years; however this will require review and approval by GPA.

12.2. Optional Five-Year Contract Extension

GPA shall give appropriate notice of its intentions regarding its option to exercise the five-year contract extension. At the beginning of the 5th contract year GPA and the PMC shall negotiate the contract extension terms based on the requirements specified in Paragraph 12.4.5. Final confirmation by mutual agreement between GPA and the PMC for contract extension shall be given after completion of negotiation no less than six months prior to the end of the contract term. However, GPA may elect to reverse its decision without penalty at any time within six months of the end of the contract period based on poor PMC performance during this period.

12.3. Renewal of the Agreement

GPA and the PMC may renew this agreement upon the mutual agreement of the parties. If the Agreement shall be renewed, then the parties shall meet and discuss the new terms and conditions of the Agreement six (6) months before Termination Date.

12.4. Performance Management Contractor Contract Responsibilities

12.4.1. Comply with Annual Quality Audit within Plant

The PMC shall comply with all GPA or authorized third party quality audits.

12.4.2. Use of English & Other US Standards

All communications, correspondence, reports, engineering calculations and drawings, O&M records, documentation and other forms of verbal, electronic and written communications shall be in English language and other US standard units of measure, forms and formats.

12.4.3. Use of Compatible Software and Electronic Formats

All communications, correspondence, reports, engineering calculations and drawings, O&M records, documentation and other forms of electronic and written communications shall conform to formats used by the following software:

- AutoCAD;
- Microsoft Word;
- Microsoft Excel;
- Microsoft Front Page;

- Microsoft Power Point;
- Microsoft Project.

12.4.4. Availability/Outage Definition Standards

The PMC shall calculate all availability and outage performance measurements in accordance with NERC GADS definitions.

12.4.5. Identify Optimum Requirements for the Plant

The PMC shall identify all requirements to optimize or maintain the plant performance by the beginning of the 5th contract year. These requirements shall be considered as starting negotiation points between GPA and the PMC, should GPA elect to exercise the additional five-year contract extension. GPA and the PMC may renegotiate fees, projects, and contract structure upon mutual agreement. Otherwise, both parties may agree to keep the existing contract structure. The optimal requirements to be identified by the PMC shall include, but not limited to, the following:

- PMC Fixed Management Fees
- O&M Spending Budget
- CIP/PIP Requirements
- Training Requirements
- PMC Staff Requirements
- Cabras 1&2 Staff Requirements.

The PMC shall determine cost savings in each requirement for the Contract to yield a high positive Net Present Value to GPA.

12.5. Guam Power Authority Contract Responsibilities

12.5.1. Timely Payments

GPA shall provide prompt payments to the PMC for costs and services rendered in accordance with the Contract. Said payment shall be made within thirty (30) days of being invoiced. Should part of the invoice be challenged, GPA will at a minimum pay the unchallenged portions of the invoice under the same terms. Should GPA fail to make any payments due to the PMC under the Contract, GPA shall pay interest to the PMC in accordance with the provisions of the Prompt Payment Act, 5 GCA Sections 22502-22507.

12.6. Exception Petition Procedure

The PMC or GPA may at times wish to petition for special exceptions to the standard implementation of the agreed upon compensation structure. Such petitions would generally be made where there is a belief that extraordinary circumstances beyond the control of either party have led to extreme positive or negative variations in actual measured performance. A procedure will need to be developed to provide for the resolution of such petitions. At a minimum, the process should require the petitioner to perform a root cause analysis, of the alleged extraordinary

event, prior to and in support of its petition. If the petition procedure fails to achieve a resolution that is satisfactory to both parties, then the petitioning party may choose to enter into a dispute resolution in accordance with the Dispute Resolution Procedure discussed elsewhere. All face-to-face negotiations shall be conducted on Guam and in accordance with Guam Law.

13. Instrumentation

The PMC shall make full use of the Mark V Historian and available instrumentation to collect key performance information. Proponents must provide the list and periodicity of key performance data collected at similar plants under their operation. Additionally, each Proponent must provide what analyses are performed using this information. Hourly readings are not sufficient to fulfill this requirement. Proponents must ensure that all instruments that can be made capable of electronic download and storage are made capable of this function. All performance information must be made available to the Authority's Generation and Planning Group (SPORD) business units for independent analysis. If required, the PMC must provide any software, equipment, and training to Authority staff to access, manipulate and analyze this information.

All key performance information shall be archived appropriately in electronic form.

14. Plant Engineering

The PMC must provide a training program and recruit among the following groups in order to build a highly trained, experienced and competent plant engineering capability within the Authority:

- Recent university graduates of ABET 4-year accredited Engineering Programs within the United States
- University seniors in good standing of an ABET 4-year accredited Engineering Programs within the United States who will graduate at the end of the current semester
- Experienced practicing Engineers with an Engineer-in-Training plus graduation from an ABET 4-year accredited Engineering Programs within the United States or Professional Engineering Registration in any State
- Engineers currently employed by GPA.

The PMC must propose a testing program for aptitude, attitude, motivation, good health, and suitability for plant engineering work at the high levels of responsibility and technical capability. Each PMC must propose a training program that prepares selected candidates for plant engineering duties. This curriculum must include:

- Steam Power Plants
 - Steam Fundamentals
 - Basic Power Plant Design
 - Steam Generators
 - Boilers
 - Principles of Heat Transfer
 - Boiler Design and Construction
 - Boiler Auxiliaries

- Cooling Towers, Air-Cooled Condensers, Cooling Systems
- Water Treatment
- Prime Movers
 - Steam-Turbine Fundamentals
 - Steam Turbine Design
 - Combustion Turbine Fundamentals
 - Combustion Turbine Design
 - Reciprocating Engines
- Plant Electric Systems
 - AC Generators and Generator Protection
 - Transformers and Transformer Protection
 - Electrical Interconnections
 - In-Plant Electrical Distribution
 - AC motors and their Applications
 - Busway Applications
 - Cable Applications
- Instrumentation and Control
 - Powerplant Instruments
 - Combustion Control and Burner Management
 - Turbine and Engine Governors
 - Key Systems and Components
 - Human Engineering: Human Machine Interface
- Pumps
- Plant Operations and Maintenance
- Environmental controls
 - Environmental Legislation and Regulation
 - Air Emission Controls
 - Water Emission Controls
 - Solid Waste Management
 - Powerplant Noise and its Control
- Combustion of Fuels
 - Combustion Process
 - Theory of Combustion
 - Air Supply
 - Coal
 - Fuel Oil
 - Combustion Process Control
- Plant Management
 - Inventory Systems
 - Supervision and Management
 - Plant Finance
 - Just-in-Time Operations
 - Total Quality Management
 - Project Management – Critical Path Management
 - Outage Planning
 - Statistical Process Controls.
- Root Cause Analysis

- Business Continuity Planning
- Predictive Maintenance
- Technical Trade Work
 - Welding
 - Rigging
 - Others
- Industry "Best" practices
- Other material as determined by the PMC or GPA.

The PMC must recruit four individuals meeting all requirements for this program. After testing and finding acceptable candidates within this class of locally available individuals, the PMC and the Authority will form an interview panel including one and two representatives from each group respectively to select candidates for this program. This interview panel will select the participants for this program. The number of program participants hired will be at the discretion of GPA. The candidates chosen for inclusion in the program will be hired as contract employees of the Guam Power Authority reporting directly to the PMC for work at Cabras 1&2. Preference will be given to local residents of Guam in expectation that these individuals would more likely remain on Guam after graduating from this program.

14.1. Program Description

Training for this program must include formal classroom training delivered on Guam or through distance learning such as the Internet under the supervision of a qualified instructor. Training does not need to be held during working hours. The program expects at least twenty-five hours per week outside of class devoted to class assignments from each participant. All work must be graded. Participants will not be financially compensated for these hours. The PMC and GPA shall define in advance the pass/fail criteria for this work. Participants are expected to devote time outside of their normal working hours to studying, attending classes, taking tests, and performing class assignments. These study hours are not paid hours.

Additionally, program participants must complete a slate of on-the-job (OJT) training assignments emphasizing materials learned in class. The Authority will compensate these employees for hours worked on these assignments. The PMC must directly supervise at all of the OJT completed by program participants.

This program supplements coursework with real world problems and projects for the Authority. These projects must be approved by the PMC and Authority. Participants are compensated for hours worked on these projects. This program must emphasize work at Cabras 1&2. These engineers will be part of the plant staff and work under the supervision of the PMC.

Program participants must complete this program within three years or reimburse the Authority for all expenses including program administration costs. Upon graduating from the program, the Authority will hire program participants as Plant Engineers or Senior Plant Engineers at a salary comparable to the median compensation provided to similar job holders within the United States given comparable experience and training. Program graduates are expected to obtain professional engineering registration on Guam within two years of graduating from this program.

14.2. Recent University Graduates

These program participants must provide the Authority five years of service to the Authority or reimburse the Authority for all expenses including program administration costs.

14.3. University Seniors

The Authority will award program participants who are still working towards their degree with a full scholarship to complete their undergraduate or in special cases their graduate engineering program. These program participants must provide the Authority four years of service to the Authority or reimburse the Authority for all expenses including program administration costs.

14.4. Experienced Practicing Engineers

These program participants must provide the Authority five years of service to the Authority or reimburse the Authority for all expenses including program administration costs.

14.5. Program Graduates

GPA and the PMC will define the position descriptions and requirements for the Plant Manager Position prior to the expected graduation of the program candidates. Furthermore, the PMC must account for and identify in their bid for Program Graduates taking over functions supplied by the PMC as an option exercised at the discretion of GPA.

GPA reserves the right to assign program graduates to work directly under the Assistant Manager of Generation and may assign them to various plants other than Cabras 1&2. In the event that a Plant Superintendent Position is available, the Authority may create a Plant Manager Position in lieu of the Assistant Plant Superintendent and fill the Plant Manager position with one of the Senior Plant Engineers. In essence, the end goal is to get seasoned, qualified engineers supporting, managing and operating key generation plants whether at Cabras 1&2 or other plants.

14.6. First Right to Hire Program Graduates

Guam Power Authority will have first rights to hire Program Graduates. The PMC and its subcontractors will not recruit Program Graduates away from GPA for a period not less than five years after graduation from this program. Otherwise, GPA is entitled to the twice all related costs for putting the individual through this training.

15. Reporting

The PMC is responsible for providing regular reports including but not limited to the following:

- Operations and maintenance activities
- Project Management
- Plant Operational Costs including but not limited to providing a model for operational costs in the following forms:

○ Operational Costs = Fixed Costs + (Variable Cost Factor * Energy Production)

16. Assessment of GPA Capability to Replace Functional Duties Currently Outsourced to the PMC

By the third-year of the Contract, the PMC and GPA will assess the capability of GPA personnel to assume functional duties currently outsourced to the PMC. The assessment will include a schedule, projects, and process that will allow GPA to takeover any functional duties identified. This effort will result in a check-off list of capabilities, training, processes, etc that GPA must complete prior to any takeover.

Re-Bid For Multi-Step Bid

No. GPA-013-07

PERFORMANCE MANAGEMENT CONTRACT

FOR THE

**GUAM POWER AUTHORITY
CABRAS #1 AND #2 STEAM POWER PLANT**



Volume III

Plant Technical Description

APRIL 2009



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1. Introduction

1.1. Purpose

The purpose of this Technical Review is to provide technical information about the Cabras Units 1 & 2 generating station to prospective proponents of the Performance Management Contract (PMC). This work is in conjunction with the Volume I Commercial Terms and Conditions, Volume II Technical and Functional Requirements, Volume III Plant Technical Description, Volume IV Proposal Scoring Mechanism, Volume V Appendices documents. This document provides information on the plant's design, historical performance, operation, maintenance activities, future maintenance, capital requirements and condition assessment.

The technical assessment of the Cabras 1&2 Plant relies upon the input from experienced and knowledgeable plant, corporate and support personnel. The information contained in this Technical Review is the Guam Power Authority's best effort at organizing, documenting and describing in their best words the overall condition of the plant equipment. All efforts have been taken to represent the status of the plant as accurately as possible to the prospective proponents. However, although every effort has been taken to represent the plant's condition in a fair manner, not every item or actual condition of some equipment can be represented in this document.

1.2. Assumptions and Scope

The review of the description, history and condition of the station and its major equipment and systems was accomplished by performing physical inspections, reviewing documentation and conducting interviews with key plant and support personnel. The review included but was not limited to an assessment of the plant's design and layout, capacity, system redundancy and equipment operations and maintenance (O&M) history. GPA's current PMC, TEMES, has contributed significantly to the development of this volume.

Historical performance indicators regarding capacity, reliability, availability and heat rate can be referenced in this section. Key station description, historical and condition assessment documents, drawings and procedures were reviewed to gain insight to the plant's overall condition.

The historical documentation of equipment and systems reviews was not intended to be all inclusive, but rather to provide a reasonable perspective of the operating and maintenance history of the plant. The technical review is intended to be a factual description of the facility and refrains from offering conjecture or opinion, except where clearly identified. It is assumed that prospective proponents of this PMC will conduct their own verifying due diligence effort.

1.3. Station Description

The Cabras generating station is wholly owned and operated by the Guam Power Authority. GPA completed construction and commissioned Cabras Unit 1 in 1975. Cabras Unit 2 is an identical unit of Cabras Unit 1. It was commissioned in 1976. Both units are rated at a 66,000 kW gross output

capacity.

The plant's boilers are Babcock & Wilcox, natural circulation, radiant reheat, El Paso style. Each boiler is rated at 450,048 lbs/hour of steam at 1005 degree F, Superheater outlet pressure at 1850 psi and Reheater inlet 451 psi. The boilers primarily burn #6 low and high sulfur fuel oil and light off on #2 diesel.

The turbine generators are General Electric type TCDF, with reheat and dual flow, single low-pressure section. The turbine generator sets were manufactured in Lynn, Massachusetts and are serial numbers 197622 and 197623.

1.4. Conclusions

The plant was supplied with equipment from reputable manufactures located in the United States (boiler, turbine, and switchgear) and Asia (feedwater heaters, pumps and transformers). The vast major of the equipment is still serviceable by the respective OEM's and non-OEM vendors.

The station had a considerably had reduced the inventory of spare parts to \$2.9 million in line with one of the goals of the PMC. The Proponents will have to determine the degree to which all items in inventory will support the current mix of equipment. At present, these warehouse items are tied to the CMMS system.

Originally, the Cabras facility was designed and built to support the base load needs of the island. GPA has since added low speed diesels, Cabras 3 & 4 as well as the MEC units 8 & 9. Therefore, the Cabras Steam units now have fallen from the top two positions to the fifth and sixth order in the economic dispatch order. This change in system profile means that the Cabras 1 & 2 units must now swing load on a daily basis to best fit the needs of the GPA system dispatch. This has created new challenges for the staff in order for the GPA system to optimize its fuel costs, driven by the cost of imported oil.

This new operating mode will be one of the challenges to the PMC. The PMC will be required to improve the operation and maintenance activities to allow the equipment to evolve toward an operation fully supportive of automatic generation control (AGC) mode.

Improvements in the operations and maintenance organizations serve to achieve the new operating model. Improvements in plant output flexibility serve to meet system dispatch requirements.

GPA has spent a considerable amount of money in recent years to improve the plant and maintain the quality of the boilers in conformance with the National Board Inspection Code (NBIC) requirements. The historical spending profile section of this review details these efforts.

Both units' boilers have undergone needed condition assessment of the furnace sections. A considerable amount of furnace wall tubing was replaced to improve the boilers reliability. Additionally both turbine generators were overhauled/inspected within the past nine years. Unit 2 was last overhauled in 2004 and Unit 1 in 2006.

In 1999 and 2000 major non-destructive examination efforts were performed to ensure solid base line data was established. Additionally, thin tubes, which were targeted by the eddy current inspection process, were preventively removed from service to prevent near term failure. Both condensers were 100% tested and all low and high-pressure feedwater heaters were tested 100%. Engineering and Inspection (E&I) of Boca Raton, Florida performed both condenser along with feedwater heater inspections. Details of these test results are available for review by the prospective proponents.

The turbine generators have also undergone extensive repairs in the past nine years. The following were highlights of the repairs:

Cabras Unit 1

- In 2006, generator collector ring & ground brushes inspected;
- Turbine explosion diaphragm replaced;
- Turbine low pressure (LP) hood inspected;

Cabras 1&2 maintenance crew performed repairs and inspections with technical representative provided by TEMES.

- In 2004, 21st stage (L-1) & 10th stage (IP-1) blades replacement;
- Seals rings completely replaced;
- Diaphragms repaired;

Diversified Energy Services (DES) performed the repairs, inspection, and rotor balancing. DES also performed the generator NDE inspection.

- In 2003, #3 bearing replaced;
- New stem installed in main stop valve ;
- New stem, disc and pin installed in the #1 control valve;

GPA Central Maintenance performed the repairs with technical representative provided by DES. DES performed the rotor balancing.

- In 2000, 1st stage nozzle replaced;
- 10th stage (New Design upgrade) diaphragm replacement;
- LP to generator coupling was resurfaced;
- 7th stage blading machined to remove hardened material from rub;
- 10th and 11th stage bucket covers repaired;
- Reheat stop valve seat repaired;
- Main steam stop valve repaired (resurfaced);
- New LP hood water sprays installed;
- Many diaphragms were repaired;
- All new packing and seals were installed;

General Electric opened and closed the turbine and both Diversified Energy services, of Oahu Hawaii and General Electric completed repairs; however, a third party was contracted to correct the mechanical deficiencies by GE and DES.

Cabras Unit 2

- In 2006, governor control valve (#5) major repair;
- Turbine motorized drain valves repair;

GPA Central Maintenance performed the repairs with technical representative provided by TEMES.

- In 2005, L-1, L-2 and 10th stage buckets replacement;
- 11th stage bucket and diaphragm repairs;
- 10th stage diaphragm replacement;
- Seal strip replacement;
- Main Stop, reheat stop, reheat intercept and control valves inspection;

TEMES performed the inspection, repairs and HP-IP and LP rotor balancing with technical representative provided by General Electric.

- In 2004, #3 bearing replacement;
- New main stop valve installed;

GPA Central Maintenance performed the repairs with technical representative provided by DES. DES performed the rotor balancing also.

- In 2000, new retaining rings by General Electric;
- New first stage nozzle;
- Main steam stop valve seat;
- Diaphragm repairs;
- New packing and seals;

Diversified Energy Services performed the inspection and repairs with technical representation provided by General Electric.

The most recent heat rate and performance testing values will be provided upon request.

The plant is fired on heavy oil, and lights off with #2 diesel. Both high and low sulfur oils are burned. The low sulfur oil has been used as high as two quarter of the year based on environmental conditions, which dictate the switching of fuels to mitigate environmental issues.

The plant also handles and burns processed oil from a local refinery, Pacific Environmental Resources Incorporated (PERI). The processed oil is collected from through out the island from oil change centers, consumers, maintenance organizations and service stations as well as the waste oil byproducts from the oil cleaning systems at Cabras 3 & 4 and MEC 8 & 9. The processed oil quality is tested and

documented by local suppliers prior to delivery at the Cabras site. Currently, the Cabras 1 & 2 Steam Power Plant is the only plant on the island capable of burning this processed oil product.

Major design modifications and upgrades that have occurred in the past 10 years are:

- Unit 1 and 2, condenser lines replacement in 2003;
- Unit 1, make-up water line replacement in 2003;
- Unit 1, air-preheater cold end basket replacement in 2003;
- Unit 1, steam drum, hot & cold reheat and superheater safety valves repair in 2003;
- Unit 1, force draft fan inlet vane replacement in 2003;
- Unit 1, condenser retubing in 2003;
- Unit 2, installation of new GE Mark V, digital turbine generator control system in 2002;
- Unit 2, economizer replacement in 2002;
- Unit 1, installation of new GE Mark V, digital turbine control system and EX2000, generator excitation system in 2000-2001;
- Unit 1, economizer replacement in 2001;
- Number 6 oil handling equipment to facilitate automatic switching from high to low sulfur oil when the environmental conditions require the use of low sulfur fuel;
- Units 1 & 2 step-up transformer radiators and fins replacement;
- Waste oil facilities upgrades.
- Boiler water wall tube replacement (Unit 2 1999 and Unit 1 2000);
- Units 1 & 2 steam drum replacement of new cyclone separators;
- New Unit 1 air pre-heater cold end baskets and seals in 2000;
- New air pre-heater rotor assemblies and baskets and seals, Unit 1 in 1990 and Unit 2 in 1996;
- Main turbine condenser re-tubing with new tubes in 1994 for Unit 1 and 1996 for Unit 2;
- Unit 1 generator was rewound in 1994; and
- Unit 2 economizer replacement in 1994.

Major equipment repairs that have occurred on the past 5 years are:

- Unit 1, reheater tube replacement in 2008;
- Unit 2, condenser retubing in 2008;
- Unit 1 and 2, air pre-heater assembly refurbishment in 2008;
- Unit 1, safety valve refurbishment in 2008;
- Unit 1 economizer header replacement in 2008;
- Unit 1 and 2, archway tube replacement in 2008;
- Unit 1 and 2, cooling water pump discharge piping replacement in 2008;
- Unit 2, furnace tube replacement in 2008;
- Unit 2, smoke stack refurbishment in 2008;
- Unit 1 and 2, force draft fan rotor replacement;
- Plant's fuel oil piping replacement in 2006;
- Plant's fuel oil daytank API inspection in 2006;
- Unit 1 and 2, attemperator system replacement in 2006;
- Unit 1, condenser retubing in 2006;
- Unit 1 and 2, service water system renovation in 2006;
- Unit 1 and 2, cooling water pump butterfly valves and power cable replacement in 2006;

- Unit 1 and 2, battery charger and uninterrupted power supply (UPS) replacement in 2006;
- Unit 1 and 2, boiler flue duct expansion joint replacement in 2006;
- Unit 1 and 2, air pre-heater assembly refurbishment in 2006;
- Unit 1, safety valve refurbishment in 2006;
- Unit 2, cooling water pump butterfly valves with actuator replacement in 2006;
- Unit 2, boiler feed pumps overhauled in 2006;
- Unit 1 and 2, archway tube replacement in 2006;
- Unit 2, reheater tube replacement in 2005;
- Unit 2, feedwater heater safety valve replacement in 2005;
- Unit 2, steam drum level gauge replacement in 2005;
- No. 5 high pressure feedwater heater re-tubed with stainless ones (unit 2 2005 and unit 1 2006);
- Circulating water and service water pumps replacement in 2004 (Unit 1) and in 2005 (Unit 2);
- Unit 2, start-up transformer replacement in 2005;
- Deaerator replacement (unit 1 2004 and unit 2 2005);
- Force draft fan rotors replacement (unit 1 2004 and unit 2 2005);
- Unit 1, 1A cooling water pump and service water pump replacement in 2004;
- Air pre-heater baskets, #1 hot end bearing, and seals replacement (unit 1 2004 and unit 2 2005);
- Unit 1, auxiliary transformer refurbishment in 2004;
- New plant service air compressor in 2004;
- New ERV safety valve installation (unit 1 2004 and unit 2 2005);
- Major steam pipe hangers repairs (unit 1 2004 and unit 2 2005); and
- Sootblowers repairs (unit 1 2004 and unit 2 2005).

The plant was designed with its remote geographic location in mind. Sufficient redundancy in its major auxiliary and support systems to meet the operating requirements of the stations are indicated below in Table 1.

In conclusion, the Cabras generating station offers challenging opportunities in relation to the required operation and maintenance activities inherent in a non-interconnected, island electric generating environment. In general, the plant has a good mix of quality equipment and solid OEM relationships.

Table 1. Major Auxiliary and Support System Redundancy

Equipment Description	# Of Normal Operating	# Of Spares
Boiler Feed Pumps		
Ignition Oil Pumps	1	1
Service Air Compressors	1	1
Instrument Air Compressors	1	1
Condensate Pumps	2	2
Heater Drain Pump/Unit	1	1
EHC Pumps/Unit	1	1

A.C. Turbine Lube Oil Pumps/Unit	1	1
Service Water Pumps	1	1
Service Water Heat Exchangers	1	1
Fuel Oil Pumps	1	1
Circulating Water Pumps, 2 per Unit, each Rated at 60% Capacity	2	0
500 kW Diesel Generator	1	1

2. Site Description And Characteristics

2.1. General Location

The Cabras Units 1 & 2 power plant is located on the island of Guam. Guam is the largest and southernmost island of the Marianas archipelago. The westernmost possession of the United States since 1898, the island is at 13.48° north latitude and 144.45° east longitude. Guam is approximately 1,500 nm southeast of Tokyo; 2,100 nm southeast of Hong Kong; 1,500 nm east of Manila; and 3,100 nm northwest of Sydney; 6,000 nautical miles (nm) west of San Francisco; 3,700 nm west-southwest of Honolulu.

The island is composed of both volcanic material and limestone base seabed material from coral deposits.

Guam's climate is tropical marine; generally warm and humid, moderated by northeast trade winds. Guam's temperature ranges between 73 and 90 degrees Fahrenheit (23 and 32 degrees Celsius). It has a mean annual temperature of 81 degrees (27 degrees C). May and June are the hottest months of the year. However, there is little seasonal temperature variation.

The coolest and least humid months, December through February, are marked by prevailing westerly trade winds. The average humidity varies from an early morning high of 86% to an afternoon low of 72%. The high moisture content of the atmosphere during the rainy season, combined with the warm temperatures, contributes to the rapid deterioration of manufactured materials through rust, rot and mildew.

The average yearly rainfall ranges between 90 and 110 inches (229 and 279 cm). There are two seasons, the dry and the rainy. The dry season (fanumnangan) lasts from December through June. The rainy season (fanuchanan) prevails within the remaining months. Guam's subterranean water lens supplies fresh water far in excess of the island's present needs.

2.2. Site Location and Description

The Cabras generating station is located on the west central side of the island of Guam in Piti, Guam on a landfill over what was Cabras Lagoon and Cabras Island. The plant is accessible from highway 1 and is located on the main road to and from the island's only commercial shipping seaport. The units' basement level is located approximately 6 feet above the mean sea level of the Pacific Ocean.

The remainder of the Cabras site has the Units 3 & 4 and their associated common structures such as oil storage tanks. Oil storage tanks for Cabras 1 & 2, Central Maintenance facilities, Generation Engineering support, Central planning support, Waste Oil processing facility, Central Laboratory Building, Units 1 - 4 Switchyards, Central Parts Inventory and System Dispatch Center are also located on the same property.

2.3. Transmission Line Interface

The power plant is interconnected to the GPA transmission network via four 115kV transmission lines:

- Cabras-Agana 115 kV Line #1;
- Cabras-Agana 115 kV Line #2;
- Cabras-Piti 115 kV Line;
- Cabras T-300 115/34.5 kV Interchange Transformer

The vast majority of the power produced on the island is at the Cabras-Piti Complex. Out of a total installed gross capacity of 552.8 MW, 340 MW is sited at the Cabras-Piti Complex. Other peaking combustion turbines and black start diesels are strategically located through out the island and interconnected via various high voltage transmission lines.

Each of the plants' units is protected by an existing generator unit-tripping scheme. This scheme will trip each unit as required to prevent instability of the system as well as overload conditions.

2.4. Community

The island has a population of approximately 170,000 people excluding tourists. Tourism, the number one business of Guam, adds approximately 15,000 at any time to the island's total at any given time.

The United States military has a big presence on the island. The Andersen Air Force base is located at the island north end. The US Navy has its operation only two miles from the Cabras site. The United States military has proposed to relocate 8,000 marines plus families to Guam increasing the military presence on the island.

The US Navy recently turned over the operation of the shipyard to a private contractor. The private contractor has a multi-year contract to operate the shipyard, primarily in support of the Navy ship repair. This facility has tremendous maintenance equipment and capabilities as would be expected of a remote ship repair facility. This facility if utilized properly could be a strategic asset to the PMC

contractor in that, maintenance alliances and services may be developed to support various aspects of the facilities maintenance needs.

The station personnel are government employees. The employees earn vacation based on time worked and seniority.

Employees are encouraged to support various community activities such as government-sponsored programs, parades and events such as the South Pacific Games held on Guam in 1999.

A variety of local vendors supply important services to the site as follows:

- Rental Equipment;
- Electrical and Mechanical Parts;
- Various Tools and Consumable Materials;
- Janitorial Services;
- Welding and Machining Supplies;
- Hardware Supplies;
- Construction Equipment;
- The Former US Navy Shipyard Maintenance Facilities with Tremendous Machining and Repair Capacity.

Employees are active with the following community affairs: Liberation Day (GPA sponsored float in parade), Labor Day Government of Guam Picnic, Military Reserves, GPA Public Power Week and associated island wide clean-up activities, GPA sponsors Fitness & Wellness program where an employee can use three hours of the normal base 40 hours each week to exercise and receive normal pay.

2.5. Site Map

Site maps will be provided upon request.

2.6. Site infrastructure

2.6.1. Utilities

The station's utilities include potable water, electric power, communications and sewage discharge lines.

2.6.1.1. Domestic Water

Domestic potable water is provided to the plant by the US Navy reservoir located near by. This source of water is used for the water treatment facility and all other potable needs. The same water supply charges the fire hydrants on the plant property and no plant booster pumps are required. Domestic potable water is also used in areas of the plant where the closed cooling water system cannot meet the flow requirements.

2.6.1.2 Station Electrical

The auxiliary power system for the Cabras 1 & 2 plant consists of the following equipment:

- Two 13.2 kV/115 kV step-up main transformers (East and West);
- Two 4160 V auxiliary transformers;
- One 34.5 kV start-up transformer;
- Three 480 V power center transformers.

Table 2 contains a description of the aforementioned transformers.

Two 13.2 kV/115 kV step-up transformers, one for each unit, serve to export power out of the Cabras 1&2 power plant to GPA's substations and then distributed from there to the customers.

Part of each Cabras steam power generator's electrical power production at 13.8 kV is diverted to the each unit's auxiliary transformers to provide station power to the plant. The auxiliary transformer is connected to the generator before the main transformer. At the auxiliary transformer, the voltage is stepped-down to 4160 V. This energizes the 4160 common, 4160 Unit 1 or 2 MC, and the power center transformers.

Each unit's potential transformer energizes the plant's instrumentation such as the var, watt, and watt-hour meters. These potential Transformers are located in the basement area and step down the 13.8 kV voltage to 120 V.

As an alternate source for emergency power, the station start-up transformer is tapped off the 34.5 kV line leading from the 115-kV/34.5 kV power interchange transformer to the Piti 34.5 kV substation. The start-up transformer provides an alternate black start capability via the 34.5 kV transmission system down to 4.160 kV.

2.6.1.3. Station Lighting

Station Lighting consists of all interior lighting and outside lighting 180 degrees on the left side of the Cabras 1 & 2 plant. The main panel breaker for most of all the lights is located on the operating floor, next to the stairway in front of the control room area. This is a newly installed breaker panel replacing and relocating the original plant panel.

From the main and the individual breakers, the circuits branch out to various smaller breaker panels scattered throughout the plant.

Table 2. Cabras 1 & 2 Plant Transformers

Name	Location	Quantity	Input Source	Input Voltage	Output Voltage	Equipment	Historical Maintenance Record
54 Main Transformer	Outside Building Perimeter	One transformer per unit	Generator	13.8 kV	Stepped up to 115 kV	Provides power to IWPS on 115 kV East and West Buses	Maintenance performed by T&D substation.
56 Auxiliary Transformer	Outside Building Perimeter	One transformer per unit	Generator	13.8 kV	Stepped down to 4160 V	Provides Station Power to plant and to Power Center Transformer	Maintenance performed by T&D substation.
55 Power Interchange Transfer	Cabras Switch Yard		115 kV Buses	115 kV	Stepped Down to 34.5 kV	Goes to Piti Power plant	Maintenance performed by T&D substation.
57 Start up Transformer	Outside Building perimeter	One transformer	Piti substation	34.5 kV	Stepped down to 4160 V	Alternate power source for start up. Common bus 1&2 tie in for station power	Maintenance performed by T&D substation.
58 Potential Transformer for Generator	Basement Area (Below generator)	One per unit	Generator	13.8 kV	Stepped down to 120 V	Generator controls: Wattmeter, Variance, and Watt-hour meter.	
69 Power Center Transfer	Operation Floor	Three (Cabras unit #1, #2, and Common)	Auxiliary Transformer	4160 V	Stepped down to 480/277V	480 Power Centers	Performed Cleaning of internals in 1997 and 1998

2.6.1.4. Emergency Generators

Cabras 1 & 2 presently has one emergency generator located in the plant's basement area.

The generator is a 500 kW diesel unit installed in 1997. It is connected to the 480 V common 3-phase panels providing plant lighting and power to the various plants' equipment.

2.6.1.5. DC Batteries

Cabras 1 & 2 DC Battery systems consist of two 60 cells battery banks, one per unit, located on the mezzanine floor. They were replaced in 2007.

The DC batteries provide 125 VDC (100 Amps) power via the 125 VDC distribution bus panel located on the mezzanine floor.

The batteries are re-charged by a GUTAR battery charger located next to the 125 VDC distribution bus panels.

2.6.1.6. Communications System

The plant is equipped with both telephones and a plant Gia-Tronics paging system. Currently the paging system required extensive maintenance or replacement.

2.7. Incident Mitigation Capabilities

The plant has a series of Standard Operating Procedures (SOP) which are employed GPA wide. The following SOP's pertain to these issues:

- SP-049 Tropical Cyclone Emergency System Restoration (ESR);
- SP-050 Oil Spill Containment, Clean-up and Reporting;
- SP-057 Supplements I through VII to the Hazard Communication Program;
- SP-063 Hazard Communication Program;
- SP-067 Employees Hazard Reporting;
- SP-088 Emergency Condition (Support Services Section).

2.8. Fire Hazard Mitigation

2.8.1. Station Fire Protection System Descriptions

The fire alarm and protection system has been upgraded at the plant.

2.8.1.1. Fire Pumps

The system includes an electric driven "Jockey pump" to maintain system pressure to the plant header system. In the event that the system pressure drops, indicating high demand such as in fighting a fire, the diesel driven main pump will automatically start-up.

2.8.1.2. Hydrants and Piping

The Cabras facility is equipped with a variety of permanently installed fire hydrants. Most fire hydrants are located around the perimeter of the facility by the access roads. The fire hydrants are tied to the Guam Water Authority water lines and are always under pressure through their system series of towers and storage tanks.

2.8.1.3. Automatic Sprinkler Systems

No automatic sprinkler systems are employed at the Cabras 1 & 2 plant. Fire protection is available from the hose reels and hydrants located outside of the power block.

2.8.1.4. Locally Mounted Fire Extinguishers

Extinguishers are located in the battery room, relay room and in various locations through out the plant.

2.8.1.5. Spray Nozzles

Spray nozzles and hose reels are located throughout the plant. No automatic fire sprinklers or sprinkler

2.9. Security Operations

The GPA safety division protects the plant and other locations are responsible for:

- Staff presence and control (Provided through a local security company);
- Incident and alarm response;
- Investigation;

The GPA transportation and plant are responsible for station vehicle and locker control.

2.10. Support Structures and Facilities

This section provides a description of the following support facilities:

- Central Maintenance;
- Peripheral facilities;
- Power System Control Center;
- Fuel Management Facility;
- Cabras 3 & 4 Slow Speed Diesel Plant;
- Warehouse operations;
- Generation Administration, Engineering and support offices; and,
- Parts inventory storage.

Approximately 22 personnel are assigned to the Central maintenance group, two are assigned to the

fuel management and approximately 12 are assigned to the Central dispatch center. One person is assigned to the warehouse operation, two assigned to the waste oil facility and 35 are assigned to the Cabras 3 & 4 facility. At any given time contract and support personnel can be located on site in support of unit overhauls, construction, upgrade or maintenance related projects.

2.10.1. Intake and Discharge Channels

GPA constructed the approximately 30 feet wide and 10 feet deep intake channel.

The intake inlet runs from the west side of the Cabras Island, under the port and plant access road to the inlet of the traveling screens. Dredging was last performed in 2003. Plan to continue this work in 2008. This activity will continue to be the responsibility of the GPA in that Cabras 3 & 4 requires inlet water to support their operation.

2.11. Emission Monitoring and Reporting

2.11.1. Continuous Emission Monitoring System (CEMS)

Presently, Cabras 1 & 2 monitors opacity. The plant uses cameras mounted on the roof to monitor the smoke opacity. The exiting opacity monitor is inoperable.

In anticipation of the U.S. Environmental Protection Agency's Title V regulations, sampling of the flue gases produced by the generating units will have to be taken to support proposed boiler efficiency changes.

2.11.2. Water Discharge Monitoring and Reporting

Guam Power Authority is mandated to comply with the Clean Water Act (33 U.S.C. 1251 et seq., the "Act"). This requires GPA to apply for environmental permits for water discharge from the Cabras 1 – 4 power plants into the Piti Channel, Apra Harbor. This involves considerable work with effluent limitations, monitoring requirements, other general conditions and conditions under EPA Region IX Standard Federal National Pollutant Discharge Elimination System (NPDES) Permit Conditions. GPA presently holds permit number GU0020001. This permit became effective on January 30, 2001 and expires January 30, 2006. GPA has submitted in March 2006 for renewal but we are still waiting for USEPA approval.

Effluent limitations are applied to cooling water and storm water discharge. GPA Cabras 1 & 2 lab personnel conduct monthly monitoring and sampling for flow, temperature at receiving water and influent/effluent areas, fluoride and pH. A third party contractor provides sample testing.

The current limits subject to USEPA approval for cooling water discharge required the temperature change of the received water, to not exceed 1.0 degree C. on a daily and average monthly basis. Fluoride must not exceed 1,350 kg/day or 1.5 mg/l per day. The pH of the effluent shall not be less than 7.0 standard units or greater than 9.0 standard units and shall be within 0.5 standard units of

natural conditions at all time. Other than pH, which is monitored weekly, all other characteristics must be monitored on a monthly basis, sampled by the plant and taken to a contracted testing company.

Storm water discharge is monitored and sampled for flow, suspended solids, oil and grease, fluoride and pH by GPA Cabras 1 & 2 plant personnel. Like cooling water discharge, samples for storm water are also tested by a contracted testing company, presently Environmental Monitors Inc. Limitations include suspended solids not to exceed 50 mg/l per day; oil and grease shall not exceed 20 mg/l per day and 15 mg/l on an average monthly basis. The pH levels shall have the same limits as the cooling water discharge. GPA is also required to continue the Water Quality Monitoring Plan for thermal discharge, which was a previous requirement to the additional discharge due to the operation of Cabras 3 & 4.

Other general conditions ensure other pollutants are not released through the plant discharge. These conditions restrict discharge from being unaesthetic, detrimental to or adversely affect aquatic life, and/or toxic or harmful to humans, animals, plants or aquatic life. As well, there is no allowance for discharge of polychlorinated biphenyl compounds or chlorine.

Under the permit conditions GPA must also monitor low-volume waste, monthly for oil and grease, conduct quarterly toxic testing of organisms exposed to the effluent and develop and implement storm water "Best Management Practices" (BMP), plan. The permit does include guidelines for testing, required BMP's, non-compliance reporting procedures, as well as remediation requirements.

All sampling and testing contracts are handled by the Cabras power plant. All monitoring, sampling and testing reports from the Cabras 1 & 2 planning and Regulatory Section, for the submittal of the monthly and quarterly compliance reports both EPA and Guam EPA.

3. **Process & Equipment Description**

Initial operation of the Cabras generating station unit 1 & 2 began in 1975. Each unit is rated at 66 MW net. The plant is situated on a small track of land on the islands west central side. The following is a description of the plant's major equipment, systems, the major historical events and the overall condition assessment of the equipment.

3.1. **Boiler and Related Systems**

Description of equipment and system: The Babcock & Wilcox, (B&W) boilers are natural circulation, radiant style, pressurized, oil fired, and indoor units. The design pressure is 2,225 psig (nominal) at both the economizer and furnace. The superheater design outlet pressure is 1,850 psig. The reheater outlet pressure is 424 psig. The economizer inlet design temperature is 454 degree F.

The superheater design steam flow is 450,048 lbs/hour. The reheater has a design steam flow of 376,013 lbs/hour. The air preheater design outlet temperature is 334 degree F.

This section and subsections describe specific major equipment for the Cabras Unit 1 & 2 Steam Power Plant.

The last boiler condition assessment studies for both units were completed in 2003 (unit 1) and 2004 (unit 2). B&W performed the assessment for unit 1 and Taiwan Power Company for unit 2.

3.1.1. Steam Generator Arrangement

Description of equipment and system: Table 3 provides a summary of the heating surface in square feet, of the major boiler components.

Table 3. Major Boiler Component Heating Surface Area

Boiler Component	Heating Surface Area (square feet)
Boiler	5,995
Furnace	4,262
Saturated Superheater	260
Primary Superheater	16,300
Secondary Superheater	2,864
Reheat Superheater	6,265
Economizer	10,105

3.1.2. Fluid flow Path Description

Description of equipment and system: Preheated feedwater from the low and high-pressure feedwater heaters enters the boilers economizer section under pressure from the boiler feed pump. The feedwater from the economizer outlet enters the lower portion of the steam drum, below the water line. The pumping action that produces this flow is created in natural circulation boilers by the force of gravity acting on fluids of different densities. The downcomers contain a saturated or sub cooled water while the generating or riser tubes contain a lighter steam and water mixture. The mixture leaving the riser normally contains 5% to 20% steam by weight, depending on the pressure and load on the boiler.

Feedwater entering the steam drum mixes with the existing saturated water and flows down through the downcomers located outside the hot gas passes or, in some cases, in the coldest gas pass. Water from the downcomers is distributed to the generating tubes via lower headers and the drum. Heat applied by radiation and convection to the generating tubes causes boiling of the fluid in the tubes. Circulation will increase with heat input until the pumping pressure equals frictional and other losses.

The primary purpose of the furnace is to provide a gas-tight enclosure for the complete combustion of fuel. Since complete combustion is essential for efficient, smoke free, operation, the furnace and the fuel burning equipment must provide the three basic conditions for complete combustion:

- Temperature to support combustion;
- Turbulence to bring air into contact with unburned fuel;
- Time in the high temperature and turbulent zone for combustion to be complete.

These key variables are reviewed to remind the potential proponents of the importance of the boilers proper operation while burning both normal #6 fuel oil as well as the waste oil streams that are required of these units.

Completing the boiler water cycle is the steam drum where the steam-water mixture is separated by internal baffling and cyclone separators. This separated saturate steam is then processed to the primary superheater, then the secondary superheater prior to being processed to the turbine.

History: Unit 1 boiler suffered from a major explosion in 1990. Repairs were made in phases, phase 1 was immediate repairs to allow it to return to service and phase 2 was long term integrity repairs which were undertaken 3 years later. Both boilers have been the reason for the plants' high equivalent forced outage rate (EFOR). Both have suffered repeatedly from arch and furnace tube failures due to heavy internal deposits that resulted in overheat and often caused hydrogen damage. The root cause of this problem was condenser leakage allowing salt water into the boiler during operation.

Condition Assessment: Both boilers have undergone several inspections within the past 8 years. Cabras Unit 1 inspected in 2000 and 2003 by Babcock & Wilcox, in 2001 by Edison O&M, in 2004 by USSI, and in 2006 by Smithbridge. Unit 2 in 2001 by Babcock & Wilcox, in 2002 by Edison O&M, in 2004 by Taiwan Power Company, in 2006 by Smithbridge. Because of these inspections, major furnace and arch way tubings were replaced or repaired by GPA Central Maintenance section. Proposed proponents of the Cabras facility should review the B&W repair reports dated May 2000 (Unit 1), and June 1999 (Unit 2) to fully understand the as found and newly repaired condition of these boilers.

3.1.3. Boiler General Arrangement and Major Components

3.1.3.1. Economizer

Description of equipment and system: The single counterflow economizers are 71 elements wide. The total surface area is 10,105 square feet.

History: The unit 1 boiler economizer suffered chronic tube failures that were rectified by plugging off each affected tube at the inlet and outlet headers. The section was replaced in 1995 and the headers tube stubs were repaired in 2003. It was similarly replaced on unit 2 for the same reasons in 2001. The headers and more sections were replaced in 2002.

Condition Assessment: Both units' economizers are relatively new and should have many years of acceptable performance available.

3.1.3.2. Furnace Walls

Description of equipment and system: The furnace wall tubes is generally where fuel combustion and cooling for the combustion products take place and also provides much of the steam generating surface in the boiler.

History: Both units have suffered repeatedly from furnace and arch way tube failures due to overheating and hydrogen damage. In order to improve the reliability of both boilers, GPA had extensive repairs performed after every inspection of the furnace and arch way tube. Babcock & Wilcox, of Barberton, Ohio, repaired unit 2 in 1999 – 2000 and Unit 1 in 2000 – 2001. The determination of repair requirements first used the nondestructive examination techniques referred to as FST-GAGE and FHyNES. Both inspection techniques scanned 12,800 linear feet of water wall tubes on both units. To ensure complete coverage of the tubes, a triple scan (left-to-right) was performed on each tube resulting in approximately 38,400 linear feet of scanning. All of the welds and bends in the inspection area were inspected using the FHyNES test technique and T&R transducers.

Unit 1 was inspected from May 8 through May 14, 2000. Unit 2 was inspected from June 17 through 24, 1999. Each boiler had several hundred feet of tubing replaced. The Babcock & Wilcox reports of June 1999 and May of 2000 contain complete details of these repairs.

Condition Assessment: The Babcock & Wilcox reports provide considerable detail of every tube as tested. These reports form the basis of an excellent base line for future comparative analysis. The information can further provide condition assessment input to the suspected proponent of this facility. Both boilers underwent complete chemical cleanings shortly after the major repairs and with good water chemistry control, should be good for several years of reliable service once other boiler components are repaired or replaced.

3.1.3.3. Roof Tubes

Description of equipment and system & History: The roof tubes and penthouse sections of both boilers are all original. The refractory seals in the penthouse were replaced in recent years. B&W employees during the 1999 and 2000 inspection and repair activities inspected these components for each boiler. GPA Central Maintenance section performed refractory repairs on unit 1 in 2003 and on unit 2 in 2004.

Condition Assessment: No NDE testing or tube samples have been performed on this section of the boilers.

3.1.3.4. Superheater

Description of equipment and system: The boiler superheater section has two major components: the secondary and primary superheater. These sections of the boiler are horizontal in nature and designed to be self-draining. The superheater is the highest heat transfer component of the boiler.

History: The Unit 1 secondary superheater was replaced by B&W in 1987 to further increase the main steam temperature. All other secondary and primary superheaters are original.

Condition Assessment: NDE inspection was performed by B&W on unit 1 in 2003 and unit 2 in 2004 by Taiwan Power Company. The secondary and primary are still in good conditions.

3.1.3.5. Reheater

Description of equipment and system: The reheater section of each boiler returns the steam temperature back to the designed 1,000 degree Fahrenheit. This helps to match the steam temperature of the main steam as both enter the high-pressure steam chest of the turbine.

History: Both units' reheaters suffered from plugged tubes due failures within the banks.

Condition Assessment: Eight of the bad tube bundles were replaced by Central Maintenance Section in 2005 on unit 2. The reheater tubes for unit 1 still required repairs.

3.1.4. Boiler Casing and Flue Gas Ducts

Description of equipment and system & History: In general the boiler flues and ducts are in serviceable condition. The two expansion joints in the flue area are packed with fly ash requiring basic repairs.

Condition Assessment: No major components are in need of major repair. The expansion joints were replaced in 2006 for both units.

3.1.5. Burners

Description of equipment and system: The boiler is equipped with the original B&W, Racer 10Y-41-53-4-80 burners. The burners are equipped to be both steam and air atomization. Each burner has a capacity of 9,610 lbs/hour.

History: There are four burners per boiler. The burners were originally located in the lowest two rows, that being the "A" and "B" elevations below the NOx ports. However, due to low steam temperatures, the NOx ports were converted into burners by relocating original lower burners into the ports in approximately 1970. The boiler is started-up on the "B" row of burners. The boiler is initially ignited with #2 diesel oil. The Forney burner controls are currently in use with the boiler. The original windbox dampers before the burners were removed at B&W's recommendation many years ago.

Condition Assessment: General inspections of the burners are conducted in conjunction with the B&W boiler inspections. Heavy wear on the burner tips is being experienced due to the processing of waste oil in the boiler and improper fuel temperature treatment.

3.1.6. Steam Drum and Internal Components

Description of equipment and system: The steam drum separates saturated steam from the boiler water, such that it may be processed to the boilers primary and secondary superheater. This steam quality is important to the safe and reliable operation of the turbine.

History: The operation of the boiler with poor water chemistry has impacted the steam drum like that of the furnace wall tubes.

Condition Assessment: The steam drum internal moisture separators, cyclones and moisture separators were replaced on unit 2 in the early 1990's. The steam drum internal components for Cabras Unit 1 were also replaced in 2000. Internal and external surface cracked detection was conducted by B&W on unit 1 in 2003. The B&W reports document this issue.

3.1.7. Boiler and Major Valves

3.1.7.1. Boiler Control and Stop Valves

Description of equipment and system: The boiler is not equipped with a main steam outlet stop valve. The turbine main stop valve serves this requirement in conjunction to protecting the turbine. The boiler's SH & RH single spray water attemperator valves help to trim the steam temperatures to the turbine from the boiler.

History: Both SH and RH spray water attemperator valves were replaced for both units in 2006. New boilers feed pump minimum flow recirculation valves were installed on Unit 1 in 2000.

Condition Assessment: Both main steam stop valves are in working order.

3.1.7.2. Boiler Safety Valves

Description of equipment and system: Each boiler steam drum is equipped with a pair of safety valves. These valves are critical to reliable and safe operation of the boilers. These safety valves are routinely inspected annually.

History: In 1998 Arakaki Mechanical of Hawaii replaced the steam drum safety valves for Unit 2 with new valves. In 2000, Babcock and Wilcox of Barberton, Ohio replaced the steam drum safety valves for Unit 1 with new valves. Additionally the superheater outlet safety valve was replaced on Unit 1 in 2000. Recently, the valves were disassembled, inspected, and repaired by Basin Valve Company in 2008 (Both Units).

Condition Assessment: All safety relief valves are in good condition. Originally, both boilers were equipped with Electromatic relief valves. These valves were high maintenance and were blanked off and not available for service but new valves were installed in 2004 (Unit 1) and in 2005 (Unit 2) and placed back in service.

3.1.8. **Boiler Controls and Instrumentation**

Description of equipment and system: The original boiler control system is currently in service. The Bailey control company provided this original system. The series of equipment is the Mini-line unit, which is responsible for the air system steam temperature, feedwater control and the Forney burner controls. In addition to the Bailey Mini-line boiler control system, Cabras utilizes a flame detector cooling air blower, by the Buffalo Forge Company. The type 3 RE L-1008 blower has a capacity of 250 CPM and an outlet pressure of 31.8 inches. A 5 HP, 460-volt motor powers this blower. This blower turns at 3600 RPM.

History & Condition Assessment: The Mini-line system has been a good performer over the years, however replacement parts are becoming difficult to obtain since the manufacture no longer supports this vintage system. With this in mind, GPA is investigating the possibility of replacing the current control system with a new digital control system

3.1.9. **Air Preheaters**

Description of equipment and system: The air preheaters along with the unit's steam inlet coils help to preheat the boiler air to precombustions levels. This equipment plays an important aspect on the units' heat rate and levels of performance.

History: Each boiler was originally equipped with two Ljungstrom, regenerative type 17 HS X 44 air preheaters. These air preheaters were replaced in their entirety in 1990 on unit one and 1996 on unit 2, with type 17HSX series equipment. Each air heater has a total heating surface area of 30,800 sq. ft.

Each boiler also has a pair of ASNF copper fined steam preheaters manufactured by Aerofin Company.

Condition Assessment: Like new cold end baskets were removed from a unit at the nearby Piti power plant, modified and installed in unit one in 2000 during the major boiler and turbine overhaul. After inspecting of the air preheaters in the 2003 unit 1 major boiler and turbine overhaul the baskets were found to be significantly deteriorated and were replaced with ones from Piti again, but these baskets were not the right ones so it was recommended by B&W to replace these baskets with the proper new ones. These baskets and seals were replaced in 2004 with the proper ones. Unit 2 baskets were badly corroded and also seals were leaking. These were replaced in 2005

3.1.10. **Sootblowers**

Description of equipment and system & History: The sootblowers keep the internal heat exchange surface areas of the boiler clean. This greatly facilitates the efficient exchange of heat from the fuel to steam. There are seven sootblowers for each boiler and two for the air preheaters. The boiler utilizes five type IK-525 and two IK-525-EL sootblowers. The sootblowers use steam from the boilers drum at a maximum of 600 psig for the boiler and 200 psig for the air preheaters. Diamond Power/B&W manufactured the sootblowers. Each boiler is equipped with a thermo probe, which is used only during start-up and is located at the secondary superheater inlet.

The sootblowers have undergone repairs and replacements in 2004 (Unit 1) and in 2005 (Unit 2).

Condition Assessment: All sootblowers are included in the routine preventive maintenance (PM) program.

3.1.11. Forced Draft Fans and Drives

Description of equipment and system: Each boiler is equipped with a pair of Westinghouse supplied forced draft fans. The units are positive pressure and are not equipped with induced draft fans. The fans are type #4054C-D Airfoil with a capacity of 299 x 1000 lbs/hour. The fan outlet pressure is designed at 34 inches of water at 105 degree Fahrenheit, at a speed of 1780 RPM. Westinghouse, frame # 5808S type LAC motors drive the fans. Each motor is rated at 600 HP, 4,000 volts, 60 HZ and 1,800 RPM.

History & Condition Assessment: The rotors on Unit 1 were corroded significantly and were replaced with the spare rotors in 2004. The rotors were similarly replaced on Unit 2 for the same reasons in 2005.

3.1.12. Feedwater Heaters and Deaerator

Description of equipment and system: Each unit is equipped with two low pressure, two high-pressure feedwater heaters (FWH) and one Deaerating (DA) heater and storage tank. Both low and high pressure FWH's were manufactured by Toshiba. All heaters are horizontal, U-tube type heaters. The surface area in square feet of each heater is as follows: 1-1,345, 2-1,290, 4-1,830 and 5-2,480.

The deaerating heater and storage tank has a maximum capacity of 502,767 lbs/hour. The storage tank is rated at 9,570 gallons. The outlet temperature of the feedwater is designed at 296.6 degree F.

History: All heaters are original equipment. Many of the heaters have only a few tubes with plugs in them to prevent leaks.

Condition Assessment: In 1998, 1999 and 2000 extensive NDE inspections were performed. Engineering and Inspection of Boca Raton, Florida and Oahu, Hawaii inspected all tubes excluding the U-bent areas. Compete detailed inspection reports were created. Several tubes were identified and preventatively plugged to minimize the possibility of leaks. The Engineering and Inspection, Inc. reports along with the Information 2 ENERGY, Inc., of Stuart, Florida reports should be reviewed for details.

In 2003 B&W performed NDE inspection on the deaerator and storage tank on Unit 1. Both of this equipment were in unacceptable condition and should not be operated in their present conditions. They recommended to replace the deaerator and storage tanks and as well as the associated safety valve and supports. A year later the DA and storage tank and associated equipment were replaced. They were similarly replaced on Unit 2 for the same reasons in 2005.

3.1.13. Miscellaneous Equipment

3.1.13.1. Stacks

The smoke stacks were visually inspected by Sealand Construction Company in 2003 (Unit 1) and in 2004 (Unit 2). The insulating lining has badly deteriorated and it is planned to be replaced in phases starting 2010 for Unit 1. The insulating lining for Unit 2 was replaced in 2008.

3.1.13.2. Building, General

The turbine room roof was replaced after typhoon PAKA in 1997 and 1998. Work was completed to repair exposed reinforcement bars, concrete and repaint the outer walls of the building's structure, both inside and out. The stairs located by the #2 main transformer and maintenance shop was also replaced or repaired. Lastly, miscellaneous drain downspouts are scheduled for replacement in conjunction with the above items.

3.1.13.3. Circulating Water Vacuum Pumps

Each unit was originally equipped with water box vacuum pumps. These pumps pulled a vacuum on the water boxes to ensure the removal of air. By removing the entrapped air in the water boxes good performance was ensured by having all tubes properly exposed to circulating water. All the vacuum pumps have failed and were not replaced. Instead water powered air pumps were installed to vent the air from the water boxes as best possible. In December 2005 a new air priming system for water box was installed.

3.1.13.4. Hydrogen Manifold

The common hydrogen manifold and several of the piping were repaired in 2004.

3.1.13.5. Turbine Lubricating Oil Tank Berm

Both units' lubricating oil tanks are not protected with a containment berm. In the event of an oil leak, the oil would end up in the floor drain system. Plant personnel would have to remedy this situation.

3.1.13.6. Acid Tank

The acid storage tank is in poor condition. Should this tank continue to be used, replacement should be considered. With the advent of the newly proposed reverse osmosis water treatment system, reliance on this tank could be greatly reduced.

3.1.13.7. CO & Opacity Monitors

New CO₂ monitors were installed in 2006. The opacity monitors are original equipment but inoperable.

3.1.13.8. Plant Paging System

The existing plant paging system requires repairs and possible upgrading. This system is a Gi-Tronics system commonly used at power plants.

3.1.13.9. Asbestos Insulation Removal

The plant has asbestos insulation, requiring monitoring and removal as required. The plant has made a significant stride in removing the asbestos in the plant within the past 5 years. They have removed considerable amount of asbestos insulation from inside the plant during the overhauls. In 2006 they remove almost in its entirety the asbestos insulation covering the fuel oil piping outside the plant.

3.1.13.10. Condensate Storage Tanks

Both condensate storage tanks are corroded and require wall thickness testing and new FRP liner.

3.1.13.11. Battery Chargers

Both battery chargers were replaced in 2006.

3.1.13.12. Waste Oil and By-products

Currently GPA disposes the drums of waste oil, waste absorbent, oily rags used in operation and maintenance and protective suits used in support of maintenance on a monthly basis.

3.1.13.13. Elevator

The elevator in the plant recently underwent a major renovation. The elevator controls were relocated to the eighth floor of the plant. The Otis elevator was last certified in 2003, but requires annual recertification. Currently it is not certified due to electrical, mechanical and communication issues. Quarterly preventive maintenance is performed by Island Elevators a licensed local contractor.

3.1.13.14. Air Compressors

The old No. 1 Service Air Compressor was replaced with a new Ingersoll Rand Rotary Screw type unit in September 2004. The new unit is a IR Model H 150W rotary screw air compressor with a TS 1000 Air Dryer, 1 micron prefilter and 0.01 micron discharge filter. It can also be used to augment dry instrument air if required.

History & Condition Assessment: No. 2 Service Air Compressor high pressure end cylinder and piston was replaced by Cabras maintenance personnel in September 2003. All four-instrument air compressors require basic repairs.

3.2. Main Turbines/Generators

The turbine is a General Electric, 22 stages, reheat machine, operating at 1,850 psig. The operating

temperatures are 1,000 degree Fahrenheit for both the main steam and reheat. The turbines were manufactured in Lynn, Massachusetts and are serial numbers 197622 and 197623.

The generator is a three-phase, synchronous, hydrogen cooled, direct coupled to the turbine unit rated at 77,647 KVA. The power factor is rated at 0.85 lagging while the frequency is 60 Hz, at 3,600 rpm. Rated terminal voltage is 13,800, and the rated current is 3,249 Amperes with a Wye connection. Hydrogen pressure is designed for 30 pounds and the excitation has a maximum rating of 192 kW. The total temperatures of the stator coils are 91-degree C, collector 125 degrees C, and the field coil 125-degrees C, by resistance. Required cooling water is 600-gpm and a maximum temperature of 95 degree F. The original exciter is a static unit with a rated capacity of 200 kW, 800 amperes. The static exciters have been upgraded from the original units.

3.2.1. Main Turbine Auxiliary Equipment

Description of equipment and system:

Additional turbine support equipment is as follows:

Main Steam Jet Air Ejectors – Type twin element two- stage steam, with a rated capacity of 10 scfm. The single ejector per unit has a suction pressure of 1.0 inches of Hg absolute. The required working steam pressure is 200 psig and can consume 600 lb. while cooling 120 gallons per minute.

Starting Ejector – Each unit is equipped with a single stage steam jet type ejector with a rated capacity of 642 SCFM and working suction pressure of 17 inches Hg absolute. The working steam pressure is rated at 200 psig and has a steam consumption of 3,200 pounds. The manufacturer of both ejectors is Toshiba.

Condenser – The condenser is a single shell, double flow of steam with divided water box type surface condenser. The condenser has 53,800 sq. feet of surface area, and is designed to condense 316,888 # of water per hour. The design heat load is 3.147×10^8 BTU, with seawater at 85 degrees F. The tubes are 1.0-inch outer diameter. The circulating water quantity is rated at 57,220 GPM. The manufacture is Toshiba.

History and Condition Assessment: The condensers had suffered from chronic tube failures due to old tubes, ammonia attack, and over rolled tubes from previous replacement work. In 1998, 1999 and 2000 extensive NDE inspections were performed. Engineering and Inspection of Boca Raton, Florida and Oahu, Hawaii inspected all tubes. Complete detailed inspection reports were created. Several tubes were identified and preventatively plugged to minimize the possibility of leaks. The Engineering and Inspection, Inc. reports along with the Information 2 ENERGY, Inc., of Stuart, Florida reports should be reviewed for details. Edison O&M performed NDE inspection and replaced several tubes on unit 2 in 2002. Similar work was performed by E&I on the condenser on unit 1 in 2003. TEMES replaced majority of tubes on unit 1 with stainless tubes in 2006 and unit 2 in 2008 to improve the performance and minimize downtime.

Condenser Vacuum Pumps – Each unit is equipped with Ebara, water ring type vacuum pumps (model 50-NV6M). There is an installed spare pump to service both units. Each pump has a design capacity of 24.7 scfm and a negative pressure of 15 inches of Hg. The Ebara liquid ring vacuum pumps rotate at

1,750 rpm, and are drive by a five horsepower motor rated at 460 volts. The make-up water requirements are 3.96 GPM per pump. Toshiba (Ebara) manufactured all these pumps.

Make-up Water Pump – The horizontal volute turbine pumps are rated at 250 gpm with a total head of 130 feet. The pumps rotate at 3,500 rpm and are driven by a 15 HP, 460-volt motor. Each unit's pump was manufactured by Toshiba pump (Yoshikura).

Turbine Lube Oil Transfer Pump – These pumps are horizontal gear type pumps rated at 43.3 gpm, at 132 feet of head. The pumps rotate at 1,150 rpm and are driven by a 3 HP, 460-volt motor.

Turbine Lube Oil Storage Tank – Each unit is equipped with a 3,200-gallon storage tank manufactured by Jashiba.

Dirty Oil Storage Tank – Each unit is equipped with a 3,200-gallon storage tank manufactured by Jashiba.

Turbine Main Oil Tank - Each unit is equipped with a 2,233-gallon storage tank (including 485 gallons of flow back) manufactured by General Electric.

Turbine Oil Cooler – Each unit is equipped with a pair of turbine oil coolers, which use 315 gpm of cooling water at a maximum design temperature of 95 degrees F. The manufacture is General Electric.

Bearing & Seal Oil Pump – Each unit is equipped with a pair of vertical bearing & seal oil pumps. One pump is a spare unit, which is driven by a 20 HP, 460-volt, 3600-rpm motor. General Electric manufactured the pumps.

Emergency Bearing & Seal Oil Pumps – Each unit is equipped with one vertical pump, which is driven by a 20 HP, 125-volt, 3500-rpm motor. General Electric manufactured the pumps.

Turbine Oil Tank Vapor Extractor – each turbine oil tank is equipped with one vapor extractor driven by a ¼ HP, 460-volt motor. General Electric manufactured the vapor extractors.

Gland Steam Condenser – Each unit is equipped with one General Electric gland steam condenser, each rated at 220 square feet. The design condensate minimum and maximum flow ratings are 300 gal/min and 686 gal/min, respectively. The maximum steam flow is rated at 1,130 lbs/hr. and the air is rated at 655 lbs/hour. General Electric manufactured this equipment.

Gland Steam Exhauster – Each unit is equipped with one Lamson model 3066-0-AD gland steam exhauster with a maximum capacity of 700 lbs/hour. The exhausters are powered by five HP, 460 volt, 3,600-rpm motors and were manufactured by General Electric.

History: Both turbine generators were overhauled recently. Diversified Mechanical, of Oahu, Hawaii, overhauled Unit 1 in 2004. Unit 2 was overhauled by Taiwan Power Company, of Taiwan in 2005. One of the generators was shipped from Guam in 1996 for major rewinding. Both units' generator retaining rings have been upgraded.

Condition Assessment: Both generators are in good/serviceable condition. The vendor reports should be reviewed by prospective PMC for further details or clarification.

3.2.2. Turbine Controls and Instrumentation (Mark V)

Description of equipment and system & History: Both units are fitted with a General Electric Mark V, digital turbine control system. The system was installed on Unit 1 in 2000 and Unit 2 in 2002.

As part of the Mark V, the system incorporated a excitation system referred to as the EX2000. Additionally a vibration monitoring system from Bently Nevada was installed on both units.

Condition Assessment: The Mark V system is operating well. It has improved the operation of the turbine greatly.

3.3. Fuel Supply

3.3.1. Heavy Oil Storage and Transfer System

Description of equipment and system: Both Cabras 1 & 2 are operated using light oil (diesel) and heavy fuel oil (#6 – Bunker C). The light oil is used during start-up only.

The diesel oil is delivered by tankers operated by either Shell or Mobil oil companies and is loaded in the 50,000-gallon ignition storage tank approximately two to three times annually. From these large tanks, the oil is then transferred to the plant and is metered using the Varec level gauge. In the plant, the oil is filtered before the pumps and burners.

The high sulfur heavy fuel oil is transferred from the 430,000-barrel tank (#1902) at the Shell yards to the 250,000 – barrel storage tank (#1935) once a month and the low sulfur heavy fuel oil is pumped directly from the ship (F1 dock) to the 250,000-barrel storage tank (#1934) about every two months. These two storage tanks are located at the GPA tank farm, approximately one mile east of the plant, and are maintained and operated by a contractor (Peterra Corp.). From there, the fuel oil is pumped to the two (2) 10,000-barrel Cabras 1 and 2 day tanks on a daily basis. This is where the oil is metered locally using the Brooks BiRotor meter and by the Varec level gauges.

The #6 oil is circulated and mixed with approximately 5,000 gallons of waste oil daily in the high sulfur tank but not in the low sulfur tank. Steam-supplied heaters located in the suction of the storage tanks heat the oil. In the plant, fuel oil is filtered through duplex strainers, reheated again by steam driven heaters and filtered again thru duplex strainers before it goes to the four (4) burners.

The actual fuel oil consumption of the burners is measured or metered by the existing Bailey meter and newly installed Micro Motion meter located before the burners. Both the flow rate and totalizer (only Bailey) readings from these meters are monitored in the control room. GPA intends to phase out the Bailey meter.

During start-up, operating the heavy fuel oil is circulated, thus by passing the burners for about 15 minutes. A new Micro Motion meter on the return line meters this. The recirculation stops when one burner is in operation. The fuel oil flow is regulated to the burners. To protect the pumps the rest of

the fuel oil is returned to the day tanks through the return line.

3.3.2. Oil Storage and Transfer Equipment Description

Description of equipment:

Fuel Oil Storage Tank - The plant has 2 outdoor C.R.T. type, 10,000-BBL tanks. The tanks are approximately 43 feet in diameter and 40 feet high. Kovo Iron, of Japan, provided the tanks.

Ignition Oil Tank - The plant has two outdoor C.R.T. type, 50,000-gallon tanks. The tanks are approximately 25 feet in diameter and 23 feet high. Sharpareille Steel Fabricators, provided the tanks.

Fuel Oil Pumps - Two DeLaval model A3DH-275 pumps are on each unit. The pumps have a capacity of 37,000 lbs/hr. (500SSU at 120 degree F). 30 HP, 460 volt, 1,200-rpm motors, drives the pumps. Diamond Power provided the fuel oil pumps.

History: Replace pumps with new ones on both units in 2005 major overhaul.

Ignition Oil Pumps - Each unit is equipped with two ignitions oil pumps, type 1 ½" GRH, manufactured by Diamond Power. The capacity and pressure is 25 GPM and 250 psig, while 10 HP, 460 volt, 1,800-rpm motors, drive the pumps.

Fuel Oil Heaters - Each unit is equipped with two horizontal OBD-28156 #6 oil in-shell tube heaters. The heaters are powered by steam at 37,000 lbs/hr and have an oil output temperature of 260 degree F. Diamond Power provided the fuel oil heaters.

3.3.3. Oil Transfer System and Pumps Condition

Condition Assessment: In 2006, the high (Tank #1) and low (Tank #2) sulfur tanks were cleaned and painted. Repairs included replacement of fuel lines. All equipment is in good working order.

3.3.4. Oil Quality Sampling and Testing

Description of equipment and system: Oil quality is sampled, tested and reported back to GPA by SGS Guam, Inc. of Redwood Petroleum and Petrochemical Services. Sample report headings include the product type, source, type of sample, and date. Results of the sample are summarized and include the oils API Gravity @ 60 degree f., Viscosity @ 100 degree F, Flash Point, Fire point, Water, Sediment, sulfur, ash content, carbon residue, metals such as Vanadium and aluminum + silicon, and lastly the gross heating value.

3.4. Steam System

3.4.1. Main & Hot/Cold Reheat Steam

Description of equipment and system: All lines of this type contain some asbestos insulation. Prior to insulation being removed, it is tested and if found to contain asbestos, is handled in accordance with

specific asbestos approved handling procedures. Non-asbestos insulation replaces the old asbestos insulation and is clearly marked and labeled as "asbestos free".

History: The Unit 1 hot reheat and main steam lines were inspected for degradation and potential damage. The lines were tested for seams and unit one has been confirmed to be seamless pipe. Engineering & Inspection, Inc. of Boca Raton, Florida performed the inspections and provided detailed inspection reports. Currently there are no plans to inspect the cold reheat line. They were further inspected and confirmed by B&W in 2003. The Unit 2 main steam and hot and cold reheat lines were inspected similarly in 2004. Several pipe hangers were repaired and adjusted during the 2004 and 2005 overhauled.

Condition Assessment: Currently there is excessive movement of the Unit 1 main steam line, while hangers and supports require adjustment or repair. The main steam line has been impacting with solid structures and the insulation is destroyed.

3.5. Station Water Systems

3.5.1. Circulating Water

3.5.1.1. Inlet Canal

Description of equipment and system: The inlet canal begins at the oceans edge away from the plant property. The canal is approximately 30 feet wide and less than 10 feet deep.

Condition Assessment: The canal requires cleaning and divers are utilized annually to clear debris from in front of the traveling screens. Should dredging be required of the intake structure, GPA will maintain this area since Cabras 3 & 4 is also dependent on this system.

3.5.1.2. Traveling Screens

Description of equipment and system: The plant is equipped with two traveling screens per unit. The screens are an inclined type bar screen and are equipped with front spray type traveling screens. Each screen has a screen wash pump for cleaning the screens. The screen openings are 3/8" of 304 SS wire. UBE Industries were the original manufactures of the traveling screen.

History: Two of the four screens underwent major renovation in 1996. The cathodic protection system was reinstalled about seven years ago, to help protect the equipment for excessive damage from the seawater and electrolysis.

Condition Assessment: Currently two of the traveling screens require repairs and possible upgrading.

3.5.1.3. Circulating Water Pumps

Description of equipment and system: Each unit is equipped with two 60% capacity circulating water pumps. The pumps are vertical, open type impeller mixed flow pumps. Each pump is capable of 30,000 USGPM at a total head of 28 feet. The 340 HP, 505RPM motors drive the pumps. Ebara is the

manufactures of the pumps.

History: The #1, circulating water pump for Unit 1 underwent repairs by the Navy shipyard approximately 4 to 5 years ago. It was replaced in 2004. The #2, circulating water pump was similarly replaced in 2005.

Condition Assessment: All of the four circulating water pumps except one should be inspected in the near future. In years past, the motors were routinely cleaned but this has not been performed for at least five years now and is overdue. Motors undergo annual oil changes as part of the CMMS program.

3.5.1.4. Circulating Water Pipes

Description of equipment and system: The 42" diameter circulating water pipes are original equipment. Each circulating water pump discharge enters into its own CWP pipe and travels underground to each half of the main condenser. The pipe is fabricated from carbon steel and processes salty seawater.

History: The circulating water pipes have very thin walls where they turn and enter the building. This was replaced in 2008.

3.5.2. Closed Cooling Water System

3.5.2.1. Closed Cooling Water (CCW) Heat Exchangers and Pumps

Description of equipment and system: Each unit is equipped with Closed Cooling Water (CCW) systems, also referred to locally as the service water system. Each unit's system consists of 2 100% pumps and 2 100% heat exchangers. Each cooler or heat exchanger can process 1,500 gpm of clean equipment cooling water at an inlet of 110-degree F. and outlet of 95-degree F. The seawater volume is 3,000 gpm and designed to have a seawater inlet temperature of 90-degree F., and outlet of 97.7-degree F. The total surface area of each cooler is 3,929 sq. ft. Toshiba manufactured the coolers.

Each unit's CCW system has a pair of 100% circulating pumps. The pumps are horizontal volute turbine type, with a capacity of 1,500 gpm at a 120-foot head. The pumps rotate at 1,800 rpm and are driven by 67 HP, 460 V motors. Toshiba manufactured the pumps.

History: The CCW heat exchangers are routinely opened and cleaned using a "pick and clean" method. The tube inner diameters are not cleaned often but appear to still perform well. Both pump and heat exchangers are original equipment.

Condition Assessment: The heat exchangers have little to no tubes plugged and appear to have considerable life remaining.

3.5.2.2. Chemical Feed System

Description of equipment and system: Injecting chemicals into the closed cooling water system protects the CCW system. Currently a Nalco 8328, sodium nitrate (rust inhibitor) is used. This chemical is delivered in 55-gallon drums approximately two times each week. One drum is used each month.

History and Condition Assessment: The chemical feed system was upgraded in 2005.

3.5.3. Condensate Production/Demineralizer

3.5.3.1. Existing System

Description of equipment and system: The existing system consists of the following equipment:

Raw Water Tank – The two units share one raw water tank. The tank holds 50,000 gallons and is 22' wide by 18' high. Koyo Iron manufactured the tank. PM in 2005

Condensate Storage Tank – The plant has two condensate storage tanks each with a capacity of 50,000 gallons. The tanks are 22' in diameter and 20' high. Like that of the raw water Koyo Iron Works manufactured the condensate storage tanks. PM in 2005

Water Treatment – The units share the output from a dual train water production facility. Each train has one cation, one anion and one mixed bed polishers. Each train is rated at a maximum of 75 gpm. Water quality was originally specified to be less than 1MV/CM at 77 degree F. The manufacturer was the Japan Organo Co. Ltd.

History: The water production facility has under gone major repairs in recent years and more repairs are needed. It has been determined that replacement of the system is more cost effective than further repair. Southern California Edition Services (SCE) of Los Angeles, California performed a study, which will help direct the GPA personnel in replacing the system.

Currently the plant boilers are using coordinated phosphate such as: tri-sodium phosphate, Di-sodium phosphate and for emergency use only, caustic. The sampling system is in poor condition due to the service water lines being possibly plugged. The new sampling system is on order but the actual delivery date is uncertain at the time of this review. Additionally the neutralizing sump system does not have chemicals available and the plant personnel are diluting with plain water. The water from this system is then pumped to the ponding basin, which is located behind Units 3 & 4 near the outfall.

Condition Assessment: The water production system is in poor condition and requires replacement.

3.5.3.2. New RO Water System

Description of equipment and system: Currently the new RO-EDI system is undergoing installation, anticipated to be completed May 2009. The net output of the water treatment system is the amount of

demineralized water actually available for make-up use excluding water discharged or backwashing.

The RO-EDI System will consist of the following:

- Two 100% activated carbon/multimedia filters (capable of flowing 100% when the second unit is in backwash mode);
- Two 100% sodium zeolite softeners;
- Two 100% 5 μ cartridges filters;
- One 100% ultraviolet sterilizer;
- Two booster pumps;
- One ultraviolet sterilizer;
- Two booster pumps;
- Two 100% reverse osmosis trains with a net delivery output of 86,400 gpd;
- Piping to and from a 100% membrane degasifier and to and from two 100% electrodeionizer modules each with a recycle pump;
- Connections and piping to and into GPA's demineralized water storage tanks;
- Two pumps for backwashing softeners and filters using reclaim water tank;
- Regeneration equipment for softeners;
- Local and CRT based controls and instrumentation as required for the automatic and/or manual operation of water treatment system
- One control panel with a CRT screen with all associated controls and instruments mounted, tubes, piped, wired and tested housed in a concrete building(s)
- Brine saturator tank and brine pumps
- Fiberglass recovery water tank for reclaiming RO reject and rinse water
- Space for a small Chemical Lab

3.6. Waste Fuel Oil Handling System

3.6.1. Waste Generation Sources

Description of system and history: Generating plants, local garages and commercial operations generate large volumes of waste oil and their by-products throughout the island. Currently the island does not have any good method to dispose of this waste oil other than shipping it off-island and having it either processed or burned.

In order to resolve this situation, GPA and the government devised a plan to have Cabras 1 & 2 burn this oil as fuel in the boilers. Various sources of this oil are from the following:

- Commercial deliveries from service stations, oil change locations and recycling centers;
- Enron 8 & 9, waste oil from engine fuel oil separators;
- Cabras 3 & 4, waste oil from engine fuel oil separators;
- TEMES, combustion turbine, lube oils;
- Tanguisson 1 & 2, lube oils;
- The GPA combustion turbines and diesel generating units;
- Waste oil from the shipping, trucks and airline.

It is estimated that Cabras 1 & 2 is requested to process and burn up to 5,000 gallons of this waste oil and byproducts daily.

3.6.2. Waste Handling Process

Description of equipment and system: The Guam Power Authority has developed several procedures for the processing, handling and disposal of waste oil and waste oil by-products at the Cabras 1 & 2. One of the procedures, is titled, "Waste oil Storage Tank (55,000 gals- Capacity and Main Component)". Within this very short document, the basic process is identified and the valve operation sequence required for handling the waste oil is identified.

The second procedure is titled, "Appendix H, Oil/Water separator Procedures". This short document also highlights the assumptions of this process. In addition to this Appendix H, there is an Appendix D which is an inspection record for oil removal from Secondary Containments. This Appendix D is a blank page to help capture hand-written notations for oil deliveries at the plant.

The last waste oil handling procedures is titled, "Waste Oil Transfer System." This procedure is the most in length and covers more of the actual details the waste oil-handling operators must perform on a daily basis.

Condition Assessment: Many portions of the waste oil handling process are manually operated.

3.6.3. Waste Oil Handling Manpower

Description of Manpower Requirements: Currently operation of the waste oil storage and handling system uses two full time personnel. This operation is restricted to day light hours and is running seven days a week. Opportunities exist to upgrade the equipment and possibly restrict deliveries of oil to the normal work week (Monday – Friday) and gain efficiencies. GPA will continue to provide the required labor to support this important operation.

3.6.4. Waste Oil Burning

Description of equipment and system: Currently only Cabras 1 & 2 is capable of processing, handling, storing and burning the waste oil of the other generating units and commercial operations on the island. The waste oil is mixed with good high sulfur oil and pumped through the existing plant equipment such as heaters and booster pumps. The oil is then processed through the existing burners and into the boiler.

3.7. Electrical System

3.7.1. Main Transformers

Description of equipment and system: Each unit has a main transformer manufactured by Toshiba. The transformers are outdoor, three-phase, core type, two winding, mineral oil immersed, forced oil

and forced cooled. Each transformer has a rated capacity of 80 MVA. The low voltage side is 13.2 kV and the high side provides 115 kV (+5, +2.5, +0%). The connections on the low side are Delta while the high side is Wye (neutral). Insulation levels are BIL, and the low voltage is rated at 110 kV with the high side rated at 550 kV. The insulation of the low side bushings is 150 kV and the high side is 750 kV. The frequency of the transformer is 60 cycles while the impedance is 10% (at 80 MVA base). The ambient temperature is designed at 40 degrees C. The oil temperature rise is 55 degrees C, (by thermometer) and the winding temperature rise is 55 degrees C, (max 65 degrees C) measured by resistance.

History: The GPA Transmission and Distribution (T&D) division maintains transformers. Currently it is proposed, that the PMC will support all transformers with maintenance services and trouble shooting activities through the life of the PMC contract.

Condition Assessment: Both main transformers were recently inspected. They are operating within designed limits at full load.

3.7.2. Power Interchange Transformer

Description of equipment and system: The power interchange transformer is located in the Cabras switchyard, and is maintained by the T&D section of GPA. The transformer receives 115 kV, island power and steps it down to 34.5 kV. This power is then feed to the old Piti plant and substation area.

The power interchange transformer is an outdoor design, three phase, core type, with three windings that are mineral oil immersed, forced oil and forced air cooled. The rated capacity is 50 MVA, and the low voltage is 34.5 kV with a high voltage side rated at 115 kV (+5, +2.5, +0%; 251 amps). The transformer has buried connections and a Wye neutral high and low voltage, delta design. The insulation level is 550 kV on the high side and 200 kV on the low side. The bushing insulation level was designed at 750 kV and 350 kV for the high and low respectively. The frequency is 60 cycles and the impedance is 10% at 50 MVA base. The design ambient air temperatures are 40 degrees C, while the oil temperature and winding temperature rise is 55 degrees C. Toshiba manufactured this transformer.

History & Condition Assessment: Currently there are no known problems with this transformer and it is operating within all design limits.

3.7.3. Unit Auxiliary Transformer

Description of equipment and system: There are two unit auxiliary transformers, one per unit. These transformers are located on the backside of the Cabras 1 & 2 plant. The auxiliary transformers are connected to the generator before the main transformers. These transformers step down the generator voltage from 13.8 kV to 4,160 Volts. At the 4,160volt switchgear panels located on the main turbine operating floor, the power to the plant is provided at 480 volts.

The unit auxiliary transformers are three-phase, core type two windings, cooling with mineral oil and both air and forced cooled. The capacity is 5,000 KVA and the high voltage is rated at 13.8 kV (with

+5, +2.5, and 0%). The low voltage is 4.16 kV. The high voltage winding is a Delta and the low voltage winding is a Wye (neutral). The high voltage insulation is designed at 110 kV while the low is rated at 75 kV, as well as the neutral. The bushing insulation for the high side is 150 kV and the low is 90 kV. The design ambient air temperatures are 40 degrees C, while the oil temperature and winding temperature rise is 55 degree C. Toshiba manufactured these transformers.

History & Condition Assessment: Currently there are no known problems with this transformer and it is operating within all design limits.

3.7.4. Start-up Transformer

Description of equipment and system: The Cabras plant has one start-up transformer serving both units. The start-up transformer steps the voltage from 34.5 kV to 4,160 volts. The Cabras 1 & 2, via the 4,160-volt common, feeding the 4,160-volt Unit 1 & 2 motor control center (MCC). The start-up transformer also serves as an emergency means of station power for the Cabras plant.

The start-up transformer is three phase, core type, two windings, cooling with mineral oil and both air and forced cooled. The capacity is 5 MVA and the high voltage is rated at 34.5 kV (with +5, +2.5, and 0%). The low voltage is 4.16 kV. The high and low voltage windings are Wye (neutral). The high voltage insulation is designed at 200 kV while the low is rated at 75 kV, as well as the neutral. The bushing insulation for the high side is 350 kV and the low is 150 kV. The design ambient air temperatures are 40 degrees C, while the oil temperature and winding temperature rise is 55 degree C. Toshiba manufactured this transformer. **History & Condition Assessment:** Currently there are no known problems with this transformer and it is operating within all design limits.

3.7.5. High Voltage Switchgear (4,160V)

Description of equipment and system: There are three 4160 volt switchgear panels: 1) The 4160 common, 2) 4160 volt unit one motor control center, 3) 4160 volt unit two motor control center. These switchgears feed the major motors such as the forced draft fans, boiler feed pump motors, and the 480-volt power centers. These switchgears are located on the third operating floor near the turbine generators. The individual switchgears are tied together via the 4,160 V common. This allows one unit to support the both units' power requirement for various plant equipment.

The Table 4 highlights specific equipment tied to these components.

Table 4. 4160-Volt Switchgear Power Distribution Schedule

Switchgear Panel Identification	Power Distribution Schedule
4,160 V Common Location: Operating Floor Input Source: Auxiliary Transformer	Bus PT Incoming and PT PC TR Feeder Bus Tie #1

<p>4,160 V Unit 1 MC</p> <p>Location: Operating Floor Input Source: Auxiliary Transformer</p>	<p>Bus Tie & Bus P.T. CWP 1B CWP 1A Incoming PT BFP-1B BFP-1A FDF-1B FDF-1A PC TR Feeder</p>
<p>4,160 V Unit 2 MC</p> <p>Location: Operating Floor Input Source: Auxiliary Transformer</p>	<p>Bus Tie & Bus P.T. CWP 2B CWP 2A Incoming PT BFP-2B BFP-2A FDF-2B FDF-2A PC TR Feeder</p>

History & Condition Assessment: Much of this equipment's maintenance needs are covered by the computerized maintenance management system (CMMS). All of the above listed components are in good working order and available for service.

3.7.6. 480 Volt Switchgear

Description of equipment and system: The 480 Volt Switchgear Panels are known as the 480 V Power Centers. The Power Centers are located on the Operating floor areas. There are three 480 V Power Centers that receive a 4,160 V signal from the 4,160 V Switchgears, also on the Operating Floor, and step down the voltage to 480 V. The 480 V Power Centers feed the various 480 V Motor Control Centers located throughout the Cabras 1 & 2 plant. Table 5 summarizes this information.

Table 5. 480-Volt Power Center Distribution Schedule

Power Center Identification	Power Distribution Schedule
<p>480 V 1&2 Common Power Center Location: Operating Floor Input: 4160 V Common</p>	<p>PT Incoming (52 PC 1C) 480 Bus Tie No. 1 Power Center (52 BT, 480V) 480 Bus Tie No. 2 Power Center (52 BT, 480V) 480 V No 1.2 Common – 1 Control Center 480 V No 1.2 Common – 2 Control Center 480 V No 1.2 Common – 3 Control Center 480 V Screen Control Center</p>
<p>480 V No 1 Power Center Location: Operating Floor Input: 4160 V Unit 1 MC</p>	<p>PT Incoming (52 PC 1) 480 V No 1-1 Control Center 480 V No 1-2 Control Center</p>

	480 V No 1-3 Control Center
480 V No 2 Power Center Location: Operating Floor Input: 4160 V Unit 1 MC	PT Incoming (52 PC 2) 480 V No 2-1 Control Center 480 V No 2-2 Control Center 480 V No 2-3 Control Center

History & Condition Assessment: Much of this equipment's maintenance needs are covered by the computerized maintenance management system (CMMS). All of the above listed components are in good working order and available for service.

3.7.7. 480 Volt Motor Control Centers

Description of equipment and system: There are approximately ten, 480 V Motor Control Centers (MCC) located throughout the plant, mainly on the mezzanine and basement areas. These centers house the various field breakers for various plant equipments for Cabras 1 & 2. Tables 6 through 8 summarize the information for 480 V Motor Control Centers.

Table 6. 480 V Motor Control Center Summary (Operating Floor)

Motor Center Location	Summary Information
480 V No 1.2 Common Power Center Location: Operating Floor Input: 4,160 V Common	PT Incoming (52 PC 1C) 480 Bus Tie No. 1 Power Center (52 BT, 480V) 480 Bus Tie No. 2 Power Center (52 BT, 480V) 480 V No 1.2 Common – 1 Control Center 480 V No 1.2 Common – 2 Control Center 480 V No 1.2 Common – 3 Control Center 480 V Screen Control Center
480 V No 1 Power Center Location: Operating Floor Input: 4,160 V Unit 1 MC	PT Incoming (52 PC 1) 480 V No 1-1 Control Center 480 V No 1-2 Control Center 480 V No 1-3 Control Center
480 V No 2 Power Center Location: Operating Floor Input: 4,160 V Unit 1 MC	PT Incoming (52 PC 2) 480 V No 2-1 Control Center 480 V No 2-2 Control Center 480 V No 2-3 Control Center

Table 7. 480 V Motor Control Center Summary (Mezzanine)

Motor Control Center Identification	Summary Information	
480 V No 1-3 Control Center Location: Mezzanine Floor Input: 480 V No 1 Power Center	Gland Exhaust Blower Heater Drain Pump 1B CWP Lube Water Pump 1B Condenser Outlet Valve 1B (V7-003B) Condenser Inlet Valve 1B (V7-02B) CWP Discharge Valve 1B (V7-01B) Instrument Air Compressor 1B Condensate Pump 1B	EHC Pump 1B Condenser Inlet Valve 1B (V7-002B) Instrument Air Dryer Fuel Oil Pump 1B Service Water Pump 1B Test Power Source Main TR Unit Cooler

Table 8. 480 Motor Control Center Summary (Basement)

Motor Control Center Identification	Summary Information	
480 V No 1-1 Control Center Location: Basement Floor Input: 480 V No 1 Power Center	Condenser Sump Pump 1A Condenser Sump Pump 1B Turbine Sump Pump Unit 1 Condensate Pump 1A CWP Lube Water Pump 1A Heater Drain Pump 1A Condenser Outlet Valve 1A (V7-003A) Condenser Inlet Valve 1A (V7- 002A) Make Up Water Pump Turbine Oil Transfer Pump Turbine Oil Pump	Condenser Backwash V-7009 BRG Seal Oil Pump 1A BRG DRN ENL Blower Vapor Extractor EHC Pump motor 1A COND Backwash V7008 Condenser Backwash Valve V7-007 Test Power Source COND Return V5-18 CWP Discharge Valve 1A V701A Service Water Pump 1A

<p>480 V No 1-2 Control Center</p> <p>Location: Basement Floor</p> <p>Input: 480 V No 1 Power Center</p>	<p>BFD Auxiliary Oil Pump 1A BFD Auxiliary Oil Pump 1B Flame Detector Seal Air Blower Seal Air Booster Blower Thermo Probe Fuel Oil Pump 1A Chemical Feed Soot Blower Boiler Oil Sump Pump Steam Seal System Drain Valve (V4-85) Instrument Air Compressor 1A Air Preheater 1A BFP Discharge Valve 1A (V2-03A)</p> <p>BFP Discharge Valve 1B (V2-03B) MSV Before Seat Drain Valve (V01-2) MSV After Seat Drain Valve (V01-4) Air Preheater 1B CRV Before Seat Drain Valve (V01-6) CRV After Seat Drain Valve (V01-8) Third Stage Shell Drain Valve (V01-10) Reheat Bowl Drain Valve (V01-16) Test Power Source Cold Reheat Drain Valve (V01-12) Hot Reheat Drain Valve (V01-14) Steam Seal Regulator Bypass Valve (V4-83) Steam Seal Regulator Shut Off Valve (V4-82)</p>
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History & Condition Assessment: Much of this equipment's maintenance needs are covered by the computerized maintenance management system (CMMS). All of the above listed components are in good working order and available for service.

3.8. Emergency Power

Description of equipment and system: Emergency Power is providing from the Startup Transformer or the 500 kW generator. Power from the Startup transformer would feed through the 4,160 V Switchgear panels.

The 500 kW generator however, feeds the 480 V Common-3 panel.

History & Condition Assessment: Much of this equipment's maintenance needs are covered by the computerized maintenance management system (CMMS). All of the above listed components are in good working order and available for service.

3.9. Station Lighting System

(NOTE: See 2.5.1.3 Station Lighting also for further details)

3.9.1. Battery Room, Batteries, Chargers

Description of equipment and system: The Battery room is located on the mezzanine floor adjacent to the Relay room. The battery room houses two-battery racks, and each rack holds 60 cells (batteries).

The chargers are located just outside the battery room on the mezzanine floor. These are manufactured by Gutor.

Table 9. Battery Charger Specification Summary

Gutor Charger – Unit #1	Gutor Charger – Unit #2
MFG No. 1051102	MFG No. 1051102
AC input: 480 Volts, 28.5 Amps	AC input: 480 Volts, 28.5 Amps
DC output: 144 Volts, 100 Amps	DC output: 144 Volts, 100 Amps

For information on the DC batteries please see 2.5.1.5 DC Batteries

History & Condition Assessment: The plant battery room caught fire in 2000. The root cause of the fire was a failure of a battery due to low water levels. The batteries and chargers were replaced in 2007.

3.9.2. Low Volt System (125 & 208 Volt)

Description of equipment and system: The 125 Volt DC system consists of three panels located on the mezzanine floor near the battery room. The DC systems supply energy to various DC equipment located throughout the Cabras 1 & 2 plant. Tables 10 and 11 summarize the information for these Low Voltage Distribution System Panels.

Table 10. 125 VDC Power Distribution Panel

125 VDC Power Distribution Panel Identification	Summary Information
125 VDC Common Distribution Panel Location: Mezzanine Floor Input:	Paging System No 1.2 Start-up TR. Emergency Lighting (Tamundong Office) SER Recorder No 1.2. Common MC Elevating (MTR. Control) P1 TR. Cooler Cub. No 1.2. Common MC Control (Closing) No 1.2. Common PC Control (Opening) Line Control PNL No.1 Unit (modified: 10/15/99) No.2 Unit (modified: 10/15/99)

<p>125 VDC Cabras #1 Distribution Panel Location: Mezzanine Floor</p>	<p>Burner Control Panel EHC Turbine Trip and Reset Hydrogen Control Non return valve Condenser Backwash Valve No 1 Unit MC Elevating Main TR. Control No. 1 Unit Auxiliary TR. Excitation Control Circuit (EX2000) MC Breaker Test Source No 1 Unit MC Control No 1 Unit PC Control No 1 BTG Board Emergency Bearing and Seal Oil Pump</p>
<p>125 VDC Cabras #2 Distribution Panel Location: Mezzanine Floor</p>	<p>Burner Control Panel EHC Turbine Trip and Reset Hydrogen Control Non return valve Condenser Backwash Valve No 2 Unit MC Elevating Main TR.Control No. 2 Unit Auxiliary TR. Excitation Control Circuit (EX2000) MC Breaker Test Source No 2 Unit MC Control No 2 Unit PC Control No 2 BTG Board Emergency Bearing and Seal Oil Pump Fire Instrument Shop Control Room DC-2</p>

Table 11. 208 Volt Power Distribution Panel

208 V Power Distribution Panel	Summary Information	
<p>208 V Common Distribution Panel</p> <p>Location: Mezzanine Floor</p>	<p>Sampling Rack Analyzer Rack Fire System Panel Chemical Feed System Smoke Detector Space Heater No. ½ Com. CC Office Pwr Supply New Elev. Rm. Panel SER Recorder 75 A Outlet Breaker (modified 7/10/93 w/ trip button) No 1.2. Common PC Ventilation Fan</p>	<p>Plant Plugs No 1.2. Start-up TR. No 1 BTG Board Instrument Testing Source Power Receptacle (SW & Trans Yard) Power Receptacle (indoor Yard)/Pwr Supply for Elec. Shop Power Receptacle (Tank Yard) Line Control Panel Aux. Control Panel No 1.2. Common MC Paging System (APH Temp 1&2/FO Controllutron 1&2/ACV ACA Recorder 1&2/Smoke Detectors 1&2)</p>
<p>208 V Cabras #1 Distribution Panel</p> <p>Location: Mezzanine Floor</p>	<p>Burner Control Panel Drum Level Lighting Auto Burner Control Device Relay Rack Transmission FDF Dumper Control Air Heater Aux Air Motor Air Heater Inside Lighting Flue Gas O2 Analyzer Blow Down Tank Level EHC Turning Gear Control Hydrogen Control SCT Enclosure Fan</p>	<p>Excitation Control Circuit No. 1 MC Generator Collector Lighting Space Heater No 1-1 CC Space Heater No 1-2 CC Space Heater No 1-3 CC No 1 Main TR No 1 BTG Board Cathodic Protection No 1 Unit Aux TR. No 1 PC TR. Ventilation Fan Roll up door</p>
<p>208 V Cabras #2 Distribution Panel</p> <p>Location: Mezzanine Floor</p>	<p>Burner Control Panel Drum Level Lighting Auto Burner Control Device Relay Rack Transmission FDF Dumper Control Air Heater Aux Air Motor Air Heater Inside Lighting Flue Gas O2 Analyzer Blow Down Tank Level EHC Turning Gear Control Hydrogen Control SCT Enclosure Fan</p>	<p>Excitation Control Circuit No. 2 MC Generator Collector Lighting Space Heater No 2-1 CC Space Heater No 2-2 CC Space Heater No 2-3 CC No 2 Main TR No 2 BTG Board Obstruction Light No 2 Unit Aux TR. No 2 PC TR. Ventilation Fan Waste Oil Pump</p>

History & Condition Assessment: Much of this equipment's maintenance needs are covered by the computerized maintenance management system (CMMS). All of the above listed components are in good working order and available for service.

3.10. Boiler Feed Pumps and Drives

Description of equipment and system: Each unit is equipped with two, 100% capacity, motor driven boiler feed pumps. The pumps are a horizontal barrel type design with an extraction structure at the middle stage. The pumps are four stages and have a capacity of 1,140 gpm. The designed suction pressure is 60 psig and the discharge pressure is 2,470 psig. The suction water temperature is 300 degree F. The pumps operate at 3,580 rpm and are driven by a 1,640 kW, 4,000-volt, 2,200 horsepower motor. Toshiba Ebara manufactured the pumps.

History: All four of the boilers feed pump drive motors are original. There is a spare rotating assembly in the warehouse in addition to the installed spare on each unit.

Condition Assessment: Several PM tasks are assigned to these pumps. The Central Maintenance personnel perform pinch tests on the pump bearings to monitor the clearances. These type activities are performed during annual overhauls. Vibration readings are obtained by the electrical group and documented.

The Unit 1 "A" motor windings were re-dipped in 1998 after typhoon PAKA. Motor megger readings are performed as part of the PM tasks. Historically, the motors have been pulled for preventive maintenance approximately every five years. Since the last motor that was pulled is the Unit 1 "A" in 1998, all three other motors are now due for major maintenance inspections.

Pump Performance is conducted by comparing the mass flow from each pump and the pressure at full flow. This is used to monitor the degradation of the pump.

Spare Parts: The boiler feed pumps have 137 individual items in the warehouse. These include items such as a complete rotating assembly, impellers, couplings, bearings, seals, motor rotor assemblies, etc.

3.11. Condensate Pumps and Drives

Description of equipment and system: Each unit is equipped with two, 100% condensate pumps. The pumps are of a vertical turbine design and rated at 750 gpm. The total head of each pump is 420 feet at 1,800 rpm. The 120 HP, 460-volt motors, drive the pumps. Kosyo Toshiba manufactured the motors. Yoshikura manufactured and the pumps.

History: The pump motors historically have been pulled for maintenance every five years. Since 1998 only one motor has been pulled for maintenance, thus three of the four motors are now due for maintenance.

Condition Assessment: The Electrical Maintenance Department collects readings and performs vibration analysis. All pumps and motors are currently in serviceable condition, but require inspection as aforementioned.

Pump Performance is conducted by comparing the mass flow from each pump and the pressure at full load. This method is used to monitor the degradation of the pump.

3.12. Air Systems

3.12.1. Service Air

The old No. 1 Service Air Compressor was replaced with a new Ingersoll Rand Rotary Screw type unit in September 2004. The new unit is an IR Model H 150W rotary screw air compressor with a TS 1000 Air Dryer, 1 micron prefilter and 0.01 micron discharge filter. It can also be used to augment dry instrument air if required.

History: No. 2 Service Air Compressor high pressure end cylinder and piston was replaced by Cabras maintenance personnel in September 2003.

Condition Assessment: The electrical maintenance employees perform vibration readings on this equipment. Motor filter changes and inspections, lubrication changes (PM's) are now due. All air compressors are in need of new cylinders.

3.12.2 Instrument Air

Description of equipment and system: The plant is equipped with four 50% instrument air compressors. The type is 11 X 7ESV-NL and has a rated capacity of 250 scfm at 100 lbs discharge pressure. The compressors operate at 514 rpm and are belt driven by 60HP, 460V, 1,800-rpm motors. Ingersoll-Rand manufactured the compressors.

The instrument air system is equipped with instrument air dryers, model 9-1661A. These dryers have a capacity of 250scfm. The inlet air design temperature is 95 degrees F, with a dew point at outlet of -12 degree F. Ingersoll-Rand manufactured the instrument air dryers.

History: All four-instrument air compressors require basic repairs.

Condition Assessment: The electrical maintenance employees perform vibration readings on this equipment.

3.13. Balance of Plant Systems

3.13.1. Station Hoist and Cranes

Description of equipment and system: The plant is equipped with a turbine room crane, rated at 35 tons. The crane was originally tested to 96,450 lbs. The crane is equipped with an auxiliary hoist rated

at 10 tons and was originally load tested to 27,560 lbs. The crane spans 51 feet and has a lift capacity of 52 feet. Eitac Machinery Inc., manufactured the crane.

History: This piece of critical equipment is not operated many hours each year.

Condition Assessment: The crane undergoes annual re-certification, which was last performed in September 2008. Island Certs re-certified the crane last.

4. Station Performance

4.1. Heat Rate

Description of equipment heat rate results: The GPA operates on an October to September financial reporting year. Since this is the financial reporting standard, the GPA chose to structure the plant projects and performance reporting along this same time frame. The following history is a monthly/quarterly summary of each unit's performance:

GHR (BTU/KWH)
NHR (BTU/KWH)
CF (Conversion Factor (%))
(for 100 min)

Table 12: 2008 Cabras Unit 1&2 Heat Rate Performance

Month	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Dec./2007		11,375	63.87%	10,588	11,343	64.58%
Nov./2007		11,669	58.09%	10,749	11,586	56.06%
Oct./2007	10,873	11,784	57.51%	10,864	11,722	51.09%
Jan./2008	10,749	11,639	52.41%	10,791	11,676	36.27%
Feb./2008	0	0	0.00%	11,161	12,142	56.28%
Mar./2008	11,069	11,993	50.88%	12,542	13,829	33.87%
Apr./2008	10,827	11,683	62.39%	12,256	13,706	25.43%
May./2008	11,041	11,884	62.35%	11,135	12,235	13.20%
Jun./2008	12,065	13,243	50.24%	13,271	15,062	3.26%
Jul./2008	12,192	13,642	32.48%	11,541	12,639	29.12%
Aug./2008	10,969	11,842	61.52%	11,731	12,773	18.76%
Sep./2008	11,362	12,336	49.66%	11,851	12,815	47.44%
Average or Equivalent	11,064	11,997	50.34%	11,261	12,229	36.21%

Table 13. Fiscal Year 2007 Cabras Unit 1&2 Heat Rate Performance

MO./YR	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Oct./2006	10,160	10,873	64.36%	10,169	10,970	54.49%
Nov./2006	10,295	11,072	57.81%	10,295	11,143	51.90%
Dec./2006	10,224	11,009	62.92%	20,475	22,386	34.83%
Jan./2007	10,143	10,946	60.00%	10,337	11,341	25.86%
Feb./2007	10,391	11,335	58.24%	10,897	12,061	10.88%
Mar./2007	10,792	11,717	52.23%	10,801	11,868	43.87%
Apr./2007	10642.952	11453.627	54.50%	10,665	11,625	51.83%
May./2007	10,601	11,381	64.98%	10,585	11,553	44.76%
Jun./2007	10,276	11,041	67.66%	10,263	11,073	57.07%
Jul./2007	9,731	10,474	66.28%	9,727	10,457	55.75%
Aug./2007	10,026	10,824	53.33%	10,276	11,059	60.00%
Sep./2007	10,465	11,299	58.82%	10,449	11,317	49.68%
Average or Equivalent	10,303	11,104	60.11%	11,019	11,955	45.27%

Table 14. Fiscal Year 2006 Cabras Unit 1&2 Heat Rate Performance

MO./YR	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Oct./2005	10,774	11,577	62.32%	11,114	11,966	44.43%
Nov./2005	10,659	11,423	60.62%	10,984	11,800	59.93%
Dec./2005	10,880	11,680	60.75%	11,108	11,967	57.25%
Jan./2006	10,809	11,631	59.26%	11,094	11,976	54.58%
Feb./2006	10,986	11,862	58.45%	11,354	12,268	51.22%
Mar./2006	11,092	12,001	33.08%	11,298	12,236	55.70%
Apr./2006	0	0	0.00%	11,321	12,176	65.45%
May./2006	10,607	11,329	62.43%	11,650	12,663	23.84%
Jun./2006	10,403	11,089	67.81%	10,705	11,439	66.50%
Jul./2006	10,870	11,714	55.45%	11,082	11,935	56.74%
Aug./2006	10,782	11,577	59.04%	11,186	12,019	59.74%
Sep./2006	11,090	12,026	40.85%	11,331	12,305	47.42%
Average or Equivalent	10,814	11,628	56.37%	11,186	12,063	53.57%

Table 15. Fiscal Year 2005 Cabras Unit 1&2 Heat Rate Performance

MO./YR	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Oct./2004	0	0	0.00%	10,894	13,207	36.07%
Nov./2004	0	0	0.00%	11,372	12,404	52.12%
Dec./2004	11,029	11,878	39.12%	11,428	12,368	63.04%
Jan./2005	10,901	11,747	62.27%	11,794	12,716	2.03%
Feb./2005	10,713	11,465	0.00%	0	0	0.00%
Mar./2005	10,147	10,892	68.58%	10,149	10,861	39.39%
Apr./2005	12,949	15,009	12.29%	13,160	14387	31.50%
May./2005	10,454	11,159	65.75%	10,697	11,422	66.33%
Jun./2005	10,403	11,089	67.81%	10,705	11,439	66.33%
Jul./2005	10,870	11,089	55.45%	11,082	11,935	56.74%
Aug./2005	10,782	11,577	59.04%	11,186	12,019	59.74%
Sep./2005	11,001	11,929	40.85%	11,240	12,207	47.42%
Average or Equivalent	10,925	11,783	47.12%	11,246	12,270	47.34%

Table 16. Fiscal Year 2004 Cabras Unit 1&2 Heat Rate Performance

MO./YR	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Oct./2003	10,755	11,590	18.07%	10,909	11,693	56.06%
Nov./2003	0	0	0.00%	11,042	11,845	67.17%
Dec./2003	12,140	13,145	18.17%	10,861	11,728	68.38%
Jan./2004	10,772	11,517	56.73%	11,014	11,867	60.31%
Feb./2004	10,516	11,195	54.26%	10,867	11,647	66.61%
Mar./2004	10,530	11,270	57.92%	11,037	11,842	56.44%
Apr./2004	10,650	11,391	59.85%	10,912	11,714	60.60%
May./2004	10,728	11,472	51.44%	11,075	11,921	61.12%
Jun./2004	10,561	11,350	54.11%	11,084	11,945	58.26%
Jul./2004	10,623	11,361	58.49%	11,183	11,935	57.81%
Aug./2004	10,111	10,835	47.85%	10,175	12,069	59.28%
Sep./2004	0	0	0.00%	11,548	10,973	61.00%
Average or Equivalent	10,740	11,514	39.66%	10,976	11,766	60.85%

Table 17. Fiscal Year 2003 Cabras Unit 1&2 Heat Rate Performance

MO./YR	#1 GHR	#1 NHR	#1 CF	#2 GHR	#2 NHR	#2 CF
Oct./2002	10,354	11,154	62.24%	0	0	0.00%
Nov./2002	10,497	11,559	52.81%	11,243	12,298	7.21%
Dec./2002	10,640	11,604	13.04%	10,689	11,393	13.28%
Jan./2003	9,429	10,159	41.22%	0	0	0.00%
Feb./2003	10,527	11,263	65.99%	10,977	11,818	63.16%
Mar./2003	10,496	11,261	69.29%	10,711	11,470	54.85%
Apr./2003	10,723	11,468	68.01%	10,680	11,398	71.07%
May./2003	10,614	11,356	69.79%	10,752	11,498	68.44%
Jun./2003	10,625	11,360	64.77%	10,824	11,633	65.57%
Jul./2003	10,626	11,329	68.67%	10,884	11,715	65.35%
Aug./2003	10,805	11,574	62.81%	10,949	11,711	62.32%
Sep./2003	10,868	11,657	65.08%	10,779	11,533	47.61%
Average or Equivalent	10,517	11,312	58.64%	9,863	10,588	47.17%

Expectations Assessment: Heat Rate (Performance) improvement targets will be established in the Performance Incentive Scoring Mechanism document. The GPA is looking for improvements in plant heat rate well above the aforementioned items. For specific details as to the new desired performance levels please refer to the Incentive mechanism-scoring document.

4.1.1. Historical Operational Performance

Description of Reliability Reporting System: The GPA operates on an October to September financial reporting year. Since this is the financial reporting standard, the GPA chose to structure the plant budgets and performance reporting along this same time frame. The following history is a monthly/annual summary of each units performance:

FOH – Forced Outage Hours
 EFOR – Equivalent Forced Outage Rate
 EAF – Equivalent Availability Factor
 (for each unit)

History:

Table 18. Fiscal Year 2008 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2007	0	4.62%	90.30%	0	2.28%	95.68%
Nov./2007	0	8.90%	88.47%	0	2.80%	90.29%
Dec./2007	41.47	18.34%	79.03%	108.33	26.22%	73.78%
Jan./2008	0	2.82%	81.60%	46	9.36%	59.26%
Feb./2008	0	0.00%	0.00%	0	0.00%	100.00%
Mar./2008	20	11.37%	80.13%	22	16.61%	56.54%
Apr./2008	0	0.00%	100.00%	0	28.38%	35.20%
May./2008	0	14.56%	95.51%	0	17.48%	14.56%
Jun./2008	0	4.40%	61.54%	11	14.10%	38.46%
Jul./2008	25	37.87%	44.27%	329.67	49.85%	48.40%
Aug./2008	0	0.00%	100.00%	0	0.00%	26.00%
Sep./2008	0	0.08%	99.92%	0	0.00%	65.31%
Total or Equivalent	86.47 Hours			517 Hours		

Table 19. Fiscal Year 2007 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2006	0	1.35%	98.65%	0	0.12%	98.39%
Nov./2006	0	0.00%	98.49%	1.52	1.30%	97.18%
Dec./2006	0	0.00%	100.00%	180	28.17%	68.37%
Jan./2007	4	0.61%	99.39%	301	42.78%	57.22%
Feb./2007	22	4.00%	96.00%	495	21.63%	21.63%
Mar./2007	0	0.00%	97.48%	0	21.37%	75.87%
Apr./2007	75	11.64%	88.36%	0	8.60%	91.40%
May./2007	0	0.00%	100.00%	74	22.86%	67.16%
Jun./2007	0	0.00%	100.00%	0	30.00%	70.00%
Jul./2007	0	1.23%	98.77%	13	5.93%	87.95%
Aug./2007	73	10.51%	79.66%	0	7.56%	92.44%
Sep./2007	0	5.55%	94.45%	64	3.81%	87.35%
Total or Equivalent	174 Hours			1128.52 Hours		

Table 20. Fiscal Year 2006 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2005	0	0.00%	100.00%	192.18	25.83%	74.17%
Nov./2005	14.13	1.96%	98.04%	0	0.00%	100.00%
Dec./2005	0	0.00%	100.00%	0	0.00%	100.00%
Jan./2006	0	0.00%	100.00%	0	0.00%	100.00%
Feb./2006	0	5.59%	94.41%	37.8	6.81%	93.19%
Mar./2006	0	10.22%	51.08%	0	0.39%	99.61%
Apr./2006	0	0.00%	0.00%	0	0.00%	100.00%
May./2006	4.43	3.46%	89.31%	0	0.00%	45.16%
Jun./2006	47.08	6.12%	84.37%	0	2.47%	75.68%
Jul./2006	0	0.00%	100.00%	2.67	0.36%	99.64%
Aug./2006	0	0.00%	100.00%	0	0.95%	99.05%
Sep./2006	0	0.00%	100.00%	0	6.44%	93.56%
Total or Equivalent	65.64 Hours			232.65 Hours		

Table 21. Fiscal Year 2005 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2004	0	0.00%	98.18%	180.25	57.29%	42.34%
Nov./2004	0	36.67%	62.18%	139.68	41.38%	58.62%
Dec./2004	94.7	12.73%	53.37%	0	0.00%	75.76%
Jan./2005	87.13	9.05%	85.56%	0	0.00%	2.58%
Feb./2005	0	0.48%	99.52%	0	0.00%	0.00%
Mar./2005	1.98	0.00%	99.73%	0	9.10%	52.77%
Apr./2005	104.8	0.08%	85.37%	100.85	14.98%	79.55%
May./2005	0	1.44%	98.56%	0	0.00%	100.00%
Jun./2005	0	0.00%	100.00%	0	0.00%	100.00%
Jul./2005	4.48	4.47%	95.53%	0	2.03%	97.97%
Aug./2005	0	0.00%	100.00%	0	0.93%	99.07%
Sep./2005	191.88	27.25%	72.75%	54.47	21.98%	78.02%
Total or Equivalent	484.97 Hours			475.25 Hours		

Table 22. Fiscal Year 2004 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2003	0	3.18%	22.41%	6.22	0.44%	77.37%
Nov./2003	0	0.00%	0.00%	19.07	4.65%	95.35%
Dec./2003	227.75	38.86%	20.17%	2.48	7.84%	92.16%
Jan./2004	88.03	23.70%	76.30%	21.32	12.55%	87.45%
Feb./2004	114.02	2.73%	80.89%	0	0.00%	100.00%
Mar./2004	51.08	10.51%	89.49%	79.47	14.00%	86.00%
Apr./2004	2.15	3.25%	96.75%	0	0.00%	94.23%
May./2004	0	0.28%	82.35%	0	0.00%	94.18%
Jun./2004	58.3	7.99%	90.23%	25.73	2.07%	90.85%
Jul./2004	40.95	5.41%	92.78%	0	7.12%	87.78%
Aug./2004	159.48	21.44%	77.14%	4.03	0.25%	94.03%
Sep./2004	192	26.67%	72.00%	18.63	7.66%	87.57%
Total or Equivalent	933.76 Hours			176.95 Hours		

Table 23. Fiscal Year 2003 Cabras Unit 1&2 Operational Performance

MO./YR	#1 FOH	#1 EFOR	#1 EAF	#2 FOH	#2 EFOR	#2 EAF
Oct./2002	0	0.00%	100.00%	0	23.96%	73.63%
Nov./2002	0	2.92%	97.09%	0	41.74%	58.26%
Dec./2002	0	1.23%	98.77%	0	13.14%	86.86%
Jan./2003	0	4.38%	67.43%	0	17.66%	82.34%
Feb./2003	0	0.00%	100.00%	0	11.29%	88.71%
Mar./2003	0	5.39%	94.61%	150.33	21.92%	78.08%
Apr./2003	0	18.60%	81.40%	0	14.04%	85.96%
May./2003	0	13.87%	86.13%	40.98	20.70%	79.30%
Jun./2003	0	11.07%	85.15%	20.37	12.98%	87.02%
Jul./2003	0	12.00%	88.00%	0	17.70%	82.30%
Aug./2003	36.65	21.98%	73.10%	20.47	9.22%	77.45%
Sep./2003	14.63	14.98%	82.98%	0	5.29%	61.15%
Total or Equivalent	51.28 Hours			232.15 Hours		

Expectations Assessment: GPA is looking for improvements in plant performance well above the aforementioned items. For specific details as to the new desired performance levels please refer to