

MEMORANDUM

February 20, 1998

DECLASSIFIED

TO: DIVISION OF APPEALS
 DIVISION OF AUDITING AND FINANCIAL ANALYSIS
 DIVISION OF COMMUNICATION
 DIVISION OF ELECTRIC AND GAS
 DIVISION OF RESEARCH
 DIVISION OF WATER AND WASTEWATER
 DIVISION OF LEGAL SERVICES

FROM: DIVISION OF RECORDS AND REPORTING (SANDERS)

RE: CONFIDENTIALITY OF CERTAIN INFORMATION

DOCUMENT NO: 02445-98

DESCRIPTION: Response to CISR Audit Report.

(x-ref DN 01785-98 and 01786-98)

(Control Audit No. 97-253-1-1)

SOURCE: Gulf Power Company

DOCKET NO: 960789-EI

The above material was received with a request for confidentiality (attached). Please prepare a recommendation for the attorney assigned to the case by completing the section below and forwarding a copy of this memorandum, together with a brief memorandum supporting your recommendation, to the attorney. Copies of your recommendation should also be provided to the Division of Records and Reporting and to the Division of Appeals.

Please read each of the following and check if applicable.

The document(s) is (are), in fact, what the utility asserts it (them) to be.

The utility has provided enough details to perform a reasoned analysis of its request.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: Gulf Power Company
Commercial/Industrial Service Rider
("CISR") Audit Report
_____)

Docket No.: Undocketed Audit
Date: February 20, 1998

REQUEST FOR CONFIDENTIAL CLASSIFICATION

EXHIBIT "A"

The information provided herein should be maintained as proprietary confidential business information pursuant to Section 366.093 and Rule 25-22.006, F.A.C.

EXHIBIT "A"

Provided to the Division of Records and Reporting
under separate cover as confidential information

DOCUMENT NUMBER-DATE

02445 FEB 20 88

FPSC-RECORDS/REPORTING

GULF POWER COMPANY
SUPPLEMENTAL SURVEILLANCE REPORT INFORMATION
COMMERCIAL/INDUSTRIAL SERVICE RIDER
OCTOBER 1997

-CONFIDENTIAL-

The information listed below is presented to comply with FPSC Order No. PSC-96-1219-FOF-EI and Page 2 of 2 of the Commercial/Industrial Service Rider Pilot Study Implementation Plan. This supplemental information is to be treated as confidential.

For all executed CSAs, it is estimated that the twelve months to date net revenues that would have been produced by the application of Gulf Power's otherwise applicable standard tariff rates to the affected load would have been approximately \$638,000 * more than the revenues actually received by Gulf Power pursuant to each executed CSA. 41-1-1

- * This difference is offset by \$196,000 which is the amount received under the IIC contract for the benefit created by the interruptible provision of the agreement with the customer.



GULF POWER COMPANY
SUPPLEMENTAL SURVEILLANCE REPORT INFORMATION
COMMERCIAL/INDUSTRIAL SERVICE RIDER
SEPTEMBER 1997

-CONFIDENTIAL-

The information listed below is presented to comply with FPSC Order No. PSC-96-1219-FOF-EI and Page 2 of 2 of the Commercial/Industrial Service Rider Pilot Study Implementation Plan. This supplemental information is to be treated as confidential.

For all executed CSAs, it is estimated that the twelve months to date net revenues that would have been produced by the application of Gulf Power's otherwise applicable standard tariff rates to the affected load would have been approximately \$691,000 * more than the revenues actually received by Gulf Power pursuant to each executed CSA. 4-1

- * This difference is offset by \$124,000 which is the amount received under the IIC contract for the benefit created by the interruptible provision of the agreement with the customer.

*auditors do not
cumulative total
only referenced
to work papers.*



GULF POWER COMPANY
SUPPLEMENTAL SURVEILLANCE REPORT INFORMATION
COMMERCIAL/INDUSTRIAL SERVICE RIDER
AUGUST 1997

-CONFIDENTIAL-

The information listed below is presented to comply with FPSC Order No. PSC-96-1219-FOF-EI and Page 2 of 2 of the Commercial/Industrial Service Rider Pilot Study Implementation Plan. This supplemental information is to be treated as confidential.

For all executed CSAs, it is estimated that the twelve months to date net revenues that would have been produced by the application of Gulf Power's otherwise applicable standard tariff rates to the affected load would have been approximately \$547,000* more than the revenues actually received by Gulf Power pursuant to each executed CSA.

$$\begin{array}{r} 400 \text{ --- } 2.3 \\ \hline 145,000 \\ (1) \underline{61,000} \\ 84,000 \quad 41-1 \\ (1) \end{array}$$

- * This difference is offset by \$61,000 which is the amount received under the IIC contract for the benefit created by the interruptible provision of the agreement with the customer.



12

GULF POWER COMPANY
SUPPLEMENTAL SURVEILLANCE REPORT INFORMATION
COMMERCIAL/INDUSTRIAL SERVICE RIDER
- JULY 1997 -

-CONFIDENTIAL-

The information listed below is presented to comply with FPSC Order No. PSC-96-1219-FOF-EI and Page 2 of 2 of the Commercial/Industrial Service Rider Pilot Study Implementation Plan. This supplemental information is to be treated as confidential.

For all executed CSAs, it is estimated that the twelve months to date net revenues that would have been produced by the application of Gulf Power's otherwise applicable standard tariff rates to the affected load would have been approximately \$402,000 * more than the revenues actually received by Gulf Power pursuant to each executed CSA.

2.2
130,000 2.4
272,000 4.1

- * This difference in subsequent months will be offset by the amount received under the IIC contract for the benefit created by the interruptible provision of the agreement with the customer.



3

GULF POWER COMPANY
SUPPLEMENTAL SURVEILLANCE REPORT INFORMATION
COMMERCIAL/INDUSTRIAL SERVICE RIDER
JUNE 1997

-CONFIDENTIAL-

The information listed below is presented to comply with FPSC Order No. PSC-96-1219-FOF-EI and Page 2 of 2 of the Commercial/Industrial Service Rider Pilot Study Implementation Plan. This supplemental information is to be treated as confidential.

For all executed CSAs, it is estimated that the twelve months to date net revenues that would have been produced by the application of Gulf Power's otherwise applicable standard tariff rates to the affected load would have been approximately \$130,000* more than the revenues actually received by Gulf Power pursuant to each executed CSA.

2.3
41-1

- * This difference in subsequent months will be offset by the amount received under the IIC contract for the benefit created by the interruptible provision of the agreement with the customer.



4

GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

PILOT STUDY

1/14/98
CSH
12/98

GULF POWER COMPANY
CISR AUDIT
PILOT STUDY SCHEDULE
AUDITOR: CHRIS HOLMAN

- 1 SUBJECT: CISR IMPLEMENTATION PLAN
- 2 PURPOSE: TO REVIEW THE CONDITIONS OF THE IMPLEMENTATION PLAN OF
3 GULF POWER COMPANY.
- 4 SUMMARY: 7-5 FPSC ORDER PSC-96-1219-FOF-EI HAS ATTACHED THE COMMERCIAL
5 1 INDUSTRIAL SERVICE RIDER PILOT STUDY IMPLEMENTATION PLAN.
6 THIS PLAN LISTS A NUMBER OF CONDITIONS TO BE IMPLEMENTED
7 BY THE COMPANY. THE THREE SUNSET PROVISIONS WERE
8 REVIEWED, INVOLVING LOAD, NUMBER OF CUSTOMERS, AND
9 ELAPSED TIME. THE COMPANY WAS IN COMPLIANCE WITH THESE
10 PROVISIONS. THE AVAILABILITY PROVISION WAS ALSO COMPLIED WITH, AS BOTH EXXON AND AIR PRODUCTS AND CHEMICAL, WERE 10-E
11 WITH, AS BOTH EXXON AND AIR PRODUCTS AND CHEMICAL, WERE CUSTOMERS OF GULF BEFORE THE IMPLEMENTATION OF CISR. THE
12 COMPANY'S EXECUTIVES REVIEWED AND APPROVED THE TWO
13 1-4 10-4 CONTRACTS. THE COMPANY ALSO COMPLIED WITH THE REPORTING
14 4-1-1 REQUIREMENT REPORTING CUMULATIVE "NET REVENUES".
15 4-1-1 REGARDING THE REVENUE ALLOCATION, THE COMPANY IS ONLY
16 10-4 4-1-1-1 BOOKING THE CISR REVENUES, IT IS NOT BOOKING THE BASE OR
17 5-1-1 ESTIMATED REVENUES OR CLAUSES.
18

GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

CSA CONTRACTS 1 & 2

OK
10/2/97
10-2-97

- 1 CONTRACT NO. 1 IS EXXON COMPANY. $\frac{10-4}{4}$
- 2 CONTRACT NO. 2 IS AIR PRODUCTS & CHEMICAL INC. $\frac{10-4}{5}$
- 3 CONTRACT NO. 1 EFFECTIVE 6/1/1997. $\frac{10-4}{4-1}$
- 4 CONTRACT NO. 2 SIGNED 9/30/97. $\frac{10-4}{-}$
- 5 $\frac{10-4}{5-201}$ EFFECTIVE 10/1/1997. $\frac{10-4}{5-201}$
- 6 BEFORE CONTRACT 1 SIGNED USED RTP RATES. $41-20.5$
- 7 BEFORE CONTRACT 2 SIGNED USED PXT RATES. $41-20.6$
- 8 AT 10/97 ON USES RTP RATES. $\frac{10-7}{2}$

Disputed by auditor

FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: SUSAN CRANMER AND DENNIS ECHOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN (AUDIT MANAGER) (AUDITOR PREPARING REQUEST)
REQUEST NUMBER: 3 DATE OF REQUEST: OCTOBER 20, 1997
AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: OCTOBER 27, 1997 (DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

SEE ATTACHED SHEET.

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 10/27/97

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) 1,2,3,4,5 IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

Dennis Echols AUDITOR
(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

DOCUMENT REQUEST 3

1. List the Kw demand and usage for each CSA customer from inception to the present.
2. What is the customer charge for each CSA customer?
3. Have available the revenue that would have been produced under standard tarrified rates and the revenues that are produced by the CSA from inception to the present.
4. Have available evidence, including journal, general ledger entries etc. that the revenue from CSA are allocated to the clauses at the rate which the customer would have been charged under normal prevailing rates.
 - A. Fuel and Purchased Power Cost Recovery Clause
 - B. Purchased Power Capacity Cost Recovery Clause
 - C. Environmental Cost Recovery Clause
 - D. Energy Conservation Cost Recovery Clause
5. Provide a schedule showing the components of the calculation of net revenue that would have been produced through the application of the standard rate schedule.

Gulf Power Company
FPSC CISR Audit

Document Request 3

1 Every application of Gulf Power's CISR rider is evaluated on a case by case basis over
2 the life of the CSA. The analysis involves developing a base case describing the
3 revenue and cost consequences resulting from the loss of the "at-risk" load. These
4 consequences are then compared on a present-value basis to those that are expected
5 to result from the CSA. The present-value of the net benefits associated with each
6 CSA must exceed those of the base case. These analyses are available, under
7 confidentiality conditions, for FPSC review and audit

8 1. List the Kw demand and usage for each CSA customer from inception to the present.

9 CSA number 1:

10	<u>Date</u>	<u>Kw</u>	<u>Kwh</u>
11	June 97	27,589	19,915,475
12	July 97	27,806	18,246,782
13	August 97	27,732	17,023,578

14 CSA number 2 became effective on October 1, 1997 and as a result this information is
15 not available.

16 2. What is the customer charge for each CSA customer?

17 The additional customer charge for every CSA is \$250. This amount is pursuant to the
18 tariff for the Commercial/Industrial Service Rider.

19 3. Have available the revenue that would have been produced under standard tariffed
20 rates and the revenues that are produced by the CSA from inception to the present.

21 The analysis and base case are available for review at any time.

22 4. Have available evidence, including journal, general ledger entries etc. that the
23 revenue from CSA are allocated to the clauses at the rate which the customer would
24 have been charged under normal prevailing rates.

- 25 A. Fuel and Purchased Power Cost Recovery Clause
- 26 B. Purchased Power Capacity Cost Recovery Clause
- 27 C. Environmental Cost Recovery Clause
- 28 D. Energy Conservation Cost Recovery Clause



10-3
2

1 The journal, general ledger entries etc. that document that revenue from CSA's are
2 allocated to the clauses at the rate which the customer was charged under their
3 previous prevailing rate are available for review.

4 5. Provide a schedule showing the components of the calculation of net revenues that
5 would have been produced through the application of the standard rate schedule.

6 A schedule is attached that provides the components of the calculation of net
7 revenues.

PBC

10 2

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Gulf Power Company
 FPSC Document Request 3
 Item 5

CSA number 1:

Using the weighted base case, Gulf developed monthly Kwh's. The monthly Kwh's are then used in conjunction with the average offered RTP price for the month to produce a weighted base case monthly revenue. The difference between the weighted base case monthly revenue and the actual CISR revenue is reported on the monthly surveillance report.

Base Case Kwh's	x	Average offered RTP price	=	Base Case Revenue
Base Case Kwh's	x	Applicable Rate Clauses	=	Applicable Rate Clause Revenue
Base Case Revenue	-	Applicable Rate Clause Revenue	=	Net Base Case Revenue
Net Base Case Revenue	-	Net CISR Revenue	=	Difference

Example:

	<u>June Base case</u>	<u>June CISR Bill</u>	<u>June Diff</u>
Energy	41-248,039,206	19,915,475	
Cust. Chrg	1,000	1,250	
Ergy Chrg	657,529	567,169	
Kvar Chrg		2,318	
ECC .032	5,773	6,373	
ECCR .095	17,137	18,920	
CR 2.073	373,953	412,848	
PPCC .042	<u>7,576</u>	<u>8,364</u>	
Total	254,090	124,232	(129,858)
Less Clauses			

CSA number 2 will remain on a standard tariff until approximately April 1, 1998.



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- 1 Note: The Exxon CISR contract contains some year-end adjustments that are not reflected in the monthly
- 2 surveillance report (i.e., energy purchases above annual commitment amount, minimum load factor).
- 3 These adjustments may result in additional contract revenues. These amounts will be determined at the
- 4 end of the year.

PBC

10-3
—
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FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: SUSAN CRANMER AND DENNIS ECHOLS
 UTILITY: GULF POWER COMPANY
 FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)
 DATE OF REQUEST: 11/21/97

REQUEST NUMBER: 4
 AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: 11/24/97 (DATE)

REFERENCE RULE 25-22.006, F.A.C.. THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

1. In the response to Document Request 2 you stated that the dates the CSAs were executed were June 1, 1997 and October 1, 1997. What are the dates that the CSA is terminated?
2. In the same response you stated that the actual electric load served by the Company is different than it would have been in the absence of the CSA? Explain why is this different.
3. Also stated was that the actual terms and conditions of the service arrangements for each customer are not available under any current existing standard tariff. How did you calculate the amounts for the surveillance report?
4. Please have the two CISR contracts available for review the week of November 24, 1997.

Handwritten notes:
 CONT 1 10-4 ; contract 10-4
4-1 ; 5-1
 To 10-4
4-28

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 11/24/97

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) 1-4 IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

Dennis J. Echols
(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
 Copy: Audit File and FPSC Analyst

CISR CONTRACT 1

This document consisting of 28 pages is confidential in its entirety.

This Document in its
entirety is confidential

GULF POWER COMPANY

CISR AUDIT

PERIOD 6/1/97 TO 10/31/97

CISR CONTRACT

1

11/24/97

② 1-26

DOCUMENT REQUEST 4, ITEM 4, CONTRACT 1 7C

PAGES 10-4/4-1 TO 10-4/4-28

DATE CONTRACT STARTED:

10-4
11-1

DATE CONTRACT ENDING:

10-4
11-2

NOTE: CONTRACTS REQUESTED BY ANALYST.

Approved by Analyst

10-4

4

CONTRACT SERVICE ARRANGEMENT
FOR THE PROVISION OF SERVICE
UNDER THE COMMERCIAL/INDUSTRIAL SERVICE RIDER

This Contract Service Arrangement (Agreement) is made and entered into as of this 1st day of July, 1997, by and between Exxon Company, U.S.A., a division of Exxon Corporation, ("Exxon") and The Louisiana Land & Exploration Company ("LL&E") (hereinafter called the Customer), and GULF POWER COMPANY, a Maine corporation (hereinafter called the Company).

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4-5

WITNESSETH:

WHEREAS, the Company is an electric utility operating under Chapter 366, Florida Statutes, subject to the jurisdiction of the Florida Public Service Commission or any successor agency thereto (hereinafter called the Commission); and

WHEREAS, the Customer is part of a group of working interest owners engaged in petroleum and natural gas production from the Jay/Little Escambia Creek Fields Unit (Jay Oil Field) located on approximately 14,000 acres traversing the Alabama/Florida border, with the associated electric load of approximately 27.0 megawatts (MW) served from a delivery point in Santa Rosa County, Florida (Exxon St. Regis), and with Exxon currently serving as operator of the Jay Oil Field for itself and the other owners under an operating agreement that contemplates reimbursement to the operator by the other owners for their respective pro rata share of the costs of operating the field including, without limitation, the costs incurred by Exxon under this agreement in its capacity as operator; and

WHEREAS, the Customer currently takes or is qualified to take electric service from the Company under rate schedule PX/PXT and/or RTP at the service location described in Exhibit A; and

WHEREAS, there are viable economic alternatives (excluding alternatives in which the Company has an ownership or operating interest) to the present pricing under the Company's rate schedule PX/PXT and/or RTP which is sufficient economic justification for the Customer to decide not to take electric service from the Company for all or a part of the Customer's needs; and

WHEREAS, the Customer has shown evidence and legal attestation that it will not take electric service from the Company to serve its New or Retained Load unless rate schedule Commercial/Industrial Service Rider (hereinafter called CIS rider) is applied; and

WHEREAS, the Company is willing to apply the CIS rider to the Customer's New or Retained Load in exchange for a commitment by the Customer to continue or begin to purchase electric energy exclusively from the Company at agreed upon service locations (for purposes of this Agreement, the electric energy may exclude certain electric service requirements served by the Customer's own generation as of the date of this Agreement);

NOW THEREFORE, in consideration of the mutual covenants expressed herein, the Company and Customer agree as follows:

I. Rate Schedules - The Company agrees to furnish and the Customer agrees to take power pursuant to the terms and conditions of the Company's tariff, rate schedule PX/PXT, and the CIS rider, as currently approved by the Commission or as said tariff and rate schedules may be modified in the future and approved by the Commission (except as specifically modified in this Agreement). The Customer

061397JAS



CSA Master -- Page 1 of 5

10-4
4-1

agrees to abide by all applicable requirements of the tariff, rate schedule PX/PXT, and the CIS rider, except to the extent specifically modified by this Agreement. Copies of the Company's currently approved rate schedule PX/PXT and the CIS rider are attached as Exhibit B and made a part hereof.

In the event of any conflict between the terms of this Agreement and such tariff or rate schedule (other than as set out in the CIS rider) the terms of this Agreement shall control.

2. Term of Agreement - This Agreement shall remain in force for a term of seven (7) years commencing on the above date. During the last one year(s) of the term hereof, the parties shall meet in good faith to negotiate an extension of this Agreement beyond the initial term. During this negotiation, each party hereto shall retain the absolute discretion to reject (1) any pricing or other terms and conditions proposed by the other party hereto or (2) the continuation of any pricing or other terms and conditions as agreed upon for the initial term or any subsequent term(s).

10-4
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3. Modifications to Rate Schedule -

See Exhibit C to this Agreement.

4. Exclusivity Provision - During the term hereof, the Customer agrees to purchase from the Company the Customer's entire requirements for electric capacity and energy for its facilities and equipment at the service location(s) described in Exhibit A to this Agreement. The entire requirements for electric capacity and energy may exclude certain electric service requirements served by the Customer's own generation as of the date of this Agreement.

5. Termination Fees -

See Exhibit D to this Agreement.

6. Entire Agreement - This Agreement supersedes all previous agreements and representations either written or oral heretofore made between the Company and the Customer with respect to the matters herein contained. This Agreement, when duly executed, constitutes the only agreement between the parties hereto relative to the matters herein described.

7. Incorporation of Tariff - This Agreement incorporates by reference the terms and conditions of rate schedule PX/PXT and the CIS rider filed by the Company with, and approved by, the Commission, as amended from time to time. In the event of any conflict between this Agreement as approved by the Commission and such rate schedules, the terms and conditions of this Agreement shall control.

061397JAS



10-4
4-2

8. Notices - All notices and other communications hereunder shall be in writing and shall be delivered by hand, by prepaid first class registered or certified mail, return receipt requested, by courier or by facsimile, addressed as follows:

If to the Company: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, FL 32520
Facsimile: (904) 444-6237
Attention: General Manager of Marketing & Load Management

with a copy to: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, FL 32520
Facsimile: _____
Attention: _____

If to the Customer: Exxon Company, U.S.A.
Oilplant Road
P. O. Box 351
Jay, FL 32565
Facsimile: (904) 675-1705
Attention: Steve Rydzowski

with a copy to: (not applicable)

Facsimile: _____
Attention: _____

Except as otherwise expressly provided in this Agreement, all notices and other communications shall be deemed effective upon receipt. Each party shall have the right to designate a different address for notices to it by notice similarly given.

9. Assignment: No Third Party Beneficiaries - This Agreement shall inure to the benefit of and shall bind the successors and assigns of the parties hereto. No assignment of any rights or delegation of any obligations hereunder shall have the effect of releasing the assigning party of any of its obligations hereunder, and the assigning party shall remain primarily liable and responsible therefore notwithstanding any such assignment or delegation. Nothing in this Agreement shall be construed to confer a benefit on any person not a signatory party hereto or such signatory parties successors and assigns.

061397JAS



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10. Waiver - At its option, either party may waive any or all of the obligations of the other party contained in this Agreement, but waiver of any obligation or of any breach of this Agreement by either party shall in no event constitute a waiver as to any other obligation or breach or any future breach, whether similar or dissimilar in nature, and no such waiver shall be binding unless in writing signed by the waiving party.

11. Headings - The section and paragraph headings contained in the Agreement are for reference purposes only and shall not affect, in any way, the meaning or interpretation of this Agreement.

12. Counterparts - This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13. Dispute Resolution - All disputes arising between the Customer and the Company under this Agreement shall be finally decided by the Commission in accordance with the applicable rules and procedures of the Commission.

14. Governing Law - This Agreement shall be construed and enforced in accordance with the laws of the State of Florida.

15. Confidentiality - The pricing levels and procedures described within this Agreement, as well as any information supplied by the Customer through an energy audit or as a result of negotiations or information requests by the Company and any information developed by the Company in connection therewith is considered confidential, proprietary information of the parties. If requested, such information shall be made available for review by the Commission and its staff only and such review shall be made under the confidentiality rules of the Commission.

061397JAS



10 - 4

4 - 4

IN WITNESS WHEREOF, the Customer and the Company have executed this Agreement the day and year shown above.

CUSTOMER:

EXXON COMPANY, U.S.A., a division
of Exxon Corporation

PHK
6/16/97

Witnesses:

Greg L Ward
Raymond Mana

By:

Its:

Attest:

John P. [Signature]
Downstream Purchasing Manager
[Signature]

The Louisiana Land and Exploration Company

Witnesses:

Glenn M. Caldwell
Wes J. Helms

By:

Its:

Attest:

John H. Wills
VP. EOP
Patricia D. Oehler



COMPANY:

GULF POWER COMPANY

Witnesses:

Doris B. [Signature]
[Signature]

By:

Its:

Attest:

[Signature]
VP - Finance
[Signature]

061397JAS



10 - 4
4 - 1

Exxon/LL&E CSA
EXHIBIT A

The service location subject to this agreement is described as:

The Exxon Jay St. Regis Facility located on land leased by Exxon Company U.S.A. a division of Exxon Corporation, from Champion Paper Company, such land being located just outside the town limits of Jay, Florida. The general coordinates of such land are: 30 deg 52 min 45 sec N, 87 deg 10 min 45 sec W, Sec 43, Township 6N, Range 29W, Santa Rosa County, Florida.

061397JAS



CSA Exhibit A--Page 1 of 1

10-4
4-6

Exxon/LL&E CSA
EXHIBIT B

Copies of rate schedules PX, PXT and CISR consisting of seven pages as they are currently approved by the Florida Public Service Commission are attached to this cover sheet.

061397JAS



10-4
4-7

GULF POWER COMPANY

Section No. V
Seventeenth Revised Sheet No. 6.8
Canceling Sixteenth Revised Sheet No. 6.8

URSC: GSLD1

RATE SCHEDULE PX LARGE HIGH LOAD FACTOR POWER SERVICE

AVAILABILITY - Available throughout the entire territory served by the transmission system of the Company.

APPLICABILITY - Applicable for three phase lighting and power service to any customer whose actual measured demand is not less than 7,500 kilowatts (kw), with an annual load factor of not less than seventy-five percent (75%). Service to two or more premises shall not be combined nor shall service furnished hereunder be shared with or resold to others. All service shall be taken at the same voltage and from a single delivery point, and shall be measured by a single meter.

CHARACTER OF SERVICE - The delivery voltage to the Customer shall be the standard secondary voltage of the Company's transformers supplied from the transmission lines of the Company.

MONTHLY RATES -

Customer Charge:

\$575.01

FUEL CHARGE:

Demand Charge:

\$8.32 per kw of billing demand

Fuel charges are normally adjusted by the Florida Public Service Commission each six months, April and October. As of April 1, 1992, the amount for fuel was 2.103¢/kwh. For current fuel costs included in this tariff, see page 6.15.

Energy Charge:

0.413¢ per KWH

MINIMUM MONTHLY BILL - In the event the customer's annual load factor for the current and preceding eleven months is less than 75% and in consideration of the readiness of the Company to furnish such service, the minimum monthly bill shall not be less than the customer charge plus \$10.581 per kw of billing demand.

DETERMINATION OF BILLING DEMAND - The Customer's Billing Demand shall be the maximum measured KW demand integrated over any fifteen minute interval during the current billing month, provided such demand shall not be less than 7500 KW.



ISSUED BY: D. L. McCrary

EFFECTIVE: September 13, 1992

10-4
4

(Continued)

REACTIVE DEMAND CHARGE - The monthly bill calculated at the above rates shall also be increased in the amount of \$1.00 per kvar for all over 0.48432 kilovars per kilowatt (90% power factor). The kilovars to which this adjustment shall apply shall be the monthly maximum measured kilovar demand or may be calculated as the square root of the difference between the square of the maximum monthly measured kva demand and the square of the maximum monthly measured kw demand.

TRANSFORMER OWNERSHIP DISCOUNT AND TRANSMISSION METERING VOLTAGE DISCOUNTS - When the Company renders service under this Rate Schedule from an available transmission line of 46,000 volts or higher and the Customer furnishes, operates and maintains the complete step-down transformer substation necessary to receive and use such service the Monthly Rate will be subject to a discount of eleven (11) cents per month per kilowatt (kw) of the Customer's billing demand as determined above, and an additional discount of one percent (1%) of the Energy Charge, and one percent (1%) of the Demand Charge; however, such deduction shall not reduce the minimum monthly bill specified above.

TERM OF CONTRACT - Service under this rate schedule shall be for a period of five (5) or more years and thereafter from year to year until terminated by twelve (12) months' written notice by either party to the other.

TAX ADJUSTMENT - See Sheet No. 6.16 FRANCHISE FEE BILLING - See Sheet No. 6.15

FUEL CHARGE - See Sheet No. 6.15

PURCHASED POWER CAPACITY COST - See Sheet No. 6.15.1

ENVIRONMENTAL COST - See Sheet No. 6.15.2

ENERGY CONSERVATION - See Sheet No. 6.16.1

GROSS RECEIPTS TAX ADJUSTMENT - See Sheet No. 6.16

PAYMENT OF BILLS - See Sheet No. 6.16

SERVICE UNDER THIS RATE SCHEDULE IS SUBJECT TO RULES AND REGULATIONS OF THE COMPANY AND THE FLORIDA PUBLIC SERVICE COMMISSION.



URSC: GSLDT1

RATE SCHEDULE PXT
LARGE HIGH LOAD FACTOR POWER SERVICE - TIME-OF-USE CONSERVATION
(Optional Schedule)

AVAILABILITY - Available throughout the entire territory served by the transmission system of the Company.

APPLICABILITY - Applicable as an option to Rate Schedule PX for three phase lighting and power service to any customer whose actual measured demand is not less than 7,500 kilowatts (kw), with an annual load factor of not less than seventy-five percent (75%). Service to two or more premises shall not be combined nor shall service furnished hereunder be shared with or resold to others. All service shall be taken at the same voltage and from a single delivery point, and shall be measured by a single meter.

CHARACTER OF SERVICE - The delivery voltage to the Customer shall be the standard secondary voltage of the Company's transformers supplied from the transmission lines of the Company.

MONTHLY RATES-

FUEL CHARGE:

Customer Charge:
\$575.01

Demand Charge:

\$0.69 per KW of max. demand plus;
\$7.73 per KW of on-peak demand

Energy Charge:

On-Peak and Off-Peak Periods
0.410¢ per KWH

Fuel charges are normally adjusted by the Florida Public Service Commission each six months, April and October. As of April 1, 1992, the amount for fuel was 2.302¢/kwh on-peak, and 2.009¢/kwh off-peak. For current fuel costs included in this tariff, see page 6.15.

DETERMINATION OF THE ON-PEAK PERIOD - The on-peak period for calendar months April through October is defined as being those hours between 12:00 p.m. and 9:00 p.m. Central Daylight Time/Central Standard Time, Monday through Friday.

The on-peak period for calendar months November through March is defined as being those hours between 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10:00 p.m. Central Standard Time/Central Daylight Time, Monday through Friday.

DETERMINATION OF THE OFF-PEAK PERIOD - All hours not included above and all hours of the observed holidays of New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas are in the off-peak period.



MINIMUM MONTHLY BILL - In the event the customer's annual load factor for the current and preceding eleven months is less than 75% and in consideration of the readiness of the Company to furnish such service, the minimum monthly bill shall not be less than the customer charge plus \$10.555 per kw of maximum billing demand.

DETERMINATION OF BILLING DEMAND - (a) Maximum Demand -- The kilowatt (kw) billing demand for billing purposes shall be the maximum measured kw demand integrated over any fifteen minute interval during the current billing month but not less than 7500 kw.

(b) On-Peak Demand -- The kilowatt (kw) billing demand for billing purposes shall be the customer's maximum integrated fifteen minute demand to the nearest kilowatt (kw) during each service month as measured during the hours designated as on-peak.

REACTIVE DEMAND CHARGE - The monthly bill calculated at the above rates shall also be increased in the amount of \$1.00 per kvar for all over 0.48432 kilovars per kilowatt (90% power factor). The kilovars to which this adjustment shall apply shall be the monthly maximum measured kilovar demand or may be calculated as the square root of the difference between the square of the maximum monthly measured kva demand and the square of the maximum monthly measured kw demand.

TRANSFORMER OWNERSHIP DISCOUNT AND TRANSMISSION METERING VOLTAGE DISCOUNTS - When the Company renders service under this Rate Schedule from an available transmission line of 46,000 volts or higher and the Customer furnishes, operates and maintains the complete step-down transformer substation necessary to receive and use such service the Monthly Rate will be subject to a discount of eleven (11) cents per month per kilowatt (kw) of the Customer's maximum billing demand as determined above, and an additional discount of one percent (1%) of the Energy Charge and one percent (1%) of the Demand Charge; however, such deduction shall not reduce the minimum monthly bill specified above.



(Continued)

TERM OF CONTRACT - (1) Service under this rate schedule shall be for a period of five (5) or more years and thereafter from year to year until terminated by twelve (12) months' written notice by either party to the other.

TAX ADJUSTMENT - See Sheet No. 6.16 FRANCHISE FEE BILLING - See Sheet No. 6.16

FUEL CHARGE - See Sheet No. 6.15

PURCHASED POWER CAPACITY COST - See Sheet No. 6.15.1

ENVIRONMENTAL COST - See Sheet No. 6.15.2

ENERGY CONSERVATION - See Sheet No. 6.16.1

GROSS RECEIPTS TAX ADJUSTMENT - See Sheet No. 6.16

PAYMENT OF BILLS - See Sheet No. 6.16

SERVICE UNDER THIS RATE SCHEDULE IS SUBJECT TO RULES AND REGULATIONS OF THE COMPANY AND THE FLORIDA PUBLIC SERVICE COMMISSION.



ISSUED BY: D. L. McCrary

EFFECTIVE: February 1, 1994

CSA Exhibit B -- Page 6 of 8

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GULF POWER COMPANY

RATE SCHEDULE CIS Limited Availability Experimental Rate Commercial/Industrial Service

(Optional Rider)

AVAILABILITY - Available, at the Company's option, to non-residential customers currently taking service, or qualified to take service, under the Company's Rate Schedules applicable to loads of 500 KW or greater. Customers desiring to take service under this rider must make a written request. Such request shall be subject to the Company's approval, with the Company under no obligation to grant service under this rider.

This rider will be closed to further subscription by eligible customers when one of three conditions has occurred: (1) The total capacity subject to executed Contract Service Arrangements ("CSAs") reaches 200 megawatts of connected load; (2) The Company has executed twelve CSAs with eligible customers under this rider, or (3) Forty-eight months has passed from the initial effective date. The period defined by these conditions is the pilot study period. This limitation on subscription can be removed by the Commission at any time upon good cause having been shown by the Company based on data and experience gained during the pilot study period.

Gulf Power is not authorized by the Florida Public Service Commission to offer a CSA under this rate schedule in order to shift existing load currently being served by a Florida electric utility pursuant to a tariff rate schedule on file with the Florida Public Service Commission away from that utility to Gulf Power.

APPLICABILITY - Service provided under this optional rider shall be applicable to all, or a portion of, the Customer's existing or projected electric service requirements which would not be served by the Company but for the application of this rider and which would otherwise qualify for such service under the terms and conditions set forth herein. Such load (Qualifying Load) shall be determined by the Customer and the Company. Service furnished hereunder shall not be shared with or resold to others.

Two categories of Qualifying Load shall be recognized: Retained Load (existing load at an existing location) and New Load (all other Qualifying Load). Qualifying Load must be served behind a single meter and must equal or exceed a minimum level of demand determined from the following table:

Retained Load:	For Customers whose highest metered demand in the past 12 months was less than 10,000 KW, the minimum Qualifying Load would be the greater of 500 KW or 20% of the highest metered demand in the past 12 months; or
	For Customers whose highest metered demand in the past 12 months was greater than or equal to 10,000 KW, the minimum Qualifying Load would be 2,000 KW.
New Load:	1,000 KW of installed, connected demand.

Any Customer receiving service under this rider must provide the following documentation, the sufficiency of which shall be determined by the Company:

1. Legal attestation by the Customer (through an affidavit signed by an authorized representative of the Customer) to the effect that, but for the application of this rider to the New or Retained Load, such load would not be served by the Company;
2. Other documentation, as requested by the Company, demonstrating that there is a viable economic alternative (excluding alternatives in which the Company has an ownership or operating interest) to the Customer's taking electric service from the Company; and



ISSUED BY: Travis Bowden

EFFECTIVE: September 3, 1996

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GULF POWER COMPANY

3. In the case of existing Customers, an agreement to provide the Company with a recent energy audit of the Customer's physical facility (the Customer may have the audit performed by the Company at no expense to the Customer) which provides sufficient detail to provide reliable cost and benefit information on energy efficiency improvements which could be made to reduce the Customer's cost of energy in addition to any discounted pricing provided under this rider.

CHARACTER OF SERVICE - This optional rider is offered in conjunction with the rates, terms, and conditions of the tariff under which the Customer takes service and affects the total bill only to the extent that the negotiated rates, terms, and conditions differ from the rates, terms, and conditions of the otherwise applicable rate schedules as provided for under this rider.

MONTHLY CHARGES - Unless specifically noted in this rider or within the Contract Service Arrangement, the charges assessed for service shall be those found within the otherwise applicable rate schedules.

Additional Customer Charge: \$250.00

Demand/Energy Charges: Any negotiated Demand and/or Energy Charges, or the procedure for calculating the negotiated charges, under this rider shall be set forth in the Contract Service Arrangement and shall recover all incremental costs the Company incurs in serving the Customer's Qualifying Load plus a contribution to the Company's fixed costs.

Provisions and/or Conditions Associated with Monthly Charges: Any negotiated provisions and/or conditions associated with the Monthly Charges shall be set forth in the Contract Service Arrangement and may be applied during all or a portion of the term of the Contract Service Arrangement. These negotiated provisions and/or conditions may include, but are not limited to, a guarantee by the Company to maintain the level of either the Demand and/or Energy Charges negotiated under this rider for a specified period, such period not to exceed the term of the Contract Service Arrangement.

SERVICE AGREEMENT - Each Customer shall enter into a Contract Service Arrangement ("CSA") with the Company to purchase the Customer's entire requirements for electric service at the service locations set forth in the CSA. For purposes of the CSA, "the entire requirements for electric service" may exclude certain electric service requirements served by the Customer's own generation as of the date shown on the CSA. The CSA shall be considered a confidential document. The pricing levels and procedures described within the CSA, as well as any information supplied by the Customer through an energy audit or as a result of negotiations or information requests by the Company and any information developed by the Company in connection therewith is considered confidential, proprietary information of the parties. If requested, such information shall be made available for review by the Florida Public Service Commission and its staff only and such review shall be made under the confidentiality rules of the Commission.

SERVICE UNDER THIS RATE SCHEDULE IS SUBJECT TO RULES AND REGULATIONS OF THE COMPANY AND THE FLORIDA PUBLIC SERVICE COMMISSION.



ISSUED BY: Travis Bowden

EFFECTIVE: September 3, 1996

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Exxon/LL&E CSA
EXHIBIT C

PAYMENTS

ANNUAL COMMITMENT

The phrase "contract year" under this agreement shall refer to a consecutive twelve month period running from 4/1 through 5/31. Customer shall pay Company a total of \$1,866,857.36 ("annual non-fuel commitment amount") during the contract year. The annual non-fuel commitment amount shall be paid in twelve (12) equal installments due monthly with the payment of the monthly billing amount specified in the following subsection. At the end of the contract year, if the Customer's actual cumulative energy usage during the contract year was greater than 212,868,000 kilowatthours (KWH), then Customer shall pay Company an additional amount equal to the product of the number of KWHs above the 212,868,000 threshold multiplied by \$0.00727.

To:
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The foregoing payments shall be in lieu of and as a replacement for any demand charges, energy charges, minimum monthly bill, and discounts associated with transformer ownership or primary metering voltage that would otherwise ordinarily be due under rate schedules PX or PXT. The foregoing payments shall also be construed as having incorporated the monthly customer charge associated with rate schedule PX/PXT as well as the charges ordinarily associated with rate schedules PPCC (Purchased Power Capacity Cost), ECR (Environmental Cost), and ECC (Energy Conservation Cost) (as well as any new matter-specific cost recovery clauses that may be implemented by Company after the effective date of this Agreement) based on the actual cumulative energy usage during the contract year. The foregoing payments do not include the charges associated with rate schedule CR (Cost Recovery Clause- Fossil Fuel and Purchased Power) which shall continue to be billed and paid on a monthly basis based on actual energy usage during the month.

MONTHLY

All charges provided for under rate schedule PX/PXT and rate schedule CISR other than those covered by the payment of the annual commitment amount and other annual payments set forth above shall continue to be billed and paid on a monthly basis in accordance with said rate schedules. The reactive demand charge included in the monthly bill shall be calculated at the applicable rate per kvar for all over 0.32868 kvars per kilowatt (95% power factor).

INTERRUPTIBILITY

With the exception of three thousand fifty five (3,055) kilowatts (KW) of firm electric load required to maintain non-tertiary operations at Exxon St. Regis, Company's obligation to deliver electricity to serve the entire electric load which is the subject of this Agreement shall be subject to suspension at the sole discretion of Company for any period or periods of time, except as limited hereinafter. Company shall endeavor (but not be required) to provide four (4) hours advance notice to Customer of an anticipated suspension pursuant to this provision. However, in the event of an emergency on the Company's system, the time for commencing the suspension of load specified in the notice shall be for such shorter period, as little as fifteen (15) minutes, as the emergency circumstances may, in the Company's judgment, require. When possible, Company shall include both the starting time and the duration for each anticipated



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suspension. Such notice may be either electronic, oral or written, but if given electronically or orally, the notification shall be promptly confirmed in writing to Customer's representative designated to receive such notices. Any continuous period during which the delivery of electricity is suspended in accordance with the foregoing procedure is hereinafter referred to as a "Suspension Period". The total time of Suspension Periods pursuant to this agreement shall not exceed eight (8) hours per day nor six hundred (600) hours per contract year. There shall be only one Suspension period per day and no more than five (5) such Suspension Periods during any week (Sunday through Saturday).

Depending on the circumstances, Company may have the ability to address a suspension of non-firm load without suspending the entire amount of contracted non-firm capacity on its electric system. To facilitate the suspension of a portion of contracted non-firm capacity, Company will assign the total contracted non-firm capacity on its electric system into several groups. Company may, at its sole discretion, suspend non-firm capacity from these groups on a rotating basis. The decision of how much non-firm capacity to suspend and which group(s) must suspend non-firm capacity at any given time is within the sole discretion of Company, subject only to contractual limitations on suspension periods as set forth in individual agreements such as the limitations described in the preceding paragraph. At Customer's option, its non-firm capacity will be allocated into not more than three (3) groups as set forth below provided that the allocation into any one group is not less than 3,000 KW. This allocation shall be effective for a period of one (1) year from the commencement of service under this Agreement and shall continue in effect thereafter until changed by either party by providing thirty (30) days advance written notice. Any such change in allocation shall be limited to one modification by either party in any twelve (12) consecutive month period.

The non-firm capacity allocated to Group A is _____ KW (Group A amount). The firm capacity associated with Group A is _____ KW (total firm + total non-firm - Group A amount).

The non-firm capacity allocated to Group B is _____ KW (Group B amount). The firm capacity associated with Group B is _____ KW (total firm + total non-firm - Group B amount).

The non-firm capacity allocated to Group C is _____ KW (Group C amount). The firm capacity associated with Group C is _____ KW (total firm + total non-firm - Group C amount).

Whenever the non-firm capacity associated with two or more groups is suspended by Company in any given Suspension Period, the firm capacity associated with such combination of groups shall be the total firm capacity plus the total non-firm capacity less the non-firm capacity associated with the suspended groups.

Customer shall cooperate with Company during any declared Suspension Period by reducing its electric load to no more than the firm capacity associated with whichever group(s) suspended by Company during such Suspension Period. If Customer fails to act accordingly, Customer shall pay Company a compliance incentive of \$15.30 for each KW of capacity of load in excess of the firm capacity associated with whichever group(s) suspended by Company taken during any such Suspension Period.

For purposes of this provision, Suspension Periods called by Company shall be coordinated with Suspension Periods that are called by Alabama Power Company (APCo) for Customer's sister electric load served by APCo located at Flomaton, Alabama and vice versa. During any Suspension Period involving a call for suspension of any portion of the non-firm capacity at Exxon St. Regis and a simultaneous call for suspension of any portion of the non-firm capacity at Customer's sister electric load served by APCo at Flomaton, Alabama, no compliance incentive shall be due either APCo or the Company for such



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Suspension Period so long as Customer has reduced its electric load at Exxon St. Regis and/or its sister electric load served by APCo at Flomaton, Alabama so that Customer's combined total electric load at the two locations is not more than the firm capacity associated with whichever group(s) suspended by Company and APCo during such Suspension Period. If Customer fails to act accordingly, the total compliance incentive due APCo and the Company for such Suspension Period shall be calculated on the basis of the combined electric load and shall be allocated to APCo and the Company based on their respective pro rata share of the total combined firm capacity associated with whichever group(s) suspended during such Suspension Period.

At the end of each contract year, if it is demonstrated that the number of suspension hours called by Company and complied with by Customer during the previous twelve (12) month period has contributed to an underutilization of energy entitlement associated with the annual non-fuel commitment amount during the contract year, then customer shall receive a credit from Company determined by taking the actual number of called suspension hours complied with by Customer multiplied by the amount of actual demand interrupted by Customer (not to exceed the non-firm capacity suspended by Company), multiplied by \$0.00877.

When the company, at its sole discretion, determines that "buy through" energy is available, then the Company agrees to offer Customer the option to purchase such "buy through" energy. For the purpose of this determination, "buy through" energy is defined as energy (and associated capacity) that is available for delivery to Customer during a called suspension period to the extent that such delivery is consistent with Southern Company System reliability guidelines. Should Company determine that "buy through" energy is available during a called suspension period, Customer will be provided with specific pricing information for such energy.

Notwithstanding the exclusivity provision set forth in paragraph 4 of the Contract Service Arrangement, Customer may install on-site generation for the sole purpose of filling in during called Suspension Periods. In order to ensure that such on-site generation installed during the life of this Agreement is not used for any purpose other than as permitted herein, the electric output of such on-site generation shall be measured by time recording metering devices approved by Company. If for any reason the data collected by such metering devices shows that the on-site generation was utilized at a time other than during a called Suspension Period, then Customer shall pay Company a compliance incentive of \$0.00877 for each KWH produced by the on-site generation during times other than a called Suspension Period. The cost of such metering devices shall be paid by Customer.

ADJUSTMENT FOR REQUIRED MINIMUM LOAD FACTOR

Customer agrees that it will maintain a minimum 90% load factor during each contract year based on the maximum demand set during that contract year. For purposes of this section, the maximum demand set during the measurement period shall be the average of the six (6) highest 15-minute billing interval demands occurring during such measurement period. The achieved load factor shall be calculated based on the non-suspension period hours during the year. To the extent that Customer fails to achieve such minimum load factor during any contract year, Customer shall pay Company an amount equal to the product of the KWH equivalent of the minimum load factor less the actual KWH usage during the contract year multiplied by \$0.00727.

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In the event Customer gives Company prior written notice of an increase in the Customer's load requirements resulting in an increased maximum demand, the load factor requirement for the contract year shall be determined separately for each portion of the contract year as divided by the effective date of such notice. The minimum load factor requirement for the portion of the contract year occurring prior to effective date of the written notice shall be calculated based on the maximum demand set during the twelve months ending on the effective date of the written notice. Beginning with the effective date of the written notice, the term "contract year" for purposes of calculating the minimum load factor and any adjustment related thereto shall be consecutive twelve (12) month periods extending from the effective date of such written notice. This revised meaning of the term "contract year" shall not be applicable to any other section of this Agreement.

ADDITIONAL FACILITIES

If Customer's load requirements during the life of this Agreement grow such that Company is required to upgrade or install additional facilities (other than generating capacity) in order to serve the increased demand, Customer may be required by Company to either provide such upgraded or additional facilities or pay an amount as a contribution in aid of construction of such upgraded or additional facilities. Such contribution amount shall be determined by taking into account the additional revenues associated with the increased energy usage associated with the changed load requirements multiplied by \$0.00727 over the remaining term of the agreement as compared to the facilities investment reasonably required to serve the changed load requirements. The required contribution shall be sufficient to ensure that the additional revenues produce positive net present value benefits on the net facilities investment (total facilities investment less contribution in aid of construction). At the end of the contract term or upon early termination of the Agreement, if there has not been sufficient additional revenues to produce positive net present value benefits on the net facilities investment, then Customer shall be obligated to pay an additional contribution in aid of construction in order to make up for any such shortfall. Such obligation shall be due and payable immediately upon the expiration or termination of this Agreement.

OTHER CONDITIONS

If the delivery of electric power provided hereunder is interrupted, surges or fails due to: (a) accident, strike, acts of the Customer, legal process, governmental order, fire, extraordinary repairs, governmental priority, or other causes beyond the Company's reasonable control; or (b) maintenance or repair of the Company's equipment, or temporarily from connection of equipment for new Customers; or (c) by action of the Company when, in the sole judgment of the Company, such interruption will prevent or alleviate an emergency threatening the integrity of its system or aid in the restoration of its service in such an emergency, then the Company shall not be held liable for damages because of such interruption or failure and the Customer agrees to make no claim for such damage. When such interruptions or failures occur, the Company shall re-establish service within the shortest time practicable, consistent with safety and good utility practices. If for any reason the Company is temporarily unable to furnish to the Customer electric power hereunder, the Customer may generate electric power for its own use during the period the Company is unable to furnish electric power, provided that Company owned lines or facilities are not energized from another power source.

In the event that the Customer is unable to take or utilize the capacity for which it contracts herein due to accident, strike, legal process, governmental order, fire, governmental priority, or other causes beyond the Customer's reasonable control but not from maintenance or repairs of its plant or any part thereof, nor from conditions resulting from market or economic circumstances affecting the Customer and its production, the Customer may qualify for an adjustment to the annual non-fuel commitment amount. In order to qualify, the Customer must notify the Company in writing within ten (10) days after the



(1)

commencement of such conditions, describing the nature of the event or condition, anticipated demand reduction associated with such event or condition, and the anticipated duration of such demand reduction associated with such event or condition and such condition continues for a minimum of thirty (30) consecutive days. If such condition continues for a minimum of thirty (30) consecutive days, and the Customer has furnished the Company with the required notice, Customer shall be relieved from its obligation for a pro-rata portion of the annual non-firm commitment amount and the rate provisions of Rate Schedules PX/PXT shall apply to the actual energy consumption during the period of time extending from the commencement of such condition or event until such date as the condition shall cease.

The obligations and rights of the parties to this Agreement are subject to all laws, rules and regulations under which the Company may from time to time be operating and the parties agree to comply with such laws, rules and regulations. The Company is obligated under Florida Statute to serve this electric load and expects to continue to serve this electric load beyond the term of this Agreement. Said laws, rules and regulations shall control in the event of a conflict with the terms of this Agreement. It is the express intent of both the Customer and the Company that this Agreement shall remain in full force and effect regardless of any deregulation or re-regulation of the electric utility industry, including but not limited to, any change in the laws and/or regulations governing service territories for electric suppliers.

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CSA Exhibit C--Page 5 of 5

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Exxon/LL&E CSA
EXHIBIT D

TERMINATION FEES

This Agreement may be terminated by either party upon twelve months written notice and payment of the appropriate termination fee from the following table to the other party. Upon the conclusion of such notice period and completion of such payment, and the payment of all previously accrued charges, this Agreement shall be terminated and all further obligations hereunder shall be canceled.

Termination in Contract Year	Termination Fee
1	\$2,000,000
2	\$1,750,000
3	\$1,500,000
4	\$1,250,000
5	\$1,000,000
6	\$750,000
7	\$500,000

Notwithstanding the foregoing, if at any time during the term of this Agreement the Florida Public Service Commission or any other regulatory body which now has or in the future may have jurisdiction over Company's rates and charges imposes sanctions against Company or its shareholders as a result of this Agreement, Company shall have the right to terminate this Agreement upon ninety days written notice. Upon the conclusion of such notice period, and the payment of all previously accrued charges, this Agreement shall be terminated and all further obligations hereunder shall be canceled. It is the intent of the parties that Company's obligations under this Agreement or any amendment hereto are conditioned upon the absence of any regulatory determination that Company's decision to enter into this Agreement was either imprudent or otherwise an abuse of Company's discretion under governing laws and regulations. Therefore, Customer shall cooperate with and fully support Company in responding to any regulatory inquiry related to this Agreement including but not limited to providing sworn testimony before the regulatory body during any hearing addressing the prudence of Company's decision to enter into this Agreement.

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CONFIDENTIALITY AGREEMENT

This Agreement, effective May 20, 1997, is established by and between Exxon Company, U.S.A. ("Exxon"), a division of Exxon Corporation, and Gulf Power Company ("Recipient").

In connection with a possible Contract Service Arrangement for the provision of service under Gulf Power's Commercial/Industrial Service Rider ("CISR"), Exxon wishes to disclose to Recipient certain information and materials pertaining to the Jay Field. Recipient wishes to receive the information. Exxon is willing to provide the information only on the terms set forth below. Recipient is willing to accept these terms. Accordingly, the parties agree as follows:

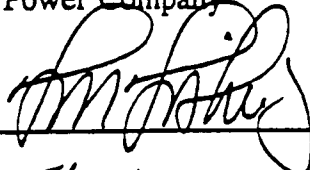
1. The term "Confidential Information" as used herein shall mean all information, data, technology, software and other nonpublic information generally concerning Jay Field operations provided to Recipient by or on behalf of Exxon in written, oral or any other form, except for:
 - a. Information which at the time of disclosure is in the public domain.
 - b. Information which, after disclosure, enters the public domain except as a result of a breach of this agreement or any other agreement of confidentiality.
 - c. Information which is independently obtained by Recipient free from any obligation of confidentiality.
2. Recipient shall:
 - a. Hold the Confidential Information in strict confidence for a period of ten (10) years from receipt or three (3) years after the expiration of any Contract Service Agreement or other special contract arrangement for electric service, whichever shall first occur, and
 - b. For the duration of the obligation of confidentiality, use the Confidential Information solely for the purpose of substantiating the applicability of the CISR to electric load at the Jay Field as required by the Florida Public Service Commission. Such use shall include review of the Confidential Information by employees of Southern Company or any of its subsidiary companies as well as outside consultants hired by Recipient to assist in this substantiation effort.
 - c. Treat all requests by the Florida Public Service Commission for the Confidential Information as though the information is confidential and shall timely take all necessary steps to preserve its confidentiality included but not limited to filing written requests for confidential classification with the Division of Records and Reporting, clearly styled to indicate on their face, that confidentiality is being requested.



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3. In the event that a Contract Service Agreement or other similar special contract arrangement for electric service between Exxon and Recipient is not executed, Recipient shall return to Exxon upon Exxon's request all documentation and other materials furnished to it incorporating any aspect of the Confidential Information and shall destroy any documentation and other materials Recipient may have created incorporating any aspect of the Confidential Information.
4. THIS AGREEMENT SHALL BE GOVERNED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF FLORIDA.
5. This Agreement may not be modified or amended other than in a written document executed by authorized representatives of both parties.

Gulf Power Company

By 

Date 5/20/ 1997

Exxon Company, U.S.A. (a division of Exxon Corporation)

By 

Date 5/20/ 1997



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4-22-

THE LOUISIANA LAND AND EXPLORATION COMPANY

909 POYDRAS STREET

P. O. BOX 60350

NEW ORLEANS, LA. 70160

(504) 566-6500


June 4, 1997

AFFIDAVIT

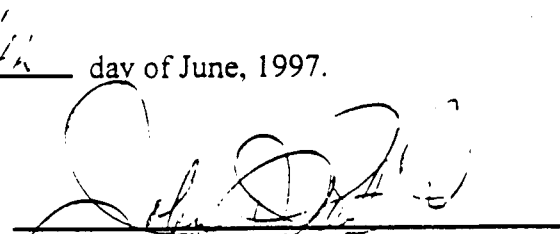
STATE OF LOUISIANA
ORLEANS PARISH

Before me, the undersigned authority, this day personally appeared Harlan H. Chappelle, Jay Asset Team Leader for the Louisiana Land and Exploration Company (LL&E), under oath, deposes and says:

As Jay Asset Team Leader, I am responsible for LL&E's Jay Field interests and have personal knowledge of the facts stated herein. The Contract Service Agreement (CSA) proposed under the Commercial/Industrial Service Rider (CISR), hereafter the "Agreement," provides the necessary economic incentives absent which LL&E, as the owner of the largest interest in Jay Field, would join with Exxon and the other Jay Field owners to pursue economic alternatives which would result in a decision not to expand the existing load on Gulf Power's system, or a vast reduction or complete elimination of electricity purchases from Gulf Power. The Agreement would provide the economic conditions for considering additional nitrogen-related compression, which would increase electric load at Jay Field, as well as for the testing of advanced oil recovery technologies. Jay Field gains from the Agreement by reducing the unit cost of its single-largest expense. This allows continuation of nitrogen injection operations by mitigating the technical and market-related uncertainties facing this high cost aging field.


Harlan H. Chappelle

Sworn to and subscribed before me this 4th day of June, 1997.


Notary Public
State of Louisiana
My Commission Expires 12/31/98



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EXXON COMPANY, U.S.A.

POST OFFICE BOX 61707 • NEW ORLEANS, LOUISIANA 70161-1707

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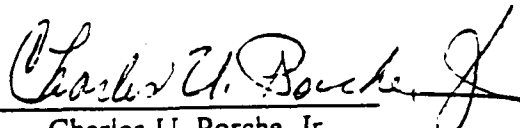
PRODUCTION DEPARTMENT
NEW ORLEANS OPERATIONS

STATE OF LOUISIANA

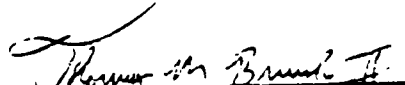
ORLEANS PARISH

Before me, the undersigned authority, this day personally appeared Charles U. Porche, Jr., Operations Superintendent for New Orleans Production Organization, Exxon Company, U.S.A., a division of Exxon Corporation who, under oath, deposes and says:

As Operations Superintendent, I am responsible for Exxon's Jay Field operations and have personal knowledge of the facts stated herein. The Contract Service Agreement (CSA) proposed under the Commercial/Industrial Service Rider (CISR), hereafter the "Agreement," provides the necessary economic incentives absent which Exxon and the Jay Field owners would pursue economic alternatives which would result in a decision not to expand the existing load on Gulf Power's system, or a vast reduction or complete elimination of electricity purchases from Gulf Power. The Agreement would provide the economic conditions for considering additional nitrogen-related compression, which would increase electric load at Jay Field, as well as for the testing of advanced oil recovery technologies. Jay Field gains from the Agreement by reducing the unit cost of its single-largest expense. This allows continuation of nitrogen injection operations by mitigating the technical and market-related uncertainties facing this high cost aging field.


Charles U. Porche, Jr.

Sworn to and subscribed before me this 5th day of June, 1997.


Notary Public
My commission is for life.



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MEMORANDUM OF UNDERSTANDING
to the
Contract For Electric Power
and the
Contract Service Agreement
For The Provision Of Service
Under The Commercial/Industrial Service Rider

THIS MEMORANDUM OF UNDERSTANDING is entered into as of June 15, 1997, among EXXON COMPANY, USA, a division of Exxon Corporation, as operator for Jay/Little Escambia Creek Fields Unit (Jay Oil Field) and St. Regis Facility ("Customer"), Alabama Power Company ("APC"), and Gulf Power Company ("Gulf").

WITNESSETH:

WHEREAS, APC and Customer have entered into a Contract for Electric Power on June 15, 1997, which incorporates 22,250 MW of Non-Firm Capacity for an air separation facility located in Escambia County, Alabama ("APC Contract");

WHEREAS, Customer and Gulf have entered into a Contract for Electric Power on June 1, 1997, which incorporates 23,945 MW of Non-Firm Capacity for the Customer's plant located in Santa Rosa County, Florida ("Gulf Contract");

WHEREAS, by reason of the Customer's unusual operations and particularly since both facilities can, upon notice, reduce its electric load to a predetermined level set forth below, and is willing to do so;

WHEREAS, APC and Gulf are willing to accept such allocation set forth below; and

NOW, THEREFORE, in consideration of the premises and the mutual covenants of the parties, the parties agree as follows:

1. As of the effective date stated above, the Customer agrees to interrupt its Non-Firm Capacity in the APC Contract and Gulf Contract referenced above as follows:

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a. If GROUP A is called.

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	15,000 KW	8,000 KW
Santa Rosa County, Florida	<u>3,150 KW</u>	<u>23,850 KW</u>
Total	18,150 KW	31,850 KW

b. If GROUP B is called,

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	0 KW	23,000 KW
Santa Rosa County, Florida	<u>13,000 KW</u>	<u>14,000 KW</u>
Total	13,000 KW	37,000 KW

c. If GROUP C is called,

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	7,250 KW	15,750 KW
Santa Rosa County, Florida	<u>7,795 KW</u>	<u>19,205 KW</u>
Total	15,045 KW	34,955 KW

d. If GROUPS A and B are called.

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	15,000 KW	8,000 KW
Santa Rosa County, Florida	<u>16,150 KW</u>	<u>10,850 KW</u>
Total	31,150 KW	18,850 KW



e. If GROUPS B and C are called,

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	7,250 KW	15,750 KW
Santa Rosa County, Florida	<u>20,795 KW</u>	<u>6,205 KW</u>
Total	28,045 KW	21,955 KW

f. If GROUPS C and A are called,

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	22,250 KW	750 KW
Santa Rosa County, Florida	<u>10,945 KW</u>	<u>16,055 KW</u>
Total	33,195 KW	16,805 KW

g. If GROUPS A, B, and C are called,

	<u>Non-Firm</u>	<u>Firm</u>
Escambia County, Alabama	22,250 KW	750 KW
Santa Rosa County, Florida	<u>23,945 KW</u>	<u>3,055 KW</u>
Total	46,195 KW	3,805 KW

2. Due to the Customer's unusual operations, the Customer has the option of suspending its Non-Firm Capacity from the facility located in Alabama and/or the facility located in Florida, provided that the total Capacity in each group(s) required to be suspended is achieved.
3. Failure to supply the Capacity required to be suspended, in part or whole, shall result in the application of the Compliance Incentive provisions in the APC Contract and the Gulf Contract, which Compliance Incentives shall be based upon the amount of Non-Firm Capacity apportioned to APC and Gulf respectively, under the suspension.
4. Notwithstanding the allocation set forth above, APC and Gulf may, at their option, require the Customer to suspend the total contracted Non-Firm Capacity from time to time.



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5. All terms and conditions of the APC Contract and the Gulf Contract shall remain in full force and effect.
6. This allocation shall be effective for a period of one (1) year from the commencement of service hereunder and shall continue in effect thereafter until changed by either party by providing thirty (30) days written notice. Any such change in allocation shall be limited to one modification per year by either party.
7. If at any time during the initial term of the APC Contract or the Gulf Contract either Contract is terminated by APC, Gulf, or the Customer, the terms and conditions outlined in this Memorandum of Understanding shall be terminated.

WHEREFORE, each of the parties has executed this Memorandum of Understanding as of the effective date hereof by its duly authorized representatives.

EXXON COMPANY, USA,
 a division of **EXXON CORPORATION**, as
 operator for Jay/Little Escambia Creek Fields
 Unit (Jay Oil Field) and St. Regis Facility *PHK*

By: *[Signature]* *PHK*
6/14/97 6/14/97
 Its: *Downstream Processing Manager*

ALABAMA POWER COMPANY

By: *[Signature]* *PHK*
 Its: *VP-Marketing*

GULF POWER COMPANY

By: *[Signature]*
 Its: *VP-Finance*



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[Handwritten marks]

CISR CONTRACT 2

This document consisting of 225 pages is confidential in its entirety.

GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

CISR CONTRACT
2

11/2/97
ok

DOCUMENT REQUEST 4 ITEM 4 CONTRACT 2 7C

PAGES 10-4/5-1 TO 10-4/5-225

DATE CONTRACT STARTED:

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5-1-97

DATE CONTRACT ENDED:

10-4
5-22-97

NOTE: CONTRACTS REQUESTED BY ANALYST.

Proposed by auditors

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COGENERATION AND ENERGY SERVICES AGREEMENT

BETWEEN

GULF POWER COMPANY

AND

AIR PRODUCTS AND CHEMICALS, INC.

September 30, 1997

Central

PBC

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COGENERATION AND ENERGY SERVICES AGREEMENT

BETWEEN

GULF POWER COMPANY

AND

AIR PRODUCTS AND CHEMICALS, INC.



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ATTACHMENTS

- Attachment 1 -- Construction and Supply Agreement between APCI and SOLAR;
Extended Service Agreement between APCI and SOLAR
- Attachment 2 -- Schedule of Termination Payments Pursuant to Section 3.9
- Attachment 3 -- Final Plans;
Electrical interconnection plans and specifications;
Water supply and steam output interconnection plans and
specifications
- Attachment 4 -- Water Quality and Fuel Quality Specifications

EXHIBITS

- Exhibit A -- The active version of the separate electric power contract(s)
incorporated by reference in section 2.1
- Exhibit B -- The active version of any operating agreement between APCI and
Gulf Power referred to in section 3.4



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COGENERATION AND ENERGY SERVICES AGREEMENT

This Cogeneration and Energy Services Agreement, is entered into as of the 30th day of September, 1997, between Air Products and Chemicals, Inc., a Delaware corporation ("APCI"), and Gulf Power Company ("Gulf Power"), a Maine corporation.

WITNESSETH:

WHEREAS, Gulf Power, as an electric utility, provides electric service to customers in northwest Florida and as a result Gulf Power plans its overall electric utility system to meet its electric service obligations to its customers; and

WHEREAS, APCI operates a chemicals manufacturing facility near Pace, Florida which has requirements for energy in the form of steam and electricity used in its operations; and

WHEREAS, APCI's anticipated requirements for steam require an upgraded capability of steam production which has led APCI to an internal evaluation of the economics associated with the installation of cogeneration facilities, the results of which favor such installation; and

WHEREAS, Gulf Power currently provides electric service to APCI for its Pace Plant and desires to continue providing such service under certain assurances that will enable Gulf Power to incorporate the effects of such service into the planning of its overall electric utility system; and

WHEREAS, Gulf Power desires to own a cogeneration facility consisting of combustion turbines and heat recovery steam generators on land within the confines of the Pace Plant; and

WHEREAS, the addition of the cogeneration facility to be installed by Solar Turbines, Incorporated ("SOLAR") will produce additional electric power for Gulf Power's electric utility system and, via the captured thermal energy output, will provide the capability to heat process water in order to convert process water from the liquid state to its gaseous state; and

WHEREAS, subject to the terms and conditions set forth herein, APCI desires to receive energy services from Gulf Power, such energy services to include both the supply of thermal energy output from a cogeneration facility for the purpose of heating APCI's process water in



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order to convert it to process steam for APCI's use or disposal and the continued supply of electricity from Gulf Power's electric utility system; and

WHEREAS, subject to the terms and conditions set forth herein, Gulf Power desires to supply energy services to APCI;

NOW, THEREFORE, in consideration of the premises and the mutual agreements contained herein, and intending to be legally bound, the parties hereto agree as follows:

ARTICLE 1 - DEFINITIONS

"Affiliate" means, when used with reference to a specified person or company, any person or company that directly or indirectly owns shares of, controls or has shares owned by or is controlled by or is under common control with the specified person or company.

"Agreement" means this Cogeneration and Energy Services Agreement.

"Ancillary Services" means the services to be provided by APCI to Gulf Power described in Article 7.

"Cogeneration Facility" means the combustion turbines and heat recovery steam generators to be located at a site proximate to the Pace Plant which will be installed by SOLAR and owned, operated and maintained in accordance with this Agreement for the production of energy in the form of electricity and useful thermal output.

"Cogeneration Facility Wastewater" means all water discharges from the Cogeneration Facility, other than rainwater runoff, conforming to the specifications set forth in Attachment 4.

"Commercial In-Service Date" means the first day of the first calendar month after the date that the Cogeneration Facility is initially made available by SOLAR for normal operation after successful completion of the Joint Verification Test, reliability testing and Emission testing as defined in the Construction and Supply Agreement between APCI and SOLAR referred to within Article 3 below and issuance of the Certificate of Final Acceptance of Work pursuant to section 6.11(b) of said agreement.

"Contract Year" means a consecutive twelve (12) month period commencing on the Commercial In-Service Date or the anniversary of the Commercial In-Service Date.



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“Electricity, electric service, or electric power” means a bundled package including the production, transmission, and distribution of electric energy.

“Final Plans” means the drawings, plans and other documentation agreed to between SOLAR, APCI and Gulf Power ultimately to be set forth in Attachment 3 showing the location and design of the equipment that comprises the Cogeneration Facility on which Gulf Power shall base its planning, design and construction associated with the electrical interconnection facilities required pursuant to section 4.1 below and APCI shall base its planning, design and construction associated with the water and steam interconnection facilities required pursuant to section 4.2 below.

“Fire Protection Water” means water treated to meet the specifications set forth in Attachment 4 that is supplied to a fire control sprinkler system installed at the Cogeneration Facility.

“FPSC” means the Florida Public Service Commission or its successor.

“Term” means the period extending twenty (20) years from the Commercial In-Service Date.

“Month” means the period from 12:00 A.M. (Central Time) of the first day of any calendar month to 12:00 A.M. (Central Time) of the first day of the succeeding calendar month.

“Pace Plant” means APCI's manufacturing facility located in Santa Rosa County near Pace, Florida.

“Potable Water” means water that is suitable for human consumption pursuant to applicable federal and/or state water quality standards.

“Process Water” means water treated to meet the specifications set forth in Attachment 4 that is used to supply the heat recovery steam generators for the purpose of creating steam.

“Service Water” means water treated to meet the specifications set forth in Attachment 4 that is used for general service requirements of the Cogeneration Facility including but not limited to cooling and/or lubricating of machinery.

“Steam” means process water in its gaseous state.



“Turbine Quality Water” means water treated to meet the specifications set forth in Attachment 4 that is used for injection into the combustion turbines for various purposes including but not limited to turbine blade washing.



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ARTICLE 2 - ENERGY SERVICES

2.1 Electricity. During the term of this Agreement, Gulf Power shall sell and APCI shall purchase from Gulf Power all of APCI's requirements for electricity for at least the first 30 megawatts of actual electric demand, if any, at the Pace Plant. Such sale and purchase of electricity shall be pursuant to a separate electric power contract (or contracts) as set forth in the following paragraphs of this section. The separate electric power contract(s) (and any successors thereto as provided below) shall by this reference constitute an integral part of, and shall not survive, this Agreement. Further, APCI is not required by this Agreement to purchase from Gulf Power any electricity above APCI's 30 megawatts of actual electric demand at the Pace Plant, however, APCI is free to do so if it chooses pursuant to the above-referenced separate electric power contract(s).

For so long as Gulf Power's sale of electricity to APCI is subject to the economic regulation of the FPSC, Gulf Power's supply of electricity to the Pace Plant shall be pursuant to a separate electric power contract entitled "Contract Service Arrangement for the Provision of Service under the Commercial/Industrial Service Rider ("CSA") that is in accordance with Gulf Power's tariff for retail electric service on file with and approved by the FPSC and the rules and regulations of the FPSC, as such tariff, rules and regulations may be amended from time to time. Nothing in this Agreement shall preclude APCI from electing to receive electric service from Gulf Power under any standard Gulf Power rate schedule for which the Pace Plant qualifies at the point in time in which such election is made so long as the Pace Plant continues to qualify for service under such standard rate schedule. In the event that the standard Gulf Power rate schedule under which APCI elects to receive service addresses less than a fully bundled package (that is, including the production, transmission, and distribution of electric energy), the pricing mechanism for those aspects of electric service not addressed by the standard rate schedule shall be set through the nomination and acceptance procedure set forth in the following paragraph of this section.

In the event that Gulf Power's sale of electricity to APCI is no longer subject to the economic regulatory oversight of the FPSC, then Gulf Power's supply of electricity to the Pace



Plant shall be pursuant to a new electric power contract that will replace and supersede the CSA, the twenty (20) year term stated therein notwithstanding. The new electric power contract will divide the electricity requirements of the Pace Plant subject to service by Gulf Power into two portions. The first divided portion shall be a quantity of electric power equal to the lesser of the electricity requirements of the Pace Plant during any given period or the electric output of the Cogeneration Facility during the same period. The new electric power contract shall provide that Gulf Power's compensation for this first divided portion of the electricity requirements of the Pace Plant is the monthly Cogeneration Services Charge ("CSC") to be paid pursuant to section 8.1 of this Agreement. Under those circumstances, the CSC will thereafter be equal to the value of the constant "K" as identified in section 8.1 and the credit provided for under section 8.3 will no longer be applicable. The second divided portion of the electricity requirements of the Pace Plant to be served by Gulf Power shall be that which, during any period, exceeds the electric output of the Cogeneration Facility during the same period. The new electric power contract shall set a pricing mechanism for electricity supplied by Gulf Power that is intended to result in a market-competitive price for this second divided portion of the electricity requirements of the Pace Plant. The new electric power contract shall provide that the pricing mechanism for such electricity shall be subject to periodic revision after the first two year period of the new electric power contract. The following procedures shall be utilized to establish the initial pricing mechanism to be specified in the new electric power contract for the second divided portion of the electricity requirements of the Pace Plant. Either party may, at its option, nominate to the other party a pricing mechanism for the second divided portion of the electricity requirements of the Pace Plant to be effective for the first two (2) year period of the new electric power contract. Such nomination shall be delivered in writing to the other party no later than three (3) months prior to the commencement of the new electric power contract. If the other party agrees that the submitted pricing mechanism is indicative of a price for the second divided portion of the electricity requirements of the Pace Plant that is market-competitive, then said nominated pricing mechanism shall become the initial pricing mechanism for said electric energy. If the other party disagrees with the submitted pricing mechanism, that party may at its option nominate to the

original nominating party a new pricing mechanism to be effective for the first two (2) year period of the new electric power contract. Such nomination shall be delivered in writing to the original nominating party no later than one (1) month following the prior nomination. If the original nominating party agrees that this later submitted pricing mechanism is indicative of a price for the second divided portion of the electricity requirements of the Pace Plant that is market-competitive, then said later nominated pricing mechanism shall become the initial pricing mechanism for said electric energy. If within sixty (60) days of the original nomination, APCI and Gulf Power are unable through the foregoing process to agree upon a new pricing mechanism to be effective for the second divided portion of the electricity requirements of the Pace Plant during the initial two (2) year period of the new contract for electric power, the Parties shall submit the issue to binding arbitration pursuant to Article 14. Such binding arbitration shall be limited to the issue of the market-competitiveness of the submitted pricing mechanisms. The resulting arbitrated pricing mechanism shall become the pricing mechanism for that portion of the electricity requirements of the Pace Plant to be served by Gulf Power during any period that exceeds the electric output of the Cogeneration Facility during the same period for the initial two (2) year period of the new contract for electric power. The arbitration shall not consider other issues and will not otherwise affect any other terms or conditions of this Agreement. The foregoing nomination procedure shall likewise be applicable to any proposed adjustments following the initial two (2) year period of the new contract for electric power. For such subsequent proposed adjustments, the binding arbitration shall be limited to the issue of the market-competitiveness of the submitted pricing mechanisms including any proposed limitation on the frequency of future adjustments.

2.2 Thermal Energy Output. In return for the supply of fuel required to operate the Cogeneration Facility as provided for under Article 6 below and payment of the Cogeneration Services Charge ("CSC") set forth in section 8.1 below, APCI shall be entitled to the first right to all thermal energy output of the combustion turbines ("CTs") that comprise the Cogeneration Facility. Such thermal energy output shall be used by APCI, at its discretion, to heat process



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water in the Heat Recovery Steam Generators ("HRSGs") for the purpose of producing steam for APCI's use or other disposal. Payment of the CSC shall further afford APCI the option to provide additional volumes of natural gas to the Cogeneration Facility through auxiliary firing of the HRSGs in order to increase the amount of steam generated by the Cogeneration Facility for APCI's use or other disposal. The parties expect that auxiliary firing shall be accomplished by an automatic control system provided by APCI that senses the need for more steam and automatically fires more natural gas in the Cogeneration Facility. Subject to APCI's first right to all thermal energy output from the combustion turbines, Gulf Power retains the right to sell steam to third parties.

ARTICLE 3 - COGENERATION FACILITY

3.1 Description. The Cogeneration Facility consists of three natural gas fired Taurus Model 60 combustion turbines ("CTs") manufactured by Solar Turbines Incorporated ("SOLAR") and three associated heat recovery steam generators ("HRSGs") manufactured by Energy Recovery International ("ERI"). Each HRSG will have the capability of being supplementary fired. The Cogeneration Facility shall be designed and constructed in a manner that will facilitate exclusive fresh-air firing of two (2) of the three (3) HRSGs for the purpose of producing steam. The electrical equipment associated with the operation and maintenance of the HRSGs comprising the Cogeneration Facility, including, but not limited to, the supplemental firing capability and the exclusive fresh-air firing capability of the HRSGs, shall not be connected to nor be made a part of the station service electrical requirements of the CTs and other equipment related to the electric generation function of the Cogeneration Facility. The units comprising the Cogeneration Facility are more particularly described in the Construction and Supply Agreement ("Construction Agreement") between APCI and SOLAR dated May 30, 1997, providing a final turnkey project cost not to exceed \$10,181,345. A copy of the Construction Agreement is incorporated into this Agreement as part of Attachment 1.



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3.2 Ownership and Financial Responsibility. Except for any amounts due under Article 13 of the Construction Agreement, Gulf Power shall make all payments to SOLAR as required pursuant to the Construction Agreement up to a maximum limit of \$10,172,000. The foregoing obligation shall include reimbursement to APCI of any payments to SOLAR made pursuant to the Construction Agreement prior to the execution of this Agreement. As a result of making these payments and as a consequence of this Agreement, Gulf Power shall be the legal owner of the Cogeneration Facility and shall receive clear title to such facility on demand in accordance with this Agreement. Following the Cogeneration Facility's achievement of commercial in-service status and following the final payment required pursuant to the Construction Agreement, Gulf Power shall receive and shall be conveyed, on demand, clear title to the Cogeneration Facility and an assignment of the Construction Agreement. APCI and Gulf Power shall sign any necessary documents to accomplish the transfer of clear title to Gulf Power. Nothing in this section shall preclude Gulf Power from assigning a security interest in the Cogeneration Facility to a lender or lenders as part of any corporate financing arrangement. The Cogeneration Facility shall be prominently "signed" and designated as Gulf Power property.

In the event that the work by SOLAR under the Construction Agreement is terminated pursuant to Article 13 thereof, APCI's sole obligation hereunder shall be to immediately reimburse Gulf Power for all payments made by Gulf Power to SOLAR under the Construction Agreement together with interest on the balance due hereunder from the effective date of such termination until the obligation is fully paid. Said interest shall accrue each day that such amount is not paid at an annual rate equal to the prime interest rate as published in the Wall Street Journal on the effective date of such termination, plus one and one-half percent. If such termination under Article 13 of the Construction Agreement is for the convenience of APCI, then the obligation to reimburse Gulf Power shall also include interest at the foregoing rate from the date payments were initially made by Gulf Power to the effective date of such termination. For the purposes of this paragraph, the reimbursement to APCI pursuant to the first paragraph of this section shall be treated as though it were a payment by Gulf Power to Solar on the date said reimbursement was paid to APCI. Upon the termination of the Construction Agreement for any reason prior to the Commercial In-Service Date, either party shall have the right to terminate this Agreement along



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with the associated CSA and, upon APCI's payment to Gulf Power of the reimbursement amount calculated as set forth above, the parties shall have no further obligations under this Agreement to each other except as specifically stated in section 12.5.

3.3 Extended Service Agreement. APCI and SOLAR have negotiated and executed an extended service agreement ("Extended Service Agreement") pursuant to which SOLAR will perform full service maintenance to certain machinery originally supplied by SOLAR for the Cogeneration Facility for a period of sixty (60) months from the date of first beneficial use or sixty-eight (68) months from the date of shipment, whichever occurs first. This Extended Service Agreement obligates SOLAR to provide all necessary non-scheduled site visits for maintenance, trouble-shooting or component replacement during the term of the Extended Service Agreement and all SOLAR field service labor and subsistence relating to such visits is included ("unlimited trouble calls"). This Extended Service Agreement further obligates SOLAR to provide any overhauls required (including a minimum of one overhaul per installed unit at the conclusion of each five year period) with respect to the Gas Producer/Power Turbines or Reduction Gearboxes covered by the Extended Service Agreement at no additional cost during the life of the Extended Service Agreement ("unlimited overhauls"). A copy of the Extended Service Agreement is incorporated into this Agreement as part of Attachment 1. Immediately upon transfer of title as provided for in section 3.2 above, APCI shall assign its rights under said Extended Service Agreement to Gulf Power and Gulf Power shall assume APCI's obligations arising thereunder. An extended service agreement in substantially the same form as the one contained in Attachment 1 shall be kept in effect at all times during the term of this Agreement. The financial responsibility for the Extended Service Agreement and its successors shall be shared between APCI and Gulf Power as provided for in section 8.4 of this Agreement.

3.4 Responsibility and Control. Gulf Power, as the owner of the Cogeneration Facility, shall retain the sole and total responsibility to control whether the CTs comprising the Cogeneration Facility operate and produce electricity for delivery onto Gulf Power's electrical

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system. The decision whether to allow the CTs to operate shall be subject to Gulf Power's obligation under this Agreement to provide certain minimum levels of thermal energy output from the CTs to APCI for its use or disposal. Nothing in this section shall preclude Gulf Power from, at its sole discretion, separately contracting with another entity (including but not limited to APCI) for day-to-day operational activities of the CTs and/or HRSGs that comprise the Cogeneration Facility, provided Gulf Power shall remain liable for the performance of all duties and obligations imposed on it hereunder and shall not be relieved of any such duties or obligations by reason of any such contract. Notwithstanding the foregoing, as part of any separate contract with another entity (including but not limited to APCI) for day-to-day operational activities of the CTs and/or HRSGs that comprise the Cogeneration Facility, Gulf Power shall have complete freedom to require that the operator meet specific duties and obligations, including but not limited to the specific duties and obligations imposed on Gulf Power hereunder, with appropriate sanctions payable by such operator to Gulf Power if the operator fails to meet its contractual obligations.

3.5 Routine Maintenance and HRSG Operations. APCI shall pay a pro rata share of all routine maintenance costs of the Cogeneration Facility (costs not covered by the Extended Service Agreement with SOLAR) including but not limited to the cost of any and all labor, parts, mechanisms, and devices required to keep the equipment in good mechanical and working order that are not otherwise provided under the Extended Service Agreement or its successors referred to in section 3.3 above, as well as a pro rata share of all operating costs associated with the HRSGs. This responsibility is in addition to and separate and apart from the obligations set forth in sections 8.1 and 8.4 below. Said pro rata share shall be calculated on the ratio of steam sold to third parties compared to total steam output of the Cogeneration Facility other than during Steam Usage Curtailment Periods noticed as provided in section 7.1 below.



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3.6 Alterations and Repairs. APCI may request that Gulf Power make alterations, repairs, additions or improvements to the equipment that comprises the Cogeneration Facility at APCI's expense. All additions and improvements of whatsoever kind or nature made to the equipment shall immediately belong to and become the property of Gulf Power.

3.7 Operating Philosophy. After the Commercial In-Service Date, Gulf Power's operating philosophy for the Cogeneration Facility will in general expect each of the three (3) CTs comprising the Cogeneration Facility to be available to run and capable of running at all times other than periods of scheduled maintenance/inspections of the CTs as performed pursuant to the Extended Service Agreement that is described in section 3.3 above. Gulf Power will take reasonable steps to comply with this operating philosophy, including diligently pursuing its rights under the Extended Service Agreement and contracting with competent operators in order to maximize the availability of the Cogeneration Facility. APCI's rights and remedies for Gulf Power's failure to comply with its obligations under this section shall not be limited by any rights or remedies that may be provided in section 3.8 below. The availability requirement set forth in section 3.8 below is a separate obligation of Gulf Power and shall not be used in any way to measure Gulf Power's obligations under this section.

3.8 Adjustment to CSC. After the Commercial In-Service Date, Gulf Power's Cogeneration Facility shall meet the following average annual availability requirement during the life of this Agreement: during eighty percent (80%) of the contract year (subject to exclusions as noted below), at least two (2) of the three (3) CTs comprising the Cogeneration Facility will be available to operate at the same time and produce thermal energy output for APCI's use or other disposal. Periods of scheduled maintenance/inspections of the CTs as performed pursuant to the Extended Service Agreement that is described in section 3.3 above and any periods of outage required by governmental authorities with regard to environmental issues shall be excluded from the annual period hours upon which the availability percentage is determined. In the event Gulf Power's Cogeneration Facility fails to meet the foregoing availability requirement in any contract year, a retroactive adjustment to the cumulative CSC (as defined in section 8.1 below) paid for

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that contract year shall be calculated and refunded to APCI no later than the close of the third month following conclusion of the affected contract year. The retroactive adjustment shall be determined by multiplying the cumulative CSC for the affected contract year by the result of the actual achieved availability (expressed as a percentage) divided by eighty (80).

3.9 Operational Default. After the Commercial In-Service Date, notwithstanding sections 3.7 and 3.8 above, in the event Gulf Power's Cogeneration Facility fails to meet the following operating standard for three (3) consecutive months, APCI shall have an option exercisable for ninety-five (95) days thereafter to terminate this Agreement and the separate electric power contract between the parties by making the appropriate termination payment as set forth in Attachment 2: during fifty percent (50%) of the month (subject to exclusions as noted below), at least two (2) of the three (3) CTs comprising the Cogeneration Facility will be available to operate at the same time and produce thermal energy output for APCI's use or other disposal. Periods of scheduled maintenance/inspections of the CTs as performed pursuant to the Extended Service Agreement that is described in section 3.3 above and any periods of outage required by governmental authorities with regard to environmental issues shall be excluded from the monthly period hours upon which this availability percentage is determined. As a result of making said termination payment, the parties will have no further liability to the other under this Agreement or the separate electric power contract except that Gulf Power shall continue, without charge, to be entitled to locate the Cogeneration Facility and the electrical interconnection facilities necessary to connect the Cogeneration Facility with Gulf Power's electric transmission and distribution system on the premises of the Pace Plant for the duration of the original term of this Agreement.

ARTICLE 4 - MISCELLANEOUS CONSTRUCTION

4.1 Gulf Power's Obligation. Gulf Power will construct the necessary components to connect the electrical output of the Cogeneration Facility with Gulf Power's transmission system subject to a maximum limit of \$683,000. In the event that the actual costs of the electrical interconnection are less than \$683,000, the difference will be used to increase the maximum limit



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specified in section 3.2 above by like amount up to but not to exceed the final turnkey project cost specified in section 3.1 above. The plans and specifications for said interconnection will be provided by Gulf Power as a supplement to be set forth in Attachment 3. Said supplement to be incorporated into Attachment 3 will be provided within ninety (90) days after receipt of the Final Plans. In addition, Gulf Power shall pay \$90,000 towards the costs of site preparation and a foundation for the building that will house the Cogeneration Facility.

4.2 APCI's Obligation. APCI will construct at its own expense the necessary components to connect the water supply to and the steam output from the Cogeneration Facility with the appropriate facilities at the Pace Plant. The plans and specifications for said interconnection will be provided by APCI as a supplement to be set forth in Attachment 3. Said supplement to be incorporated into Attachment 3 will be provided within ninety (90) days after receipt of the Final Plans.

4.3 Changes. If, at any time prior to completion of the Cogeneration Facility, either Gulf Power or APCI reasonably requires a change to the Final Plans requiring a relocation of either the electrical interconnection facilities or the water and steam interconnection facilities, the party with responsibility for such facilities pursuant to this article shall perform such relocation, subject to the following conditions: (a) the relocation can be accomplished without adversely affecting either party's ability to perform under this Agreement; (b) the relocation shall be performed in accordance with a mutually acceptable schedule and in a manner that minimizes the impact on the other party's property and disruption of either party's operations or construction activity; (c) the party requesting the relocation bears the incremental engineering and construction costs thereof; and (d) the party requesting the relocation provides the other the opportunity to review and approve the detailed plans and specifications prior to commencement of the change. If at any time after completion of the electrical interconnection facilities or the water and steam interconnection facilities, either Gulf Power or APCI reasonably requires a relocation of any portion of the electrical interconnection facilities or the water and steam interconnection facilities, the party owning the facilities to be relocated shall perform such relocation, subject to the



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following conditions: (a) the relocation can be accomplished without adversely affecting either party's ability to perform under this Agreement; (b) the relocation shall be performed in accordance with a mutually acceptable schedule and in a manner that minimizes the impact on the other party's property and disruption of operations at the Pace Plant and the Cogeneration Facility; (c) the party requesting the relocation bears the incremental engineering and construction costs thereof; and (d) the party with construction responsibility for the relocation provides the other party the opportunity to review and approve the detailed plans and specifications prior to commencement of the change.

4.4 Permits. In order to obtain appropriate recognition for reduced emissions made possible by operation of the Cogeneration Facility, APCI shall, at its cost, obtain all permits, licenses and governmental approvals necessary to construct and initially operate the Cogeneration Facility. Gulf Power and APCI, at their own expense, shall assist each other in the efforts related to obtaining such permits, licenses and approvals insofar as they relate to the siting and operation of the Cogeneration Facility, including assisting with efforts related to zoning and land use approvals and public relations issues. Upon transfer of title pursuant to section 3.2 of this Agreement, all necessary permits shall likewise be transferred to Gulf Power.

4.5 Cooperation. Gulf Power and APCI shall cooperate with each other in regard to all aspects of the design, purchase, construction, and testing of the Cogeneration Facility, including the interconnection systems and subsystems of each other's respective facilities. This obligation to cooperate shall include allowing Gulf Power the same access and inspection rights with regard to the Cogeneration Facility as are available to APCI during all aspects of the design, purchase, construction, and testing of the Cogeneration Facility. To facilitate the foregoing, Gulf Power and APCI shall endeavor to hold regular meetings prior to the Commercial In-Service Date (not less than bi-monthly) for the purpose of reviewing construction schedule status and to discuss project interface issues. Following the Commercial In-Service Date, Gulf Power and APCI shall meet to discuss project interface issues on an as-needed basis. APCI's plant safety and operating rules shall govern with respect to activity of the Pace Plant. APCI hereby grants Gulf Power a license



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for the term of this Agreement to locate, maintain, use, repair, construct, operate and remove the Cogeneration Facility (and/or the electrical interconnection associated therewith) with reasonable ingress and egress rights for such purposes.

4.6 Commercial In-Service Date. The Commercial In-Service Date of the Cogeneration Facility shall follow a reasonable testing period after completion of the installation/construction of the associated equipment by SOLAR which reasonable testing period is anticipated to be concluded by March 31, 1998, or as soon as practicable thereafter.

ARTICLE 5 - WATER RESPONSIBILITY

5.1 Process Water. During the term of this Agreement, APCI shall, at its own expense, provide Process Water to the Cogeneration Facilities in sufficient quantities to prevent damage to the Cogeneration Facility and to satisfy APCI's requirements for steam from the Cogeneration Facility.

5.2 Cogeneration Facility Wastewater. During the term of this Agreement, APCI shall, at its own expense, accept all Cogeneration Facility Wastewater for treatment and disposal.

5.3 Potable Water. During the term of this Agreement, APCI shall, at its own expense, provide any personnel involved in operating, servicing or inspecting the Cogeneration Facility reasonable access to potable water.

5.4 Service Water and Turbine Quality Water. During the term of this Agreement, APCI shall, at its own expense, provide a supply of Service Water to meet the specific cooling, lubrication, or other requirements set forth in Attachment 4. APCI shall likewise provide a supply of Turbine Quality Water for all purposes involving water injection to the combustion turbines comprising the Cogeneration Facility including but not limited to turbine blade washing.



5.5 Fire Protection Water. During the term of this Agreement, APCI shall, at its own expense, provide a supply of Fire Protection Water to the Cogeneration Facility that is adequate to maintain the volume and flow rate specifications set forth in Attachment 4 in the event of a fire at the Cogeneration Facility.

5.6 Title to Water. Title to, and risk of loss of, Process Water and Steam, Cogeneration Facility Wastewater, Potable Water, Service Water, and Fire Protection Water will remain with APCI.

ARTICLE 6 - FUEL SUPPLY

APCI shall, at its own expense, manage and procure all fuel and fuel transportation required to operate the Cogeneration Facility except as otherwise provided in section 7.3 below. The fuel supplied to the Cogeneration Facility shall meet SOLAR's minimum quality specifications as set forth in Attachment 4.

ARTICLE 7 - ANCILLARY SERVICES

7.1 Steam Usage Curtailment Periods. APCI shall provide Gulf Power with immediate telephonic notice followed by prompt written notice of commencement of any period during which APCI is either unable or unwilling to take the Steam output from the HRSGs resulting from the thermal energy output of the CTs ("Steam Usage Curtailment Period"). As part of said written notice, APCI shall endeavor to provide committed price quotes for PW_S and F_S as those terms are defined in sections 7.2 and 7.3 below, for use by Gulf Power in connection with its dispatch decisions regarding the operation of the Cogeneration Facility for deliveries of electricity onto Gulf Power's system during such period. In any event, APCI shall provide such committed price quotes no later than twenty-four (24) hours following the commencement of any Steam Usage Curtailment Period. The quoted prices PW_S and F_S shall reflect APCI's actual cost of process water and fuel to supply the Cogeneration Facility during such period. Such prices and

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any resulting charges during such periods of Steam Usage Curtailment shall be subject to reasonable audit by Gulf Power and its agents.

7.2 Excess Process Water Charge. To the extent that Gulf Power seeks to operate the Cogeneration Facility for deliveries of electricity onto Gulf Power's system during a Steam Usage Curtailment Period (as defined in section 7.1 above), APCI shall continue to provide sufficient quantities of Process Water and Service Water to protect the Cogeneration Facility. During such periods of operation, Gulf Power shall pay APCI an Excess Process Water Charge ("EPWC") calculated as follows:

$$EPWC_i = (PW_s)(CO_i)$$

Where:

- i = a specific event during which Gulf Power operates the Cogeneration Facility for deliveries of electricity onto Gulf Power's system during a Steam Usage Curtailment Period.
- $EPWC_i$ is expressed in \$ for each period i
- PW_s = the quoted price for excess process water provided with the notice required in section 7.1 expressed in dollars per kilowatthour.
- CO_i = kilowatthour output of the Cogeneration Facility during the period i .

The total EPWC for a given month is the sum of each $EPWC_i$ determined during that month.



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7.3 Excess Fuel Charge. To the extent that Gulf Power seeks to operate the Cogeneration Facility for deliveries of electricity onto Gulf Power's system during a Steam Usage Curtailment Period (as defined in section 7.1 above), Gulf Power shall either supply its own fuel to the Cogeneration Facility or pay APCI an Excess Fuel Charge ("EFC") calculated as follows:

$$EFC_i = (F_s)(Q_i)$$

Where:

- i = a specific event during which Gulf Power operates the Cogeneration Facility for deliveries of electricity onto Gulf Power's system during a Steam Usage Curtailment Period.
- EFC_i is expressed in \$ for each period i
- F_s = the quoted price for fuel (natural gas) provided with the notice required in section 7.1 expressed in dollars per cubic feet.
- Q_i = the quantity of fuel (natural gas) consumed during the period i measured in cubic feet.

The total EFC for a given month is the sum of each EFC_i determined during that month.

7.4 Adjustments for Third Party Steam Sales. There shall be adjustments to charges between the parties in the event that Gulf Power sells Steam to third parties during a given month, based on the following: (i) the CSC otherwise applicable for that month pursuant to section 8.1 below shall reflect an appropriate reduction based upon the percentage of total steam sales made to third parties during the month, and the proportion of the Construction Agreement that represents boiler investment; (ii) the Excess Process Water Charge otherwise applicable for that month pursuant to section 7.2 above shall reflect an appropriate increase in the event that Gulf Power does not provide condensate return from said third party steam sales; (iii) unless Gulf Power is supplying its own fuel to the Cogeneration Facility, the Excess Fuel Charge otherwise applicable pursuant to section 7.3 above shall reflect an appropriate increase based upon an estimate of the quantity of fuel consumed to produce the volume of steam sold to third parties. Such sales should be made only after properly reflecting the transfer of title for such Steam to the third party. This provision notwithstanding, Gulf Power is under no obligation or compulsion to sell steam to third parties.



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ARTICLE 8 - PRICE AND OTHER PAYMENTS

8.1 Cogeneration Services Charge. For the first right to all thermal energy output from the Cogeneration Facility, APCI shall pay to Gulf Power a Cogeneration Services Charge ("CSC") determined monthly for each month following the Commercial In-Service Date pursuant to the following formula:

$$\text{CSC} = K - (N * ((1 - X) * R))$$

Where:

- K = \$220,000
- N = the monthly net electrical output of the Cogeneration Facility measured in kilowatthours limited to Gulf Power's total supply of kilowatthours to serve load at APCI during the month.
- X = the decimal result of the Fuel Cost Recovery factor for the month applicable to Gulf Power's electrical service to APCI as established or approved by the FPSC divided by the total tariff rate for electrical service to APCI for the month as established or approved by the FPSC.
- R = the total tariff rate (expressed in \$/kWh) for the electrical service to APCI for the month as established or approved by the FPSC, including base customer charge, demand and energy charges and all cost-specific cost recovery factors, but excluding state and local taxes.

Notwithstanding the foregoing, the CSC applicable for any month shall not be less than zero.

8.2 Credit for As-available Energy. Each month Gulf Power shall provide APCI with a credit for the excess electrical output of the Cogeneration Facility over the amount used to serve load purchased by APCI under section 2.1 hereof during the month as determined on an hour-by-hour basis. This credit amount shall be based on Gulf Power's system incremental fuel cost as determined on an hour by hour basis in conjunction with Gulf Power's participation in the Southern electric system's economic dispatch. The calculation of the credit shall be based on the sum, over all hours of the billing period, of the product of each hour's system incremental fuel cost times the excess electrical output delivered to Gulf Power's system for that hour. The resulting credit amount will be applied against the total charges otherwise payable to Gulf Power



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for the month resulting from the sum of the applicable electric bill and the Cogeneration Services Charge. No credit under this section will be payable for any excess electrical output of the Cogeneration Facility over the amount used to serve the above described load during any Steam Usage Curtailment Period noticed as described in section 7.1 above or during any other period in which Gulf Power is responsible for providing the fuel used in the Cogeneration Facility.

8.3 Credit for Fuel Equivalent. Each month following the Commercial In-Service Date Gulf Power shall provide APCI with a credit for the fuel equivalent of the net electrical output of the Cogeneration Facility that is equal to or less than the total kilowatthours supplied by Gulf Power to serve load purchased by APCI during the month. This credit amount will be determined by multiplying the Fuel Cost Recovery factor for the month applicable to Gulf Power's electrical service to APCI as established or approved by the FPSC by the net electrical output of the Cogeneration Facility that is equal to or less than the total kilowatthours supplied by Gulf Power to serve such load during the month. The resulting credit amount will be applied against the total charges otherwise payable to Gulf Power for the month resulting from the sum of the applicable electric bill and the Cogeneration Services Charge. No credit under this section will be payable for any net electrical output of the Cogeneration Facility that is equal to or less than the total kilowatthours supplied by Gulf Power to serve the above described load during any Steam Usage Curtailment Period noticed as described in section 7.1 above or during any other period in which Gulf Power is responsible for providing the fuel used in the Cogeneration Facility.

8.4 Maintenance Escalation Charge. As set forth in section 3.3 above, the financial responsibility for the Extended Service Agreement and its successors shall be shared between APCI and Gulf Power as follows:

(a) Gulf Power's financial responsibility is limited to payments to SOLAR (or other maintenance provider) not greater than \$37,500 monthly (\$450,000 annually);

(b) APCI shall bear direct financial responsibility for its pro rata share of all other amounts due SOLAR (or other maintenance provider) pursuant to the Extended Service



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Agreement and its successors including any escalation to the base monthly fee of \$37,500 and any increase in the base monthly fee that may take effect with successors to the Extended Service Agreement. Such direct responsibility shall be separate and apart from the Cogeneration Services Charge set forth in section 8.1 above and shall be due and payable to Gulf Power on the same basis as the underlying obligation on which this charge is based. Said pro rata share shall be calculated on the ratio of steam sold to third parties to total steam output of the Cogeneration Facility other than during Steam Usage Curtailment Periods noticed as provided in section 7.1 above.

8.5 Insurance Charge. The parties hereby acknowledge that the cost of insurance for a project such as the Cogeneration Facility which is an integral part of this Agreement is a reasonable and necessary component of the price for services such as those being provided hereunder. The parties further acknowledge that such insurance costs could (and ordinarily would) have been factored into the development of the value of the constant "K" that is used as set forth in section 8.1 above to determine the CSC on a monthly basis that APCI shall pay to Gulf Power. In order to both keep uncertainties regarding future insurance costs from unduly inflating the value of the constant "K" and also allow APCI to take advantage of any economies available to it with regard to the cost of insurance, the parties have agreed to unbundle the cost of insurance from the monthly CSC. This "unbundling" has been taken into account in the establishment of the value of the constant "K" set forth in section 8.1 above. Notwithstanding the unbundling of insurance costs from the value of the constant "K" (and as a consequence thereof), APCI shall be directly responsible for the cost of procuring and maintaining insurance against all risk of loss or damage to the Cogeneration Facility for Gulf Power who will continue to be owner of the insured facility with full control of its operation as provided for in this Agreement. Such direct responsibility shall be separate and apart from the Cogeneration Services Charge set forth in section 8.1 above. The Insurance Charge contemplated by this section shall be due and payable by APCI to or on behalf of Gulf Power on the same basis (monthly, quarterly, semi-annually, annually or otherwise) as the premium for the insurance policy on which this charge is based.



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8.6 Taxes. Any tax (other than income taxes), howsoever denominated or measured which may be imposed upon the sale, transportation, delivery, use or consumption of Steam or any of the Ancillary Services, shall be paid directly by the party receiving the Steam or Ancillary Services or, if paid by the other party, shall be invoiced to and paid by the party, receiving the Steam or Ancillary Services, as the case may be. In the event there is enacted by any governmental authority a new tax as a result of a change in law ("New Tax"), and the New Tax is imposed upon Gulf Power or APCI on the sale, transportation or delivery of the Steam or Ancillary Services, or if paid by the other party shall be invoiced to and paid by the party receiving the Steam or Ancillary Services, as the case may be. For purposes hereof, New Tax shall include an energy tax (whether measured by carbon content, BTU content, volume, value or otherwise), value added tax, gross receipts tax or pollution tax but shall not include a tax on net income of the kind in existence on the date of this Agreement.

ARTICLE 9 - TERMS OF PAYMENT

9.1 Payments. On or after the 10th day of each month, Gulf Power shall separately invoice APCI for the Cogeneration Services Charge, the Maintenance Escalation Charge, the Insurance Charge and the electric bill applicable to the prior month. Gulf Power shall also provide a separate invoice for the applicable credits due for the prior month pursuant to the provisions of sections 8.2 and 8.3 of this Agreement. For the convenience of the parties, Gulf Power will also provide a consolidated net statement of account for all four invoices. APCI shall pay the charges due as stated on the consolidated net statement of account within fifteen (15) days of receipt.

9.2 Billing Disputes. In the event a dispute arises as to the amount payable on any invoice issued pursuant to this Agreement, APCI shall nevertheless pay the amount not in dispute to Gulf Power, pending resolution of the dispute. If it is determined that APCI owes Gulf Power any or all of the disputed amount, then APCI shall pay to Gulf Power that amount, along with



interest, accrued from the date originally due. The interest rate to be utilized is specified in Article 13.1 of this Agreement.

9.3 Billing Errors. In the event an error is discovered in the amount invoiced and the invoice in question has already been paid, Gulf Power will refund to APCI the amount of any overcharge or APCI shall pay to Gulf Power the amount of any undercharge within thirty (30) days of discovery of such error; however, no retroactive adjustment will be made for any overcharge or undercharge beyond a period of twenty-four (24) months from the date on which payment for the discrepant invoice was due.

ARTICLE 10 - FORCE MAJEURE

10.1 Effect of Force Majeure. Subject to Article 10.2 and 10.3 hereof, in the event that either party hereto is rendered unable, wholly or in part, by Force Majeure to perform its obligations under this Agreement, other than the obligations of that party to make payments of money due hereunder, it is agreed that upon such party giving notice of such Force Majeure to the other party, the obligations of the party giving such notice, so far as such obligations are affected by such Force Majeure, shall be suspended during the continuance of any inability so caused but not for any longer period, and such cause shall as far as possible be remedied with all reasonable dispatch.

10.2 Notice of Force Majeure. The party suffering a Force Majeure event shall give telephonic notice to the other party of the occurrence of the Force Majeure event as soon as possible, and will promptly confirm that telephonic notice by written notice delivered to the other party within forty-eight (48) hours of the event. Such written notice must describe the particulars of the event, its anticipated duration, and action being taken or planned to remedy the party's inability to perform hereunder. When the non-performing party is able, wholly or in part, to resume performance of any obligation suspended hereunder, that party shall give telephonic notice as soon as possible, and will promptly confirm that telephonic notice in writing.



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10.3 Definition of Force Majeure. As used herein, the term "Force Majeure" or "Force Majeure event" shall mean strikes, lockouts, or other industrial disturbances; official or unofficial acts, orders, regulations or restrictions of any foreign or domestic governmental agency (other than the FPSC); wars; riots; insurrections; epidemics; landslides; lightning; earthquakes; fires; storms; freezing weather of a duration and severity not usually occurring at the Pace Plant; weather conditions which result in ambient temperatures at or above 110 degrees Fahrenheit; floods, washouts; explosions, breakage, accidents, injury, or damage to machinery, equipment, valves, meters, regulators or lines of pipe; civil disturbances; and any other so-called "Act of God"; such occurrences not falling within the reasonable control of the party claiming Force Majeure and which, by the exercise of due diligence, the party claiming Force Majeure is unable to overcome.

It is understood and agreed that the settlement of strikes or lockouts shall be within the discretion of the party having the difficulty, and that the above requirement that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes or lockouts by acceding to the demands of the opposing party when such course is inadvisable in the discretion of the party having the difficulty.

10.4 Excluded Force Majeure Events. As used herein, the term "Force Majeure", or "Force Majeure event", shall not mean or include:

- a. lack of financial resources;
- b. changes in the cost of production, operations, or in market conditions;
- c. events of commercial impracticability;
- d. changes in conditions which were presupposed to exist at the time of execution of this agreement; or
- e. grossly negligent or intentional acts, errors or omissions of the non-performing party.



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ARTICLE 11 - REGULATORY IMPACT

It is the express intention of the parties that their obligations under this Agreement be fulfilled without regard to whether any aspect of the transaction may subsequently be disapproved by the FPSC through the exercise of its regulatory oversight over Gulf Power. To fulfill this intent, the parties have not included any provision in this Agreement that would excuse Gulf Power from having to fulfill its obligation to provide thermal energy output from the Cogeneration Facility to APCI under the terms and conditions of this Agreement because of any action taken by the FPSC. In the event that such action by the FPSC would have the effect of preventing Gulf Power from being able to fulfill its obligations to provide thermal energy output from the Cogeneration Facility to APCI consistent with the overall terms and conditions of this Agreement, Gulf Power will make any and all arrangements necessary so that another subsidiary of The Southern Company that is not subject to the regulation of the FPSC will step in and fulfill the obligation to provide thermal energy output from the Cogeneration Facility under the terms and conditions of this agreement. As part of such transfer in responsibility for the Cogeneration Facility, Gulf Power will be responsible for any out of pocket costs incurred by APCI in order to facilitate such transfer. The charges for Cogeneration Services resulting from the pricing formula agreed upon by the parties is a price freely negotiated between the parties and is not subject to review or approval by any regulatory agency including but not limited to the FPSC. APCI agrees that it shall not take any action or otherwise support any claim that any aspect of this agreement is subject to the regulatory jurisdiction of the FPSC or any other agency exercising economic regulatory jurisdiction over Gulf Power. The parties agree that as it may relate to the first divided portion of the electricity requirements of the Pace Plant as described in Article 2, APCI has no obligation under this Agreement for 'stranded costs' or the recovery of same, either of which may be defined to be permissible currently or in the future by Federal or State law or regulation.

ARTICLE 12 - RELEASE AND INDEMNIFICATION; INSURANCE

12.1 Gulf Power Release and Indemnification of APCI. Gulf Power agrees to release, protect, defend, indemnify, save and hold APCI, APCI's affiliates, and their employees, agents,

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representatives, invitees, licensees, contractors, and subcontractors, and their employees and agents free and harmless from and against all claims, demands, costs, causes of action, and expenses (including, without limitation, reasonable fees and disbursements of counsel) which in any way arise out of or are related to the construction, operation, maintenance or salvage of the Cogeneration Facility and which are asserted by or arise in favor of Gulf Power, its employees, agents, representatives, invitees, licensees, contractors, or subcontractors and their agents and employees (and their spouses and relatives) due to personal injury or death, or damage to or destruction of property (including business interruption and other consequential losses arising therefrom), including claims, demands, costs, causes of action and expenses attributable to the sole, joint, comparative, and concurrent negligence, fault, or strict liability of APCI, and APCI's affiliates and their employees, agents, representatives, invitees, licensees, contractors, subcontractors, and their employees and agents, or attributable to any other cause whatsoever.

12.2 APCI Release and Indemnification of Gulf Power. APCI agrees to release, protect, defend, indemnify, save and hold Gulf Power, its employees, agents, representatives, invitees, licensees, contractors, and subcontractors, and their employees and agents free and harmless from and against all claims, demands, costs, causes of action, and expenses (including, without limitation, reasonable fees and disbursements of counsel) which in any way arise out of or are related to the construction, operation, maintenance or salvage within the boundary of the Pace Plant of the steam, wastewater, and process water pipelines and which are asserted by or arise in favor of APCI and its affiliates and their employees, agents, representatives, invitees, licensees, contractors, or subcontractors and their agents and employees (and their spouses and relatives) due to personal injury or death, or damage to or destruction of property (including business interruption and other consequential losses arising therefrom), including claims, demands, costs, causes of action and expenses attributable to the sole, joint, comparative, and concurrent negligence, fault, or strict liability of Gulf Power, its employees, agents, representatives, invitees, licensees, contractors, subcontractors, and their employees and agents, or attributable to any other cause whatsoever.



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12.3 Insurance. Gulf Power shall keep the equipment that comprises the Cogeneration Facility insured against all risks of loss or damage from every cause whatsoever for not less than the full replacement value thereof as determined by Gulf Power. Gulf Power shall carry public liability and property damage insurance covering the equipment. All said insurance shall be in the form and amount and with companies approved by Gulf Power, and shall be in the name of Gulf Power.

12.4 Risk of Loss and Damage. APCI hereby assumes and shall bear the entire risk of loss and damage to the equipment comprising the Cogeneration Facility from any and every cause arising from any act (or failure to act where APCI had a duty) of APCI, APCI's affiliates, their employees, agents, representatives, invitees, licensees, contractors, and subcontractors, and their employees and agents. No loss or damage to the equipment or any part thereof arising from any act (or failure to act where APCI had a duty) of APCI, APCI's affiliates, their employees, agents, representatives, invitees, licensees, contractors, and subcontractors, and their employees and agents shall impair any obligation of APCI under this Agreement which shall continue in full force and effect.

In the event of loss or damage of any kind to any item of equipment comprising the Cogeneration Facility arising from any act (or failure to act where APCI had a duty) of APCI, APCI's affiliates, their employees, agents, representatives, invitees, licensees, contractors, and subcontractors, and their employees and agents, APCI, at the option of Gulf Power, shall:

- (a) Place the same in good repair, condition, and working order; or
- (b) Replace the same with like equipment in good repair, condition, and working order.

12.5 Other Provisions; Survival. The release and indemnity provisions set forth in Articles 12.1 and 12.2 above are in addition to and shall not limit or be limited by the other provisions of this Agreement. Notwithstanding any term or termination provision of this Agreement, the provisions of this Article 12 are intended to and shall survive the termination or expiration of this Agreement.



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ARTICLE 13 - FURTHER AGREEMENT

13.1 Overdue Obligations to Bear Interest. Any amount owed to either party hereunder by the other party more than 15 days beyond the date the applicable invoice is received by the party being billed under this Agreement shall accrue interest each day thereafter that such amount is not paid at an annual rate equal to the prime interest rate as published in The Wall Street Journal on the first day such amount becomes past due plus one and one-half percent.

13.2 Real Property Waiver. APCI represents that it is the owner of the real property on which the Cogeneration Facility will be installed. It is the intent of APCI and Gulf Power that the Cogeneration Facility itself and the electrical interconnection facilities necessary to connect the Cogeneration Facility with Gulf Power's electric transmission and distribution system shall remain the personal property of Gulf Power or its assigns, removable at will without notice upon the termination of this Agreement. Gulf Power or its assigns shall have such access to the premises as they may require for purposes of inspection, sale and removal. Other than as specifically provided in this Agreement, APCI waives any right, title, lien, or interest it might otherwise have in the Cogeneration Facility or other personal property of Gulf Power located on the premises. This waiver is binding on APCI and its assigns for the duration of this Agreement (including any extensions) and a reasonable period of time following termination of this Agreement to allow for Gulf Power's efficient removal of its personal property which it shall be obligated to do.

13.3 WARRANTIES. GULF POWER MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING, WITHOUT LIMITATION, THE CONDITION OF THE EQUIPMENT COMPRISING THE COGENERATION FACILITY, ITS MERCHANTABILITY, OR ITS FITNESS FOR ANY PARTICULAR PURPOSE. Nothing herein shall reduce Gulf Power's obligations set forth in this Agreement.



ARTICLE 14 - DISPUTE RESOLUTION

14.1 Notice of Dispute. In the event a dispute arises between Gulf Power and APCI regarding the application or interpretation of any provision of this Agreement, the aggrieved party shall notify the other party to this Agreement of the dispute within ten (10) days after such dispute arises. If the parties shall have failed to resolve the dispute within ten (10) days after delivery of such notice, each party, within five (5) days thereafter, shall nominate a senior officer of its management to meet at a mutually agreed location to resolve the dispute. Should the parties be unable to resolve the dispute to their mutual satisfaction within twenty (20) days after such nomination, each party shall have the right to pursue arbitration thereof as provided in Article 14.2.

14.2 Arbitration. In the event the parties are unable to resolve a dispute under Article 14.1 hereof, then either party may submit such dispute to arbitration for final settlement. In such event:

(a) The arbitration shall take place in Pensacola, Florida or such other location mutually agreed upon by the parties. The arbitration shall be conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association as supplemented by the terms of this Article 14.

(b) The arbitration panel shall consist of three arbitrators. Each party shall appoint one arbitrator within seven (7) business days of the filing and service of the arbitration demand. The third arbitrator shall be selected by the two arbitrators so selected within ten (10) business days thereafter or, in the absence of any agreement between the first two arbitrators, by the Commercial Arbitration Rules of the American Arbitration Association.

(c) Within twenty (20) business days after the filing and service of the arbitration demand, the defending party shall file an answer thereto. Each party shall be entitled to conduct such discovery as the arbitration panel shall permit. The parties will provide to the arbitration panel and to the other party all materials that they deem relevant to the arbitrators' decision at least ten (10) days prior to the hearing held by the arbitration panel.



(d) If, in the judgment of either party, the dispute is material to the rights or obligations of the parties, the arbitrators shall be instructed to make their determination within sixty (60) days following the filing of the dispute for arbitration. This instruction shall be made by service and filing of such instruction within seven business days of the service and filing of the arbitration demand.

(e) The arbitration award shall be final and binding on the parties, and the parties agree to be bound thereby and shall act accordingly.

(f) The costs of arbitration shall be borne as determined by the arbitration panel.

(g) Any award of the arbitrators shall be enforceable by any party in any court having jurisdiction over the party against which the award has been rendered or having jurisdiction at the place where assets of the party against which the award has been rendered can be located.

14.3 Obligation to Continue Services. When any dispute occurs and when any dispute is being resolved pursuant to this Article 14, the parties shall continue to exercise their remaining respective rights and fulfill their remaining respective obligations under this Agreement.

ARTICLE 15 - TERM

This Agreement shall be effective as of the date first above written and continue in full force and effect for a period ending on the twentieth anniversary of the Commercial In-Service Date.

ARTICLE 16 - CONSTRUCTION AND OPERATION OF AGREEMENT

16.1 Entire Agreement; Modifications. The provisions of this Agreement shall (a) constitute the entire understanding of the parties with respect to the subject matter hereof and supersedes all prior agreements, understandings and commitments, whether written or oral, with respect thereto and (b) be modified only by written agreement duly executed by authorized representatives of both parties.



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16.2 Notices. Any notice required or permitted to be given hereunder shall be in writing and signed by the party giving such notice and shall be hand-delivered or sent by courier or certified or registered mail (return receipt requested), postage prepaid, or telecopied to the other party at the following address or telecopier number:

If to Gulf Power: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, Florida 32520
Telecopier No.: (904) 444-6237
Attention: General Manager, Marketing & Load Management

with a copy to: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, Florida 32520
Telecopier No.: (904) 444-6237
Attention: Cogeneration & Special Contracts Administrator

If to APCI: Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, Pennsylvania 18195-1501
Telecopier No.: (610) 481-2182
Attention: Director, Electricity Supply and Energy Policy

with a copy to: Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, Pennsylvania 18195-1501
Telecopier No.: (610) 481-2182
Attention: Director, Primary Energy and Energy Economics

Either party may change the address or telecopier number to which a notice shall be delivered by similar notice to the other party. The effective date of any notice given in accordance with the provisions of this Article shall be as of the addressee's receipt thereof, which shall be presumed in the absence of compelling evidence to the contrary to be either one business day following the date delivered if delivered by hand, telecopier or overnight courier, or three business days following the date sent if sent by certified or registered mail.



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16.3 Preparation of Agreement. Preparation of this Agreement has been a joint effort of the parties and the resulting document shall not be construed more severely against one of the parties than against the other.

16.4 Headings. The captions and headings contained in this Agreement are for convenience of reference only and in no way define, describe, extend or limit the scope or intent of this Agreement or of any provision contained herein.

16.5 Severability. The invalidity of one or more phrases, sentences, clauses, Sections or Articles contained herein shall not affect the validity of the remaining portions of this Agreement.

16.6 Assignment. This Agreement shall be binding upon the parties and their successors and permitted assigns. This Agreement and any right or obligation contained herein may not be assigned (including, without limitation, as security for a loan) without the prior written consent of the other party, which consent shall not be unreasonably withheld.

16.7 Waiver. Any failure of a party to enforce any of the provisions of this Agreement or to require compliance with any of its terms at any time during the Term shall in no way affect the validity of this Agreement or any part hereof, and shall not be deemed a waiver of the right of such party thereafter to enforce any and each such provision.

16.8 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Florida, without giving effect to the choice of law principles thereof.

16.9 Conventions. In this Agreement the singular includes the plural and the plural the singular; words importing any gender include the other genders; references to statutes are to be construed as including all statutory provisions consolidating, amending or replacing the statute referred to; references to writing include printing, typing, lithography and other means of reproducing words in a visible form on paper; references to agreements and other contractual



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instruments shall be deemed to include all subsequent amendments thereto, restatements or replacements thereof, or changes therein duly entered into and effective among the parties thereto or their permitted successors and assigns; references to persons include corporations, partnerships, business trusts, trust, joint ventures, governmental entities and their permitted successors and assigns as well as natural persons and their legal representatives and permitted assigns; the term "including" shall mean including without limitation; references to attachments and sections mean the Attachments to and Sections of this Agreement and references to this Agreement mean this Agreement including all Attachments; and references to a party's right to approve any right or obligation hereunder shall be qualified in each instance by the phrase, "such approval not to be unreasonably withheld."

16.10 Counterparts. This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument, and either of the parties may execute this Agreement by signing any such counterpart.

16.11 Confidentiality. The specific terms and conditions of this Agreement are considered confidential, proprietary information of the parties and shall not be disclosed to others by either party without the prior written consent of the other, unless such disclosure is compelled by a duly constituted governmental authority. In the event that disclosure to such a duly constituted governmental authority is requested, the disclosing party shall give notice to the non-disclosing party and shall make reasonable efforts to protect the continuing confidential, proprietary nature of the information in the course of and after compelled disclosure to the duly constituted governmental authority.



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IN WITNESS WHEREOF, the parties have caused this Cogeneration and Energy Services Agreement to be executed as of the date first above written.

GULF POWER COMPANY

By: [Signature]
Title: Vice President

[Signature] AIR PRODUCTS AND CHEMICALS, INC.

By: [Signature]
Title: Vice President



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**Attachment 1 -- Construction and Supply Agreement between APCI and SOLAR;
Extended Service Agreement between APCI and SOLAR**

The parties acknowledge that the referenced documentation will be attached subsequent to the execution of the Cogeneration and Energy Services Agreement.

(A) The Construction and Supply Agreement shall be that document signed 5/30/97 by APCI's Director, Project and Logistics Supply and 6/2/97 by SOLAR's Director, Power Generation Sales & Marketing, along with the exhibits referenced therein.

(B) The Extended Service Agreement shall be that document signed 5/30/97 by APCI's Director, Project and Logistics Supply and 6/3/97 by SOLAR's Manager, Sales Services - Customer Service, along with the exhibits referenced therein.

(C) Agreement Regarding Assignment and Assumption of Construction and Supply Agreement and Extended Service Agreement: Form of Assignment and Assumption of Construction and Supply Agreement and Extended Service Agreement.

Initials:

RLD
APCI

JMA
Gulf Power



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CONSTRUCTION AND SUPPLY AGREEMENT

Between

AIR PRODUCTS AND CHEMICALS, INC.

And

SOLAR TURBINES INCORPORATED

ORDER NUMBER GE-N4165

SOLAR REFERENCE HO6-812/PD5192



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Construction and
Supply Agreement

Handwritten signature or initials, possibly 'M. J. ...'.

List of Exhibits

- Exhibit A - Payment Schedule
- Exhibit B - Performance Guarantees
 - Exhibit B.1 - Turbine Heat Rate, Power Output, Boiler Fuel Consumption Guarantees
 - Exhibit B.2 - Noise Guarantee
 - Exhibit B.3 - Emissions Guarantee
- Exhibit C - Facility Milestone Schedule
- Exhibit D - Scope of Work
- Exhibit E - ES 1972 Site Performance Test Specification
- Exhibit F - ~~ES 9-97 Gas Turbine~~ Emissions Test Specification - Method 9 and Method 20
- Exhibit G - Price Breakdown
- Exhibit H - Koch Gateway Pipeline Company Fuel Specification
- Exhibit I - ES 9-98 Fuel Specification

WOM



ARTICLE 1

Contract Price

1.1 Scope of Work. Contractor shall furnish and supply all design engineering, labor, materials, equipment and other services and incidentals as described herein ("the Work") to erect a cogeneration facility (the "Facility") within the Owner's Plant. The Scope of Work shall be defined by Contractor's Proposal HO6-812, "Air Products Project Meeting Minutes" dated April 1, 1997, incorporated herein by reference, and other express agreements between the parties and defined in Exhibit D. Contractor shall interconnect all materials and equipment supplied within the Battery Limits as defined; and shall perform Commissioning services and tests as specified. Defined terms in this Agreement are defined in Article 16, Definitions.

1.2 Contract Price. In full consideration for the performance by Contractor of the Work, Owner shall pay, and Contractor shall accept, the sum of \$10,181,345, Exhibit G - Price Breakdown. Eight percent (8%) of the Contract Price shall be retained from invoices issued after November 1, 1997. The Payment Schedule, in accordance with actual work performed, shall be as set forth in the attached Exhibit A, Payment Schedule. Turbomachinery payments shall be invoiced against performance milestones as noted in Exhibit A, and balance of plant payments shall be paid against monthly progress invoices. Said invoices shall be payable Net 30 days, unless otherwise noted in Exhibit A, from date of invoice. Adjustments in the Contract Price shall be made pursuant to Article 2, Change Orders, and as otherwise provided for by these Terms.

1.3 Taxes. The Contract Price includes a maximum of \$33,000 for all applicable federal, state, and local taxes (including but not limited to taxes measured by income or net worth, franchise taxes, excise taxes, privilege taxes, use, value added or sales taxes) which may be assessed on or paid or accrued by the Contractor, its Subcontractors, and vendors or otherwise which arise as a result of the Contractor's performance of the Work and erection of the Facility under this Agreement. This maximum tax liability of \$33,000 is limited to the current scope of work as defined in Exhibit D of this Agreement and is based on advice received from the Owner who shall furnish to the Contractor an Affidavit for Sales and Use Tax Exemption which shall extend to any and all items authorized by Florida law. To the extent tax liability is greater than \$33,000, Owner shall be liable and responsible for payment of such tax.



ARTICLE 2

Change Orders

2.1 Change Orders. Owner may order Contractor to perform extra Work or alter, add to or deduct from the Work. All such Change Orders shall be in writing executed by Owner's Representative. No extra Work or changes to the Work shall be made except in accordance with a duly-issued Change Order of Owner authorizing such extra Work or changes. In no event, however, will Contractor be required to perform any extra Work or otherwise modify or change any item of Work if such would in the Contractor's sole judgement have an adverse effect on the ability of the Facility, or any Component thereof, to meet any of the guarantees or pass any of the Joint Verification Tests provided for herein, without the same being modified as appropriate.

2.2 Request by Contractor. Contractor shall provide Owner with written notice of any condition or event, including any Delaying Event, Force Majeure, or unforeseen condition causing a delay all as set out in Article 12, Delays, Force Majeure and Unforeseen Site Conditions, that Contractor believes will require any modification of or change to the scope of the Work, the Facility Schedule or the Contract Price. Such notice shall be issued within ten (10) working days after Contractor determines that the condition or the occurrence of any such event requires a request for a Change Order, shall describe such condition or event in detail, and shall specify the adjustment to the scope of the Work, the Facility Schedule or the Contract Price requested by it. Contractor shall provide such additional information as Owner may reasonably request. Owner shall have a reasonable time to review and accept Change Orders but not more than ten (10) working days.

2.3 Payment for Change Order Work. The price of any Work ordered by a Change Order, if any, shall be agreed to by Owner and Contractor prior to the commencement of such Work and shall be added to or subtracted from, as may be appropriate, the Contract Price. The price of any Work shall be quoted on a fixed price basis for turbomachinery and other purchased equipment. As agreed by the parties, certain work may be quoted on a cost basis, plus 15% for overhead and profit.

2.4 Effect on Schedule and on Warranties and Guarantees. Unless a Change Order is issued by Owner pursuant to a request of Contractor under the procedures specified in Article 2.2 hereof, Contractor shall have ten (10) days after receipt of a Change Order to notify Owner in writing that the change requested will have an adverse effect on Contractor's ability to meet the scheduled date for Substantial Completion and Acceptance or upon any of Contractor's warranties or guarantees under this Agreement. Such notice shall provide a detailed statement of the reasons for and the extent of any such effect on the schedule or the warranties or guarantees. Owner shall have ten (10) business days in which to respond to such notice.



ARTICLE 3

Relationship of Owner, Contractor and Subcontractors

3.1 Status of Contractor. Contractor shall perform and execute the provisions of this Agreement as an independent contractor to Owner and shall not be an agent or employee of Owner.

3.2 Subcontracts and Subcontractors. Contractor shall have the right to have any of the Work or any other obligation of Contractor undertaken in connection with the Facility or this Agreement accomplished by Subcontractors, or by Contractor's affiliates. Subcontractors shall be selected by Contractor, and Contractor shall be solely responsible for the satisfactory performance of Subcontractors. No contractual relationship shall exist between Owner and any Subcontractor with respect to the Work to be performed hereunder. Contractor shall pay each Subcontractor in accordance with the terms of the subcontract between them.

ARTICLE 4

Contractor's Responsibilities

4.1 Facility Design, Construction and General Responsibilities. Contractor shall design and construct the Facility in a manner which shall be consistent with the layout of the Facility as shown in this Agreement, the Standards of Design and Codes set forth in this Agreement, and technical descriptions set forth in this Agreement, and is compatible and consistent with the interconnection criteria described in this Agreement.

4.2 Control of the Work. Contractor shall be solely responsible for all construction means, methods, techniques, sequences, procedures and safety programs in connection with the performance of the Work, in accordance with Air Products Contractor Safety Procedure Manual 710, which shall be provided to Contractor, relating to work performed on Owner's site, and Contractor will direct Contractor's subcontractors to comply with Air Products Contractor Safety Procedure Manual 710 relating to work performed on Owner's site.

4.3 Contractor's Representative. Contractor shall appoint a project manager (the "Contractor's Project Manager") who shall be responsible for the performance of the Work by Contractor and shall be authorized to receive Change Orders and to otherwise act on behalf of Contractor. Contractor shall provide Owner written notice of the name, current address, day and night telephone and facsimile numbers and telegraphic address of Contractor's Project Manager.



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4.4 Consultation with Owner. Contractor shall consult with Owner concerning the Work and compliance with this Agreement at all reasonable times. Owner shall conduct such review, comment and consultation in a timely manner so as not to delay the Work. Unless a specific review obligation is otherwise imposed on Owner by this Agreement, such review, comment and consultation by Owner shall not relieve Contractor of any responsibility for the Work to be performed by Contractor under this Agreement.

4.5 Access to Information. Upon request, Contractor shall make available to Owner all plans, drawings, engineering calculations and studies, bid packages and any and all other documents associated with the Work; except that Owner shall not have access to cost data, including the dollar amounts of the bids received, except as may be specifically provided in this Agreement.

4.6 Ownership and Re-use of Documents. Unless otherwise agreed to by the parties, all designs, drawings or specifications and reproductions thereof shall be the property of Owner and shall be delivered to Owner at the completion of the Work. Owner shall not, without the prior written approval of Contractor, use or grant others permission to use any design, drawings or specifications or reproductions thereof, which Contractor prepares hereunder and in which Contractor has declared a proprietary right, for expansion or substantial duplication of the plant or any other disclosure to any third parties. All engineering designs, data and specifications for the gas turbine generator sets are proprietary to Contractor.

4.7 Spare Parts for Contractor Manufactured Products. Contractor shall develop, in consultation with Owner, a list of spare parts, necessary or advisable for the long-term operation and maintenance of Contractor manufactured products included in the Work. During the course of construction Contractor will use reasonable efforts to advise Owner when the coordination of purchases by Contractor and Owner would allow Owner to realize a cost-savings on its purchase of spare parts.

4.8 Security. Contractor shall be responsible for security at the site of the Work until Substantial Completion and Acceptance. If security guards are required by Owner, the cost of such guards will be an extra cost and shall be added to the Contract Price by Change Order.

4.9 Reasonable Access. Contractor shall provide (with prior scheduling) Owner or its representatives with reasonable access to the Work; provided, however, that Contractor may provide, and Owner shall accept, an escort or any safety measures that Contractor, in its sole discretion, deems necessary or advisable.

4.10 Emergencies. In the event of any emergency endangering life or property, Contractor shall take such action as may be reasonable and necessary to prevent, avoid or mitigate injury, damage or loss.



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4.11 Certificates, Temporary Permits and Licenses. Except for the Major Permits (which are the responsibility of Owner), Contractor shall secure and pay for all approvals, certificates, permits and licenses of a temporary nature as may be required for the proper execution and completion of the Work, including, without limitation, those permits listed in this Agreement. Contractor shall promptly deliver to Owner copies of all such approval, certificates, permits and licenses. Owner shall be responsible for providing Contractor with such assistance as Contractor may require in its efforts to obtain or comply with the foregoing approvals, certificates, permits and licenses.

4.12 Laws and Regulations. Contractor shall conform with all laws, ordinances, rules and regulations which materially affect Contractor's performance of the Work. Compliance by Contractor with any laws, ordinances or regulations applicable to the Work that become effective or are changed after the effective date of this Agreement shall be handled in accordance with the procedures established in Article 2, Change Orders.

4.13 Change in Law.

(a) Owner shall be responsible for costs and liabilities that are the result of Changes in Law. In the event of the occurrence of any Change in Law after the date of this Agreement, Contractor shall remain responsible for taking all reasonable efforts to mitigate the adverse effects due to the occurrence thereof, including any additional costs and delays to the Work. Such reasonable efforts shall also include compliance with instruction of the Owner director at overcoming or minimizing additional costs, liabilities or delays. Additionally, Contractor shall, unless and until this Agreement is terminated pursuant to its terms, continue to use its best endeavors to complete the Work notwithstanding the occurrence of any Change in Law.

(b) If and to the extent any Change in Law increases the cost of performance of the Work, Owner shall compensate Contractor for those reasonable and documented costs plus a reasonable profit not to exceed fifteen percent (15%) thereon attributable to compliance with or satisfaction of any such Change in Law. All claims by Contractor for compensation under this Article 4.13 must be made in accordance with Article 2.2.

ARTICLE 5

Owner's Responsibilities

5.1 Major Permits. Owner shall be responsible for obtaining all Major Permits and ensuring that the specifications herein conform to all such Major Permits. Copies of all such Major Permits (both interim and final) shall be promptly furnished to Contractor for its information.



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5.2 Operation and Maintenance. Owner shall have the full responsibility and shall bear the full risk for all aspects of the care, custody, maintenance and operation of the Facility after Substantial Completion and Acceptance. Owner shall supply appropriate personnel to operate the Facility on behalf of Owner during the Commissioning and Facility Start-Up phases, the Joint Verification Test and Substantial Completion and Acceptance. Responsibility for facility control shall be as set forth in Article 6.7.

5.3 Site and Facility Information. Owner shall provide, at no cost to Contractor, the following services and information, to the extent needed in connection with the conduct of the Work: all bench marks, elevations, base lines, and other data and drawings for proper location of the Work.

5.4 Heat Recovery Unit Boildown. Prior to Substantial Completion and Acceptance, Contractor shall be responsible for all boildowns or washouts of the Heat Recovery Unit with Owner's assistance as required.

5.5 Other Obligations of Owner. Owner shall also provide or arrange for the services and the materials as may be specified as the responsibility of Owner Section 4.E in Contractor's Proposal.

5.6 Owner's Representative. Owner shall appoint a person to act on its behalf as its authorized representative (the "Owner's Representative"). Owner's Representative shall have the authority to issue Change Orders and make all other decisions with respect to this Agreement on behalf of Owner. Owner shall provide Contractor written notice of the name, current address, day and night telephone and facsimile numbers and telegraphic address of Owner's Representative. In all matters concerning this Agreement or the Work, Contractor shall consult with Owner's Representative.

5.7 Owner's Right To Inspect. Owner shall have the right at all reasonable times to inspect the Work and to observe the tests relating to the Facility that are conducted prior to the issuance of the Certificate of Substantial Completion and Acceptance and the Joint Verification Test thereafter.

5.8 Owner's Review of Drawings. Owner shall have the right to review and maintain three (3) sets of drawings and specifications prepared by Contractor and its subcontractors and vendor's. The Plot Plan, P&I Flow Diagram, General Arrangement Drawings, and Electrical Single Line Drawings are subject to approval by Owner, which approval shall be timely given within ten (10) working days unless otherwise mutually agreed. All other drawings and specifications shall be submitted to Owner for review but not for approval as soon as completed by Contractor and shall be returned to Contractor immediately after review by Owner.



5.9 Use of Owner's Facilities. Plant services and Facilities at the Site may be used by Contractor only to the extent available and convenient to Owner, and in accordance with such limitations and regulations as Owner may impose. Specific utilities which will be made available to Contractor are set forth in Contractor's Proposal, or shall be agreed by the parties. Approval of Owner, which shall not unreasonably be withheld, must be obtained for erection of temporary buildings, storage of material and other use of space outside the Battery Limits.

ARTICLE 6

Commencement of Work, Liquidated Damages for Delay, Substantial Completion and Acceptance and Final Acceptance of Work

6.1 Commencement of the Work. Contractor shall commence the Work promptly upon the final execution of an agreement with Contractor, unless otherwise agreed to by the parties.

6.2 Schedule. Contractor shall perform the Work in compliance with the Facility Schedule and attend regular meetings with Owner as contemplated herein. Time is of the essence in regard to Substantial Completion and Acceptance, and Owner's sole and exclusive remedies are the Liquidated Damages as defined in Article 6.3 herein. As such, Contractor shall use due diligence in pursuit of its contractual delivery commitments. Contractor shall notify Owner in writing at any time Contractor has reason to believe that the Facility Schedule will not be met and will specify in such notice the corrective action planned by Contractor.

(a) If Contractor fails to meet any material Facility Schedule date, for a reason other than one set forth in (b) of this Article 6.2, at the reasonable request of Owner, Contractor shall submit a "schedule recovery plan" two (2) weeks after the missed date detailing a written plan to recover lost schedule, which plan may include working overtime, adding personnel or other schedule recovery measures. If Contractor fails to meet two consecutive Facility Schedule dates, Contractor shall submit a written "schedule recovery plan" for Owner's approval. If the parties reach agreement on such a plan, Contractor shall proceed with its recovery plan and continue to furnish progress reports showing the effects of the recovery plan. If the schedule recovery plan does not improve the schedule or if additional material delays are incurred within two (2) weeks after the above described meeting, senior representatives from Contractor and Owner shall meet in an effort to reach agreement on a revised recovery plan.

(b) If, by reason of (i) the amount or nature of extra or additional work, (ii) Force Majeure delay or (iii) any other cause for extension of time specifically provided for in this Contract, Owner shall, after due consultation with Contractor, extend the applicable Facility Schedule, for such reasonable time as completion of the Work involved in achieving such



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Facility Schedule actually has been delayed thereby. In making such determination, Owner shall take into consideration whether Contractor acted reasonably to mitigate the delaying effect of such event. Contractor shall consult with Owner to determine the steps (if any) that can be taken to overcome or minimize the actual or anticipated delay.

6.2.1 Delay in completion of foundation/civil work. Foundation/civil work shall be completed, by others, on or before September 19, 1997. Any delay in such completion shall result in a delay in schedule and the Substantial Completion and Acceptance shall be extended, by an amount to be advised by Contractor.

6.3 Liquidated Damages for Delay. In the event Contractor fails to complete the Work on the agreed date for Substantial Completion and Acceptance, not including the Joint Verification Test, except as such date may be extended in accordance with Article 6.12 Extensions, the Contractor is liable to pay the Owner the sum of \$5,000 per day for the first thirty days, and increasing to \$10,000 per day thereafter for each day delay in achieving Substantial Completion and Acceptance (not including the Joint Verification Test), by 31 March 1998, as liquidated damages, and not as penalty, which the parties agree represents a reasonable estimate of the damage to be incurred by the Owner in the event of delay. If two of the three units provided under this Agreement reach Substantial Completion and Acceptance, (not including the Joint Verification Test), in accordance with the contractual commitment date above, the Liquidated Damages for the third unit shall be reduced to \$1,500 per day for each day of delay in reaching Substantial Completion and Acceptance, not including the Joint Verification Test.

The maximum Liquidated Damages for Delay shall not exceed an aggregate of five percent (5%) of the Contract Price for delay in achieving Substantial Completion and Acceptance (not including the Joint Verification Test), by 31 March 1998.

It is understood that no damages may be sought for delays in delivery of items which will not affect the beneficial use of the equipment, or the normal, safe and efficient operation of the equipment to be provided hereunder, and that payment of liquidated damages, as herein provided, and shall be the Owner's sole and exclusive remedy for delays due to causes for which the Contractor is responsible under this Agreement. Owner will extend a two week grace period provided that Owner's methylamines plant planned start-up date will not be impacted.

6.4 Manuals. At least two (2) weeks in advance of the date of Substantial Completion and Acceptance, Contractor shall furnish Owner with a quantity of four (4) copies of maintenance and operating manuals, in Contractor's form and format, as defined in Contractor's Proposal.



6.5 Estimated Time of Substantial Completion and Acceptance. Contractor has scheduled that Substantial Completion and Acceptance (not including the Joint Verification Test), of construction will occur on or before March 31, 1998, provided this Agreement is executed by Owner on or before May 31, 1997. Contractor shall deliver to Owner the Notice of Substantial Completion and Acceptance prior to the date on which Contractor expects Substantial Completion and Acceptance to occur.

6.6 Certificate of Substantial Completion and Acceptance. Owner shall, within ten (10) calendar days after receipt of the Notice of Substantial Completion and Acceptance, inspect all construction Work, review the list of Punch List Items and (a) either prepare and deliver to Contractor a written Certificate of Substantial Completion and Acceptance, or (b) if good cause exists for so doing, notify Contractor in writing that Substantial Completion and Acceptance has not been achieved, stating in detail its reasons therefor. In the event Owner determines that Substantial Completion and Acceptance has not occurred, Contractor shall promptly take such corrective action, if any, as will cause Substantial Completion and Acceptance to occur and shall issue to Owner another written Notice of Substantial Completion and Acceptance. Such procedure shall be repeated as necessary until Owner issues a written Certificate of Substantial Completion and Acceptance, which Certificate shall not be unreasonably withheld.

6.7 Control of Facility Operation. Until Substantial Completion and Acceptance, and prior to the Joint Verification Test, Contractor shall be responsible for overall control of the Facility. After Substantial Completion and Acceptance, Owner shall be responsible for all care, custody, maintenance and control of the Facility and all impact of Facility operation on the Plant. Contractor will provide technical assistance and operational direction of the Facility during Commissioning and the Joint Verification Test. During Commissioning and until issuance of the Certificate of Substantial Completion and Acceptance, the Facility shall not be operated for the Owner's beneficial use without approval by Contractor. Full Facility operational control shall be promptly turned over to Owner upon the issuance of the Certificate of Substantial Completion and Acceptance, and operation thereafter shall be the sole responsibility of Owner.

6.8 Release and Waivers. Contractor shall deliver with the Notice of Final Acceptance of Work a certificate, in a form to be mutually agreed, providing that releases or waivers of all liens and claims arising through Contractor in connection with the Work (including releases or waivers for all labor, services, material and equipment for which a lien or claim could be filed) have been obtained and that all payrolls, material and equipment bills and other indebtedness connected with the Work for which Owner or its property may be responsible have been paid or otherwise satisfied. In the alternative, Contractor may provide Owner with an indemnification agreement indemnifying Owner against all such liens and claims.



6.9 Completion of Work. Contractor shall complete the Work as soon after the date of Substantial Completion and Acceptance as practicable, but in no event later than forty-five (45) days after such date, unless extended as provided herein. Subsystems, or major Components may be Commissioned and tested individually as they are ready for service.

6.10 Notice of Final Completion of Work. When Contractor believes that Final Completion of Work of the Facility has occurred and the Performance Guarantees as described in Exhibit B and Article 7 have been successfully demonstrated as provided in Article 7, or the provisions of Article 7 have otherwise been met, then, Contractor shall deliver to Owner the Notice of Final Completion of Work.

6.11 Certificate of Substantial Completion and Acceptance and Certificate of Final Completion of Work

(a) Certificate of Substantial Completion and Acceptance
Owner shall, within ten (10) days after issuance by Contractor of the Notice of Substantial Completion and Acceptance, review and inspect the Facility and, either (a) issue a Certificate of Substantial Completion and Acceptance and, after the Performance Guarantees as described in Exhibit B and Article 7 are demonstrated, pay the outstanding balance of the retention less a reasonable amount, to be mutually agreed, for the value of the outstanding Punch List Items, but in any event retention shall be paid in full not later than 90 days from Substantial Completion and Acceptance, provided delays are outside of Contractor's control, or (b) if good cause exists for doing so, disapprove the Notice of Substantial Completion and Acceptance in writing, with a detailed explanation of the reasons for such disapproval.

(b) Certificate of Final Completion of Work
Owner shall, within ten (10) days after issuance by Contractor of the Notice of Final Completion of Work, review and inspect the Facility and, either (a) issue a Certificate of Final Completion of Work, or (b) if good cause exists for doing so, disapprove the Notice of Final Completion of Work in writing, with a detailed explanation of the reasons for such disapproval.

6.12 Extensions. The dates of Substantial Completion and Acceptance and Final Completion of Work shall be extended: (a) upon the occurrence of a Delaying Event, (b) upon the issuance of a Change Order requiring extension of the schedule, executed in accordance with the procedures set forth herein, and (c) for delays caused by the failure of Owner to perform its obligations under this Agreement. In the event an extension of the date of Substantial Completion and Acceptance or Final Completion of Work is required by the provisions of this Article, the parties hereto shall immediately negotiate in good faith to determine the appropriate length of the extension and the effect, if any, on the Contract Price and the warranties. If the parties hereto are unable to agree during such good faith negotiations, the matter shall be resolved as provided in Article 14. Disputes Resolution herein.



10 - Commission and Supply Proposal

ARTICLE 7

Joint Verification Test, Reliability Test Demonstration of Performance Guarantees, and Substantial Completion and Acceptance

7.1 Joint Verification Test. The Joint Verification Test will demonstrate that the Facility meets the guaranteed performance specified in the attached Exhibit B.1 The Joint Verification Test shall be performed in accordance with ES-1972, Level 1 prior to 250 hours of gas turbine engine hours after delivery to the site, and will be deemed to have been successfully passed if not completed within 750 cumulative engine operating hours from delivery excluding delays due to inability of Contractor to meet the required performance.

If the equipment provided hereunder does not meet the guaranteed performance specified in Exhibit B.1 to this Agreement in accordance with ES 1972, level 1, (Exhibit E - ES-1972 Site Test Specification), as demonstrated by official performance tests, Contractor will effect changes, alterations and/or modifications to achieve the guaranteed minimum performance. Such changes, alterations and/or modifications and successful demonstration of performance shall be initiated and completed by Contractor within a reasonable period of time. Contractor will base its decisions for such alterations upon the results, data and operating characteristics of the equipment, and will inform Owner of the work to be done before proceeding with any appreciable alterations. Contractor reserves the right to make any such changes, alterations or modifications deemed necessary, and Owner will provide full cooperation required to facilitate the work at minimum cost to Contractor.

Upon successful demonstration, Contractor's obligation regarding guaranteed performance specified in Exhibit B.1 to this Agreement is deemed met. In the event testing cannot be conducted within the time specified, unless the parties mutually agree to extend such time period, for any reason other than the fault or negligence of Contractor, then Performance Guarantees shall be deemed met, provided however, if testing cannot be conducted within the time specified, due to a Delaying Event which is not caused by or at the direction of Owner, the parties may negotiate the testing as a Change Order as provided herein.

7.2 Reliability Test. Contractor offers to perform a reliability test for 24 hours for each unit to a minimum of 100% of on line availability. If a unit trips or is shutdown prior to reaching 24 hours of continuous running for any reason associated with Contractor's scope of supply, Contractor will correct (e.g. adjust, repair, replace) the Facility as appropriate and re-run the 24 hour test. This process will be repeated until the reliability test is satisfied for each unit. If a unit trips or is shutdown prior to reaching 24 hours of continuous running due to problems not associated with Contractor's scope of supply, Owner shall pay for Contractor's additional time to re-run the 24 hour test. It is agreed that Contractor is permitted to run the 4 hour performance test within the 24 hour reliability test. If all three cogen units are not



available, through no fault of Contractor, for concurrent 24 hour reliability testing, the price for the reliability testing will be increased to a maximum of \$5,000/day for each additional 24 hr test period.

7.3 Noise Guarantee. The Noise Guarantee specified in the attached Exhibit B.2 shall be in accordance with Exhibit B.2 and will be deemed to be met upon submittal of designs certified by a Registered Engineer to not exceed ratings specified and to be made available prior to installation.

7.4 Emissions Test. Contractor's obligations hereunder for the Emissions Guarantee are subject to Owner operating the equipment in accordance with manufacturers' instructions and Contractor's air and fuel quality specifications. Emissions testing, by others, shall be conducted within 30 days of the Joint Verification Test. If testing is not accomplished within such 30 days, and should there be any question over the Facility not meeting the Emissions Guarantee in accordance with Exhibit B.3, Owner must notify Contractor in writing. Contractor will respond within a reasonable time after notification setting up a mutually agreed date for emissions testing, to be paid for by Owner, and during which Contractor personnel must be present. If after such testing Contractor agrees emissions are greater than the Emissions Guarantee, then Contractor will correct (e.g. adjust, repair or replace) the Facility as appropriate and so that it falls within the Emissions Guarantee. If it is found that the Facility is in compliance with the Emissions Guarantee, then Owner will pay Contractor, at its standard rates, for the services performed and attendance by Contractor personnel during testing. Contractor's sole obligation and liability should the equipment not meet the Emissions Guarantee is to correct the equipment supplied hereunder so that it meets the Emissions Guarantee. Contractor shall make such corrections within a reasonable period of time.

shall
done in
accordance
with Method
9 and
Method 2
of FD/T
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F)

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7.5 Substantial Completion and Acceptance. At this point:

(a) The Contractor will have completed essentially all construction and all components of the Facilities will have been installed in accordance with the drawings and specifications, including any approved extra Work and Changes.

(b) All known defects which materially affect operations will have been remedied.

(c) Loose materials will have been removed from all lines, by flushing or other means, and from all vessels.

(d) All balance of plant code pressure equipment will have been hydrostatically or pneumatically tested, either in the vendor's shop or in the field, in accordance with applicable codes or purchase specifications.

(e) Sprinkler systems, if applicable, including heads, will have been tested and, where called for, the system will have been charged.



(f) Fired heaters and boilers will have been hydrostatically or pneumatically tested. All non-operating pre-firing checks will have been made in accordance with manufacturer's instructions. Operation of registers and dampers will have been checked and the position of the indicators will have been verified.

(g) All rotating machinery, and all drivers will have been cold-aligned, greased, packed and lubricated; motor rotation will have been checked; couplings will have been assembled, aligned and lubricated, and guards installed.

(h) The gas turbine generator set manufactured by Contractor shall be set and leveled, the gas turbine and generator cold aligned, on-skid lube oil system flushed and filled with oil, electrical terminations verified and tested for continuity, turbine control panel energized and checked for operation and all other mechanical systems checked per Contractor's procedures.

(i) Instruments will have been installed, loop checked, calibrated and such non-operating checks made as are necessary to assure operability in the manner required for the process application. Instrument air lines and wiring will have been checked for correct hook-up. All lines will have been leak-tested. Orifice plates will have been checked for correct bore diameter. The diameters will have been stamped on the handles and the plates hung on flanges, ready for the plant to install after completion of flushing operations.

(j) Relief valves will have been installed. Prior to this, they will have been checked by the supplier in the supplier's shop; and in the Owner's instrument shop at Owner's expense.

(k) Piping will have been hydrostatically or pneumatically tested in accordance with the piping specifications. Special treatment, such as chemical cleaning, will have been completed, as required by the drawings or specifications. Suction screens will have been installed; test blinds removed; and spring supports, anchors and guides checked for removal of all shipping and erection stops and for correctness of cold settings.

(l) The electrical system will have been installed and tested in accordance with and to the extent required by the electrical and instrument specifications. Relays will have been set.

(m) Painting and insulation will have been completed to the extent necessary to permit the start of Commissioning and/or water batching. Minor work, such as painting, insulation, etc., which the parties agree is not necessary for start-up can be completed later as Punch List items.

(n) All inert packing and bed support materials will have been installed.



(o) Refrigerants and antifreeze will have been installed.

(p) Valves will have been lubricated and packed.

(q) Temporary construction facilities will have been removed to the extent necessary to permit the start of Commissioning.

(r) The parties will have agreed, in writing, that start-up may begin in a safe and practical manner. Owner may appoint a representative to witness all tests referred to above, or Contractor shall provide Contractor's standard documentation to verify all tests are completed. In the event that any equipment fails to meet any such test, Contractor shall perform such Work as may be necessary and shall repeat such tests until all requirements of such tests are met.

ARTICLE 8

Title and Risk of Loss

8.1 Title. Contractor warrants and guarantees that title to all Work, materials and Facility equipment will pass to Owner free and clear of all liens, claims, security interests or encumbrances derivative through Contractor or any of its Subcontractors and that no Work, materials or Facility equipment will have been acquired by Contractor and passed to Owner subject to any agreement by Contractor under which an interest therein or encumbrance thereon is retained by any person or entity.

8.2 Materials, Supplies and Facility Equipment. Title to Contractor's manufactured items (e.g. the turbomachinery and related components) will pass to Owner upon shipment ex-works from Contractor's manufacturing facility. Title to all other materials, supplies and Facility equipment shall pass to Owner at the time of Substantial Completion and Acceptance. Contractor shall execute and deliver to Owner all appropriate instruments necessary to transfer title to Owner.

8.3 Risk of Loss. Notwithstanding which party has title, the risk of damage to or loss of any material, equipment, supplies or other Facility property, whether stored on or off the Site, shall remain with Contractor until the issuance of the Certificate of Substantial Completion and Acceptance. All damage, injury or loss to any Facility property, occurring either before or after such date, that is caused by the negligence of Contractor, its Subcontractors, any person directly or indirectly employed by them, or any person for whose acts they may be liable, shall be remedied by and at Contractor's sole expense, to the extent that such damages are apportioned to Contractor. Contractor shall ensure that all Facility components are packed and protected in a suitable manner, in accordance with Contractor's standard practices and procedures, for transportation to the Facility Site and for protection against loss or damage until erection.



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ARTICLE 9

Warranty

9.1 General. Contractor hereby warrants to Owner that:

(a) all materials and equipment furnished under this Agreement shall conform in all material respects to the Standards of Design and Codes, drawings and descriptions as set forth in this Agreement;

(b) all materials and equipment originally furnished under this Agreement shall be of good quality, new and unused, except that without otherwise limiting Contractor's warranties or guarantees, used equipment may be furnished if Contractor first obtains Owner's consent thereto;

(c) all Services shall be performed in accordance with the drawings and specifications, in a good and workmanlike manner, in conformity with the applicable Standards of Design and Codes prevailing at the time the Work is performed or as otherwise specified in this Agreement; and

(d) when complete, the Facility will be free from improper workmanship and defective materials and shall conform with the design of the Facility in all material respects.

9.2 Contractor Manufactured Items. As to Contractor manufactured items within the scope of Work (e.g. the turbomachinery and related components), Contractor agrees to correct by repair or replacement (as Contractor elects) any part or component that proves to be defective in material and workmanship within twelve (12) months after the date that the Facility successfully passes the Joint Verification Test, or twenty four (24) months from delivery whichever period shall first expire, provided:

(a) That any defective part or component is returned to Contractor's parts center in accordance with Contractor's standard warranty claim, transportation prepaid, and

(b) Examination of such part or component by Contractor confirms the existence of such a defect.

All replacement parts and repaired parts are guaranteed through, but not beyond, the original Warranty Period.



9.3 Other Items of Work. Contractor further agrees to assist Owner in obtaining, and enforce any warranty of any Subcontractor or manufacturer of any major Component part (e.g. boiler or heat recovery unit, generator, switchgear, fuel gas compressor) not manufactured by Contractor during the period of applicable warranty for that Component. All major Components will be purchased by Contractor with a minimum warranty period of twelve (12) months from that Component's start-up or twenty four months (24) from delivery which ever occurs first. Contractor shall obtain all written warranties and equipment manuals and deliver them to Owner.

9.4 Detailed Design. Contractor hereby warrants that the Detailed Design shall be free from errors and omissions that materially affect the performance of the Facility, and is consistent and complies with all material federal, state and local agency requirements in effect as of the date of this Agreement, except requirements of Major Permits which are the responsibility of the Owner hereunder. Contractor hereby warrants the Detailed Design to be free from such errors and omissions for a period of twelve (12) months after the date that the Facility successfully passes the Joint Verification Test. If any such Work proves to be defective during such period of time, Contractor agrees to correct and reperform such defective design work and affected portions of the Work requiring correction at no cost to Owner. As used in this paragraph, "Detailed Design" shall mean the design of the Facility structures, electrical interconnection, process design including Facility performance design, and other elements of the detailed system design, but not including any working component thereof.

9.5 Extent of Warranty. Contractor's sole liability and responsibility and Owner's sole and exclusive remedy, with respect to this warranty shall be limited to the remedies set forth in this Article 9. All such remedies shall be subject to the limitations of Article 9.7 below. Contractor's warranty under this Article 9 does not extend to any damage caused by Owner's misuse, negligence, failure to follow operating instructions, operation or condition of service more severe than specified, failure to promptly notify Contractor of any defective Work, or any repairs, adjustments, alterations, replacements or maintenance which may be required to the Facility as a result of corrosion, erosion or wear and tear in the operation of the Facility. Owner shall allow Contractor to make such reasonable tests or perform such remedial services as Contractor may deem appropriate. However, Contractor shall use its best efforts to make such tests or perform such remedial services promptly and in such a manner and at such time so as to minimize downtime or Plant disruption to Owner. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES WITH RESPECT TO THE WORK, EXPRESS OR IMPLIED AND WHETHER OR NOT BASED ON STATUTE OR OTHERWISE, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. EXCEPT AS EXPRESSLY STATED HEREIN.

Nothing in this Article 9 shall affect Contractor's obligations under Article 7 to meet Guaranteed Performance as specified in the attached Exhibit B.



9.6 No Special or Consequential Damages. Notwithstanding any contrary provisions contained in these Terms and Conditions, neither party, nor their affiliates, shall have any liability to the other party whatsoever for any special, indirect or consequential loss, commercial injury or damages such as, but not limited to, loss of profit or production or loss by reason of Facility shutdown, delay, use or any other cause, whether in contract, negligence or any other theory of liability.

9.7 Limitation of Liability. Notwithstanding any contrary provisions contained in these Terms and Conditions, the liability of Contractor, its affiliates, agents, employees, Subcontractors and suppliers with respect to any and all claims arising out of the performance or nonperformance of obligations in connection with the design, manufacture, sale, delivery, storage, erection or use of the Work or the rendition of other services in connection therewith, whether based on contract, warranty, tort (including negligence), strict liability or otherwise shall not exceed in the aggregate a sum equal to the Contract Price. No warranty or indemnity claim shall be asserted against Contractor, its agents, employees, Subcontractors or suppliers, unless the injury, loss or damage giving rise to the claim is sustained prior to the expiration of the period of applicable warranty or other period specified, if a time period is specified, in these Terms and Conditions, and no suit or action thereon shall be instituted or maintained unless it is filed for Arbitration as provided for herein (or where Arbitration is not mandated by these Terms and Conditions, in a court of competent jurisdiction) within the later of one year after the expiration of such warranty or other period provided for herein or two (2) years after the occurrence of the injury, loss or damage.

ARTICLE 10

Indemnification

10.1 Contractor warrants that the manufacture, purchase, use or sale of goods purchased hereunder do not infringe or contribute to the infringement of any letters patent, trademark or copyright granted by the United States of America or by any foreign country, and agrees to indemnify and save harmless Owner, its successors, assigns, customers and users of the goods, against any claim, demand, loss and costs including attorney's fees arising out of such infringement; and after notice Contractor agrees to appear and defend, at its own expense, any suits at law or in equity arising therefrom. Contractor further agrees to defend, indemnify and save Owner, its officers, directors, employees, agents, contractors and subcontractors (Owner's Indemnities) harmless from and against any claim, demand, loss and cost, including attorney's fees, arising out of (i) injury (including death) to any person (including Contractor's employees) or (ii) any third party property damage occasioned by any wilful misconduct or negligent act or omission of Contractor or any of its directors, officers, employees, agents, contractors or subcontractors in connection with its obligations under the purchase order to which this provision applies, or (iii) until Final Completion any act or omission of Contractor or its affiliates or anyone acting on its behalf in connection with or incident to these Terms and



Conditions and the Work to be performed by Contractor hereunder to the extent caused by Contractor's negligence, except to the extent caused by the negligence of Owner and except for any loss or injury arising out of any maintenance, operation, or testing or any other work performed by persons or entities other than Contractor or any of its subcontractors, agents, or suppliers. The employees, subcontractors and vendors of Contractor shall not be deemed to be acting on Owner's behalf for purposes of this Article 10. This Article 10 shall survive termination, cancellation and completion of this Agreement and shall be applied to the full extent permitted by law.

ARTICLE 11

Insurance and Bonds

11.1 Insurance by the Contractor. Prior to commencing any activities at the Facility site and through the date of issuance of a Certificate of Final Completion, Contractor shall procure, at its own expense, and maintain in full force and effect with responsible insurance carriers authorized to do business in the state of Florida, with a Best rating of "A-IX" or better (except for policies underwritten by Lloyds of London and approved English companies acceptable to Owner), the insurance coverage as set forth herein.

Further, the Contractor shall require its Subcontractors that will enter on to the Facility site to also carry insurance in compliance with Article 11. and to name the Contractor and Owner as additional insureds.

11.2 Contractor Coverage. Contractor shall procure and maintain the following insurance:

11.2.1 Builder's All Risk Insurance: Project specific Builder's All Risk Insurance on an "all risk" basis including but not limited to coverage against damage or loss caused by flood, boiler and machinery, fire, lighting, storm, vandalism, and theft, including coverage during acceptance testing. Such insurance shall be on a "completed value" form with no periodic reporting requirements insuring the full replacement value of the Facility and providing coverage for removal of debris and coverage for foundations and other property which may be stored below ground and is part of the Facility. The deductible for the Builder's All Risk insurance shall not be more than \$250,000. The insurance shall include Subcontractors as additional insured. The Owner shall be added as a Loss Payee to the extent of its interest.

11.2.2 Workers' Compensation Insurance. Workers' Compensation shall be provided in such amounts as required by state law, including without limitation employer's liability insurance for all employees of Contractor in an amount of \$2,000,000 per occurrence including an all states endorsement and longshoremen's and harbor workers' compensation act insurance.



11.2.3 Commercial General Liability Insurance. Commercial General Liability Insurance shall be provided against claims for personal injury (including bodily injury and death) and property damage. Such insurance shall provide coverage for products and completed operations (which coverage shall remain in effect for a period of at least three years after the Final Acceptance date); blanket contractual liability coverage; explosion, collapse and under ground coverage; broad form property coverage; and personal injury coverage. Such insurance shall contain a \$2,000,000 minimum limit per occurrence for combined bodily injury and property damage and a \$4,000,000 aggregate annual limit. A maximum self insured retention of \$2,000,000 General Liability and \$5,000,000 Products Liability coverage shall be permitted.

11.2.4 Comprehensive Auto Liability Insurance. Comprehensive Automobile Insurance against claims of personal injury (including bodily injury and death) and property damage, covering all owned, leased, non-owned and hired vehicles used in the performance of Contractor's obligations under this Agreement. Such insurance shall contain a \$2,000,000 minimum limit per occurrence for combined bodily injury and property damage and containing appropriate "no fault" insurance provisions wherever applicable.

11.2.5 Excess Liability Insurance. Excess Liability Insurance on an occurrence basis pursuant to a policy containing coverage reasonably acceptable to Owner and covering claims in excess of the underlying insurance described in Articles 11.2.2, 11.2.3 and 11.2.4, with a limit that brings the total amount of primary and excess coverage to a minimum of \$25,000,000 per occurrence and in the aggregate.

11.3 Certificates and Cancellations. Contractor shall deliver to Owner certificates of insurance evidencing the coverage specified in Article 11.2 at least 30 days prior to entering on to the site to begin work and at least 10 working days prior to any renewal thereof.

11.4 Losses. Contractor shall promptly notify Owner in accordance with Owner's Sight Safety Requirements of the occurrence of any incident which may result in a liability loss or claim, or any incident involving personal injury to Contractor's or any Subcontractor's personnel, or to any third party. Additionally, Contractor will notify Owner of any property damage to the Facility including damage which is covered by the Builder's All Risk policy that may result in a damages estimate to exceed \$125,000. Contractor will also notify Owner of any incident involving property damage or personal injury that may impact the completion schedule of the Facility.

11.5 Insurance Drawdown. In the event of a loss covered by the Builder's All Risk insurance, Owner and Contractor will cooperate to negotiate with the insurance company an insurance settlement plan to repair or replace the Facility covered by the policy. The Contractor will proceed accordingly to repair or replace the Facility as agreed and shall be paid by the insurance company for the work done, less any deductible amount.



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11.6 Owner's Right to Insure. In the event the Contractor fails to procure and maintain the insurance coverage required by this Article 11, Owner, upon thirty days prior written notice to Contractor may take out the required policies of insurance and pay the premiums. All amounts so paid by Owner shall become an obligation of Contractor to reimburse the Owner, and Contractor shall forthwith pay such amounts to Owner. In the event the Contractor's policies will expire within the aforementioned 30 day notice period, then the requirement for Owner to give 30 days notice shall not apply.

11.7 Non-waiver. Failure of Contractor to comply with the foregoing insurance requirements shall in no way waive the Contractor's obligations or liabilities under this Agreement or the rights of the Owner hereunder against the Contractor.

11.8 Owner's Requirements. Contractor shall comply with such additional insurance requirements as may be reasonably be required by the Owner. Contractor agrees to investigate the price and availability of a Commercial Liability policy for an amount of \$5,000,000 and, upon Owner's request, \$25,000,000, that would include the requirement to name the Owner as an additional insure and insurers to waive their right of subrogation. Any additional cost of arranging any additional insurance shall be reimbursed by Owner to Contractor and this Article shall be revised to include such coverage.

11.9 Performance Bonds. Contractor shall, if requested by Owner, at Owner's expense, furnish a payment and performance bond to secure the completion of the Facility in accordance with this Agreement.

ARTICLE 12

Delays, Force Majeure and Unforeseen Site Conditions

12.1 Delays. Contractor shall not be liable for any delay in performance, any non performance, or any other deviation in performance of Contractor's obligations, nor for any loss or damage to the Work supplied or constructed hereunder, to the extent caused by any Delaying Event or an event of Force Majeure, and the time for performance under this Agreement shall be extended as necessary, without penalty or liability for any delays or damages, for a period determined in accordance with Article 12.2 below.

12.2 Notice of Delaying Event. Within five (5) business days after the occurrence of a Delaying Event, Contractor shall give written notice thereof to Owner specifying the nature and, if determinable, the probable duration of the Delaying Event. Within ten (10) business days following any such notice, Contractor shall deliver a supplemental notice that (a) describes the Delaying Event in detail, (b) states the particular manner in which the Delaying Event has delayed Contractor's performance hereunder and (c) states the particular date to which Contractor requests the date of Substantial Completion and Acceptance or Final

Completion of Work be extended solely by reason of the Delaying Event. Following receipt of any written notice of a Delaying Event, Owner and Contractor shall immediately attempt to determine what fair and reasonable extension of the date of Substantial Completion and Acceptance or Final Completion of Work, if any, has been made necessary solely by reason of the Delaying Event and shall then amend this Agreement in writing to reflect such extension. If the parties are unable to agree, the matter shall be submitted to arbitration pursuant to Article 14 hereof.

12.3 Force Majeure.

(a) A material delay in or total or partial failure of performance of either Contractor or Owner shall not constitute default, suspension or termination of this Contract or give rise to any claim for damages hereunder if and to the extent such delay or failure is caused by a Force Majeure occurrence, provided that the affected party gives written notice within seven (7) days of the occurrence to the other party of the circumstances constituting the occurrence, the obligation or performance that is thereby delayed or prevented, the anticipated length of such delay and the measure to be taken to minimize the effects thereof. The term "Force Majeure shall mean an event, condition or circumstance, or a combination thereof, demonstrably beyond the reasonable control of the party affected and not occasioned by such party's negligence, falling within one or more of the following categories:

- (i) natural calamities such as fires, floods, earthquakes, storm, tornado, cyclone, tsunami, typhoons, hail, explosions, lightning, epidemic or plague;
- (ii) other unusually severe adverse weather conditions that could not reasonably have been anticipated in the location in which they were encountered;
- (iii) political events, including without limitation any act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, insurrection or act of terrorism and any strikes, labor disputes, or other labor disturbances or slow-downs that are widespread or nationwide;
- (iv) riot, commotion, disorder or labor unrest or strike, unless restricted to the employees of Contractor or Subcontractors employed performing the Work;
- (v) other events wholly beyond the control and without the fault or negligence of both (1) the party claiming Force Majeure, and (2) any Subcontractor, sub-Subcontractor, agent, employee or other person for whom the party claiming Force Majeure is responsible.

(b) Notwithstanding anything in this Article 12.3 to the contrary, mechanical or electrical breakdown or failure of any machinery or plant owned or operated by the Contractor or Subcontractors, including Contractor's equipment, due to the manner in which such



machinery or plant has been operated shall not itself constitute Force Majeure. Any delays resulting from and any Change in Law are expressly excluded from this Article 12.3 and covered by Article 4.13 "Change in Law", hereof. The party claiming Force Majeure shall promptly take such action as it may reasonably and lawfully initiate to remove, relieve, or other mitigate, in whole or in part, either the Force Majeure occurrence or its direct or indirect effects.

(c) A Force Majeure delay as defined herein shall be considered an excusable delay and shall entitle the party experiencing such delay a time extension in accordance with Article 12.2 hereof.

(d) In addition to the foregoing, Force Majeure shall include any act, event or occurrence beyond a party's reasonable control, despite its reasonable efforts to prevent, avoid, delay or mitigate such acts, events or occurrences, including, without limitation: acts of God; acts of criminals or the public enemy; war; riot; official or unofficial acts, orders, regulations or restrictions of any foreign or domestic governmental agency; strikes or labor difficulties involving employees of Contractor or any other party; failure, shortage, or delay in Contractor's usual sources of labor or material supply; but not including financial inability to pay. Reasonable efforts to prevent, avoid, delay or mitigate a labor strike or work stoppage shall not include the obligation to accede to the demands of the employees or representatives of employees.

12.4 Unforeseen Site Conditions. If Contractor, in the course of performing the Work, discovers (a) sub-surface or latent physical conditions at the Site differing materially from those indicated in documents provided by Owner to Contractor, or (b) unknown physical conditions at the Site of any unusual nature differing materially from those ordinarily encountered in the performance of work of the character provided for in this Agreement, then such shall be deemed a Delaying Event and Contractor shall inform Owner and shall submit to Owner a Change Order pursuant to Article 2.2 hereof.

12.5 Unanticipated Major Permit Requirements. If Contractor, in the course of performing the Work, and as a result of conditions imposed by any Major Permit or other regulatory action within Owner's scope and not known or disclosed to Contractor at the time of execution hereof, becomes aware of specifications or conditions affecting the Work and differing in any material way from those indicated in documents provided by Owner to Contractor, then such shall be deemed a Delaying Event and Contractor shall inform Owner and shall submit to Owner a Change Order pursuant to Article 2.2 hereof.

ARTICLE 13

Termination



13.1 Termination by Owner for Convenience. Owner may terminate the Work being performed by Contractor under this Agreement for any reason by delivering to Contractor a written notice of termination. Contractor shall use its best efforts to stop all Work on the date specified in such notice. Owner shall pay Contractor the sum of (i) a portion of the unpaid Contract Price for all executed Work, plus (ii) reasonable termination and cancellation costs for the turbomachinery as follows:

CALENDAR DAYS		TERMINATION CHARGE STRAIGHT LINE % OF TURBOMACHINERY PRICE
FROM	TO	
Order	15 ARO	5
16 ARO	30 ARO	5-10
31 ARO	60 ARO	10-20
61 ARO	61 BSD	20-40
60 BSD	31 BSD	40-70
30 BSD	Delivery	100

ARO: After receipt of Order authorization to proceed with manufacturing
 BSD: Before scheduled delivery

Except where termination charges are designated as one hundred percent (100%) of the Order, the foregoing schedule assumes all goods, in whatever stage of completion, are retained by Contractor.

(iii) For the balance of plant portion of the Work, the Owner shall pay the sum of (i) the portion of the unpaid Contract Price for all executed Work, plus (ii) reasonable termination and cancellation costs, overhead and profit.

The foregoing assumes all goods, excluding turbomachinery, in whatever stage of completion, for which Owner has paid termination/cancellation charges will be delivered to Owner. At Owner's sole option, the Owner and Contractor shall negotiate in good faith the disposition of the goods.

13.2 Termination by Owner for Cause. Owner may cancel all of the unperformed portion of this Agreement at no cost to Owner if (a) Contractor fails to make progress as to endanger performance of this Agreement and does not cure such failure (or attempt in good faith to cure such failure) within a period of thirty (30) days after written notice from Owner specifying such failure or (b) if Contractor materially breaches any of the terms of this Agreement. In any cancellation for cause hereunder, Owner may take over the unfinished Work and related



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components) and prosecute the same to completion by contract or otherwise and reimburse Contractor for work completed to date.

13.3 Termination by Contractor. If the Work is stopped or delayed, in whole or substantial part, for a period of ninety (90) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of Contractor, then Contractor may, upon seven (7) days written notice to Owner, terminate this Agreement and Owner shall promptly pay Contractor the sum of (a) a portion of the unpaid Contract Price for all executed Work, plus (b) reasonable termination and cancellation costs, overhead and profit.

ARTICLE 14

Disputes Resolution

14.1 Procedure. In the event a dispute arises between the Owner and the Contractor regarding the application of interpretation of any provision of this Agreement, including disputes regarded as such by only one of the parties, the aggrieved party shall promptly notify the other party to this Agreement of the dispute within ten (10) days after such dispute arises. If the parties shall have failed to resolve the dispute within fourteen (14) days after delivery of such notice, each party shall, within five (5) days thereafter, nominate a senior officer of its management to meet at the Site, or at any other mutually agreed location, to resolve the dispute. Should the parties be unable to resolve the dispute to their mutual satisfaction within sixty (60) days from the date of the original notice, each party shall have the right to enforce any and all rights available under the Agreement.

14.2 Arbitration. If no settlement is achieved within sixty (60) days, either party may submit its claim to a tribunal of three arbitrators composed according to the rules of the Rules of The American Arbitration Association. The number of Arbitrators shall be three, with each party nominating one arbitrator and the two arbitrators nominating the third. If all arbitrators are not nominated within sixty (60) days of the written notice of arbitration, the administrator shall upon the written request of either party appoint the remaining arbitrator(s) and appoint the presiding arbitrator. The place of arbitration shall be Philadelphia, Pennsylvania, unless the parties mutually agree to another location within sixty (60) days of the filing of the notice of arbitration, or the arbitrators unanimously agree to another location. All arbitration proceedings shall be conducted in the English language. Each party irrevocably submits to the exclusive jurisdiction of such tribunal on any disputes arising under or out of this Agreement and irrevocably waives any objections relating to forum non conveniens that it may have. The tribunals decision shall be final, and the parties agree that such award shall be in lieu of any other remedies. The parties agree that such award may be enforced against the parties to the arbitration proceeding or their assets wherever they may be found and that a judgement upon the arbitral award may be entered in any court of competent jurisdiction.



14.3 Continuation of Work. Prior to Final Completion of Work, pending final resolution of any dispute, the Owner and the Contractor shall continue to fulfill their respective obligations hereunder to the extent not disputed in good faith. Upon resolution of the dispute, the unpaid or overpaid balance plus interest at the rate of 1½ percent per month shall be either paid to Contractor or credited to the Owner.

14.4 Governing Law. Except as provided in Article 14.1 above, these Terms and Conditions shall be construed in accordance with and governed by the laws of the Commonwealth of Pennsylvania.

ARTICLE 15

General Provisions

15.1 Amendment. After execution, these Terms and Conditions and all matters incorporated herein by reference may only be modified, amended or supplemented by an instrument in writing executed by Owner or Owner's Representative and Contractor or Contractor's Project Manager.

15.2 Assignment by Contractor. This Agreement shall not be assigned by Contractor without the prior written consent of Owner, which consent shall not be unreasonably withheld.

15.3 Assignment by Owner. This Agreement shall not be assigned by Owner, without the prior written consent of Contractor, which consent shall not be unreasonably withheld; provided, however, that Owner may not by such assignment be relieved of its obligations under this Agreement.

15.4 Attorneys' Fees. If the parties resort to arbitration or legal action for the enforcement or interpretation of this Agreement, or for damages on account of a breach hereof, the non-prevailing party in any such arbitration or action shall pay to the prevailing party all costs of suit or arbitration incurred, plus actual attorneys' fees.

15.5 Binding Effect. These Terms and Conditions shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns.

15.6 Counterparts. These Terms and Conditions may be executed and signed in counterparts, each of which shall be deemed an original, and all of which shall together constitute one and the same Terms and Conditions.

15.7 Entire Agreement. These Terms and Conditions, including all items referenced herein and all Exhibits is expressly acknowledged to constitute the entire agreement between Owner and Contractor relating to the subject matter hereof and to supersede all prior written



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and oral agreements and undertakings and all contemporaneous oral representations or warranties in connection therewith. Neither Contractor nor Owner have made and do not make any representations or warranties, express or implied, except as specifically set forth, and Owner and Contractor hereby expressly acknowledge that no such representations or warranties have been made by the other party.

15.8 Headings. Headings or captions are merely for convenience and are not part of this Agreement and shall not in any way modify or affect the provisions of this Agreement.

15.9 Non-waiver. Except as expressly provided otherwise in this Agreement, the forbearance or delay of either party in exercising any rights hereunder shall not be deemed to be a waiver or release of any other rights which may subsequently arise unless expressly set forth in writing by such party.

15.10 Notices. Any notices, demands or requests required or which may be given hereunder to the respective parties shall be in writing and delivered personally or sent by or by facsimile, or by registered or certified mail, return receipt requested, as follows:

To Contractor: Solar Turbines Incorporated
 2200 Pacific Highway
 San Diego, CA 92101
 (Postal Address: P.O. Box 85376
 San Diego, CA 92186-5376)

 Attn: Vice President, International Operations
 Telephone: (619) 694-6694
 Facsimile: (619) 694-6141

To Owner: Air Products and Chemicals, Inc.
 Address: 7201 Hamilton Boulevard
 Allentown, Pa. 18195 - 1501
 Attn: Phil Spaeth
 Telephone: 610/481-8192
 Facsimile: 610/481-6218

Changes of address for notice shall be in compliance with this Article.

15.11 Records and Audits. Owner shall not have any audit rights with regard to the Contract Price.

15.12 Validity. If any term or provision of this Agreement should be held invalid or unenforceable, the parties to this Agreement shall endeavor to replace such invalid terms or



provisions by valid terms and provisions which correspond best to their original economic and general intentions. The invalidity or unenforceability of any term or provision hereof shall not be deemed to render the other terms and provisions hereof invalid or unenforceable.

ARTICLE 16

Definitions

The following words and terms shall have the meanings specified in this Article when used in this Agreement, unless a different meaning is apparent from the context. The meanings specified are applicable to both the singular and the plural and to the masculine and feminine forms.

16.1 "Battery Limits" shall mean the area limits within the Site for where the Facility will be constructed, except those portions of the Work consisting of interconnections, tie-ins and other isolated components located elsewhere, which limits are set forth in Contractor's Proposal.

16.2.1 "Certificate of Final Completion of Work" shall mean the written notification, issued by Owner pursuant to Article 6.11.(b), of Owner's determination that final completion of Work has occurred and the Work has been accepted.

16.2.2 "Certificate of Substantial Completion and Acceptance" shall mean the written notification, issued by Owner pursuant to Article 6.11.(a), of Owner's determination that Substantial Completion and Acceptance has occurred. The Owner shall not operate the Facility for beneficial use without Contractor's approval prior to this event.

16.3 "Change Order" shall mean a written order to Contractor, signed by Owner or Owner's Representative, authorizing an addition, deletion or revision in the Work or an adjustment in the Facility Schedule or any change to the Contract Price resulting therefrom.

16.4 "Commissioning" shall mean the inspection, adjustment and operational testing (not including Joint Verification Testing or reliability testing as specified in Article 7) by Owner prior to Substantial Completion and Acceptance of construction, with the assistance and support of Contractor of all of the various systems and subsystems that comprise the Facility leading up to and concluding with the issuance of the Certificate of Substantial Completion.

16.5 "Component" shall mean any and all systems, subsystems, assemblies, subassemblies, Materials and Equipment (including parts, instruments, pipes, valves, software and hardware), and every item of whatever nature, including all documentation related thereto, connected with the Facility and provided by Contractor under this Agreement.



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16.6 "Construction Aids" shall mean all materials, supplies, construction equipment, construction tools, field office equipment, field office supplies, scaffolding and form lumber, temporary buildings and facilities, and other items that are required for the construction of the Facility but which are not intended to become a permanent part of the Project.

16.7 "Contract Price" shall mean that price specified in Agreement that is the total amount payable by Owner to Contractor for the Work agreed to be performed hereunder.

16.8 "Contractor" shall mean Solar Turbines Incorporated, a Delaware corporation.

16.9 "Contractor's Project Manager" shall mean that individual designated by Contractor, pursuant to Article 4.3, who shall be authorized to receive Change Orders and to act on behalf of Contractor.

16.10 "Detailed Design" shall have the meaning set forth in Article 9.4.

16.11 "Delaying Event" shall mean any delay in performance, any non performance, or any other deviation in performance of Contractor's obligations occasioned by any event of Force Majeure, or by unforeseen site conditions or unanticipated Major Permit requirements as described in Articles 12.4 and 12.5 above, or caused by or at the direction of Owner.

16.12 "Facility" shall mean the cogeneration facility located within the Battery Limits and elsewhere at the Plant site as specified in Agreement, including all of the equipment, materials, apparatus, tools, supplies or other goods provided by Contractor or any Subcontractor which will comprise the Facility or any part thereof as more fully described in this Agreement.

16.13 "Facility Schedule" shall mean the Facility construction schedule of key dates and milestones for the timely completion of the Work set forth at Agreement, Exhibit C .

16.14 "Facility Start-Up" shall mean the preparation for and execution of all activities required for the start-up of the Facility to produce electricity on a continuous basis, starting with Substantial Completion and Acceptance.

16.15 "Final Completion of Work" shall mean the complete performance by Contractor of all Work on the Facility, including all Punch List items, in accordance with Article 6.10.

16.16 "First Beneficial Use" shall mean that point when the Facility is ready for commercial use by the Owner.

16.17 "Force Majeure" shall have the meaning set forth in Article 12.3.



16.18 "Fuel" shall mean the natural gas or other fuel to be utilized at the Facility, having the characteristics specified in Solar Turbines Incorporated Specification ES 9-98, current as of the date of this Agreement.

16.19 "Interconnection Facilities" shall mean all equipment and apparatus necessary to interconnect and deliver electricity from the Facility to the Owner's electrical system at the Point of Interconnection specified in Agreement.

16.20 "Joint Verification Test" shall mean those tests conducted at the conclusion of Commissioning of the Facility or individual components thereof, to confirm that the Component or Facility meets the Performance Guarantees. Joint Verification Tests are to be conducted in accordance with the specifications ES-1972, level 1 and Exhibit B.1.

16.21 "Major Permits" shall mean all necessary easements, rights of way, licenses, authorities and permits to build, own and operate the Facility, including, without limitation, all zoning and land use permits and conditional use permits, all building permits, all necessary licenses, authorities and permits obtained from environmental review agencies (including the Federal Energy Regulatory Commission, and any local, regional, or state air quality control board) including, without limitation, all authorities to construct and qualifying facility certificates.

16.22 "Materials and Equipment" shall mean all materials, supplies, apparatus, equipment and machinery required for the Facility to the extent they are included within the Work, including, without limitation, heavy-lifting equipment such as "A-frames," hoists, cranes and the like.

16.23 "Miscellaneous Equipment and Furnishings" shall mean maintenance tools, maintenance equipment, spare parts and laboratory and office furnishings and equipment all to the extent required to be supplied in accordance with the Work.

16.24 "Notice of Final Completion of Work" shall mean the notice by Contractor to Owner, given pursuant to Article 6.10, that Final Completion of Work has occurred.

16.25 "Notice of Substantial Completion and Acceptance" shall mean the written notice by Contractor to Owner, given pursuant to Article 6.5.

16.26 "Owner" shall mean Air Products and Chemicals, Inc.

16.27 "Owner's Representative" shall mean that individual designated by Owner pursuant to Article 5.6, who shall have the responsibility and authority to act on behalf of Owner with respect to all matters covered by this Agreement, including, but not limited to, authority to issue and approve Change Orders.



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16.28 "Plant" shall mean the Owner's plant and surrounding premises at which the Facility is to be constructed and with which the Facility is to be interconnected as provided for by this Agreement.

16.29 "Pre-Commissioning" shall mean the inspection, calibration, adjustment and static testing by Contractor of all of the various systems and subsystems that comprise the Facility.

16.30 "Proposal" shall mean Proposal HO6-812 by Solar Turbines Incorporated, including all of its Exhibits, as such Proposal and Exhibits now exist and as they may hereafter be amended in writing.

16.31 "Punch List Items" shall mean those items which must be completed by Contractor after the date of issuance of the Certificate of Substantial Completion and Acceptance, the completion of which will not interrupt, disrupt or interfere to any significant extent with the commercial operation of the Facility.

16.32 "Services" shall mean all the planning, architectural design, process design, engineering design and detailed engineering, procurement, construction, start-up, personnel training, performance testing and related services that are required of Contractor hereunder.

16.33 "Site" shall mean the area surrounding the Battery Limits, in which Owner has rights, as specified in Proposal.

16.34 "Standards of Design and Codes" shall mean the standards to which the construction of the Facility and the materials and equipment to be supplied shall conform, as set forth in Agreement.

16.35 "Subcontractor" shall mean any person, firm or corporation that provides under contract with Contractor the design engineering or labor and materials for some part of Contractor's obligation under the terms of this Agreement.

16.36 "Substantial Completion and Acceptance" shall mean the point at which all Pre-Commissioning work, start-up operations, Commissioning, less Joint Verification Testing, are completed and the Facility is ready to be turned over to the Owner for beneficial use.

16.37 "Terms and Conditions" shall mean the terms and conditions contained in Articles 1 through Articles 16 hereof inclusive.

16.38 "Work" shall mean all obligations, duties and responsibilities undertaken by Contractor for the design engineering, labor, materials, equipment and other services and incidentals and the furnishing thereof, as more fully described in this Agreement.



IN WITNESS WHEREOF, the parties, intending to be legally bound hereby, have caused this Agreement to be duly executed by their duly authorized representatives in duplicate original.

SOLAR TURBINES INCORPORATED

By: [Signature]

Title: Director, Power Generation
Sales & Marketing

Date: June 2, 1997

AIR PRODUCTS AND CHEMICALS, INC.

By: [Signature]

Title: Director, Project and Logistics Supply

Date: 30 May 1997



Exhibit A
PAYMENT SCHEDULE

\$150,000 with signed Letter of Commitment, due within 10 days by wire transfer, timely receipt of which prior to the execution of this Agreement is acknowledged by Solar by its execution of this Agreement.

Turbomachinery Payment Schedule:

\$121,900 due by wire transfer on or before April 10, 1997, timely receipt of which prior to the execution of this Agreement is acknowledged by Solar by its execution of this Agreement.

10% of the turbomachinery price invoiced upon mailing of turbomachinery mechanical installation and all interface drawings, anticipated to be on or before June 10, 1997.

30% of the turbomachinery price invoiced upon commencement of package assembly, anticipated to be on or before June 27, 1997.

55% or balance of the turbomachinery price invoiced upon notice of readiness for shipment from manufacturer's plant, anticipated to be on or before October 31, 1997, less 8% of the Contract Price retention beginning with invoices issued after November 1, 1997.

Balance of Plant Payment Schedule:

Progress Payment of \$46,100 due by wire transfer on or before April 16, 1997 for Engineering and Travel through April 10, 1997, timely receipt of which prior to the execution of this Agreement is acknowledged by Solar by its execution of this Agreement.

Prior to November 1, 1997, monthly progress for balance of plant for labor and material committed or in place will be billed on the tenth (10th) day of the ensuing month. Payments shall be payable Net 30 days from date of invoice, no retention is applicable.

Monthly progress payments for the balance of plant for labor and material committed or in place, less 8% of the Contract Price retention beginning with invoices issued after November 1, 1997.

Retention shall be paid upon issuance of the Certificate of Substantial Completion and Acceptance and after the Performance Guarantees as described in Exhibit B and Article 7 are satisfied, less a reasonable amount to be mutually agreed, for the value of the outstanding Punch List Items, but in any event, the retention shall be paid in full not later than 90 days



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after issuance of the Certificate of Substantial Completion and Acceptance, not including the Joint Verification Test, provided delays are outside of Contractor's control.



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Exhibit B
PERFORMANCE GUARANTEES

KJC: Airpro/contract 12
5/22/97
HO6-812/PD 5192



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Construction and
Supply Proposal

Exhibit B.1
TURBINE HEAT RATE, POWER OUTPUT, BOILER FUEL CONSUMPTION
GUARANTEES

Plant Performance Guarantees

KW Output (3 unit total)	13524 KW*
Turbine Heat Rate	11902 BTU/KW- Hr (LHV)
Boiler Fuel Consumption (3 unit total)	237.6 MMBTU/Hr (LHV)

This guarantee is based on the following site conditions:

Elevation	115 feet
Ambient Temperature	72 Deg. F
Relative Humidity	90%
Inlet Losses	4" Water
Exhaust Losses	10" Water

Natural gas fuel conforming to Solar Specification ES 9-98. Contractor agrees the Koch fuel specification supplied by Owner to Contractor in accordance with Exhibit H Koch Gateway Pipeline Company Fuel Specification, meets the requirements of ES 9-98.

Steam production of 270,000 lb/hr at 650 Deg F., 650 psig.
Boiler feedwater temperature of 230 Deg. F. at the deaerator by owner.

*Measured at generator terminals.



Exhibit B.2
NOISE GUARANTEE

The roof and wall insulation system for the cogeneration building shall result in a maximum rating of 75 dB (A), free field*, on a weighted average basis at approximately 3'-0" - or - from the wall and roof panel areas and end of the ventilation fans.

Lube oil fans on roof and closed double roll up doors shall be designed to not exceed maximum weighted average of 85 dB(A), free field.

Design of these systems shall be in accordance with good engineering practices with system designs certified by Registered Engineer to not exceed ratings specified.

* A "free field" is a homogeneous, isotropic medium in which the boundary effects are negligible over the frequency range of interest.



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Exhibit B.3
EMISSIONS GUARANTEE

Taurus 60 SoLoNox gas turbine total: (three units)

	ppmv +	tons/yr*
NOx	25	68.64
CO	50	83.61 (8.37 with CO catalyst)
UHC	25	22.14

+ Based on loads between 50% - 100%, gas fuel (LHV)

Duct Burner total: (three units)

	tons/yr*
NOx	106.41
CO	59.13 (5.94 with CO catalyst)
UHC	35.49

Fresh Air Firing each:

	tons/yr*
NOx	101.62
CO	45.12 (4.52 with CO catalyst)
UHC	28.5

* Based on 72 deg F ambient temperature



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Exhibit C
FACILITY MILESTONE SCHEDULE

KJC - Airprod Contract 12
5/22/97
H06-812/PD 5192



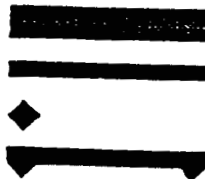
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Construction and
Supply Proposal

		Start	Finish	F I M I /	J J A I S I O I N I D J F I M I A I M
AIR PRODUCTS CO-GEN		2/28/97	3/31/98		
1	LETTER OF COMMITMENT	2/28/97	2/28/97	◆ 2/28	
	CONTRACT NEGOTIATIONS	2/28/97	3/30/97		
	CONTRACT AGREEMENT	3/31/97	3/31/97	◆ 3/31	
4	PRECONSTRUCTION ACTIVITIES	3/1/97	6/14/97		
6	IDENTIFY TIE-IN LOCATIONS / TIMING	4/1/97	6/14/97		
6	FINALIZE PLANT LAYOUT	3/1/97	4/26/97		
7	DESIGN PHASE	2/28/97	8/15/97		
8	P&ID, PLOT PLAN & ELECT. ONE LINE DRAWINGS	4/1/97	4/22/97		
9	SOIL ANALYSIS	3/22/97	4/12/97	◆ 3/22	
10	FINAL SITE CIVIL / FOUNDATIONS DESIGN	3/15/97	7/1/97		
11	AP APPROVAL OF P&ID, PLOT PLAN & ONE LINE	4/22/97	5/2/97		
12	COMPLETE DESIGN	2/28/97	8/15/97		
13	PROCUREMENT	3/1/97	12/15/97		
14	SELECT ENGINEERING CONTRACTOR	3/1/97	3/31/97		
15	SELECT CONSTRUCTION CONTRACTOR	6/30/97	8/25/97		
16	HRSG	4/1/97	10/31/97		
17	TURBINE MANUFACTURE	3/1/97	11/7/97		
	SWITCHGEAR / MCC	5/1/97	10/31/97		
18	INSTRUMENTS, VALVES & MISC. EQUIPMENT	6/1/97	12/15/97		
20	BUILDING - DESIGN AND FABRICATE	6/1/97	10/15/97		
21	CONSTRUCTION	3/31/97	3/15/98		
	AIR PERMIT TO CONSTRUCT - AP	3/31/97	4/1/97	◆ 3/31	
23	CIVIL / FOUNDATION COMPLETION - AP	7/9/97	9/16/97	◆ 9/16	
24	AWARD CONST. CONTRACT / MOBILIZE - S	8/10/97	9/30/97		
25	CONSTRUCTION ARCH / BLDG	10/1/97	2/15/98		
26	CONSTRUCTION - MECH / ELEC	10/1/97	3/15/98		
27	UTILITY TIE-INS & AVAILABILITIES	8/31/97	9/1/97	◆ 8/1	
28	SYNCHRONIZATION WITH UTILITY	2/1/98	2/2/98	◆ 2/1	
29	AIR PERMIT TO OPERATE - AP	12/23/97	12/24/97	◆ 12/23	
30	STARTUP AND COMMISSIONING	1/5/98	3/31/98		

AIR PRODUCTS
GULF POWER
TURBINES

Task
Progress
Milestone
Summary



Rolled Up Task
Rolled Up Milestone
Rolled Up Progress



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Exhibit D
SCOPE OF WORK

Work to include turnkey cogeneration facility as defined in Solar Turbines Proposal HO6-812 dated September 13, 1996.

Base facility includes three Solar Taurus 60, 5MW generator site supplied without enclosures and installed in a prefabricated metal building designed to meet environmental and noise specifications. The building will house the three (3) generator breakers and necessary 480 volt motor control centers for the facility. Each gas turbine will exhaust into a Heat Recovery Steam Generator (HRSG) designed for 90,000 PPH steam production at 650 PSIG and 650 degrees F.

Equipment and facilities shall be as detailed in Sections 3 through 7 of Solar's Proposal HO6-812.

• Base Proposal HO6-812:	\$10,000,000
• Additions to Scope from Solar letter of November 18, 1996 to T. S. Anthony, Gulf Power Company and Bill Johnson, Air Products as follows:	
1. Provide individual generators versus line up	Add \$ 22,000
2. Replace Bader relays with Bekwith relays	Add \$ 7,000
3. Add Schweitzer feeder relays, PTS, CTS	Add \$ <u>48,000</u>
Total this addition	
• Addition of Fresh Air Firing to two (2) of the HRSG units per Solar letter of February 11, 1997	Add \$ 267,933
• Additions to Scope from Solar letter of November 15, 1996:	
1. On line water wash added and water wash cart deleted for each engine at no additional cost	
2. One week of on-site training by a Solar instructor added at no additional charge.	
• Total Cost of Project including additions	\$10,344,933
	<u>x 0.975 discount</u>
Total Project Cost	\$10,086,310



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- Additions per meeting of March 11, 1997 with Solar, ERI and Air Products:
 1. Increase HRSG boiler tube thickness one gauge Add \$5,000/boiler= \$15,000
 2. Increase Steam Drum size to 54" diameter Add \$21,350/boiler= \$64,050
 3. Increase ERI standard platforms and ladders to include
 expanded metal grating sized for 200# loading Add \$2,000/boiler= \$ 6,000
 - Total this addition \$85,050

- Upgrade Fresh Air Firing motors to comply with Air Products
 specifications per Solar fax of March 27, 1997 Add \$9,985

- Grand Total \$ 10,181,345



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Exhibit E
ES-1972 SITE TEST SPECIFICATION

PBC

10-A


ES

Solar Turbines

A Caterpillar Company

SPECIFICATION

TYPICAL TEST AGENDA FOR FIELD TESTING OF GAS TURBINE DRIVEN GENERATOR SETS

Data Control Level 1
Release Stamp 

SPECIFICATION NO. ES 1972

ISSUED: 6/7/90; ERL 0259-1
(Date and PRD No.)

REVISION:
(Letter, Date and PRD No.)

Approved: ; PRD 13001-1

ATTENTION

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PBC

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SIGNATURE PAGE

Rev. Ltr/ PRD No.	Signature and Title	Date	Pages Affected
NEW	Prepared By:		
	F. M. Odom		
	Approved By:		
	R. A. Eimers		
	R. G. STansbury		
A PRD 13001-1	Prepared By: <i>[Signature]</i>		Complete Re-write
	Jerry Hammer		
	Approved By: <i>[Signature]</i> Rainer Lutz	3/24/97	
	Prepared By:		
	Approved By:		
	Prepared By:		
	Approved By:		
	Prepared By:		
	Approved By:		



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6	Calculation of Standard Flow of Gas Through an Orifice	8



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1.0 INTRODUCTION

Solar's performance guarantee is based on the factory acceptance test. The factory test allows the engine to be operated in steady, closely controlled conditions with redundant instrumentation, and is the best measure of engine performance. In some cases, a site test may be required to confirm the factory engine performance. Site tests can be performed with cooperation from both Solar and the customer, but the accuracy is less than the factory test. A tolerance will be determined based on the accuracy of the available instrumentation. The engine passes the field test if the performance is demonstrated within the tolerance.

If the package passes at actual site test conditions, it will be considered to be a demonstration of the contractual site performance guarantees. The test must be witnessed and assisted by a Solar Engineer and Field Service Representative at the customer's cost. The engine must be in an "as new" condition with a recent compressor detergent crank wash. The test must be completed within the first 400 fired hours of operation of the engine unless specified otherwise.

All fuel and electrical metering is the responsibility of the customer. These items are considered permanent installations. For gas fuel metering, gas temperature, pressure, and composition must be available. If prior arrangements are made, Solar may supply the nonpermanent instrumentation such as thermocouples, RTDs, and water manometers as required.

The variety of heat recovery devices available to utilize the exhaust heat of the gas turbine is extensive enough that including a test method for them is not feasible in this specification. The heat recovery unit manufacturer and ASME PTC 4.4 performance test code for "Gas Turbine Heat Recovery Steam Generators" should be used as a guide for the exhaust heat recovery system testing.

Solar will provide a test report including the final performance evaluations, site observations taken during the test, and the acceptance margin.

2.0 OBJECTIVE

The objective of this test agenda is to describe the procedure for conducting the field site performance test on Solar furnished equipment to meet guaranteed values, as specified in the contract for:

Gas Turbine Full Load Output Power

Gas Turbine Heat Rate

Gas Turbine Exhaust Flow and Temperature (for heat recovery purposes)

It is unlikely that actual site conditions during the test will duplicate the guarantee conditions. Solar will provide the necessary information to determine the performance at guaranteed conditions based on the actual conditions during the test (ambient temperature, barometric pressure, duct loss, etc.)



3.0 GENERAL TEST CONDITIONS

3.1 **PRETEST PROCEDURES** - After the turbine package and all related systems are installed and operational, Solar will assign an Engineer and Field Service Representative who will participate in the test. The test will occur at a mutually agreed upon time between Solar and the customer.

Prior to running the performance tests, the following checks and preparatory items must be completed:

1. Solar will verify that the unit has been proven suitable for continuous operation.
2. The gas turbine compressor must be thoroughly detergent washed.
3. Sufficient fuel and site load must be available for full load operation.
4. Air inlet filter panels should be inspected and cleaned if required
5. Visually verify the IGV settings and that the bleed valve is fully closed at full load
6. Verify all thermowells and thermocouples are reading accurately.
7. Verify all manometers are working, and that any instrumentation air lines are not leaking or pinched

3.2 **TEST AND DATA GATHERING** - Site conditions must provide a stable load for the generator at maximum engine output. The engine must be thermally stable before recording data. From a cold start, the engine must be at speed or temperature topping for at least one and a half hours before taking any data. From a hot restart, the engine must be at speed or temperature topping for at least 45 minutes before taking any data. To confirm the engine has reached thermal stability, check the following:

1. Oil temperature has stabilized
2. The fuel actuator command is stable
3. Exhaust Temperature and T5 are stable

3.3 **RECORDING OF DATA POINT** - Two persons are required to acquire a data point. One to record the instrumentation in the control room and the other to record the instrumentation located on the package. At least two data points should be taken and compared to verify engine stability. If the differences exceed those in Table 1, the engine has not reached equilibrium and the data should be disregarded.

Table 1. Parameters for Stable Engine Operation

Reading	Stability
T5	Average should not vary by more than +/- 9° F (5° C)
Oil Temperature	Drain temperature should be +/-5° F (3°C) in a two minute period
Exhaust Temperature	Average should not vary by more than +/- 9° F (5°C)
Fuel Actuator Command	Should be steady within 0.2 ma



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4.0 DATA GATHERING PROCEDURES FOR TURBINE GENERATOR

4.1 **TURBINE PACKAGE PERFORMANCE PARAMETERS** - Several important parameters must be accurately acquired to measure the engine performance. The following list and Table 2 summarize the data required to evaluate the engine performance.

1. Barometric pressure.
2. Gas Turbine inlet and exhaust duct loss should be measured with water manometers
3. Turbine exhaust temperature will be measured with type K thermocouples.
4. Air inlet temperature will be measured with either a type K thermocouple or RTD.
5. The power turbine inlet temperature will be measured with the package thermocouples.
6. The fuel flow measurement will be made using the customer's fuel metering. Metering must include the fuel temperature and pressure.
7. Generator kilowatt, KVAR, voltage, current and power factor measurements will be made with the customer's electrical metering system.
8. A fuel gas analysis must be either available from the local utility, or gas samples must be taken before and after the test, and sent to an independent lab at customer expense for analysis of content.

Table 2. Recommended Instrumentation

Parameter	Instrument	Minimum Number of Locations Required	Instrument Accuracy
T1	Type K thermocouple or RTD	1	1.0° F
T5	Type K thermocouple harness	Varies	0.75%
T7	Type K Thermocouple	4	0.75% F
Inlet Duct Loss	12" Water Manometer	1	+/- 0.1" water
Exhaust Duct Loss	12" Water Manometer	1	+/- 0.1" water
Air Inlet Housing Pressure	120" Water Manometer	3	+/- 0.1" water
PCD	0-400 psig gauge/transducer	1	+/- 1 psi
Barometric Pressure	Barometer	1	0.05" Hg
Turbine Speed	Control System Frequency Counter	1	+/- 5 RPM
Fuel Flow	Site installation	1	+/- 1% corrected to SCFM
Generator KW, Volts, Amps, and PF	Site installation	1	+/- 1.0% Full Scale

*Reference AGA report # 3 on metering

4.2 **GAS TURBINE ENGINE PERFORMANCE EVALUATION** - The purpose of data reduction is to compare data taken at actual test conditions to contractual obligations. Test conditions should be as close to contractual conditions as possible, although it is highly unlikely that they will be



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identical. Two methods of extrapolating actual test data to contractual conditions exist, either with the use of curves and correction factors, or through a computer algorithm to reduce data to sea level, no loss conditions, and comparing to the margin from minimum performance.

4.2.1 DATA REDUCTION WITH THE USE OF SOLAR STANDARD CURVES - Figure 1 shows a typical predicted minimum performance, or site guarantee point. The same computer program that is used to generate the guarantee point is used to generate the curves shown in Figure 2 and Figure 3. These curves show the operating parameters for a gas turbine generator under the following conditions:

- Nominal Performance
- Sea Level Barometric Pressure
- No Inlet or Exhaust Duct Loss
- No Compressor Air bleed
- No Power Extraction at the Gas Producer
- 60% Relative Humidity
- No Water Injection
- Natural Gas Fuel, LHV = 20610 BTU/Lbm

Four curves are required to compare contractual conditions and actual site conditions. Figure 2 indicates the fuel flow, exhaust flow, and exhaust temperature expected over a range of ambients and output power levels, with the nominal full load output power versus ambient temperature indicated. Figure 3 indicates the compressor diffuser exit pressure, (PCD), and power turbine inlet temperature (T5) expected over a range of ambients and output power levels, with the nominal full load output power versus ambient temperature indicated. Figure 4 is the barometric pressure correction factor curve, and Figure 5 is the correction factors for inlet and exhaust loss. Unless specified in the contract, if the generator is running at a power factor outside of the range of 0.8 - 1.0, generator efficiency curves will be required to adjust for generator efficiency.

As an example of correcting data, in a field test the following data were taken:

Ambient Temperature	55 °F
Barometric Pressure	28.87" Hg
Inlet Loss	3" H ₂ O
Exhaust Loss	8" H ₂ O
Generator Output	4610 KW
Fuel Flow	44.62 SCFM
Fuel Analysis	19984 BTU/LB

The first step in the data reduction process is to correct the site power to sea level power with the following equation:

$$Power_{SeaLevel} = \frac{Power_{site}}{\delta} \quad \text{Where} \quad \delta = \frac{Site \text{ Barometric Pressure}}{Sea \text{ Level Barometric Pressure}} \quad (\text{Equation 1})$$



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If the measured barometric pressure at the site is 28.87" Hg, the correction would be:

$$\delta = \frac{28.87}{29.92} = .965$$

If barometric pressure is not available at the site, δ can be estimated with much less accuracy from the site elevation using Figure 4. To correct for inlet and exhaust duct loss, Figure 5 is used. At 4610 KW from Figure 5, the inlet loss is 19 KW/" H₂O and the exhaust loss is 8KW/" H₂O. The sea level, no loss power can then be calculated as:

$$\begin{aligned} \text{Power}_{\text{Sea Level No Loss}} &= \frac{\text{Power}_{\text{measured}} - \text{Inlet Loss} - \text{Exhaust Loss}}{\delta} && \text{(Equation 2)} \\ &= \frac{4610\text{KW} - \{19\text{KW}/" \text{H}_2\text{O} \times 3" \text{H}_2\text{O}\} - \{8\text{KW}/" \text{H}_2\text{O} \times 8" \text{H}_2\text{O}\}}{.965} = 4903 \text{ KW} \end{aligned}$$

The next step is to determine the fuel consumption W_f in BTU/Hr. The orifice plate data showed a fuel flow of 44.62 SCFM. With a test fuel heating value of 19984 BTU/SCF the fuel flow to the engine is 53.5 MMBTU/Hr. The equation to correct the data to sea level no loss equivalent is:

$$W_{f_{\text{Sea Level, No Loss}}} = \frac{W_{f_{\text{Measured}}}}{\delta - \frac{\Delta P_{\text{inlet}}}{P_{\text{Baro}}}} \quad \text{(Equation 3)}$$

or for the example data with the inlet loss converted to inches of Hg:

$$W_{f_{\text{Sea Level, No Loss}}} = \frac{53.5 \text{ MMBTU/Hr}}{.965 - \frac{.22" \text{Hg}}{28.87" \text{Hg}}} = 55.88 \text{ MMBTU/Hr}$$

This operating point is then plotted on Figure 2, as marked by point "A". To determine the performance at contractual conditions, a line is extended from point "A" parallel to the full load output line, to the contractual temperature of 71°F as marked by point "B". The sea level, no loss power at 71°F is then read from Figure 2 as 4600 KW. The sea level, no loss fuel flow at 55°F was the same value as predicted at point "A", so at 71°F the value will be the same as "B" on Figure 2, or 52.5 MMBTU/HR. To correlate the data back to contractual conditions, equations 1 through 3 are used in a different form. The equation for contractual predicted power becomes:

$$\text{Power}_{\text{contractual}} = \delta \times \{ \text{Power}_{\text{Sea Level No Loss}} - \text{Inlet Loss} - \text{Exhaust Loss} \}$$



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From Figure 4, δ at 890 feet elevation is 0.97. From Figure 5 the inlet duct loss at 4600KW is 19KW/" H₂O, and the exhaust duct loss is 8 KW/" H₂O. The power at contractual conditions is then computed as:

$$Power_{contract} = 0.97 \times [4600KW - \{19KW/"H_2O \times 3"H_2O\} - \{8KW/"H_2O \times 7"H_2O\}] = 4352 KW$$

Similarly, Equation 4 is modified to calculate site fuel flow from sea level no loss fuel flow as follows:

$$W_{f_{site}} = W_{f_{Sea Level No Loss}} \times \left[\delta - \frac{\Delta P_{inlet}}{P_{baro}} \right]$$

or for the contractual conditions

$$W_{f_{site}} = 52.5MMBTU/Hr \times \left[0.97 - \frac{0.22"Hg}{29.92"Hg \times 0.97} \right] = 50.53MMBTU/Hr$$

The engine heat rate is the fuel flow divided by the output power. The heat rate at contractual conditions for this example case would then be:

$$Heat Rate = \frac{Fuel Flow}{Output Power} = \frac{50.53MMBTU/Hr}{4352KW} = 11611BTU/KW-Hr$$

The engine power is above the minimum and heat rate is below the maximum at contractual conditions, therefore the engine passes.

Exhaust gas temperature and power turbine inlet temperature have no correction factors for barometric pressure or duct losses, these values can be read straight from Figures 2 and 3. The effect on performance of different gas fuels is negligible if the fuel LHV is within 5% of 20610 BTU/LB and fuel consumption is considered in terms of BTUs.

4.2.2 EXHAUST GAS MASS FLOW - In the factory test a venturi is attached to the engine air inlet to determine the engine mass flow. In the field this is impractical and other methods need to be employed to determine the engine mass flow if contractually required. On most Solar engines there are pressure ports available on the air inlet housing. In the factory test the amount of vacuum at these ports is measured along with the inlet mass flow. This data can be correlated to determine the mass flow characteristics of the inlet air housing. This housing can then be used as a venturi to measure the mass flow in field installations. Another option for determining engine mass flow in field testing is by using the engine gas producer flow capacity, Q_{gp} . The gas producer flow capacity, Q_{gp} , is a thermodynamic property of the engine that is dependent on the mass flow and determined in the factory test. By use of computer algorithm (see section 4.2.3), values of inlet mass flow can be iterated upon until the proper mass flow to achieve the engine Q_{gp} is determined. Once the mass flow is determined at test conditions, the equation to correct the mass flow to sea level no loss conditions is:



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$$M_{\text{exhaust, sea level, no loss}} = \frac{M_{\text{measured}}}{\delta - \frac{\Delta P_{\text{inlet}}}{P_{\text{bars}}}} - M_{\text{fuel, sea level, no loss}} \quad (\text{Equation 4})$$

The method of correcting the mass flow for ambient conditions with the use of curves is the same as for fuel flow and output power.

4.2.3 DATA REDUCTION WITH THE USE OF COMPUTER ALGORITHM - A more accurate method to determine the sea level no loss performance is through the use of a computer algorithm. A Solar performance engineer can utilize software to calculate the sea level no loss performance without the associated error from reading data off of the graphs. The computer reduced data can be directly compared to tabulated performance data of output power versus ambient temperature.

4.3 WATER INJECTION AND HUMIDITY - The effects of site humidity differing from guarantee humidity are usually small enough to be negligible, except at high ambient temperatures. Water injection, however, has a large impact on engine performance. The additional mass of the injected water creates additional horsepower, however the thermal energy required to vaporize the water is not recovered, which leads to an increased heat rate. It is Solar's normal policy only to guarantee exhaust emissions and not the water injection rate to obtain the emissions guarantee. In installations with water injection, the Solar engineer will determine the effect on performance based on the actual amount of injected water. Simple correction curves for water injection are unavailable at this time.

5.0 TEST UNCERTAINTY - Test uncertainty is composed a variety of components. These include instrument or calibration errors, random errors, and systematic errors. Instrumentation errors are generally of a fixed value, caused either by mis-reading the instrumentation, or by calibration inaccuracies. Random errors are evidenced by slight variations between readings. There are numerous small effects that cause repeated measurements not to agree exactly. As an example of random errors, AGA report #3, which governs orifice metering of gasses and liquids in the petroleum industry, states "... two duplicate plates made, installed, and operated as nearly as practicable in accordance with the specifications given cannot be expected to have exactly the same discharge coefficient no matter how many times or how accurately they are tested."

The largest uncertainty in field testing is systematic. If one extremely accurate RTD is used to measure the exhaust temperature, it is highly unlikely the reading will reflect the true average exhaust temperature within 20°F. The gas turbine exhaust gas is highly turbulent with large temperature gradients. In the factory test cells, the average of twelve thermocouples is used for the exhaust temperature. In the field, usually only four ports are available to measure the exhaust temperature. The best instrumentation available will not help remove the uncertainty resulting from the limited number of measurements available.

One other major example of systematic errors encountered in field testing is obtaining true steady state data. Factors that will strongly hinder obtaining quality data include rapid changes in ambient temperature, fluctuating gas pressure, and fluctuating load. These systematic errors can not be eliminated in the field. Only by careful review of the data taken and the rejection of poor quality data points can reduce the value of systematic error.

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5.1 QUANTIFYING TEST UNCERTAINTY - The uncertainty of a measurement that is taken directly, for example temperature or pressure, is the combined calibration uncertainty and systematic uncertainty. To determine the uncertainty of a value calculated from several parameters, the root sum square, or RSS value of uncertainty shown in Equation 4 is used.

$$RSS_{\text{Uncertainty}} = \sqrt{Uncert_1^2 + Uncert_2^2 + \dots + Uncert_n^2} \quad (\text{Equation 5})$$

The uncertainty of each parameter is obtained as the RSS of the product of the tolerance and the effect factor of each term used in the formula. The effect factor of each term is obtained by applying a 1% variation to the given term and calculating the effect on the results of the formula.

For example, the equation for standard gas fuel flow through an orifice in MMSCFD is given by:

$$Q_{\text{std}} = 0.1854 \times d_{\text{or}}^2 \times F_b \sqrt{\frac{\Delta P_{\text{or}}}{sg_{\text{gas}} Z_{\text{or}}}} \times \frac{P_{\text{or}} + P_{\text{baro}}}{T_{\text{or}} + 459.67} \quad (\text{Equation 6})$$

To determine the effect of each parameter in the equation, the input values of each are changed by 1% to determine the amount of change to the result. If a 1% change in an equation parameter, causes a 2% change in the results with all other parameters held constant, the effect factor of that parameter is 2. Table 3 shows an example calculation for the flow uncertainty through an orifice plate.

Table 3. Example Uncertainty Calculation

Parameter	Nominal Value	Tolerance, %	Effect Factor	Square of Sum of Tolerance and Effect
d_{or}	1.624	0.5	2.2	1.21
F_b	0.646	1.0	1.0	1
$\Delta P_{\text{orifice}}$	50" H ₂ O	0.5	0.5	.0625
SG_{gas}	0.626	1.0	0.5	.25
Z	0.933	1.0	0.5	.25
P_{orifice}	375 psi	0.5	0.5	.0625
P_{baro}	12.8 psi	0.1	.01	.00001
T	65°F	1.0	.06	.0036
Sum of Squares				2.8386
Square Root of Sum				1.685
UNCERTAINTY				1.685%



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6.0 TEST REPORT - Within a reasonable time after completion of the test Solar Engineering will supply a test report that will include test data, test data reduction, and comparison of actual performance to guaranteed performance.

7.0 COMMENTS TO ASME PTC-22 AND FIELD TESTING - The performance of each engine shall be evaluated in accordance with ASME PTC-22-1985 procedures except as noted.

Solar's normal policy is not to calibrate instrumentation immediately before and after each engine test. Solar has a standard proven instrumentation calibration policy. Instruments requiring calibration will be calibrated in accordance with this policy. This procedure is part of our Quality assurance instructions and can be provided to the customer on request. Instruments that are part of the permanent installation are the customers responsibility for calibration.

Instrumentation specifications listed in Table 2 take precedence over those in PTC-22-1985. Solar instrumentation does not meet all of the quantity and accuracy requirements of PTC-22. The table listing Solar instrumentation quantity and accuracy is enclosed as Table 2. Also, because of the wide variety of site installations, Solar does not compensate inlet and exhaust temperature measurements for velocity and temperature gradients.

Solar's normal practice is to measure static pressure not stagnation pressure in the turbine outlet duct. Due to site limitations in many cases, the exhaust duct loss is assumed to be 9" of H₂O for installations with heat recovery units, and 4" of H₂O for sites without heat recovery units.

PTC-22-1985 requires gaseous fuel density to be measured with a densitometer. Solar's normal practice is to compute gaseous fuel density from measured pressures and temperatures and a fuel gas analysis.

Solar takes exception to the PTC-22 Section 6 requirement for the minimum essential information that should be provided in the test report. See Section 5.0 of this specification for Solar's test report requirements.



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SOLAR TURBINES INCORPORATED
ENGINE PERFORMANCE CODE REV. 2.70
CUSTOMER: Example
JOB ID: Site Data

DATE RUN: 18-JUL-96
RUN BY:

TAURUS 60-T7000
GSC
STANDARD
GAS
TTC-1 REV. 1.0
ES-2098

DATA FOR MINIMUM PERFORMANCE

Fuel Type	SD NATURAL GAS	
Elevation	Feet	890
Inlet Loss	in. H2O	3.0
Exhaust Loss	in. H2O	7.0
Engine Inlet Temp.	Deg. F	71.0
Relative Humidity	%	60.0
Elevation Loss	kW	153
Inlet Loss	kW	62
Exhaust Loss	kW	63
Specified Load	kW	FULL
Net Output Power	kW	4292
Fuel Flow	MMBtu/hr	51.68
Heat Rate	Btu/kW-hr	12039
Inlet Air Flow	lbm/hr	156367
Engine Exhaust Flow	lbm/hr	158311
PCD	psi(g)	146.5
PT Inlet Temp. (TS)	Deg. F	1269
Compensated PTIT	Deg. F	1250
Exhaust Temperature	Deg. F	912

Figure 1. Example Site Guarantee Point



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Specification No. ES 1974

TAURUS 60-T7000 TTC-1 REV. 1.0
 GSC GAS TURBINE
 STANDARD RATING
 REF: SD-21537(S) SHT. 1
 (DATE: 11-APR-1995)

NOMINAL PERFORMANCE
 ELEVATION SEA LEVEL
 RELATIVE HUMIDITY 60 PERCENT
 ZERO INLET DUCT PRESSURE LOSS
 ZERO EXHAUST DUCT PRESSURE LOSS
 NO GAS PRODUCER POWER EXTRACTION
 NO WATER INJECTION
 GENERATOR EFFICIENCY: 96.4 PERCENT
 GEARBOX EFFICIENCY: 98.2 PERCENT
 [LHV: 20610 BTU/LB]

NATURAL GAS FUEL

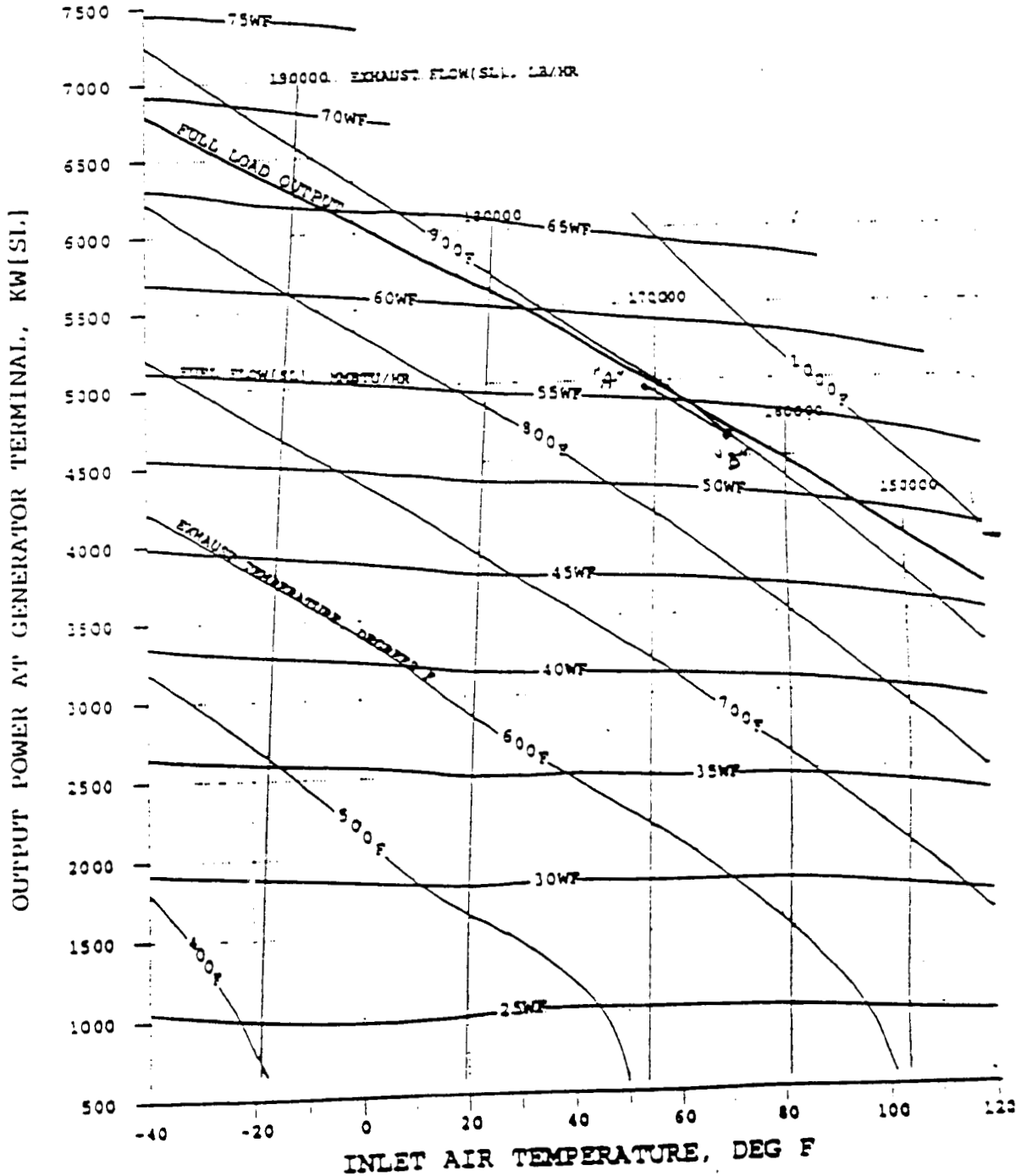


Figure 2. Performance Curve, Sheet 1



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SPECIFICATION NO. ES 1972

TAURUS 60-T7000 TTC-1 REV. 1.0
GSC GAS TURBINE
STANDARD RATING
REF: SD-21517(S) SHT. 2
(DATE: 11-APR-1995)

- .NOMINAL PERFORMANCE
- .ELEVATION SEA LEVEL
- .RELATIVE HUMIDITY 60 PERCENT
- .ZERO INLET DUCT PRESSURE LOSS
- .ZERO EXHAUST DUCT PRESSURE LOSS
- .NO GAS PRODUCER POWER EXTRACTION
- .NO WATER INJECTION
- .GENERATOR EFFICIENCY: 96.4 PERCENT
- .GEARBOX EFFICIENCY: 98.2 PERCENT
- .(LHV: 20610 BTU/LB)

NATURAL GAS FUEL

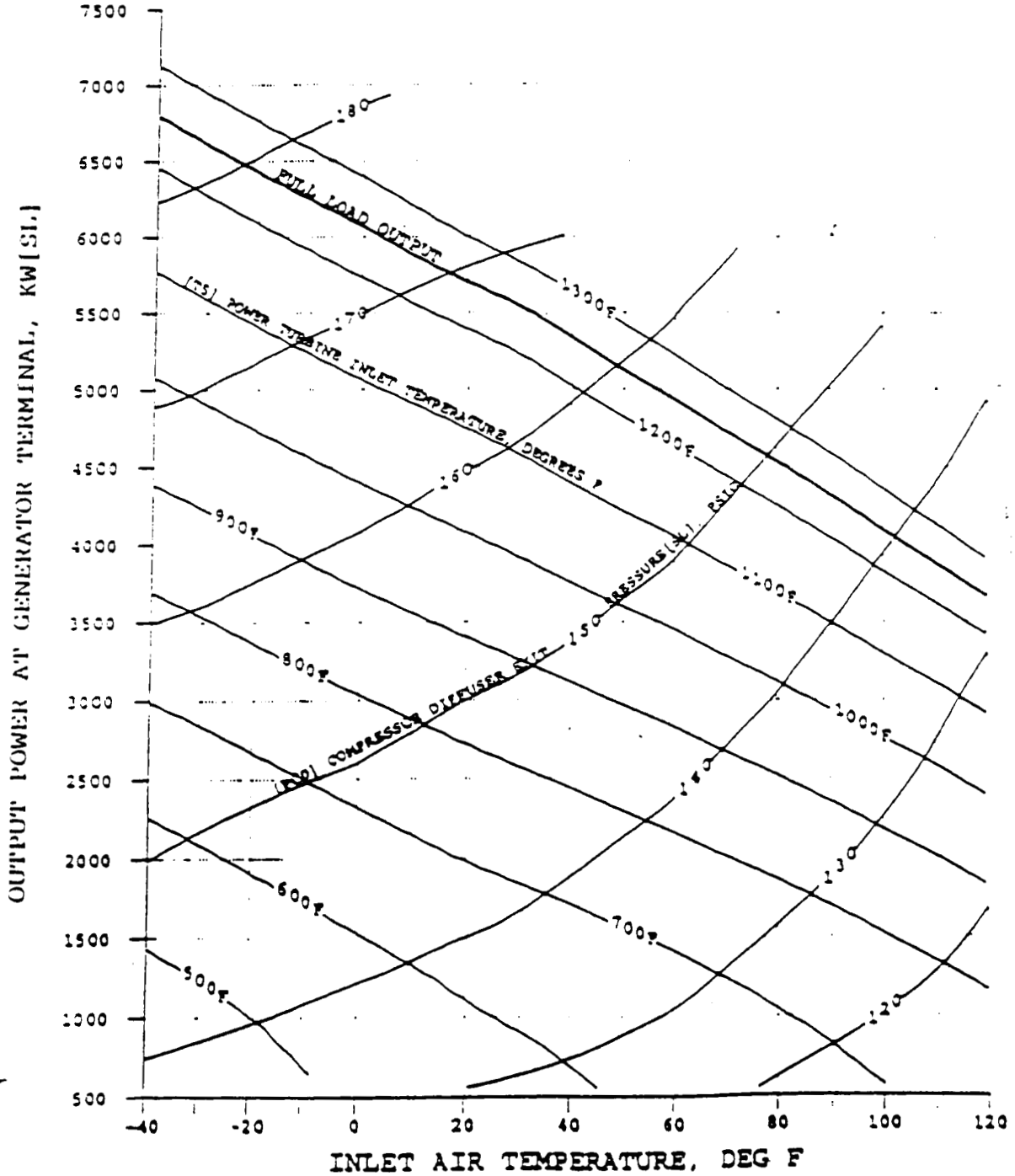


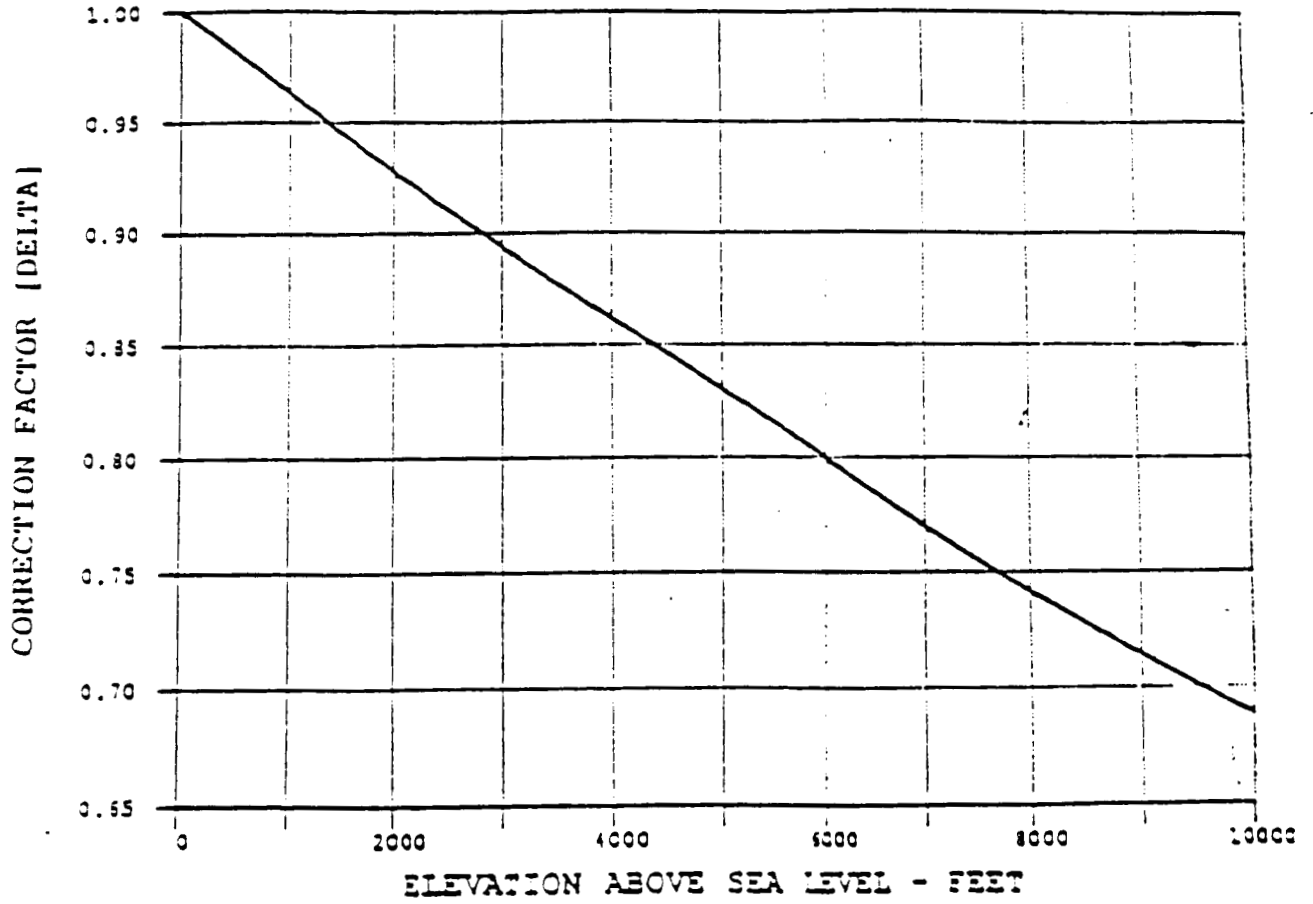
Figure 3. Engine Performance Curve, Sheet 2



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ELEVATION CORRECTION FACTOR

$$[\text{DELTA}] = \frac{\text{SITE BAROMETRIC PRESSURE}}{\text{SEA LEVEL BAROMETRIC PRESSURE}}$$



SR2139

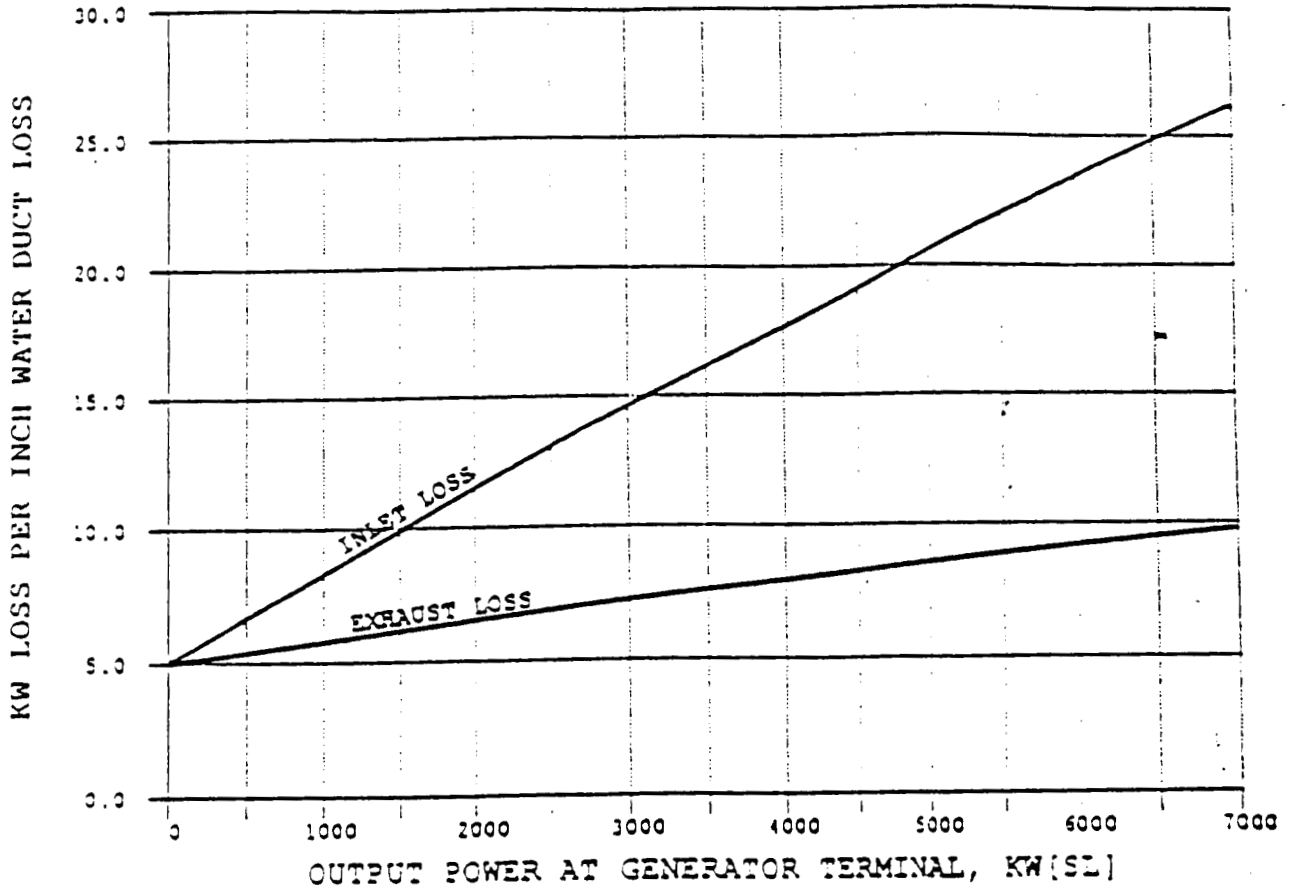
Figure 4. Barometric Pressure Correction Curve



Handwritten scribbles and numbers, possibly '102'.

CENTAUR TAURUS SINGLE SHAFT
GENERATORS
(HRO34:REV.A, 10 APRIL 1993)

EFFECT OF INLET AND EXHAUST SYSTEM
PRESSURE LOSSES ON OUTPUT POWER



TR034A

Figure 5. Inlet and Exhaust Duct Loss Correction Curves (for Taurus 60)



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Exhibit F
~~ES-9-97~~ EMISSIONS TEST SPECIFICATION
METHOD 9 AND METHOD 20

M
ES



10-27 Construction and
Supply Proposal
5-10-9

Section: Appendix A to Part 60 Test Methods Method
Date: November 1, 1970
Subject Terms: air | NSPS | testing | sampling | emission | opacity | stationary
source | visible emission | recordkeeping | certification

Method 9 -- Visual Determination of the Opacity of Emissions From Stationary Sources

Many stationary sources discharge visible emissions into the atmosphere; these emissions are usually in the shape of a plume. This method involves the determination of plume opacity by qualified observers. The method includes procedures for the training and certification of observers, and procedures to be used in the field for determination of plume opacity. The appearance of a plume as viewed by an observer depends upon a number of variables, some of which may be controllable and some of which may not be controllable in the field. Variables which can be controlled to an extent to which they no longer exert a significant influence upon plume appearance include: Angle of the observer with respect to the plume; angle of the observer with respect to the sun; point of observation of attached and detached steam plume; and angle of the observer with respect to a plume emitted from a rectangular stack with a large length to width ratio. The method includes specific criteria applicable to these variables.

Other variables which may not be controllable in the field are luminescence and color contrast between the plume and the background against which the plume is viewed. These variables exert an influence upon the appearance of a plume as viewed by an observer, and can affect the ability of the observer to accurately assign opacity values to the observed plume. Studies of the theory of plume opacity and field studies have demonstrated that a plume is most visible and presents the greatest apparent opacity when viewed against a contrasting background. It follows from this, and is confirmed by field trials, that the opacity of a plume,

viewed under conditions where a contrasting background is present can be assigned with the greatest degree of accuracy. However, the potential for a positive error is also the greatest when a plume is viewed under such contrasting conditions. Under conditions presenting a less contrasting background, the apparent opacity of a plume is less and approaches zero as the color and luminescence contrast decrease toward zero. As a result, significant negative bias and negative errors can be made when a plume is viewed under less contrasting conditions. A negative bias decreases rather than increases the possibility that a plant operator will be cited for a violation of opacity standards due to observer error.

Studies have been undertaken to determine the magnitude of positive errors which can be made by qualified observers while reading plumes under contrasting conditions and using the procedures set forth in this method. The results of these studies (field trials) which involve a total of 769 sets of 25 readings each are as follows:

(1) For black plumes (133 sets at a smoke generator), 100 percent of the sets were read with a positive error of less than 7.5 percent opacity; 99 percent were read with a positive error of less than 5 percent opacity.

(2) For white plumes (170 sets at a smoke generator, 168 sets at a coal-fired Power plant, 298 sets at a sulfuric acid plant), 99 percent of the sets were read with a positive error of less than 7.5 percent opacity; 95 percent were read with a positive error of less than 5 percent opacity.

The positive observational error associated with an average of twenty-five readings is therefore established. The accuracy of the method must be taken into account when determining possible violations of applicable opacity standards.

For a set, positive error = average opacity determined by observers' 25 observations -- average opacity



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determined from transmissometer's 25 recordings.

1. Principle and Applicability

- 1.1 Principle. The opacity of emissions from stationary sources is determined visually by a qualified observer.
- 1.2 Applicability. This method is applicable for the determination of the opacity of emissions from stationary sources pursuant to § 60.11(c) and for qualifying observers for visually determining opacity of emissions.

2. Procedures

The observer Qualified in accordance with section 3 of this method shall use the following procedures for visually determining the opacity of emissions:

2.1 Position. The qualified observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his observations from a position such that his line of vision is approximately perpendicular to the plume direction, and when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case the observer should make his observations with his line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses).

2.2 Field Records. The observer shall record the name of the plant, emission location, type facility, observer's name and affiliation, a sketch of the observer's position relative to the source, and the date on a field data sheet (Figure 9-1). The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on a field data sheet at the time opacity readings are initiated and completed.

2.3 Observations. Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume, but instead shall observe the plume momentarily at 15-second intervals.

2.3.1 Attached Steam Plumes. When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

2.3.2 Detached Steam Plume. When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

2.4 Recording Observations. Opacity observations shall be recorded to the nearest 5 percent at 15-second intervals on an observational record sheet. (See Figure 9-2 for an example.) A minimum of 24 observations shall be recorded. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

2.5 Data Reduction. Opacity shall be determined as an average of 24 consecutive observations recorded at 15-second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall two sets overlap. For each set of observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. If an applicable standard specifies an averaging time requiring more than 24 observations, calculate



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... during the specified time period. Record the average opacity on a record sheet. (See Figure 9-1 for example.)

3. Qualifications and Testing

3.1 Certification Requirements. To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5 percent increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15 percent opacity on any one reading and an average error not to exceed 7.5 percent opacity in each category. Candidates shall be tested according to the procedures described in section 3.2. Smoke generators used pursuant to section 3.2 shall be equipped with a smoke meter which meets the requirements of section 3.3.

The certification shall be valid for a period of 6 months, at which time the qualification procedure must be repeated by any observer in order to retain certification.

3.2 Certification Procedure. The certification test consists of showing the candidate a complete run of 50 plumes -- 25 black plumes and 25 white plumes -- generated by a smoke generator. Plumes within each set of 25 black and 25 white runs shall be presented in random order. The candidate assigns an opacity value to each plume and records his observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator during which candidates are shown black and white plumes of known opacity.

3.3 Smoke Generator Specifications. Any smoke generator used for the purposes of section 3.2 shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity based upon a path-length equal to the stack exit diameter, on a full 0 to 100 percent chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table 9-1. The smoke meter shall be calibrated as described in section 3.3.1 prior to the conduct of each smoke reading test. At the completion of each test, the zero and span drift shall be checked and if the drift exceeds ± 1 percent opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter shall be demonstrated, at the time of installation, to meet the specifications listed in Table 9-1. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry including the chart recorder or output meter, or every 6 months, whichever occurs first.

Table 9-1. -- Smoke Meter Design and Performance Specifications

Parameter	Specification
a. Light source	Incandescent lamp operated at nominal rated voltage.
b. Spectral response of photocell	Photopic (daylight spectral response of the human eye -- Citation 3)
c. Angle of view	15° maximum total angle.
d. Angle of projection	15° maximum total angle.
e. Calibration error	$\pm 3\%$ opacity, maximum.
f. Zero and span drift	$\pm 1\%$ opacity, 30 minutes.
g. Response time	5 seconds.

1 Calibration. The smoke meter is calibrated after allowing a minimum of 30 minutes warmup by



alternately producing simulated opacity of 0 percent and 100 percent. When a stable response at 0 percent or 100 percent is noted, the smoke meter is adjusted to produce an output of 0 percent or 100 percent, as appropriate. This calibration shall be repeated until stable 0 percent and 100 percent readings are produced without adjustment. Simulated 0 percent and 100 percent opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

3.2 Smoke Meter Evaluation. The smoke meter design and performance are to be evaluated as follows:

3.3.2.1 Light Source. Verify from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within ± 5 percent of the nominal rated voltage.

3.3.2.2 Spectral Response of Photocell. Verify from manufacturer's data that the photocell has a photopic response; i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table 9-1.

ENFLEX Note: The following figure is wider than your screen. Please scroll right to see the entire figure.

Figure 9-1
Record of Visual Determination of Opacity

Page

_____ of _____

Company _____		Hours of Observation _____
Location _____		Observer _____
Test Number _____		Observer Certification _____
Date _____		Observer Affiliation _____
_____		Point of Emissions _____
_____		Height of Discharge _____
Control Device _____ Point _____		

SUMMARY OF AVERAGE OPACITY		Initial		Final

CLOCK TIME				Set
Time	Opacity			Number

OBSERVER LOCATION				
Start -- End	Sum	Average		
Distance to Discharge				

Direction from Discharge				

Height of Observation Point				

GROUND DESCRIPTION				



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WEATHER CONDITIONS

Wind Direction				
Wind Speed				
inged from _____ to _____ % opacity				
Ambient Temperature				
was/was not in compliance with _____				
evaluation was made.				
SKY CONDITIONS (clear, overcast, % clouds, etc.)				
PLUME DESCRIPTION				
Color				
Distance Visible				
OTHER INFORMATION				

Readings

The source

at the time

Figure 9-2 -- Observation Record

Page ____ of ____

Company Observer
 Location Type facility
 Test Number Point of emissions
 Date

Min.	Seconds				Steam plume (check if applicable)		Comments
	0	15	30	45	Attached	Detached	
0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							



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1000
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47					
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3.3.2.3 Angle of View. Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15°. The total angle of view may be calculated from: $\theta = 2 \tan^{-1} d / 2L$, where θ = total angle of view; d = the sum of

the photocell diameter + the diameter of the limiting aperture; and L = the distance from the photocell to the limiting aperture. The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters this is normally an orifice plate.

3.3.2.4 Angle of Projection. Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15°. The total angle of projection may be calculated from: $\theta = 2 \tan^{-1} d / 2L$, where θ = total angle of projection; d = the sum of the length of the lamp filament + the diameter of the limiting aperture; and L = the distance from the lamp to the limiting aperture.

3.3.2.5 Calibration Error. Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter according to 3.3.1 and then inserting a series of three neutral-density filters of nominal opacity of 20, 50, and 75 percent in the smoke meter path-length. Filters calibrated within ± 2 percent shall be used. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum error on any one reading shall be 3 percent opacity.

3.3.2.6 Zero and Span Drift. Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

3.3.2.7 Response Time. Determine the response time by producing the series of five simulated 0 percent and 100 percent opacity values and observing the time required to reach stable response. Opacity values of 0 percent and 100 percent may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

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1. Air Pollution Control District Rules and Regulations, Los Angeles County Air Pollution Control District, Regulation IV, Prohibitions, Rule 50.
2. Weisburd, Melvin I., Field Operations and Enforcement Manual for Air. U.S. Environmental Protection Agency, Research Triangle Park, NC. APTD-1100, August 1972. pp. 4.1 - 4.36.
3. Condon, E.U., and Odishaw, H., Handbook of Physics, McGraw-Hill Co., New York, NY. 1958, Table 3.1, p. 6-52.

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Method 20 -- Determination Of Nitrogen Oxides, Sulfur
Dioxide, And Diluent Emissions From
Stationary Gas Turbines

1. Principle and Applicability

1.1 Applicability. This method is applicable for the determination of nitrogen oxides (NO(x)), sulfur dioxide (SO₂), and a diluent gas, either oxygen (O₂) or carbon dioxide (CO₂), emissions from stationary gas turbines. For the NO(x) and diluent concentration determinations, this method includes:

- (1) Measurement system design criteria;
- (2) Analyzer performance specifications and performance test procedures; and
- (3) Procedures for emission testing.

1.2 Principle. A gas sample is continuously extracted from the exhaust stream of a stationary gas turbine; a portion of the sample stream is conveyed to instrumental analyzers for determination of NO(x) and diluent content. During each NO(x) and diluent determination, a separate measurement of SO₂ emissions is made, using Method 6, or its equivalent. The diluent determination is used to adjust the NO(x) and SO₂ concentrations to a reference condition.

2. Definitions

2.1 Measurement System. The total equipment required for the determination of a gas concentration or a gas emission rate. The system consists of the following major subsystems:

2.1.1 Sample Interface. That portion of a system that is used for one or more of the following: sample acquisition, sample transportation, sample conditioning, or protection of the analyzers from the effects of the stack effluent.

2.1.2 NO(x) Analyzer. That portion of the system that senses NO(x) and generates an output proportional to the gas concentration.

2.1.3 O₂ Analyzer. That portion of the system that senses O₂ and generates an output proportional to the gas concentration.

2.1.4 CO₂ Analyzer. That portion of the system that senses CO₂ and generates an output proportional to the gas concentration.

2.1.5 Data Recorder. That portion of the measurement system that provides a permanent record of the analyzer(s) output. The data recorder may include automatic data reduction capabilities.

2.2 Span Value. The upper limit of a gas concentration measurement range that is specified for affected source categories in the applicable part of the regulations.

2.3 Calibration Gas. A known concentration of a gas in an appropriate diluent gas.

2.4 Calibration Error. The difference between the gas concentration indicated by the measurement system and the known concentration of the calibration gas.

2.5 Zero Drift. The difference in the measurement system output readings from zero after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place and the input concentration at the time of the measurements was zero.

6 Calibration Drift. The difference in the measurement system output readings from the known



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high-level value.

2.7 Response Time. The amount of time required for the measurement system to display on the data output 95 percent of a step change in pollutant concentration.

2.8 Interference Response. The output response of the measurement system to a component in the sample gas, other than the gas component being measured.

3. Measurement System Performance Specifications

3.1 NO(2) to NO Converter. Greater than 90 percent conversion efficiency of NO(2) to NO.

3.2 Interference Response. Less than ± 2 percent of the span value.

3.3 Response Time. No greater than 30 seconds.

3.4 Zero Drift. Less than ± 2 percent of the span value over the period of each test run.

3.5 Calibration Drift. Less than ± 2 percent of the span value over the period of each test run.

4. Apparatus and Reagents

4.1 Measurement System. Use any measurement system for NO(x) and diluent that is expected to meet the specifications in this method. A schematic of an acceptable measurement system is shown in Figure 20-1. The essential components of the measurement system are described below:

ENFLEX Note: For a copy of Figure 20-1, MEASUREMENT SYSTEM DESIGN, please call the ENFLEX Hotline at (800)544-3118.

4.1.1 Sample Probe. Heated stainless steel, or equivalent, open-ended, straight tube of sufficient length to traverse the sample points.

4.1.2 Sample Line. Heated ($> 95^{\circ}\text{C}$) stainless steel or Teflon tubing to transport the sample gas to the sample conditioners and analyzers.

4.1.3 Calibration Valve Assembly. A three-way valve assembly to direct the zero and calibration gases to the sample conditioners and to the analyzers. The calibration valve assembly shall be capable of blocking the sample gas flow and of introducing calibration gases to the measurement system when in the calibration mode.

4.1.4 NO(2) to NO Converter. That portion of the system that converts the nitrogen dioxide (NO(2)) in the sample gas to nitrogen oxide (NO). Some analyzers are designed to measure NO(x) as NO(2) on a wet basis and can be used without an NO(2) to NO converter or a moisture removal trap provided the sample line to the analyzer is

heated ($> 95^{\circ}\text{C}$) to the inlet of the analyzer. In addition, an NO(2) to NO converter is not necessary if the NO(2) portion of the exhaust gas is less than 5 percent of the total NO(x) concentration. As a guideline, an NO(2) to NO converter is not necessary if the gas turbine is operated at 90 percent or more of peak load capacity. A converter is necessary under lower load conditions.

4.1.5 Moisture Removal Trap. A refrigerator-type condenser or other type device designed to continuously remove condensate from the sample gas while maintaining minimal contact between any condensate and the sample gas. The moisture removal trap is not necessary for analyzers that can measure NO(x) concentrations on a wet basis; for these analyzers,

) heat the sample line up to the inlet of the analyzers,



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4.1.5 Correct the NO(x) and unburned hydrocarbon concentrations to a dry basis.

4.1.6 Particulate Filter. An in-stack or an out-of-stack glass fiber filter, of the type specified in EPA Method 5; however, an out-of-stack filter is recommended when the stack gas temperature exceeds 250 to 300°C.

4.1.7 Sample Pump. A nonreactive leak-free sample pump to pull the sample gas through the system at a flow rate sufficient to minimize transport delay. The pump shall be made from stainless steel or coated with Teflon or equivalent.

4.1.8 Sample Gas Manifold. A sample gas manifold to divert portions of the sample gas stream to the analyzers. The manifold may be constructed of glass, Teflon, stainless steel, or equivalent.

4.1.9 Diluent Gas Analyzer. An analyzer to determine the percent O₂ or CO₂ concentration of the sample gas.

4.1.10 Nitrogen Oxides Analyzer. An analyzer to determine the ppm NO(x) concentration in the sample gas stream.

4.1.11 Data Recorder. A strip-chart recorder, analog computer, or digital recorder for recording measurement data.

4.2 Sulfur Dioxide Analysis. EPA Method 6 apparatus and reagents.

4.3 NO(x) Calibration Gases. The calibration gases for the NO(x) analyzer shall be NO in N₂. Use four calibration gas mixtures as specified below:

4.3.1 High-level Gas. A gas concentration that is equivalent to 80 to 90 percent of the span value.

4.3.2 Mid-level Gas. A gas concentration that is equivalent to 45 to 55 percent of the span value.

4.3.3 Low-level Gas. A gas concentration that is equivalent to 20 to 30 percent of the span value.

4.3.4 Zero Gas. A gas concentration of less than 0.25 percent of the span value. Ambient air may be used for the NO(x) zero gas.

4.4 Diluent Calibration Gases.

4.4.1 For O₂ calibration gases, use purified air at 20.9 percent O₂ as the high-level O₂ gas. Use a gas concentration between 11 and 15 percent O₂ in nitrogen for the mid-level gas, and use purified nitrogen for the zero gas.

4.4.2 For CO₂ calibration gases, use a gas concentration between 8 and 12 percent CO₂ in air for the high-level calibration gas. Use a gas concentration between 2 and 5 percent CO₂ in air for the mid-level calibration gas, and use purified air (< 100 ppm CO₂) as the zero level calibration gas.

5. Measurement System Performance Test Procedures

Perform the following procedures prior to measurement of emissions (Section 6) and only once for each test program, i.e., the series of all test runs for a given gas turbine engine.

5.1 Calibration Gas Checks. There are two alternatives for checking the concentrations of the calibration gases.

(a) The first is to use calibration gases that are documented traceable to National Bureau of Standards Reference Materials. Use Traceability Protocol for Establishing True Concentrations of Gases Used for Calibrations and Audits of Continuous Source Emission Monitors (Protocol Number 1) that is available from the Environmental Monitoring Systems Laboratory, Quality Assurance Branch, Mail Drop 77, Environmental Protection Agency, Research Triangle Park, North Carolina 27711. Obtain a certification from the gas manufacturer that the protocol was followed. These calibration gases are not to be analyzed with the Reference Methods.

(b) The second alternative is to use calibration gases not prepared according to the protocol. If this alternative is chosen, within 1 month prior to the emission test, analyze each of the calibration gas mixtures in triplicate using Method 7 or the procedure outlined in Citation 1 for NO(x) and use Reference Method 3 for O₂ or CO₂. Record the results on a data sheet (example is shown in Figure 20-2). For the

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analytical results must be within 10 percent (or 10 ppm, whichever is greater) of the triplicate set average (O(2) or CO(2), test results must be within 0.5 percent O(2) or CO(2)); otherwise, discard the entire set and repeat the triplicate analyses. If the average of the triplicate reference method test results is within 5 percent for NO(x) gas or 5 percent O(2) or CO(2) for the O(2) or CO(2) gas of the calibration gas manufacturer's tag value, use the value; otherwise.

Conduct at least three additional reference method test analyses until the results of six individual NO(x) runs (the three original plus three additional) agree within 10 percent (or 10 ppm, whichever is greater) of the average (O(2) or CO(2) test results must be within 0.5 percent O(2) or CO(2)). Then use this average for the cylinder value.

5.2 Measurement System Preparation. Prior to the emission test, assemble the measurement system following the manufacturer's written instructions in preparing and operating the NO(2) to NO converter, the NO(x) analyzer, the diluent analyzer, and other components.

Figure 20-2 -- Analysis of Calibration Gases

Date _____ (Must be within 1 month prior to the test period)

Reference method used _____

Sample run	Gas concentration, ppm		
	Low level{a}	Mid level{b}	High level{c}
1			
2			
3			
Average			
Maximum % deviation{d}			

- {a} Average must be 20 to 30% of span value.
- {b} Average must be 45 to 55% of span value.
- {c} Average must be 80 to 90% of span value.
- {d} Must be $\sim \pm 10\%$ of applicable average or 10 ppm, whichever is greater.

5.3 Calibration Check. Conduct the calibration checks for both the NO(x) and the diluent analyzers as follows:

5.3.1 After the measurement system has been prepared for use (Section 5.2), introduce zero gases and the mid-level calibration gases: set the analyzer output responses to the appropriate levels. Then introduce each of the remainder of the calibration gases described in Sections 4.3 or 4.4, one at a time, to the measurement system. Record the responses on a form similar to Figure 20-3.

5.3.2 If the linear curve determined from the zero and mid-level calibration gas responses does not predict the actual response of the low-level (not applicable for the diluent analyzer) and high-level gases within 2 percent of the span value, the calibration shall be considered invalid. Take corrective measures on measurement system before proceeding with the test.

Interference Response. Introduce the gaseous components listed in Table 20-1 into the measurement



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these components in concentration _____; record the values on a form similar to Figure 20-4. If the sum of the interference responses of the test gases for either the NO(x) or diluent analyzers is greater than 2 percent of the applicable span value, take corrective measure on the measurement system.

Figure 20-3 -- Zero and Calibration Data

Turbine type _____ Identification number _____
 Date _____ Test number _____
 Analyzer type _____ Identification number _____

	Cylinder value, ppm or %	Initial analyzer response, ppm or %	Final analyzer responses, ppm or %	Difference: initial-final, ppm or %
Zero gas				
Low-level gas				
Mid-level gas				
High-level gas				

$$\text{Percent drift} = \frac{\text{Absolute difference}}{\text{Span value}} \times 100$$

Test gas type	Concentration, ppm	Analyzer output response	% of span
---------------	--------------------	--------------------------	-----------

Table 20-1 -- Interference Test Gas Concentration

CO	500 = 50 ppm	CO(2)	10 = 1 percent
CO(2)	200 = 20 ppm	O(2)	20.9 = 1 percent

Figure 20-4 -- Interference Response

Date of test _____
 Analyzer type _____
 Serial No. _____

Test gas type	Concentration, ppm	Analyzer output response	% of span

$$\% \text{ of span} = \frac{\text{Analyzer output response}}{\text{Instrument span}} \times 100$$



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recheck the measurement system. Changes are made in the instrumentation that could alter the interference response. e.g., change the type of gas detector.

In lieu of conducting the interference response test, instrument vendor data, which demonstrate that for the test gases of Table 20-1 the interference performance specification is not exceeded, are acceptable.

5.5 Response Time. To determine response time, first introduce zero gas into the system at the calibration valve until all readings are stable; then, switch to monitor the stack effluent until a stable reading can be obtained. Record the upscale response time. Next, introduce high-level calibration gas into the system. Once the system has stabilized at the high-level concentration, switch to monitor the stack effluent and wait until a stable value is reached. Record the downscale response time. Repeat the procedure three times. A stable value is equivalent to a change of less than 1 percent of span value for 30 seconds or less than 5 percent of the measured average concentration for 2 minutes. Record the response time data on a form similar to Figure 20-5, the readings of the upscale or downscale response time, and report the greater time as the "response time" for the analyzer. Conduct a response time test prior to the initial field use of the measurement system, and repeat if changes are made in the measurement system.

Figure 20-5 -- Response Time

Date of test _____
Analyzer type _____
S/N _____
Span gas concentration: _____ ppm.
Analyzer span setting: _____ ppm.
Upscale:
1 _____ seconds
2 _____ seconds
3 _____ seconds
Average upscale response _____ seconds.
Downscale:
1 _____ seconds
2 _____ seconds
3 _____ seconds
Average downscale response _____ seconds.
System response time -
slower average time -
_____ seconds

5.6 NO(2) to NO Conversion Efficiency.

5.6.1 Add gas from the mid-level NO in N(2) calibration gas cylinder to a clean, evacuated, leak-tight Tedlar bag. Dilute this gas approximately 1:1 with 20.9 percent O(2), purified air. Immediately attach the bag outlet to the calibration valve assembly and begin operation of the sampling system. Operate the sampling system, recording the NO(x) response, for at least 30 minutes. If the NO(2) to NO conversion is 100 percent, the instrument response will be stable at the highest peak value observed. If the response at the end of 30 minutes decreases more than 2.0 percent of the highest peak value, the system is not acceptable and corrections must be made before repeating the check.

5.6.2 Alternatively, the NO(2) to NO converter check described in Title 40, Part 86: Certification and Test Procedures for Heavy-duty Engines for 1979 and Later Model Years may be used. Other alternative procedures may be used with approval of the Administrator.

6. Emission Measurement Test Procedure

6.1 Preliminaries.

6.1.1 Selection of a Sampling Site. Select a sampling site as close as practical to the exhaust of the engine. Turbine geometry, stack configuration, internal baffling, and point of introduction of dilution air

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When given special consideration in order to obtain a representative sample. Whenever possible, the sampling point shall be located upstream of the point of introduction of diluent into the duct. Sample ports may be located before or after the return elbow, in order to accommodate the configuration of the turning vanes and baffles and to permit a complete, unobstructed traverse of the stack. The sample ports shall not be located within 5 feet or 2 meters (whichever is less) of the gas discharge to atmosphere. For supplementary-fired, combined-cycle plants, the sampling site shall be located between the gas turbine and the boiler. The diameter of the sample ports shall be sufficient to allow entry of the sample probe.

6.1.2 A preliminary O₂ or CO₂ traverse is made for the purpose of selecting sampling points of low O₂ or high CO₂ concentrations, as appropriate for the measurement system. Conduct this test at the turbine operating condition that is the lowest percentage of peak load operation included in the test program. Follow the procedure below.

or use an alternative procedure subject to the approval of the Administrator.

6.1.2.1 Minimum Number of Points. Select a minimum number of points as follows:

- (1) Eight, for stacks having cross-sectional areas less than 1.5 m² (16.1 ft²);
- (2) eight plus one additional sample point for each 0.2 m² (2.2 ft²) of areas, for stacks of 1.5 m² to 10.0 m² (16.1 - 107.6 ft²) in cross-sectional area; and
- (3) 49 sample points (48 for circular stacks) for stacks greater than 10.0 m² (107.6 ft²) in cross-sectional area. Note that for circular ducts, the number of sample points must be a multiple of 4, and for rectangular ducts, the number of points must be one of those listed in Table 20-2; therefore, round off the number of points (upward), when appropriate.

6.1.2.2 Cross-sectional Layout and Location of Traverse Points. After the number of traverse points for the preliminary diluent sampling has been determined, use Method 1 to locate the traverse points.

6.1.2.3 Preliminary Diluent Measurement. While the gas turbine is operating at the lowest percent of peak load, conduct a preliminary diluent measurement as follows: Position the probe at the first traverse point and begin sampling. The minimum sampling time at each point shall be 1 minute plus the average stem response time. Determine the average steady-state concentration of diluent at each point and record the data on Figure 20-6.

6.1.2.4 Selection of Emission Test Sampling Points. Select the eight sampling points at which the lowest O₂ concentrations or highest CO₂ concentrations were obtained. Sample at each of these selected points during each run at the different turbine load conditions. More than eight points may be used, if desired, providing that the points selected as described above are included.

Table 20-2. -- Cross-Sectional Layout for Rectangular Stacks

Matrix layout	
No. of traverse points:	
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5
30	6 x 5
36	6 x 6
42	7 x 6
49	7 x 7

Figure 20-6 -- Preliminary Diluent Traverse

a _____



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City, State _____

Turbine identification:
Manufacturer _____
Model, serial number _____

Sample point	Diluent concentration, ppm

6.2 NO(x) and Diluent Measurement. This test is to be conducted at each of the specified load conditions. Three test runs at each load condition constitute a complete test.

6.2.1 At the beginning of each NO(x) test run and, as applicable, during the run, record turbine data as indicated in Figure 20-7. Also, record the location and number of the traverse points on a diagram.

6.2.2 Position the probe at the first point determined in the preceding section and begin sampling. The minimum sampling time at each point shall be at least 1 minute plus the average system response time. Determine the average steady-state concentration of diluent and NO(x) at each point and record the data on Figure 20-8.

Figure 20-7 -- Stationary Gas Turbine Data

Turbine Operation Record

Test operator _____ Date _____

Turbine identification:
Type _____
Serial No. _____

Location:
Plant _____
City _____

Ambient temperature _____
Ambient humidity _____
Test time start _____
Test time finish _____
Fuel flow rate(a) _____
Water or steam flow rate(a) _____
Ambient pressure _____

Ultimate flue analysis:
C _____
H _____
O _____
N _____
S _____
Ash _____
H₂O _____

Trace metals:
Na _____
Va _____
K _____
etc(b) _____

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 {a} Describe measurement method, i.e. continuous flow meter, start finish volumes, etc.
 {b} i.e., additional elements added for smoke suppression.

Figure 20-8 -- Stationary Gas Turbine Sample Point Record

Turbine identification:
 Manufacturer _____
 Model, serial No. _____

Location:
 Plant _____
 City, State _____

Ambient temperature _____
 Ambient humidity _____
 Date _____
 Test time: start _____
 Test time: finish _____
 Test operator name _____

Diluent instrument type _____
 Serial number _____

NO(x) instrument type _____
 Serial number _____

Sample point	Time, min	Diluent(a), %	NO(x)(a), ppm

 {a} Average steady-state value from recorder or instrument readout.

6.2.3 After sampling the last point, conclude the test run by recording the final turbine operating parameters and by determining the zero and calibration drift, as follows:

Immediately following the test run at each load condition, or if adjustments are necessary for the measurement system during the tests, reintroduce the zero and mid-level calibration gases as described in Sections 4.3, and 4.4, one at a time, to the measurement system at the calibration valve assembly. (Make no adjustments to the measurement system until after the drift checks are made). Record the analyzers' responses on a form similar to Figure 20-3. If the drift values exceed the specified limits, the test run preceding the check is considered invalid and will be repeated following corrections to the measurement system. Alternatively, recalibrate the measurement system and recalculate the measurement data. Report test results based on both the initial calibration and the recalibration data.

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SO₂ using Method 6, or equivalent during the test. Select a minimum of 10 total points from those required for the NO(x) measurements; use two points for each sample run. The sample time at each point shall be at least 10 minutes. Average the diluent readings taken during the NO(x) test runs at sample points corresponding to the SO₂ traverse points (see Section 6.2.2) and use this average diluent concentration to correct the integrated SO₂ concentration obtained by Method 6 to 15 percent diluent (see Equation 20-1). If the applicable regulation allows fuel sampling and analysis for fuel sulfur content to demonstrate compliance with sulfur emission unit, emission sampling with Method 6 is not required, provided the fuel sulfur content meets the limits of the regulation.

7. Emission Calculations

7.1 Moisture Correction. Measurement data used in most of these calculations must be on a dry basis. If measurements must be corrected to dry conditions, use the following equation:

$$C(d) = \frac{C(w)}{1 - B(ws)} \quad \text{Eq. 20-1}$$

where:

- C(d) = Pollutant or diluent concentration adjusted to dry conditions, ppm or percent.
- C(w) = Pollutant or diluent concentration measured under moist sample conditions, ppm or percent.
- B(ws) = Moisture content of sample gas as measured with Method 4, reference method, or other approved method, percent/100.

7.2 CO₂ Correction Factor. If pollutant concentrations are to be corrected to 15 percent O₂ and O₂ concentration is measured in lieu of CO₂ concentration measurement, a CO₂ correction factor is needed. Calculate the CO₂ correction factor as follows:

7.2.1 Calculate the fuel-specific F(o) value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation.

$$F(o) = \frac{0.209}{F(d)} \cdot F(c) \quad \text{Eq. 20-2}$$

where:

- F(o) = Fuel factor based on the ratio of oxygen volume to the ultimate CO₂, volume produced by the fuel at zero percent excess air, dimensionless.
- 0.209 = Fraction of air that is oxygen, percent/100.
- F(d) = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm[3]/J (dscf/10[6] Btu).
- F(c) = Ratio of the volume of carbon dioxide produced to the gross calorific value of the fuel from Method 19, dsm[3]/J (dscf[6] Btu).

7.2.2. Calculate the CO₂ correction factor for correcting measurement data to 15 percent oxygen, as follows:

$$K(CO_2) = \frac{5.9}{10 - O_2} \quad \text{Eq. 20-3}$$



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where:

X(CO(2)) = CO(2) Correction factor, percent.

5.9 = 20.9 percent O(2) - 15 percent O(2) the defined O(2) correction value, percent.

7.3 Correction of Pollutant Concentrations to 15 percent O(2). Calculate the NO(x) and SO(2) gas concentrations adjusted to 15 percent O(2) using Equation 20-4 or 20-5, as appropriate. The correction to 15 percent O(2) is very sensitive to the accuracy of the O(2) or CO(2) concentration measurement. At the level of the analyzer drift specified in Section 3, the O(2) or CO(2) correction can exceed 5 percent at the concentration levels expected in gas turbine exhaust gases. Therefore, O(2) or CO(2), analyzer stability and careful calibration are necessary.

7.3.1 Correction of Pollutant Concentration Using O(2) Concentration. Calculate the O(2) corrected pollutant concentration, as follows:

$$C(\text{adj}) = C(\text{d}) \frac{5.9}{20.9 - \%O(2)} \quad \text{Eq. 20-4}$$

where:

C(adj) = Pollutant concentration corrected to 15 percent O(2) ppm.

C(d) = Pollutant concentration measured, dry basis, ppm.

%O(2) = Measured O(2) concentration dry basis, percent.

7.3.2 Correction of Pollutant Concentration Using CO(2) Concentration. Calculate the CO(2) corrected pollutant concentration, as follows:

$$C(\text{adj}) = C(\text{d}) \frac{X(\text{CO}(2))}{\%CO(2)} \quad \text{Eq. 20-5}$$

where:

%CO(2) = Measured CO(2) concentration measured, dry basis, percent.

7.4 Average Adjusted NO(x) Concentration. Calculate the average adjusted NO(x) concentration by summing the adjusted values for each sample point and dividing by the number of points for each run.

7.5 NO(x) and SO(2) Emission Rate Calculations. The emission rates for NO(x) and SO(2) in units of pollutant mass per quantity of heat input can be calculated using the pollutant and diluent concentrations and fuel-specific F-factors based on the fuel combustion characteristics. The measured concentrations of pollutant in units of parts per million by volume (ppm) must be converted to mass per unit volume concentration units for these calculations. Use the following table for such conversions:

Conversion Factors for Concentration

From	To	Multiply by
g/sm[3]	ng/sm[3]	10[9]
mg/sm[3]	ng/sm[3]	10[6]
lb/scf	ng/sm[3]	1.602 x 10[13]
ppm (SO(2))	ng/sm[3]	2.660 x 10[6]
ppm (NO(x))	ng/sm[3]	1.912 x 10[6]



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7.5.1 Calculation of Emission Rate Using Oxygen Correction. Both the O(2) concentration and the pollutant concentration must be on a dry basis. Calculate the pollutant emission rate, as follows:

$$E = C(d) F(d) \frac{20.9}{20.9 - \%O(2)} \quad \text{Eq. 20-6}$$

where:

E = Mass emission rate of pollutant, ng/J (lb/10[6] Btu).

7.5.2 Calculation of Emission Rate Using Carbon Dioxide Correction. The CO(2) concentration and the pollutant concentration may be on either a dry basis or a wet basis, but both concentrations must be on the same basis for the calculations. Calculate the pollutant emission rate using Equation 20-7 or 20-8:

$$E = C(d) F(c) \frac{100}{\%CO(2)} \quad \text{Eq. 20-7}$$

$$E = C(w) F(c) \frac{100}{\%CO(2(w))} \quad \text{Eq. 20-8}$$

where:

C(w) = Pollutant concentration measured on a moist sample basis, ng/sm[3] (lb/scf).

%CO(2(w)) = Measured CO(2) concentration measured on a moist sample basis, percent.

3. Bibliography

1. Curtis, F.A Method for Analyzing NO(2) Cylinder Gases-Specific Ion Electrode Procedure. Monograph available from Emission Measurement Laboratory, ESED. Research Triangle Park, NC 27711, October 1978.
2. Sigsby, John E., F.M. Black, T.A. Bellar, and D.L. Klosterman. Chemiluminescent Method for Analysis of Nitrogen Compounds in Mobile Source Emissions (NO, NO(2), and NH(3)). "Environmental Science and Technology," 7:51 - 54. January 1973.
3. Shigehara, R.T., R.M. Neulicht, and W.S. Smith. Validating Orsat Analysis Data from Fossil Fuel-Fired Units. Emission Measurement Branch, Emission Standards and Engineering Division. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. June 1975.



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Exhibit G
PRICE BREAKDOWN

Turbine/Generator (including freight).....	\$ 4,327,050
Spare Parts for Turbine Generator.....	11,700
Turbine/Generator Commissioning.....	97,500
Construction/Building/Field Test/Training.....	2,784,892
Boilers.....	2,535,168
Electrical Switchgear.....	330,000
Boiler Extras.....	<u>95,035</u>
TOTAL	\$10,181,345



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Construction and
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Exhibit H
KOCH GATEWAY PIPELINE COMPANY
FUEL SPECIFICATION

KJC - Autrod contract 12
5/22/97
HO6-812/PD 1192

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Construction and
Supply Proposal

GENERAL TERMS AND CONDITIONS
Section 2

2. QUALITY

2.1 Unless otherwise specifically provided in an agreement between KGPC and Customer all gas received or delivered shall be natural gas of pipeline quality and shall conform to the following specifications:

- (a) Oxygen - The oxygen content shall not exceed two tenths of one percent (0.2%) by volume, and the parties shall make reasonable efforts to maintain the gas free from oxygen.
- (b) Hydrogen Sulphide - The hydrogen sulphide content shall not exceed one (1) grain per one hundred (100) cubic feet of gas.
- (c) Sulphur - The total sulphur content, including mercaptans and hydrogen sulphide, shall not exceed twenty (20) grains per one hundred (100) cubic feet of gas.
- (d) Carbon Dioxide - The carbon dioxide content shall not exceed three percent (3.0%) by volume.

Issued By: Robin G. Schwenke, General Manager of Rates
Issued On: October 18, 1983

Effective: November 1, 1983

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GENERAL TERMS AND CONDITIONS
Section 2
(Continued)

- (e) Liquids - The gas shall be commercially free of water and other objectionable liquids at the temperature and pressure at which the gas is delivered and the gas shall not contain any hydrocarbons which might condense to free liquids in the pipeline under normal pipeline conditions and shall in no event contain water vapor in excess of seven (7) pounds per one million (1,000,000) cubic feet.
- (f) Dust, Gums and Solid Matter - The gas shall be commercially free of dust, gums, gumforming constituents or other objectionable liquid or solid matter which might become separated from the gas in the course of transportation through the pipeline.
- (g) Heating Value - The gas delivered shall contain a daily or monthly average heating content of not less than nine hundred fifty (950) nor more than eleven hundred seventy-five (1175) Btu's per cubic foot measured on a dry basis, unless otherwise mutually agreed to by KGPC and Customer.
- (h) Temperature - The gas shall have a temperature of not less than forty degrees (40°) Fahrenheit nor more than one hundred twenty degrees (120°) Fahrenheit.
- (i) Nitrogen - The nitrogen content shall not exceed three percent (3%) by volume.
- (j) Hydrogen - The gas shall contain no carbon monoxide, halogens or unsaturated hydrocarbons, and no more than four hundred parts per million (400ppm) of hydrogen.
- (k) Neopentane - The gas shall contain not more than two-tenths (0.20) gallons of neopentane or heavier liquefiable hydrocarbons per Mcf.

Issued By: Robin G. Schwentke, General Manager of Rates
Issued On: September 30, 1986

Effective: November 1, 1994

GENERAL TERMS AND CONDITIONS
Section 2
(Continued)

- 2.2 If at any time gas tendered for delivery under an agreement fails to conform to any of the quality specifications set forth herein, Customer or KGPC, as applicable may, at its option, refuse to accept delivery pending correction of the deficiency by the other party. Acceptance of gas that does not conform to these standards will not prevent either KGPC or Customer as applicable to refuse future deliveries of non-conforming gas.
- 2.3 If at any time KGPC or Customer refuses to accept gas because it fails to meet the quality specifications as defined in these General Terms and Conditions, the delivering party shall immediately cease deliveries of such non conforming gas upon either verbal or written notification. Notwithstanding any other provision of the applicable service agreement, if for any reason the delivering party does not cease deliveries of such gas after notification, the receiving party will not be obligated in any way to accept such gas and may cause or seek to cause such gas to be shut in at the receipt point. In addition, the delivering party shall reimburse the receiving party for any and all damages, costs, fees, and charges of any type incurred by the receiving party as a result of the deliveries by the delivering party of such non conforming gas. Nothing contained herein shall in any way limit either party from seeking and/or utilizing any other remedies that it might have, and nothing herein shall limit the delivering party's obligation to indemnify the other party fully for any damages or losses incurred as a result of such deliveries.
- 2.4 For purposes of this Section 2, KGPC shall apply all specifications, or waivers thereof, on a non-discriminatory basis.

Issued By: Robin G. Schwenn, General Manager of Rates
Issued On: October 18, 1993

Effective: November 1, 1993

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Exhibit I
ES-9-98 Fuel Specification

HC Airprod contract 12
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HC6-812 PD 3192

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Construction and
Supply Proposal

SPECIFICATION

FUEL, AIR, AND WATER (OR STEAM) FOR SOLAR GAS TURBINE ENGINES

Supersedes: ES 9-247; ES 9-251; and ES 1211

Data Control Level <u>1</u>
Release Stamp 

SPECIFICATION NO. ES 9-98

ISSUED: 10/29/82; ERL 5670-1
(Date and ERL No.)

REVISION:
(Letter, Date and ERL No.)

- *A*: 3/29/85; ERL 8648-1
- *B*: 1/29/87; ERL 9338-1
- *C*: 2/20/90; ERL 0210-1
- *D*: 5/24/93; ERL 10900-1
- *E*: Aug 20 83 ERL 11071-1

PREPARED BY:



Lub Han

APPROVED BY:

<u><i>P. J. Wood</i></u>	<u>12/17/82</u>
Process Engineering	Date
<u><i>H. W. Dhal</i></u>	<u>12-17-82</u>
Mars Engineering	Date
<u><i>W. W. Davis</i></u>	<u>12-24-82</u>
Saturn/Centaur Eng.	Date
<u><i>Wilfred S. Young</i></u>	<u>1/5/87</u>
Combustion Eng.	Date
<u><i>M. R. Richardson</i></u>	<u>1/6/87</u>
Auxiliary Eng.	Date
<u><i>Jerry Zetter</i></u>	<u>1/2/87</u>
Quality Engineering	Date




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REV LTR	Signature & Title	Date	Pages Affected
ERL NO.			
'D' 10900-1	BY: <i>Lub He</i> , Chief Process Engineer	5-7-93	ALL 
	APP: W.D. Brentnall Materials & Process Engineering	5-7-93	
	J. Cang Product Engineering	5-7-93	
	G. Pytanowski Product Engineering	5-11-93	
	J. Shinn Power System Engineering	5-11-93	
	P. B. Roberts Combustion Engineering	5-10-93	
	H. Adema Saturn, Centaur Engineering	5-11-93	
'E' 11071-1	BY: <i>Lub He</i> , Chief Process Engineer	8-17-93	Section 6.2 and Row 4 of Worksheet in Appendix A 
	APP: <i>W.D. Brentnall</i> , <i>MR. Matt Brooks</i>	8-17-93	
	BY:		
	APP:		
	BY:		
	APP:		
	BY:		
	APP:		



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REV LTR	SIGNATURE & TITLE	DATE	PAGES AFFECTED
8646-1 A	BY: <i>Wendell D. Clapsen</i>	3/26/85	
	APP: <i>[Signature]</i>	3/27/85	
'B'	BY: <i>Fule Hsu</i>	12-77-86	
9338-1	APP: <i>Wendell D. Clapsen</i>	12-77-86	
	<i>P. J. Wendell</i>	12/17/86	
	<i>L. L. Hsu</i>	1/5/87	
	<i>M. R. Richardson</i>	1/6/87	
	<i>W. W. Davis</i>	1-9-87	
	<i>Greg Zelen</i>	1-12-87	
C	BY: <i>A. D. Hood</i>	2/26/90	
0210-1	APP: <i>L. L. Hsu</i>	2/27/90	
	<i>Robert [Signature]</i>	2/27/90	Typographical error in Table 1;

Changes, additions, and deletions are identified by a circled revision letter and symbol in the right margins. For example:  = change,  = addition, and  = deletion.



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Date: October 29, 1982



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1.0 **SCOPE** - This specification establishes the quality requirements for the fuel, air, and water (or steam) to be used in Solar gas turbine engines.

This specification supersedes all previous Solar fuel, air, or water specifications, including fuel specification ES 1211, ES 9-247, and ES 9-251, for use in Solar gas turbine operation.

1.1 **DEVIATIONS** - Deviations from the limits and requirements herein shall not be considered without specific written approval from Solar Engineering.

2.0 **APPLICABLE DOCUMENTS** - The following documents, of issue in effect on the date of this specification, shall be a part of this specification to the extent specified herein.

SPECIFICATIONS

Solar

- ES 9-62 Ingestive Cleaning Solar Turbine Engines
- ES 2069 Set-up, Installation, and Operating Instructions for Evaporative Coolers
- FORM 2594 Liquid Fuel Suitability Inquiry
- FORM 2595 Gaseous Fuel Suitability Inquiry
- FORM 3091 Total Site Contamination Worksheet
- Solar Publication #86428 'Air, Fuel, and Water Management for Solar Gas Turbine'

American Society for Testing and Materials

- ASTM D88 Method of Test for Distillation of Petroleum Products
- ASTM D93 Method of Test for Flash Point by Pensky - Martens Closed Tester
- ASTM D97- Method of Test for Pour Points
- ASTM D129 Method of Test for Sulphur in Petroleum Products by the Bomb Method
- ASTM D139 Method of Test for Copper Corrosion by Petroleum Products, Copper Strip Test
- ASTM D240 Method of Test for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter



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- ASTM D323 Method of Test for Vapor Pressure of Petroleum Products (Reid Method)
- ASTM D445 Method of Test for Viscosity of Transparent and Opaque Liquids (Kinematic and Dynamic Viscosities)
- ASTM D482 Method of Test for Ash From Petroleum Products
- ASTM D511 Tests for Calcium and Magnesium in Water
- ASTM D524 Method of Test for Ramsbottom Carbon Residue of Petroleum Products
- ASTM D808 Tests for Chlorine in New and Used Petroleum Products (Bomb Method)
- ASTM D859 Tests for Silica in Water
- ASTM D1072 Test for Total Sulfur in Fuel Gases
- ASTM D1253 Tests for Residual Chlorine in Water
- ASTM D1266 Sulfur in Petroleum Products and Liquefied Petroleum Gases (Lamp Method)
- ASTM D1287 Vapor Pressure of Liquefied Petroleum Gases
- ASTM D1293 Tests for pH of Water
- ASTM D1298 Density, Specific Gravity or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
- ASTM D1317 Tests for Chlorine in New and Used Lubricants (Sodium Alcoholate Method)
- ASTM D1319 Method of Test for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Absorption
- ASTM D1428 Tests for Sodium and Potassium in Water
- ASTM D1657 Test Method for Density or Relative Density of Light Hydrocarbons by Pressure Thermohydrometer
- ASTM D1798 Water and Sediment in Crude Oils and Fuel Oils by Centrifuge
- ASTM D1838 Copper Strip Corrosion by Liquefied Petroleum Gases
- ASTM D1888 Tests for Particulate and Dissolved Matter in Water
- ASTM D2163 Analysis of Liquefied Petroleum Gases by Gas Chromatography

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- ASTM D2500 Method of Test for Cloud Point
- ASTM D2598 Calculation of Physical Characteristics of Liquefied Petroleum Gases From Compositional Analysis
- ASTM D2820 Standard Test Method for Total Hydrocarbons, Methane and Carbon Monoxide in the Atmosphere
- ASTM D3605 Trace Metals in Gas Turbine Fuels by Atomic Absorption and Flame Emission Spectroscopy
- ASTM D3365 Test for Concentration and Particulate Size of Airborne Particulates
- ASTM D3373 Tests for Vanadium in Water
- ASTM D3559 Tests for Lead in Water
- ASTM D3588 Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density (Specific Gravity) of Gaseous Fuels
- ASTM D4052 Standard Test Method for Density and Relative Density by Digital Density Meter
- ASTM D4418 Standard Practice for Receipt, Storage, and Handling of Fuels for Gas Turbines
- ASTM D5186 Test Method for Determination of Aromatic Content of Diesel Fuels by Supercritical Fluid Chromatography

Natural Gas Processors Association

NGP 2140-70 Liquefied Petroleum Gas Specifications and Test Methods

Deutsches Institute Fur Normung (DIN)

DIN 51850 Gross and Net Calorific Value of Pure Gaseous Fuels

US Bureau of Mines

Bulletin 627 Flammability Characteristics of Combustible Gases and Vapors

3.0 GENERAL REQUIREMENTS - The requirements stated herein govern the quality of air, fuel, and water (steam) entering the engine, with the understanding that appropriate selection, operation, and maintenance of equipment, both engine and ancillary, are necessary in order to meet performance and life expectations.

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3.1 **UNDESIRABLE CONTAMINANTS** - The contaminants listed here are known to be harmful to engine components and must be controlled to within the maximum allowable limits specified for each contaminant. The total quantity of each contaminant ingested by the engine must be limited regardless of whether it enters through the air, fuel, injected water (steam), or as liquid water carryover from evaporative cooling.

The limits for each of the several critical contaminants from all possible sources are provided in Table 1.

3.2 **SOURCES OF CONTAMINATION** - There are four potential sources of contamination - air, fuel (gas, liquid, or solid), injected water/steam (for NO_x control) and liquid water carryover from the evaporative cooler (if used). In order to effectively control the quality of air, fuel, and water entering the engine as defined in this Specification, Solar's Ancillary Engineering Department shall be consulted in specifying treatment and cleanup systems.

3.3 **DETERMINATION OF TOTAL CONTAMINANTS** - The total concentration of each of the contaminants entering the engine can be determined by using the equations provided here.

For direct fired applications:

$$\text{Total Contaminant} = \frac{18,380}{\text{LHV}} \times [(AFR)A + F + (WFR)W + (CFR)C]$$

For indirect fired applications:

$$\text{Total Contaminant} = 65 \times [A + (WAR)W + (CAR)C]$$

where:

Total Contaminant = total concentration of that particular contaminant, ppmw fuel equivalent (for indirect fired applications, total contaminant is expressed as ppmw air equivalent concentration, normalized to 65 air-to-fuel ratio.

LHV = lower heating value of fuel, Btu/lb

AFR* = air-to-fuel mass ratio

A = concentration of that particular contaminant in air entering the engine, ppmw in air

F = concentration of that particular contaminant in fuel, ppmw in fuel

WFR* = water-to-fuel mass ratio

*Fuel ratios are based on actual fuel rather than combustible fuel.

Table 1. Maximum Allowable Contaminant Concentrations

Contaminant	Limit ⁽¹⁾ in Fuel Equivalent Concentrations	Test Method
Sulfur (see Notes 2, 3, & 4)	1 weight percent or 10,000 ppmw FEC	ASTM D129 or D1072 or D1268
Sodium + Potassium	1 ppmw FEC	ASTM D3605 or D1428
Vanadium	0.5 ppmw FEC	ASTM D3605, D3373
Lead	1 ppmw FEC	ASTM D3605, D3559
Calcium + Magnesium	2 ppmw FEC	ASTM D3605, D511
Fluorine	1 ppmw FEC	
Chlorine	0.15 weight percent or 1,500 ppmw FEC	ASTM D808, D1253, D1317
Others (See Notes 5 & 6)	0.5 ppmw FEC	

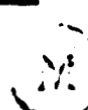
Notes:

- (1) The limits given are FUEL EQUIVALENT CONCENTRATIONS (FEC), i.e., the maximum allowable concentration of each contaminant as if each contaminant is found solely in a fuel with LHV - 18,380 Btu/lb (such as diesel #2). Instructions for performing calculations are provided in Appendix A, Form 3091, Total Site Contamination Worksheet.
- (2) For installations with exhaust heat recovery equipment, it is important to maintain sulfur levels at below the SO₂ dewpoint. Because conversion from SO₂ to SO₃ in the combustor is a function of several factors that are not readily definable, it is recommended that fuel sulfur is limited to less than 0.5% weight FEC. This value is based on 60:1 air-to-fuel ratio at up to 17% conversion for an acid dewpoint of 240°F.
- (3) If sulfur is present in the form of hydrogen sulfide, appropriate precautions must be taken to detect leaks because of the highly toxic nature of this gas even in trace quantities. High sulfur fuels (exceeding limits) may be used with special provisions; however, such fuels must be reviewed and approved by Engineering prior to use.
- (4) U.S. Federal and local Air Pollution control districts may require lower limits for sulfur.
- (5) The following contaminants are unlikely to be present except in unusual or accidental contamination of air, fuel or water supplies. However, if detected at levels greater than 0.5 ppmw FEC fuel equivalent, special treatment and precautions are required.

Mercury	Cadmium	Bismuth	Arsenic
Antimony	Phosphorous	Boron	Gallium
Indium			
- (6) Any other trace element with concentrations over 0.5 ppmw FEC fuel equivalent should be discussed with, and reviewed, by Engineering.



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W	= concentration of that particular contaminant in injected water, ppmw in water
CFR*	= carryover water-to-fuel mass ratio
C	= concentration of that particular contaminant in evaporative cooler water (or feedwater), ppmw in water
WAR	= water-to-air mass ratio
CAR	= carryover water-to-air mass ratio

A WORKSHEET (FORM 3091) WITH INSTRUCTIONS FOR PERFORMING THE ABOVE CALCULATION IS PROVIDED IN APPENDIX A.

(Derivation of the above equation for directly-fired applications and the functional equation used in Form 3091 are included in Appendix B.)

3.4 ADDITIVES - Chemicals can be added to fuel and water treatment systems for specific purposes, e.g., softening, settling out of particulates, inhibition of organic growths, etc. Caution should be exercised to ascertain that the additives are not comprised of critical elements listed in Table 1 and that the maximum allowable limits specified are complied with.

3.5 CUSTOMER SITE DATA REQUIREMENTS - Information as to the condition and quality of the air, water (including steam), and fuel to be ingested by the engine, and other environmentally influenced conditions such as ambient temperature and humidity ranges is required by Solar to adequately define the necessary combustion system configuration, engine controls, settings, protective coatings, devices and operating procedures.

3.5.1 SAMPLING - Sampling and analyses of air, fuel, and water must be performed by Solar approved laboratories. In certain critical applications, either Solar or the customer may specify a particular facility. Unless specifically instructed otherwise, all sampling should be performed at locations just prior to entering the engine.

3.5.2 ADDITIONAL SITE DATA - The following information, if available, is required for all installations:

- ambient temperature range
- ambient humidity range
- altitude
- type of environment (rural, agricultural, residential, arctic, industrial, marine, desert, semi-arid, or tropical)
- fuel conditions (fuel temperature and pressure ranges)

3.6 WATER WASHING REQUIREMENTS - For water washing requirements, refer to Solar Engineering specification ES 9-62.



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4.0 AIR

4.1 **AIR QUALITY** - Air borne constituents such as gases, liquid droplets and solid particles, can contain undesirable contaminants that are considered harmful. Adequate air filtration must be used to remove the bulk of such air borne constituents including water carryover from evaporative cooler applications. The combined concentration of contaminants from air, fuel and water (steam) shall meet the requirements of Section 3.1 and the maximum limits specified in Table 1.

4.1.1 **ADDITIONAL LIMITS** - In addition, quality of air entering the air inlet shall also meet the following requirements.

Maximum particle size	≤10 microns	ASTM D3365
Total particulates	≤500 ppmw	
Total combustibles	≤5 ppmw	ASTM D2820

4.2 **CONCENTRATION OF AIR BORNE CONTAMINANTS** - Air borne contaminants constitute only one of several means by which contaminants enter the turbine engine. The minimum air quality allowed depends on the quality of the other fluids, such as injected water, fuel, and water carryover (if applicable). In order to assess the impact of air borne contaminant(s) on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each air borne contaminant can be calculated using the following function.

$$\text{Concentration in air, ppmw FEC} = \text{AFR} \times \frac{18380}{\text{LHV}} \times A (1-N)$$

where AFR = air-to-fuel ratio
LHV = lower heating value, Btu/lb
A = concentration in ambient air, ppmw
N = air cleaner efficiency, expressed as value <1.0

4.2.1 **CONCENTRATION GUIDELINES FOR AIR BORNE CONTAMINANTS** - In general, air borne contaminants are expected to contribute less than 20% of the total concentration allowed except when air and fuel are the two fluids present. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for air borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

4.3 **SITE SPECIFIC CONTAMINANTS IN AIR** - If ambient air at a particular site is known to be of poor quality, based on prior experience or influence of industries and/or activities in the vicinity, ancillary equipment specifications must be reviewed with the Ancillary Engineering group at Solar to ascertain compliance with all the requirements of this specification.

4.4 **GUIDELINES** - Inlet air filtration principles and guidelines are provided in Solar Publication #81028, "Application Guidelines for Treatment of Turbine Inlet Air".

Table 2. Guidelines for Contaminant Concentrations
(for nominal operating conditions with natural gas fuel)

Available Sources	Air Borne Contaminants (% of Total)	Fuel Borne Contaminants (% of Total)	(Inj.) Water Borne Contaminants (% of Total)	Contaminants From E/C Carryover (% of Total)
Air + Fuel	<70	<10	0	0
Air + Fuel + Inj. Water	<20	<10	<50	0
Air + Fuel + Inj. Water + E/C	<20	<10	<20	<30
Air + Fuel + E/C	<20	<10	0	<50

Notes: These values are provided only as guidelines and they are based on experience at Solar. Because of the inexactness of some of the values involved in the calculations, a 20% margin is built in to the numbers provided here.

5.0 INJECTED WATER (OR STEAM)

5.1 WATER QUALITY - The quality of water injected into the combustor for NO_x control must meet the general requirements defined in Section 3.1 as well as the specific requirements described here.

	Limit	Test Method
pH	5.5 to 8.5	ASTM D1293
Suspended solids	≤2.8 mg/l	ASTM D1888
Maximum particle size	10 microns	
90% of particles	≤5 microns	
Dissolved Silica	≤0.1 ppmw SiO ₂ (≤0.1 mg/l)	ASTM D859

5.2 CONCENTRATION OF (INJECTED) WATER BORNE CONTAMINANTS - Water borne contaminants from injected water/steam constitute only one of several means by which contaminants enter the turbine engine. The minimum water quality allowed depends on the quality of the other fluids, such as air, fuel, and water carryover (if applicable). In order to assess the impact of water borne contaminant(s) from injected water/steam on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each water borne contaminant can be calculated using the following function.

$$\text{Concentration in water, ppmw FEC} = \text{WFR} \times \frac{18300}{\text{LHV}} \times W$$

where WFR = water-to-fuel ratio
 LHV = lower heating value, Btu/lb
 W = concentration of contaminant in injected water, ppmw

5.2.1 CONCENTRATION GUIDELINES FOR (INJECTED) WATER BORNE CONTAMINANTS - In general, water borne contaminants from injected water are expected to contribute less than 50% of the total concentration allowed. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for injected water (steam) borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

5.3 BOILER FEEDWATER - In general, boiler feedwater is not suitable for use in water injection; additional treatment to remove dissolved and suspended contaminants is usually required to satisfy all the requirements of this specification.

5.4 OPERATION - It is recommended that Ancillary Engineering is consulted in selecting appropriate equipment for treatment water. Continuous monitoring of water quality is strongly recommended with an alarm or auto shut down device installed between the final stage of treatment and the fuel injector manifold. The trip point shall be set to ensure that water entering the combustor is within the allowable limits of this specification.

6.0 EVAPORATIVE COOLER WATER

6.1 GENERAL - For operation in hot and dry environments, evaporative cooling is commonly employed for power augmentation. The design/selection, installation and maintenance of evaporative cooler equipment is critical to engine operation and longevity and also effects the extent of water carryover into the airstream. Appropriate treatment of feedwater must be specified in order to comply with the total requirements of this specification.

6.1.1 EVAPORATIVE COOLER EQUIPMENT - Instructions for set-up, installation and operation of evaporative coolers are provided in the engine manual and in Engineering specification ES 2069.

6.1.2 DEIONIZED WATER - Do not use deionized water unless the evaporative cooler has been specially designed for it. The use of deionized water will require the use of stainless steel construction and binder reinforced media.

6.1.3 SOFT WATER - Soft water is usually high in sodium salts and low in calcium and magnesium salts. Therefore, soft water cannot be used for evaporative cooling unless it can be proven that sodium + potassium (and any other dissolved salts present) are in compliance with the requirements of Section 3.1.

6.2 CONCENTRATION OF CONTAMINANTS IN WATER CARRYOVER - Contaminants from evaporative cooler water carryover constitute only one of several means by which contaminants enter the turbine engine. The minimum evaporative cooler water quality allowed

depends on the quality of the other fluids, such as air, fuel, and injected water. In order to assess the impact of contaminant(s) from evaporative cooler water carryover on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each contaminant can be calculated using the following function.

$$\text{Concentration in water carryover, ppmw FEC} = C \times R \times \frac{(1 - E)}{f} \times 9.2$$

- where C = concentration in water delivered to header of evaporative cooler, ppmw (for recirculating system, C = concentration in reservoir; for non-recirculating system, C = concentration of feedwater)
 R = carryover rate, gallons per minute (see Section 6.2.2)
 E = mist eliminator efficiency, expressed as <1.0
 f = fuel flow rate, MBtu/hour (10⁶ Btu/hour)

6.2.1 CONCENTRATION GUIDELINES FOR CONTAMINATION IN EVAPORATIVE COOLER WATER - In general, contaminants from evaporative cooler carryover are expected to contribute less than 50% of the total concentration allowed. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for water carryover contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline. (Refer to ES 2069 for details on evaporative cooler installation and operation.)

6.2.2 CARRYOVER RATE - In the absence of actual measurements, the following estimated carryover rates can be used.

Mars	1.7 gpm
Taurus	1.3 gpm
Centaur Type H	0.9 gpm
Saturn	0.5 gpm

6.3 WATER CARRYOVER - While water carryover can be effectively reduced or eliminated with correct equipment specification and installation/operation, it is also recognized that system upsets can be expected to occur during the life cycle of the engine when water from the evaporative cooler can accidentally enter the compressor as liquid water droplets of varying size. Vane type mist eliminators (refer to Solar Publication #81026 for principles and operation) are strongly recommended for evaporative cooler applications as a means of further reducing or eliminating water carryover. Nevertheless, the general requirements in Section 3.1 include evaporative cooler water carryover as a potential source of contamination.

6.4 ADDITIONAL LIMITS FOR EVAPORATIVE COOLER WATER

	<u>Limits</u>
pH	6-9
Turbidity	≤5,000 turbidity units (also know as Jackson units)
Hardness	160 ppmw CaCO ₃



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6.5 OTHER CONTAMINANTS - Algae, aromatic hydrocarbons, oils, grease and wetting/dispersing agents such as phosphates can be harmful to the evaporative cooler media pad. Precautions must be exercised to prevent the formation or introduction of these contaminants into the feedwater.

7.0 FUEL

7.1 GASEOUS FUELS - Gaseous fuels which meet the limits in Table 3 can be used in the standard fuel systems. Fuels which do not meet these limits must be reviewed by Solar. If judged suitable for use, control and/or combustor modifications will generally be required.

7.1.1 GASEOUS FUEL SUITABILITY - The Solar Gaseous Fuel Suitability Inquiry Form 2595 must be completed. In addition, any entrained solid contaminants should be identified, along with their concentrations and size. For gaseous fuels, if water is known to be present, even in minute quantities, the concentration of salts dissolved in this water must be included when calculating the amount of contaminants contributed by the water portion of this fuel to the total system.

7.1.2 GASEOUS FUEL SUPPLY PRESSURE - Fuel supply pressure should be maintained at constant level to minimize wear damage to the fuel control system caused by fluctuating and unstable fuel pressures.

7.2 DISTILLATE FUELS - Distillate fuel shall be a homogeneous mixture of hydrocarbon compounds. The fuel, when received, shall be clear, bright, and free of any haze, as viewed in ordinary light through a clear vessel. Technical requirements shall be as specified in Tables 4 and 5.

7.2.1 DISTILLATE FUEL SUPPLY TEMPERATURE - Distillate fuel supply temperature at turbine package fuel inlet shall be no lower than the temperature at which the viscosity is 12 centistokes or cloud point temperature plus 10°F, whichever is higher. The fuel supply temperature shall not be lower than -65°F nor higher than +140°F.

7.2.2 DISTILLATE FUELS - Solar Fuel Suitability Inquiry Form 2594 must be completed.

7.3 NATURAL GAS LIQUID FUELS - Natural gas liquid fuels shall consist primarily of saturated paraffinic hydrocarbons such as ethane, propane, butane, pentane, hexane and heptane either individually or mixtures of some or all of the above. Technical requirements shall be as specified in Table 6.

7.3.1 NATURAL GAS LIQUID SUPPLY TEMPERATURE - Liquid gas supply temperature at the fuel inlet to the package shall be between -65 and +90°F and shall be in a liquid phase only.



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Table 3. Requirements for Gaseous Fuels

Fuel Volume Ratio (1220/WOBBE Index*)	0.9 to 1.1
Fuel Mass ratio (21550/LHV Btu/lb)	<5
Hydrogen Content	<4% by volume
Carbon Monoxide Content**	<12.5% by volume
Ratio of Flammability Limits	
Upper flammability limit ***	>2.2 for Saturn
Lower flammability limit	>2.8 for Centaur and Mars
Stoichiometric Flame Temperature with Air Temperature Equal to Compressor Discharge Temperature at Design Point	>3600°F (1980°C)
Total Particulates	<30 ppmw x (LHV/21500)
Maximum Particle Size	10 micron
Gas Supply Temperature (at inlet flange of package):	At least 10°F above dew point temp (both natural gas liquids and water) of the fuel at operating pressure (no liquids are allowed in the fuel gas), and shall not be lower than -40°F nor higher than 160°F.
<p>*WOBBE Index = Lower Heat Value (use ASTM 3588 or DIN 51850 for individual component heating values) in Btu/Scf divided by the square root of the relative density (specific gravity).</p> <p>**If carbon monoxide is present in the fuel gas, precautions must be taken to detect leaks</p> <p>***Flammability limits at 1 atm and 25°C as defined by M.G. Zabetakis, US Bureau of Mines Bulletin 627.</p>	
<p>Notes:</p> <p>If the required fuel temperature is above ambient air temperature, adequate thermal insulation and heat tracing of fuel lines and fuel control system is required to avoid condensation. If condensates form during shutdown or are otherwise introduced, provisions should be made to drain fuel lines just before start up to ensure that gas fuel condensation is completely eliminated.</p>	

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Table 4. Distillate Fuels - Physical Requirements

		<u>Test Method</u>
a.	Contaminants	
	<u>Solid</u> - The fuel shall contain less than 2.8 mg per liter of sediment, solid or hard contaminants, 90% of the 2.8 mg shall be less than 5 microns in size. Maximum allowable particle size shall be less than 10 microns.	ASTM D1796 or by use of Millipore microscan contamination detector
	<u>Liquid</u> - The fuel shall contain less than 0.25 cc free water per liter at an ambient temperature of 80°F.	ASTM D1796 or by use of Millipore microscan contamination detector
b.	Kinematic Viscosity*	
	The kinematic viscosity of the fuel shall be within the following limits:	
	Maximum: 12 centistokes	ASTM D445
	Minimum: 1 centistoke, at 100°F	ASTM D445
c.	Relative Density (Specific Gravity)	
	Relative Density shall be between 0.775 and 0.875.	ASTM D1298 or ASTM D4052
d.	Reid Vapor Pressure*	
	The vapor pressure of the fuel shall be less than 3 psia.	ASTM D323
e.	Cloud Point	
	The cloud point shall be at least 10°F below the expected minimum ambient temperature.	ASTM D2500
f.	Pour Point	
	Pour point shall be at least 10°F below the cloud point temperature	ASTM D97
<p>*EXCEPTIONS Naphtha fuels which have a viscosity of 0.5 to 1.0 centistokes, relative density below 0.775, and vapor pressure above 3 psia will be considered. Use of these fuels will require modification to the standard fuel system.</p>		



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Table 5. Distillate Fuels - Chemical Requirements

		Test Method
a.	Flash Point	
	100°F minimum or legal limit	ASTM D93
b.	Distillation	
	90% evaporated 640°F maximum. End point 690°F maximum	ASTM D88
c.	Aromatics	
	35% by volume maximum	ASTM D1319*
d.	Olefins and Diolefins	
	5% by volume maximum	ASTM D1319
e.	Lower Heating Value	
	18,000 Btu/lb minimum	ASTM D240
f.	Carbon Residue on 10% Distillation Residue	
	0.35% maximum	ASTM D524
g.	Ash	
	0.005% by weight maximum	ASTM D482
h.	Copper Strip Corrosion	
	No. 3 (3 hr at 122°F)	ASTM D130

*Use ASTM D5186 for fuels having final boiling points over 600°F.



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Table 6. Natural Gas Liquid Fuels - Physical and Chemical Requirements

<u>Property</u>	<u>Allowable Limits</u>	<u>Test Method</u>
Composition percent by volume	Report	ASTM D2163
Vapor pressure at 100°F (38°C)	780 psia maximum	ASTM D1267 or ASTM D2598
Relative density at 60°F/60°F (15°C/15°C)	0.37 to 0.68	ASTM D1657 or ASTM D1298
Copper strip	No. 1 maximum	ASTM D1838
Moisture content for fuels with relative density 0.37 to 0.51	Pass	Use one of the methods for moisture content as described in the Commercial Propane Dryness Test, Cobalt Bromide Method or Dew Point Method of the Natural Gas Processors Association Publication 2140
Free water content for fuels with relative density of 0.51 to 0.68	None	ASTM D1657 - The presence or absence of water shall be determined by inspection of the sample on which the relative density is determined
Solid contaminants	Less than 2.6 mg of sediment per liter of fuel	ASTM D1796
	90% of sediment shall be less than 5 microns in size	
	Maximum size of any solid sediment particle shall be less than 10 microns	
Lower Heating Value	18,000 Btu/lb minimum	ASTM D240



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7.3.2 NATURAL GAS LIQUID FUELS - The following information is required to determine the suitability of natural gas liquids:

Composition on a volumetric gases
Vapor pressure at 100°F
Relative density at 60°F
Viscosity at 100°F

7.4 MULTIPLE FUEL SOURCES - If more than 1 fuel source is available, individual fuel analyses of all fuel sources must be submitted to review to ensure proper fuel handling.

7.5 CONCENTRATION OF FUEL BORNE CONTAMINANTS - Fuel borne contaminants constitute only one of several means by which contaminants enter the turbine engine. The minimum fuel quality allowed depends on the quality of the other fluids, such as air, injected water and water carryover (if applicable). In order to assess the impact of fuel borne contaminants on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each fuel borne contaminant can be calculated using the following function.

$$\text{Concentration in fuel, ppmw FEC} = \frac{18380}{\text{LHV}} \times (1-K) \times F$$

where LHV = lower heating value, Btu/lb

K = fuel cleanup (if applicable), expressed as value <1.0

F = concentration in fuel entering combustor, ppmw

7.5.1 CONCENTRATION GUIDELINES FOR FUEL BORNE CONTAMINANTS - In general, contaminants from fuel are expected to contribute less than 10% of the total concentration allowed. Depending on the fuel of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for fuel borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

8.0 HANDLING AND STORAGE OF DISTILLATE FUELS

8.1 TEMPERATURE - Fuel should not be stored permanently at ambient temperature above 100°F.

8.2 MAINTENANCE - Fuel should be changed completely or refiltered at least once a year or more frequently, depending on ambient temperatures and contamination experience. Fuel under continuous storage should be cleaned periodically to maintain level below that specified in Table 4a.

8.3 STORAGE TANKS - Fuel storage tanks should be constructed of corrosion resistant materials, be well ventilated and provide easy access for cleaning. Storage tanks should be provided with low point bottom water drainage taps and should be equipped with floating suction to prevent water ingestion with fuel.



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8.4 CLEANING - Fuel tanks should be drained, cleaned, flushed, and scoured whenever necessary to control contamination problems.

8.5 FUEL SYSTEM COMPONENTS - Fuel system components such as tanks, lines, fittings, or valves containing copper, zinc, or cadmium in the base metal or plating should not be used.

8.6 TANK COATING - Any interior tank coating should be insoluble in and non-reactive with the fuel.

8.7 SAMPLING - To determine compliance of the fuel with this specification, samples of fuel received from fuel supplier should be taken upon receipt of the fuel, and submitted for chemical analyses.

8.8 ADDITIONAL INFORMATION - Refer to ASTM D4418 for more information on handling and storage of fuels.

9.0 NOTES

9.1 SIGNIFICANCE OF LIMITS - The following subparagraphs explain the significance of limits in Sections 3.1 to 3.4 herein.

9.1.1 SULFUR - Regardless of its point of origin, the presence of sulfur in the combustor will burn or oxidize to form sulfur dioxide. In the presence of even minute quantities of sodium and potassium in the combustor environment (excess oxygen and high thermal load), sodium and potassium sulfates are readily formed. These salts with melting points in the operating range of the gas turbine, will condense on to turbine airfoil surfaces and react with the base metal, resulting in hot corrosion degradation. In general, it has been found impractical to prevent corrosion by limiting the sulfur content of the fuel, so corrosion of this type is controlled by limiting the sodium and potassium. Gas turbine with waste heat recovery equipment must operate above the sulfuric acid dewpoint which may require additional sulfur control to prevent cold end corrosion. Additionally, US Federal and certain local air pollution regulations require more restrictive limits on sulfur.

9.1.1.1 HYDROGEN SULFIDE - Hydrogen sulfide can occur both in natural gas, process and manufactured gases. It is corrosive to some materials such as bronze and brass used in fuel gas systems, the corrosiveness being more severe in the presence of water and at high pressure. If the sulfur exceeds the limit then the fuel system materials must be upgraded. Hydrogen sulfide burns to sulfur dioxide and sulfur trioxide which results in the corrosion described above. Some manufactured gases also contain organic sulfur compounds which are corrosive to some control system materials. Since hydrogen sulfide is toxic, if it is present in the gas, precautions must be taken to detect leaks.

9.1.2 SODIUM AND POTASSIUM - Sodium and potassium can combine with vanadium to form eutectic which melt at temperatures as low as 1060°F (566°C) and can combine with sulfur in the fuel to yield sulfates with melting points in the operating range of the gas turbine. These compounds produce severe corrosion in the turbine hot section. Accordingly, the sodium plus potassium level must be limited, but each element must be measured separately.

These elements can be removed by water washing and subsequent removal with a centrifuge or electrostatic precipitator.

9.1.3 VANADIUM - Vanadium can form low melting compounds such as vanadium pentoxide which melts at 1275°F (691°C), and alkali metal vanadates which melt as low as 1050°F (566°C) which can cause severe corrosive attack on all of the high temperature alloys in the gas turbine hot section.

9.1.4 MERCURY - Mercury compounds are corrosive to aluminum, copper, lead, and silver; therefore, these materials are to be avoided if mercury is present. Mercury compounds are not known to be corrosive to the hot section of a gas turbine. Mercury in the exhaust of the turbine must be limited to comply with local regulations.

9.1.5 LEAD - Lead can cause corrosion and in addition, it can spoil the beneficial effect of magnesium additives on vanadium corrosion. Since lead is rarely found in significant quantities in crude oils, its appearance in fuel oils is primarily the result of contamination during processing or transportation.

9.1.6 FLUORINE AND CHLORINE - Halides such as fluorine and chlorine as well as alkali/mixed halides and alkali sulfates can attack the protective oxide scale on hot turbine components, thus accelerating the rate of oxidation.

9.1.7 CALCIUM AND MAGNESIUM - Calcium and magnesium are not harmful from a corrosion standpoint; in fact, it serves to inhibit the corrosive action of vanadium. However, calcium can produce hard bonded deposits that are not self-spalling when the gas turbine is shut down. These hard bonded deposits are not readily removed by water washing of the turbine (Ref. ES 9-62). The fuel washing systems used to reduce the sodium and potassium levels will also reduce calcium levels.

9.1.8 OTHER TRACE METALS - Oxides of other trace metals with or without other impurities can be deposited on blades and vanes forming extremely hard and difficult-to-remove deposits. The presence of these oxides will also increase the rate of oxidation of blade and vane alloys at high temperatures.

9.1.9 PARTICULATES IN AIR - Inert particulates in the turbine inlet air cause erosion and/or fouling of the compressor section. By limiting the size of the particulates, erosion is minimized. Contamination of the compressor blading is caused by smaller particulates. Factors such as humidity, presence of oil or soot and dust particle composition affect the rate of fouling.

9.1.10 SOLIDS IN WATER - Inert solid particles in water can cause wear and plugging of control components and fuel injectors. Malfunctions of the control system and damage to the combustor and turbine section would be the result.

9.1.11 pH OF WATER - The pH of water is limited from slightly acidic to slightly basic. Strong bases or acids would attack various components in the water control and injection system. -

9.1.12 FUEL GAS VOLUME RATIO - The fuel gas volume ratio is an indication of the capability of the fuel control to properly schedule the fuel flow. If this ratio is within the specified limits, the standard system without modifications can be used. Ratios with values up

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to 2 can be handled with minor modifications to the fuel injection system. If the ratio is between 2 and 4, the modifications are substantial and if the ratio is above 4, a redesign of the combustor is required.

9.1.13 FUEL GAS MASS RATIO - The fuel gas mass ratio is an indication of the effects of the fuel mass flow on the performance and matching of the turbine. Ratios up to 5 are acceptable without modification. If the ratio is between 5 and 10 then a fuel meeting the standard requirements must be used for start and acceleration to avoid compressor surge. If the ratio is above 10, extensive turbine redesign is required to accommodate larger turbine mass flow.

9.1.14 HYDROGEN AND CARBON MONOXIDE IN GAS - The presence of hydrogen and/or carbon monoxide in the fuel gas above the specified levels can cause safety and materials problems. If hydrogen level is above 4% by volume, a review of the fuel system materials for hydrogen embrittlement is required. If hydrogen level is between 4 and 9% or carbon monoxide level is between 12.5 and 18%, then a specially sequenced start and purge system must be used. At hydrogen levels above 9% or carbon monoxide level is between 12.5 and 18%, then a specially sequenced start and purge system must be used. At hydrogen levels above 9% or carbon monoxide levels above 18%, starts and accelerations must be made on a standard fuel with transfer to the hydrogen or carbon monoxide bearing fuel at idle or above. If hydrogen level is above 4% or carbon monoxide is above 12.5%, special safety provisions must be taken such as detectors in the package, separation of the engine and generator compartments, and leak-free piping joints. Since carbon monoxide is toxic, if it is present in the fuel gas, precautions must be taken to detect leaks.

9.1.15 FLAMMABILITY - The ratio of the upper-to-lower flammability limits is an indication of whether the gas will allow engine starting and adequate range of operation, in particular on single shaft generator sets.

9.1.16 FLAME TEMPERATURE - The adiabatic flame temperature of gas fuels is used to determine its suitability. If the value is below the limit, major combustion system modifications and/or changes to operating procedures may be required.

9.1.17 PARTICULATES IN GAS - Solid particles in gas can cause wear and plugging of control components and fuel injectors. Malfunctions of the control system and damage to the combustor and turbine section would be the result.

9.1.18 FUEL SUPPLY TEMPERATURE - For gas fuels there are two considerations: one is the dew point. The fuel must be supplied to the package 10°F above the dew point to ensure that no liquids can enter the fuel control and injection system. Liquids in a gas system cause malfunction and serious thermal damage to the engine if liquid is injected with the gas into the engine. The other consideration is the thermal capability of the materials in the control system.

For distillate fuels, the temperature must be above the cloud point to prevent plugging of the filters and control components. It must also be above the temperature that corresponds to a viscosity of 12 centistokes to ensure satisfactory atomization required for starting performance. The range of allowable temperatures is determined by the thermal capabilities of the materials in the control system.

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For natural gas liquid fuels, the allowable temperature range is determined by the control system materials and the critical point of the lightest fuel. This latter constraint is to limit the vapor pressure on the fuel.

9.1.19 VISCOSITY - Viscosity of a fluid is a measure of its resistance to flow. In distillate fuel it is highly significant since it indicates both the relative ease with which the fuel will flow or may be pumped and a measure of atomization by the fuel injectors. Minimum viscosity is limited because standard fuel pumps will not perform satisfactorily if viscosity reaches too low a value. Maximum viscosity is limited since too high a viscosity can cause excessive pressure losses in the piping system and poor fuel atomization.

9.1.20 RELATIVE DENSITY OF DISTILLATE - Relative density alone is of no significance as an indication of the burning characteristics of fuel oil. However, when used in conjunction with other properties, it is of value in weight-volume relationships and in calculating the heating value of the fuel.

9.1.21 REID VAPOR PRESSURE - The Reid vapor pressure is a criterion of freedom from foaming and fuel slugging due to vaporization of the fuel. Special fuel systems are required if the Reid vapor pressure is above the specified level.

9.1.22 CLOUD AND POUR POINTS - Cloud point is the temperature at which a cloud or haze of wax crystals appears. Operation at temperatures below the cloud point causes plugging of filters. Pour point is an indication of the lowest temperature at which a fuel can be stored and still be capable of flowing under gravitational forces. The cloud and pour points are prescribed in accordance with the conditions of storage and use. Heated tanks and lines may be required where ambient temperature is below the cloud and pour points of the proposed fuels.

9.1.23 FLASH POINT - Flash point is an indication of the maximum temperature at which a fuel can be stored and handled without serious fire hazard. The minimum permissible flash point is usually regulated by Federal, State, or Municipal laws and is based on accepted practices in handling and use.

9.1.24 DISTILLATION - The distillation test indicates the volatility of a fuel and the ease with which it can be vaporized and burned. It also indicates the possibility of carbon deposition and smoke formation.

9.1.25 AROMATICS AND OLEFINS - Combustion of highly aromatic fuels can result in increased smoke. Carbon or soot deposition and increased combustor metal temperature resulting in exhaust particulate emissions, opacity violations, and reduced engine life.

Use of fuels with excessive olefin content can result in decomposition of the fuel which causes plugging of fuel system components including the fuel injectors.

9.1.26 LOWER HEATING VALUE (LHV) - The lower heating value is used to calculate actual fuel consumption. Also, if the value for distillate fuels is below the limit, it is an indication of a heavy fuel which may have other properties exceed in the limits.

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9.1.27 CARBON RESIDUE - Carbon residue is a measure of the carbonaceous material left in a fuel after all the volatile components are vaporized in the absence of air. It is a rough approximation of the tendency of a fuel to form carbon deposits in the combustion system of the gas turbine.

9.1.28 ASH - Ash is the noncombustible material in a fuel. Ash-forming materials may be present in fuel in two forms: (1) solid inert particles and (2) oil or water-soluble metallic compounds. The solid particles are for the most part the same material that is designated as sediment in the water and sediment test. Depending on their size, these particles contribute to wear in the fuel system and to plugging of fuel filter and fuel injectors. The soluble metallic compounds have little or no effect on wear or plugging, but may contain elements that produce hot section corrosion and deposits as described above.

9.1.29 COPPER STRIP CORROSION - This test provides an indication of possible corrosive attack of non-ferrous metals such as copper, brass, and bronze.

9.1.30 WATER AND SEDIMENT IN DISTILLATES - Appreciable amounts of water and sediment in fuel tend to cause fouling of the fuel-handling facilities and to give trouble in the fuel system of the turbine. An accumulation of sediment in storage tanks and on filter screens may obstruct the flow of fuel from the tank to the package. Water in distillate fuels may cause corrosion of tanks and equipment. Water in the fuel also provides a place for microbiological growths to occur. These growths can plug filters and screens and can promote corrosion of fuel tanks.

9.1.31 COMBUSTIBLES IN AIR - If combustibles are ingested into the engine inlet, the hydrocarbon and carbon monoxide levels in the exhaust will be increased assuming none of the combustibles complete combustion.

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APPENDIX A

TOTAL SITE CONTAMINATION WORKSHEET

FORM 3091

(Blank form and Sample Calculation)



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CUSTOMER		DATE ISS	DATE REQUIRED
ENGINE MODEL	FUEL	FREQUENCY OF STARTS	RUNNING TIME PER START
EQUIPMENT LOCATION	LOAD CONDITIONS <input type="checkbox"/> HIGH <input type="checkbox"/> LOW <input type="checkbox"/> STEADY <input type="checkbox"/> CYCLIC		
ALTITUDE FEET	AMBIENT TEMPERATURE RANGE °F MAXIMUM: °F MINIMUM		AVERAGE HUMIDITY

INSTRUCTIONS - Enter best known values. Explanations and helpful information are provided on the reverse side. Perform calculations as indicated to obtain total site contamination for each (or all) species of interest.

EVAPORATIVE COOLER YES NO WATER PUNCTION YES NO

	Concentrations, ppmw	Na + K	S	V	Pb	F	Ca + Mg
1	Ambient Air, ppmw						
2	Fuel, ppmw						
3	Injected Water, ppmw						
4	Evaporative cooling water, ppmw						
5	LHV, Btu/lb						
6	Compute: $18.350(5)$						
Air	7	Air-to-Fuel Ratio					
	8	1 - N (Correction Factor)					
	9	Compute: $(1) \times (6) \times (7) \times (8)$, ppmw FEC					
Fuel	10	1 - K (Fuel Factor)	0	0	0	0	0
	11	Compute: $(3) \times (6) \times (12)$, ppmw FEC					
Water	12	Water-to-fuel Ratio					
	13	Compute: $(3) \times (6) \times (12)$, ppmw FEC					
Evaporative Cooling	14	E.C. Carryover Rate, GPM					
	15	1 - E (Mist eliminator Factor)					
	16	Fuel Flow rate, million Btu/hr					
	17	Compute: $\frac{(9)(10)(14)(15)(16) \times 10^6}{(6)}$, ppmw FEC					
18	Total Contaminants, ppmw FEC $(9) + (11) + (13) + (17)$						
19	Max. Allowable Limits, ppmw FEC per ES 9-08	1	10,000	0.5	1	1	2

COMMENTS

PREPARED BY: _____ DATE: _____

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IV

Row #	Term Explanation	Typical Val.																												
1	Concentration of contaminant in ambient air, expressed as ppmw in air	Unless available for site of interest, select most appropriate value for S and Na+K from ranges given below. All other contaminants are assumed to be zero unless specifically known to be present. <table border="1"> <thead> <tr> <th>S (ppmw)</th> <th>Typical Val.</th> <th>Na+K (ppmw)</th> <th>Typical Val.</th> </tr> </thead> <tbody> <tr> <td><0.001</td> <td>Moderately clean</td> <td>>0.001</td> <td>Arctic</td> </tr> <tr> <td>0.050-0.007</td> <td>City</td> <td>>0.010</td> <td>Agricultural/Residential</td> </tr> <tr> <td><0.100</td> <td>Industrial</td> <td>0.003-0.010</td> <td>Industrial</td> </tr> <tr> <td>>0.100</td> <td>Processing/Chemical Plant</td> <td>0.007-0.260</td> <td>Coastal (less than 1 mile)</td> </tr> <tr> <td></td> <td></td> <td>0.010-0.135</td> <td>Desert</td> </tr> <tr> <td></td> <td></td> <td>0.010-3.800</td> <td>Offshore platform</td> </tr> </tbody> </table>	S (ppmw)	Typical Val.	Na+K (ppmw)	Typical Val.	<0.001	Moderately clean	>0.001	Arctic	0.050-0.007	City	>0.010	Agricultural/Residential	<0.100	Industrial	0.003-0.010	Industrial	>0.100	Processing/Chemical Plant	0.007-0.260	Coastal (less than 1 mile)			0.010-0.135	Desert			0.010-3.800	Offshore platform
S (ppmw)	Typical Val.	Na+K (ppmw)	Typical Val.																											
<0.001	Moderately clean	>0.001	Arctic																											
0.050-0.007	City	>0.010	Agricultural/Residential																											
<0.100	Industrial	0.003-0.010	Industrial																											
>0.100	Processing/Chemical Plant	0.007-0.260	Coastal (less than 1 mile)																											
		0.010-0.135	Desert																											
		0.010-3.800	Offshore platform																											
2	Concentration of contaminant in fuel supply expressed as ppmw in fuel	For gas fuels, and residual liquid water from processing can be very high in dissolved salts. If possible, analysis of trace water present in gas fuel is the best method for obtaining reliable data. For liquid fuels, direct measurement for contaminants is recommended. Some APPROXIMATE values for S and Na+K are provided here: <table border="1"> <thead> <tr> <th>S (ppmw)</th> <th>Na+K (ppmw)</th> <th>Typical Val.</th> </tr> </thead> <tbody> <tr> <td><6,000</td> <td><0.1</td> <td>pipeline gas</td> </tr> <tr> <td>>10,000</td> <td>>3.0</td> <td>process gas</td> </tr> <tr> <td>>10,000</td> <td>>3.0</td> <td>biomass gas</td> </tr> <tr> <td>>10,000</td> <td>>1.0</td> <td>distillate liquid fuel</td> </tr> </tbody> </table>	S (ppmw)	Na+K (ppmw)	Typical Val.	<6,000	<0.1	pipeline gas	>10,000	>3.0	process gas	>10,000	>3.0	biomass gas	>10,000	>1.0	distillate liquid fuel													
S (ppmw)	Na+K (ppmw)	Typical Val.																												
<6,000	<0.1	pipeline gas																												
>10,000	>3.0	process gas																												
>10,000	>3.0	biomass gas																												
>10,000	>1.0	distillate liquid fuel																												
3	Concentration of contaminant in injected water, expressed as ppmw in water	Contaminants in treated water at entry into combustor should be known, either based on actual water analyses or equipment specifications (a/w to shut down limit).																												
4	Concentration of contaminant in water delivered to header of evaporative cooler, expressed as ppmw	Contaminants in reservoir (for recirculating systems) or feedwater (for non-recirculating systems) should be known, either based on actual water analyses or equipment specifications.																												
5	Lower heating value, expressed as 10 ⁶ Btu/hr	Available from fuel analysis report.																												
6	FUEL LHV ADJUSTMENT FACTOR USING 18,380 BTU/lb AS REFERENCE FUEL PER ES 9-88.																													
7	Air-to-fuel ratio	Use actual value if available. Otherwise: Mars - 56 Caterpillar - 68 M - 50 Saurin - 80 MURPHY by LHV Btu/pound 20,000																												
8	Correction factor for air cleanup system, N	Use N = 0.80																												
9	CONTAMINANTS FOUND IN AIR ENTERING ENGINE, (1) x (8) x (7) x (8), PPMW, FUEL EQUIVALENT CONCENTRATION																													
10	Fuel factor to account for fuel cleanup system, K	Use K = 0.88 unless instructed otherwise. If no fuel treatment is applicable between supply and engine, use 0 here. <i>→ net in + mixed</i> <i>↳ 95% efficient. Use 1 of total clean</i>																												
11	CONTAMINANTS FOUND IN FUEL ENTERING ENGINE, (2) x (8) x (10), PPMW, FUEL EQUIVALENT CONCENTRATION																													
12	Water-to-fuel ratio	Use actual value. Range is typically from 0.5 to 1.0.																												
13	CONTAMINANTS FOUND IN INJECTED WATER, (3) x (8) x (12), PPMW, FUEL EQUIVALENT CONCENTRATION																													
14	Rate of liquid water carried off the evaporation cooler (carryover) into air stream, expressed as gallons per minute	It is expected that during the duty cycle of the engine, liquid water can accidentally enter the air stream. Use the following values unless otherwise instructed by Ancillary Engineering. 1.7 GPM for Mars 1.3 Taurus 0.8 GPM for Caterpillar, M 0.5 GPM for Saurin																												
15	Adjustment factor for mist eliminator if applicable, E	Mist eliminators are strongly recommended for evaporative cooler installations. Use the following values unless otherwise indicated. No mist eliminator E = 0 All non-wire type mist eliminators E = 0.50 Wire type mist eliminator E = 0.85																												
16	Fuel flow rate expressed in million Btu per hour	Conversion from million Btu/hour to pounds per one of fuel flow is included in the expression in the first expression in (17).																												
17	CONTAMINANT FOUND IN WATER CARRYOVER FROM EVAPORATIVE COOLER, IF USED $(4) \times (8) \times (14) \times (10) \times (10)$ PPMW, FUEL EQUIVALENT CONCENTRATION (16)																													
18	TOTAL CONTAMINANT FROM ALL SOURCES, (9) + (11) + (13) + (17), PPMW, FUEL EQUIVALENT CONCENTRATION																													
19	MAXIMUM ALLOWABLE LIMITS FOR EACH CONTAMINANT PER ES 9-88, PPMW, FUEL EQUIVALENT CONCENTRATION																													

DATE REQUIRED

ENGINE MODEL: **CENTAUR T4000** FUEL: **Nat Gas** FREQUENCY OF STARTS: **Monthly** RUNNING TIME PER START: **~500 hours**

EQUIPMENT LOCATION: **San Diego, California** LOAD CONDITIONS: HIGH LOW STEADY CYCLIC

ALTITUDE: **100 FEET** AMBIENT TEMPERATURE RANGE: **90°F MAXIMUM** **40°F MINIMUM** AVERAGE HUMIDITY: **50% RH**

INSTRUCTIONS - Enter best known values. Explanations and helpful information are provided on the reverse side. Perform calculations as indicated to obtain total site contamination for each (or all) species of interest.

EVAPORATIVE COOLER: YES NO WATER INJECTION: YES NO

Concentrations, ppmw		Na + K	S	V	Pb	F	Ca + Mg	
1	Ambient Air, ppmw	0.03	20	0	0	0	0	
2	Fuel, ppmw	0.1	5,000	0.05	0	0	0	
3	Injected Water, ppmw	0.4	0.1	0	0	0	0	
4	Evaporative cooling water, ppmw	30	100	0	0	0	0	
5	LHV, Btu/lb	20,100						
6	Compute: $18,380/[5]$	0.914						
Air	7	Air-to-Fuel Ratio	68					
	8	1 - N (Correction Factor)	0.1					
	9	Compute: $[1] \times [6] \times [7] \times [8]$, ppmw FEC	0.19	124	0	0	0	0
Fuel	10	1 - K (Fuel Factor)	1.0	0	0	0	0	
	11	Compute: $[2] \times [6] \times [10]$, ppmw FEC	0.09	4,570	0.04	0	0	0
Water	12	Water-to-fuel Ratio	0.8					
	13	Compute: $[3] \times [6] \times [12]$, ppmw FEC	0.29	0.08	0	0	0	0
Evaporative Cooling	14	E.C. Carryover Rate, GPM	0.9					
	15	1 - E (Mist eliminator Factor)	0.05					
	16	Fuel Flow rate, million Btu/hr	40					
17	Compute: $40 \times 0.05 \times 1.4 \times 1.5 \times 10^4$ ppmw FEC [16]	0.31	1.4	0	0	0	0	
18	Total Contaminants, ppmw FEC $[9] + [11] + [13] + [17]$	0.88	4,895	0.04	0	0	0	
19	Max. Allowable Limits, ppmw FEC, per ES 9-88	1	10,000	0.5	1	1	2	

COMMENTS

PREPARED BY: _____ DATE: _____



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APPENDIX B

DERIVATION OF TOTAL FUEL EQUIPMENT CONCENTRATION
EQUATION FOR UNDESIRABLE CONTAMINANTS

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The expression given in Section 3.1.3 for directly fired applications is derived from first principles in Section 1. Section 2 explains the incorporation of system efficiencies into this fundamental expression and its use in the Total Site Contamination Worksheet, Form, 3091, with the appropriate unit conversions.

Section 1 - Derivation of Fundamental Expression for Total Fuel Equivalent Concentration (For Directly Fired Applications Only)

Solar's air, fuel, and water specification is based on FUEL EQUIVALENT CONCENTRATIONS, i.e., the concentration of a given contaminant as if that given contaminant were present in the fuel alone, with the fuel having a LHV of 18,380 Btu/lb or 10,212 kcal/kg.

Nomenclature used in the derivation is given in Table B-1.

Table B-1. Nomenclature for Fuel Equivalent Derivation

Input Steam to Gas Turbine	Mass Flow Rate	Concentration of ⁱ Contaminant	Mass Flow Ratios of Each Steam or Fuel
Reference Fuel	r	R _i	1
Fuel	f	F _i	1
Air	a	A _i	a/f or (AFR)
Water	w	W _i	w/f or (WFR)
Steam	s	S _i	s/f or (SFR)
Carryover	c	C _i	c/f or (CFR)

(LHV) = lower heating of a given fuel, Btu/lb

i = Na, K, V, Pb, etc.

T_i = Fuel equivalent for the reference fuel which has a lower heating value of 18,380 Btu/lb (10,212 kcal/kg)

The mass flow of the ⁱ contaminant in the combustion products burning the reference fuel is:

$$rR_i + aA_i + wW_i + sS_i + cC_i \tag{1}$$

The total mass flow of the combustion product is:

$$r + a + w + s + c \tag{2}$$



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The concentration of the i^{th} contaminant in the combustion products is:

$$\frac{rR_i + aA_i + wW_i + sS_i + cC_i}{r + a + w + s + c} \quad (3)$$

Next suppose that the total mass flow of the i^{th} contaminant in the combustion products came from the reference fuel alone. Let T_i equal the reference fuel equivalent concentration of the i^{th} contaminant. Then, the concentration of the i^{th} contaminant in the combustion products, the environment of the hot section components, would be:

$$\frac{rT_i}{r + a + w + s + c} \quad (4)$$

Equating Eq. (3) with Eq. (4) and dividing through r gives:

$$T_i = R_i + (a/r) A_i + (w/r) W_i + (s/r) S_i + (c/r) C_i \quad (5)$$

In order to have an expression that gives the Fuel Equivalent, T_i , for the cases where a fuel, f , of any heating value (LHV) are used, Eq. (5) must be modified. It is required that, regardless of the LHV of either fuel, the flow of each fuel be such that the same thermal input is provided to the engine. Therefore,

$$r (18,380 \text{ Btu/lb}) = f (\text{LHV}) \quad (6)$$

or

$$r = \frac{f (\text{LHV})}{18,380 \text{ Btu/lb}}$$

In addition, it is required for the same T_i that the contribution of the contaminant to the total from either fuel r or fuel f be the same.

$$rR_i = fF_i \quad (7)$$

Combining Eq. (6) and Eq. (7) gives:

$$R_i = \frac{18,380}{(\text{LHV})} F_i \quad (8)$$

Substituting Eq. (6) and Eq. (8) into Eq. (5) gives:

$$T_i = \frac{18,380}{(\text{LHV})} F_i + \frac{a}{1(\text{LHV}/18,380)} A_i + \frac{w}{1(\text{LHV}/18,380)} W_i + \frac{s}{1(\text{LHV}/18,380)} S_i \quad (9)$$

$$+ \frac{c}{1(\text{LHV}/18,380)} C_i$$

(50)

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Finally, rearranging and substituting the nomenclature in the fourth column of Table B-1 gives:

$$T_i = \frac{18,380}{(\text{LHV})} [F_i + (\text{AFR})A_i + (\text{WFR})W_i + (\text{SFR})S_i + (\text{CFR})C_i] \quad (10)$$

Section 2 - Derivation of Expression Used In Form 3091

Taking Eq. (10) and assigning units to the variables result in the following definition of terms. (The steam term is dropped from the basic expression because it is currently not applicable to Solar engines.)

$$T_i = \frac{18,380}{(\text{LHV})} [F_i + (\text{AFR})A_i + (\text{WFR})W_i + (\text{SFR})S_i + (\text{CFR})C_i]$$

where

- T_i = fuel equivalent concentration of contaminant i, in ppmw
- LHV = lower heating value of fuel, in Btu/lb
- F_i = concentration of contaminant i in fuel entering combustor, in ppmw
- AFR = air-to-fuel mass ratio
- A_i = concentration of contaminant i in air entering compressor, in ppmw
- WFR = water-to-fuel mass ratio
- W_i = concentration of contaminant i in water injected into combustor, in ppmw
- CFR = carryover water-to-fuel mass ratio
- C_i = concentration of contaminant i in carryover water (same as evaporation cooler feedwater), in ppmw

Examining each term in greater detail:

Fuel Term: F_i

Let K = overall efficiency rating for fuel cleanup system

$$\text{Adjusted fuel term} = F_i (1 - K) \quad (11)$$



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= 120



Air Term: (AFR)A_i

A_i is concentration air entering compressor

$$A_i = (1 - N)A_i^{amb}$$

where N = efficiency of air filter

A_i^{amb} = concentration of contaminant I in ambient air, in ppmw

$$\text{Adjusted air term} = (AFR)(1 - N)A_i^{amb}$$

(12)

Water Term: (WFR)W_i

W_i is concentration in water injected into combustor, ALSO THE SET POINT FOR AUTOMATIC SHUTDOWN

Carryover Term: (CFR)C_i

$$\begin{aligned} \text{Let water carryover rate} &= R \text{ gal/min} \times 8.337 \text{ lb/gal} \\ &= 8.337 R \text{ lb/min} \end{aligned}$$

$$\text{Let fuel flow rate} = f \text{ MBtu/hr}$$

$$f \frac{\text{MBtu}}{\text{hr}} \times \frac{1 \text{ hr}}{60 \text{ min.}} \times \frac{\text{lb}}{\text{LHV Btu}} \times \frac{10^4 \text{ Btu}}{\text{MBtu}} = \frac{16,700f \text{ lb/min}}{\text{LHV}}$$

Let E = efficiency of mist eliminator

$$\text{Carryover rate} = (1 - E) (8.337R) \text{ lb/min}$$

$$\text{CFR} = \frac{8.337R (\text{LHV}) (1 - E)}{16,700f}$$

$$= 4.99 \times 10^{-4} R (\text{LHV}) (1 - E) / f$$

(13)

Substitute in Equation (10),

$$T_1 = \frac{18,380}{\text{LHV}} [F_1 (1 - K) + (AFR) (1 - N) A_i^{amb} + (WFR) W_i$$

$$+ \frac{[4.99 \times 10^{-4} R (\text{LHV}) (1 - E)] C_i}{f}$$

(14)

or

$$T_i = \frac{(18,380)}{LHV} (1 - K)F_i + \frac{(18,380)}{LHV} (AFR) (1 - N)A_i^{amb} + \frac{(18,380)}{LHV} (WFR)W_i + \frac{(18,380)}{LHV} (5 \times 10^{-4})R (LHV) (1 - E) \frac{C_i}{f} \quad (15)$$

where $\frac{(18,380)}{LHV} (1 - K)F_i$ = fuel equivalent concentration of i^{th} contaminant in fuel, ppmw

$\frac{(18,380)}{LHV} (AFR) (1 - N)A_i^{amb}$ = fuel equivalent concentration of i^{th} contaminant in air, ppmw

$\frac{(18,380)}{LHV} (WFR)W_i$ = fuel equivalent concentration of i^{th} contaminant in injected water, ppmw

$\frac{(18,380)}{LHV} (5 \times 10^{-4})R (LHV) (1 - E) \frac{C_i}{f}$ = fuel equivalent concentration of i^{th} contaminant in evaporation cooler feedwater, ppmw

T_i = sum of fuel equivalent concentration of i^{th} contaminant from all sources, ppmw

Equation (15) is used in Form 3091.

(PDU)

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EXTENDED SERVICE AGREEMENT

THIS EXTENDED SERVICE AGREEMENT (referred to herein as "AGREEMENT") is entered into by and between

AIR PRODUCTS AND CHEMICALS, INC. and its subsidiaries, a Delaware corporation, with its principal place of business at 4575 Highway 90, Pace, Florida 32571, hereinafter referred to as "Customer", and

SOLAR TURBINES INCORPORATED, a Delaware corporation, with its principal place of business at 2200 Pacific Highway, San Diego, California, 92101 (Mail Address: P.O. Box 85376, San Diego CA 92186-5376) hereinafter referred to as "Solar",

with reference to the following facts:

RECITALS

- A. Customer owns certain turbomachinery manufactured by Solar.
- B. Customer desires to purchase from Solar extended service and maintenance for certain machinery as described herein, and Solar desires to perform such extended service and maintenance on the terms and conditions and at the pricing contained in this Agreement.

NOW, THEREFORE, for valuable consideration, the parties hereto agree as follows:

ARTICLES

1. TERM.

The term of this Agreement shall be for the period of sixty (60) months from the date of Certificate of Substantial Completion and Acceptance of Work as defined in Agreement GE-N4165 or sixty-eight (68) months from the date of shipment of the Covered Equipment, whichever occurs first. Renewals of this Agreement, at option of Customer, are in accordance with Article 4.5 herein. A copy of the Certificate of Substantial Completion and Acceptance shall be attached to this Agreement upon issuance of such Certificate.

2. COVERED EQUIPMENT.

The equipment covered by this Agreement (herein referred to as the "Covered Equipment") shall be all of the equipment originally supplied by Solar contained on the package skid within the enclosure and the turbine package control panel under Agreement GE-N4165. This coverage is limited by the provisions contained in Article 8, below.

3. SCOPE.

3.1 Regular Maintenance Inspections. The services to be performed by Solar under this Agreement shall include all Solar field service labor, travel and related expense, and subsistence for the following regularly scheduled maintenance inspections: four (4) basic, one (1) semi-annual and one (1) annual maintenance visit per unit per year by qualified Solar personnel. The services to be performed for each level of inspection are set forth in Exhibit A hereto.

3.2 Non-scheduled Site Visits. All necessary non-scheduled site visits for maintenance, trouble-shooting or component replacement during the term of this Agreement and all Solar field service labor, travel and subsistence relating to such visits are included (subject to the provisions in Article 8, below). To prevent unnecessary or excessive travel by Solar personnel, minor service that in no way jeopardizes performance, safety or reliability of the equipment or installation may be scheduled at a time appropriate and convenient for both parties.

3.3 Customer Responsibility.

(a) In general, Customer shall ensure that at all times the Covered Equipment and all related equipment and components, after the initial installation of the turnkey facility by Solar, are properly and correctly installed in accordance with applicable specifications, drawings and recommendations, and are maintained and operated at all times in accordance with all operating and maintenance manuals, instructions, procedures and other written recommendations of Solar or other applicable manufacturer or supplier, which Solar has communicated in writing to Customer.

(b) Customer shall provide required hands-on site labor to perform all prescribed normal operating and maintenance functions, properly maintain an operating and maintenance log, take all reasonable precautionary measures and do maintenance not requiring a Solar Field Service Specialist between the regularly scheduled maintenance inspections by Solar personnel, and to assist Solar Field Service personnel.

3.4 Repairs. With respect to the Covered Equipment, and subject to the provisions of Article 3.2, 3.6, and 8. hereof, during the term of this Agreement Solar will repair in its facility, or, at its option, replace, any malfunctioning component or part within twenty four (24) hours or as otherwise agreed by the parties, without charge for parts or shop labor. Solar reserves the right, in its sole discretion, to replace any such component or part with either a new or factory rebuilt part; or to replace complete assemblies instead of individual components thereof.

3.5 Freight Charges. For all repairs or replacements covered under this Agreement, the Customer shall be responsible for the packaging and cost of shipment of the malfunctioning part to the designated Solar facility. Solar shall be responsible for all costs of the return shipment of such replacement or repaired part from the Solar facility back to the equipment site.



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3.6 Overhauls. With respect to the Gas Producer or Power Turbine (GP/PT) of the Covered Equipment covered by this Agreement, and subject to the provisions of Article 8. below, should any overhauls be required within the term of this Agreement, such overhaul shall be provided by Solar at no additional cost to Customer. In the event no overhaul has been performed on the GP/PT of the Covered Equipment for any reason during the term of this Agreement, Solar will, within sixty (60) days of the end of this Agreement, schedule a mutually agreeable time to provide an overhaul. The GP/PT of the Covered Equipment must be in operating condition at the time of the removal for overhaul. Overhaul acceptance testing shall be performed in accordance with Solar's test specification ES-2091. At Overhaul, engine performance is restored to meet factory performance criteria and at Overhaul test, the engine will meet minimum performance acceptance criteria in accordance with factory test specification ES-2091, which is 97% of power output and 103% of heat rate of Solar's specified nominal performance.

3.7 Exchange Engine. In order to minimize downtime, an exchange engine will be provided, within forty-eight (48) hours or as otherwise agreed by the parties, from the Customer Service exchange engine fleet, at no additional charge. Solar will guarantee exchange engines meet Solar's factory test specifications.

3.8 Degradation. Solar will provide a degradation level for the gas turbine as stated in Exhibit B based on the minimum performance level provided to the Customer at the time of the original equipment shipment. A base level will be established from the capacity test performed after the acceptance of this program date at actual operating conditions in accordance with test requirements as specified in Solar specification ES 1972 (as agreed upon by Solar and Customer) on KW output or heat rate only. This is provided Customer operates in accordance with Solar air, fuel and water quality specifications (ES 9-98). Should there be any question on the performance of the engine, Customer can request a performance test at their own expense from Solar. Solar will conduct the test within two (2) weeks of written notice from the Customer. Prior to the test, the engine will be cleaned to the best available level and all necessary controls and existing instrumentation will be calibrated to Solar's satisfaction. Any impact on performance degradation due to non-Solar provided/covered equipment will not be covered under this degradation profile. In the event the performance test falls outside of the degradation level stated, Solar will provide a replacement engine, pursuant to Article 3.7.

4. PRICING.

4.1 Monthly Fee. The fee for this Agreement is \$42,600.00 per calendar month, subject to escalation as provided in Article 4.2, payable *pro rata* for a partial month, commencing on the effective date set forth below in Article 18, and payable each month thereafter throughout the term of this Agreement (herein "Monthly Fee.") Invoices shall be payable Net 30 days from the invoice date.

4.2 Escalation.

(a) During the Term of this Agreement, each year effective on the anniversary of the Base Month the Monthly Fee shall be adjusted by the increase or decrease, if any, from the Base Month of the average of: (i) the producer price index of the Bureau of Labor Statistics Producer Price and Indexes Data, Commodity Code #10, Metal and Metal Products (1982 = 100) and (ii) the consumer price index of Bureau of Labor Statistics of the U. S. Department of Labor, for All Urban Consumers, National (1982-1984 = 100). Based on .5 of 100% of (i) and 75% of .5 of (ii), the resulting calculation shall be referred to in this Agreement as "Index." Revisions to the Monthly Fee made pursuant to this Article 4.2 shall be calculated as follows: at each anniversary date the original

base Monthly Fee shall be multiplied by a fraction, the numerator of which shall be the Index calculated as of the anniversary on which the adjustment is being made, and the denominator of which shall be the Index for the Base Month. The resulting value calculated in this manner shall constitute the new Monthly Fee, which shall be applicable until again adjusted in the same manner at the next anniversary.

(b) The "Base Month" under this Agreement shall be March, 1997.

4.3 Taxes. The Monthly Fee does not include any sales, use, excise, or similar tax, and all such taxes are the responsibility of Customer. Any such tax charge applicable to the services, materials or parts furnished hereunder shall be included in the next invoice and paid by Customer except to the extent Customer provides Solar with a tax exemption certificate acceptable to the tax authorities.

4.4 No Offsets. Customer acknowledges that this Agreement is for prepaid service work, and Customer's obligation to pay each and every Monthly Fee as due for the term of this Agreement, or until the end of this Agreement in the event of termination by either party under Article 11, below, is material to Solar's continuing performance, and shall be absolute. That means, for example, that Customer shall not be entitled to any abatement of the Monthly Fee, or reduction or setoff against the Monthly Fee due to any present or future claim Customer may have against Solar.

4.5 Renewal. In addition to the annual escalation, Customer has the option to renew this contract for an additional second sixty (60) month term for a one time increase in the original monthly fee not to exceed eight (8) percent. Further, Customer has the option of two (2) additional sixty (60) month renewals at a price to be agreed upon at the time of the renewals.

5. SCHEDULING.

The objective of the parties under this Agreement is to obtain improved equipment efficiency and more effective utilization while minimizing downtime. To that end, for tasks hereunder requiring engine shutdown, Solar will cooperate with Customer to schedule all work hereunder at such times as will minimize Customer disruption or downtime. All Solar visits, except non-scheduled emergency maintenance, shall be scheduled at specific times mutually agreed upon by Solar and Customer.

6. REPORTS.

6.1 Checksheet Report. A checksheet report of work accomplished will be furnished by Solar to Customer upon conclusion of each scheduled inspection visit.

6.2 Written Reports. A formal written report will be furnished following those inspection visits where a written report is listed in the Basic Services Schedule. This report will cover engine condition, lube oil analysis and vibration analysis.



7. CHANGES.

Requests by Customer for any modifications or changes to this Agreement including, but not limited to, additions, deletions or other revisions, must be issued in writing by an authorized representative of Customer. All such requests are subject to Solar's written acceptance, and may result in adjustments to price and delivery schedules.

8. EXCLUSIONS.

8.1 General. This Agreement does not include nor cover any malfunction or other required repair or replacement of any Covered Equipment, nor the costs of any replacement part, repair, labor, overhaul, supervision or freight for any malfunction of the Covered Equipment attributable to:

(a) If after the initial installation of the turnkey facility by Solar, installation of the Covered Equipment or any related equipment or component not in accordance with applicable specifications, drawings, or other written recommendations of Solar or other applicable manufacturer or supplier;

(b) Operation of the Covered Equipment or any related equipment or component not in accordance with all written recommended operating and maintenance manuals, instructions, procedures or other written recommendations of Solar or other applicable manufacturer or supplier, as communicated in writing by Solar to Customer;

(c) Any malfunction of Covered Equipment where such malfunction is caused by or the result of: (i) damage by any foreign object not normally expected to be in such equipment, or (ii) any malfunction of a part or component not covered by this Agreement, regardless of the reason for the malfunction of such other part or component; or

(d) Any malfunction caused by Customer's negligence or abuse.

8.2 Customer's Duties. In order for Solar to accomplish the assigned tasks, Customer shall provide and furnish at no expense to Solar and when required:

(a) Heavy lifting equipment such as "A-frames", hoists, cranes, etc., including operators, if necessary, for changeout or moving the equipment;

(b) All utilities, compressed air, fresh water, power and fuel required to carry out the scheduled tasks; and air inlet filters and fluids necessary to operate the Covered Equipment;

(c) Adequate bench space for tear down of small parts;

(d) Personnel, normally accustomed to operating such equipment, for starting, operating and stopping the equipment as Solar may request in order to accomplish the scheduled tasks (Solar personnel are not permitted to operate Customer's equipment); and



(e) The equipment logs for all equipment covered by this Agreement, which logs shall record all equipment operation, performance and maintenance performed by Customer between Solar inspection visits.

8.3 (This Article intentionally left blank.)

8.4 Other Work. Solar's list prices for parts and labor in effect at the time will apply to all parts repaired or replaced or work performed which is beyond the scope of this Agreement. Pricing discounts, if applicable, for such Other Work will be negotiated by the parties at that time.

9. INDEPENDENT CONTRACTOR.

At all times while performing this Agreement, Solar shall be deemed to be an independent contractor and not an employee or agent of Customer. Equipment operators and other Customer employees, agents, subcontractors, or servants assigned to assist Solar may receive temporary instruction, directions, or control from Solar but shall at all times be considered the employees, agents, subcontractors, or servant of Customer and not of Solar.

10. FORCE MAJEURE.

In no event will Solar be liable for any delay in performance, any non-performance, or any other deviation in performance of Solar obligations (including without limitation loss, damage, cost or expense due to detention or delay caused by non-operation of the equipment during inspection or performance of the services hereunder or delays therein), nor for any loss or damage to the equipment supplied hereunder, when occasioned directly or indirectly by any cause or causes beyond the control of Solar or its subcontractors or suppliers, including, but not limited to: acts of God; acts of criminals or the public enemy; war, riot, official or unofficial acts, orders, regulations or restrictions of any foreign or domestic governmental agency; acts of Customer or its employees or representatives; strikes or labor difficulties involving employees of Solar or any other party; or failure, shortage or delay in Solar's usual sources of labor or material supply. Solar shall have a reasonable extension in periods of performance when delayed by any such cause. If the Covered Equipment is not able to operate for seven (7) days or longer due to Force Majeure, the term of this Agreement shall be extended for a period equal to the duration of the Force Majeure, at no additional charge.

11. TERMINATION.

11.1 By Solar. Solar may terminate this Agreement by a 60-day written notice to Customer, for any of the following reasons without liability to Customer, in the event that in Solar's judgment such termination is necessary:

(a) To comply with limitations on the ability of Solar to fulfill its obligations hereunder which are beyond Solar's reasonable control, and compliance cannot be accomplished under Article 7. Changes;

(b) To comply with changes from the date of this Agreement in the laws of any city, county, state, country, nation or the request or determination of any administrative agency having



jurisdiction of the subject matter hereof, and compliance cannot be accomplished under Article 7.
Changes;

(c) For failure of Customer to follow Solar's operating and maintenance manuals, instructions, procedures, and other recommendations pertaining to the Covered Equipment and its operation or other matters directly affecting the operation of the Covered Equipment after written notice to Customer and Customer's failure to correct such failure; or

(d) Customer ceases doing business as a going concern, makes an assignment for the benefit of creditors, admits in writing its inability to pay its debts as they become due, is not generally paying its debts as they mature, files a voluntary position in bankruptcy, insolvency or under other similar laws or proceedings, files a petition seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution or similar arrangement under any present or future statute, law or regulation, or files an answer admitting the material allegations of a petition filed against it in any such proceeding, consents to or acquiesces in the appointment of a custodian, trustee, receiver or liquidator of it or of all or any substantial part of its assets or properties, or if it or its shareholders take any action looking to its dissolution or liquidation, or if any order for relief is entered against Customer under bankruptcy or insolvency laws;

(e) If, within sixty (60) calendar days after commencement of any involuntary proceedings against Customer seeking reorganization, arrangement, readjustment, liquidation, dissolution, or similar relief under any present or future statute, law or regulation, including without limitation any bankruptcy or insolvency laws, such proceedings shall not have been dismissed, or within sixty (60) calendar days after the appointment without Customer's consent or acquiescence of any custodian, trustee, receiver or liquidator of it or any substantial part of its assets or properties, such appointment shall not be vacated.

(f) Customer is in breach of any material term of this Agreement, including failure to pay on time any Monthly Fee or other amount due Solar hereunder, and fails to remedy such breach within thirty (30) calendar days notice thereof from Solar (or if such breach cannot reasonably be cured within such thirty (30) calendar day period, Customer fails to commence and diligently pursue a cure within such thirty (30) calendar day period, provided however the foregoing does not apply to Customer's failure to pay on time the Monthly Fee or other amount due Solar hereunder unless expressly agreed by Solar).

11.2 By Customer. Customer may terminate this Agreement on any or all of the units covered by a 30-day written notice to Solar.

11.3 Cancellation Pro-rated Payments. If the Customer terminates this Agreement during the term of the Agreement, and no overhaul has been provided on the GP/PT at the time of the termination, Solar will provide the Customer with a fixed overhaul allowance rate credit in the amount of US\$6,000.00 per unit invoiced for the total number of months that the Agreement was in effect and the Monthly Fee was paid. This credit will be available to the Customer for use on the future overhaul of the equipment. Should the Customer terminate this Agreement after receipt of an overhauled GP/PT, the Customer will be responsible for an additional one-time pro-rated payment equal to the number of months remaining on the Agreement at the time of termination times the fixed overhaul allowance rate of US\$6,000.00 per covered unit.



11.4 Continuing Duties. Termination by either party hereunder, shall not relieve Solar of providing services required to be performed up to the effective date of such termination, nor relieve Customer of its duty to pay the Monthly Fee, prorated as necessary, to the effective date of such termination, or any other reimbursements, fees or expenses required to be paid Solar by the terms of this Agreement. All obligations of Solar to provide inspections, repairs, maintenance, or overhauls, or any other work, except that resulting from Warranty claims pursuant to Article 12.1 below, shall cease as of the effective date of such termination.

12. WARRANTY/LIMITATION OF LIABILITY

Warranty. With respect to claims for defective field service labor or service parts the following warranty shall apply:

12.1. Field Service Labor. Solar warrants that the field service labor provided by Solar under this Agreement will be performed in a workmanlike manner in accordance with accepted and customary industry standards practiced in the United States of America through exercise of due care, sound judgment and good engineering practices. All claims for defective services under this warranty must be made in writing immediately upon discovery, but in no event after thirty days from the performance of the services. Upon submission of a claim and substantiation thereof, Solar shall correct the defective work. Customer shall provide reasonable access to the unit. Field service labor is warranted in accordance with the above for thirty (30) days from performance of such service.

12.2. Service Parts. Solar warrants any parts or components provided by Solar under this Agreement to be free from defects in workmanship and material used in their manufacture for a period of twelve (12) months from the date of shipment by Solar. Solar's obligation under this warranty is expressly limited to repair or replacement, as Solar elects, of any defective parts free of charge (excluding freight and labor costs) at Solar's repair center, provided: a) all parts are installed and used in accordance with Solar's recommended practices; b) any failed parts are returned to Solar's repair center in accordance with Solar's standard claim instructions, transportation charges prepaid; c) Solar's examination of any failed part confirms the existence of a warrantable defect; and d) any claim under this warranty is made within thirty (30) days of discovery of the defect and the event giving rise to the claim occurred within the warranty period.

Custom parts, major off-package accessories, and driven equipment not of Solar's manufacture, as well as parts manufactured by others, are warranted only to the extent of the supplier's warranty.

EXCEPTING ONLY WARRANTY OF TITLE, THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, REPRESENTATIONS AND LIABILITIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

This parts warranty shall not apply to i) consumable parts; ii) normal maintenance, service or adjustments (which if performed by Solar is covered by the warranty in 12.1 above); iii) the removal or reinstallation of any warranted parts by other than Solar; iv) any parts which have been repaired or altered unless such repair or alteration is done by Solar; or v) the effects of corrosion, erosion, or wear and tear of parts, or failure occasioned by operation or any condition of service which is more severe than specified by Solar for any parts, or attributable to any of the events set forth in Article 8.1, above.



12.3. Limitations. The foregoing are Solar's only obligations and Customer's exclusive remedies for breach of warranty. No person is authorized to give any other warranties or to assume any other liability on Solar's behalf unless agreed to in writing by Solar.

12.4 Warranty of Title. Solar hereby warrants that it shall have good and marketable title to any parts and materials furnished hereunder, free and clear of all liens, charges and encumbrancers. Solar shall indemnify, defend and hold Customer harmless from and against any and all claims, charges, losses and damages (including reasonable legal expenses) suffered by Customer arising out of any breach of the warranty set forth in this Article 12.4. The provisions of this Article 12.4 shall survive termination, cancellation, and expiration of this Agreement and be applied to the full extent permitted by law.

12.5 Expeditious Performance of Warranty Obligations. Solar hereby acknowledges that the nature of Customer's operations requires expeditious performance and Solar shall undertake its warranty obligations so as to minimize their impact on such obligations. If Solar fails or refuses to promptly carry out its warranty obligations according to the schedule as agreed with the Customer, Customer may, without waiving any other remedy it may have hereunder or at law or in equity, perform or cause to perform the same and Solar shall reimburse Customer for all costs reasonably incurred by Customer therefor.

12.6 Limitation of Liability. Notwithstanding any contrary provisions contained in this Agreement:

(a) Solar shall not be liable for, nor shall Customer make claim for, damages for loss of profits, or revenue resulting from failure to provide services hereunder or causally related to services provided, or based on any failure to report installation, equipment or operating deficiencies or defects.

(b) Solar shall not be liable for any incidental or consequential damages, including, but not limited to, loss of product, loss of profit, or loss of use, whether in contract, negligence, or any other theory of liability.

(c) Solar shall not be responsible for any damage to the property of Customer or for injuries to persons except to the extent permitted by Article 12.7 below, or in matters other than reports furnished, or other than failure to report installation, equipment, or operating deficiencies or defects and then only in the limits next provided.

(d) The obligations set forth in Article 12.1 and Article 12.2 above, are Solar's only obligation and Customer's exclusive remedy for breach of warranty and, except for gross negligence and willful misconduct, is Customer's exclusive remedy hereunder by way of breach of contract, tort, including negligence and strict product liability or any other theories except to the extent otherwise permitted by Article 12.7. The total liability of Solar arising out of performance or nonperformance of obligations in connection with the supply of goods and services hereunder, whether based on contract, warranty, tort (including negligence), strict liability or otherwise shall not exceed in the aggregate a sum equal to the total amount of Monthly Payments to be paid to Solar hereunder. No claim shall be asserted against Solar, its affiliates, agents, and employees unless the injury, loss or damage giving rise to the claim is sustained prior to the expiration of this Agreement, and any claim for damages must be commenced within one (1) year after the event giving rise to the claim.



The limitation of liability set forth in this Article 12.6 and Article 12.7 shall prevail over any conflicting or inconsistent provisions contained in any of the documents comprising this Agreement, except to the extent such conflicting or inconsistent provisions further restrict Solar's liability.

12.7 Indemnity. Solar warrants that the manufacture, purchase, use or sale of goods purchased hereunder do not infringe or contribute to the infringement of any letters patent, trademark or copyright granted by the United States of America or by any foreign country, and agrees to indemnify and save harmless Customer, its successors, assigns, customers and users of the goods, against any claim, demand, loss and costs including attorney's fees arising out of such infringement; and after notice Solar agrees to appear and defend, at its own expense, any suits at law or in equity arising therefrom. Solar further agrees to defend, indemnify and save Customer, its officers, directors, employees, agents, contractors and subcontractors (Customer's Indemnities) harmless from and against any claim, demand, loss and cost, including attorney's fees, arising out of (i) injury (including death) to any person (including Solar's employees) or (ii) any third party property damage occasioned by any wilful misconduct or negligent act or omission of Solar or any of its directors, officers, employees, agents, contractors or subcontractors in connection with its obligations under the Agreement to which this provision applies, or (iii) during performance under this Agreement, any act or omission of Solar or its affiliates or anyone acting on its behalf in connection with or incident to these terms and conditions and the work to be performed by Solar hereunder to the extent caused by Solar's negligence, except to the extent caused by the negligence of Customer and except for any loss or injury arising out of any maintenance, operation, or testing or any other work performed by persons or entities other than Solar or any of its subcontractors, agents, or suppliers. The employees, subcontractors and vendors of Solar shall not be deemed to be acting on Customer's behalf for purposes of this Article 12.7. This Article 12.7 shall survive termination, cancellation and completion of this Agreement and shall be applied to the full extent permitted by law.

13. NOTICES.

All notices in writing hereunder may be given by regular mail, telex or facsimile addressed to the party at the address set forth in this Agreement. Such address may be changed by a party giving written notice thereof. Notices properly addressed and stamped, shall be presumed to have been received by the addressee seven days following proper mailing.

14. DISPUTES RESOLUTION/APPLICABLE LAW.

14.1 Procedure. In the event a dispute arises between the Customer and the Solar regarding the application of interpretation of any provision of this Agreement, including disputes regarded as such by only one of the parties, the aggrieved party shall promptly notify the other party to this Agreement of the dispute within ten (10) days after such dispute arises. If the parties shall have failed to resolve the dispute within fourteen (14) days after delivery of such notice, each party shall, within five (5) days thereafter, nominate a senior officer of its management to meet at the Site, or at any other mutually agreed location, to resolve the dispute. Should the parties be unable to resolve the dispute to their mutual satisfaction within sixty (60) days from the date of the original notice, each party shall have the right to enforce any and all rights available under the Agreement.

14.2 Arbitration. If no settlement is achieved within sixty (60) days, either party may submit its claim to a tribunal of three arbitrators composed according to the rules of the Rules of The



American Arbitration Association. The number of Arbitrators shall be three, with each party nominating one arbitrator and the two arbitrators nominating the third. If all arbitrators are not nominated within sixty (60) days of the written notice of arbitration, the administrator shall upon the written request of either party appoint the remaining arbitrator(s) and appoint the presiding arbitrator. The place of arbitration shall be Pensacola, Florida, unless the parties mutually agree to another location within sixty (60) days of the filing of the notice of arbitration, or the arbitrators unanimously agree to another location. All arbitration proceedings shall be conducted in the English language. Each party irrevocably submits to the exclusive jurisdiction of such tribunal on any disputes arising under or out of this Agreement and irrevocably waives any objections relating to forum non conveniens that it may have. The tribunals decision shall be final, and the parties agree that such award shall be in lieu of any other remedies. The parties agree that such award may be enforced against the parties to the arbitration proceeding or their assets wherever they may be found and that a judgement upon the arbitral award may be entered in any court of competent jurisdiction.

14.3 Continuation of Work. Pending final resolution of any dispute, the Customer and the Solar shall continue to fulfill their respective obligations hereunder to the extent not disputed in good faith. Upon resolution of the dispute, the unpaid or overpaid balance plus interest at the rate of 1½ percent per month shall be either paid to Solar or credited to the Customer.

14.4 Governing Law. These terms and conditions shall be construed in accordance with and governed by the laws of the State of Florida.

15. SEVERABILITY.

In the event that any provision of this Agreement shall, for any reason, be determined to be invalid, illegal, or unenforceable in any respect, the parties hereto shall negotiate in good faith and agree as to such amendment, modification or supplement of or to this Agreement, that to the maximum extent practicable in light of such determinations, implement and give effect to the intentions of the parties as reflected herein, and the other provisions of this Agreement shall, as so amended, modified, supplemented, or otherwise affected by such action, remain in full force and effect.

16. ENTIRE AGREEMENT.

This Agreement is expressly acknowledged to constitute the entire Agreement between Customer and Solar relating to the subject matter hereof and to supersede all prior written and oral agreements and undertakings and all contemporaneous oral representations or warranties in connection therewith. NEITHER CUSTOMER NOR SOLAR HAS MADE OR MAKES ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, EXCEPT AS HEREIN SPECIFICALLY SET FORTH, AND CUSTOMER AND SOLAR HEREBY EXPRESSLY ACKNOWLEDGE THAT NO SUCH REPRESENTATIONS OR WARRANTIES HAVE BEEN MADE BY THE OTHER PARTY. No waiver, alteration, or modification of any of the provisions of this Agreement, or its incorporated documents, shall be binding unless in writing and signed by a duly authorized representative of Customer and Solar.

17. This Article intentionally left blank.

18. EFFECTIVE DATE.

10-11-97
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When this Agreement is executed in duplicate original by the parties and Customer returns one executed original to Solar, this Agreement shall be effective as of the date specified in Article 1, above.

19. INSURANCE

During the term of this Agreement, Solar shall maintain in effect the following insurance:

Coverage:	Amount of Coverage	
	Bodily Injury Statutory	Property Damage
Workers Compensation		
Employer's Liability combined aggregate limit \$1,000,000	\$1,000,000	\$1,000,000
Commercial General and Excess Liability including:		\$10,000,000 combined single limit per occurrence and in the aggregate
- Personal Injury & Death		
- Contractual Liability		
- Product/Completed Operation Liability		
- Contractor's protective Liability		
- XCU Hazards Liability		
- Broad Form Property Damage (covering damage to third party property)		
Comprehensive Automobile		\$1,000,000 combined single limit per occurrence and in the aggregate

19.2 Evidence of Insurance. Solar shall furnish, in a form acceptable to Customer, evidence of insurance.

19.3 Effect on Liabilities. The requirements contained herein as to types and limits are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Solar under this Agreement.

20. SAFETY AND HEALTH.

Safety Compliance. While on the site, Solar and its employees, contractors, subcontractors and agents shall comply with all applicable safety and health laws, regulations and ordinances and with the safety, health and plant regulations of AIR PRODUCTS AND CHEMICALS, INC., and shall ensure that all of its employees and agents have a safe place of work on the site. Solar shall keep the vicinity of the site in which it is performing its duties clean of debris and rubbish caused by its work and, upon completion of its work, shall leave such vicinity clean and ready for use. Upon AIR PRODUCTS AND CHEMICALS, INC.'s reasonable request, and at no cost or expense to Customer, Solar shall promptly remove from said vicinity any person under its control who violates any of the afore stated safety, health or plant laws, regulations, ordinances or rules or who may cause or threaten to cause a breach of the peace.



IN WITNESS WHEREOF, the parties, intending to be legally bound hereby, have caused this Agreement to be duly executed by their duly authorized representatives in duplicate original.

SOLAR TURBINES INCORPORATED

PTG

AIR PRODUCTS AND CHEMICALS, INC.

By: *L.C. Schmidt*

By: *Mark W. Connor* *PWT*

S.C. SCHMIDT

Mark W. Connor

Title: MER. SALES SVCS - CUST. SVC.

Title: Director, Project and Logistics Supply

Date: 6/3/97

Date: 30 May 1997



EXHIBIT A
BASIC SERVICES SCHEDULE

SCS/KIC Airprod/ESA.11
022897c (Revised 5.28.97)



Extended Service Agreement / 10-12-97
PD 5192/HO6-8123xGSC-60

BASIC MAINTENANCE V F

This Schedule is incorporated in and made a part of the referenced Agreement. The below listed tasks shall be accomplished on the specified equipment at the specified interval. Specific tasks may be modified for the convenience of either party, however, such changes shall only be made with the consent of both parties in accordance with the Agreement.

1. Review equipment log and unit operation with site personnel.
2. Visually inspect control console electrical connections for cleanliness and security.
3. Record all panel and package instrument readings. Note any malfunction indications, and check all oil-filled gages.
4. Check air inlet system for obstructions and contamination. Record differential pressure (if gage installed).
5. If self-cleaning air filter is used, check supply pressure and manually cycle through cleaning operation.
6. If air dryer is used, check its operation.
7. Record fuel pressure and adjust at off-skid regulator, as necessary.
8. Check servo oil "pop-out" indicators, where applicable.
9. Check oil cooler louver operation, where applicable.
10. Check inlet guide vanes for position. Check linkage, and check cylinder for leakage.
11. Assist customer in checking fire detectors for cleanliness and sensitivity, and fire retardant bottles for proper charge.
12. Check and record magnetic speed pickup voltage output.
13. Visually inspect unit for fuel, oil, and air leaks.
14. Visually inspect mechanical integrity of fasteners, auxiliary motor couplings, bleed valve, and fuel control linkages.
15. Inspect engine and package components for proper operating conditions. Note any unusual noises, vibrations, discolorations, cracks, chaffing lines. Check drain boss of combustor and turbine cases for leaks.
16. Check batteries and charger for proper operation.
17. Perform ingestive cleaning of engine as necessary.
18. Check lube oil tank vent fan for proper operation, if applicable.



19. Take lube oil sample for laboratory analysis.
20. Check seal oil system (compressor sets only) if applicable:
 - a) Check seal oil "pop-out" indicators.
 - b) Check seal oil flow site gage to ensure flow.
 - c) Check seal oil filter; record differential pressure.
 - d) Check overhead seal oil tank sight gage, if installed.
 - e) Check degassing tank oil level and temperature.
21. Check dry gas seal system (compressor sets only) if applicable:
 - a) Check seal gas and buffer air flows.
 - b) Check seal gas and buffer gas filters. Record differential pressure.
 - c) Check primary seal leakage on suction and discharge of each compressor.
22. Review inspection with site personnel and provide copy of inspection report for logbook.



This Schedule is incorporated in and made a part of the referenced Agreement. The below listed tasks shall be accomplished on the specified equipment at the specified interval. Specific tasks may be modified for the convenience of either party, however, such changes shall only be made with the consent of both parties in accordance with the Agreement.

1. Perform all elements of Basic Maintenance Inspection.
2. Test all gages; calibrate as necessary.
3. Disassemble, clean, and rebuild gas valves, where applicable.
4. Inspect fuel control system for security, leaks, and proper operation. Adjust as necessary. Include the following, as applicable:
 - a) Governor
 - b) Gas fuel control valve
 - c) Fuel control actuator
 - d) Throttle valve
 - e) Gas fuel control poppet valve (replace as necessary)
 - f) Liquid fuel control assembly
 - g) All linkages and connections
5. Inspect engine air intake and exhaust systems for damage, leaks, and debris.
6. Combustor inspection:
 - a) Inspect fuel nozzles/injectors for clogging, oxidation, cracks, and erosion. Clean or replace as necessary.
 - b) Inspect combustor dome, liners, and first-stage turbine nozzle for cracks, erosion, warpage, fret wear, deposits, or unusual hot spots. Record observations.
7. Inspect engine compressor variable vane mechanism for wear. Check for bent arms, loose linkages, and loose bushings. Ensure stop settings are correct. Check for damaged signal wires to actuator, as applicable.
8. Inspect starter clutch (if applicable) to ensure lock-up in one direction and free rotation in the other direction.
9. Check oil cooler for cleanliness; clean as necessary.
10. Inspect/test auxiliary and backup equipment, as applicable:
 - a) Pre/post lube oil pump
 - b) Seal oil pump
11. Remove and inspect ignitor torch housing for cracks or excessive erosion. Inspect discharge tube for chafing wear.



12. Remove and inspect turbine plug and inspect gap, erosion, or oxidation. Replace with properly gapped plug as necessary.
13. Inspect thermocouple harnesses for breakage and general condition. Check integrity of support grommets.
14. Inspect all package filter elements; clean or replace as applicable.
15. Clean entire package.
16. Test and calibrate speed and temperature topping systems; calibrate as necessary.
17. Calibrate temperature monitor(s) or pyrometer, as applicable.
18. Test all safety warning and shutdown devices; adjust as necessary.
19. Restart turbine and record acceleration time. Monitor electric/electronic control system for proper sequencing. Note control panel for malfunction indications. Troubleshoot and record corrective action.
20. Conduct vibration survey.



ANNUAL MAINTENANCE VISIT

This Schedule is incorporated in and made a part of the referenced Agreement. The below listed tasks shall be accomplished on the specified equipment at the specified interval. Specific tasks may be modified for the convenience of either party, however, such changes shall only be made with the consent of both parties in accordance with the Agreement.

1. Perform all elements of Basic and Semi-Annual Maintenance Inspections.
2. Internally inspect the accessory drive by removing blank cover or driven equipment.
3. Inspect starter assembly for unusual wear or oil consumption. Verify correct system operation during start.
4. Disassemble, clean, inspect, and reassemble the bleed valve. Verify that spring/shim is correct for unit location.
5. Disassemble and inspect lube tubes. Replace springs, packing, and o-rings, where applicable.
6. Inspect compensator and measure resistance, where applicable.
7. Visually inspect exhaust bellows for cracks and distortion.

NOTE: The following tasks apply only to generator sets.

8. Verify and record governor load gain voltage.
9. Disassemble, clean and inspect coupling teeth and shear bolts for wear or damage. Repack with fresh Solar coupling grease, and reassemble using new gaskets.
10. Check gearbox-to-generator alignment; realign as necessary.
11. Assist site personnel with cleaning the generator using a high-dielectric cleaner recommended for use by the generator manufacturer.

NOTE: The following tasks apply only to compressor sets.

12. Remove seal oil pump (if applicable) from accessory drive and examine shaft splines for wear and evidence of seal leakage along the shaft. Replace or reinstall using a new gasket.
13. Clean and inspect seal oil and buffer gas differential pressure regulating valves) or seal gas and buffer air differential pressure regulating valves), as applicable.
14. Disassemble interconnect shafts; inspect splines for wear or abnormal condition. Reassemble using new o-rings.
15. Check power turbine-to-gearbox, gearbox-to-compressor/pump, and compressor-to-compressor alignments, where applicable. Realign as necessary.
16. Test and calibrate the vibration monitor system, if installed.



EXHIBIT B

Degradation Profile

	<u>KW *</u>	<u>Heat Rate*</u>
First Year of Operation	96%	104%
Second Year of Operation	94%	106%
Third Year of Operation	92%	108%
Fourth Year of Operation	90%	110%
Fifth Year of Operation	90%	110%

*At Overhaul, engine performance is restored to meet factory performance criteria and at Overhaul test the engine will meet minimum performance acceptance criteria in accordance with factory test specification ES-2091, which is 97% of power output and 103% of heat rate of Solar's specified nominal performance.

The first year of operation shall commence with the Substantial Completion of the Work as defined in Agreement GE-N+165 and in Article 1 of this Agreement of the Covered Equipment. The above degradation percentile matrix will apply for each subsequent twelve (12) month period from the beneficial use date throughout the sixty (60) month period of the Agreement. All testing must be in accordance with Solar ES 1972, level 1. Calculations may be interpolated between the years to determine profile limits. Degradation in excess of the above profile, after water wash, will trigger an overhaul of the gas turbine.

**AGREEMENT REGARDING
ASSIGNMENT AND ASSUMPTION OF
CONSTRUCTION AND SUPPLY AGREEMENT
AND EXTENDED SERVICE AGREEMENT**

Air Products and Chemicals, Inc., a Delaware corporation. ("Air Products") in connection with its conveyance to Gulf Power Company, a Maine corporation. ("Gulf Power") of the cogeneration facility to be constructed by Solar Turbines, Inc. ("Solar") at Air Products' Pace Plant in Santa Rosa County, Florida, shall have the right, without prior consent of Solar and effective upon written notice to Solar, to assign all of Air Products' rights and delegate all of Air Products' duties in the Assigned Agreements (defined below) to Gulf Power pursuant to the attached form of Assignment and Assumption. Upon Air Products' giving such notice, which shall not be issued without the prior written consent of Gulf Power, Air Products and Gulf Power shall execute such Assignment and Assumption and abide by the terms thereof. The Assigned Agreements shall be that certain Construction and Supply Agreement and that certain Extended Service Agreement, by and between Air Products and Solar, each dated as of May 30, 1997 and each entered into with respect to the cogeneration facility at Air Products' Pace Plant ("Assigned Agreements").

From the date hereof until the date such Assignment and Assumption becomes effective, Air Products hereby delegates to Gulf Power and Gulf Power hereby accepts, the monetary obligations of Air Products to Solar under the Assigned Agreements. Gulf Power shall contemporaneously herewith reimburse Air Products for all payments made to date by Air Products to Solar under the Assigned Agreements which Gulf Power has not already reimbursed. The respective rights of Gulf Power and Air Products against each other for any amounts paid to Solar under the Assigned Agreements shall be governed by that certain Cogeneration and Energy Services Agreement between the parties.

IN WITNESS WHEREOF, Air Products and Gulf Power have executed and delivered this Agreement as of _____, 1997.

(CORPORATE SEAL)
ATTEST:

Carol A. Baileys
Name: Carol A. Baileys
Title: Asst. Secretary

(CORPORATE SEAL)
ATTEST:

Susan D. Cranmer
Name: Susan D. Cranmer
Title: Assistant Secretary
Assistant Treasurer

The undersigned hereby acknowledges and agrees to be bound by the terms of this Agreement and, when executed and a copy is delivered to the undersigned in the manner specified for notices under the Assigned Agreements, to be bound by the terms of the Assignment and Assumption substantially in the form attached hereto.

(CORPORATE SEAL)
ATTEST:

Name: _____
Title: _____

[Signature]
Air Products and Chemicals, Inc.

By: [Signature]
Name: Richard H. Coker
Title: Vice President

Gulf Power Company

By: [Signature]
Name: _____
Title: Vice President

Solar Turbines, Inc.

By: _____
Name: _____
Title: _____



10.1.97
1997

Form of

ASSIGNMENT AND ASSUMPTION OF
CONSTRUCTION AND SUPPLY AGREEMENT
AND EXTENDED SERVICE AGREEMENT

Effective _____, 1998, Air Products and Chemicals, Inc., a Delaware corporation, ("Assignor"), in consideration of the execution of a certain Cogeneration and Energy Services Agreement and a certain Contract Service Arrangement for the Provision of Service under the Commercial/Industrial Service Rider, and other valuable consideration, the receipt of which is hereby acknowledged, and intending to be legally bound, hereby sells, assigns, transfers, sets over and delegates to Gulf Power Company, a Maine corporation, ("Assignee"), its successors and assigns, and Assignee hereby accepts and assumes, all of Assignor's rights, titles, interests, duties and obligations of, in and to that certain Construction and Supply Agreement and that certain Extended Service Agreement, by and between Assignor and Solar Turbines, Inc. ("Solar"), each dated as of May 30, 1997 and each entered into with respect to a cogeneration facility at Assignor's Pace Plant in Santa Rosa County, Florida ("Assigned Agreements").

Assignor is hereby relieved and released from all obligation and liability under such Assigned Agreements to Solar. The respective rights of Assignee and Assignor against each other shall be governed by that certain Cogeneration and Energy Services Agreement between the parties.

Assignee shall have the right without Solar's consent to assign its rights and delegate its duties under the Assigned Agreements to Assignor.

IN WITNESS WHEREOF, Assignor and Assignee have executed and delivered this Assignment and Assumption as of the date first above written.

(CORPORATE SEAL)
ATTEST:

Air Products and Chemicals, Inc.

Name:
Title:

By: _____
Name:
Title:

(CORPORATE SEAL)
ATTEST:

Gulf Power Company

Name:
Title:

By: _____
Name:
Title:



10-25
1998

Attachment 2 -- Schedule of Termination Payments Pursuant to Section 3.9

The following table sets forth the termination payment amount applicable under the conditions set forth in section 3.9 for a given contract year. The values in the following table are only for the purposes of section 3.9 and do not constitute either a purchase or early termination option. The termination payment shall be fixed at the value for the contract year which includes the third month of the operational default period (as defined in section 3.9):

Contract Year	Termination Payment Amount
1	\$10,945,000
2	\$10,720,000
3	\$10,400,000
4	\$10,060,000
5	\$ 9,680,000
6	\$ 9,270,000
7	\$ 8,820,000
8	\$ 8,330,000
9	\$ 7,790,000
10	\$ 7,200,000
11	\$ 6,560,000
12	\$ 6,080,000
13	\$ 5,600,000
14	\$ 5,120,000
15	\$ 4,640,000
16	\$ 4,160,000
17	\$ 3,680,000
18	\$ 3,200,000
19	\$ 2,720,000
20	\$ 1,400,000

In addition to the foregoing termination payment, APCI shall indemnify and hold Gulf Power harmless from any remaining liability under the Extended Service Agreement that is in effect pursuant to section 3.3 when the option to terminate pursuant to section 3.9 is exercised. APCI's liability hereunder shall be discharged by obtaining a release from SOLAR or its successor in exchange for the early termination of the Extended Service Agreement pursuant to notice as provided for under section 11.2 thereof and APCI's payment of any reimbursements, fees, or expenses required to be paid to SOLAR or its successor by the Extended Service Agreement (including, without limitation, section 11.3 thereof) through the effective date of such termination.

Initials:

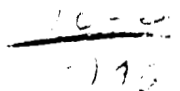


APCI

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09/24/97


Gulf Power





**Attachment 3 -- Final Plans; Electrical interconnection plans and specifications;
Water supply and steam output interconnection plans and
specifications**

The parties acknowledge that the referenced documentation will be developed and attached subsequent to the execution of the Cogeneration and Energy Services Agreement in accordance with the timetable set forth in sections 3.1 and 3.2 following receipt of the Final Plans as specified therein.

Initials:

 RHO
APCI

 GMA
Gulf Power



 10-21-97
10-21-97

Attachment 4 -- Water Quality and Fuel Quality Specifications

The parties acknowledge that the referenced documentation will be developed and attached subsequent to the execution of the Cogeneration and Energy Services Agreement. The water quality and fuel quality specifications shall be as required by the original equipment manufacturers (Solar Turbines, Inc. and ERI) for their respective equipment and any uses of water or fuel in association therewith. It is expected that the Solar Turbines specifications will include, at a minimum, ES 9-62 and ES 9-98.

The volume and flow rate specifications for Fire Protection Water shall conform to the most restrictive requirements set forth by any local, state or federal agency with jurisdiction over such matters or the insurance carrier providing public liability and property damage insurance as required by section 12.3 of the Cogeneration and Energy Services Agreement.

Initials:

TRH
APCI

JGA
Gulf Power



Exhibit A --

The active version of the separate electric power contract(s)
incorporated by reference in section 2.1



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1995

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF LEHIGH

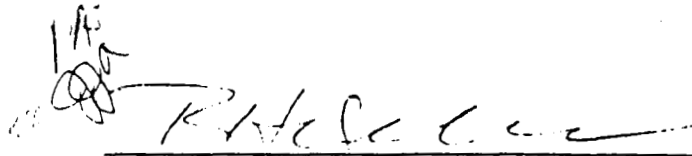
ss. Richard H. Celer, employed by Air Products and Chemicals, Inc.
as its Vice President, personally appeared before
the undersigned authority, and being duly sworn according to law deposes and says:

1. Affiant has first hand knowledge of and authority to speak on behalf of Air Products and Chemicals, Inc. (APCI) with regard to the matters contained in this affidavit.
2. On or about May 30, 1997, APCI entered into contracts with Solar Turbines, Inc. (Solar) for the construction and extended service and maintenance of a cogeneration facility at APCI's chemical plant in Pace, Florida (Pace Plant). The Construction and Supply Agreement between APCI and Solar is for a construction and commissioning of a cogeneration facility on a "turnkey" basis. The Construction and Supply Agreement contemplates that the cogeneration facility will be fully commissioned and operational on or before March 31, 1998. The cogeneration facility is currently under construction pursuant to the Construction and Supply Agreement.
3. The cogeneration facility will have approximately 13.5 megawatts of electric generating capacity. In the absence of negotiated contracts with Gulf Power Company (Gulf Power), the native electric utility serving the Pace Plant, the cogeneration facility would be owned and operated by APCI to serve its own energy needs at the Pace Plant, including self-service electric generation. The effect of the arrangement in the absence of negotiated contracts with Gulf Power would be that approximately 13.5 megawatts of electric load and the associated electric energy purchases would be displaced from Gulf Power's electric system, and any associated contribution to the fixed costs of Gulf Power that would result from the continued sale of such electricity to APCI would be lost to the utility and its general body of customers.
4. Following APCI's announcement of plans to contract with Solar for the construction and supply of the cogeneration facility, APCI and Gulf Power engaged in extensive negotiations regarding a possible business arrangement which would allow Gulf Power to assume ownership of the cogeneration facility and continue to serve the APCI electric energy needs at the Pace Plant through standard tariff rates. These negotiations ended in early May 1997 when APCI decided that it would not enter into such business arrangement with Gulf Power and instead would proceed with APCI's original plans to own and operate the cogeneration facility for its own self service benefit.
5. Given the prospective loss of electric load to its system, Gulf Power sought to reopen negotiations with APCI through the availability of flexible electric pricing under the utility's Commercial/Industrial Service optional rider rate schedule (CIS Rider). Through these reopened



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negotiations. APCI and Gulf Power have reached agreement on an electric pricing package embodied within a negotiated "Contract Service Arrangement for the Provision of Service under the Commercial/Industrial Service Rider" (CSA). In the absence of the CSA negotiated between the parties under the CIS Rider, APCI would not enter into contracts with Gulf Power allowing Gulf Power to assume ownership of the cogeneration facility and to continue to serve APCI electric energy needs at the Pace Plant otherwise associated with the facility. Instead, APCI would proceed with its original plans to own and operate the cogeneration facility for its own self service benefit.



(Signature of Affiant)

Sworn to and subscribed before me
this 30th day of September,
1997.

Theresa M. Mazzeo
Notary Public, Commonwealth of Pennsylvania

(SEAL)

NOTARIAL SEAL
THERESA M. MAZZEO, Notary Public
Village of Trexlertown, Lehigh County, PA
My Commission Expires Dec. 31, 1998



10-1
- 2007

CONTRACT SERVICE ARRANGEMENT
FOR THE PROVISION OF SERVICE
UNDER THE COMMERCIAL/INDUSTRIAL SERVICE RIDER

7C

This Contract Service Arrangement (Agreement) is made and entered into as of this 30th day of September, 1997, by and between Air Products and Chemicals, Inc. (APCI) (hereinafter called the Customer), and GULF POWER COMPANY, a Maine corporation (hereinafter called the Company).

WITNESSETH:

WHEREAS, the Company is an electric utility operating under Chapter 366, Florida Statutes, subject to the jurisdiction of the Florida Public Service Commission or any successor agency thereto (hereinafter called the Commission); and

WHEREAS, the Customer is a publicly owned Delaware corporation operating a production facility in Santa Rosa County, Florida; and

WHEREAS, the Customer currently takes or is qualified to take electric service from the Company under rate schedule PX/PXT at the service location described in Exhibit A; and

WHEREAS, there is a viable economic alternative (excluding alternatives in which the Company has an ownership or operating interest) to the present pricing under the Company's rate schedule PX/PXT which is sufficient economic justification for the Customer to decide not to take electric service from the Company for all or a part of the Customers needs; and

WHEREAS, the Customer has shown evidence and legal attestation that it will not take electric service from the Company to serve its New or Retained Load unless rate schedule Commercial/Industrial Service Rider (hereinafter called CIS rider) is applied; and

WHEREAS, the Company is willing to apply the CIS rider to the Customers New or Retained Load in exchange for a commitment by the Customer to continue or begin to purchase electric energy exclusively from the Company at agreed upon service locations (for purposes of this Agreement, the electric energy may exclude certain electric service requirements served by the Customers own generation as of the date of this Agreement);

NOW THEREFORE, in consideration of the mutual covenants expressed herein, the Company and Customer agree as follows:

1. Rate Schedules - The Company agrees to furnish and the Customer agrees to take power pursuant to the terms and conditions of the Company's tariff, rate schedule PX, and the CIS rider, as currently approved by the Commission or as said tariff and rate schedules may be modified in the future and approved by the Commission (except as specifically modified in this Agreement). The Customer agrees to abide by all applicable requirements of the tariff, rate schedule PX, and the CIS rider, except to the extent specifically modified by this Agreement. Copies of the Company's currently approved rate schedule PX and the CIS rider are attached as Exhibit B and made a part hereof.

In the event of any conflict between the terms of this Agreement and such tariff or rate schedule (other than as set out in the CIS rider) the terms of this Agreement shall control.



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2. Term of Agreement - This Agreement shall remain in force for a term of (subject to Exhibit C) twenty (20) years commencing on the above date. During the last one year(s) of the term hereof, the parties shall meet in good faith to negotiate an extension of this Agreement beyond the initial term. During this negotiation, each party hereto shall retain the absolute discretion to reject (1) any pricing or other terms and conditions proposed by the other party hereto or (2) the continuation of any pricing or other terms and conditions as agreed upon for the initial term or any subsequent term(s).

3. Modifications to Rate Schedule -

See Exhibit C to this Agreement.

4. Exclusivity Provision - During the term hereof, the Customer agrees to purchase from the Company the Customer's entire requirements for electric capacity and energy for its facilities and equipment at the service location(s) described in Exhibit A to this Agreement. The entire requirements for electric capacity and energy may exclude certain electric service requirements served by the Customers own generation as of the date of this Agreement.

5. Termination Fees -

Not applicable.

6. Entire Agreement - This Agreement supersedes all previous agreements and representations either written or oral heretofore made between the Company and the Customer with respect to the matters herein contained. This Agreement, when duly executed, constitutes the only agreement between the parties hereto relative to the matters herein described.

7. Incorporation of Tariff - This Agreement incorporates by reference the terms and conditions of rate schedule PX and the CIS rider filed by the Company with, and approved by, the Commission, as amended from time to time. In the event of any conflict between this Agreement as approved by the Commission and such rate schedules, the terms and conditions of this Agreement shall control.



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8. Notices - All notices and other communications hereunder shall be in writing and shall be delivered by hand, by prepaid first class registered or certified mail, return receipt requested, by courier or by facsimile, addressed as follows:

If to the Company: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, FL 32520
Facsimile: (904) 444-6237
Attention: General Manager of Marketing & Load Management

with a copy to: Gulf Power Company
500 Bayfront Parkway
P. O. Box 1151
Pensacola, FL 32520
Facsimile: (904) 444-6237
Attention: Cogeneration and Special Contracts Administrator

If to the Customer: Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, Pennsylvania 18195-1501
Facsimile: (610) 481-2182
Attention: Director, Electricity Supply and Energy Policy

with a copy to: Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, Pennsylvania 18195-1501
Facsimile: (610) 481-2182
Attention: Director, Primary Energy and Energy Economics

Except as otherwise expressly provided in this Agreement, all notices and other communications shall be deemed effective upon receipt. Each party shall have the right to designate a different address for notices to it by notice similarly given.

9. Assignment: No Third Party Beneficiaries - This Agreement shall inure to the benefit of and shall bind the successors and assigns of the parties hereto. No assignment of any rights or delegation of any obligations hereunder shall have the effect of releasing the assigning party of any of its obligations hereunder, and the assigning party shall remain primarily liable and responsible therefore notwithstanding any such assignment or delegation. Nothing in this Agreement shall be construed to confer a benefit on any person not a signatory party hereto or such signatory party's successors and assigns.



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10. Waiver - At its option, either party may waive any or all of the obligations of the other party contained in this Agreement, but waiver of any obligation or of any breach of this Agreement by either party shall in no event constitute a waiver as to any other obligation or breach or any future breach, whether similar or dissimilar in nature, and no such waiver shall be binding unless in writing signed by the waiving party.

11. Headings - The section and paragraph headings contained in the Agreement are for reference purposes only and shall not effect, in any way, the meaning or interpretation of this Agreement.

12. Counterparts - This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13. Dispute Resolution - All disputes arising between the Customer and the Company under this Agreement shall be finally decided by the Commission in accordance with the applicable rules and procedures of the Commission.

14. Governing Law - This Agreement shall be construed and enforced in accordance with the laws of the State of Florida.

15. Confidentiality - The pricing levels and procedures described within this Agreement, as well as any information supplied by the Customer through an energy audit or as a result of negotiations or information requests by the Company and any information developed by the Company in connection therewith is considered confidential, proprietary information of the parties. If requested, such information shall be made available for review by the Commission and its staff only and such review shall be made under the confidentiality rules of the Commission.



Handwritten scribbles and marks at the bottom right of the page.

IN WITNESS WHEREOF, the Customer and the Company have executed this Agreement the day and year shown above.

CUSTOMER:

AIR PRODUCTS AND CHEMICALS, INC.

Witnesses:

Pat A. Spill

By:

[Signature]

Its:

Vice President

Attest:

Carol A. Baileys

COMPANY:

GULF POWER COMPANY

Witnesses:

J. Thomas Kelly Jr.
[Signature]

By:

[Signature]

Its:

Vice President

Attest:

[Signature]




10-2
11-205

APCI CSA
EXHIBIT A

The service location subject to this agreement is described as:

The production facility owned and operated by Air Products and Chemicals, Inc. ("APCI") on property located south of U.S. Highway 90 in Santa Rosa County, Florida as such facility exists on March 31, 1998 ("Pace Plant"). For purposes of paragraph 4 of the APCI Master CSA, the term "Pace Plant" shall also include any facilities added by APCI on such property after March 31, 1998 to the extent that the electric load of such added facilities taken together with the electric load of the production facility as it exists on March 31, 1998, in any given period, is equal to or less than 30 megawatts of actual electric demand. The effect of this provision is intended by the parties to mean that only the first 30 megawatts of actual electric demand at the Pace Plant, in any given period, shall be subject to this agreement.


PBC


PBC

APCI CSA
EXHIBIT B

Copies of rate schedules PX and CIS Rider as they are currently approved by the Florida Public Service Commission are attached to this cover sheet.



A handwritten signature in black ink, appearing to be 'FMA'.

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17 200

GULF POWER COMPANY

URSC: GSUD

RATE SCHEDULE BY LARGE HIGH LOAD FACTOR POWER SERVICE

AVAILABILITY - Available throughout the entire territory served by the transmission system of the Company.

APPLICABILITY - Applicable for three phase lighting and power service to any customer whose actual measured demand is not less than 7,500 kilowatts (kw), with an annual load factor of not less than seventy-five percent (75%). Service to two or more premises shall not be combined nor shall service furnished hereunder be shared with or resold to others. All service shall be taken at the same voltage and from a single delivery point, and shall be measured by a single meter.

CHARACTER OF SERVICE - The delivery voltage to the customer shall be the standard secondary voltage of the Company's transformers supplied from the transmission lines of the Company.

MONTHLY RATES -

Customer Charge:

\$575.01

FUEL CHARGE:

Demand Charge:

\$8.32 per kw of billing demand

Energy Charge:

0.413¢ per KWH

Fuel charges are normally adjusted by the Florida Public Service Commission each six months, April and October. As of April 1, 1992, the amount for fuel was 2.103¢/kwh. For current fuel costs included in this tariff, see page 6.15.

MINIMUM MONTHLY BILL - In the event the customer's annual load factor for the current and preceding eleven months is less than 75% and in consideration of the readiness of the Company to furnish such service, the minimum monthly bill shall not be less than the customer charge plus \$10.581 per kw of billing demand.

DETERMINATION OF BILLING DEMAND - The Customer's Billing Demand shall be the maximum measured KW demand integrated over any fifteen minute interval during the current billing month, provided such demand shall not be less than 7500 KW.

ISSUED BY: D. L. McNary

EFFECTIVE: September 13, 1992

APCI CSA Exhibit B

Page 2 of 5



10-1
10-1

GULF POWER COMPANY

(Continued)

REACTIVE DEMAND CHARGE - The monthly bill calculated at the above rates shall also be increased in the amount of \$1.00 per kvar for all over 0.42432 kilovars per kilowatt (90% power factor). The kilovars to which this adjustment shall apply shall be the monthly maximum measured kilovar demand or may be calculated as the square root of the difference between the square of the maximum monthly measured kva demand and the square of the maximum monthly measured kw demand.

TRANSFORMER OWNERSHIP DISCOUNT AND TRANSMISSION METERING VOLTAGE DISCOUNTS - When the Company renders service under this Rate Schedule from an available transmission line of 46,000 volts or higher and the Customer furnishes, operates and maintains the complete step-down transformer substation necessary to receive and use such service the Monthly Rate will be subject to a discount of eleven (11) cents per month per kilowatt (kw) of the Customer's billing demand as determined above, and an additional discount of one percent (1%) of the Energy Charge, and one percent (1%) of the Demand Charge; however, such deduction shall not reduce the minimum monthly bill specified above.

TERM OF CONTRACT - Service under this rate schedule shall be for a period of five (5) or more years and thereafter from year to year until terminated by twelve (12) months' written notice by either party to the other.

TAX ADJUSTMENT - See Sheet No. 6.16 FRANCHISE FEE BILLING - See Sheet No. 6.16

FUEL CHARGE - See Sheet No. 6.15

PURCHASED POWER CAPACITY COST - See Sheet No. 6.15.1

ENVIRONMENTAL COST - See Sheet No. 6.15.2

ENERGY CONSERVATION - See Sheet No. 6.15.1

GROSS RECEIPTS TAX ADJUSTMENT - See Sheet No. 6.15

PAYMENT OF BILLS - See Sheet No. 6.15

SERVICE UNDER THIS RATE SCHEDULE IS SUBJECT TO RULES AND REGULATIONS OF THE COMPANY AND THE FLORIDA PUBLIC SERVICE COMMISSION.

ISSUED BY: D. L. McNary

EFFECTIVE: February 1, 1994

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GULF POWER COMPANY

RATE SCHEDULE C18
Limited Availability Experimental Rate
Commercial/Industrial Service

(Optional Rider)

AVAILABILITY - Available, at the Company's option, to non-residential customers currently taking service, or qualified to take service, under the Company's Rate Schedules applicable to loads of 500 KW or greater. Customers desiring to take service under this rider must make a written request. Such request shall be subject to the Company's approval with the Company under no obligation to grant service under this rider.

This rider will be closed to further subscription by eligible customers when one of three conditions has occurred: (1) The total capacity subject to executed Contract Service Arrangements ("CSAs") reaches 200 megawatts of connected load; (2) The Company has executed twelve CSAs with eligible customers under this rider; or (3) Forty-eight months has passed from the initial effective date. The period defined by these conditions is the pilot study period. This limitation on subscription can be removed by the Commission at any time upon good cause having been shown by the Company based on data and experience gained during the pilot study period.

Gulf Power is not authorized by the Florida Public Service Commission to offer a CSA under this rate schedule in order to shift existing load currently being served by a Florida electric utility pursuant to a tariff rate schedule on file with the Florida Public Service Commission away from that utility to Gulf Power.

APPLICABILITY - Service provided under this optional rider shall be applicable to all, or a portion of, the customers existing or projected electric service requirements which would not be served by the Company but for the application of this rider and which would otherwise qualify for such service under the terms and conditions set forth herein. Such load (Qualifying Load) shall be determined by the Customer and the Company. Service furnished hereunder shall not be shared with or resold to others.

Two categories of Qualifying Load shall be recognized: Retained Load (existing load at an existing location) and New Load (all other Qualifying Load). Qualifying Load must be served during a single meter and must equal or exceed a minimum level of demand determined from the following table:

Retained Load:	New Load:
For Customers whose highest metered demand in the past 12 months was less than 10,000 KW, the minimum Qualifying Load would be the greater of 500 KW or 20% of the highest metered demand in the past 12 months; or	1,000 KW of installed, connected demand.
For Customers whose highest metered demand in the past 12 months was greater than or equal to 10,000 KW, the minimum Qualifying Load would be 2,000 KW.	

Any Customer receiving service under this rider must provide the following documentation, the sufficiency of which shall be determined by the Company:

1. Legal attestation by the Customer (through an affidavit signed by an authorized representative of the Customer to the effect that, but for the application of this rider to the New or Retained Load, such load would not be served by the Company);
2. Other documentation, as requested by the Company, demonstrating that there is a viable economic alternative (excluding alternatives in which the Company has an ownership or operating interest) to the Customers taking electric service from the Company; and

ISSUED BY: Travis Bowden
EFFECTIVE: September 3, 1996



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GULF POWER COMPANY

3. In the case of existing Customers, an agreement to provide the Company with a recent energy audit of the Customer's physical facility. The Customer may have the audit performed by the Company at no expense to the Customer which provides sufficient detail to provide feasible cost and benefit information on energy efficiency improvements which could be made to reduce the Customer's cost of energy in addition to any discounted pricing provided under this rider.

CHARACTER OF SERVICE - This optional rider is offered in conjunction with the rates, terms, and conditions of the tariff under which the Customer takes service and affects the total bill only to the extent that the negotiated rates, terms, and conditions differ from the rates, terms, and conditions of the otherwise applicable rate schedules as provided for under this rider.

MONTHLY CHARGES - Unless specifically noted in this rider or within the Contract Service Arrangement, the charges assessed for service shall be those found within the otherwise applicable rate schedules.

Additional Customer Charge: \$250.00

Demand/Energy Charges: Any negotiated Demand and/or Energy Charges, or the procedure for calculating the negotiated charges, under this rider shall be set forth in the Contract Service Arrangement and shall recover all incremental costs the Company incurs in serving the Customer's Qualifying Load plus a contribution to the Company's fixed costs.

Provisions and/or Conditions Associated with Monthly Charges: Any negotiated provisions and/or conditions associated with the Monthly Charges shall be set forth in the Contract Service Arrangement and may be applied during all or a portion of the term of the Contract Service Arrangement. These negotiated provisions and/or conditions may include, but are not limited to, a guarantee by the Company to maintain the level of either the Demand and/or Energy Charges negotiated under this rider for a specified period, such period not to exceed the term of the Contract Service Arrangement.

SERVICE AGREEMENT - Each Customer shall enter into a Contract Service Arrangement ("CSA") with the Company to purchase the Customer's entire requirements for electric service at the service locations set forth in the CSA. For purposes of the CSA, "the entire requirements for electric service" may exclude certain electric service requirements served by the Customer's own generation as of the date shown on the CSA. The CSA shall be considered a confidential document. The pricing levels and procedures described within the CSA, as well as any information supplied by the Customer through an energy audit or as a result of negotiations or information requests by the Company and any information developed by the Company in connection therewith is considered confidential, proprietary information of the parties. If requested, such information shall be made available for review by the Florida Public Service Commission and its staff only and such review shall be made under the confidentiality rules of the Commission.

SERVICE UNDER THIS RATE SCHEDULE IS SUBJECT TO RULES AND REGULATIONS OF THE COMPANY AND THE FLORIDA PUBLIC SERVICE COMMISSION.

ISSUED BY: Travis Bowden

EFFECTIVE: September 3, 1996



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APCI CSA
EXHIBIT C

This Agreement shall be effective until March 31, 2018 unless sooner replaced and superceded pursuant to the provisions of the separate Cogeneration and Energy Services Agreement between the parties executed contemporaneously with this Agreement. Nothing in this Agreement shall preclude the Customer from electing to receive service from the Company during the term hereof under any standard Company rate schedule for which the Pace Plant qualifies at the point in time in which the election is made so long as the Pace Plant continues to qualify for service under such standard Company rate schedule. The term "standard Company rate schedule" shall be construed to mean any Company rate schedule on file with (and subject to the regulation of) the FPSC under which the Company is required to provide service to qualifying customers on request.

For purposes of this CSA, beginning April 1, 1998, the monthly deferral credits paid to Customer pursuant to paragraph 6 of the July 5, 1988 special contract agreement between the parties shall be terminated and all electric consumption at the Pace Plant shall be divided into two parts for pricing purposes. The first part shall be comprised of 7,500 kilowatts (KW) of contracted demand billed at the Company's standard PX rate (or its successor) based on usage at a 100% load factor, together with all customer charges otherwise applicable under Rate Schedule PX (or its successor) and Rate Schedule CIS. The second part shall be comprised of all metered energy usage at the Pace Plant that is above the contracted energy threshold set by the first part. The hourly prices for such second part energy shall be determined by subtracting \$0.0060 from the hourly prices quoted by the Company to its customers taking service under Rate Schedule RTP (or its successor) during the first five years of the contract and thereafter subtracting \$0.0054 from the hourly prices quoted by the Company to its customers taking service under Rate Schedule RTP (or its successor).

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Customer, at its option, may elect to have all of its electric consumption at the Pace Plant during a transition period from October 1, 1997 to March 31, 1998 priced in accordance with the Company's hourly RTP prices. Such option, once exercised, shall remain in effect for the duration of the identified transition period. If such option is exercised, Customer shall pay an additional customer charge of \$425 per month during the transition period. The exercise of such option will also result in the termination of monthly deferral credits paid to Customer pursuant to paragraph 6 of the July 5, 1988 special contract agreement between the parties effective October 1, 1997.

The Company will notify the Customer by 4:00 p.m. Central Time each work day with a listing of the hourly prices applicable to the second part energy for the next twenty-four (24) hours beginning at 12:00 a.m. (midnight). On Fridays and the last work day before a holiday, the Company will provide hourly prices applicable to the second part energy through the next work day. The foregoing schedule will also be used in connection with the hourly prices applicable during the optional transition period.

The foregoing shall be applied in lieu of the following provisions of the Company's Rate Schedule PX: Customer Charge, Demand Charge, Energy Charge, Minimum Monthly Bill, and Determination of Billing Demand. Under this agreement, the following provisions of the Company's Rate Schedule PX shall continue to be fully applicable as written therein (including any references to other tariff sheets in the Company's Tariff for Retail Electric Service): Reactive Demand Charge, Tax Adjustment, Franchise Fee Billing, Fuel Charge, Purchased Power Capacity Cost, Environmental Cost, Energy Conservation, Gross Receipts Tax Adjustment, and Payment of Bills. Service under this agreement is subject to Rules and Regulations of the Company and the Florida Public Service Commission except as specifically noted herein.



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Beginning in May 2002, and in May of each year thereafter, Company will compare the average hourly price quoted by the Company to its customers taking service under Rate Schedule RTP (or its successor) during the 12 month period ending March 31 of the year in which the comparison is made ("Period A") to the average hourly price quoted by the Company to such customers during the 12 month period ending the preceding March 31 ("Period B"). If the resulting difference is an increase of more than 12.5% from the average hourly offered price for Period B, then Company shall pay Customer an amount determined pursuant to the following formula:

$$\text{Payment} = (\text{cumulative second part energy consumption during Period A in kwh}) * ((\text{Period A average offered price in } \$/\text{kwh}) - (\text{Period B average offered price in } \$/\text{kwh} * 1.125))$$

If the resulting difference is a decrease of more than 7.5% from the average hourly offered price for Period B, then Customer shall pay Company an amount determined pursuant to the following formula:

$$\text{Payment} = (\text{cumulative second part energy consumption during Period A in kwh}) * ((\text{Period B average offered price in } \$/\text{kwh} * 0.925) - (\text{Period A average offered price in } \$/\text{kwh}))$$

The foregoing payments, if any, shall not be taken into account in connection with nor shall they affect any other amounts payable by either party to the other pursuant to this agreement or any other contract between the parties. No adjustment under this paragraph shall be made if the increase or decrease in prices is greater than the stated thresholds due to official or unofficial acts, orders, regulations or restrictions of any foreign or domestic governmental agency so long as such acts, orders, regulations or restrictions are applicable to the electric power industry generally (as opposed to being directed specifically to Company).

Beginning in 2001 and continuing each year thereafter, if the average hourly price quoted by the Company to its customers taking service under Rate Schedule RTP (or its successor) for the previous calendar year varies by more than 10% up or down from a target price for such year calculated by taking the average hourly price quoted by the Company to such customers during calendar year 1999 as the base to be escalated at 2.5% per year, then the parties shall meet to discuss whether changes to this agreement are in order. Neither party shall be obligated to accept or agree to any proposed modifications to this Agreement that may result of such discussions.

If Customer's load requirements during the life of this Agreement grow such that Company is required to upgrade or install additional facilities in order to serve the increased demand, Customer may be required by Company to either provide such upgraded or additional facilities or pay an amount as a contribution in aid of construction of such upgraded or additional facilities. Such contribution amount shall be determined by taking into account the additional revenues associated with the increased energy usage associated with the changed load requirements over the remaining term of the Agreement as compared to the facilities investment reasonably required to serve the changed load requirements. The required contribution shall be sufficient to ensure that the additional revenues produce positive net present value benefits on the net facilities investment (total facilities investment less contribution in aid of construction).



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Exhibit B --

The active version of any operating agreement between APCI and Gulf Power referred to in section 3.4



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OPERATING AGREEMENT

THIS OPERATING AGREEMENT ("Agreement") is made and entered into September 30, 1997, between AIR PRODUCTS AND CHEMICALS, INC., a Delaware corporation ("Operator"), and GULF POWER COMPANY, a Maine corporation ("Owner").

WHEREAS, Owner and Operator have entered into a Cogeneration and Energy Services Agreement, ("Cogen Agreement") whereby, among other things, Operator has the first right to steam output from a cogeneration facility ("Cogeneration Facility") to be constructed at Operator's plant near Pace, Florida ("Pace Facility");

WHEREAS, Solar Turbines Incorporated ("Solar"), as contractor, will construct the Cogeneration Facility pursuant to a Construction and Supply Agreement ("Construction Agreement") executed by Solar, Operator and Owner;

WHEREAS, Solar, upon completion of Cogeneration Facility, will provide certain maintenance services to the Cogeneration Facility pursuant to an Extended Service Agreement ("Maintenance Agreement") executed by Solar, Operator and Owner; and

WHEREAS, Owner desires that Operator operate the Cogeneration Facility on Owner's behalf.

NOW, THEREFORE, in consideration of the premises and the mutual agreements herein contained, the parties, intending to be legally bound, hereby agree as follows:

Article 1. TERM

The "Term" of this Agreement shall begin upon the date first above written and continue until the twentieth year anniversary of the Cogeneration Facility's Commercial In-Service Date (as defined in the Cogen Agreement).



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Article 2. OPERATOR'S ROLE

2.1 **Designation of Operator.** Owner hereby designates Operator as, and Operator hereby accepts that it shall be during the Term, the sole and exclusive operator of the Cogeneration Facility, in complete control of all operations of the Cogeneration Facility, except as otherwise expressly provided herein. Operator shall perform diligently the duties and obligations imposed upon it under this Agreement. Operator represents as of the date hereof that it possesses, and covenants for all times during the Term that it will possess, the requisite experience, skill, personnel and facilities to perform as such operator and to provide the services that it is obligated by this Agreement to perform and provide, and that upon commencement of beneficial operation of the Cogeneration Facility it will possess a staff of personnel sufficient to operate, maintain and repair the Cogeneration Facility in accordance with sound engineering practices and Operator's operating plan.

2.2 **Operator's Obligations.** During operation of the Cogeneration Facility, Operator shall:

- (i) perform such acts as are necessary and reasonable to enable the Cogeneration Facility to be operated and utilized in an efficient and successful manner using sound management practices;
- (ii) enter into and be responsible for the performance of all contracts and agreements relating to the maintenance and operation of the Cogeneration Facility in the ordinary course within the limits of authority given to Operator hereunder;
- (iii) subject to reimbursement pursuant to Section 4 hereof, pay and discharge all costs and expenses related to the Cogeneration Facility and the operation thereof, in accordance with other relevant provisions hereof;
- (iv) establish and implement all operational policies approved or established by Owner by notice or this Agreement with respect to the Cogeneration Facility; and
- (v) maintain and operate the Cogeneration Facility: (1) in a good and workmanlike manner in conformance with generally accepted industry-wide standards and practices established for operations similar to those contemplated hereunder; (2) to the extent applicable, in conformance with Operator's internal standard operating practices and procedures; (3) in conformance with all applicable laws, ordinances, rules, regulations and orders of public



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authorities bearing upon the operation and maintenance of the Cogeneration Facility, or the safety of persons and property and their protection from damage, injury or loss: (4) in accordance with the provisions of any other agreements between the parties hereto and in a reasonable manner so as not to cause a default thereunder; and (5) and in a reasonable manner so as not to cause a default under the Construction Agreement or the Maintenance Agreement; provided, however, Operator shall not be required to perform any obligation that is the duty or responsibility of Solar pursuant to the Construction Agreement or the Maintenance Agreement, is expressly reserved to Owner by this Agreement or is inconsistent with this Agreement. Operator shall designate an employee of Operator to act in the capacity of Cogeneration Facility supervisor with respect to the on-site services to be provided by Operator hereunder. Operator shall make or cause to be made all reports and returns required by any governmental entity to be made by Owner or Operator with respect to the Cogeneration Facility or the operation thereof, other than those that Solar is required to make pursuant to the Construction Agreement or Maintenance Agreement. Operator shall at all times maintain and keep true, correct and adequate records, in accordance with Operator's internal standard accounting and operating practices and procedures necessary or proper to effect the settlement of accounts between the parties in connection with their rights and obligations under the terms and conditions of this Agreement.

2.3 Emergency. In the event of an accident or emergency, Operator may, without obtaining any approvals of Owner that would otherwise be required hereunder, take any action (including, but not limited to, making payments and incurring expenses on behalf of Owner in the nature of a capital or operating expense or otherwise) reasonable and necessary under the circumstances. Such right of Operator to commit and/or expend funds shall be limited to (i) those instances in which, as a result of the nature of the accident or emergency, there has occurred, or there is a significant likelihood there will occur in the immediate future, injury, loss of life, or damage to property having a substantial monetary value or that is of substantial importance to the Cogeneration Facility or its operation, or (ii) situations that, without



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Operator intervention, would jeopardize and/or violate the operating permits, and where obtaining the prior approval of Owner to such intervention would otherwise be required but is impractical. Where Operator incurs a financial obligation pursuant to this Section, and it is subsequently concluded that Operator's determination to commit and/or expend funds was not made in accordance with, and does not satisfy, the standards set forth above in this Section, then Owner shall not be obligated to reimburse Operator for payments made in fulfillment of such obligation, but any financial benefits resulting from such non-reimbursable payments shall be solely for the account of Operator. As promptly as is practicable after Operator establishes control over the accident or emergency situation, Operator shall furnish to Owner a reasonably detailed written description of the accident or emergency and the manner in which such was handled by Operator.

2.4 **Safety and Security.** Operator shall initiate and maintain reasonable safety precautions and programs necessary to comply with the more stringent of all applicable safety laws, Air Products' Safety Standards, and Owner's safety policy notices to Operator to help in preventing injury to persons or damage to property on, about or adjacent to the Cogeneration Facility. Operator shall initiate and maintain reasonable security precautions and programs to protect against vandalism, theft or other similar actions and to comply with Owner's security policy notices to Operator.

Article 3. OWNER'S ROLE

Owner shall decide all policy issues of a commercial nature concerning Cogeneration Facility operation. Such policy issues shall include, without limitation, establishing principles relating to the procurement of materials (other than fuel and water supply, the responsibility for which is governed by the Cogen Agreement) and services for and the general manner of operation of the Cogeneration Facility as each relates to Owner's ability to perform its duties under the Cogen Agreement and any then current operating plan and guidelines for safety and security procedures, equipment maintenance and replacement,



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and capital expenditures. Owner's decisions on such general policy issues shall be promptly evidenced by notices to Operator.

Article 4. OWNER'S PAYMENTS

4.1 Owner's Incurred Payment Obligation. Owner shall pay to Operator, on the terms provided herein, in consideration for services required by this Agreement, the sum of \$60,000 per year ("Operating Fee"). Said Operating Fee shall be payable in twelve equal monthly installments in arrears for each month following the Commercial In-Service Date (as defined in the Cogen Agreement) and shall cover any costs and expenses incurred with regard to operating the combustion turbines ("CTs") that are part of the Cogeneration Facility and other equipment related to the electric generation function of the Cogeneration Facility.

In addition, to the foregoing Operating Fee, Owner shall monthly reimburse Operator for all of Operator's out-of-pocket costs and expenses incurred by Operator in connection with the routine maintenance of the Cogeneration Facility (specifically limited to costs and expenses of activities and services not covered by the Maintenance Agreement) as well as all operating costs associated with the heat recovery steam generators ("HRSGs") that are part of the Cogeneration Facility which Operator can substantiate and present to Owner for reimbursement (such costs and expenses plus the Operating Fee allocable to a given month being the "Section 4.1 Amount" for that month). The parties expect that such costs and expenses shall be based upon the guidance provided by annual operating plans and budgets which Operator prepares for Owner's review, or which Operator otherwise incurs in connection with the unexpected or emergency matters. Capital expenditures must be approved in advance by Owner.

4.2 Credit for Payment. Given the rights, responsibilities and obligations of and between Owner and Operator pursuant to the Cogen Agreement, the parties recognize that all charges by Operator to Owner for services provided or costs and expenses fronted by Operator under this Agreement shall, per

the Cogen Agreement, be subject to pro rata reimbursement thereunder (i.e., "matched"), with Operator's pro rata share based on the calculation of the ratio of steam sold to third parties compared to the total steam output of the Cogeneration Facility other than during Steam Usage Curtailment Periods noticed as provided in section 7.1 of the Cogen Agreement ("Third Party Fraction"). Therefore, in lieu of Operator's monthly presenting invoices and receipts for the full Section 4.1 Amount for payment by Owner hereunder, followed by the similar process of Owner's presenting invoices for reimbursement by Operator under the Cogen Agreement for charges not related to the Third Party Fraction, for so long as this Agreement and the Cogen Agreement shall be in effect, such amounts that are not to be matched pro rata to third party steam sales shall be deemed automatically invoiced, paid and credited against the matching amounts under the Cogen Agreement as aforesaid. Accordingly, after application of such credits, Owner's actual monthly payment obligation under Section 4.1 above (pursuant to properly substantiated invoices whenever payments are actually due) shall be the Section 4.1 Amount times the applicable Third Party Fraction.

Article 5. RIGHTS OF OWNER

Owner shall have (i) the right of access to the Cogeneration Facility at all times to observe and inspect Cogeneration Facility operation, subject to Operator's reasonable security procedures; (ii) the right, at Owner's expense, to inspect and audit the books, records, accounts and invoices of Operator pertaining to any matter of accounting arising under this Agreement; and (iii) the right to inspect any agreement, document or other instrument relating to the operation of the Cogeneration Facility that is in the custody of Operator pursuant to this Agreement.

Article 6. INDEMNIFICATION

6.1 **By Operator.** Operator shall protect, indemnify, defend and hold harmless Owner and its partners, agents, employees, affiliates, assignees and lenders and their respective independent engineers and



other consultants (collectively with Owner, the "Owner Indemnified Parties") from and against any and all loss, damage, cost or liability to the extent that any of the foregoing arise out of, or by reason of, the negligent acts or omissions of Operator or anyone acting on Operator's behalf, including, but not limited to, Operator's subcontractors and vendors, their subcontractors and subvendors, and the employees and agents of any of the foregoing in connection with, or incident to, Operator's obligations under this Agreement. For purposes of this Article, Solar and its subcontractors and vendors shall be deemed to acting on Owner's behalf.

6.2 By Owner. Owner shall protect, indemnify, defend and hold harmless Operator and its agents, employees, affiliates, assignees and lenders, and their respective independent engineers and other consultants (collectively with Operator, the "Operator Indemnified Parties") from and against any and all loss, damage, cost or liability to the extent that any of the foregoing arise out of, or by reason of, the negligent acts or omissions of Owner or anyone other than Operator acting on Owner's behalf or under its instructions, including, but not limited to, Owner's suppliers, subcontractors and vendors, their subcontractors and subvendors, and the employees and agents of any of the foregoing in connection with, or incident to, Owner's obligations under this Agreement.

6.3 Survival of Indemnities, Etc. The provisions of this Article 6 shall (i) survive the completion of, and payment for, the services to be performed hereunder, (ii) survive the termination, cancellation or expiration of this Agreement and (iii) apply to the full extent permitted by law.

Article 7. LIMITATION ON LIABILITY

Except for Operator's own willful misconduct or gross negligence, in no event shall Operator's aggregate liability with respect to this Agreement exceed the then fair market value of the Cogeneration Facility. Except as otherwise provided in the following sentence, neither party shall be liable to the other party for any indirect, special, incidental or consequential damages arising out of the performance or non-



performance by such party of its obligations under this Agreement including, without limitation, loss of profits, down time, loss of use, or payment of fines or penalties, whether based in contract (including breach of warranty), tort (including the negligence of Owner or Operator), strict liability or otherwise, and each party hereby releases the other party from any claims that it may have against the other party for any such damages. A party may not derive a benefit under the Cogen Agreement (including, but not limited to any rights that may accrue pursuant to sections 3.7, 3.8 and 3.9 of said agreement) based on its failure to perform hereunder or negligence if such benefit would not be available but for failure to perform hereunder or the sole negligence of such party. This Article shall survive the termination, cancellation or expiration of this Agreement.

Article 8. FORCE MAJEURE

Performance of this Agreement by Owner and Operator shall be pursued with due diligence in all requirements hereof; however, neither Owner nor Operator shall be liable to the other for any loss or damage for nonperformance or failure to adhere to budget or operating plan due to any cause that would meet the definition of a force majeure event under the Cogen Agreement. Lack of or unavailability of money or changes in market conditions shall not constitute a Force Majeure Event.



Article 9. TERMINATION/EXPIRATION

9.1 **Termination Upon Default.** If either party shall be in default of its obligations hereunder for a period of thirty (30) days after notice from the non-defaulting party hereunder, such non-defaulting party shall have the right by notice to the defaulting party to terminate this Agreement. In the event that the termination of this Agreement is due to the default of the Operator, then Owner shall be entitled to receive from Operator and Operator shall be obligated to pay to Owner all costs incurred in connection with the operation of the CTs for the remaining term of the Cogen Agreement, including without limitation, any capital costs incurred to provide a separate control facility for such CTs. This responsibility is in addition to and separate and apart from the obligations of Operator previously set forth within the Cogen Agreement. Under such circumstances, the selection of a replacement operator and related staffing requirements for the continued operation of said CTs shall be in the sole discretion of the Owner. This section shall survive termination of this Agreement.

9.2 **Duties Upon Termination or Expiration.** Upon the termination of this Agreement for default, Operator shall cooperate with Owner in the transfer of the operations of the Cogeneration Facility to Owner or to a new operator of the Cogeneration Facility designated by Owner. Without limiting the foregoing, Operator shall train personnel of Owner or the new operator to operate the Cogeneration Facility and provide Owner and the new operator with information, data and a reasonable working environment necessary for the safe and efficient operation and maintenance of the Cogeneration Facility. Except in the case where the termination is due to the default of the Operator, Operator shall be compensated separately for such training at its normal rates of compensation then prevailing for such services. Upon expiration of the Term or termination of this Agreement, Operator shall deliver to Owner all Cogeneration Facility books, records, accounts, manuals, site procedures, and administrative procedures developed by Operator pursuant to this Agreement or other property, books, data and records of or related to the operation of the Cogeneration Facility hereunder. Operator shall have a continuing right to inspect and copy such books,



data and records for as long as they are maintained by Owner, which right shall survive the termination or expiration of this Agreement. Furthermore, Owner shall have the right to take possession of all of the equipment (except those items of equipment that are the property of Operator), raw materials and supplies located at the Cogeneration Facility (including the inventory of spare parts that is kept on hand as recommended by the equipment manufacturer) or owned by Owner for the purposes of performing the obligations hereunder and may employ any other person to perform the obligations hereunder by whatever method provided herein. Operator shall not be entitled to receive any further payments under this Agreement other than payments for services performed prior to termination or expiration. However, each of Operator and Owner shall continue to be bound by the provisions of this Agreement that survive the termination or expiration hereof. In addition, upon the termination or expiration of this Agreement Operator shall, at Owner's request (and, unless the termination is due to Operator's default, at Owner's expense): (i) assist Owner in preparing an inventory of all equipment, raw materials, and supplies in use or in storage at the Cogeneration Facility; (ii) assign to Owner all subcontracts and other contractual agreements to which Operator is a party, to the extent assignable as may be designated by Owner; and (iii) remove from the Cogeneration Facility all such equipment, supplies and rubbish as Owner may request be removed. Owner will reimburse Operator for all out-of-pocket costs incurred by Operator due to termination of this Agreement except if termination is due to Operator's default. Such costs shall include, without limitation, the cost to relocate or terminate employees, the cost to remove property owned by Operator from the Cogeneration Facility to another location selected by Operator, costs incurred by Operator for services rendered pursuant to this Section, and a reasonable allocation for Operator's overhead. The parties' respective obligations arising during the Term to pay the other party any sums of money pursuant to this Agreement shall survive any termination or expiration of this Agreement.



Article 10. ASSIGNMENT


All of the rights and interests of either of the parties shall be binding upon and shall inure to the benefit of their successors and permitted assigns: provided that neither party may assign its interest, or any part thereof, in this Agreement without the prior written consent of the other, not to be unreasonably withheld.

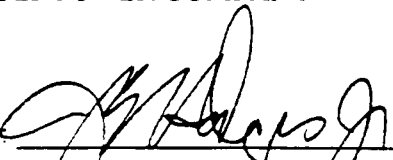
Article 11. GENERAL



This Agreement shall be governed by and shall be construed in accordance with the laws of Florida, without giving effect to its conflict of laws provisions. This Agreement may not be amended, waived or modified in any way whatsoever except in a document specifically identified as an amendment, waiver, consent or supplement to this Agreement that is executed by duly authorized representatives of both parties. If any provision of this Agreement should become fully or partially invalid or unenforceable for any reason whatsoever, or violate any applicable law, this Agreement is to be considered divisible as to such provision and such provision is to be deleted from this Agreement, and the remainder of this Agreement shall be valid and binding as if such provision were not included herein. Notices shall be in writing and shall be sent by hand, by registered or certified United States mail (return receipt requested), by facsimile or by overnight courier, to such address as notified in writing by the receiving party.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to execute this Agreement as of the day and year first hereinabove set forth.

GULF POWER COMPANY

 AIR PRODUCTS AND CHEMICALS, INC.

By: 
Title: Vice President

By: 
Title: Vice President  10/11/97
5:22

GULF POWER COMPANY
CISR AUDIT
FOR THE FIVE MONTHS PERIOD ENDING 10/31/97
AUDITOR: CHRIS HOLMAN

1 SUBJECT: CISR LEAD SCHEDULE

2 PURPOSE: To determine how "net revenue" is calculated, and determine if the amount is
3 calculated correctly.

4 SUMMARY: The Company estimates the base load in kilowatt hours for each month. The
5 auditor reviewed these calculations which consist of a large volume of work done on
6 computer. These calculations utilize the RTP tariff schedule. The Company used
7 the same format for each month. This calculation produces a lower load than using
8 the CISR rates. The Company stated this was because their customer would take
9 a greater load at the cheaper CISR rates. The load is used to determine the
10 energy charged amount. To this amount is added the \$1,000 customer charge.
11 The resulting amount is reflected on worksheet 41-1 as the subtotal. There are
12 four clause categories. These clause categories each have a separate rate which is
13 multiplied times the base load. The results are subtracted from the subtotal. This
14 gives the monthly total revenue per customer. The base amounts are not booked.

15 The calculation for the CISR revenue utilizes the actual load that the customer
16 uses. The annual non-fuel charge is a contractual amount, and the same amount
17 of \$155,571,03 is charged monthly. The company pays the tariffed fuel charge
18 which is the actual CISR load times the tariffed fuel charge rate of \$.02073. In
19 addition to the other two amounts, the Company also charges a variance charge
20 based on the customer's usage. These three amounts are added together to give the
21 CISR subtotal. As in the base calculation, the load is multiplied by the four
22 clause rates to determine the actual amount for the four clause categories. The
23 resulting amounts for the four clause calculations are subtracted from the subtotal on
24 worksheet 41-1. The CISR amounts are booked.

41-1-1
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GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

CISR LEAD

12/1/97
CAF

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The difference between the base and the CISR amount is the monthly "net revenue". These amounts are cumulative and are reported to the Commission on a cumulative basis. The Company then subtracts the interruptible amount which it also calculates on a monthly basis. The Company explained that the reason that this subtraction is made is that since this is an interruptible customer, the Company has more capacity and that the Company would sell this capacity to the pool. The Company subtracted \$124,000 from the cumulative net revenue for the interruptible revenue. The auditor read the implementing order, PSC-96-1219-FOF-EI, and found that the order is silent as to the interruptible calculation. The amount that was reported on the Surveillance Report agreed to the amount on worksheet 41-1. In addition, to the reported "net revenue", there will be year-end adjustments to these amounts based on the load that the customer used for the year. These adjustments are not reflected for the period under review.

14 CONCLUSION:

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18

The Company has used different loads in determining the difference between the base revenue and the CISR revenue. The Company subtracted the interruptible capacity charge in the amount of \$124,000. The auditor recomputed this amount and found that the amount should be \$125,824; however, this amount should be subtracted only if it is an allowable deduction.

41-5

B (12)

NET REVENUE CALCULATION
 WP 41-1
 FOUR MONTH PERIOD ENDING 9/30/1997
 AUDITOR: CHRIS HOLMAN

A B C D E F G H I J K L M

DESCRIPTION	JUNE			JULY			AUGUST			SEPTEMBER		
	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE
1. ENERGY USED IN KILOWATT HOURS	18,039,205.00	19,915,475.00	4	18,233,998.00	18,248,782.00		15,797,629.00	17,023,578.00		19,067,344.10	19,369,420.00	20.1
2. ANNUAL NON-FUEL CHARGE IN \$	41-20 41-4.1	155,571.03		41-4.2 41-20.3	155,571.00		41-4.1 41-20.1	155,571.03		41-4.1 41-20.1	155,571.03	
3. CUSTOMER CHARGE IN \$ (NOTE 1)	42-60 1,000.00			1,000.00	41-20.3		1,000.00			1,000.00	41-20.1	
4. ENERGY CHARGE IN \$ (NOTE 2, NOTE 3)	657,529.00	412,847.80	4}	807,584.00	378,255.79	3}	688,935.00	352,898.77	2}	757,546.00	401,528.08	0.1}
5. KILOWATT VARIANCE CHARGE IN \$ (RATE IS \$1.00)	41-2 41-4.4	2,318.00		41-4.3 2,471.00			41-4.1 2,506.00			41-4.1 2,346.00		0.1}
6. SUBTOTAL	658,529.00	570,736.83		808,584.00	536,297.79		689,935.00	510,975.80		758,546.00	559,445.11	
7. LESS:	T											
7. THE FOLLOWING RATES ARE MULTIPLIED BY LINE 1:		41-30			41-30			41-30			41-30	
Energy Conservation Cost Recovery ECCR .3 0.00032	5,773	116 6,373		5,835	11 5,839		5,055	18 5,448		6,102	14 6,198	
Environmental Cost Recovery Clause ECC .1 0.00095	17,137	115 18,920		17,322	12 17,334		15,008	17 16,172		18,114	3 18,401	
(F)CR Fuel Clause Recovery CR .4 0.02073	373,953	113 412,848		377,991	9 378,256		327,485	15 352,899		395,266	1 401,528	
Purchase Power Capacity Clause PPCC .2 0.00042	7,576	114 8,364		7,658	10 7,664		6,635	16 7,150		8,008	12 8,135	
13 MONTHLY TOTAL	254,090	124,232	129,858	399,778	127,205	272,573	335,752	129,307	206,445	331,056	125,183	205,873
14 FOUR MONTHS TOTAL (TOTAL OF DIFFERENCES) T			2.4			2.3			2.2			41-6 814,749
15 INTERRUPTIBLE IIC AMOUNT (NOTE 4)			41-4.4			41-4.3			41-4.2			(124,000) 41.2
16 TOTAL AFTER INTERRUPTIBLE												690,749

NOTE 1: CUSTOMER CHARGE FOR CISR INCLUDED IN ANNUAL NON-FUEL CHARGE.

NOTE 2: BASE-RATE IS A REAL TIME PRICING(RTP) RATE, AND IS DERIVED ON AN HOURLY BASIS. 41-2, 42-11, 41-11, 60

NOTE 3: CISR RATE IS THE STANDARD FUEL RATE OF .02073 42-20.4

NOTE 4: INTERRUPTIBLE AMOUNT NOT ADJUSTED BY AUDITOR

auditor note: agreed C I & B amounts to G/L
 agreed BASE amounts to company study
 Prepared by Auditor

NET REVENUE CALCULATION
 WP 41-1
 FIVE MONTH PERIOD ENDING 10/31/1997
 AUDITOR: CHRIS HOLMAN

A B C D E F G H I J K L M N O P

DESCRIPTION	JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER		
	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE	BASE	CISR	DIFFERENCE
1. ENERGY USED IN KILOWATT HOURS	18,038,205.00	19,915,475.00		18,233,998.00	18,246,782.00		15,797,829.00	17,023,578.00		19,067,344.10	19,369,420.00		17,811,793.00	18,384,908.00	
2. ANNUAL NON-FUEL CHARGE IN \$		155,571.03			155,571.00			155,571.03			155,571.03		41-400	41-200	41-200-1
3. CUSTOMER CHARGE IN \$ (NOTE 1)	1,000.00			1,000.00			1,000.00			1,000.00			1,000.00	10-4	
4. ENERGY CHARGE IN \$ (NOTE 2, NOTE 3)	657,529.00	412,847.80		807,584.00	378,255.79		688,935.00	352,898.77		757,546.00	401,528.08		42-60	4-15	
5. KILOWATT VARIANCE CHARGE IN \$ (RATE IS \$1.00)		2,318.00			2,471.00			2,506.00			2,348.00		540,944.00	377,074.46	
6. SUBTOTAL	658,529.00	570,738.83		808,584.00	536,297.79		689,935.00	510,975.80		758,546.00	559,445.11		41-1-1	41-200	-13
7. THE FOLLOWING RATES ARE MULTIPLIED BY LINE 1:															
Energy Conservation Cost Recovery ECCR 0.00032 0.00032	5,773	6,373		5,835	5,839		5,055	5,448		6,102	6,198		5,700	5,883	
Environmental Cost Recovery Clause ECC 0.00101 0.00095	17,137	18,920		17,322	17,334		15,008	16,172		18,114	18,401		17,990	18,569	
(P)CR Fuel Clause Recovery CR 0.02051 0.02073	373,953	412,848		377,991	378,256		327,485	352,899		395,266	401,528		365,320	377,074	
Purchase Power Capacity Clause PPCC 0.00029 0.00042	7,576	8,364		7,658	7,664		6,635	7,150		8,008	8,135		5,165	5,332	
MONTHLY TOTAL	254,090	124,232	129,858	399,778	127,205	272,573	335,752	129,307	206,445	331,056	125,183	205,873	147,769	128,241	19,526
14 FIVE MONTHS TOTAL (TOTAL OF DIFFERENCES)												814,749			834,277
15 INTERRUPTIBLE IIC AMOUNT (NOTE 4)												(124,000)			(186,166)
16 TOTAL AFTER INTERRUPTIBLE												690,749			638,111

- 1) NOTE 1: CUSTOMER CHARGE FOR CISR INCLUDED IN ANNUAL NON-FUEL CHARGE.
- 2) NOTE 2: BASE RATE IS A REAL TIME PRICING (RTP) RATE, AND IS DERIVED ON AN HOURLY BASIS.
- 3) NOTE 3: CISR RATE IS THE STANDARD FUEL RATE OF .02073
- 4) NOTE 4: INTERRUPTIBLE AMOUNT NOT ADJUSTED BY AUDITOR

JUNE TO SEPTEMBER REFERENCED ON WP 41-1.

Prepared By Auditor.

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41-200-1
41-200-1
10-4
4-15
41-200
41-30-1
41-4
41-1
200

GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

BASE ENERGY CHARGE

[Handwritten signature]
12/02/97
② 1-28-98

DEC-02-1997 14:52 FROM UF-322 (NAM)U1.35 512K TO

918504136490 P.02

CONFIDENTIAL

FPSC Summary Response on CSA no.1

1 Every application of Gulf Power's CIS rider is evaluated on a case by case
2 basis over the life of the CSA. The analysis involves developing a base case
3 describing the revenue and cost consequences resulting from the loss of the
4 "at risk" load. In the case of CSA no.1, Gulf identified six possible options
5 that the customer had. These six scenarios were then assigned probabilistic
6 weights to determine a composite base case. Each scenario had annual
7 loads that when combined produced our best estimate as to the load impact
8 on Gulf Power Company. The annual loads from the weighted base case
9 were then spread on a monthly basis utilizing their current load profile.
10 Under the RTP rate, customers have the option of varying their load based
11 4-5 on the offered hourly RTP price. To accurately determine the customers
12 base case energy bill, Gulf used the average offered RTP price for the
13 month and the monthly loads developed from the weighted base case. In
14 FPSC Document Request 3, Item 5, the June 1997 base case monthly energy
15 was 18,039,206 and the average offered RTP price for June 1997 was 3.645
16 cents/Kwh. This produced for June 1997 a base case energy charge of
17 41-1 \$657,529. This calculation will be done for each month and will provide
18 the base case energy charge for purposes of comparison for the surveillance
19 report. The base case monthly load is used in conjunction with current
20 clauses to determine the revenue less clauses.



TOTAL P.02

40	
41	audit notes
42	Details Reviewed for months of June, July, Aug, Sept
43	and R.T.P. Rate for analysis. 41-2

A

GULF POWER COMPANY
CISR COMPARISON

B

C

D

1
2

OCT
BASE CASE

OCT
CISR BILL

OCT
DIFE

3 Energy

41-1-1

17,811,793

18,384,908

4 Cust. Chrg

1,000

1,250

5 Energy Chrg

41-1-1

540,944

531,395

6 Kvar Chrg

2,454

7 ECC .032

5,700

5,883

8 ECCR .101

17,990

18,569

9 CR 2.051

365,320

377,074

10 PPCC .029

5,165

5,332

11 Total Less Clauses

147,769

128,241

(19,528)

41-1-1



.0

A

GULF POWER COMPANY
CISR COMPARISON

C

D

1
2

B
SEPT
BASE CASE

SEPT
CISR BILL

SEPT
DIFF

3 Energy
4 Cust. Chrg
5 Energy Chrg
6 Kvar Chrg
7 ECC .032
8 ECCR .085
9 CR 2.073
10 PPCC .042
11 Total Less Clauses

41-1
41-1

19,067,344
1,000
757,546
6,102
18,114
395,266
8,008
331,056

19,369,420
1,250
555,849
2,346
6,198
18,401
401,528
8,135
125,183

(205,873)
41-1



1

GULF POWER COMPANY
CISR COMPARISON

A	B	C	D
	AUGUST BASE CASE	AUGUST CISR BILL	AUGUST DIFF
1			
2			
3	41-1 Energy	15,797,629	17,023,578
4	Cust. Chrg	1,000	1,250
5	Energy Chrg	688,935	507,220
6	Kvar Chrg		2,508
7	ECC .032	5,055	5,448
8	ECCR .095	15,008	16,172
9	CR 2.073	327,485	352,899
10	PPCC .042	<u>6,635</u>	<u>7,150</u>
11	Total Less Clauses	335,752	129,307
			(206,444) 41-1



12

GULF POWER COMPANY
CISR COMPARISON

	A	B	C	D
		JULY BASE CASE	JULY CISR BILL	JULY DIFF
1				
2				
3	Energy	18,233,998	18,246,782	
4	Cust. Chrg	1,000	1,250	
5	Energy Chrg	807,584	532,577	
6	Kvar Chrg		2,471	
7	ECC .032	5,835	5,839	
8	ECCR .095	17,322	17,334	
9	CR 2.073	377,991	378,256	
10	PPCC .042	7,658	7,664	
11	Total Less Clauses	399,778	127,205	(272,572)

A-1
A-1

(272,572)
A-1



GULF POWER COMPANY
CISR COMPARISON

1 2	A	B	C	D
		JUNE BASE CASE	JUNE CISR BILL	JUNE DIFF
3	Energy	41-1 18,039,208	19,915,475	
4	Cust. Chrg	1,000	1,250	
5	Energy Chrg	41-1 657,529	567,169	
6	Kvar Chrg		2,318	
7	ECC .032	5,773	6,373	
8	ECCR .095	17,137	18,920	
9	CR 2.073	373,953	412,848	
10	PPCC .042	7,576	8,364	
11	Total Less Clauses	254,090	124,232	(129,858) 41-1



4

1 GULF POWER COMPANY
 2 CISR - INTERRUPTIBLE PROVISION CALC

	A	B	C	D	E	F	G	H
	MW (a)	Unavailability Factor (b)	Peak Period Load Ratio (c)	Net MW Worth $a \times (1+b) \times (1-c)$	Price	Value	Jurisdictional %	Total
3 } August 97	19.441	0.028317	0.071972	18.553	3.535506	65.593	0.963189	63,179 (1
4 } September 97	19.441	0.020315	0.072593	18.396	3.535506	65.039	0.963189	62,645 (1
5 } October 97	19.441	0.190545	0.071688	21.486	3.398947	73.030	0.963189	70,342
6								<u>70,342</u>
7								<u>1096,166</u>

10 (1) 63,179
 11 (1) 62,645
 INSERT 125,824 TO 41.2
 CUMULATIVE

EXPLANATION OF WORKSHEET
 ADDITONS DATE: EXAMPLE ON WORK SHEET

10-b
 10-b
 3



GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

KILO WATT HOUR

11/24/97
21/10/28/98

GULF POWER COMPANY
CISR AUDIT
KILOWATT HOUR SCHEDULE
AUDITOR: CHRIS HOLMAN

A	B	C
DATE	KILOWATTS	KILOWATT HOURS
1 6/1997	27,589 41-204	19,915,475 41-204, 41-1
2 7/1997	27,806 41-203	18,246,782 41-203, 41-1
3 8/1997	27,732 41-202	17,023,578 41-202, 41-1
4 9/1997	27,760 41-201	19,369,000 41-201, 41-1
5 10/1997	27,517 41-20-1	18,384,908 41-20-1, 41-1

Prepared By Auditor.

41-20

BILLING STATEMENT

This document consisting of 7 pages is confidential in its entirety.

Gulf Power Company
 POST OFFICE BOX 1151
 PENSACOLA, FL 32520-1151

18

430373500072021

61002295 102397

EXXON COMPANY USA
 UPSTREAM PAYABLES
 P O BOX 4290
 HOUSTON TX 77210-4290

Mail To:
 Gulf Power Company
 Post Office Box 1151
 Pensacola, FL. 32520-1151

610022.95 SVC CSA

Current Amount
 Delinquent After
 10/23/97

Please do not fold, staple,
 or mutilate this coupon

When paying by mail,
 please return upper portion.

4303-735-000720 SPECIAL SERVICE ACCOUNT	610022.95	21
	Total Amount Due	Cy

GULF POWER COMPANY
 5120 WHITING FIELD BLVD
 MILTON, FL 32570
 PHONE NO. (904) 623-3832

CUSTOMER NAME
 ACCOUNT NUMBER
 RATE NAME
 DATE MAILED
 CURRENT MONTH AVG USAGE
 YEAR AGO AVG USAGE

EXXON COMPANY USA
 4303-735-000720
 CSA
 10/03/97
 605,294 KWH/DAY
 511,233 KWH/DAY
 CYCLE 21

***** BILLING DATA *****

SERVICE PERIOD	FROM	TO	MAXIMUM KW	METER NO	METER READING		CONSTANT	KWH
					PREV	CURRENT		
08/29	08/29	09/30	27,760.3	453031	152380.0000	160199.0000	1000.00	7,819.000
08/29	08/29	09/30	KVAR	453032	84002.0000	93148.0000	1000.00	9,146.000
08/29	08/29	09/30	11,469.6	551932	18549.0000	20953.0000	1000.00	2,404.000

TOTAL 19,369.000 41-2
 41-1

***** DETAIL BILLING *****

ANNUAL NON-FUEL COMMITMENT AMOUNT	19,369.420	@	0.02073	\$155,571.03	41-1
FUEL KWH CHARGE	19,369.420	@	0.02073	\$401,528.08	41-1
KVAR	2,346	@	1.00000	\$2,346.00	41-1
				SUBTOTAL	\$559,445.11
ADD. FL. GROSS REC. TAX				\$5,737.67	
FACILITY CHARGE				\$1,822.86	
FRAN. FEE-SANTA ROSA CTY				\$3,079.56	
STATE TAX				\$39,887.75	
LOCAL SALES TX-SANTA ROSA				\$50.00	

TOTAL AMOUNT DUE \$610,022.95



ST REGIS

Current Amount Delinquent After 10/23/97

18

430373500072021		58500133 -082597	
EXXON COMPANY USA UPSTREAM PAYABLES P O BOX 4290 HOUSTON TX 77210-4290 Please do not fold, staple, or mutilate this coupon.	Mail To: Gulf Power Company Post Office Box 1151 Pensacola, FL. 32520-1151 Current Amount Delinquent After 08/25/97 When paying by mail, please return upper portion.		585001.33 SVC CSA
	4303-735-000720 SPECIAL SERVICE ACCOUNT		585001.33 Total Amount Due

GULF POWER COMPANY 5120 WHITING FIELD BLVD MILTON, FL 32570 PHONE NO. (904) 623-3832	CUSTOMER NAME ACCOUNT NUMBER RATE NAME DATE MAILED CURRENT MONTH AVG USAGE YEAR AGO AVG USAGE	EXXON COMPANY USA 4303-735-000720 CYCLE 21 CSA 08/05/97 588,606 KWH/DAY 495,105 KWH/DAY
---	--	---

***** BILLING DATA *****

SERVICE PERIOD		MAXIMUM	METER	METER READING		CONSTANT	KWH	
FROM	TO	KW	NO	PREV	CURRENT			
06/30	07/31	27,806.4	453031	137802.0000	145253.0000	1000.00	7,451,000	
06/30	07/31	KVAR	453032	67997.0000	76552.0000	1000.00	8,555,000	
06/30	07/31	11,609.7	551932	13860.0000	16102.0000	1000.00	2,242,000	
TOTAL							18,248,000	41-8 41-)

***** DETAIL BILLING *****

ANNUAL NON-FUEL COMMITMENT AMOUNT		AMOUNT	
FUEL KWH CHARGE	18,246,782 @	\$0.02073	\$378,255.79
KVAR	2,471 @	\$1.00000	\$2,471.00
		SUBTOTAL	\$536,297.82
ADD. FL. GROSS REC. TAX			\$5,500.27
FACILITY CHARGE			\$1,822.86
FRAN. FEE-SANTA ROSA CTY			\$3,079.56
STATE TAX			\$38,250.82
LOCAL SALES TX-SANTA ROSA			\$50.00
		TOTAL AMOUNT DUE	\$585,001.33

Handwritten notes: TO 41-8-70, 41-309, 41-3010, 41-3011, 41-3012



ST REGIS	Current Amount Delinquent After	08/25/97
----------	---------------------------------	----------

13

430373500072021

62222901 - 072397

EXXON COMPANY USA
 UPSTREAM PAYABLES
 P O BOX 4290
 HOUSTON TX 77210-4290

Mail To:
 Gulf Power Company
 Post Office Box 1151
 Pensacola, FL. 32520-1151

622229.01

SVC CSA

Current Amount
 Delinquent After

07/23/97

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 or mutilate this coupon.

When paying by mail,
 please return upper portion.

4303-735-000720
 SPECIAL SERVICE ACCOUNT

622229.01

2

Total Amount Due

C

GULF POWER COMPANY
 5120 WHITING FIELD BLVD
 MILTON, FL 32570
 PHONE NO. (904) 623-3832

CUSTOMER NAME
 ACCOUNT NUMBER
 RATE NAME
 DATE MAILED
 CURRENT MONTH AVG USAGE
 YEAR AGO AVG USAGE

EXXON COMPANY USA
 4303-735-000720
 CSA
 07/03/97

CYCLE 21

642,435 KWH/DAY
 503,663 KWH/DAY

***** BILLING DATA *****

SERVICE PERIOD		MAXIMUM	METER	METER READING		CONSTANT	KWH
FROM	TO	KW	NO	PREV	CURRENT		
05/30	06/30	27,589.4	453031	130032.0000	137802.0000	1000.00	7,770,000
05/30	06/30	KVAR	453032	58963.0000	67997.0000	1000.00	9,034,000
05/30	06/30	11,386.0	551932	10749.0000	13860.0000	1000.00	3,111,000
TOTAL							19,915,000

4-8
 $27,589.4 \times 32868 = 9.62$
actual 2318
5590
11,386
our factor KVAR

***** DETAIL BILLING *****

ANNUAL NON-FUEL COMMITMENT AMOUNT *41-8*
 FUEL KWH CHARGE *41-30*
 KVAR *41-30-14*
 ADD. FL. GROSS REC. TAX *41-30-15*
 FACILITY CHARGE *41-30-16*
 FRAN. FEE-SANTA ROSA CTY
 STATE TAX
 LOCAL SALES TX-SANTA ROSA

41-30-13
42-70-02073
10-4
4-9

AMOUNT
 \$155,571.03
 \$412,847.80
 \$2,318.00
 SUBTOTAL \$570,736.83
 \$5,853.48
 \$1,822.86
 \$3,079.56
 \$40,686.28
 \$50.00

TOTAL AMOUNT DUE \$622,229.01



ST REGIS

Current Amount Delinquent After 07/23/97

Gulf Power Company
 POST OFFICE BOX 1151
 PENSACOLA, FL 32520-1151

18
 (7)

430373500072021

62306327 062497

EXXON COMPANY USA
 UPSTREAM PAYABLES
 P O BOX 4290
 HOUSTON TX 77210-4290

Mail To:
 Gulf Power Company
 Post Office Box 1151
 Pensacola, FL 32520-1151

623063.27

SVC RTP

Current Amount
 Delinquent After

06/24/97

Please do not fold, staple,
 or mutilate this coupon.

When paying by mail,
 please return upper portion.

4303-735-000720
 SPECIAL SERVICE ACCOUNT

623063.27

Total Amount Due

GULF POWER COMPANY
 5120 WHITING FIELD BLVD
 MILTON, FL 32570
 PHONE NO. (904) 623-3832

CUSTOMER NAME
 ACCOUNT NUMBER
 RATE NAME
 DATE MAILED
 CURRENT MONTH AVG USAGE
 YEAR AGO AVG USAGE

EXXON COMPANY USA

4303-735-000720

CYCLE 21

RTP 41,70
 06/04/97

629,773 KWH/DAY
 516,169 KWH/DAY

**** BILLING DATA ****

SERVICE PERIOD FROM TO	MAXIMUM KW	METER NO	METER READING		CONSTANT	KWH
			PREV	CURRENT		
04/30 05/30	27,515.5	453031	122630.0000	130032.0000	1000.00	7,402,000
04/30 05/30		453032	50306.0000	58963.0000	1000.00	8,657,000
04/30 05/30		551932	7915.0000	10749.0000	1000.00	2,834,000
TOTAL						18,893,000

**** DETAIL BILLING ****

CUSTOMER CHARGE		AMOUNT
ENERGY KWH CHARGE (SEE ATTACHED)		\$1,000.00
FUEL KWH CHARGE	18,893,184 @	\$0.02073
		SUBTOTAL
		\$571,508.61
ADD. FL. GROSS REC. TAX		\$5,861.39
FACILITY CHARGE		\$1,822.86
FRAN. FEE-SANTA ROSA CTY		\$3,079.56
STATE TAX		\$40,740.85
LOCAL SALES TX-SANTA ROSA		\$50.00

TOTAL AMOUNT DUE \$623,063.27

NOTE PRE CASH BILL
 RECEIVED BY DEBIT



ST REGIS

Current Amount Delinquent After 06/24/97

15

BILLING STATEMENT FOR OCTOBER

This document consisting of 1 page is confidential in its entirety.

GULF POWER COMPANY
CISR AUDIT
PERIOD 6/1/97 TO 10/31/97

EXXON BILLING STATEMENT
OCTOBER

②-28 AB

ONE ENERGY PLACE
PENSACOLA, FL 32520-0714

0003903606

58372418

112497

EXXON COMPANY USA
UPSTREAM PAYABLES
P O BOX 4290
HOUSTON TX 77210-4290

581773.72 SVC CSA
1950.46 RENTAL

11/24/97

00039-03606
SPECIAL SERVICE ACCOUNT

583724.18

03

GULF POWER COMPANY
5120 DOGWOOD DR.
MILTON, FL 32570
PHONE NO. (850) 444-6755

CUSTOMER NAME EXXON COMPANY USA
ACCOUNT NUMBER 00039-03606 CYCLE 03
RATE NAME CSA
DATE MAILED 11/04/97
CURRENT MONTH AVG USAGE 593,062 KWH/DAY
YEAR AGO AVG USAGE 527,031 KWH/DAY

**** BILLING DATA ****

SERVICE PERIOD	METER	METER READING	CONSTANT	KWH
FROM TO	NO	PREV CURRENT		
09/30 10/31	453031	0.0000 0.0000	1.00	TOTAL 18,384,908

MAXIMUM KW 27,517.4 ACTUAL KVAR 11,498.4
TO 41-8 EXCESS KVAR 2,454.0

**** DETAIL BILLING ****

ANNUAL NON-FUEL COMMITMENT AMOUNT	TO 41-2			41-1-1
FUEL KWH CHARGE	← 18,384,908	@	\$0.02051	\$155,571.03
KVAR	2,454	@	\$1.00	\$377,074.46
				\$2,454.00

ADD. FL. GROSS REC. TAX
FRAN. FEE-SANTA ROSA CTY
STATE TAX
LOCAL SALES TX-SANTA ROSA
RENTAL
STATE TAX
LOCAL SALES TX-SANTA ROSA

SUBTOTAL \$535,099.49
\$5,487.98
\$3,079.56
\$38,056.69
\$50.00
\$1,822.86
109.37
\$18.23

TOTAL AMOUNT DUE \$583,724.18



Your Gulf Power account number has changed as a result of enhancements made to our Customer Service System. Your new account number is reflected on this statement. Please make note of your new account number and use it for quick reference when calling Gulf Power.

11/24/97

41-20-1

Clause Revenue June - September 1997
This document consisting of 16 pages is confidential in its entirety.

**GULF POWER COMPANY
FUEL CLAUSE REVENUE
SEPTEMBER 1997**

		KILOWATT HOURS	FCA FACTOR	CURRENT MONTH FUEL CLAUSE REVENUE	YEAR-TO-DATE FUEL CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	470,843,881	0.02180	10,264,396.61	70,046,096.19
RST - on peak	(10-15)	6,043	0.02662	160.86	1,131.95
- off peak		24,756	0.01952	483.24	-3,378.82
OSII	(50-54)	1,609,923	0.02014	32,423.85	306,815.28
Total Residential		<u>472,484,603</u>		<u>10,297,464.56</u>	<u>70,357,422.24</u>
COMMERCIAL					
GS & Illegal Use	(201-203,225)	25,576,598	0.02180	557,569.84	3,969,841.68
GSD	(204)	204,887,575	0.02180	4,466,549.14	32,119,628.64
GST - on peak	(206)	613	0.02662	16.32	70.66
- off peak		3,040	0.01952	59.34	270.78
GSDT- on peak	(208)	1,135,447	0.02662	30,225.60	74,034.36
- off peak		2,975,949	0.01952	58,090.52	527,769.73
LP	(216)	31,067,292	0.02113	656,451.88	5,003,797.90
LPT - on peak	(217)	9,285,234	0.02580	239,559.04	1,690,734.38
- off peak		23,362,310	0.01892	442,014.91	3,566,174.89
SBS - on peak	(219)	0	0.02580	0.00	0.00
- off peak		0	0.01892	0.00	0.00
OSII	(220,222,226,229)	3,042,671	0.02014	61,279.39	557,693.04
OSIII	(221)	1,780,044	0.02180	38,804.96	351,237.59
OSIV	(227)	157,160	0.02180	3,426.09	53,744.60
RTP	(240)	6,083,108	0.02073	126,102.83	679,622.62
Total Commercial		<u>309,357,041</u>		<u>6,680,149.86</u>	<u>48,594,620.87</u>
INDUSTRIAL					
GSD	(250)	6,603,228	0.02180	143,950.37	1,156,653.14
GSDT - on peak	(251)	74,720	0.02662	1,989.05	14,776.33
- off peak		177,680	0.01952	3,468.31	30,017.08
LP	(254)	13,813,688	0.02113	291,883.23	2,414,553.37
LPT - on peak	(255)	20,699,304	0.02580	534,042.04	3,802,569.06
- off peak		50,161,444	0.01892	949,054.52	7,563,554.58
PXT - on peak	(261)	6,319,462	0.02531	159,945.58	1,106,939.53
- off peak		18,848,538	0.01856	349,828.87	2,552,813.93
SBS - on peak	(257)	0	0.02580	0.00	699.30
- off peak		0	0.01892	0.00	1,016.26
SBS - on peak	(266)	0	0.02531	0.00	60,847.09
- off peak		30	0.01856	0.56	119,935.77
SBS - on peak	(267)	0	0.02531	0.00	0.00
- off peak		0	0.01856	0.00	0.00
OS II	(268)	19,229	0.02014	387.27	3,307.74
RTP	(280)	47,606,753	0.02073	986,887.99	10,548,796.09
CISR	(285)	19,369,420	0.02073	401,528.08	1,545,530.44
Total Industrial		<u>183,693,496</u>		<u>3,822,965.87</u>	<u>30,922,009.71</u>
STREET LIGHTING-OSI (408-413)					
		1,769,102	0.02014	35,629.71	281,199.43
Total Retail		967,304,242		20,836,210.00	150,155,252.25
Curr. Mth Accrued Unbilled		340,373,740		7,317,042.00	7,317,042.00
Less: Prev. Month Accr. Unbilled		423,153,385		9,182,871.00	7,167,222.00
Total Retail Fuel Clause		884,524,597		18,970,381.00	150,305,072.25
Wholesale		0		0.00	(80,194.39)
Interdepartmental Sales - KWH		81,860	0.02180	1,784.55	14,397.42
Total Fuel Clause		<u>884,606,457</u>		<u>18,972,165.55</u>	<u>150,239,275.28</u>
Muni-Sales		3,628,764			
FPU Sales		28,270,089			
Total Territorial Sales - KWH		<u>916,505,310</u>			

41-20
42-70
41-1
42-80



**GULF POWER COMPANY
CAPACITY CLAUSE REVENUE
SEPTEMBER 1997**

		KILOWATT HOURS	CAPACITY FACTOR	CURRENT MONTH CAPACITY CLAUSE REVENUE	YEAR-TO-DATE CAPACITY CLS. REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	470,843,881	0.00078	367,258.23	2,450,785.55
RST - on peak	(10-15)	6,043	0.00078	4.71	34.25
- off peak		24,756	0.00078	19.31	126.67
OSII	(50-54)	1,609,923	0.00019	305.89	2,747.59
Total Residential		<u>472,484,603</u>		<u>367,588.14</u>	<u>2,453,694.06</u>
COMMERCIAL NOTE (1)					
GS & Illegal Use	(201-203,225)	25,576,598	0.00075	19,182.45	133,532.29
GSD	(204)	204,887,575	0.00056	114,737.04	808,140.50
GST - on peak	(206)	613	0.00075	0.46	2.03
- off peak		3,040	0.00075	2.28	10.03
GSDT- on peak	(208)	1,135,447	0.00056	635.85	1,661.86
- off peak		2,975,949	0.00056	1,666.53	14,498.15
LP	(216)	31,067,292	0.00051	15,844.32	118,134.64
LPT - on peak	(217)	9,285,234	0.00051	4,735.47	34,240.04
- off peak		23,362,310	0.00051	11,914.78	90,810.31
SBS - on peak	(219)	0	0.00053	0.00	0.00
- off peak		0	0.00053	0.00	0.00
OSII	(220,222,226,229)	3,042,671	0.00019	578.11	5,002.67
OSIII	(221)	1,780,044	0.00045	801.02	7,076.01
OSIV	(227)	157,160	0.00094	147.73	2,276.50
RTP	(240)	6,083,108	0.00042	2,554.91	13,479.43
Total Commercial		<u>309,357,041</u>		<u>172,800.95</u>	<u>1,228,864.46</u>
INDUSTRIAL NOTE (1)					
GSD	(250)	6,603,228	0.00056	3,697.81	29,024.61
GSDT - on peak	(251)	74,720	0.00056	41.84	319.36
- off peak		177,680	0.00056	99.50	808.79
LP	(254)	13,813,688	0.00051	7,044.98	57,004.54
LPT - on peak	(255)	20,699,304	0.00051	10,556.65	76,958.68
- off peak		50,161,444	0.00051	25,582.34	192,984.66
PXT - on peak	(261)	6,319,462	0.00042	2,654.17	18,774.20
- off peak		18,848,538	0.00042	7,916.39	55,022.32
SBS - on peak	(257)	0	0.00053	0.00	14.75
- off peak		0	0.00053	0.00	26.39
SBS - on peak	(266)	0	0.00053	0.00	1,274.16
- off peak		30	0.00053	0.02	3,416.00
SBS - on peak	(267)	0	0.00053	0.00	0.00
- off peak		0	0.00053	0.00	0.00
OS II	(268)	19,229	0.00019	3.65	29.67
RTP	(280)	47,606,753	0.00042	19,994.84	208,115.76
CISR	(285)	19,369,420	0.00042	8,135.16	31,313.21
Total Industrial		<u>183,693,496</u>		<u>85,727.35</u>	<u>675,087.10</u>
STREET LIGHTING-OSI (408-413)					
		1,769,102	0.00019	336.13	2,521.54
Total Retail					
		967,304,242		626,452.57	4,360,167.16
Curr. Mth Accrued Unbilled		340,373,740		161,814.00	161,814.00
Less: Prev. Month Accr. Unbilled		423,153,385		289,981.00	207,479.00
Total Retail Capacity Clause		884,524,597		498,285.57	4,314,502.16
Wholesale		0		-	-
Interdepartmental Sales - KWH		81,860	0.00056	45.84	361.28
Total Capacity Clause		<u>884,606,457</u>		<u>498,331.41</u>	<u>4,314,863.44</u>
Muni-Sales		3,628,764			
FPU Sales		<u>28,270,089</u>			
Total Territorial Sales - KWH		<u>916,505,310</u>			

PBC

**GULF POWER COMPANY
ECR CLAUSE REVENUE
SEPTEMBER 1997**

	KILOWATT HOURS	ECR FACTOR	CURRENT MONTH ECR CLAUSE REVENUE	YEAR-TO-DATE ECR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	470,843,881	0.00124	583,846.41	3,896,120.61
RST - on peak (10-15)	6,043	0.00124	7.49	54.44
- off peak	24,756	0.00124	30.70	201.36
OSII (50-54)	1,609,923	0.00081	1,304.04	11,713.44
Total Residential	472,484,603		585,188.64	3,908,089.85
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	25,576,598	0.00122	31,203.45	217,212.49
GSD (204)	204,887,575	0.00109	223,327.46	1,572,987.76
GST - on peak (206)	613	0.00122	0.75	3.33
- off peak	3,040	0.00122	3.71	16.30
GSDT- on peak (208)	1,135,447	0.00109	1,237.64	3,234.68
- off peak	2,975,949	0.00109	3,243.78	28,219.60
LP (216)	31,067,292	0.00103	31,999.31	238,585.64
LPT - on peak (217)	9,285,234	0.00103	9,563.79	69,151.45
- off peak	23,362,310	0.00103	24,063.18	183,401.23
SBS - on peak (219)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OSII (220,222,226,229)	3,042,671	0.00081	2,464.56	21,327.16
OSIII (221)	1,780,044	0.00100	1,780.04	15,724.47
OSIV (227)	157,160	0.00136	213.74	3,293.67
RTP (240)	6,083,108	0.00095	5,778.95	30,489.15
Total Commercial	309,357,041		334,880.36	2,383,646.93
INDUSTRIAL NOTE (1)				
GSD (250)	6,603,228	0.00109	7,197.52	56,494.33
GSDT - on peak (251)	74,720	0.00109	81.44	621.59
- off peak	177,680	0.00109	193.67	1,574.28
LP (254)	13,813,688	0.00103	14,228.10	115,126.85
LPT - on peak (255)	20,699,304	0.00103	21,320.28	155,426.31
- off peak	50,161,444	0.00103	51,666.29	389,753.30
PXT - on peak (261)	6,319,462	0.00095	6,003.49	42,465.45
- off peak	18,848,538	0.00095	17,906.11	124,455.25
SBS - on peak (257)	0	0.00103	0.00	28.66
- off peak	0	0.00103	0.00	51.27
SBS - on peak (266)	0	0.00103	0.00	2,476.19
- off peak	30	0.00103	0.03	6,638.60
SBS - on peak (267)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OS II (268)	19,229	0.00081	15.58	126.48
RTP (280)	47,606,753	0.00095	45,226.42	470,738.02
CISR (285)	41-20.1 19,369,420	0.00095	41-1 18,400.95	70,827.49
Total Industrial	42-70.1 183,693,496		42-70.1 182,239.88	1,436,804.07
STREET LIGHTING-OSI (408-413)	1,769,102	0.00081	1,432.97	10,749.69
Total Retail	967,304,242		1,103,741.85	7,739,290.54
Current Month Accrued Unbilled	340,373,740		439,815.00	439,815.00
Less: Prev. Month Accr. Unbilled	423,153,385		495,982.00	357,678.00
Total Retail ECR Clause	884,524,597		42-80.4 1,047,574.85	7,821,427.54
Wholesale	0			
Interdepartmental Sales - KWH	81,860	0.00109	89.23	703.21
Total ECR Clause	884,606,457		1,047,664.08	7,822,130.75
Muni-Sales	3,628,764			
FPU Sales	28,270,089			
Total Territorial Sales - KWH	916,505,310			



**GULF POWER COMPANY
ECCR CLAUSE REVENUE
SEPTEMBER 1997**

	KILOWATT HOURS	ECCR FACTOR	CURRENT MONTH ECCR CLAUSE REVENUE	YEAR-TO-DATE ECCR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	470,843,881	0.00035	164,795.36	1,156,067.17
RST - on peak (10-15)	6,043	0.00035	2.12	16.28
- off peak	24,756	0.00035	8.66	60.25
OSII (50-54)	1,609,923	0.00033	531.27	5,058.70
Total Residential	472,484,603		165,337.41	1,161,202.40
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	25,576,598	0.00034	8,696.04	64,289.31
GSD (204)	204,887,575	0.00034	69,661.78	518,651.37
GST - on peak (206)	613	0.00034	0.21	0.96
- off peak	3,040	0.00034	1.03	4.73
GSDT- on peak (208)	1,135,447	0.00034	386.05	1,152.55
- off peak	2,975,949	0.00034	1,011.82	9,230.98
LP (216)	31,067,292	0.00033	10,252.21	80,539.47
LPT - on peak (217)	9,285,234	0.00033	3,064.13	23,212.55
- off peak	23,362,310	0.00033	7,709.56	62,103.53
SBS - on peak (219)	0	0.00032	0.00	0.00
- off peak	0	0.00032	0.00	0.00
OSII (220,222,226,229)	3,042,671	0.00033	1,004.08	9,193.32
OSIII (221)	1,780,044	0.00034	605.21	5,653.37
OSIV (227)	157,160	0.00035	55.01	870.65
RTP (240)	6,083,108	0.00032	1,946.59	10,817.16
Total Commercial	309,357,041		104,393.72	785,719.95
INDUSTRIAL NOTE (1)				
GSD (250)	6,603,228	0.00034	2,245.10	18,757.65
GSDT - on peak (251)	74,720	0.00034	25.40	205.59
- off peak	177,680	0.00034	60.41	525.95
LP (254)	13,813,688	0.00033	4,558.52	38,864.45
LPT - on peak (255)	20,699,304	0.00033	6,830.77	52,110.83
- off peak	50,161,444	0.00033	16,553.28	131,723.31
PXT - on peak (261)	6,319,462	0.00032	2,022.23	14,941.43
- off peak	18,848,538	0.00032	6,031.53	44,020.07
SBS - on peak (257)	0	0.00032	0.00	9.46
- off peak	0	0.00032	0.00	17.41
SBS - on peak (266)	0	0.00032	0.00	769.30
- off peak	30	0.00032	0.01	2,067.87
SBS - on peak (267)	0	0.00032	0.00	0.00
- off peak	0	0.00032	0.00	0.00
OS II (268)	19,229	0.00033	6.35	54.55
RTP (280)	47,606,753	0.00032	15,234.16	169,142.62
CISR (285)	19,369,420	0.00032	6,198.21	23,857.67
Total Industrial	183,693,496		59,765.97	497,068.16
STREET LIGHTING-OSI (408-413)	1,769,102	0.00033	583.80	4,635.64
Total Retail	967,304,242		330,080.90	2,448,626.15
Current Month Accrued Unbilled	340,373,740		117,314.00	117,314.00
Less: Prev. Month Accr. Unbilled	423,153,385		145,804.00	124,935.00
Total Retail ECCR Clause	884,524,597		301,590.90	2,441,005.15
Wholesale	0			
Interdepartmental Sales - KWH	81,860	0.00034	27.83	233.48
Total ECCR Clause	884,606,457		301,618.73	2,441,238.63
Muni-Sales	3,628,764			
FPU Sales	28,270,089			
Total Territorial Sales - KWH	916,505,310			

41-20.1

42-70.3

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A2-80.3

(700)

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**GULF POWER COMPANY
FUEL CLAUSE REVENUE
AUGUST 1997**

		KILOWATT HOURS	FCA FACTOR	CURRENT MONTH FUEL CLAUSE REVENUE	- YEAR-TO-DATE FUEL CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	459,847,286	0.02180	10,024,670.83	59,781,699.58
RST - on peak	(10-15)	5,472	0.02662	145.66	971.09
- off peak		16,008	0.01952	312.48	2,895.58
OSII	(50-54)	1,619,684	0.02014	32,620.44	274,391.43
Total Residential		<u>461,488,450</u>		<u>10,057,749.41</u>	<u>60,059,957.68</u>
COMMERCIAL					
GS & Illegal Use	(201-203,225)	21,757,424	0.02180	474,311.84	3,412,271.84
GSD	(204)	194,495,136	0.02180	4,239,993.96	27,653,079.50
GST - on peak	(206)	220	0.02662	5.86	54.34
- off peak		1,172	0.01952	22.88	211.44
GSDT- on peak	(208)	1,018,956	0.02662	27,124.61	43,808.76
- off peak		2,354,475	0.01952	45,959.35	469,679.21
LP	(216)	29,328,580	0.02113	619,712.90	4,347,346.02
LPT - on peak	(217)	9,184,442	0.02580	236,958.60	1,451,175.34
- off peak		21,308,594	0.01892	403,158.60	3,124,159.98
SBS - on peak	(219)	0	0.02580	0.00	0.00
- off peak		0	0.01892	0.00	0.00
OSII	(220,222,226,229)	3,007,427	0.02014	60,569.58	496,413.65
OSIII	(221)	1,775,744	0.02180	38,711.22	312,432.63
OSIV	(227)	221,506	0.02180	4,828.83	50,318.51
RTP	(240)	3,448,382	0.02073	71,484.96	553,519.79
Total Commercial		<u>287,902,058</u>		<u>6,222,843.19</u>	<u>41,914,471.01</u>
INDUSTRIAL					
GSD	(250)	6,248,069	0.02180	136,207.90	1,012,702.77
GSDT - on peak	(251)	73,920	0.02662	1,967.75	12,787.28
- off peak		156,400	0.01952	3,052.93	26,548.77
LP	(254)	13,378,229	0.02113	282,681.98	2,122,670.14
LPT - on peak	(255)	20,408,856	0.02580	526,548.48	3,268,527.02
- off peak		45,179,643	0.01892	854,798.85	6,614,500.06
PXT - on peak	(261)	6,319,544	0.02531	159,947.66	946,993.95
- off peak		16,908,456	0.01856	313,820.94	2,202,985.06
SBS - on peak	(257)	1,475	0.02580	38.06	699.30
- off peak		525	0.01892	9.93	1,016.26
SBS - on peak	(266)	0	0.02531	0.00	60,847.09
- off peak		1	0.01856	0.02	119,935.21
SBS - on peak	(267)	0	0.02531	0.00	0.00
- off peak		0	0.01856	0.00	0.00
OS II	(268)	17,292	0.02014	348.26	2,920.47
RTP	(280)	49,423,042	0.02073	1,024,539.66	9,561,908.10
CISR	(285)	17,023,578	0.02073	352,898.77	1,144,002.36
Total Industrial		<u>175,139,030</u>		<u>3,656,861.19</u>	<u>27,099,043.84</u>
STREET LIGHTING-OSI (408-413)					
		1,461,310	0.02014	29,430.78	245,569.72
Total Retail		925,990,848		19,966,884.57	129,319,042.25
Curr. Mth Accrued Unbilled		423,153,385		9,182,871.00	9,182,871.00
Less: Prev. Month Accr. Unbilled		404,866,908		8,783,064.00	7,167,222.00
Total Retail Fuel Clause		944,277,325		20,366,691.57	131,334,691.25
Wholesale		0		0.00	(80,194.39)
Interdepartmental Sales - KWH		83,903	0.02180	1,829.09	12,612.87
Total Fuel Clause		<u>944,361,228</u>		<u>20,368,520.66</u>	<u>131,267,109.73</u>
Muni-Sales		3,871,734			
FPU Sales		30,096,996			
Total Territorial Sales - KWH		<u>978,329,958</u>			



**GULF POWER COMPANY
CAPACITY CLAUSE REVENUE
AUGUST 1997**

	KILOWATT HOURS	CAPACITY FACTOR	CURRENT MONTH CAPACITY CLAUSE REVENUE	YEAR-TO-DATE CAPACITY CLS. REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	459,847,286	0.00078	358,680.88	2,083,527.32
RST - on peak (10-15)	5,472	0.00078	4.27	29.54
- off peak	16,008	0.00078	12.49	107.36
OSII (50-54)	1,619,684	0.00019	307.74	2,441.70
Total Residential	461,488,450		359,005.38	2,086,105.92
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	21,757,424	0.00075	16,318.07	114,349.84
GSD (204)	194,495,136	0.00056	108,917.28	693,403.46
GST - on peak (206)	220	0.00075	0.17	1.57
- off peak	1,172	0.00075	0.88	7.75
GSDT- on peak (208)	1,018,956	0.00056	570.62	1,026.01
- off peak	2,354,475	0.00056	1,318.51	12,831.62
LP (216)	29,328,580	0.00051	14,957.58	102,290.32
LPT - on peak (217)	9,184,442	0.00051	4,684.07	29,504.57
- off peak	21,308,594	0.00051	10,867.38	78,895.53
SBS - on peak (219)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OSII (220,222,226,229)	3,007,427	0.00019	571.41	4,424.56
OSIII (221)	1,775,744	0.00045	799.08	6,274.99
OSIV (227)	221,506	0.00094	208.22	2,128.77
RTP (240)	3,448,382	0.00042	1,448.32	10,924.52
Total Commercial	287,902,058		160,661.59	1,056,063.51
INDUSTRIAL NOTE (1)				
GSD (250)	6,248,069	0.00056	3,498.92	25,326.80
GSDT - on peak (251)	73,920	0.00056	41.40	277.52
- off peak	156,400	0.00056	87.58	709.29
LP (254)	13,378,229	0.00051	6,822.90	49,959.56
LPT - on peak (255)	20,408,856	0.00051	10,408.52	66,402.03
- off peak	45,179,643	0.00051	23,041.62	167,402.32
PXT - on peak (261)	6,319,544	0.00042	2,654.21	16,120.03
- off peak	16,908,456	0.00042	7,101.55	47,105.93
SBS - on peak (257)	1,475	0.00053	0.78	14.75
- off peak	525	0.00053	0.28	26.39
SBS - on peak (266)	0	0.00053	0.00	1,274.16
- off peak	1	0.00053	0.00	3,415.98
SBS - on peak (267)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OS II (268)	17,292	0.00019	3.29	26.02
RTP (280)	49,423,042	0.00042	20,757.68	188,120.92
CISR (285)	17,023,578	0.00042	7,149.90	23,178.05
Total Industrial	175,139,030		81,568.63	589,359.75
STREET LIGHTING-OSI (408-413)	1,461,310	0.00019	277.65	2,185.41
Total Retail	925,990,848		601,513.25	3,733,714.59
Curr. Mth Accrued Unbilled	423,153,385		289,981.00	289,981.00
Less: Prev. Month Accr. Unbilled	404,866,908		276,978.00	207,479.00
Total Retail Capacity Clause	944,277,325		614,516.25	3,816,216.59
Wholesale	0		-	-
Interdepartmental Sales - KWH	83,903	0.00056	46.99	315.44
Total Capacity Clause	944,361,228		614,563.24	3,816,532.03
Muni-Sales	3,871,734			
FPU Sales	30,096,996			
Total Territorial Sales - KWH	978,329,958			



**GULF POWER COMPANY
ECR CLAUSE REVENUE
AUGUST 1997**

	KILOWATT HOURS	ECR FACTOR	CURRENT MONTH ECR CLAUSE REVENUE	YEAR-TO-DATE ECR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	459,847,286	0.00124	570,210.63	3,312,274.20
RST - on peak (10-15)	5,472	0.00124	6.79	46.95
- off peak	16,008	0.00124	19.85	170.66
OSII (50-54)	1,619,684	0.00081	1,311.94	10,409.40
Total Residential	461,488,450		571,549.21	3,322,901.21
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	21,757,424	0.00122	26,544.06	186,009.04
GSD (204)	194,495,136	0.00109	211,999.70	1,349,660.30
GST - on peak (206)	220	0.00122	0.27	2.58
- off peak	1,172	0.00122	1.43	12.59
GSDT- on peak (208)	1,018,956	0.00109	1,110.66	1,997.04
- off peak	2,354,475	0.00109	2,566.38	24,975.82
LP (216)	29,328,580	0.00103	30,208.44	206,586.33
LPT - on peak (217)	9,184,442	0.00103	9,459.98	59,587.66
- off peak	21,308,594	0.00103	21,947.85	159,338.05
SBS - on peak (219)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OSII (220,222,226,229)	3,007,427	0.00081	2,436.02	18,862.60
OSIII (221)	1,775,744	0.00100	1,775.74	13,944.43
OSIV (227)	221,506	0.00136	301.25	3,079.93
RTP (240)	3,448,382	0.00095	3,275.96	24,710.20
Total Commercial	287,902,058		311,627.74	2,048,766.57
INDUSTRIAL NOTE (1)				
GSD (250)	6,248,069	0.00109	6,810.40	49,296.81
GSDT - on peak (251)	73,920	0.00109	80.57	540.15
- off peak	156,400	0.00109	170.48	1,380.61
LP (254)	13,378,229	0.00103	13,779.58	100,898.75
LPT - on peak (255)	20,408,856	0.00103	21,021.12	134,106.03
- off peak	45,179,643	0.00103	46,535.03	338,087.01
PXT - on peak (261)	6,319,544	0.00095	6,003.57	36,461.96
- off peak	16,908,456	0.00095	16,063.03	106,549.14
SBS - on peak (257)	1,475	0.00103	1.52	28.66
- off peak	525	0.00103	0.54	51.27
SBS - on peak (266)	0	0.00103	0.00	2,476.19
- off peak	1	0.00103	0.00	6,638.57
SBS - on peak (267)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OS II (268)	17,292	0.00081	14.01	110.90
RTP (280)	49,423,042	0.00095	46,951.89	425,511.60
CISR (285)	17,023,578	0.00095	16,172.40	52,426.54
Total Industrial	175,139,030		173,604.14	1,254,564.19
STREET LIGHTING-OSI (408-413)	1,461,310	0.00081	1,183.66	9,316.72
Total Retail	925,990,848		1,057,964.75	6,635,548.69
Current Month Accrued Unbilled	423,153,385		495,982.00	495,982.00
Less: Prev. Month Accr. Unbilled	404,866,908		474,200.00	357,678.00
Total Retail ECR Clause	944,277,325		1,079,746.75	6,773,852.69
Wholesale	0		-	-
Interdepartmental Sales - KWH	83,903	0.00109	91.45	613.98
Total ECR Clause	944,361,228		1,079,838.20	6,774,466.67
Muni-Sales	3,871,734			
FPU Sales	30,096,996			
Total Territorial Sales - KWH	978,329,958			

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**GULF POWER COMPANY
ECCR CLAUSE REVENUE
AUGUST 1997**

	KILOWATT HOURS	ECCR FACTOR	CURRENT MONTH ECCR CLAUSE REVENUE	YEAR-TO-DATE ECCR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	459,847,286	0.00035	160,946.55	991,271.81
RST - on peak (10-15)	5,472	0.00035	1.92	14.16
- off peak	16,008	0.00035	5.60	51.59
OSII (50-54)	1,619,684	0.00033	534.50	4,527.43
Total Residential	<u>461,488,450</u>		<u>161,488.57</u>	<u>995,864.99</u>
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	21,757,424	0.00034	7,397.52	55,593.27
GSD (204)	194,495,136	0.00034	66,128.35	448,989.59
GST - on peak (206)	220	0.00034	0.07	0.75
- off peak	1,172	0.00034	0.40	3.70
GSDT- on peak (208)	1,018,956	0.00034	346.45	766.50
- off peak	2,354,475	0.00034	800.52	8,219.16
LP (216)	29,328,580	0.00033	9,678.43	70,287.26
LPT - on peak (217)	9,184,442	0.00033	3,030.87	20,148.42
- off peak	21,308,594	0.00033	7,031.84	54,393.97
SBS - on peak (219)	0	0.00032	0.00	0.00
- off peak	0	0.00032	0.00	0.00
OSII (220,222,226,229)	3,007,427	0.00033	992.45	8,189.24
OSIII (221)	1,775,744	0.00034	603.75	5,048.16
OSIV (227)	221,506	0.00035	77.53	815.64
RTP (240)	3,448,382	0.00032	1,103.48	8,870.57
Total Commercial	<u>287,902,058</u>		<u>97,191.66</u>	<u>681,326.23</u>
INDUSTRIAL NOTE (1)				
GSD (250)	6,248,069	0.00034	2,124.34	16,512.55
GSDT - on peak (251)	73,920	0.00034	25.13	180.19
- off peak	156,400	0.00034	53.18	465.54
LP (254)	13,378,229	0.00033	4,414.82	34,305.93
LPT - on peak (255)	20,408,856	0.00033	6,734.92	45,280.06
- off peak	45,179,643	0.00033	14,909.28	115,170.03
PXT - on peak (261)	6,319,544	0.00032	2,022.25	12,919.20
- off peak	16,908,456	0.00032	5,410.71	37,988.54
SBS - on peak (257)	1,475	0.00032	0.47	9.46
- off peak	525	0.00032	0.17	17.41
SBS - on peak (266)	0	0.00032	0.00	769.30
- off peak	1	0.00032	0.00	2,067.86
SBS - on peak (267)	0	0.00032	0.00	0.00
- off peak	0	0.00032	0.00	0.00
OS II (268)	17,292	0.00033	5.71	48.20
RTP (280)	49,423,042	0.00032	15,815.37	153,908.46
CISR (285)	17,023,578	0.00032	5,447.54	17,659.46
Total Industrial	<u>175,139,030</u>		<u>56,963.89</u>	<u>437,302.19</u>
STREET LIGHTING-OSI (408-413)	<u>1,461,310</u>	0.00033	<u>482.23</u>	<u>4,051.84</u>
Total Retail	925,990,848		316,126.35	2,118,545.25
Current Month Accrued Unbilled	423,153,385		145,804.00	145,804.00
Less: Prev. Month Accr. Unbilled	404,866,908		139,453.00	124,935.00
Total Retail ECCR Clause	944,277,325		322,477.35	2,139,414.25
Wholesale	0			
Interdepartmental Sales - KWH	83,903	0.00034	28.53	205.65
Total ECCR Clause	<u>944,361,228</u>		<u>322,505.88</u>	<u>2,139,619.90</u>
Muni-Sales	3,871,734			
FPU Sales	30,096,996			
Total Territorial Sales - KWH	<u>978,329,958</u>			

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**GULF POWER COMPANY
FUEL CLAUSE REVENUE
JULY 1997**

		KILOWATT HOURS	FCA FACTOR	CURRENT MONTH FUEL CLAUSE REVENUE	YEAR-TO-DATE FUEL CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	448,642,004	0.02180	9,780,395.69	49,757,028.75
RST - on peak	(10-15)	6,097	0.02662	162.30	825.43
- off peak		20,784	0.01952	405.70	2,583.10
OSII	(50-54)	1,624,118	0.02014	32,709.74	241,770.99
Total Residential		<u>450,293,003</u>		<u>9,813,673.43</u>	<u>50,002,208.27</u>
COMMERCIAL					
GS & Illegal Use	(201-203,225)	26,500,168	0.02180	577,703.66	2,937,960.00
GSD	(204)	194,050,487	0.02180	4,230,300.62	23,413,085.54
GST - on peak	(206)	219	0.02662	5.83	48.48
- off peak		1,355	0.01952	26.45	188.56
GSDT- on peak	(208)	1,099,385	0.02662	29,265.63	16,684.15
- off peak		2,655,114	0.01952	51,827.83	423,719.86
LP	(216)	29,646,844	0.02113	626,437.81	3,727,633.12
LPT - on peak	(217)	8,900,115	0.02580	229,622.97	1,214,216.74
- off peak		21,215,685	0.01892	401,400.76	2,721,001.38
SBS - on peak	(219)	0	0.02580	0.00	0.00
- off peak		0	0.01892	0.00	0.00
OSII	(220,222,226,229)	3,004,453	0.02014	60,509.68	435,844.07
OSIII	(221)	1,778,558	0.02180	38,772.56	273,721.41
OSIV	(227)	312,804	0.02180	6,819.13	45,489.68
RTP	(240)	3,500,215	0.02073	72,559.46	482,034.83
Total Commercial		<u>292,665,402</u>		<u>6,325,252.39</u>	<u>35,691,627.82</u>
INDUSTRIAL					
GSD	(250)	6,105,470	0.02180	133,099.25	876,494.87
GSDT - on peak	(251)	62,120	0.02662	1,653.63	10,819.53
- off peak		144,600	0.01952	2,822.59	23,495.84
LP	(254)	14,618,197	0.02113	308,882.50	1,839,988.16
LPT - on peak	(255)	20,482,216	0.02580	528,441.17	2,741,978.54
- off peak		49,300,756	0.01892	932,770.30	5,759,701.21
PXT - on peak	(261)	4,840,756	0.02531	122,519.53	787,046.29
- off peak		13,723,244	0.01856	254,703.41	1,889,164.12
SBS - on peak	(257)	0	0.02580	0.00	661.24
- off peak		0	0.01892	0.00	1,006.33
SBS - on peak	(266)	0	0.02531	0.00	60,847.09
- off peak		0	0.01856	0.00	119,935.19
SBS - on peak	(267)	0	0.02531	0.00	0.00
- off peak		0	0.01856	0.00	0.00
OS II	(268)	17,482	0.02014	352.09	2,572.21
RTP	(280)	48,877,029	0.02073	1,013,220.81	8,537,368.44
CISR	(285)	18,246,782	0.02073	378,255.79	791,103.59
Total Industrial		<u>176,418,652</u>		<u>3,676,721.07</u>	<u>23,442,182.65</u>
STREET LIGHTING-OSI (408-413)		<u>1,446,506</u>	0.02014	<u>29,132.63</u>	<u>216,138.94</u>
Total Retail		<u>920,823,563</u>		<u>19,844,779.52</u>	<u>109,352,157.68</u>
Curr. Mth Accrued Unbilled		404,866,908		8,783,064.00	8,783,064.00
Less: Prev. Month Accr. Unbilled		367,914,411		7,974,705.00	7,167,222.00
Total Retail Fuel Clause		<u>957,776,060</u>		<u>20,653,138.52</u>	<u>110,967,999.68</u>
Wholesale		0		0.00	(80,194.39)
Interdepartmental Sales - KWH		81,054	0.02180	1,766.98	10,783.78
Total Fuel Clause		<u>957,857,114</u>		<u>20,654,905.50</u>	<u>110,898,589.07</u>
Muni-Sales		3,868,947			
FPU Sales		30,998,142			
Total Territorial Sales - KWH		<u>992,724,203</u>			



**GULF POWER COMPANY
CAPACITY CLAUSE REVENUE
JULY 1997**

	KILOWATT HOURS	CAPACITY FACTOR	CURRENT MONTH CAPACITY CLAUSE REVENUE	YEAR-TO-DATE CAPACITY CLS. REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	448,642,004	0.00078	349,940.76	1,724,846.44
RST - on peak (10-15)	6,097	0.00078	4.76	25.27
- off peak	20,784	0.00078	16.21	94.87
OSII (50-54)	1,624,118	0.00019	308.58	2,133.96
Total Residential	<u>450,293,003</u>		<u>350,270.31</u>	<u>1,727,100.54</u>
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	26,500,168	0.00075	19,875.13	98,031.77
GSD (204)	194,050,487	0.00056	108,668.27	584,486.18
GST - on peak (206)	219	0.00075	0.16	1.40
- off peak	1,355	0.00075	1.02	6.87
GSDT- on peak (208)	1,099,385	0.00056	615.66	455.39
- off peak	2,655,114	0.00056	1,486.86	11,513.11
LP (216)	29,646,844	0.00051	15,119.89	87,332.74
LPT - on peak (217)	8,900,115	0.00051	4,539.06	24,820.50
- off peak	21,215,685	0.00051	10,820.00	68,028.15
SBS - on peak (219)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OSII (220,222,226,229)	3,004,453	0.00019	570.85	3,853.15
OSIII (221)	1,778,558	0.00045	800.35	5,475.91
OSIV (227)	312,804	0.00094	294.04	1,920.55
RTP (240)	3,500,215	0.00042	1,470.09	9,476.20
Total Commercial	<u>292,665,402</u>		<u>164,261.38</u>	<u>895,401.92</u>
INDUSTRIAL NOTE (1)				
GSD (250)	6,105,470	0.00056	3,419.06	21,827.88
GSDT - on peak (251)	62,120	0.00056	34.79	236.12
- off peak	144,600	0.00056	80.98	621.71
LP (254)	14,618,197	0.00051	7,455.28	43,136.66
LPT - on peak (255)	20,482,216	0.00051	10,445.93	55,993.51
- off peak	49,300,756	0.00051	25,143.39	144,360.70
PXT - on peak (261)	4,840,756	0.00042	2,033.12	13,465.82
- off peak	13,723,244	0.00042	5,763.76	40,004.38
SBS - on peak (257)	0	0.00053	0.00	13.97
- off peak	0	0.00053	0.00	26.11
SBS - on peak (266)	0	0.00053	0.00	1,274.16
- off peak	0	0.00053	0.00	3,415.98
SBS - on peak (267)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OS II (268)	17,482	0.00019	3.32	22.73
RTP (280)	48,877,029	0.00042	20,528.35	167,363.24
CISR (285)	18,246,782	0.00042	7,663.65	16,028.15
Total Industrial	<u>176,418,652</u>		<u>82,571.63</u>	<u>507,791.12</u>
STREET LIGHTING-OSI (408-413)	<u>1,446,506</u>	0.00019	<u>274.84</u>	<u>1,907.76</u>
Total Retail	<u>920,823,563</u>		<u>597,378.16</u>	<u>3,132,201.34</u>
Curr. Mth Accrued Unbilled	404,866,908		276,978.00	276,978.00
Less: Prev. Month Accr. Unbilled	367,914,411		247,775.00	207,479.00
Total Retail Capacity Clause	<u>957,776,060</u>		<u>626,581.16</u>	<u>3,201,700.34</u>
Wholesale	0		-	-
Interdepartmental Sales - KWH	81,054	0.00056	45.39	268.45
Total Capacity Clause	<u>957,857,114</u>		<u>626,626.55</u>	<u>3,201,968.79</u>
Muni-Sales	3,868,947			
FPU Sales	30,998,142			
Total Territorial Sales - KWH	<u>992,724,203</u>			



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**GULF POWER COMPANY
ECCR CLAUSE REVENUE
JULY 1997**

		KILOWATT HOURS	ECCR FACTOR	CURRENT MONTH ECCR CLAUSE REVENUE	YEAR-TO-DATE ECCR CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	448,642,004	0.00035	157,024.70	830,325.26
RST - on peak	(10-15)	6,097	0.00035	2.13	12.24
- off peak		20,784	0.00035	7.27	45.99
OSII	(50-54)	1,624,118	0.00033	535.96	3,992.93
Total Residential		<u>450,293,003</u>		<u>157,570.06</u>	<u>834,376.42</u>
COMMERCIAL NOTE (1)					
GS & Illegal Use	(201-203,225)	26,500,168	0.00034	9,010.06	48,195.75
GSD	(204)	194,050,487	0.00034	65,977.17	382,861.24
GST - on peak	(206)	219	0.00034	0.07	0.68
- off peak		1,355	0.00034	0.46	3.30
GSDT- on peak	(208)	1,099,385	0.00034	373.79	420.05
- off peak		2,655,114	0.00034	902.74	7,418.64
LP	(216)	29,646,844	0.00033	9,783.46	60,608.83
LPT - on peak	(217)	8,900,115	0.00033	2,937.04	17,117.55
- off peak		21,215,685	0.00033	7,001.18	47,362.13
SBS - on peak	(219)	0	0.00032	0.00	0.00
- off peak		0	0.00032	0.00	0.00
OSII	(220,222,226,229)	3,004,453	0.00033	991.47	7,196.79
OSIII	(221)	1,778,558	0.00034	604.71	4,444.41
OSIV	(227)	312,804	0.00035	109.48	738.11
RTP	(240)	3,500,215	0.00032	1,120.07	7,767.09
Total Commercial		<u>292,665,402</u>		<u>98,811.70</u>	<u>584,134.57</u>
INDUSTRIAL NOTE (1)					
GSD	(250)	6,105,470	0.00034	2,075.86	14,388.21
GSDT - on peak	(251)	62,120	0.00034	21.12	155.06
- off peak		144,600	0.00034	49.16	412.36
LP	(254)	14,618,197	0.00033	4,824.01	29,891.11
LPT - on peak	(255)	20,482,216	0.00033	6,759.13	38,545.14
- off peak		49,300,756	0.00033	16,269.25	100,260.75
PXT - on peak	(261)	4,840,756	0.00032	1,549.04	10,896.95
- off peak		13,723,244	0.00032	4,391.44	32,577.83
SBS - on peak	(257)	0	0.00032	0.00	8.99
- off peak		0	0.00032	0.00	17.24
SBS - on peak	(266)	0	0.00032	0.00	769.30
- off peak		0	0.00032	0.00	2,067.86
SBS - on peak	(267)	0	0.00032	0.00	0.00
- off peak		0	0.00032	0.00	0.00
OS II	(268)	17,482	0.00033	5.77	42.49
RTP	(280)	48,877,029	0.00032	15,640.65	138,093.09
CISR	(285)	18,246,782	0.00032	5,838.97	12,211.92
Total Industrial		<u>176,418,652</u>		<u>57,424.40</u>	<u>380,338.30</u>
STREET LIGHTING-OSI (408-413)					
		1,446,506	0.00033	477.35	3,569.61
Total Retail		920,823,563		314,283.51	1,802,418.90
Current Month Accrued Unbilled		404,866,908		139,453.00	139,453.00
Less: Prev. Month Accr. Unbilled		367,914,411		126,515.00	124,935.00
Total Retail ECCR Clause		957,776,060		42-80-3 327,221.51	1,816,936.90
Wholesale		0			
Interdepartmental Sales - KWH		81,054	0.00034	27.56	177.12
Total ECCR Clause		<u>957,857,114</u>		<u>327,249.07</u>	<u>1,817,114.02</u>
Muni-Sales		3,868,947			
FPU Sales		30,998,142			
Total Territorial Sales - KWH		<u>992,724,203</u>			



**GULF POWER COMPANY
ECR CLAUSE REVENUE
JULY 1997**

	KILOWATT HOURS	ECR FACTOR	CURRENT MONTH ECR CLAUSE REVENUE	YEAR-TO-DATE ECR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	448,642,004	0.00124	556,316.08	2,742,063.57
RST - on peak (10-15)	6,097	0.00124	7.56	40.16
- off peak	20,784	0.00124	25.77	150.81
OSII (50-54)	1,624,118	0.00081	1,315.54	9,097.46
Total Residential	<u>450,293,003</u>		<u>557,664.95</u>	<u>2,751,352.00</u>
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	26,500,168	0.00122	32,330.20	159,464.98
GSD (204)	194,050,487	0.00109	211,515.03	1,137,660.60
GST - on peak (206)	219	0.00122	0.27	2.31
- off peak	1,355	0.00122	1.65	11.16
GSDT- on peak (208)	1,099,385	0.00109	1,198.33	886.38
- off peak	2,655,114	0.00109	2,894.07	22,409.44
LP (216)	29,646,844	0.00103	30,536.25	176,377.89
LPT - on peak (217)	8,900,115	0.00103	9,167.12	50,127.68
- off peak	21,215,685	0.00103	21,852.16	137,390.20
SBS - on peak (219)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OSII (220,222,226,229)	3,004,453	0.00081	2,433.61	16,426.58
OSIII (221)	1,778,558	0.00100	1,778.56	12,168.69
OSIV (227)	312,804	0.00136	425.41	2,778.68
RTP (240)	3,500,215	0.00095	3,325.20	21,434.24
Total Commercial	<u>292,665,402</u>		<u>317,457.86</u>	<u>1,737,138.83</u>
INDUSTRIAL NOTE (1)				
GSD (250)	6,105,470	0.00109	6,654.96	42,486.41
GSDT - on peak (251)	62,120	0.00109	67.71	459.58
- off peak	144,600	0.00109	157.61	1,210.13
LP (254)	14,618,197	0.00103	15,056.74	87,119.17
LPT - on peak (255)	20,482,216	0.00103	21,096.68	113,084.91
- off peak	49,300,756	0.00103	50,779.78	291,551.98
PXT - on peak (251)	4,840,756	0.00095	4,598.72	30,458.39
- off peak	13,723,244	0.00095	13,037.08	90,486.11
SBS - on peak (257)	0	0.00103	0.00	27.14
- off peak	0	0.00103	0.00	50.73
SBS - on peak (266)	0	0.00103	0.00	2,476.19
- off peak	0	0.00103	0.00	6,638.57
SBS - on peak (267)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OS II (268)	17,482	0.00081	14.16	96.89
RTP (280)	48,877,029	0.00095	46,433.18	378,559.71
CISR (285)	18,246,782	0.00095	17,334.44	36,254.14
Total Industrial	<u>176,418,652</u>		<u>175,231.06</u>	<u>1,080,960.05</u>
STREET LIGHTING-OSI (408-413)	<u>1,446,506</u>	0.00081	1,171.67	8,133.06
Total Retail	920,823,563		1,051,525.54	5,577,583.94
Current Month Accrued Unbilled	404,866,908		474,200.00	474,200.00
Less: Prev. Month Accr. Unbilled	367,914,411		428,078.00	357,678.00
Total Retail ECR Clause	957,776,060		42-80 41,097,647.54	5,694,105.94
Wholesale	0			
Interdepartmental Sales - KWH	81,054	0.00109	88.35	522.53
Total ECR Clause	<u>957,857,114</u>		<u>1,097,735.89</u>	<u>5,694,628.47</u>
Muni-Sales	3,868,947			
FPU Sales	30,998,142			
Total Territorial Sales - KWH	<u>992,724,203</u>			



**GULF POWER COMPANY
FUEL CLAUSE REVENUE
JUNE 1997**

		KILOWATT HOURS	FCA FACTOR	CURRENT MONTH FUEL CLAUSE REVENUE	- YEAR-TO-DATE FUEL CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	345,562,335	0.02180	7,533,258.90	39,976,633.06
RST - on peak	(10-15)	4,523	0.02662	120.40	663.13
- off peak		17,254	0.01952	336.80	2,177.40
OSII	(50-54)	1,617,074	0.02014	32,567.87	209,061.25
Total Residential		<u>347,201,186</u>		<u>7,566,283.97</u>	<u>40,188,534.84</u>
COMMERCIAL					
GS & Illegal Use	(201-203,225)	20,063,569	0.02180	437,385.80	2,360,256.34
GSD	(204)	175,998,916	0.02180	3,836,776.37	19,182,784.92
GST - on peak	(206)	358	0.02662	9.53	42.65
- off peak		1,673	0.01952	32.66	162.11
GSDT- on peak	(208)	1,069,803	0.02662	28,478.16	(12,581.48)
- off peak		2,603,759	0.01952	50,825.38	371,892.03
LP	(216)	27,020,984	0.02113	570,953.39	3,101,195.31
LPT - on peak	(217)	8,061,828	0.02580	207,995.16	984,593.77
- off peak		20,340,592	0.01892	384,844.00	2,319,600.62
SBS - on peak	(219)	0	0.02580	0.00	0.00
- off peak		0	0.01892	0.00	0.00
OSII	(220,222,226,229)	2,977,331	0.02014	59,963.45	375,334.39
OSIII	(221)	1,766,123	0.02180	38,501.48	234,948.85
OSIV	(227)	347,864	0.02180	7,583.44	38,670.55
RTP	(240)	3,248,072	0.02073	67,332.53	409,475.37
Total Commercial		<u>263,500,872</u>		<u>5,690,681.35</u>	<u>29,366,375.43</u>
INDUSTRIAL					
GSD	(250)	5,904,944	0.02180	128,727.78	743,395.62
GSDT - on peak	(251)	66,640	0.02662	1,773.96	9,165.90
- off peak		152,840	0.01952	2,983.44	20,673.25
LP	(254)	13,290,960	0.02113	280,837.98	1,531,105.66
LPT - on peak	(255)	18,849,268	0.02580	486,311.11	2,213,537.37
- off peak		45,358,304	0.01892	858,179.11	4,826,930.91
PXT - on peak	(261)	5,559,039	0.02531	140,699.28	664,526.76
- off peak		16,383,961	0.01856	304,086.32	1,634,460.71
SBS - on peak	(257)	0	0.02580	0.00	661.24
- off peak		0	0.01892	0.00	1,006.33
SBS - on peak	(266)	0	0.02531	0.00	60,847.09
- off peak		0	0.01856	0.00	119,935.19
SBS - on peak	(267)	0	0.02531	0.00	0.00
- off peak		0	0.01856	0.00	0.00
OS II	(268)	17,520	0.02014	352.85	2,220.12
RTP	(280)	46,388,998	0.02073	961,643.93	7,524,147.63
CISR	(285)	419,915,475	0.02073	4,412,847.80	412,847.80
Total Industrial		<u>171,887,949</u>		<u>3,578,443.56</u>	<u>19,765,461.58</u>
STREET LIGHTING-OSI (408-413)					
		1,441,922	0.02014	29,040.31	187,006.31
Total Retail					
		784,031,929		16,864,449.19	89,507,378.16
Curr. Mth Accrued Unbilled		367,914,411		7,974,705.00	7,974,705.00
Less: Prev. Month Accr. Unbilled		341,674,056		7,375,500.00	7,167,222.00
Total Retail Fuel Clause		810,272,284		17,463,654.19	90,314,861.16
Wholesale		0		0.00	(80,194.39)
Interdepartmental Sales - KWH		73,881	0.02180	1,610.61	9,016.80
Total Fuel Clause		<u>810,346,165</u>		<u>17,465,264.80</u>	<u>90,243,683.57</u>
Muni-Sales		3,256,391			
FPU Sales		25,232,631			
Total Territorial Sales - KWH		<u>838,835,187</u>			

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**GULF POWER COMPANY
CAPACITY CLAUSE REVENUE
JUNE 1997**

	KILOWATT HOURS	CAPACITY FACTOR	CURRENT MONTH CAPACITY CLAUSE REVENUE	YEAR-TO-DATE CAPACITY CLS. REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	345,562,335	0.00078	269,538.62	1,374,905.68
RST - on peak (10-15)	4,523	0.00078	3.53	20.51
- off peak	17,254	0.00078	13.46	78.66
OSII (50-54)	1,617,074	0.00019	307.24	1,825.38
Total Residential	347,201,186		269,862.85	1,376,830.23
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	20,063,569	0.00075	15,047.68	78,156.64
GSD (204)	175,998,916	0.00056	98,559.39	475,817.91
GST - on peak (206)	358	0.00075	0.27	1.24
- off peak	1,673	0.00075	1.25	5.85
GSDT- on peak (208)	1,069,803	0.00056	599.09	(160.27)
- off peak	2,603,759	0.00056	1,458.11	10,026.25
LP (216)	27,020,984	0.00051	13,780.70	72,212.85
LPT - on peak (217)	8,061,828	0.00051	4,111.53	20,281.44
- off peak	20,340,592	0.00051	10,373.70	57,208.15
SBS - on peak (219)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OSII (220,222,226,229)	2,977,331	0.00019	565.69	3,282.30
OSIII (221)	1,766,123	0.00045	794.76	4,675.56
OSIV (227)	347,864	0.00094	326.99	1,626.51
RTP (240)	3,248,072	0.00042	1,364.19	8,006.11
Total Commercial	263,500,872		146,983.35	731,140.54
INDUSTRIAL NOTE (1)				
GSD (250)	5,904,944	0.00056	3,306.77	18,408.82
GSDT - on peak (251)	66,640	0.00056	37.32	201.33
- off peak	152,840	0.00056	85.59	540.73
LP (254)	13,290,960	0.00051	6,778.39	35,681.38
LPT - on peak (255)	18,849,268	0.00051	9,613.13	45,547.58
- off peak	45,358,304	0.00051	23,132.74	119,217.31
PXT - on peak (261)	5,559,039	0.00042	2,334.80	11,432.70
- off peak	16,383,961	0.00042	6,881.26	34,240.62
SBS - on peak (257)	0	0.00053	0.00	13.97
- off peak	0	0.00053	0.00	26.11
SBS - on peak (266)	0	0.00053	0.00	1,274.16
- off peak	0	0.00053	0.00	3,415.98
SBS - on peak (267)	0	0.00053	0.00	0.00
- off peak	0	0.00053	0.00	0.00
OS II (268)	17,520	0.00019	3.33	19.41
RTP (280)	46,388,998	0.00042	19,483.38	146,834.89
CISR (285)	419,915,475	0.00042	8,364.50	8,364.50
Total Industrial	171,887,949		80,021.21	425,219.49
STREET LIGHTING-OSI (408-413)	1,441,922	0.00019	273.97	1,632.92
Total Retail	784,031,929		497,141.38	2,534,823.18
Curr. Mth Accrued Unbilled	367,914,411		247,775.00	247,775.00
Less: Prev. Month Accr. Unbilled	341,674,056		226,604.00	207,479.00
Total Retail Capacity Clause	810,272,284		518,312.38	2,575,119.18
Wholesale	0		-	-
Interdepartmental Sales - KWH	73,881	0.00056	41.37	223.06
Total Capacity Clause	810,346,165		518,353.75	2,575,342.24
Muni-Sales	3,256,391			
FPU Sales	25,232,631			
Total Territorial Sales - KWH	838,835,187			



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**GULF POWER COMPANY
ECR CLAUSE REVENUE
JUNE 1997**

	KILOWATT HOURS	ECR FACTOR	CURRENT MONTH ECR CLAUSE REVENUE	YEAR-TO-DATE ECR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use (00-09,22-25,70)	345,562,335	0.00124	428,497.30	2,185,747.49
RST - on peak (10-15)	4,523	0.00124	5.61	32.60
- off peak	17,254	0.00124	21.39	125.04
OSII (50-54)	1,617,074	0.00081	1,309.83	7,781.92
Total Residential	347,201,186		429,834.13	2,193,687.05
COMMERCIAL NOTE (1)				
GS & Illegal Use (201-203,225)	20,063,569	0.00122	24,477.55	127,134.78
GSD (204)	175,998,916	0.00109	191,838.82	926,145.57
GST - on peak (206)	358	0.00122	0.44	2.04
- off peak	1,673	0.00122	2.04	9.51
GSDT- on peak (208)	1,069,803	0.00109	1,166.09	(311.95)
- off peak	2,603,759	0.00109	2,838.10	19,515.37
LP (216)	27,020,984	0.00103	27,831.61	145,841.64
LPT - on peak (217)	8,061,828	0.00103	8,303.68	40,960.56
- off peak	20,340,592	0.00103	20,950.81	115,538.04
SBS - on peak (219)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OSII (220,222,226,229)	2,977,331	0.00081	2,411.64	13,992.97
OSIII (221)	1,766,123	0.00100	1,766.12	10,390.13
OSIV (227)	347,864	0.00136	473.10	2,353.27
RTP (240)	3,248,072	0.00095	3,085.67	18,109.04
Total Commercial	263,500,872		285,145.67	1,419,680.97
INDUSTRIAL NOTE (1)				
GSD (250)	5,904,944	0.00109	6,436.39	35,831.45
GSDT - on peak (251)	66,640	0.00109	72.64	391.87
- off peak	152,840	0.00109	166.60	1,052.52
LP (254)	13,290,960	0.00103	13,689.69	72,062.43
LPT - on peak (255)	18,849,268	0.00103	19,414.75	91,988.23
- off peak	45,358,304	0.00103	46,719.05	240,772.20
PXT - on peak (261)	5,559,039	0.00095	5,281.09	25,859.67
- off peak	16,383,961	0.00095	15,564.76	77,449.03
SBS - on peak (257)	0	0.00103	0.00	27.14
- off peak	0	0.00103	0.00	50.73
SBS - on peak (266)	0	0.00103	0.00	2,476.19
- off peak	0	0.00103	0.00	6,638.57
SBS - on peak (267)	0	0.00103	0.00	0.00
- off peak	0	0.00103	0.00	0.00
OS II (268)	17,520	0.00081	14.19	82.73
RTP (280)	46,388,998	0.00095	44,069.55	332,126.53
CISR (285)	41-20, 419,915,475	0.00095	42-70, 18,919.70	18,919.70
Total Industrial	171,887,949		170,348.41	905,728.99
STREET LIGHTING-OSI (408-413)	1,441,922	0.00081	1,167.96	6,961.39
Total Retail	784,031,929		886,496.17	4,526,058.40
Current Month Accrued Unbilled	367,914,411		428,078.00	428,078.00
Less: Prev. Month Accr. Unbilled	341,674,056		394,955.00	357,678.00
Total Retail ECR Clause	810,272,284		919,619.17	4,596,458.40
Wholesale	0		-	-
Interdepartmental Sales - KWH	73,881	0.00109	80.53	434.18
Total ECR Clause	810,346,165		919,699.70	4,596,892.58
Muni-Sales	3,256,391			
FPU Sales	25,232,631			
Total Territorial Sales - KWH	838,835,187			



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**GULF POWER COMPANY
ECCR CLAUSE REVENUE
JUNE 1997**

		KILOWATT HOURS	ECCR FACTOR	CURRENT MONTH ECCR CLAUSE REVENUE	YEAR-TO-DATE ECCR CLAUSE REVENUE
RESIDENTIAL					
RS & Illegal Use	(00-09,22-25,70)	345,562,335	0.00035	120,946.82	673,300.56
RST - on peak	(10-15)	4,523	0.00035	1.58	10.11
- off peak		17,254	0.00035	6.04	38.72
OSII	(50-54)	1,617,074	0.00033	533.63	3,456.97
Total Residential		<u>347,201,186</u>		<u>121,488.07</u>	<u>676,806.36</u>
COMMERCIAL NOTE (1)					
GS & Illegal Use	(201-203,225)	20,063,569	0.00034	6,821.61	39,185.69
GSD	(204)	175,998,916	0.00034	59,839.63	316,884.07
GST - on peak	(206)	358	0.00034	0.12	0.61
- off peak		1,673	0.00034	0.57	2.84
GSDT- on peak	(208)	1,069,803	0.00034	363.73	46.26
- off peak		2,603,759	0.00034	885.28	6,515.90
LP	(216)	27,020,984	0.00033	8,916.92	50,825.37
LPT - on peak	(217)	8,061,828	0.00033	2,660.40	14,180.51
- off peak		20,340,592	0.00033	6,712.40	40,360.95
SBS - on peak	(219)	0	0.00032	0.00	0.00
- off peak		0	0.00032	0.00	0.00
OSII	(220,222,226,229)	2,977,331	0.00033	982.52	6,205.32
OSIII	(221)	1,766,123	0.00034	600.48	3,839.70
OSIV	(227)	347,864	0.00035	121.75	628.63
RTP	(240)	3,248,072	0.00032	1,039.38	6,647.02
Total Commercial		<u>263,500,872</u>		<u>88,944.79</u>	<u>485,322.87</u>
INDUSTRIAL NOTE (1)					
GSD	(250)	5,904,944	0.00034	2,007.68	12,312.35
GSDT - on peak	(251)	66,640	0.00034	22.66	133.94
- off peak		152,840	0.00034	51.97	363.20
LP	(254)	13,290,960	0.00033	4,386.02	25,067.10
LPT - on peak	(255)	18,849,268	0.00033	6,220.26	31,786.01
- off peak		45,358,304	0.00033	14,968.24	83,991.50
PXT - on peak	(261)	5,559,039	0.00032	1,778.89	9,347.91
- off peak		16,383,961	0.00032	5,242.87	28,186.39
SBS - on peak	(257)	0	0.00032	0.00	8.99
- off peak		0	0.00032	0.00	17.24
SBS - on peak	(266)	0	0.00032	0.00	769.30
- off peak		0	0.00032	0.00	2,067.86
SBS - on peak	(267)	0	0.00032	0.00	0.00
- off peak		0	0.00032	0.00	0.00
OS II	(268)	17,520	0.00033	5.78	36.72
RTP	(280)	46,388,998	0.00032	14,844.48	122,452.44
CISR	(285)	41-20 419,915,475	0.00032	41-1 6,372.95	6,372.95
Total Industrial		<u>171,887,949</u>	42-70 3	<u>55,901.80</u>	<u>322,913.90</u>
STREET LIGHTING-OSI (408-413)		<u>1,441,922</u>	0.00033	<u>475.83</u>	<u>3,092.26</u>
Total Retail		784,031,929		266,810.49	1,488,135.39
Current Month Accrued Unbilled		367,914,411		126,515.00	126,515.00
Less: Prev. Month Accr. Unbilled		341,674,056		117,283.00	124,935.00
Total Retail ECCR Clause		810,272,284		276,042.49	1,489,715.39
Wholesale		0		-	-
Interdepartmental Sales - KWH		73,881	0.00034	25.12	149.56
Total ECCR Clause		<u>810,346,165</u>		<u>276,067.61</u>	<u>1,489,864.95</u>
Muni-Sales		3,256,391			
FPU Sales		25,232,631			
Total Territorial Sales - KWH		<u>838,835,187</u>			



Clause Revenue October 1997

This document consisting of 4 pages is confidential in its entirety.

**GULF POWER COMPANY
FUEL CLAUSE REVENUE
NOVEMBER 1997**

		KILOWATT HOURS	FCA FACTOR	CURRENT MONTH FUEL CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use	(00-09,22-25,70)	280,606,538	0.02157	6,052,683.02
RST - on peak	(10-15)	3,410	0.02231	76.08
- off peak		12,890	0.02130	274.56
OSII	(50-54)	1,644,377	0.02152	35,386.99
Total Residential		<u>282,267,215</u>		<u>6,088,420.65</u>
COMMERCIAL				
GS & Illegal Use	(201-203,225)	16,426,252	0.02157	354,314.26
GSD	(204)	140,922,026	0.02157	3,039,688.10
GST - on peak	(206)	229	0.02231	5.11
- off peak		597	0.02130	12.72
GSDT- on peak	(208)	678,428	0.02231	15,135.73
- off peak		1,861,726	0.02130	39,654.76
LP	(216)	24,325,623	0.02091	508,648.78
LPT - on peak	(217)	6,172,343	0.02162	133,446.06
- off peak		16,399,480	0.02064	338,485.27
SBS - on peak	(219)	0	0.02162	0.00
- off peak		0	0.02064	0.00
OSII	(220,222,226,229)	3,072,443	0.02152	66,118.97
OSIII	(221)	1,263,023	0.02157	27,243.41
OSIV	(227)	249,745	0.02157	5,387.00
RTP	(240)	0	0.02051	0.00
Total Commercial		<u>211,371,915</u>		<u>4,528,140.17</u>
INDUSTRIAL				
GSD	(250)	5,231,753	0.02157	112,848.91
GSDT - on peak	(251)	45,720	0.02223	1,016.40
- off peak		100,320	0.02130	2,136.82
LP	(254)	12,591,825	0.02091	263,295.06
LPT - on peak	(255)	14,127,778	0.02162	305,442.56
- off peak		32,247,986	0.02064	665,598.43
PXT - on peak	(261)	1,695,459	0.02121	35,960.69
- off peak		4,378,977	0.02025	88,674.28
SBS - on peak	(257)	0	0.02162	0.00
- off peak		0	0.02064	0.00
SBS - on peak	(266)	0	0.02121	0.00
- off peak		0	0.02025	0.00
SBS - on peak	(267)	0	0.02121	0.00
- off peak		0	0.02025	0.00
OS II	(268)	24,022	0.02152	516.95
RTP	(280)	61,035,750	0.02051	1,251,843.23
CISR (1)	(285)	18,384,908	0.02051	377,074.46
CISR (2)	(285)	18,471,673	0.02051	378,854.02
Total Industrial		<u>168,336,171</u>		<u>3,483,261.81</u>
STREET LIGHTING-OSI (408-413)		<u>1,557,877</u>	0.02152	<u>33,525.51</u>
Total Retail		<u>663,533,178</u>		<u>14,133,348.14</u>
Curr. Mth Accrued Unbilled		333,920,930		7,054,518.00
Less: Prev. Month Accr. Unbilled		370,683,416		7,836,410.00
Total Retail Fuel Clause		<u>626,770,692</u>		<u>13,351,456.14</u>
Wholesale		0		0.00
Interdepartmental Sales - KWH		<u>65,166</u>	0.02157	<u>1,405.63</u>
Total Fuel Clause		<u>626,835,858</u>		<u>13,352,861.77</u>
Muni-Sales		<u>2,394,221</u>		
FPU Sales		<u>20,936,679</u>		
Total Territorial Sales - KWH		<u>650,166,758</u>		

41-20-1

15,349,938.80
42-80-1



**GULF POWER COMPANY
CAPACITY CLAUSE REVENUE
NOVEMBER 1997**

		KILOWATT HOURS	CAPACITY FACTOR	CURRENT MONTH CAPACITY CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use	(00-09,22-25,70)	280,606,538	0.00054	151,527.53
RST - on peak	(10-15)	3,410	0.00054	1.84
- off peak		12,890	0.00054	6.96
OSII	(50-54)	1,644,377	0.00013	213.77
Total Residential		<u>282,267,215</u>		<u>151,750.10</u>
COMMERCIAL NOTE (1)				
GS & Illegal Use	(201-203,225)	16,426,252	0.00052	8,541.65
GSD	(204)	140,922,026	0.00039	54,959.59
GST - on peak	(206)	229	0.00052	0.12
- off peak		597	0.00052	0.31
GSDT- on peak	(208)	678,428	0.00039	264.59
- off peak		1,861,726	0.00039	726.07
LP	(216)	24,325,623	0.00035	8,513.97
LPT - on peak	(217)	6,172,343	0.00035	2,160.32
- off peak		16,399,480	0.00035	5,739.82
SBS - on peak	(219)	0	0.00037	0.00
- off peak		0	0.00037	0.00
OSII	(220,222,226,229)	3,072,443	0.00013	399.42
OSIII	(221)	1,263,023	0.00031	391.54
OSIV	(227)	249,745	0.00065	162.33
RTP	(240)	0	0.00029	0.00
Total Commercial		<u>211,371,915</u>		<u>81,859.73</u>
INDUSTRIAL NOTE (1)				
GSD	(250)	5,231,753	0.00039	2,040.38
GSDT - on peak	(251)	45,720	0.00039	17.83
- off peak		100,320	0.00039	39.12
LP	(254)	12,591,825	0.00035	4,407.14
LPT - on peak	(255)	14,127,778	0.00035	4,944.72
- off peak		32,247,986	0.00035	11,286.80
PXT - on peak	(261)	1,695,459	0.00029	491.68
- off peak		4,378,977	0.00029	1,269.90
SBS - on peak	(257)	0	0.00037	0.00
- off peak		0	0.00037	0.00
SBS - on peak	(266)	0	0.00037	0.00
- off peak		0	0.00037	0.00
SBS - on peak	(267)	0	0.00037	0.00
- off peak		0	0.00037	0.00
OS II	(268)	24,022	0.00013	3.12
RTP	(280)	61,035,750	0.00029	17,700.37
CISR (1)	(285)	18,384,908	0.00029	5,331.62
CISR (2)	(285)	18,471,673	0.00029	5,356.79
Total Industrial		<u>168,336,171</u>		<u>52,889.47</u>
STREET LIGHTING-OSI (408-413)		<u>1,557,877</u>	0.00013	<u>202.52</u>
Total Retail		663,533,178		286,701.82
Curr. Mth Accrued Unbilled		333,920,930		135,272.00
Less: Prev. Month Accr. Unbilled		370,683,416		144,559.00
Total Retail Capacity Clause		626,770,692		277,414.82
Wholesale		0		-
Interdepartmental Sales - KWH		65,166	0.00039	25.41
Total Capacity Clause		<u>626,835,858</u>		<u>277,440.23</u>
Muni-Sales		2,394,221		
FPU Sales		<u>20,936,679</u>		
Total Territorial Sales - KWH		<u>650,166,758</u>		

41-20-1 41-1-1

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42-80.2



12

**GULF POWER COMPANY
ECR CLAUSE REVENUE
NOVEMBER 1997**

	KILOWATT HOURS	ECR FACTOR	CURRENT MONTH ECR CLAUSE REVENUE
RESIDENTIAL			
RS & Illegal Use (00-09,22-25,70)	280,606,538	0.00138	387,237.02
RST - on peak (10-15)	3,410	0.00138	4.71
- off peak	12,890	0.00138	17.79
OSII (50-54)	1,644,377	0.00082	1,348.39
Total Residential	282,267,215		388,607.91
COMMERCIAL NOTE (1)			
GS & Illegal Use (201-203,225)	16,426,252	0.00136	22,339.70
GSD (204)	140,922,026	0.00118	166,287.99
GST - on peak (206)	229	0.00136	0.31
- off peak	597	0.00136	0.81
GSDT- on peak (208)	678,428	0.00118	800.55
- off peak	1,861,726	0.00118	2,196.84
LP (216)	24,325,623	0.00111	27,001.44
LPT - on peak (217)	6,172,343	0.00111	6,851.30
- off peak	16,399,480	0.00111	18,203.42
SBS - on peak (219)	0	0.00112	0.00
- off peak	0	0.00112	0.00
OSII (220,222,226,229)	3,072,443	0.00082	2,519.40
OSIII (221)	1,263,023	0.00107	1,351.43
OSIV (227)	249,745	0.00154	384.61
RTP (240)	0	0.00101	0.00
Total Commercial	211,371,915		247,937.80
INDUSTRIAL NOTE (1)			
GSD (250)	5,231,753	0.00118	6,173.47
GSDT - on peak (251)	45,720	0.00118	53.95
- off peak	100,320	0.00118	118.38
LP (254)	12,591,825	0.00111	13,976.93
LPT - on peak (255)	14,127,778	0.00111	15,681.83
- off peak	32,247,986	0.00111	35,795.26
PXT - on peak (261)	1,695,459	0.00101	1,712.41
- off peak	4,378,977	0.00101	4,422.77
SBS - on peak (257)	0	0.00112	0.00
- off peak	0	0.00112	0.00
SBS - on peak (266)	0	0.00112	0.00
- off peak	0	0.00112	0.00
SBS - on peak (267)	0	0.00112	0.00
- off peak	0	0.00112	0.00
OS II (268)	24,022	0.00082	19.70
RTP (280)	61,035,750	0.00101	61,646.11
CISR (1) (285)	18,384,908	0.00101	18,568.76
CISR (2) (285)	18,471,673	0.00101	18,656.39
Total Industrial	168,336,171		176,825.96
STREET LIGHTING-OSI (408-413)	1,557,877	0.00082	1,277.46
Total Retail	663,533,178		814,649.13
Current Month Accrued Unbilled	333,920,930		396,237.00
Less: Prev. Month Accr. Unbilled	370,683,416		420,803.00
Total Retail ECR Clause	626,770,692		790,083.13
Wholesale	0		-
Interdepartmental Sales - KWH	65,166	0.00118	76.90
Total ECR Clause	626,835,858		790,160.03
Muni-Sales	2,394,221		
FPU Sales	20,936,679		
Total Territorial Sales - KWH	650,166,758		

A1-201

A1-1-1

*TIES TO
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3

**GULF POWER COMPANY
ECCR CLAUSE REVENUE
NOVEMBER 1997**

		KILOWATT HOURS	ECCR FACTOR	CURRENT MONTH ECCR CLAUSE REVENUE
RESIDENTIAL				
RS & Illegal Use	(00-09,22-25,70)	280,606,538	0.00035	98,212.29
RST - on peak	(10-15)	3,410	0.00035	1.19
- off peak		12,890	0.00035	4.51
OSII	(50-54)	1,644,377	0.00033	542.64
Total Residential		<u>282,267,215</u>		<u>98,760.63</u>
COMMERCIAL NOTE (1)				
GS & Illegal Use	(201-203,225)	16,426,252	0.00034	5,584.93
GSD	(204)	140,922,026	0.00034	47,913.49
GST - on peak	(206)	229	0.00034	0.08
- off peak		597	0.00034	0.20
GSDT- on peak	(208)	678,428	0.00034	230.67
- off peak		1,861,726	0.00034	632.99
LP	(216)	24,325,623	0.00033	8,027.46
LPT - on peak	(217)	6,172,343	0.00033	2,036.87
- off peak		16,399,480	0.00033	5,411.83
SBS - on peak	(219)	0	0.00032	0.00
- off peak		0	0.00032	0.00
OSII	(220,222,226,229)	3,072,443	0.00033	1,013.91
OSIII	(221)	1,263,023	0.00034	429.43
OSIV	(227)	249,745	0.00035	87.41
RTP	(240)	0	0.00032	0.00
Total Commercial		<u>211,371,915</u>		<u>71,369.27</u>
INDUSTRIAL NOTE (1)				
GSD	(250)	5,231,753	0.00034	1,778.80
GSDT - on peak	(251)	45,720	0.00034	15.54
- off peak		100,320	0.00034	34.11
LP	(254)	12,591,825	0.00033	4,155.30
LPT - on peak	(255)	14,127,778	0.00033	4,662.17
- off peak		32,247,986	0.00033	10,641.84
PXT - on peak	(261)	1,695,459	0.00032	542.55
- off peak		4,378,977	0.00032	1,401.27
SBS - on peak	(257)	0	0.00032	0.00
- off peak		0	0.00032	0.00
SBS - on peak	(266)	0	0.00032	0.00
- off peak		0	0.00032	0.00
SBS - on peak	(267)	0	0.00032	0.00
- off peak		0	0.00032	0.00
OS II	(268)	24,022	0.00033	7.93
RTP	(280)	61,035,750	0.00032	19,531.44
CISR (1)	(285)	18,384,908	0.00032	5,883.17
CISR (2)	(285)	18,471,673	0.00032	5,910.94
Total Industrial		<u>168,336,171</u>		<u>54,565.06</u>
STREET LIGHTING-OSI (408-413)		1,557,877	0.00033	514.10
Total Retail		663,533,178		225,209.06
Current Month Accrued Unbilled		333,920,930		112,109.00
Less: Prev. Month Accr. Unbilled		370,683,416		118,494.00
Total Retail ECCR Clause		626,770,692		218,824.06
Wholesale		0		-
Interdepartmental Sales - KWH		65,166	0.00034	22.16
Total ECCR Clause		<u>626,835,858</u>		<u>218,846.22</u>
Muni-Sales		2,394,221		
FPU Sales		20,936,679		
Total Territorial Sales - KWH		<u>650,166,758</u>		

41-20-18,384,908
41-1-1

TOTAL TO
PRESENT
MONTH 238,776.31
428003



14

FLC. A PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS ECHOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)

REQUEST NUMBER: 5
AUDIT PURPOSE: CISR AUDIT

DATE OF REQUEST: JANUARY 2, 1998

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

1. BEFORE GULF POWER COMPANY USED THE CISR RATES ON CONTRACT 1, THE RATES USED WERE THE PX/PXT RATES. IN CALCULATING THE DIFFERENCE BETWEEN THE CISR RATES AND THE STANDARD RATES, GULF USED THE RTP RATES. PLEASE EXPLAIN IN DETAIL WHY THE COMPANY USED THE RTP RATES INSTEAD OF THE PX/PXT RATES.

14-2

(Item Description Continues On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: _____

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) _____ IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

10-5

FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS ECKHUS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)
DATE OF REQUEST: JANUARY 2, 1998

REQUEST NUMBER: 5
AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-27.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

1 BEFORE GULF POWER COMPANY USED THE CISR RATES ON CONTRACT 1, THE RATES USED WERE THE PX/PXT RATES. IN CALCULATING THE DIFFERENCE BETWEEN THE CISR RATES AND THE STANDARD RATES, GULF USED THE RTP RATES. PLEASE EXPLAIN IN DETAIL WHY THE COMPANY USED THE RTP RATES INSTEAD OF THE PX/PXT RATES.

(Item Description Continued On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 1/14/98

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) Req. 5 IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 368.183, 368.184, OR 368.186, F.S. TO MAINTAIN CONTINUED CONFIDENTIALITY OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 71 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-27.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

Mark David Sr. Marketing Specialist
(Signature and Title of Respondent)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and PSC Analyst

10-5
1

CONFIDENTIAL

Gulf Power Company
FPSC CISR Audit

Document Request 5

- 1 1. Before Gulf Power Company used the CISR rates on Contract 1., the rates used were
- 2 the PX/PXT rates. In calculating the difference between the CISR rates and the
- 3 standard rates, Gulf used the RTP rates. Please explain in detail why the Company
- 4 used the RTP rates instead of the PX/PXT rates.

705 In CSA no.1, Gulf used RTP rates because that is the rate the customer was on prior to
 6 the CISR. The contract states PX/PXT because RTP is a pilot program. If the Real
 7 Time Pricing rate had been used in the contract and if RTP was eliminated then Gulf
 8 would be unable to fulfill the contract. Using PX/PXT as a rate to calculate the revenue
 9 difference for CSA no. 1 would not be appropriate. The customer in CSA no. 1 has
 10 been on RTP since March 1, 1995 and has responded accordingly. To apply the
 11 PX/PXT rates to the RTP adjusted load shape of the customer in CSA no.1 would
 12 produce distorted and one-sided results.



705-5

 5

FLC JA PUBLIC SERVICE COMMISS.
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS ECHOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)

REQUEST NUMBER: 6
AUDIT PURPOSE: CISR AUDIT

DATE OF REQUEST: JANUARY 2, 1998

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

FPSC ORDER NO. PSC-96-1219-FOF-EI DOES NOT ADDRESS AN INTERRUPTIBLE CLAUSE. PLEASE PROVIDE THE EFFECT OF THIS CLAUSE AND HOW IT RELATES TO THE CISR "NET REVENUE" AMOUNT. PLEASE PROVIDE ALL SUPPORTING DOCUMENTATION THAT RELATES TO THE CISR REVENUE AND THE INTERRUPTIBLE CLAUSE, SHOWING HOW THESE AMOUNTS WERE DETERMINED, AND HOW THE AMOUNTS ARE ACCOUNTED FOR. THIS WOULD INCLUDE ANY AMOUNTS THAT ARE BOOKED. IF FINANCIAL DATA IS AVAILABLE PLEASE PROVIDE OR HAVE AVAILABLE THE WEEK OF JANUARY 5, 1998.

(Item Description Continued On Back)

14-2

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: _____

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) _____ IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

10-6

FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS EDOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)
DATE OF REQUEST: JANUARY 2, 1998

REQUEST NUMBER: 6
AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

FPSC ORDER NO. PSC-96-1719-FOF-E1 DOES NOT ADDRESS AN INTERRUPTIBLE CLAUSE. PLEASE PROVIDE THE EFFECT OF THIS CLAUSE AND HOW IT RELATES TO THE CISR "NET REVENUE" AMOUNT. PLEASE PROVIDE ALL SUPPORTING DOCUMENTATION THAT RELATES TO THE CISR REVENUE AND THE INTERRUPTIBLE CLAUSE, SHOWING HOW THESE AMOUNTS WERE DETERMINED, AND HOW THE AMOUNTS ARE ACCOUNTED FOR. THIS WOULD INCLUDE ANY AMOUNTS THAT ARE BOOKED. IF FINANCIAL DATA IS AVAILABLE PLEASE PROVIDE OR HAVE AVAILABLE THE WEEK OF JANUARY 5, 1998.

(Item Description Continued On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 1/14/98

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TO YOU
- (2) CANNOT BE PROVIDED BY THE REQUESTED ENTITY BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) Req 6 IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 304.183, 306.040, OR 367.150, F.S. TO PREVENT CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

Dennis Manning
SIGNATURE AND TITLE OF RESPONDENT

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

10-6
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1. Effect of having CISR customer as interruptible

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For IIC and Capacity Clause purposes, having the customer as an interruptible customer increases our capacity available for serving our general body of customers. The general body of customers benefits from the increased capacity by paying less each month for capacity through the Capacity Clause. If the benefit of this additional capacity is not credited against the difference between tariff and CISR revenue, there is a potential for the general body of customers to receive this benefit twice. This could result in the general body of customers receiving more than the price break given to the CISR customer. Another benefit to having an interruptible customer is the potential to delay the building of new generation. In addition, the reason the interruptible provision was not mentioned in FPSC order PSC-96-1219-FOF-EI was that it was never anticipated that Gulf would negotiate a CISR that included an interruptible provision.

Capacity purchases are recorded on the Company's books in FERC 555 and capacity sales are recorded in FERC 447. These accounts are recovered through the Capacity Clause.

Attachment A is a very simplified example of how the IIC Capacity Equalization feature works. From this example it is easy to see how the general body of customers is charged less for capacity through the capacity clause by having the CISR customer as an interruptible customer.



10-6

Attachment A

Gulf Power Company
 IIC Capacity Equalization Principle
 Sample Calculation - For Illustrative Purposes Only
 20 MW Of Interruptible Capacity

4/5

Number: \$65,100

Difference Gulf

20.0
1.4
18.6

20

	A	B	C	D	E	F	G
Load	2,000	2,000	2,000	30,000	2,000	30,000	System Gulf
Load Ratio	7%	7%	100%	100%	7%	100%	
Load Responsibility	(Load Ratio x System Load)	2,100	30,000	30,000	2,100	30,000	
Capacity	(Owned)	2,200	32,000	32,000	2,200	32,000	
Capacity	(Interruptible)	0	0	0	20	20	
Reserves	(Total Capacity Minus Load Responsibility)	100.0	2,000.0	2,000.0	120.0	2,020.0	
Reserve Responsibility	(Load Ratio x System Reserves)	140.0	2,000.0	2,000.0	141.4	2,020.0	
Capacity Above / (Below) Responsibility	(Amount Available For Purchase or Sale)	(40.0)	0.0	0.0	(21.4)	0.0	
Price	(\$ / KW)	\$3.5	\$3.5	\$3.5	\$3.5	\$3.5	
Amount Charged General Body Of Customers	(Capacity Expense in Capacity Clause)	\$140,000	\$140,000	\$140,000	\$74,900	\$74,900	

on Co. Books depending if below or above Responsibility)

(This amount is booked in FERC 555 or 447

Amount Charged General Body Of Customers

(Capacity Expense in Capacity Clause)

(Load Ratio x System Reserves)

(Total Capacity Minus Load Responsibility)

(Amount Available For Purchase or Sale)

Price

(\$ / KW)

(Capacity Expense in Capacity Clause)

(This amount is booked in FERC 555 or 447

on Co. Books depending if below or above Responsibility)

Note 1: This amount would be nullified times the jurisdictional factor to result in the difference the general body of customers would be charged in the Capacity Clause (A benefit the general body of customers receive each month by having the CISR customer as an interruptible.)



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TOTAL P.04

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FLC JA PUBLIC SERVICE COMMISS.
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS ECHOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)

REQUEST NUMBER: 7
AUDIT PURPOSE: CISR AUDIT

DATE OF REQUEST: JANUARY 2, 1998

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

PLEASE DESCRIBE WHICH RATE SCHEDULE CSA 2 IS USING BEFORE THE CISR RATES WERE IN EFFECT. HAS ANY FINANCIAL DATA BEEN GENERATED IN RESPECT TO CISR RATES OR IS CSA 2 STILL USING STANDARD PX/PXT RATES? IF FINANCIAL DATA IS AVAILABLE PLEASE PROVIDE OR HAVE AVAILABLE THE WEEK OF JANUARY 5, 1998.

(Item Description Continued On Back)

14-2

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: _____

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) _____ IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

10-7

FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS COULS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PRESENTING REQUEST)
DATE OF REQUEST: JANUARY 2, 1998

REQUEST NUMBER: 7
AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

PLEASE DESCRIBE WHICH RATE SCHEDULE CSA 2 IS USING BEFORE THE CISR RATES WERE IN EFFECT. HAS ANY FINANCIAL DATA BEEN GENERATED IN RESPECT TO CISR RATES OR IS CSA 2 STILL USING STANDARD PX/PXT RATES? IF FINANCIAL DATA IS AVAILABLE PLEASE PROVIDE OR HAVE AVAILABLE THE WEEK OF JANUARY 5, 1998.

(Item Description Continued On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 1/14/98

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) Reg 7 IS/ARE PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.080, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIALITY OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT FINAL CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

Michael J. Marketa, Specialist
(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

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CONFIDENTIAL

Gulf Power Company
FPSC CISR Audit

Document Request 7

1 Please describe which rate schedule CSA 2 is using before the CISR rates were in
2 effect. Has any financial data been generated in respect to CISR rates or is CSA 2 still
3 using PX/PXT rates? If financial data is available please provide or have available the
4 week of January 5, 1998.

5 The customer in CSA no. 2 was on rate schedule PX/PXT until September 30, 1997.
7 On October 1, 1997 the customer began taking service on rate schedule RTP and will
8 remain on RTP until the cogeneration facility goes on line. The anticipated in service
9 date of the cogeneration facility is April 1, 1998 and at this time the customer will be
billed on the CISR rate.



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FLC JA PUBLIC SERVICE COMMISS
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: DENNIS ECHOLS
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)
DATE OF REQUEST: JANUARY 2, 1998

REQUEST NUMBER: 8
AUDIT PURPOSE: CISR AUDIT

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

PLEASE PLEASE STATE IF THE CUSTOMER IN EACH CSA IS A NEW OR EXISTING CUSTOMER PRIOR TO THE EXECUTION OF EACH CSA. IF THESE ARE PREVIOUS CUSTOMERS STATE WHICH RATE SCHEDULE EACH USED PRIOR TO THE IMPLEMENTATION OF THE CISR RATES.

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(Item Description Continued On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: _____

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) _____ IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.183, 366.093, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIAL HANDLING OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and FPSC Analyst

10-8

FLORIDA PUBLIC SERVICE COMMISSION
AUDIT DOCUMENT/RECORD REQUEST
NOTICE OF INTENT

TO: ULMIS ECHO'S
UTILITY: GULF POWER COMPANY
FROM: CHRIS HOLMAN
(AUDIT MANAGER)

(AUDITOR PREPARING REQUEST)

REQUEST NUMBER: 8
AUDIT PURPOSE: CISR AUDIT

DATE OF REQUEST: JANUARY 2, 1998

REQUEST THE FOLLOWING ITEM(S) BE PROVIDED BY: JANUARY 6, 1998
(DATE)

REFERENCE RULE 25-22.006, F.A.C., THIS REQUEST IS MADE: INCIDENT TO AN INQUIRY
 OUTSIDE OF AN INQUIRY

ITEM DESCRIPTION:

PLEASE STATE IF THE CUSTOMER IN EACH CSA IS A NEW OR EXISTING CUSTOMER PRIOR TO THE EXECUTION OF EACH CSA. IF THESE ARE PREVIOUS CUSTOMERS STATE WHICH RATE SCHEDULE EACH USED PRIOR TO THE IMPLEMENTATION OF THE CISR RATES.

(Item Description Continued On Back)

TO: AUDIT MANAGER CHRIS HOLMAN

DATE: 1/14/98

THE REQUESTED RECORD OR DOCUMENTATION:

- (1) HAS BEEN PROVIDED TODAY
- (2) CANNOT BE PROVIDED BY THE REQUESTED DATE BUT WILL BE MADE AVAILABLE BY _____
- (3) AND IN MY OPINION, ITEM(S) Reg. 8 IS(ARE) PROPRIETARY AND CONFIDENTIAL BUSINESS INFORMATION AS DEFINED IN 364.280, 366.080, OR 367.156, F.S. TO MAINTAIN CONTINUED CONFIDENTIALITY OF THIS MATERIAL, THE UTILITY OR OTHER PERSON MUST, WITHIN 21 DAYS AFTER THE AUDIT EXIT CONFERENCE, FILE A REQUEST FOR CONFIDENTIAL CLASSIFICATION WITH THE DIVISION OF RECORDS AND REPORTING. REFER TO RULE 25-22.006, F.A.C.
- (4) THE ITEM WILL NOT BE PROVIDED. (SEE ATTACHED MEMORANDUM)

[Signature]

(SIGNATURE AND TITLE OF RESPONDENT)

Distribution: Original: Utility (for completion and return to Auditor)
Copy: Audit File and PSC Analyst

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CONFIDENTIAL

Gulf Power Company
FPSC CISR Audit

Document Request 8

1 Please state if the customer in each CSA is a new or existing customer prior to the
2 execution of each CSA. If these are previous customers state which rate schedule each
3 used prior to the implementation of the CISR rates.

4 CSA no. 1 and CSA no. 2 are contracts that were entered into with existing customers. 7C
5 The customer in CSA no. 1 was on rate schedule RTP and has been since March 1,
6 1995. The customer in CSA no. 2 was on rate schedule PX/PXT until September 30,
7 1997. On October 1, 1997 the customer began taking service on rate schedule RTP
8 and will remain on RTP until the cogeneration facility goes on line. The anticipated in
9 service date of the cogeneration facility is April 1, 1998 and at this time the customer will
10 be billed on the CISR rate.



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