



12745 N. Thornton Road  
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## Agenda

**Date: June 4, 2014**

**Subject: June 9, 2014 Lodi Energy Center Project Participant Committee Meeting**

**Location: 12745 N. Thornton Road, Lodi, CA or via teleconference**

**Time: 10:00 A.M.**

**\*\*\* In compliance with the Brown Act, you may participate in person at the meeting location or via teleconference at one of the locations listed below. In either case, please: (1) post this notice at a publicly accessible location at the participation location at least 72-hours before the call begins, and (2) have a speaker phone available for any member of the public who may wish to attend at your location.**

NCPA 12745 N. Thornton Road Lodi, CA	NCPA 651 Commerce Drive Roseville, CA	CITY OF HEALDSBURG 401 Grove Street Healdsburg, CA
BAY AREA RAPID TRANSIT 300 Lakeside Drive, 16th Floor Oakland, CA	CITY OF GRIDLEY 685 Kentucky Street Gridley, CA	CITY OF LOMPOC 100 Civic Center Plaza Lompoc, CA
CITY OF BIGGS 465 "C" Street Biggs, CA	CITY OF SANTA CLARA 1500 Warburton Avenue Santa Clara, CA	CITY OF UKIAH 411 W Clay Street Ukiah, CA
CALIFORNIA DEPARTMENT OF WATER RESOURCES 3310 El Camino Ave. Room LL93 Sacramento, CA	POWER & WATER RESOURCES POOLING AUTHORITY 2106 Homewood Way, Suite 100 Carmichael, CA	PLUMAS-SIERRA RURAL ELECTRIC COOP 73233 Highway 70 Portola, CA

The Lodi Energy Center Project Participant Committee may take action on any of the items listed on this Agenda regardless of whether the matter appears on the Consent Calendar or is described as an action item, a report, or an information item. If this Agenda is supplemented by staff reports, they are available to the public upon written request. Pursuant to California Government Code Section 54957.5, the following is the location at which the public can view Agendas and other public writings: NCPA, 651 Commerce Drive, Roseville, CA or [www.ncpa.com](http://www.ncpa.com)

## 1. Call Meeting to Order and Roll Call

### PUBLIC FORUM

Any member of the public who desires to address the Lodi Energy Center Project Participant Committee on any item considered by the Lodi Energy Center Project Participant Committee at this meeting before or during the Lodi Energy Center Project Participant Committee's PPC consideration of that item shall so advise the Chair and shall thereupon be given an opportunity to do so. Any member of the public who desires to address the Lodi Energy Center Project Participant Committee on any item within the jurisdiction of the Lodi Energy Center Project Participant Committee and not listed on the Agenda may do so at this time.

## 2. Meeting Minutes - Approval of PPC meeting minutes for the May 12, 2014 regular meeting

### MONTHLY REPORTS

#### 3. Operational Report for May 2014 - (*Jeremy Lawson*)

#### 4. Market Data Report for May 2014 – Verbal Report (*Bob Caracristi*)

#### 5. Monthly Asset Report – (*Michael DeBortoli*)

### CONSENT CALENDAR

All items on the Consent Calendar are considered routine and will be approved without discussion by a single roll call vote. Any Project Participant or member of the public may remove any item from the Consent Calendar. If an item is removed, it will be discussed separately following approval of the remainder of the Consent Calendar. Prior to the roll call vote to approve the Consent Calendar, the Participants will be polled to determine if any Participant wishes to abstain from one or more items on the Consent Calendar.

#### 6. Treasurer's Report for May 2014 – Accept by all Participants

#### 7. Financial Report for May 2014 – Approve by all Participants

#### 8. GHG Reports (excerpted from monthly ARB) - Accept by all Participants

#### 9. CTI Controltech – Staff seeking approval of a five year Multi-Task General Services Agreement with CTI Controltech in an amount not to exceed \$300,000 for boiler and burner maintenance services as needed at any of its Generation Services facilities. All purchase orders issued pursuant to this agreement will be charged against existing and future approved Annual Operating budgets (Sponsor CTs)

#### 10. GEI Consultants, Inc. – Staff seeking approval of a five year Multi-Task Consulting Services Agreement with GEI Consultants, Inc. in an amount not to exceed \$750,000 for engineering services including dam safety engineering; geology, hydrology, hydraulics, geotechnical and structural consulting; and preparation of signed/stamped construction drawings as needed at any of its Generation Services facilities. All purchase orders issued pursuant to this agreement will be charged against existing and future approved Annual Operating Budgets. (Sponsor Hydro)

#### 11. Herold & Mielenz, Inc. – Staff seeking approval of a First Amendment to the five year Multi-Task General Services Agreement with Herold & Mielenz, Inc. dated April 1, 2013, increasing the not to exceed amount from \$90,000 to \$350,000 for miscellaneous motor maintenance services as needed at

all Generation Services facilities. All purchase orders issued pursuant to this agreement will be charged against existing and future approved Annual Operating Budgets (Sponsor Geo)

Consent Items pulled for discussion: \_\_\_\_\_

### **BUSINESS ACTION ITEMS**

- 12. Amendment to LEC Long Term Maintenance Program** – Staff seeking approval to amend the Long Term Maintenance Program for LEC to reflect a start-up operational profile. This includes upgrading combustion turbine parts to increase equivalent start intervals for Hot Gas Path (HGP) and Major Inspections (MI). In addition the proposed revisions include a program extension, contract clarity for “open/close” warranty parts liability, and an increase to property damage limits (*Michael DeBortoli*)
- 13. PG&E’s Compressed Air Storage Project** – Staff to provide project status update (*Ken Speer*)
- 14. LEC Project Management and Operations Agreement (PMOA) Schedule 1.00** - Staff seeking approval of a revised Schedule 1.00-Scheduling and Dispatch Operations and Economic Criteria, to reflect elimination of HASP and replacement with the new fifteen minute market (*Tom Lee*)

### **INFORMATIONAL ITEMS**

- 15. Remembrance of Former PPC Chairman Steve Hill** – Discussion of display of former and current chairpersons photographs at LEC facility (*Ken Speer*)
- 16. Other New Business**

### **ADJOURNMENT**

Next Meeting: July 14, 2014

**Lodi Energy Center  
Project Participant Committee Meeting  
May 12, 2014 - MEETING MINUTES**

Location: Lodi Energy Center  
12745 N. Thornton Rd, Lodi CA 95242  
and by teleconference  
10:00 A.M.

**1. Call Meeting to Order and Roll Call**

The PPC meeting was called to order at 10:01 a.m. by Vice Chairman George Morrow. He asked that roll be called as listed below.

<b>Participant</b>	<b>Attendance</b>	<b>Particulars / GES</b>
Azusa - Morrow	Present	2.7857%
BART - Lloyd	Present	6.6000%
Biggs - Sorenson	Present	0.2679%
CDWR - Forsythe	Present	33.5000%
Gridley - Stiles	Present	1.9643%
Healdsburg - Crowley	Absent	1.6428%
Lodi - Price	Present	9.5000%
Lompoc - Hostler	Present	2.0357%
MID - Caballero	Present	10.7143%
Plumas-Sierra - Brozo	Absent	0.7857%
PWRPA - Palmerton	Present	2.6679%
SVP - Hance	Present	25.7500%
Ukiah - Grandi	Absent	1.7857%
<b>Summary</b>		
Present	10	95.7858%
Absent	3	4.2142%
Quorum by #:	Yes	
Quorum by GES:	Yes	

Also present were:  
Lloyd Rowe (CDWR)  
Ken Speer (NCPA)  
Mike DeBortoli (NCPA)  
Vinnie Venethongkham (NCPA)  
Linda Stone (NCPA)  
Bob Caracristi (NCPA by telephone)  
Donna Stevener (NCPA by telephone)  
James Takahara (NCPA by telephone)  
Tom Lee (NCPA by telephone)  
Gillian Biedler (NCPA by telephone)  
Michael Dean (Meyers-Nave by telephone)

## **Public Forum**

Vice Chairman Morrow asked if any members of the public were present in Lodi or at any of the other noticed meeting locations that would like to address the PPC on any agenda items. No members of the public were present.

George took a few moments to speak about the tragic news of the passing of Steve Hill who served as the initial Chairman of the LEC PPC. Steve was a wonderful guy, a family man, involved in his church, and very revered in the community. In the early days of LEC, Steve provided steady and calm leadership for the project. George asked for a few seconds of silence in memory of Steve Hill.

## **2. Meeting Minutes**

The draft minutes for the April 14, 2014 regular meeting and April 22, 2014 special meeting were considered. The LEC PPC considered the following motion:

**Date:** 5/12/2014

**Motion:** The PPC approves the meeting minutes for the April 14, 2014 regular meeting and April 22, 2014 special meeting, including any edits discussed at today's meeting.

**Moved by:** MID

**Seconded by:** Lompoc

**Discussion:** There was no further discussion.

<b>Vote Summary on Motion</b>		
<b>Participant</b>	<b>Vote</b>	<b>Particulars / GES</b>
Azusa	Yes	2.7857%
BART	Yes	6.6000%
Biggs	Yes	0.2679%
CDWR	Yes	33.5000%
Gridley	Yes	1.9643%
Healdsburg	Absent	1.6428%
Lodi	Yes	9.5000%
Lompoc	Yes	2.0357%
Modesto	Yes	10.7143%
Plumas-Sierra	Absent	0.7857%
PWRPA	Yes	2.6679%
Silicon Valley Power	Yes	25.7500%
Ukiah	Absent	1.7857%
<b>Vote Summary</b>		
Total Ayes	10	95.7858%
Total Noes	0	0.0000%
Total Abstain	0	0.0000%
Total Absent	3	4.2142%
Result:	Motion Passed.	

## MONTHLY REPORTS

### 3. Operational Reports for April 2014

Vinnie Venethongkham and Mike DeBortoli presented a PowerPoint presentation outlining the numerous components addressed during the planned outage. The primary goal of the outage was to install the solution to address the HRSC cracks. They said the outage was perfectly timed because just as the plant was going into the outage, the third one cracked. After completion of work, the vibration is now considerably reduced. They outlined various work done to the HRSG, vacuum pumps, ammonia piping, clarifier rake, closed cycle cooling water, injection well, boiler feed pumps, auxiliary boiler, torque converter, cooling tower, and steam turbine. Many of the fixes done during the outage circumvented a forced outage. Mike provided additional information about the combustion turbine compressor repairs and the findings from the inspection done after the crack was discovered in the Row 3 diaphragm during the borescope inspection. He explained Siemens' initial position as to responsibility for the repairs and the flaw in their thinking. If a program part failed with no foreign object damage and caused damage to other parts, then Siemens would bear responsibility for the repairs; however, if a program part failed and caused no other damage down-stream, then NCPA would be responsible. By this reasoning, NCPA would have no incentive to look into problems but instead let a catastrophic failure occur and let Siemens bear the cost. Because the inspections showed numerous missing wear pins and dings, dents, and bends on the compressor starting at stage 3, Siemens ultimately agreed to cover the cost of the cover lift items, however there was no agreement on the contract language. Mike said this issue will come up again going forward. He provided an overview of the contract's financial limitations: \$1,000,000 per event; \$2,000,000 per calendar year; and \$6,000,000 per contract life. With this repair costing approximately \$400,000, there remains \$5,600,000 available for Siemens' responsibility over the remaining contract term.

They also discussed replacement of the inlet pre and main filters, embedded bearing thermocouple replacement, bearing porosity and blending, and fourth stage blades (8 marginal). Mike expects to deal with the fourth stage blades at 250 or more starts at the time of hot gas path maintenance. George said it sounds to have been an extremely productive outage and thanked all who worked on it. Mike DeBortoli commented also that the outage was finished two days earlier than expected. Mike Dean inquired if this long list of fix items was typical or unusual for such an outage. Staff agreed that with the exception of the 3<sup>rd</sup> stage problem, the long list is not surprising and normal for a scheduled outage such as this.

Mike DeBortoli presented the monthly written Operational Report including Safety, Notice of Violations, Outage Summaries, Planned Outages, and Generating Unit Statistics for April. There were no OSHA Recordable accidents, no Permit violations and no NERC/WECC violations. The plant was out of service for 408 hours during the month due to the combustion turbine borescope and steam turbine inspection planned outages. The report reflected monthly production of 55,372 net MWH, 219 service hours, and equivalent operating availability of 43.33%. The report set forth the Capacity Factor @ 280MW Pmax of 27.47% and @ 302MW Pmax of 25.46%. During the month the plant had 7 hot starts, one warm starts, and zero cold starts. With the cleaned filters, Mike expects an improvement in efficiency.

Marty Hostler questioned the reliability of the plant. Mike DeBortoli said most of the problems experienced in 2013 were a result of the problem with the RAC and pointed out that since the solution was implemented to plug the tubes, the plant has been 100% available. George echoed the sentiment that LEC is a very good plant.

Mike's final item for the Operational Report was a picture of a Western Pond turtle which was found stuck in a waste sump. The turtle is on the endangered species list and was returned to its habitat.

**4. Market Data Report for April 2014**

Bob Caracristi discussed the operating and financial settlement results for the month.

**5. Monthly Asset Report**

Mike DeBortoli presented his updated monthly budget review for FY 14 with actual numbers compared to estimated values for March. He said the capacity factor is higher than planned so the VOM costs are up. Everything else is on schedule and looking good.

**Consent Calendar**

Vice Chairman Morrow asked if any Participant wished to remove any item listed on the Consent Calendar for separate discussion. Mike DeBortoli requested that item no. 9, Fremouw Environmental Services agreement, be removed from the consent calendar. George then asked if any Participant wished to abstain from one or more items on the Consent Calendar. There were no abstentions. The LEC PPC considered the following motion:

**Date:** 5/12/2014

**Motion:** The PPC approves the 5-12-2014 Consent Calendar consisting of agenda items no. 6, 7, and 8.

**Moved by:** Lompoc

**Seconded by:** Gridley

**Discussion:** There was no further discussion.

<b>Vote Summary on Motion</b>		
<b>Participant</b>	<b>Vote</b>	<b>Particulars / GES</b>
Azusa	Yes	2.7857%
BART	Yes	6.6000%
Biggs	Absent	0.2679%
CDWR	Yes	33.5000%
Gridley	Yes	1.9643%
Healdsburg	Absent	1.6428%
Lodi	Yes	9.5000%
Lompoc	Yes	2.0357%
Modesto	Yes	10.7143%
Plumas-Sierra	Absent	0.7857%
PWRPA	Yes	2.6679%
Silicon Valley Power	Yes	25.7500%
Ukiah	Absent	1.7857%

<b>Vote Summary</b>		
Total Ayes	9	95.5179%
Total Noes	0	0.0000%
Total Abstain	0	0.0000%
Total Absent	4	4.4821%
Result:	Motion passed.	

**REMOVED FROM CONSENT CALENDAR**

**9. Fremouw Environmental Services, Inc. Agreement**

In addition to the Staff Report, Vinnie Venethongkham, the Compliance Manager for LEC, presented a PowerPoint presentation regarding the selection process used for the hazardous and non-hazardous waste transporter services, filter cake disposal services, and emergency responder services at LEC. He and Mike DeBortoli explained that Fremouw is the current provider of these services pursuant to a three year contract signed in 2012. Fremouw is very supportive and responsive. In March the plant went out to bid for these services and included a condition for a 24-hour turn-around time when requested. This is an important condition for plant operations due to the volume of filter cake removed on a daily basis. By rebidding the services, the goal was to realize lower rates over a longer term. The component parts of the bid costs were discussed. Based on disposal of 260 yards of waste per month, the bid results showed a 42% savings over the current contract amount and that a 15% savings would be realized based on current charges. The LEC PPC considered the following motion:

**Date:** 5/12/2014

**Motion:** The PPC approves the Multi-Task General Services Agreement with Fremouw Environmental Services, Inc., with any non-substantial changes recommended and approved by the NCPA General Counsel, which shall not exceed \$5,000,000 over five years, and approves issuance of purchase orders for any amount as needed pursuant to the contract.

**Moved by:** Lompoc

**Seconded by:** Lodi

Discussion: Mike Dean requested a change to the Scope of Work of the agreement to add that the vendor shall “provide waste clean-up services on a non-exclusive basis as requested”. That change will be made to the Scope of Work of the agreement.

<b>Vote Summary on Motion</b>		
<b>Participant</b>	<b>Vote</b>	<b>Particulars / GES</b>
Azusa	Yes	2.7857%
BART	Yes	6.6000%
Biggs	Absent	0.2679%
CDWR	Yes	33.5000%
Gridley	Yes	1.9643%
Healdsburg	Absent	1.6428%
Lodi	Yes	9.5000%
Lompoc	Yes	2.0357%
Modesto	Yes	10.7143%

Plumas-Sierra	Absent	0.7857%
PWRPA	Yes	2.6679%
Silicon Valley Power	Yes	25.7500%
Ukiah	Absent	1.7857%
<b>Vote Summary</b>		
Total Ayes	9	95.5179%
Total Noes	0	0.0000%
Total Abstain	0	0.0000%
Total Absent	4	4.4821%
Result:	Motion passed.	

Kent Palmerton asked if staff should look into an agreement for moving bins on an emergency basis when needed. Vinnie said the plant does have a means to move bins if necessary by using rental companies and rental equipment.

**BUSINESS ACTION ITEMS**

**10. Disclosure of JPMVEC Agreement to Mercuria.**

Tom Lee presented a staff report and explained staff’s request for approval of J.P Morgan’s request for disclosure of specified agreements and related transactions and settlements information to Mercuria Energy Group Limited and Mercuria Energy Trading SA (collectively Mercuria). Tom explained that under the LEC PSA and PMOA, NCPA is responsible for fuel supply procurement, delivery, and management for the LEC and has a contract with J.P. Morgan to carry out the management services and fuel supply. J. P. Morgan has entered into a Purchase and Sale Agreement with Mercuria to sell its physical commodities portion of the business which provides those services to NCPA. J.P. Morgan would like to disclose copies of NCPA’s agreements and related activities to Mercuria to perform its due diligence relative to the sale. Tom represented that J.P. Morgan and Mercuria had entered into a confidentiality agreement relative to this disclosure. Mike Dean asked if NCPA has seen a copy of the confidentiality agreement. Tom Lee said NCPA has not seen the confidentiality agreement and commented that it was not offered. He said that NCPA has until May 16 to consent to the request. He commented that NCPA buys \$2 million in gas each month.

Connee Lloyd said the big deal will come when the transfer of contracts is actually made to Mercuria. As the receiver of the assignment, Mercuria must accept all provisions of the contract. However, it is possible that Mercuria might not like all of the provisions in which case either party can give six months’ notice to terminate. NCPA has been happy with J.P. Morgan’s services. George Morrow commented that we want our business partner to go in with its eyes open and giving consent to disclose the agreements seems a good idea.

The PPC considered the following motion made by Lompoc: The PPC approves J.P. Morgan’s request for disclosure to Mercuria Energy Group Limited and Mercuria Energy Trading SA of specified agreements and related transactions/settlements information for the purpose of Mercuria’s due diligence review related to its purchase of the physical commodities portion of the business, as discussed at today’s meeting.

In response to a question from Lodi, Mike Dean said the legal issue is not whether to disclose, but to confirm that J.P. Morgan has secured a promise from Mercuria not to further disclose the

information. He reiterated his advice that before the disclosure is made, NCPA see the confidentiality agreement executed between J.P. Morgan and Mercuria. Lompoc amended its motion as follows:

**Date:** 5/12/2014

**Motion:** Contingent upon receipt of satisfactory Non-Disclosure commitment from Mercuria to NCPA, the PPC approves J.P. Morgan's request for disclosure to Mercuria Energy Group Limited and Mercuria Energy Trading SA of specified agreements and related transactions/settlements information for the purpose of Mercuria's due diligence review related to its purchase of the physical commodities portion of the business, as discussed at today's meeting.

**Moved by:** Lompoc

**Seconded by:** BART

Discussion: There was no further discussion.

<b>Vote Summary on Motion</b>		
<b>Participant</b>	<b>Vote</b>	<b>Particulars / GES</b>
Azusa	Yes	2.7857%
BART	Yes	6.6000%
Biggs	Absent	0.2679%
CDWR	Yes	33.5000%
Gridley	Yes	1.9643%
Healdsburg	Absent	1.6428%
Lodi	Yes	9.5000%
Lompoc	Yes	2.0357%
Modesto	Yes	10.7143%
Plumas-Sierra	Absent	0.7857%
PWRPA	Yes	2.6679%
Silicon Valley Power	Yes	25.7500%
Ukiah	Absent	1.7857%
<b>Vote Summary</b>		
Total Ayes	9	95.5179%
Total Noes	0	0.0000%
Total Abstain	0	0.0000%
Total Absent	4	4.4821%
Result:	Motion passed.	

**INFORMATIONAL ITEMS**

**11. Standard Large Generator Interconnection Agreement Upgrade Project with CAISO**

Mike DeBortoli reported that all three of the other projects in the Interconnection queue are still going forward so it appears they will be sharing in the costs of the project. Ken Speer said Nexant has been continuing its work and NCPA understands it is now developing a model with

good analysis which is expected for presentation at the next meeting. Gillian Biedler will be taking over as the lead dealing with Nexant.

## **12. Flexible Resource Adequacy Capacity**

George Morrow requested that this item be placed on the agenda following the discussion at last month's meeting. George commented that his utility has been reviewing its assigned flexible capacity requirement and asked what options may be available to increase the amount of flexible capacity that could be provided by the LEC. He said that since Azusa cannot use the LEC for its local capacity obligation, the flexible capacity attribute is important. CAISO is still developing the rules to ensure flexible capacity is available. The LEC cold start-up time does not come in under the 90 minute limit requirement to enable the full plant output range to qualify as flexible capacity, therefore only the Pmin to Pmax range of the unit can currently be counted as flexible capacity. Tony provided additional explanation about the current operation of LEC as such relates to the rules being developed by CAISO. Tony explained that the plant currently qualifies for 280 MW of local and system capacity. Tony also explained that the value of flexible capacity is not fully known at this time. Flexible capacity is scarcer than system capacity so it should be worth more than system capacity; flexible capacity will likely be worth less than local capacity. He discussed the alternative MSG modeling configuration and explained there might be a chance to realize a bit more flexible capacity under MSG modeling; however there would be an impact to how LEC is operated. Based on this information, the committee was asked to provide direction. Martin Caballero said we should keep an eye on it, but suggested that if it affects the operation of the plant we should not go there. DWR agreed that exploring options in the aggregate makes sense but to be mindful of the impact and costs of the plant's operation. Since the value of flexible capacity may be different for each Participant depending on how they use LEC, each Participant may need to evaluate how it uses the plant. Most likely the LEC will continue to be operated as it is now.

## **13. PG&E's Compressed Air Storage Project**

Ken Speer generally advised the committee about the City of Lodi's project with PG&E. In accordance with the terms of the Ground Lease between NCPA and the City of Lodi, the City cannot enter into a lease with anyone else without NCPA's permission. Ken recently met with Steve Schwabauer to discuss under what possible conditions NCPA may agree. Ken thinks the two biggest issues for NCPA to allow that project to go forward by 2018 would be to (1) secure protection from congestion; possibly in the form of money paid or backing generation off so that LEC does not suffer congestion; and (2) confirm LEC has the first right to water. George asked if water storage is an issue. Mike DeBortoli said we would probably want more storage since it is so important on a daily basis. We may request that a significant storage pond be constructed. Since this project is in the very preliminary stages for PG&E, we would need to figure out the characteristics of the needs for storage. Mike DeBortoli said also that the question of what the compressed air does to the injection well will be looked at. Martin Caballero said there are only two of these projects installed world-wide. Ken said he wanted to get from the Participants a general sense about the project and would have more information at a subsequent meeting. Owen Stiles said we "follow the money", but we need a better idea about project considerations, the technology, and any unintended consequences.

## **14. PPC Meeting Agenda – Listing of Meeting Locations.**

Ken Speer presented this item and the group discussed the process for development of the agenda, listing of meeting locations, and requirements for compliance with the Brown Act. It was

decided that each of the Participants will be contacted to ascertain their default choice for whether to have their meeting location automatically listed on the monthly agendas.

### **Adjournment**

In preparation for adjournment, Vice Chairman Morrow asked that staff think about what the Committee might like to see here at the LEC facility as a remembrance of Steve Hill, its first Chairman of the PPC. The next regular meeting of the PPC is scheduled for Monday, June 9, 2014. The meeting was adjourned at 11:58 a.m.

DRAFT



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## **Lodi Energy Center Project Participant Committee Operational Report**

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**Date:** 6/9/2014

**To:** Lodi Energy Center Project Participant Committee

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### **Safety**

- OSHA Recordable: 0 Accidents

### **Notice of Violations**

- Permits: 0 Violations
- NERC/WECC: 0 Violations

### **Outage Summaries:**

- **Continuation of 43.6 hours due to the following Planned Outages:**
  - 2014, April – Combustion Turbine Borescope
  - 2014, April – Steam Turbine Minor Inspection
- **Re-Heater #3 Tube Leak – 5/31/14 to 6/1/14** – An HP Economizer header drain developed a crack creating a steam leak in the HRSG. LEC was forced offline, during the weekend, for the weld repair and returned back to service.

### **Planned Outage Summaries:**

- 2015, April – Combustion Inspection

**Generating Unit Statistics:**

**Report**

**Date:**

Start Date 5/1/2014

End Date 5/31/2014

- 1. Monthly Production 71,206 MWH
- 2. Productivity Factor
  - a. Service Hours 296 Hours
  - b. Service Factor 39.78 %
  - c. Capacity Factor @ 280MW Pmax 34.23 %
  - d. Capacity Factor @ 302MW Pmax 31.73 %
- 3. Equivalent Operating Availability (EOA) 90.89 %
- 4. Forced Outage Rate (FOR)
  - a. Combustion Turbine Generator 18.63 %
  - b. Steam Turbine Generator 18.63 %
- 5. Heat Rate Deviation (HRD)
  - a. Fuel Cost (Not Current Market Price) 4.00 \$/mmBTU

MW Range		Average HR	PMOA HR	Deviation	Production	Cost
		BTU/kW-Hr	BTU/kW-Hr	%	MWH	\$
Seg. 1	296 - 302	6,850	6850	0.00%	0	\$0
Seg. 2	284 - 296	6,907	6870	0.54%	24,845	\$3,698
Seg. 3	275 - 284	6,931	6971	-0.58%	10,901	-\$1,749
Seg. 4	250 - 275	6,963	7081	-1.67%	14,378	-\$6,800
Seg. 5	225 - 250	7,021	7130	-1.52%	7,410	-\$3,219
Seg. 6	200 - 225	7,142	7315	-2.36%	4,548	-\$3,143
Seg. 7	175 - 225	7,289	7711	-5.47%	3,516	-\$5,929
Seg. 8	165 - 175	7,567	7856	0.00%	2,440	-\$2,818
					<b>68,038</b>	<b>-\$19,959</b>

6. AGC Control Deviation

MW Range		High Dev	Low Dev	Absolute Dev	Cost
		MWH	MWH	MWH	\$
Seg. 1	296 - 302	0	0	0	\$0
Seg. 2	284 - 296	73	-21	94	\$2,592
Seg. 3	275 - 284	28	-42	70	\$1,938
Seg. 4	250 - 275	60	-23	82	\$2,293
Seg. 5	225 - 250	38	-18	56	\$1,567
Seg. 6	200 - 225	25	-14	39	\$1,128
Seg. 7	175 - 225	19	-9	28	\$824
Seg. 8	165 - 175	30	-2	33	\$984
		<b>274</b>	<b>-129</b>	<b>402</b>	<b>\$11,326</b>

7. Starting Reliability

Start Type	Hot Starts	Warm Starts	Cold Starts
Number of Starts	11	6	1
Start Time Benchmark (Minutes)	85	160	235
Start Time Actual (Average Minute)	70.8	142.2	206.0
Start Time Deviation (%)	-16.7%	-11.1%	-12.3%
Start Fuel Benchmark PMOA (mmBTU)	1,967	5,200	5,430
Start Fuel Actual (Average mmBTU)	1,260	2,757	4,095
Fuel Deviation	-35.9%	-47.0%	-24.6%
Costs of Fuel Deviations (\$)	<b>-\$2,826</b>	<b>-\$9,771</b>	<b>-\$5,340</b>

**Definitions:**

1. Monthly Production = Plant Net MWH's
2. Capacity Factor
  - a. Service Hours = In Production or in Service State
  - b. Service Factor =  $SH / PH \times 100\%$
  - c. Capacity Factor =  $Production / 302MW \times PH$
  - d. Capacity Factor =  $Production / 280MW \times PH$
3. Monthly Equivalent Availability Factor (EAF) =  $(AH - EPDH - EFDH) / PH \times 100\%$
4. Forced Outage Rate =  $(FOH / (FOH + SH)) \times 100\%$
5. Heat Rate Deviation (HRD)
  - a. Fuel Cost = Cost of Fuel in \$/mmBTU
  - b. Average Heat Rate = The Average Heat Rate for the given Range
  - c. Heat Rate Deviation =  $(Heat Rate Average - Heat Rate Expected) / Heat Rate Expected \times 100\%$
  - d. Production = The Sum of Production for the given Range
  - e. Costs of Heat Rate Deviations =  $(Average Heat Rate - Expected Heat Rate) \times Production \times Cost of Fuel$
6. AGC Deviation-
  - a. MWH's = AGC Set Point Generation - LEC Actual Generation
  - b. Cost of Deviations = Fuel Cost x Heat Rate x Generation
7. Starting Reliability
  - a. Number of Starts = Start Count for Hot, Warm, and Cold
  - b. Start Time = Average Time from 0 Fuel Flow to Pmin
  - c. Start Fuel = Average Fuel Consumption to Pmin
  - d. Cost of Fuel Deviation =  $(Actual Fuel Consumed - Expected Fuel) \times Cost of Fuel$

Lodi Energy Center  
Monthly Budget Analysis

Means Actual or Estimated values  
Means Forecasted values

	July	August	September	October	November	December	January	February	March	April	April (Estimate)	April (Diff)	April Estimate vs Actual (Diff %)	Mar-Apr Actual vs Actual (Diff %)	May	June	Year End Projection	FY2014 Budget	Percent Used	Comments
VOM	4,510,911	3,441,771	3,527,417	3,559,665	3,829,061	5,841,427	5,859,348	9,204,955	5,722,081	2,564,099	2,234,881	-329,218	-15%	-123%	3,773,424	4,127,189	55,961,348	48,880,350	114.5%	Higher Run Time, Energy and Fuel
Capacity Factor	59%	45%	46%	47%	52%	66%	66%	83%	58%	27%	16%	-12%	-77%	-111%	50%	50%	54%	54%		
Fuel Consumed (mmBTU, estimated)	879,771	674,758	658,848	688,301	742,102	968,742	956,882	1,095,418	861,414	393,436	364,531	-28,904	-8%	-119%	717,551	690,691	9,327,913	9,349,196	99.8%	
Avg Fuel Cost (\$/mmBTU)	4.26	4.21	4.43	4.44	4.32	5.22	5.32	7.59	5.84	5.57	5.59	0.02	0%	-5%	5.54	5.54	5.19	4.38		
Power Produced (MWhr, estimated)	122,486	94,610	92,090	98,738	105,077	138,065	136,604	156,088	120,488	55,376	52,831	-2,545	-5%	-118%	103,993	100,100	1,323,715	1,354,956	97.7%	
Avg Power Price (\$/MWhr)	46.91	42.48	46.99	41.03	42.09	54.14	48.14	65.20	52.62	52.88	49.70	-3.18	-6%	0%	47.70	47.70	48.99	53.60		
Operations	43,003	96,234	127,333	26,495	108,825	124,300	95,063	126,143	92,987	100,341	108,395	8,054	7%	0%	108,395	108,395	1,157,514	1,300,738	89.0%	
Fuel (estimated)	3,752,183	2,838,640	2,921,836	3,055,256	3,208,112	5,061,023	5,085,936	8,309,024	5,031,464	2,190,537	1,951,738	-238,799	-12%	-130%	3,513,129	3,688,288	48,655,429	41,400,588	117.5%	Combined, Fuel Price, CAISO Market, Increased R
AB32 GHG Offset (estimated)	665,425	470,249	440,345	439,427	466,509	601,037	622,287	706,677	548,537	250,531	130,682	-119,850	-92%	-119%	107,833	286,439	5,605,297	5,650,224	99.2%	
CA ISO Charges (estimated)	50,300	36,648	37,902	38,488	45,615	55,066	56,062	63,111	49,093	22,690	44,067	21,377	49%	-116%	44,067	44,067	543,108	528,800	102.7%	
Routine O&M (Fixed)	825,352	705,626	781,796	836,116	1,541,610	1,660,100	1,459,604	703,908	667,353	1,864,026	804,876	-1,059,150	-132%	64%	1,004,313	1,417,376	13,467,179	12,360,283	109.0%	
Maintenance	122,856	103,896	138,361	205,464	804,406	282,058	856,754	124,522	97,799	1,151,111	108,563	-1,042,548	-960%	92%	308,000	721,063	4,916,290	3,752,752	131.0%	
Administration	176,051	14,591	100,092	101,797	96,024	100,085	99,312	109,722	111,409	97,241	101,221	3,980	4%	-15%	101,221	101,221	1,208,767	1,214,657	99.5%	
Mandatory Costs	54,223	33,816	75,781	40,651	44,151	27,705	32,310	52,601	27,343	70,140	38,000	-32,140	-85%	61%	38,000	38,000	534,721	456,000	117.3%	
Inventory Stock	0	0	0	0	0	14,393	40,196	0	11,593	37,507	86,352	48,845	57%	69%	86,352	86,352	276,393	400,000	69.1%	
Labor	362,071	347,160	363,503	379,492	492,969	347,638	322,319	313,003	319,642	403,967	352,258	-51,709	-15%	21%	352,258	352,258	4,356,280	4,227,098	103.1%	
Insurance	110,151	206,163	104,059	108,712	104,060	888,221	108,713	104,060	99,567	104,060	118,481	14,421	12%	4%	118,481	118,481	2,174,728	2,309,776	94.2%	
Power Management & Settlements	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0	0	0	0	0%	
Other Costs	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0	0	0	0	0%	
Projects	33,104	33,104	33,105	33,104	82,515	48,100	34,184	34,711	33,104	179,700	593,104	413,404	70%	82%	558,104	33,104	1,135,940	1,115,250	101.9%	
Maintenance Reserve	33,104	33,104	33,105	33,104	33,104	33,104	33,104	33,104	33,104	33,104	33,104	0	0%	0%	33,104	33,104	397,250	397,250	100.0%	
Operations & Maintenance Projects	0	0	0	0	49,411	14,996	1,080	1,607	0	146,596	60,000	-86,596	-144%	100%	0	0	213,690	168,000	127.2%	
Capital Projects	0	0	0	0	0	0	0	0	0	0	500,000	500,000	100%	#DIV/0!	525,000	0	525,000	550,000	95.5%	
A&G	93,845	93,845	143,178	116,185	146,921	144,534	111,394	197,482	127,236	131,936	188,459	56,523	30%	4%	188,459	188,459	1,683,474	2,261,509	74.4%	
Administrative & General (Allocated)	76,204	76,204	110,033	93,660	119,853	120,763	88,473	176,496	102,680	110,501	145,900	35,399	24%	7%	145,900	145,900	1,366,667	1,750,798	78.1%	
Generation Services Shared	17,641	17,641	33,145	22,525	27,068	23,771	22,921	20,986	24,556	21,435	42,559	21,124	50%	-15%	42,559	42,559	316,808	510,711	62.0%	
<b>Total O&amp;M Cost</b>	<b>5,463,212</b>	<b>4,274,346</b>	<b>4,485,496</b>	<b>4,545,070</b>	<b>5,600,107</b>	<b>7,694,161</b>	<b>7,464,530</b>	<b>10,141,056</b>	<b>6,549,774</b>	<b>4,739,761</b>	<b>3,821,320</b>	<b>-918,441</b>	<b>-24%</b>	<b>-38%</b>	<b>5,524,300</b>	<b>5,766,128</b>	<b>72,247,941</b>	<b>64,617,392</b>	<b>111.8%</b>	
Debt Service	2,211,514	2,211,516	2,211,511	2,211,516	1,652,233	2,211,513	2,211,514	2,211,514	2,211,514	2,211,514	2,163,002	-48,512	-2%	0%	2,163,002	2,163,002	25,881,864	25,956,029	99.7%	
Revenues	5,746,023	4,019,075	4,330,249	4,051,388	4,422,375	7,475,000	7,354,210	10,177,669	6,340,241	2,928,400	2,688,216	-240,184	-9%	-117%	4,632,883	4,954,955	66,432,468	55,613,202	119.5%	
ISO Energy Sales (estimated)	5,746,023	4,019,075	4,327,698	4,051,388	4,422,375	7,475,000	6,575,721	10,177,669	6,340,241	2,928,400	2,688,216	-240,184	-9%	-117%	4,632,883	4,954,955	65,651,428	55,539,944		
Other Income	0	0	2,551	0	0	0	778,489	0	0%	0	0	0	0%	0%	0	0	781,040	73,258		
<b>Net</b>	<b>(\$1,928,703)</b>	<b>(\$2,466,787)</b>	<b>(\$2,366,758)</b>	<b>(\$2,705,199)</b>	<b>(\$2,829,966)</b>	<b>(\$2,430,674)</b>	<b>(\$2,321,834)</b>	<b>(\$2,174,900)</b>	<b>(\$2,421,048)</b>	<b>(\$4,022,875)</b>	<b>(\$3,296,107)</b>	<b>\$726,768</b>	<b>-22%</b>	<b>27%</b>	<b>(\$3,054,419)</b>	<b>(\$2,974,175)</b>	<b>(\$31,697,337)</b>	<b>(\$34,960,219)</b>		



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# LEC Treasurer's Report

AGENDA ITEM NO.: \_\_\_\_\_

**Date:** June 3, 2014  
**To:** LEC Project Participant Committee  
**Subject:** Treasurer's Report for the Month Ended May 31, 2014

In compliance with NCPA policy and State of California Government Code Sections 53601 and 53646(b), the following monthly report is submitted for your information and acceptance.

Cash - At month end cash totaled \$0.

The cash balance held at U.S. Bank includes outstanding checks that have not yet cleared.

Investments - The carrying value of the LEC's investment portfolio totaled \$43,098,191 at month end. The current market value of the portfolio totaled \$43,092,657.

The overall portfolio had a combined weighted average interest rate of 0.287% with a bond equivalent yield (yield to maturity) of 0.245%. Investments with a maturity greater than one year totaled \$11,351,000. May maturities totaled \$13 million and monthly receipts totaled \$3.1 million. During the month \$18 million was invested.

Funds not required to meet annual cash flow are reinvested and separately reported as they occur.

Interest Rates - During the month, rates on 90 day T-Bills basis points increased 1 basis point (from 0.03% to 0.04%) and rates on one year T-Bills stayed the same (at 0.10%).

To the best of my knowledge and belief, all securities held by LEC as of June 9, 2014, are in compliance with the Agency's investment policy. There are adequate cash flow and investment maturities to meet next month's cash requirements.

### Environmental Analysis

The Treasurer's report will not result in a direct or reasonably foreseeable indirect change in the physical environment and is therefore not a "project" for purposes of Section 21065 of the California Environmental Quality Act. No environmental review is necessary.

Respectfully submitted,

DONNA STEVENER  
Assistant General Manager/CFO  
Administrative Services/Finance

Prepared by:

KEVIN W. WALLACE  
Treasurer-Controller

Attachments

# **LODI ENERGY CENTER**

## **TREASURER'S REPORT**

**MAY 31, 2014**

### **TABLE OF CONTENTS**

	<u><b>PAGE</b></u>
<b>CASH &amp; INVESTMENTS BALANCE</b>	<b>1</b>
<b>CASH ACTIVITY SUMMARY</b>	<b>2</b>
<b>INVESTMENT ACTIVITY SUMMARY</b>	<b>3</b>
<b>INTEREST RATE/YIELD ANALYSIS</b>	<b>4</b>
<b>INVESTMENT MATURITIES ANALYSIS</b>	<b>5</b>
<b>DETAIL REPORT OF INVESTMENTS</b>	<b>APPENDIX</b>

**Northern California Power Agency/Lodi Energy Center  
Treasurer's Report  
Cash & Investment Balance  
May 31, 2014**

	CASH	INVESTMENTS	TOTAL	PERCENT	INVESTMENTS at MARKET
<b>MANDATORY FUNDS</b>					
Construction Revolving	\$ -	\$ 3,356	\$ 3,356	0.008%	\$ 3,356
Debt Service Account	-	20,640,377	20,640,377	47.892%	20,640,377
Debt Service Reserve	-	11,748,622	11,748,622	27.260%	11,736,705
O & M Reserve	-	10,635,157	10,635,157	24.677%	10,641,541
	-	43,027,513	43,027,513	99.836%	43,021,979
<b>ADDITIONAL PROJECT FUNDS</b>					
GHG Cash Account	-	70,678	70,678	0.164%	70,678
	\$ -	\$ 43,098,191	\$ 43,098,191	100.000%	\$ 43,092,657

NOTE A -Investment amounts shown at book carrying value.

Northern California Power Agency/Lodi Energy Center  
Treasurer's Report  
Cash Activity Summary  
May 31, 2014

	RECEIPTS			EXPENDITURES			CASH
	OPS/CONSTR	INTEREST (NOTE B)	INVESTMENTS (NOTE A)	OPS/CONSTR	INVESTMENTS (NOTE B)	INTER-COMPANY/ FUND TRANSFERS	INCREASE / (DECREASE)
<b>MANDATORY FUNDS</b>							
Construction Revolving	\$ -	\$ -	\$ 240,000	\$ (240,000)	\$ -	\$ -	\$ -
Debt Service Account	3,104,776	0	4,468,000	-	(9,693,535)	2,120,759	-
Debt Service Reserve	-	12,515	8,368,000	-	(8,380,515)	-	-
O & M Reserve	-	-	-	-	-	-	-
	<u>3,104,776</u>	<u>12,515</u>	<u>13,076,000</u>	<u>(240,000)</u>	<u>(18,074,050)</u>	<u>2,120,759</u>	<u>-</u>
<b>ADDITIONAL PROJECT FUNDS</b>							
GHG Cash Account	-	-	(11,000)	-	-	11,000	-
<b>TOTAL</b>	<u>\$ 3,104,776</u>	<u>\$ 12,515</u>	<u>\$ 13,065,000</u>	<u>\$ (240,000)</u>	<u>\$ (18,074,050)</u>	<u>\$ 2,131,759</u>	<u>\$ -</u>

NOTE A -Investment amounts shown at book carrying value.

NOTE B -Net of accrued interest purchased on investments.

**Northern California Power Agency/Lodi Energy Center  
Treasurer's Report  
Investment Activity Summary  
May 31, 2014**

	PURCHASED	SOLD OR MATURED	(NON-CASH) DISC/(PREM) AMORT	(NON-CASH) GAIN/(LOSS) ON SALE	INVESTMENTS TRANSFERS	INCREASE / (DECREASE)
<b>MANDATORY FUNDS</b>						
Construction Revolving		\$ (240,000)	\$ -	\$ -	\$ -	\$ (240,000)
Debt Service Account	9,693,535	(4,468,000)	623	-	-	5,226,158
Debt Service Reserve	8,380,515	(8,368,000)	(5)	-	-	12,510
O & M Reserve	-		(919)	-	-	(919)
	<u>18,074,050</u>	<u>(13,076,000)</u>	<u>(301)</u>	<u>-</u>	<u>-</u>	<u>4,997,749</u>
<b>ADDITIONAL PROJECT FUNDS</b>						
GHG Cash Account		11,000	-	-		11,000
<b>TOTAL</b>	<u>\$ 18,074,050</u>	<u>\$ (13,065,000)</u>	<u>\$ (301)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 5,008,749</u>

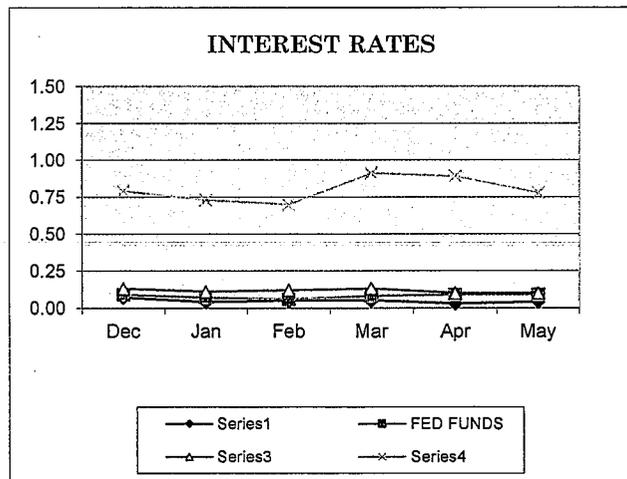
Less Non- Cash Activity						
Disc/(Prem) Amortization & Gain/(Loss) on Sale						<u>301</u>
Net Change in Investment --Before Non-Cash Activity						<u>\$ 5,009,050</u>

NOTE A -Investment amounts shown at book carrying value.

**NORTHERN CALIFORNIA POWER AGENCY  
LODI ENERGY CENTER  
INTEREST RATE/YIELD ANALYSIS  
MAY 31 2014**

	<u>WEIGHTED AVERAGE INTEREST RATE</u>	<u>BOND EQUIVALENT YIELD</u>
<b>OVERALL COMBINED</b>	<u><u>0.287%</u></u>	<u><u>0.245%</u></u>
<b><u>Construction Revolving Acct</u></b>	<b>0.235%</b>	<b>0.235%</b>
<b><u>Funds:</u></b>		
Debt Service Account	<b>0.071%</b>	<b>0.071%</b>
Debt Service Reserve	<b>0.546%</b>	<b>0.530%</b>
O & M Reserve	<b>0.422%</b>	<b>0.269%</b>
GHG Cash Account	<b>0.235%</b>	<b>0.235%</b>

<b>KEY INTEREST RATES</b>		
	<u>CURRENT</u>	<u>PRIOR YEAR</u>
Fed Fds (Ovrnight)	0.09%	0.09%
T-Bills (90da.)	0.04%	0.05%
Agency Disc (90da.)	0.03%	0.06%
T-Bills (1yr.)	0.10%	0.14%
Agency Disc (1yr.)	0.10%	0.13%
T-Notes (3yr.)	0.78%	0.50%



Lodi Energy Center  
Total Portfolio  
Investment Maturities Analysis  
May 31, 2014

Type	0-7 Days	8-90 Days	91-180 Days	181-270 Days	271-360 Days	1-5 Years	5-10 Years	Total	Percent
US Government Agencies	\$17,207	\$3,003	\$3,612			\$11,351		\$35,173	81.62%
US Bank Trust Money Market	6,827							6,827	15.84%
Investment Trusts (LAIF)	1,094							1,094	2.54%
U.S.Treasury Market Acct. *								0	0.00%
U.S.Treasury Bill								0	0.00%
Certificates of Deposit								0	0.00%
<b>Total Dollars</b>	<b>\$25,128</b>	<b>\$3,003</b>	<b>\$3,612</b>	<b>\$0</b>	<b>\$0</b>	<b>\$11,351</b>	<b>\$0</b>	<b>\$43,094</b>	<b>100.00%</b>
<b>Total Percents</b>	<b>58.31%</b>	<b>6.97%</b>	<b>8.38%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>26.34%</b>	<b>0.00%</b>	<b>100.00%</b>	

Investment are shown at Face Value, in thousands.

- \* The cash balance held at US Bank includes outstanding checks that have not yet cleared. This cash balance is invested nightly in a fully collateralized (U.S. Government Securities) repurchase agreement.
- \*\* Cash held by Union Bank of California is invested nightly in fully collateralized U.S. Treasury Securities.

**NORTHERN CALIFORNIA POWER AGENCY**

**Detail Report Of Investments**

**APPENDIX**

**Note:**           **This appendix has been prepared to comply with  
Government Code section 53646.**



Northern California Power Agency  
 Treasurer's Report  
 05/31/2014

LEC Construction Revolving

Issuer	Trustee / Custodian	Stated Value	Interest Rate	Purchase Date	Purchased Price	Maturity Date	Days to Maturity	Bond* Equiv Yield	Market Value	CUSIP	Investment #	Carrying Value
Local Agency Investm		3,356	0.235		3,356		1	0.235	3,356	SYS70040	70040	3,356
<b>Fund Total and Average</b>		<b>\$ 3,356</b>	<b>0.235</b>		<b>\$ 3,356</b>		<b>1</b>	<b>0.235</b>	<b>\$ 3,356</b>			<b>\$ 3,356</b>
<b>GRAND TOTALS:</b>		<b>\$ 3,356</b>	<b>0.235</b>		<b>\$ 3,356</b>		<b>1</b>	<b>0.235</b>	<b>\$ 3,356.</b>			<b>\$ 3,356</b>

\*Bond Equivalent Yield to Maturity is shown based on a 365 day year to provide a basis for comparison between all types. Investments with less than 6 months to maturity use an approximate method, all others use an exact method.

Current Market Value is based on prices from Trustee/ Custodian Statements or bid prices from the Wall Street Journal as of 05/31/2014



Northern California Power Agency  
 Treasurer's Report  
 05/31/2014

LEC Issue#1 2010A DS Fund

Issuer	Trustee / Custodian	Stated Value	Interest Rate	Purchase Date	Purchased Price	Maturity Date	Days to Maturity	Bond* Equiv Yield	Market Value	CUSIP	Investment #	Carrying Value
US Bank Trust	USB	2,768,075	0.100		2,768,075		1	0.100	2,768,075	SYS79003	79003	2,768,075
Federal Home Loan Ba	USB	952,000	0.085	12/03/2013	951,593	06/02/2014	1	0.086	952,000	313385XP6	26071	951,998
Federal Home Loan Ba	USB	693,000	0.059	01/06/2014	692,830	06/02/2014	1	0.060	693,000	313385XP6	26076	692,999
Federal Home Loan Ba	USB	693,000	0.040	01/27/2014	692,903	06/02/2014	1	0.040	693,000	313385XP6	26090	692,999
Federal Home Loan Ba	USB	694,000	0.030	03/27/2014	693,961	06/02/2014	1	0.030	694,000	313385XP6	26116	693,999
Federal Home Loan Ba	USB	693,000	0.009	04/25/2014	692,993	06/02/2014	1	0.010	693,000	313385XP6	26127	693,000
<b>Fund Total and Average</b>		<b>\$ 6,493,075</b>	<b>0.070</b>		<b>\$ 6,492,355</b>		<b>1</b>	<b>0.070</b>	<b>\$ 6,493,075</b>			<b>\$ 6,493,070</b>

LEC Issue #1 2010B DS Fund

US Bank Trust	USB	3,492,527	0.100		3,492,527		1	0.100	3,492,527	SYS79004	79004	3,492,527
Federal Home Loan Ba	USB	766,000	0.060	01/06/2014	765,812	06/02/2014	1	0.060	766,000	313385XP6	26077	765,999
Federal Home Loan Ba	USB	733,000	0.040	01/27/2014	732,897	06/02/2014	1	0.040	733,000	313385XP6	26091	732,999
Federal Home Loan Ba	USB	732,000	0.030	03/27/2014	731,959	06/02/2014	1	0.030	732,000	313385XP6	26117	731,999
Federal Home Loan Ba	USB	733,000	0.010	04/25/2014	732,992	06/02/2014	1	0.010	733,000	313385XP6	26128	733,000
<b>Fund Total and Average</b>		<b>\$ 6,456,527</b>	<b>0.070</b>		<b>\$ 6,456,187</b>		<b>1</b>	<b>0.071</b>	<b>\$ 6,456,527</b>			<b>\$ 6,456,524</b>

LEC Issue #2 2010A DS Fund

US Bank Trust	USB	1,755,276	0.100		1,755,276		1	0.100	1,755,276	SYS79011	79011	1,755,276
Federal Home Loan Ba	USB	1,095,000	0.085	12/03/2013	1,094,532	06/02/2014	1	0.086	1,095,000	313385XP6	26072	1,094,997
Federal Home Loan Ba	USB	435,000	0.059	01/06/2014	434,893	06/02/2014	1	0.060	435,000	313385XP6	26078	434,999
Federal Home Loan Ba	USB	434,000	0.040	01/27/2014	433,939	06/02/2014	1	0.040	434,000	313385XP6	26092	434,000
Federal Home Loan Ba	USB	435,000	0.030	03/27/2014	434,976	06/02/2014	1	0.030	435,000	313385XP6	26118	435,000
Federal Home Loan Ba	USB	434,000	0.010	04/25/2014	433,995	06/02/2014	1	0.010	434,000	313385XP6	26129	434,000
<b>Fund Total and Average</b>		<b>\$ 4,588,276</b>	<b>0.072</b>		<b>\$ 4,587,611</b>		<b>1</b>	<b>0.072</b>	<b>\$ 4,588,276</b>			<b>\$ 4,588,272</b>

LEC Issue #2 2010B DS Fund

US Bank Trust	USB	1,678,512	0.100		1,678,512		1	0.100	1,678,512	SYS79012	79012	1,678,512
Federal Home Loan Ba	USB	368,000	0.060	01/06/2014	367,910	06/02/2014	1	0.060	368,000	313385XP6	26079	367,999
Federal Home Loan Ba	USB	352,000	0.040	01/27/2014	351,951	06/02/2014	1	0.040	352,000	313385XP6	26093	352,000
Federal Home Loan Ba	USB	352,000	0.029	03/27/2014	351,980	06/02/2014	1	0.030	352,000	313385XP6	26119	352,000
Federal Home Loan Ba	USB	352,000	0.010	04/25/2014	351,996	06/02/2014	1	0.010	352,000	313385XP6	26130	352,000
<b>Fund Total and Average</b>		<b>\$ 3,102,512</b>	<b>0.070</b>		<b>\$ 3,102,349</b>		<b>1</b>	<b>0.071</b>	<b>\$ 3,102,512</b>			<b>\$ 3,102,511</b>

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GRAND TOTALS:	\$ 20,640,390	0.071	\$ 20,638,502	1	0.071	\$ 20,640,390.	\$ 20,640,377
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\*Bond Equivalent Yield to Maturity is shown based on a 365 day year to provide a basis for comparison between all types.  
Investments with less than 6 months to maturity use an approximate method, all others use an exact method.

Current Market Value is based on prices from Trustee/ Custodian Statements or bid prices from the Wall Street Journal as of 05/31/2014



Northern California Power Agency  
 Treasurer's Report  
 05/31/2014

LEC Issue #1 2010 DSR Fund

Issuer	Trustee / Custodian	Stated Value	Interest Rate	Purchase Date	Purchased Price	Maturity Date	Days to Maturity	Bond* Equiv Yield	Market Value	CUSIP	Investment #	Carrying Value
US Bank Trust	USB	46,071	0.100		46,071		1	0.100	46,071	SYS79005	79005	46,071
Federal Home Loan Mt	USB	4,181,000	0.580	05/30/2014	4,183,927	08/26/2016	817	0.548	4,184,178	3134G56B6	26135	4,183,923
Federal National Mtg	USB	4,170,000	0.875	05/30/2014	4,171,960	08/28/2017	1,184	0.860	4,159,784	3135GOMZ3	26136	4,171,958
<b>Fund Total and Average</b>		<b>\$ 8,397,071</b>	<b>0.724</b>		<b>\$ 8,401,958</b>		<b>995</b>	<b>0.701</b>	<b>\$ 8,390,033</b>			<b>\$ 8,401,952</b>

LEC Iss#1 2010B BABS Subs Resv

US Bank Trust	USB	2,260,464	0.100		2,260,464		1	0.100	2,260,464	SYS79006	79006	2,260,464
<b>Fund Total and Average</b>		<b>\$ 2,260,464</b>	<b>0.100</b>		<b>\$ 2,260,464</b>		<b>1</b>	<b>0.100</b>	<b>\$ 2,260,464</b>			<b>\$ 2,260,464</b>

LEC Issue #1 2010 COI Acct

US Bank Trust	USB	2	0.100		2		1	0.100	2	SYS79008	79008	2
<b>Fund Total and Average</b>		<b>\$ 2</b>	<b>0.100</b>		<b>\$ 2</b>		<b>1</b>	<b>0.100</b>	<b>\$ 2</b>			<b>\$ 2</b>

LEC Issue #2 2010B DSR BABS

US Bank Trust	USB	1,086,206	0.100		1,086,206		1	0.100	1,086,206	SYS79013	79013	1,086,206
<b>Fund Total and Average</b>		<b>\$ 1,086,206</b>	<b>0.100</b>		<b>\$ 1,086,206</b>		<b>1</b>	<b>0.100</b>	<b>\$ 1,086,206</b>			<b>\$ 1,086,206</b>
<b>GRAND TOTALS:</b>		<b>\$ 11,743,743</b>	<b>0.546</b>		<b>\$ 11,748,630</b>		<b>712</b>	<b>0.530</b>	<b>\$ 11,736,705.</b>			<b>\$ 11,748,624</b>

\*Bond Equivalent Yield to Maturity is shown based on a 365 day year to provide a basis for comparison between all types. Investments with less than 6 months to maturity use an approximate method, all others use an exact method.

Current Market Value is based on prices from Trustee/ Custodian Statements or bid prices from the Wall Street Journal as of 05/31/2014

Investment # 26135 - FNMA Structured Note .58% thru 11/26/14; Callable anytime



Northern California Power Agency  
 Treasurer's Report  
 05/31/2014

LEC O & M Reserve

Issuer	Trustee / Custodian	Stated Value	Interest Rate	Purchase Date	Purchased Price	Maturity Date	Days to Maturity	Bond* Equiv Yield	Market Value	CUSIP	Investment #	Carrying Value
Local Agency Investm		1,020,464	0.235		1,020,464		1	0.235	1,020,464	SYS70047	70047	1,020,464
Union Bank of Califo	UBOC	0	0.002	07/18/2013	0		1	0.002	0	SYS70041	70041	0
Federal National Mtg	UBOC	3,003,000	0.140	07/18/2013	2,999,006	06/25/2014	24	0.142	3,002,940	313589YN7	26028	3,002,720
Federal Home Loan Mt	UBOC	2,980,000	0.750	02/19/2014	2,991,264	09/22/2014	113	0.110	2,986,169	3134G2WG3	26099	2,985,870
Federal Home Loan Mt	UBOC	632,000	0.140	10/31/2013	631,127	10/21/2014	142	0.142	631,848	313397L41	26066	631,651
Federal Home Loan Mt	UBOC	3,000,000	0.500	10/25/2013	2,992,800	06/06/2016	736	0.592	3,000,120	3134G46A1	26052	2,994,453
<b>Fund Total and Average</b>		<b>\$ 10,635,464</b>	<b>0.422</b>		<b>\$ 10,634,661</b>		<b>254</b>	<b>0.269</b>	<b>\$ 10,641,541</b>			<b>\$ 10,635,158</b>
<b>GRAND TOTALS:</b>		<b>\$ 10,635,464</b>	<b>0.422</b>		<b>\$ 10,634,661</b>		<b>254</b>	<b>0.269</b>	<b>\$ 10,641,541.</b>			<b>\$ 10,635,158</b>

\*Bond Equivalent Yield to Maturity is shown based on a 365 day year to provide a basis for comparison between all types. Investments with less than 6 months to maturity use an approximate method, all others use an exact method.

Current Market Value is based on prices from Trustee/ Custodian Statements or bid prices from the Wall Street Journal as of 05/31/2014  
 Investment # 26052 - FHLMC Structured Note .50%; Callable on 06/06/14 Quarterly thereafter.



Northern California Power Agency  
 Treasurer's Report  
 05/31/2014

LEC GHG Auction Acct

Issuer	Trustee / Custodian	Stated Value	Interest Rate	Purchase Date	Purchased Price	Maturity Date	Days to Maturity	Bond* Equiv Yield	Market Value	CUSIP	Investment #	Carrying Value
Local Agency Investm		70,678	0.235		70,678		1	0.235	70,678	SYS70046	70046	70,678
<b>Fund Total and Average</b>		<b>\$ 70,678</b>	<b>0.235</b>		<b>\$ 70,678</b>		<b>1</b>	<b>0.235</b>	<b>\$ 70,678</b>			<b>\$ 70,678</b>
<b>GRAND TOTALS:</b>		<b>\$ 70,678</b>	<b>0.235</b>		<b>\$ 70,678</b>		<b>1</b>	<b>0.235</b>	<b>\$ 70,678.</b>			<b>\$ 70,678</b>

\*Bond Equivalent Yield to Maturity is shown based on a 365 day year to provide a basis for comparison between all types. Investments with less than 6 months to maturity use an approximate method, all others use an exact method.

Current Market Value is based on prices from Trustee/ Custodian Statements or bid prices from the Wall Street Journal as of 05/31/2014



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# LEC Financial Reports

AGENDA ITEM NO.: \_\_\_\_\_

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**Date:** June 3, 2014

**Subject:** May 31, 2014 Financial Reports (Unaudited)

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**NORTHERN CALIFORNIA POWER AGENCY  
LODI ENERGY CENTER  
STATEMENT OF NET POSITION  
UNAUDITED**

ASSETS	May 31	
	2014	2013 (Note A)
<b>CURRENT ASSETS</b>		
Cash and cash equivalents	\$ 70,788	\$ 63,161
Interest receivable	8,616	535
Inventory and supplies - at average cost	1,143,196	230,459
Prepaid insurance	390,881	415,811
Due from (to) Agency, net	12,988,734	3,196,330
<b>TOTAL CURRENT ASSETS</b>	<b>14,602,215</b>	<b>3,906,296</b>
<b>RESTRICTED ASSETS</b>		
Cash and cash equivalents	11,914,356	12,833,353
Investments	32,011,943	34,415,224
Interest receivable	21,136	9,177
<b>TOTAL RESTRICTED ASSETS</b>	<b>43,947,435</b>	<b>47,257,754</b>
<b>ELECTRIC PLANT</b>		
Electric plant in service	423,354,890	427,764,207
Less: accumulated depreciation	(21,901,244)	
<b>TOTAL ELECTRIC PLANT</b>	<b>401,453,646</b>	<b>427,764,207</b>
<b>OTHER ASSETS</b>		
Regulatory assets	10,877,005	
Unamortized debt issuance expenses	3,494,493	3,582,999
<b>TOTAL OTHER ASSETS</b>	<b>14,371,498</b>	<b>3,582,999</b>
<b>TOTAL ASSETS</b>	<b>\$ 474,374,794</b>	<b>\$ 482,511,256</b>

Note A:

Commercial operation began November 27, 2012. Prior to commercial operation, all costs of construction, test start-up and financing were capitalized.

**NORTHERN CALIFORNIA POWER AGENCY  
LODI ENERGY CENTER  
STATEMENT OF NET POSITION  
UNAUDITED**

	May 31	
	2014	2013 (Note A)
<b>LIABILITIES &amp; NET POSITION</b>		
<b>CURRENT LIABILITIES</b>		
Accounts and retentions payable	\$ 2,912,094	\$ 4,728,423
Operating reserves	11,362,480	
Current portion of long-term debt	8,640,000	8,315,000
Accrued interest payable	11,465,163	12,425,092
<b>TOTAL CURRENT LIABILITIES</b>	<b>34,379,737</b>	<b>25,468,515</b>
<b>NON-CURRENT LIABILITIES</b>		
Operating reserves and other deposits	70,654	2,190,485
Regulatory liability	45,881,784	53,911,760
Long-term debt, net	381,934,068	391,680,556
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>427,886,506</b>	<b>447,782,801</b>
<b>TOTAL LIABILITIES</b>	<b>462,266,243</b>	<b>473,251,316</b>
<b>NET POSITION</b>		
Invested in capital assets, net of related debt	737,793	(22,560,039)
Restricted	11,043,117	31,819,979
Unrestricted	327,641	0
<b>TOTAL NET POSITION</b>	<b>12,108,551</b>	<b>9,259,940</b>
<b>TOTAL LIABILITIES AND NET POSITION</b>	<b>\$ 474,374,794</b>	<b>\$ 482,511,256</b>

Note A:

Commercial operation began November 27, 2012. Prior to commercial operation, all costs of construction, test start-up and financing were capitalized.

**NORTHERN CALIFORNIA POWER AGENCY  
LODI ENERGY CENTER  
STATEMENT OF REVENUES, EXPENSES  
& CHANGES IN NET POSITION  
UNAUDITED**

	Eleven Months Ended May 31	
	2014	2013 (Note A)
<b>SALES FOR RESALE</b>		
Participants	\$ 30,858,482	\$ 31,896,493
Other	59,304,662	20,485,991
<b>TOTAL SALES FOR RESALE</b>	<b>90,163,144</b>	<b>52,382,484</b>
 <b>OPERATING EXPENSES</b>		
Operations	45,350,958	21,663,676
Depreciation	13,365,370	
Maintenance expenses	8,113,203	4,564,972
Administrative and general	5,257,665	1,533,578
Transmission	1,060,139	1,373,192
Intercompany (sales) purchases	353,224	238,423
<b>TOTAL OPERATING EXPENSES</b>	<b>73,500,559</b>	<b>29,373,841</b>
 <b>NET OPERATING REVENUES</b>	<b>16,662,585</b>	<b>23,008,643</b>
 <b>OTHER REVENUES (EXPENSES)</b>		
Interest expense	(14,257,050)	(14,726,175)
Interest income	81,712	144,585
Capitalized Interest	-	6,268,542
Amortization	(69,903)	(18,602)
Other	1,308,516	59,908
<b>TOTAL OTHER REVENUES (EXPENSES)</b>	<b>(12,936,725)</b>	<b>(8,271,742)</b>
 <b>FUTURE RECOVERABLE AMOUNTS</b>	<b>4,089,291</b>	<b>(5,476,961)</b>
 <b>REFUNDS TO PARTICIPANTS</b>	<b>(1,185,594)</b>	
 <b>INCREASE IN NET POSITION</b>	<b>6,629,557</b>	<b>9,259,940</b>
 <b>NET POSITION</b>		
Beginning of year	5,478,994	
End of period	<b>\$ 12,108,551</b>	<b>\$ 9,259,940</b>
	-	-

Note A:

Commercial operation began November 27, 2012. Prior to commercial operation, all costs of construction, test start-up and financing were capitalized.

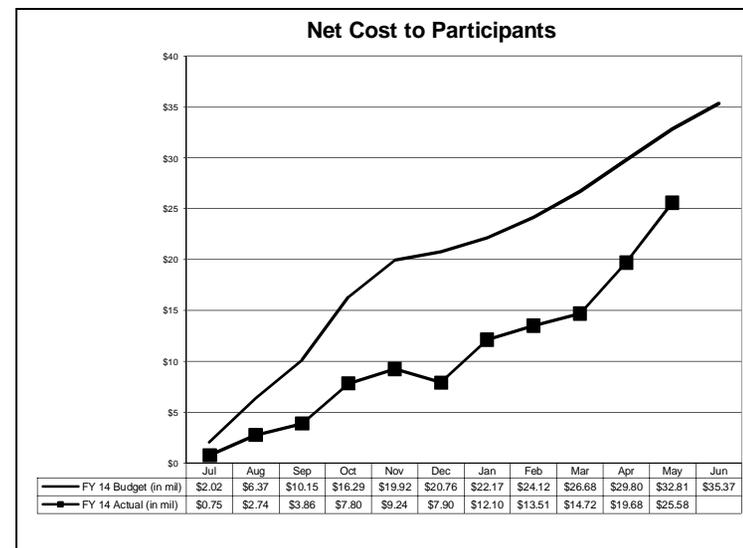
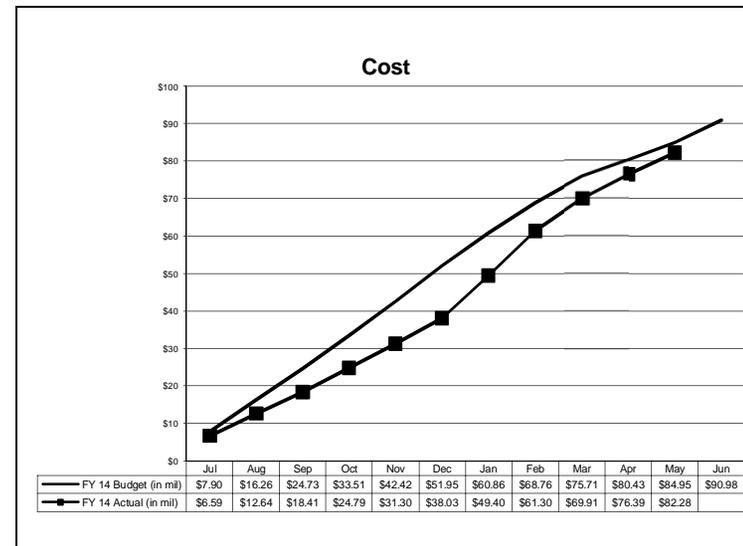
**Lodi Energy Center  
FY 2014 Operating Costs  
As of May 31, 2014**

	Annual Budget	Actual	Remaining	YTD % Remaining	Notes
<b>Routine O&amp;M Costs</b>					
Operations	\$ 1,300,738	\$ 978,173	\$ 322,565	25%	<b>A</b>
Maintenance	3,752,752	4,318,235	(565,483)	-15%	
Administration	1,214,657	1,092,066	122,591	10%	
Mandatory Costs	456,000	471,219	(15,219)	-3%	
Inventory Stock	400,000	152,417	247,583	62%	
<b>Routine O&amp;M Costs without Labor</b>	7,124,147	7,012,110	112,037	2%	<b>B</b>
Labor	4,227,098	4,151,763	75,335	2%	
<b>Total Routine O&amp;M Cost</b>	11,351,245	11,163,873	187,372	2%	
<b>Other Costs</b>					
Fuel	41,400,588	42,896,826	(1,496,238)	-4%	<b>E</b>
AB32 GHG Offset	5,650,224	-	5,650,224	100%	
CA ISO Charges	528,800	1,060,139	(531,339)	-100%	<b>D</b>
Debt Service	25,956,029	23,208,094	2,747,935	11%	
Other Costs	2,309,776	1,933,811	375,965	16%	
Administrative & General (Allocated)	1,750,798	1,184,866	565,932	32%	
Generation Services Shared	510,711	254,687	256,024	50%	
Maintenance Reserve	397,250	364,146	33,104	8%	
<b>Total O&amp;M Cost</b>	89,855,421	82,066,442	7,788,979	9%	
<b>Projects</b>					
Operations & Maintenance	168,000	213,690	(45,690)	-27%	<b>G</b>
Capital	961,000	-	961,000	100%	
<b>Total Capital Budget</b>	1,129,000	213,690	915,310	81%	
<b>Annual Cost</b>	90,984,421	82,280,132	8,704,289	10%	
<b>Less: Third Party Revenue</b>					
Interest Income	73,258	34,523	38,735	53%	<b>F</b>
ISO Energy Sales	53,249,904	54,629,525	(1,379,621)	-3%	
Ancillary Services Sales	2,290,040	1,252,932	1,037,108	45%	
ERCS Sale	-	788,059	(788,059)	N/A	
	55,613,202	56,705,039	(1,091,837)	-2%	
<b>Net Annual Cost to Participants</b>	\$ 35,371,219	\$ 25,575,093	\$ 9,796,126	28%	

<b>Net Cumulative Generation (MWh)</b>	1,354,957	1,190,858
<b>Total O&amp;M Cost Per MWh</b>	\$ 66.32	\$ 68.91
<b>Net Annual Cost Per MWh</b>	\$ 26.11	\$ 21.48

**Footnotes:**

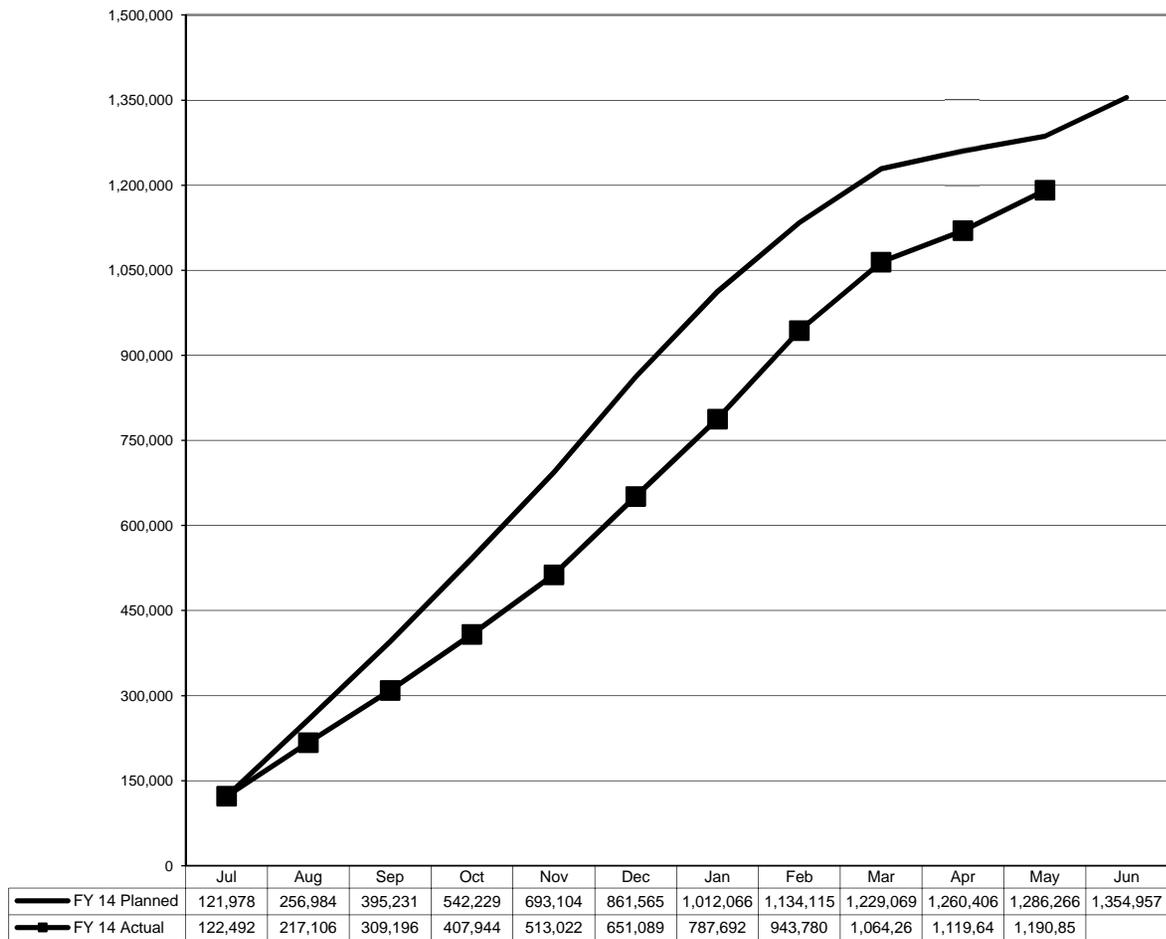
- A** - Higher costs resulting from increase maintenance under Siemens LTSA.
- B** - Payments for hazardous waste fee and air resources board fee were higher than budgeted.
- C** - The project did not purchase any GHG Allowances as participants have delivered sufficient allowances through May 31, 2014.
- D** - CA ISO Charges are greater than anticipated primarily due to unplanned Regulation Energy and Resource Adequacy Standard Capacity charges.
- E** - Fuel costs are higher than anticipated due to increasing natural gas prices per MMBTU during the year.
- F** - Proceeds from the Sale of ERCS
- G** - Amount includes unanticipated project to Clean Injection Well.



# Annual Budget LEC Generation Analysis Planned vs. Actual FY 2014

In MWh

## Lodi Energy Center



2013 NCPA All Resources Bill LEC GHG Compliance Instrument Detail Report  
for the Lodi Energy Center

IDENTIFIER	Actual													Compliance Year 2013
	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	Total
Energy (MWh)	0	82,787	101,925	128,167	134,284	32,545	80,153	122,492	94,615	92,091	98,739	105,078	138,068	1,210,944
Gas Schedule (MMBtu)	0	593,484	723,038	894,657	952,529	229,724	579,650	870,331	673,965	650,250	692,396	738,008	965,292	8,563,324
Emissions Factor (MT/MMBtu)	0	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053
Monthly MT Emissions (MT)	0	31,455	38,321	47,417	50,484	12,175	30,721	46,128	35,720	34,463	36,697	39,114	51,160	453,856
Cumulative MT Obligation (MT)	0	31,455	69,776	117,193	167,677	179,852	210,573	256,701	292,421	326,884	363,581	402,696	453,856	453,856
Compliance Instrument Participant Transfers (to LEC)														
Auction Allowances	92,695	5,350	0	13,644	105,000	50,632	30,628	1,600	102,200	12,594	0	0	46,290	460,633
Secondary Market Allowances	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reserve Sale Allowances	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offsets	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Compliance Instrument Participant Transfers (MT)	92,695	5,350	0	13,644	105,000	50,632	30,628	1,600	102,200	12,594	0	0	46,290	460,633
NCPA Compliance Instrument Purchases (for LEC)														
Auction Purchases	47,000	0	0	0	0	0	0	0	0	0	0	0	0	47,000
Secondary Market Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reserve Sale Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total NCPA Compliance Instrument Purchases (MT)	47,000	0	0	0	0	0	0	0	0	0	0	0	0	47,000
Compliance Instruments Surrendered to CARB (MT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Monthly Activity (MT)	139,695	5,350	0	13,644	105,000	50,632	30,628	1,600	102,200	12,594	0	0	46,290	507,633
Cumulative MT Account Balance [MTA] (MT)	139,695	145,045	145,045	158,689	263,689	314,321	344,949	346,549	448,749	461,343	461,343	461,343	507,633	507,633
MTA Shortfall (MT)	(139,695)	(113,590)	(75,269)	(41,496)	(96,012)	(134,469)	(134,376)	(89,848)	(156,328)	(134,459)	(97,762)	(58,647)	(53,777)	(53,777)

2013 NCPA Air Resources Bill LEC GHG Compliance Instrument Detail Report <i>(for the Lodi Energy Center)</i>	2014 NCPA All Resources Bill LEC GHG Compliance Instrument Detail Report for the Lodi Energy Center													Compliance Year 2014	Cumulative Totals	Charge Code	Source
IDENTIFIER	Actual				Estimated								Total	Total			
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
Energy (MWh)	136,604	156,089	120,489	52,830	103,992	100,100	122,492	94,615	92,091	98,739	73,883	76,346	1,228,270	2,439,214		Forecast/Meter	
Gas Schedule (MMBtu)	951,700	1,092,730	858,805	391,272	727,946	700,697	857,444	662,305	644,637	691,173	517,181	534,420	8,630,310	17,193,634		Forecast/Meter	
Emissions Factor (MT/MMBtu)	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053				MARS	
Monthly MT Emissions (MT)	50,440	57,915	45,517	20,737	38,581	37,137	45,445	35,102	34,166	36,632	27,411	28,324	457,406	911,263		derived	
Cumulative MT Obligation (MT)	504,296	562,211	607,728	628,465	667,046	704,183	749,628	784,730	818,896	855,528	882,938	911,263		911,263		derived	
Compliance Instrument Participant Transfers (to LEC)																	
Auction Allowances	102,347	50,000	48,066	25,000	4,225	0	0	0	0	0	0	0	229,638	690,271		CITSS	
Secondary Market Allowances	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Reserve Sale Allowances	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Offsets	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Total Compliance Instrument Participant Transfers (MT)	102,347	50,000	48,066	25,000	4,225	0	0	0	0	0	0	0	229,638	690,271			
NCPA Compliance Instrument Purchases (for LEC)																	
Auction Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	47,000		CITSS	
Secondary Market Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Reserve Sale Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Offset Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Total NCPA Compliance Instrument Purchases (MT)	0	0	0	0	0	0	0	0	0	0	0	0	0	47,000			
Compliance Instruments Surrendered to CARB (MT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0		CITSS	
Total Monthly Activity (MT)	102,347	50,000	48,066	25,000	4,225	0	0	0	0	0	0	0	229,638	737,271		derived	
Cumulative MT Account Balance [MTA] (MT)	609,980	659,980	708,046	733,046	737,271	737,271	737,271	737,271	737,271	737,271	737,271	737,271		737,271		derived	
MTA Shortfall (MT)	(105,684)	(97,769)	(100,318)	(104,581)	(70,225)	(33,088)	12,357	47,459	81,625	118,257	145,667	173,992		173,992	MTA SHORTFALL	derived	

Forecast for July-December 2014 has not been updated.  
Numbers are based on 2013 original forecast.

NCPA All Resources Bill LEC GHG Obligation Detail Report (Cumulative)  
June 2014

IDENTIFIER	AZUSA	BART	BIG	CDWR	GRI	HEA	LOD	LOM	MID	PLU	PWRPA	SNCL	UKI	TOTAL	Charge Code	Source
Allocation Percentages																
Generation Entitlement Share %	2.7857%	6.6000%	0.2679%	33.5000%	1.9643%	1.6428%	9.5000%	2.0357%	10.7143%	0.7857%	2.6679%	25.7500%	1.7857%	100%		MARS
Obligation Accounts																
Current MT Compliance Obligation (MTO) Balance (MT)	19,616	46,476	1,887	235,901	13,832	11,568	66,897	14,335	75,448	5,533	18,787	181,327	12,575	704,183		derived
Current MT Compliance Instrument Account (MTA) Balance (MT)	20,232	62,200	2,159	250,000	15,747	11,666	66,897	24,200	95,000	5,900	18,787	190,000	12,600	775,388		derived
MTA Shortfall (MT)	(616)	(15,724)	(272)	(14,099)	(1,915)	(98)	0	(9,865)	(19,552)	(367)	(0)	(8,673)	(25)	(71,205)	MTA SHORTFALL	Derived
Monthly GHG Price \$/MT	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	MTA SHORTFALL	ICE Index
GHG Minimum Cash Compliance Obligation (\$)	0	0	0	0	0	0	5	0	0	0	0	0	0	5	MTA SHORTFALL	Derived
Current Month CCA Balance (\$)*	60,991	0	143	0	1,103	4,780	755	0	0	0	0	0	2,652	70,424	CCA BALANCE	Accounting
Net GHG Obligation (\$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NET GHG OBLIG	Derived

\* The Current Month CCA Balance (\$) consists of the current cash balance plus any outstanding balance of Net GHG Obligation (\$) billed but not yet received.



## Lodi Energy Center Project Participant Committee

### Staff Report

AGENDA ITEM NO.: 9

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**Date:** June 9, 2014  
**To:** Lodi Energy Center Project Participant Committee  
**Subject:** CTi Controltech Five (5) Year Multi-Task General Services Agreement

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#### Proposal

Approve a five year Multi-Task General Services Agreement with CTi Controltech for an amount not to exceed Three Hundred Thousand Dollars (\$300,000) to be used for boiler/burner maintenance services at all facility locations.

#### Background

Miscellaneous boiler/burner maintenance services are required at various NCPA locations for the operation of the plants. CTi Controltech is a provider of these services.

#### Fiscal Impact

Total cost of the agreement is not-to-exceed \$300,000 over five years to be used out of NCPA approved budgets as services are rendered. Purchase orders referencing the terms and conditions of the Agreement will be issued following NCPA procurement policies and procedures.

#### Environmental Analysis

This activity would not result in a direct or reasonably foreseeable indirect change in the physical environment and is therefore not a "project" for purposes of Section 21065 the California Environmental Quality Act. No environmental review is necessary.

#### Recommendation

Staff recommends that the PPC pass a motion approving the Multi-Task General Services Agreement with CTi Controltech with any non-substantial changes recommended and approved by the NCPA General Counsel, which shall not exceed \$300,000 over five years.

Respectfully submitted,

/s/

KEN SPEER  
Assistant General Manager  
Generation Services

Attachments: (1)

- Multi-Task General Services Agreement with CTi Controltech



**MULTI-TASK  
GENERAL SERVICES AGREEMENT BETWEEN  
THE NORTHERN CALIFORNIA POWER AGENCY AND  
CTI CONTROLTECH**

This agreement for general services ("Agreement") is made by and between the Northern California Power Agency, a joint powers agency with its main office located at 651 Commerce Drive, Roseville, CA 95678-6420 ("Agency") and CTi Controltech, a Delaware corporation with its office located at 22 Beta Court, San Ramon, CA 94583 ("Contractor") (together sometimes referred to as the "Parties") as of \_\_\_\_\_, 2014 ("Effective Date") in Roseville, California.

**Section 1. SCOPE OF WORK.** Subject to the terms and conditions set forth in this Agreement, Contractor is willing to provide to Agency the range of services and/or goods described in the Scope of Work attached hereto as Exhibit A and incorporated herein ("Work").

- 1.1 **Term of Agreement.** The term of this Agreement shall begin on the Effective Date and shall end when Contractor completes the Work, or no later than five (5) years from the date this Agreement was signed by Agency, whichever is shorter.
- 1.2 **Standard of Performance.** Contractor shall perform the Work in the manner and according to the standards observed by a competent practitioner of the profession in which Contractor is engaged and for which Contractor is providing the Work. Contractor represents that it is licensed, qualified and experienced to provide the Work set forth herein.
- 1.3 **Assignment of Personnel.** Contractor shall assign only competent personnel to perform the Work. In the event that Agency, in its sole discretion, at any time during the term of this Agreement, requests the reassignment of any such personnel, Contractor shall, immediately upon receiving written notice from Agency of such request, reassign such personnel.
- 1.4 **Request for Work to be Performed.** At such time that Agency determines to have Contractor perform Work under this Agreement, Agency shall issue a Purchase Order. The Purchase Order shall identify the specific Work to be performed ("Requested Work"), may include a not-to-exceed cap on monetary cap on Requested Work and all related expenditures authorized by that Purchase Order, and shall include a time by which the Requested Work shall be completed.

**Section 2. COMPENSATION.** Agency hereby agrees to pay Contractor an amount **NOT TO EXCEED** three hundred thousand dollars (\$300,000.00) for the Work, which shall include all fees, costs, expenses and other reimbursables, as set forth in Contractor's fee schedule, attached hereto and incorporated herein as Exhibit B. This dollar amount is not a guarantee that Agency will pay that full

amount to the Contractor, but is merely a limit of potential Agency expenditures under this Agreement. The three day notice of cancellation referenced in Exhibit B shall be limited to the amount listed in the Purchase Order requesting the specific work or job to be performed and only after NCPA issues the Purchase Order.

**2.1 Invoices.** Contractor shall submit invoices, not more often than once a month during the term of this Agreement, based on the cost for services performed and reimbursable costs incurred prior to the invoice date. Invoices shall contain the following information:

- The beginning and ending dates of the billing period;
- Work performed;
- The Purchase Order number authorizing the Requested Work;
- At Agency's option, for each work item in each task, a copy of the applicable time entries or time sheets shall be submitted showing the name of the person doing the work, the hours spent by each person, a brief description of the work, and each reimbursable expense, with supporting documentation;
- At Agency's option, the total number of hours of work performed under the Agreement by Contractor and each employee, agent, and subcontractor of Contractor performing work hereunder.

Invoices shall be sent to:

Northern California Power Agency  
651 Commerce Drive  
Roseville, California 95678  
Attn: Accounts Payable

**2.2 Monthly Payment.** Agency shall make monthly payments, based on invoices received, for Work satisfactorily performed, and for authorized reimbursable costs incurred. Agency shall have thirty (30) days from the receipt of an invoice that complies with all of the requirements above to pay Contractor.

**2.3 Payment of Taxes.** Contractor is solely responsible for the payment of all federal, state and local taxes, including employment taxes, incurred under this Agreement.

**2.4 Authorization to Perform Work.** The Contractor is not authorized to perform any Work or incur any costs whatsoever under the terms of this Agreement until receipt of a Purchase Order from the Contract Administrator.

**2.5 Timing for Submittal of Final Invoice.** Contractor shall have ninety (90) days after completion of the Requested Work to submit its final invoice for the Requested Work. In the event Contractor fails to submit an invoice to Agency for any amounts due within the ninety (90) day period, Contractor is deemed to have waived its right to collect its final payment for the Requested Work from Agency.

**Section 3. FACILITIES AND EQUIPMENT.** Except as set forth herein, Contractor shall, at its sole cost and expense, provide all facilities and equipment that may be necessary to perform the Work.

**Section 4. INSURANCE REQUIREMENTS.** Before beginning any Work under this Agreement, Contractor, at its own cost and expense, shall procure the types and amounts of insurance listed below and shall maintain the types and amounts of insurance listed below for the period covered by this Agreement.

**4.1 Workers' Compensation.** If Contractor employs any person, Contractor shall maintain Statutory Workers' Compensation Insurance and Employer's Liability Insurance for any and all persons employed directly or indirectly by Contractor with limits of not less than one million dollars (\$1,000,000.00) per accident.

**4.2 Commercial General and Automobile Liability Insurance.**

**4.2.1 Commercial General Insurance.** Contractor shall maintain commercial general liability insurance for the term of this Agreement, including products liability, covering any loss or liability, including the cost of defense of any action, for bodily injury, death, personal injury and broad form property damage which may arise out of the operations of Contractor. The policy shall provide a minimum limit of \$1,000,000 per occurrence/\$2,000,000 aggregate. Commercial general coverage shall be at least as broad as ISO Commercial General Liability form CG 0001 (current edition) on "an occurrence" basis covering comprehensive General Liability, with a self-insured retention or deductible of no more than \$100,000. No endorsement shall be attached limiting the coverage.

**4.2.2 Automobile Liability.** Contractor shall maintain automobile liability insurance form CA 0001 (current edition) for the term of this Agreement covering any loss or liability, including the cost of defense of any action, arising from the operation, maintenance or use of any vehicle (symbol 1), whether or not owned by the Contractor, on or off Agency premises. The policy shall provide a minimum limit of \$1,000,000 per each accident, with a self-insured retention or deductible of no more than \$100,000. This insurance shall provide contractual liability covering all motor vehicles and mobile equipment to the extent coverage may be excluded from general liability insurance.

**4.2.3 General Liability/Umbrella Insurance.** The coverage amounts set forth above may be met by a combination of underlying and umbrella policies as long as in combination the limits equal or exceed those stated.

**4.3 [Intentionally omitted.]**

#### 4.4 All Policies Requirements.

4.4.1 Verification of coverage. Prior to beginning any work under this Agreement, Contractor shall provide Agency with (1) a Certificate of Insurance that demonstrates compliance with all applicable insurance provisions contained herein and (2) policy endorsements to the policies referenced in Section 4.2, adding the Agency as an additional insured and declaring such insurance primary in regard to work performed pursuant to this Agreement.

4.4.2 Notice of Reduction in or Cancellation of Coverage. Contractor shall provide at least thirty (30) days prior written notice to Agency of any reduction in scope or amount, cancellation, or modification adverse to Agency of the policies referenced in Section 4.

4.4.3 Higher Limits. If Contractor maintains higher limits than the minimums specified herein, the Agency shall be entitled to coverage for the higher limits maintained by the Contractor.

4.5 Waiver of Subrogation. Contractor agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of Agency for all work performed by Contractor, its employees, agents and subcontractors.

4.6 Contractor's Obligation. Contractor shall be solely responsible for ensuring that all equipment, vehicles and other items utilized in the performance of Work are operated, provided or otherwise utilized in a manner that ensures they are and remain covered by the policies referenced in Section 4 during this Agreement. Contractor shall also ensure that all workers involved in the provision of Work are properly classified as employees, agents or independent contractors and are and remain covered by any and all workers' compensation insurance required by applicable law during this Agreement.

### Section 5. INDEMNIFICATION AND CONTRACTOR'S RESPONSIBILITIES.

5.1 Effect of Insurance. Agency's acceptance of insurance certificates and endorsements required under this Agreement does not relieve Contractor from liability under this indemnification and hold harmless clause. This indemnification and hold harmless clause shall apply to any damages or claims for damages whether or not such insurance policies shall be have been determined to apply. By execution of this Agreement, Contractor acknowledges and agrees to the provisions of this section and that it is a material element of consideration.

- 5.2 **Scope.** Contractor shall indemnify, defend with counsel reasonably acceptable to the Agency, and hold harmless the Agency, and its officials, commissioners, officers, employees, agents and volunteers from and against all losses, liabilities, claims, demands, suits, actions, damages, expenses, penalties, fines, costs (including without limitation costs and fees of litigation), judgments and causes of action of every nature arising out of or in connection with any acts or omissions by Contractor, its officers, officials, agents, and employees, except as caused by the sole or gross negligence of Agency. Notwithstanding, should this Agreement be construed as a construction agreement under Civil Code section 2783, then the exception referenced above shall also be for the active negligence of Agency.

**Section 6. STATUS OF CONTRACTOR.**

- 6.1 **Independent Contractor.** Contractor is an independent contractor and not an employee of Agency. Agency shall have the right to control Contractor only insofar as the results of Contractor's Work and assignment of personnel pursuant to Section 1; otherwise, Agency shall not have the right to control the means by which Contractor accomplishes Work rendered pursuant to this Agreement. Notwithstanding any other Agency, state, or federal policy, rule, regulation, law, or ordinance to the contrary, Contractor and any of its employees, agents, and subcontractors providing services under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any and all claims to, any compensation, benefit, or any incident of employment by Agency, including but not limited to eligibility to enroll in the California Public Employees Retirement System (PERS) as an employee of Agency and entitlement to any contribution to be paid by Agency for employer contributions and/or employee contributions for PERS benefits.

Contractor shall indemnify, defend, and hold harmless Agency for the payment of any employee and/or employer contributions for PERS benefits on behalf of Contractor or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of Agency. Contractor and Agency acknowledge and agree that compensation paid by Agency to Contractor under this Agreement is based upon Contractor's estimated costs of providing the Work, including salaries and benefits of employees, agents and subcontractors of Contractor.

- 6.2 **Contractor Not Agent.** Except as Agency may specify in writing, Contractor shall have no authority, express or implied, to act on behalf of Agency in any capacity whatsoever as an agent. Contractor shall have no authority, express or implied, pursuant to this Agreement to bind Agency to any obligation whatsoever.
- 6.3 **Assignment and Subcontracting.** This Agreement contemplates personal performance by Contractor and is based upon a determination of Contractor's unique professional competence, experience, and specialized professional knowledge. A substantial inducement to Agency for entering into this Agreement was and is the personal reputation

and competence of Contractor. Contractor may not assign this Agreement or any interest therein without the prior written approval of the Agency. Contractor shall not subcontract any portion of the performance contemplated and provided for herein, other than to the subcontractors identified in Exhibit A, without prior written approval of the Agency. Where written approval is granted by the Agency, Contractor shall supervise all work subcontracted by Contractor in performing the Work and shall be responsible for all work performed by a subcontractor as if Contractor itself had performed such Work. The subcontracting of any work to subcontractors shall not relieve Contractor from any of its obligations under this Agreement with respect to the Work and Contractor is obligated to ensure that any and all subcontractors performing any Work shall be fully insured in all respects and to the same extent as set forth under Section 4, to Agency's satisfaction.

- 6.4 **Certification as to California Energy Commission.** If requested by the Agency, Contractor shall, at the same time it executes this Agreement, execute Exhibit C.

**Section 7. LEGAL REQUIREMENTS.**

- 7.1 **Governing Law.** The laws of the State of California shall govern this Agreement.
- 7.2 **Compliance with Applicable Laws.** Contractor and its subcontractors and agents, if any, shall comply with all laws applicable to the performance of the work hereunder.
- 7.3 **Licenses and Permits.** Contractor represents and warrants to Agency that Contractor and its employees, agents, and subcontractors (if any) have and will maintain at their sole expense during the term of this Agreement all licenses, permits, qualifications, and approvals of whatever nature that are legally required to practice their respective professions.
- 7.4 **Work Requiring Payment of Prevailing Wages.** If applicable, in accordance with California Labor Code Section 1771, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which these services are to be performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in the California Labor Code shall be paid to all workers engaged in performing the services under this Agreement.

**Section 8. TERMINATION AND MODIFICATION.**

- 8.1 **Termination.** Agency may cancel this Agreement at any time and without cause upon ten (10) days prior written notice to Contractor.

In the event of termination, Contractor shall be entitled to compensation for Work satisfactorily completed as of the effective date of termination; Agency, however, may condition payment of such compensation upon Contractor delivering to Agency any or all records or documents (as referenced in Section 9.1 hereof).

- 8.2 **Amendments.** The Parties may amend this Agreement only by a writing signed by all the Parties.
- 8.3 **Survival.** All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating liability between Agency and Contractor shall survive the termination of this Agreement.
- 8.4 **Options upon Breach by Contractor.** If Contractor materially breaches any of the terms of this Agreement, including but not limited to those set forth in Section 4, Agency's remedies shall include, but not be limited to, the following:
- 8.4.1 Immediately terminate the Agreement;
  - 8.4.2 Retain the plans, specifications, drawings, reports, design documents, and any other work product prepared by Contractor pursuant to this Agreement;
  - 8.4.3 Retain a different Contractor to complete the Work not finished by Contractor; and/or
  - 8.4.4 Charge Contractor the difference between the costs to complete the Work that is unfinished at the time of breach and the amount that Agency would have paid Contractor pursuant hereto if Contractor had completed the Work.

**Section 9. KEEPING AND STATUS OF RECORDS.**

- 9.1 **Records Created as Part of Contractor's Performance.** All reports, data, maps, models, charts, studies, surveys, photographs, memoranda, plans, specifications, records, files, or any other documents or materials, in electronic or any other form, that Contractor prepares or obtains pursuant to this Agreement and that relate to the matters covered hereunder shall be the property of the Agency. Contractor hereby agrees to deliver those documents to the Agency upon termination of the Agreement. Agency and Contractor agree that, unless approved by Agency in writing, Contractor shall not release to any non-parties to this Agreement any data, plans, specifications, reports and other documents.
- 9.2 **Contractor's Books and Records.** Contractor shall maintain any and all records or other documents evidencing or relating to charges for Work or expenditures and disbursements charged to the Agency under this Agreement for a minimum of three (3) years, or for any longer period required by law, from the date of final payment to the Contractor to this Agreement.
- 9.3 **Inspection and Audit of Records.** Any records or documents that this Agreement requires Contractor to maintain shall be made available for inspection, audit, and/or copying at any time during regular business hours, upon oral or written request of the

Agency. Under California Government Code Section 8546.7, if the amount of public funds expended under this Agreement exceeds ten thousand dollars (\$10,000.00), the Agreement shall be subject to the examination and audit of the State Auditor, at the request of Agency or as part of any audit of the Agency, for a period of three (3) years after final payment under the Agreement.

#### **9.4 Confidential Information and Disclosure.**

**9.4.1 Confidential Information.** The term "Confidential Information", as used herein, shall mean any and all confidential, proprietary, or trade secret information, whether written, recorded, electronic, oral or otherwise, where the Confidential Information is made available in a tangible medium of expression and marked in a prominent location as confidential, proprietary and/or trade secret information. Confidential Information shall not include information that: (a) was already known to the Receiving Party or is otherwise a matter of public knowledge, (b) was disclosed to Receiving Party by a third party without violating any confidentiality agreement, (c) was independently developed by Receiving Party without reverse engineering, as evidenced by written records thereof, or (d) was not marked as Confidential Information in accordance with this section.

**9.4.2 Non-Disclosure of Confidential Information.** During the term of this Agreement, either party may disclose ("The Disclosing Party") Confidential Information to the other party ("the Receiving Party"). The Receiving Party: (a) shall hold the Disclosing Party's Confidential Information in confidence; and (b) shall take all reasonable steps to prevent any unauthorized possession, use, copying, transfer or disclosure of such Confidential Information.

**9.4.3 Permitted Disclosure.** Notwithstanding the foregoing, the following disclosures of Confidential Information are allowed. Receiving Party shall endeavor to provide prior written notice to Disclosing Party of any permitted disclosure made pursuant to Section 9.4.3.2 or 9.4.3.3. Disclosing Party may seek a protective order, including without limitation, a temporary restraining order to prevent or contest such permitted disclosure; provided, however, that Disclosing Party shall seek such remedies at its sole expense. Neither party shall have any liability for such permitted disclosures:

**9.4.3.1** Disclosure to employees, agents, Contractors, subcontractors or other representatives of Receiving Party that have a need to know in connection with this Agreement.

**9.4.3.2** Disclosure in response to a valid order of a court, government or regulatory agency or as may otherwise be required by law; and

9.4.3.3 Disclosure by Agency in response to a request pursuant to the California Public Records Act.

9.4.4 **Handling of Confidential Information.** Conclusion of Agreement. Receiving Party shall return to Disclosing Party or destroy Confidential Information (including all copies thereof) upon termination of this Agreement, if requested by Disclosing Party in writing. Notwithstanding the foregoing, the Receiving Party may retain copies of such Confidential Information, subject to the confidentiality provisions of this Agreement: (a) for archival purposes in its computer system; (b) in its legal department files; and (c) in files of Receiving Party's representatives where such copies are necessary to comply with applicable law. Party shall not disclose the Disclosing Party's Confidential Information to any person other than those of the Receiving Party's employees, agents, Contractors, and subcontractors who have a need to know in connection with this Agreement.

**Section 10. PROJECT SITE.**

10.1 **Operations at the Project Site.** Each Project site may include the power plant areas, all buildings, offices, and other locations where Work is to be performed, including any access roads. Contractor shall perform the Work in such a manner as to cause a minimum of interference with Agency's operations and the operations of other contractors at the Project site and to protect all persons and property thereon from damage or injury. Upon completion of the Work at a Project site, Contractor shall leave such Project site clean and free of all tools, equipment, waste materials and rubbish, stemming from or relating to Contractor's Work.

10.2 **Contractor's Equipment, Tools, Supplies and Materials.** Contractor shall be solely responsible for the transportation, loading and unloading, and storage of any equipment, tools, supplies or materials required for performing the Work, whether owned, leased or rented. Agency will not be responsible for any such equipment, supplies or materials which may be lost, stolen or damaged or for any additional rental charges for such. Equipment, tools, supplies and materials left or stored at a Project site, with or without permission, is at Contractor's sole risk. Agency may assume that anything left on the Project site an unreasonable length of time after the Work is completed has been abandoned. Any transportation furnished by Agency shall be solely as an accommodation and Agency shall have no liability therefor. Contractor shall assume the risk and is solely responsible for its owned, non-owned and hired automobiles, trucks or other motorized vehicles as well as any equipment, tools, supplies, materials or other property which is utilized by Contractor on the Project site. All materials and supplies used by Contractor in the Work shall be new and in good condition.

10.3 **Use of Agency Equipment.** Contractor shall assume the risk and is solely responsible for its use of any Agency owned equipment and property provided by Agency for the performance of Work.

**Section 11. WARRANTY.**

- 11.1 Nature of Work.** In addition to any and all warranties provided or implied by law or public policy, Contractor warrants that all Work shall be free from defects in design and workmanship, and that Contractor shall perform all Work in accordance with applicable federal, state, and local laws, rules and regulations including engineering, construction and other codes and standards and prudent electrical utility standards, and in accordance with the terms of this Agreement.
- 11.2 Deficiencies in Work.** In addition to all other rights and remedies which Agency may have, Agency shall have the right to require, and Contractor shall be obligated at its own expense to perform, all further Work which may be required to correct any deficiencies which result from Contractor's failure to perform any Work in accordance with the standards required by this Agreement. If during the term of this Agreement or the one (1) year period following completion of the Work, any equipment, supplies or other materials or Work used or provided by Contractor under this Agreement fails due to defects in material and/or workmanship or other breach of this Agreement, Contractor shall, upon any reasonable written notice from Agency, replace or repair the same to Agency's satisfaction.
- 11.3 Assignment of Warranties.** Contractor hereby assigns to Agency all additional warranties, extended warranties, or benefits like warranties, such as insurance, provided by or reasonably obtainable from suppliers of equipment and material used in the Work.

**Section 12. HEALTH AND SAFETY PROGRAMS.** The Contractor shall establish, maintain, and enforce safe work practices, and implement an accident/incident prevention program intended to ensure safe and healthful operations under their direction. The program shall include all requisite components of such a program under Federal, State and local regulations and shall comply with all Agency site programs.

- 12.1** Contractor is responsible for acquiring job hazard assessments as necessary to safely perform the Work and provide a copy to Agency upon request.
- 12.2** Contractor is responsible for providing all employee health and safety training and personal protective equipment in accordance with potential hazards that may be encountered in performance of the Work and provide copies of the certified training records upon request by Agency. Contractor shall be responsible for proper maintenance and/or disposal of their personal protective equipment and material handling equipment.
- 12.3** Contractor is responsible for ensuring that its lower-tier subcontractors are aware of and will comply with the requirements set forth herein.
- 12.4** Agency, or its representatives, may periodically monitor the safety performance of the Contractor performing the Work. Contractors and its subcontractors shall be required to comply with the safety and health obligations as established in the Agreement. Non-

compliance with safety, health, or fire requirements may result in cessation of work activities, until items in non-compliance are corrected. It is also expressly acknowledged, understood and agreed that no payment shall be due from Agency to Contractor under this Agreement at any time when, or for any Work performed when, Contractor is not in full compliance with this Section 12.

- 12.5 Contractor shall immediately report any injuries to the Agency site safety representative. Additionally, the Contractor shall investigate and submit to the Agency site safety representative copies of all written accident reports, and coordinate with Agency if further investigation is requested.
- 12.6 Contractor shall take all reasonable steps and precautions to protect the health of its employees and other site personnel with regard to the Work. Contractor shall conduct occupational health monitoring and/or sampling to determine levels of exposure of its employees to hazardous or toxic substances or environmental conditions. Copies of any sampling results will be forwarded to the Agency site safety representative upon request.
- 12.7 Contractor shall develop a plan to properly handle and dispose of any hazardous wastes, if any, Contractor generates in performing the Work.
- 12.8 Contractor shall advise its employees and subcontractors that any employee, who jeopardizes his/her safety and health, or the safety and health of others, may be subject to actions including removal from Work.
- 12.9 Contractor shall, at the sole option of the Agency, develop and provide to the Agency a Hazardous Material Spill Response Plan that includes provisions for spill containment and clean-up, emergency contact information including regulatory agencies and spill sampling and analysis procedures. Hazardous Materials to include diesel fuel used for trucks owned or leased by the Contractor.

**Section 13**      **MISCELLANEOUS PROVISIONS.**

- 13.1 **Attorneys' Fees.** If a party to this Agreement brings any action, including an action for declaratory relief, to enforce or interpret the provision of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees in addition to any other relief to which that party may be entitled. The court may set such fees in the same action or in a separate action brought for that purpose.
- 13.2 **Venue.** In the event that either party brings any action against the other under this Agreement, the Parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of Placer or in the United States District Court for the Eastern District of California.

- 13.3 **Severability.** If a court of competent jurisdiction finds or rules that any provision of this Agreement is invalid, void, or unenforceable, the provisions of this Agreement not so adjudged shall remain in full force and effect. The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.
- 13.4 **No Implied Waiver of Breach.** The waiver of any breach of a specific provision of this Agreement does not constitute a waiver of any other breach of that term or any other term of this Agreement.
- 13.5 **Successors and Assigns.** The provisions of this Agreement shall inure to the benefit of and shall apply to and bind the successors and assigns of the Parties.
- 13.6 **Conflict of Interest.** Contractor may serve other clients, but none whose activities within the corporate limits of Agency or whose business, regardless of location, would place Contractor in a "conflict of interest," as that term is defined in the Political Reform Act, codified at California Government Code Section 81000 *et seq.*

Contractor shall not employ any Agency official in the work performed pursuant to this Agreement. No officer or employee of Agency shall have any financial interest in this Agreement that would violate California Government Code Sections 1090 *et seq.*

- 13.7 **Contract Administrator.** This Agreement shall be administered by Ken Speer, Assistant General Manager, or his/her designee, who shall act as the Agency's representative. All correspondence shall be directed to or through the representative.
- 13.8 **Notices.** Any written notice to Contractor shall be sent to:

CTi Controltech  
Attn: George Conostas  
22 Beta Court  
San Ramon, CA 94583

Any written notice to Agency shall be sent to:

James H. Pope  
General Manager  
Northern California Power Agency  
651 Commerce Drive  
Roseville, CA 95678

With a copy to:

Michael F. Dean  
General Counsel  
Northern California Power Agency  
Meyers Nave  
555 Capitol Mall, Suite 1200  
Sacramento, CA 95814

- 13.9 Professional Seal.** Where applicable in the determination of the Agency, the first page of a technical report, first page of design specifications, and each page of construction drawings shall be stamped/sealed and signed by the licensed professional responsible for the report/design preparation.
- 13.10 Integration; Incorporation.** This Agreement, including all the exhibits attached hereto, represents the entire and integrated agreement between Agency and Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. All exhibits attached hereto are incorporated by reference herein.
- 13.11 Alternative Dispute Resolution.** If any dispute arises between the Parties that cannot be settled after engaging in good faith negotiations, Agency and Contractor agree to resolve the dispute in accordance with the following:
- 13.11.1** Each party shall designate a senior management or executive level representative to negotiate any dispute;
- 13.11.2** The representatives shall attempt, through good faith negotiations, to resolve the dispute by any means within their authority.
- 13.11.3** If the issue remains unresolved after fifteen (15) days of good faith negotiations, the Parties shall attempt to resolve the disagreement by negotiation between legal counsel. If the above process fails, the Parties shall resolve any remaining disputes through mediation to expedite the resolution of the dispute.
- 13.11.4** The mediation process shall provide for the selection within fifteen (15) days by both Parties of a disinterested third person as mediator, shall be commenced within thirty (30) days and shall be concluded within fifteen (15) days from the commencement of the mediation.
- 13.11.5** The Parties shall equally bear the costs of any third party in any alternative dispute resolution process.
- 13.11.6** The alternative dispute resolution process is a material condition to this Agreement and must be exhausted as an administrative prior to either

Party initiating legal action. This alternative dispute resolution process is not intended to nor shall be construed to change the time periods for filing a claim or action specified by Government Code §§ 900 *et seq.*

- 13.12 **Controlling Provisions.** In the case of any conflict between the terms of this Agreement and the Exhibits hereto, and Contractor's Proposal (if any), the Agreement shall control. In the case of any conflict between the Exhibits hereto and the Contractor's Proposal, the Exhibits shall control.
- 13.13 **Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which together shall constitute one agreement.
- 13.14 **Construction of Agreement.** Each party hereto has had an equivalent opportunity to participate in the drafting of the Agreement and/or to consult with legal counsel. Therefore, the usual construction of an agreement against the drafting party shall not apply hereto.
- 13.15 **No Third Party Beneficiaries.** This Agreement is made solely for the benefit of the parties hereto, with no intent to benefit any non-signator third parties.

The Parties have executed this Agreement as of the date signed by the Agency.

NORTHERN CALIFORNIA POWER AGENCY

CTI CONTROLTECH

Date: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
JAMES H. POPE, General Manager

\_\_\_\_\_  
GEORGE CONSTAS, President

Attest:

\_\_\_\_\_  
Assistant Secretary of the Commission

Approved as to Form:



\_\_\_\_\_  
Michael F. Dean, General Counsel

## EXHIBIT A

### SCOPE OF WORK

CTi Controltech ("Contractor") shall provide boiler and burner maintenance services as requested by the Northern California Power Agency ("Agency").

Services to include, but not be limited to the following:

- Design/Engineering/Configuration/Documentation/Field Engineering/Surveying Services
- Boiler/Burner Support including:
  - System and Component Set-Up
  - Testing
  - Training
  - Supervision
  - Consultation
  - Calibration
  - Boiler Load Tests
  - Start-Up
  - Maintenance

## EXHIBIT B

### COMPENSATION SCHEDULE AND HOURLY FEES

Compensation for all work, including hourly fees and expenses, shall not exceed amount as set forth in Section 2 of this Agreement. The hourly rates and or compensation break down and an estimated amount of expenses is as follows:

<u>Discipline</u>	<u>Base Rate</u>
Combustion/Controls Engineer	\$210/hr
Project Engineer	\$180/hr
Field Service Technician	\$180/hr
Systems Engineer	\$180/hr

*The above rates are straight time, normal working hours of 8:00am to 5:00pm, Monday through Friday excluding CTi Controltech recognized holidays. Outside of normal working hours overtime multiplier shall apply as follows:*

Outside of normal working hours, hours in excess 8 hours/day and Saturdays	x 1.5
Sunday and holidays	x 2.0

#### **Minimum Billing**

The minimum billing will be four (4) hours. All billing will be made in one-half (1/2) hour increments. Off site standby billing is a minimum of four (4) hours at that day's rate.

#### **Travel Time and Living Expenses**

The maximum billing for travel time, at the applicable rate, will be eight (8) hours per man for any one calendar day. Travel time and expenses for each man are portal to portal. Travel, meals and lodging will be billed at actual cost plus 10%. Mileage to and from the job site in company vehicle will be invoiced at \$.65 per mile.

#### **Cancellation or Change Notification**

Three (3) day notification of cancellation and/or schedule change is required. Otherwise the job will be billed in its entirety.

NOTE: As a public agency, NCPA shall not reimburse Contractor for travel, food and related costs in excess of those permitted by the Internal Revenue Service.

EXHIBIT C

CERTIFICATION

Affidavit of Compliance for Contractors

I,

\_\_\_\_\_

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

\_\_\_\_\_

(Company name)

for contract work at

\_\_\_\_\_

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

\_\_\_\_\_

(Signature of officer or agent)

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

2267791.4



## Lodi Energy Center Project Participant Committee

### Staff Report

AGENDA ITEM NO.: **10**

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**Date:** June 9, 2014  
**To:** Lodi Energy Center Project Participant Committee  
**Subject:** GEI Consultants, Inc. Five Year Multi-Task Consulting Services Agreement

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#### Proposal

Approve a Multi-Task Consulting Services Agreement with GEI Consultants, Inc., for an amount not-to-exceed seven hundred fifty thousand dollars (\$750,000) over a five-year period for professional engineering services at all NCPA facilities. Contract sponsor is Hydro facility.

#### Background

Professional engineering services are needed at the Generation Services facilities in order to comply with regulatory requirements, to maintain the reliability of equipment and to make facility improvements. GEI Consultants, Inc. is the current FERC approved dam safety Independent Consultant for NCPA's Upper Utica Project.

NCPA has agreements in place with other contractors that provide similar services including AMEC Environment & Infrastructure, MWH Americas, Mead & Hunt, Carlton Engineering, Condor Earth Technologies, and others. NCPA also routinely includes other consultants, with whom we do not have a pre-existing agreement, on RFP solicitations. NCPA will issue purchase orders based on cost and availability of the service(s) needed at the time.

#### Fiscal Impact

Total cost of the agreement is not-to-exceed seven hundred fifty thousand dollars (\$750,000) over the five-year term to be used out of NCPA approved budgets as services are rendered. Purchase Orders referencing the terms and conditions of the agreement will be issued following NCPA procurement policies and procedures.

#### Environmental Analysis

This activity would not result in a direct or reasonably foreseeable indirect change in the physical environment and is therefore not a "project" for purposes of Section 21065 the California Environmental Quality Act. No environmental review is necessary.

#### Recommendation

Staff recommends that the PPC pass a motion approving the Multi-Task Consulting Services Agreement with GEI Consultants, Inc., with any non-substantial changes recommended and approved by the NCPA General Counsel, which shall not exceed seven hundred fifty thousand dollars (\$750,000) over a five-year period; and to authorize the General Manager or his designee to approve purchase orders associated with the contract.

Respectfully submitted,

/s/

KEN SPEER

Assistant General Manager, Generation Services

Attachments: (1) Multi-Task General Services Agreement with GEI Consultants, Inc.



**MULTI-TASK  
CONSULTING SERVICES AGREEMENT BETWEEN  
THE NORTHERN CALIFORNIA POWER AGENCY AND  
GEI CONSULTANTS, INC.**

This agreement for consulting services ("Agreement") is made by and between the Northern California Power Agency, a joint powers agency with its main office located at 651 Commerce Drive, Roseville, CA 95678-6420 ("Agency") and GEI Consultants, Inc., a corporation with its office located at 180 Grand Avenue, Suite 1410, Oakland, CA 94612 ("Consultant") (together sometimes referred to as the "Parties") as of \_\_\_\_\_, 2014 ("Effective Date") in Roseville, California.

**Section 1. SERVICES.** Subject to the terms and conditions set forth in this Agreement, Consultant is willing to provide to Agency the range of services described in the Scope of Work attached hereto as Exhibit A and incorporated herein ("Services").

- 1.1 **Term of Agreement.** The term of this Agreement shall begin on the Effective Date and shall end when Consultant completes the Services, or no later than five (5) years from the date this Agreement was signed by Agency, whichever is shorter.
- 1.2 **Standard of Performance.** Consultant shall perform the Services in the manner and according to the standards observed by a competent practitioner of the profession in which Consultant is engaged and for which Consultant is providing the Services. Consultant represents that it is licensed, qualified and experienced to provide the Services set forth herein.
- 1.3 **Assignment of Personnel.** Consultant shall assign only competent personnel to perform the Services. In the event that Agency, in its sole discretion, at any time during the term of this Agreement, requests the reassignment of any such personnel, Consultant shall, immediately upon receiving written notice from Agency of such request, reassign such personnel.
- 1.4 **Request for Services.** At such time that Agency determines to use Consultant's Services under this Agreement, Agency shall issue a Purchase Order. The Purchase Order shall identify the specific services to be performed ("Requested Services"), may include a not-to-exceed monetary cap on Requested Services and expenditures authorized by that Purchase Order, and a time by which the Requested Services shall be completed.

**Section 2. COMPENSATION.** Agency hereby agrees to pay Consultant an amount **NOT TO EXCEED** seven hundred fifty thousand dollars (\$750,000) for the Services, which shall include all fees, costs, expenses and other reimbursables, as set forth in Consultant's fee schedule, attached hereto and incorporated herein as Exhibit B. This dollar amount is not a guarantee that Agency will pay that full amount to the Consultant, but is merely a limit of potential Agency expenditures under this Agreement.

2.1 **Invoices.** Consultant shall submit invoices, not more often than once a month during the term of this Agreement, based on the cost for services performed and reimbursable costs incurred prior to the invoice date. Invoices shall contain the following information:

- The beginning and ending dates of the billing period;
- Services performed;
- The Purchase Order number authorizing the Requested Services;
- At Agency's option, the total number of hours of work performed under the Agreement by Consultant and each employee, agent, and subcontractor of Consultant performing services hereunder.
- At Agency's option, for each work item in each task, a copy of the applicable time entries showing the name of the person doing the work, the hours spent by each person, a brief description of the work, and each reimbursable expense, with supporting documentation;

Invoices shall be sent to:

Northern California Power Agency  
651 Commerce Drive  
Roseville, California 95678  
Attn: Accounts Payable

2.2 **Monthly Payment.** Agency shall make monthly payments, based on invoices received, for services satisfactorily performed, and for authorized reimbursable costs incurred. Agency shall have thirty (30) days from the receipt of an invoice that complies with all of the requirements above to pay Consultant.

2.3 **Payment of Taxes.** Consultant is solely responsible for the payment of all federal, state and local taxes, including employment taxes, incurred under this Agreement.

2.4 **Authorization to Perform Services.** The Consultant is not authorized to perform any services or incur any costs whatsoever under the terms of this Agreement until receipt of a Purchase Order from the Contract Administrator.

2.5 **Timing for Submittal of Final Invoice.** Consultant shall have ninety (90) days after completion of the Requested Services to submit its final invoice for the Requested Services. In the event Consultant fails to submit an invoice to Agency for any amounts due within the ninety (90) day period, Consultant is deemed to have waived its right to collect its final payment for the Requested Services from Agency.

**Section 3. FACILITIES AND EQUIPMENT.** Except as set forth herein, Consultant shall, at its sole cost and expense, provide all facilities and equipment that may be necessary to perform the Services.

**Section 4. INSURANCE REQUIREMENTS.** Before beginning any work under this Agreement, Consultant, at its own cost and expense, shall procure the types and amounts of insurance listed below and shall maintain the types and amounts of insurance listed below for the period covered by this Agreement.

4.1 **Workers' Compensation.** If Consultant employs any person, Consultant shall maintain Statutory Workers' Compensation Insurance and Employer's Liability Insurance for any and all persons employed directly or indirectly by Consultant with limits of not less than one million dollars (\$1,000,000.00) per accident.

4.2 **Commercial General and Automobile Liability Insurance.**

4.2.1 **Commercial General Insurance.** Consultant shall maintain commercial general liability insurance for the term of this Agreement, including products liability, covering any loss or liability, including the cost of defense of any action, for bodily injury, death, personal injury and broad form property damage which may arise out of the operations of Consultant. The policy shall provide a minimum limit of \$1,000,000 per occurrence/\$2,000,000 aggregate. Commercial general coverage shall be at least as broad as ISO Commercial General Liability form CG 0001 (current edition) on "an occurrence" basis covering comprehensive General Liability, with a self-insured retention or deductible of no more than \$100,000. No endorsement shall be attached limiting the coverage.

4.2.2 **Automobile Liability.** Consultant shall maintain automobile liability insurance form CA 0001 (current edition) for the term of this Agreement covering any loss or liability, including the cost of defense of any action, arising from the operation, maintenance or use of any vehicle (symbol 1), whether or not owned by the Consultant, on or off Agency premises. The policy shall provide a minimum limit of \$1,000,000 per each accident, with a self-insured retention or deductible of no more than \$100,000. This insurance shall provide contractual liability covering all motor vehicles and mobile equipment to the extent coverage may be excluded from general liability insurance.

4.2.3 **General Liability/Umbrella Insurance.** The coverage amounts set forth above may be met by a combination of underlying and umbrella policies as long as in combination the limits equal or exceed those stated.

4.3 **Professional Liability Insurance.** Consultant shall maintain professional liability insurance appropriate to Consultant's profession performing work in connection with this Agreement in an amount not less than one million dollars (\$1,000,000.00) and two million dollars (\$2,000,000) aggregate covering the Consultant's errors and omissions. Any deductible or self-insured retention shall not exceed two hundred fifty thousand dollars (\$250,000) per claim.

4.4 **All Policies Requirements.**

- 4.4.1 **Verification of coverage.** Prior to beginning any work under this Agreement, Contractor shall provide Agency with (1) a Certificate of Insurance that demonstrates compliance with all applicable insurance provisions contained herein and (2) policy endorsements to the policies referenced in Section 4.2, adding the Agency as an additional insured and declaring such insurance primary in regard to work performed pursuant to this Agreement.
- 4.4.2 **Notice of Reduction in or Cancellation of Coverage.** Consultant shall provide at least thirty (30) days prior written notice to Agency of any reduction in scope or amount, cancellation, or modification adverse to Agency of the policies referenced in Section 4.
- 4.4.3 **Higher Limits.** If Consultant maintains higher limits than the minimums specified herein, the Agency shall be entitled to coverage for the higher limits maintained by the Consultant.
- 4.5 **Waiver of Subrogation.** Consultant agrees to waive subrogation which any insurer of Consultant may acquire from Consultant by virtue of the payment of any loss. Consultant agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of Agency for all work performed by Consultant, its employees, agents and subcontractors.
- 4.6 **Consultant's Obligation.** Consultant shall be solely responsible for ensuring that all equipment, vehicles and other items utilized in the performance of Services are operated, provided or otherwise utilized in a manner that ensures they are and remain covered by the policies referenced in Section 4 during this Agreement. Consultant shall also ensure that all workers involved in the provision of Services are properly classified as employees, agents or independent contractors and are and remain covered by any and all workers' compensation insurance required by applicable law during this Agreement.

## **Section 5. INDEMNIFICATION AND CONSULTANT'S RESPONSIBILITIES.**

- 5.1 **Effect of Insurance.** Agency's acceptance of insurance certificates and endorsements required under this Agreement does not relieve Consultant from liability under this indemnification and hold harmless clause. This indemnification and hold harmless clause shall apply to any damages or claims for damages whether or not such insurance policies shall have been determined to apply. By execution of this Agreement, Consultant acknowledges and agrees to the provisions of this Section and that it is a material element of consideration.
- 5.2 **Scope.** Consultant shall indemnify, defend with counsel reasonably acceptable to the Agency, and hold harmless the Agency and its officials, commissioners, officers,

employees, and volunteers from and against any and all claims that arise out of, pertain to or relate to the negligence, recklessness or willful misconduct of the Consultant in its performance of Services under this Agreement. Consultant shall bear all losses, costs, damages, expense and liability of every kind, nature and description that arise out of, pertain to, or relate to such claims, whether directly or indirectly ("Liabilities"). Such obligations to defend, hold harmless and indemnify the Agency shall not apply to the extent that such Liabilities are caused by the sole negligence, active negligence, or willful misconduct of the Agency.

## **Section 6. STATUS OF CONSULTANT.**

- 6.1 **Independent Contractor.** Consultant is an independent contractor and not an employee of Agency. Agency shall have the right to control Consultant only insofar as the results of Consultant's Services and assignment of personnel pursuant to Section 1; otherwise, Agency shall not have the right to control the means by which Consultant accomplishes Services rendered pursuant to this Agreement. Notwithstanding any other Agency, state, or federal policy, rule, regulation, law, or ordinance to the contrary, Consultant and any of its employees, agents, and subcontractors providing services under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any and all claims to, any compensation, benefit, or any incident of employment by Agency, including but not limited to eligibility to enroll in the California Public Employees Retirement System (PERS) as an employee of Agency and entitlement to any contribution to be paid by Agency for employer contributions and/or employee contributions for PERS benefits.

Consultant shall indemnify, defend, and hold harmless Agency for the payment of any employee and/or employer contributions for PERS benefits on behalf of Consultant or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of Agency. Consultant and Agency acknowledge and agree that compensation paid by Agency to Consultant under this Agreement is based upon Consultant's estimated costs of providing the Services, including salaries and benefits of employees, agents and subcontractors of Consultant.

- 6.2 **Consultant Not Agent.** Except as Agency may specify in writing, Consultant shall have no authority, express or implied, to act on behalf of Agency in any capacity whatsoever as an agent. Consultant shall have no authority, express or implied, pursuant to this Agreement to bind Agency to any obligation whatsoever.
- 6.3 **Assignment and Subcontracting.** This Agreement contemplates personal performance by Consultant and is based upon a determination of Consultant's unique professional competence, experience, and specialized professional knowledge. A substantial inducement to Agency for entering into this Agreement was and is the personal reputation and competence of Consultant. Consultant may not assign this Agreement or any interest therein without the prior written approval of the Agency. Consultant shall not subcontract

any portion of the performance contemplated and provided for herein, other than to the subcontractors identified in Exhibit A, without prior written approval of the Agency. Where written approval is granted by the Agency, Consultant shall supervise all work subcontracted by Consultant in performing the services and shall be responsible for all work performed by a subcontractor as if Consultant itself had performed such work. The subcontracting of any work to subcontractors shall not relieve Consultant from any of its obligations under this Agreement with respect to the services and Consultant is obligated to ensure that any and all subcontractors performing any services shall be fully insured in all respects and to the same extent as set forth under Section 4, to Agency's satisfaction.

- 6.4 **Certification as to California Energy Commission.** If requested by the Agency, Consultant shall, at the same time it executes this Agreement, execute Exhibit C.

## **Section 7. LEGAL REQUIREMENTS.**

- 7.1 **Governing Law.** The laws of the State of California shall govern this Agreement.
- 7.2 **Compliance with Applicable Laws.** Consultant and its subcontractors and agents, if any, shall comply with all laws applicable to the performance of the work hereunder.
- 7.3 **Licenses and Permits.** Consultant represents and warrants to Agency that Consultant and its employees, agents, and subcontractors (if any) have and will maintain at their sole expense during the term of this Agreement all licenses, permits, qualifications, and approvals of whatever nature that are legally required to practice their respective professions.
- 7.4 **Work Requiring Payment of Prevailing Wages.** If applicable, in accordance with California Labor Code Section 1771, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which these services are to be performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in the California Labor Code shall be paid to all workers engaged in performing the services under this Agreement.

## **Section 8. TERMINATION AND MODIFICATION.**

- 8.1 **Termination.** Agency may cancel this Agreement at any time and without cause upon ten (10) days prior written notice to Consultant.

In the event of termination, Consultant shall be entitled to compensation for Services satisfactorily completed as of the effective date of termination; Agency, however, may condition payment of such compensation upon Consultant delivering to Agency any or all records or documents, as referenced in Section 9.1 hereof.

- 8.2 **Amendments.** The Parties may amend this Agreement only by a writing signed by all the Parties.
- 8.3 **Survival.** All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating liability between Agency and Consultant shall survive the termination of this Agreement.
- 8.4 **Options upon Breach by Consultant.** If Consultant materially breaches any of the terms of this Agreement, including but not limited to those set forth in Section 4, Agency's remedies shall include, but not be limited to, the following:
- 8.4.1 Immediately terminate the Agreement;
  - 8.4.2 Retain the plans, specifications, drawings, reports, design documents, and any other work product prepared by Consultant pursuant to this Agreement;
  - 8.4.3 Retain a different consultant to complete the Services not finished by Consultant; and/or
  - 8.4.4 Charge Consultant the difference between the costs to complete the Services that is unfinished at the time of breach and the amount that Agency would have paid Consultant pursuant hereto if Consultant had completed the Services.

**Section 9. KEEPING AND STATUS OF RECORDS.**

- 9.1 **Records Created as Part of Consultant's Performance.** All reports, data, maps, models, charts, studies, surveys, photographs, memoranda, plans, studies, specifications, records, files, or any other documents or materials, in electronic or any other form, that Consultant prepares or obtains pursuant to this Agreement and that relate to the matters covered hereunder shall be the property of the Agency. Consultant hereby agrees to deliver those documents to the Agency upon termination of the Agreement. Agency and Consultant agree that, unless approved by Agency in writing, Consultant shall not release to any non-parties to this Agreement any data, plans, specifications, reports and other documents.
- 9.2 **Consultant's Books and Records.** Consultant shall maintain any and all records or other documents evidencing or relating to charges for Services or expenditures and disbursements charged to the Agency under this Agreement for a minimum of three (3) years, or for any longer period required by law, from the date of final payment to the Consultant to this Agreement.
- 9.3 **Inspection and Audit of Records.** Any records or documents that this Agreement requires Consultant to maintain shall be made available for inspection, audit, and/or copying at any time during regular business hours, upon oral or written request of the

Agency. Under California Government Code Section 8546.7, if the amount of public funds expended under this Agreement exceeds ten thousand dollars (\$10,000.00), the Agreement shall be subject to the examination and audit of the State Auditor, at the request of Agency or as part of any audit of the Agency, for a period of three (3) years after final payment under the Agreement.

#### 9.4 **Confidential Information and Disclosure.**

9.4.1 **Confidential Information.** The term "Confidential Information", as used herein, shall mean any and all confidential, proprietary, or trade secret information, whether written, recorded, electronic, oral or otherwise, where the Confidential Information is made available in a tangible medium of expression and marked in a prominent location as confidential, proprietary and/or trade secret information. Confidential Information shall not include information that: (a) was already known to the Receiving Party or is otherwise a matter of public knowledge, (b) was disclosed to Receiving Party by a third party without violating any confidentiality agreement, (c) was independently developed by Receiving Party without reverse engineering, as evidenced by written records thereof, or (d) was not marked as confidential Information in accordance with this section.

9.4.2 **Non-Disclosure of Confidential Information.** During the term of this Agreement, either party may disclose ("The Disclosing Party") confidential Information to the other party ("the Receiving Party"). The Receiving Party: (a) shall hold the Disclosing Party's Confidential Information in confidence; and (b) shall take all reasonable steps to prevent any unauthorized possession, use, copying, transfer or disclosure of such Confidential Information.

9.4.3 **Permitted Disclosure.** Notwithstanding the foregoing, the following disclosures of Confidential Information are allowed. Receiving Party shall endeavor to provide prior written notice to Disclosing Party of any permitted disclosure made pursuant to Section 9.4.3.2 or 9.4.3.3. Disclosing Party may seek a protective order, including without limitation, a temporary restraining order to prevent or contest such permitted disclosure; provided, however, that Disclosing Party shall seek such remedies at its sole expense. Neither party shall have any liability for such permitted disclosures:

9.4.3.1 Disclosure to employees, agents, consultants, contractors, subcontractors or other representatives of Receiving Party that have a need to know in connection with this Agreement.

9.4.3.2 Disclosure in response to a valid order of a court, government or regulatory agency or as may otherwise be required by law; and

9.4.3.3 Disclosure by Agency in response to a request pursuant to the California Public Records Act.

9.4.4 **Handling of Confidential Information.** Conclusion of Agreement. Receiving Party shall return to Disclosing Party or destroy Confidential Information (including all copies thereof) upon termination of this Agreement, if requested by Disclosing Party in writing. Notwithstanding the foregoing, the Receiving Party may retain copies of such Confidential Information, subject to the confidentiality provisions of this Agreement: (a) for archival purposes in its computer system; (b) in its legal department files; and (c) in files of Receiving Party's representatives where such copies are necessary to comply with applicable law. Party shall not disclose the Disclosing Party's Information to any person other than those of the Receiving Party's employees, agents, consultants, contractors and subcontractors who have a need to know in connection with this Agreement.

## **Section 10 MISCELLANEOUS PROVISIONS.**

- 10.1 **Attorneys' Fees.** If a party to this Agreement brings any action, including an action for declaratory relief, to enforce or interpret the provision of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees in addition to any other relief to which that party may be entitled. The court may set such fees in the same action or in a separate action brought for that purpose.
- 10.2 **Venue.** In the event that either party brings any action against the other under this Agreement, the Parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of Placer or in the United States District Court for the Eastern District of California.
- 10.3 **Severability.** If a court of competent jurisdiction finds or rules that any provision of this Agreement is invalid, void, or unenforceable, the provisions of this Agreement not so adjudged shall remain in full force and effect. The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.
- 10.4 **No Implied Waiver of Breach.** The waiver of any breach of a specific provision of this Agreement does not constitute a waiver of any other breach of that term or any other term of this Agreement.
- 10.5 **Successors and Assigns.** The provisions of this Agreement shall inure to the benefit of and shall apply to and bind the successors and assigns of the Parties.
- 10.6 **Conflict of Interest.** Consultant may serve other clients, but none whose activities within the corporate limits of Agency or whose business, regardless of location, would place

Consultant in a "conflict of interest," as that term is defined in the Political Reform Act, codified at California Government Code Section 81000 *et seq.*

Consultant shall not employ any Agency official in the work performed pursuant to this Agreement. No officer or employee of Agency shall have any financial interest in this Agreement that would violate California Government Code Sections 1090 *et seq.*

**10.7 Contract Administrator.** This Agreement shall be administered by Ken Speer, Assistant General Manager, or his/her designee, who shall act as the Agency's representative. All correspondence shall be directed to or through the representative

**10.8 Notices.** Any written notice to Consultant shall be sent to:

William Rettberg  
Vice President  
GEI Consultants, Inc.  
180 Grand Avenue, Suite 1410  
Oakland, CA 94612

Any written notice to Agency shall be sent to:

James H. Pope  
General Manager  
Northern California Power Agency  
651 Commerce Drive  
Roseville, CA 95678

With a copy to:

Michael F. Dean  
General Counsel  
Northern California Power Agency  
Meyers Nave  
555 Capitol Mall, Suite 1200  
Sacramento, CA 95814

**10.9 Professional Seal.** Where applicable in the determination of the Agency, the first page of a technical report, first page of design specifications, and each page of construction drawings shall be stamped/sealed and signed by the licensed professional responsible for the report/design preparation.

**10.10 Integration; Incorporation.** This Agreement, including all the exhibits attached hereto, represents the entire and integrated agreement between Agency and Consultant and

supersedes all prior negotiations, representations, or agreements, either written or oral. All exhibits attached hereto are incorporated by reference herein.

- 10.11 **Alternative Dispute Resolution**. If any dispute arises between the Parties that cannot be settled after engaging in good faith negotiations, Agency and Consultant agree to resolve the dispute in accordance with the following:
- 10.11.1 Each party shall designate a senior management or executive level representative to negotiate any dispute;
  - 10.11.2 The representatives shall attempt, through good faith negotiations, to resolve the dispute by any means within their authority.
  - 10.11.3 If the issue remains unresolved after fifteen (15) days of good faith negotiations, the Parties shall attempt to resolve the disagreement by negotiation between legal counsel. If the above process fails, the Parties shall resolve any remaining disputes through mediation to expedite the resolution of the dispute.
  - 10.11.4 The mediation process shall provide for the selection within fifteen (15) days by both Parties of a disinterested third person as mediator, shall be commenced within thirty (30) days and shall be concluded within fifteen (15) days from the commencement of the mediation.
  - 10.11.5 The Parties shall equally bear the costs of any third party in any alternative dispute resolution process.
  - 10.11.6 The alternative dispute resolution process is a material condition to this Agreement and must be exhausted as an administrative prior to either Party initiating legal action. This alternative dispute resolution process is not intended to nor shall be construed to change the time periods for filing a claim or action specified by Government Code §§ 900 *et seq.*
- 10.12 **Controlling Provisions**. In the case of any conflict between the terms of this Agreement and the Exhibits hereto, and Consultant's Proposal (if any), the Agreement shall control. In the case of any conflict between the Exhibits hereto and the Consultant's Proposal, the Exhibits shall control.
- 10.13 **Counterparts**. This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which together shall constitute one agreement.
- 10.14 **Construction of Agreement**. Each party hereto has had an equivalent opportunity to participate in the drafting of the Agreement and/or to consult with legal counsel. Therefore, the usual construction of an agreement against the drafting party shall not apply hereto.

10.15 **No Third Party Beneficiaries.** This Agreement is made solely for the benefit of the parties hereto, with no intent to benefit any non-signator third parties.

The Parties have executed this Agreement as of the date signed by the Agency.

NORTHERN CALIFORNIA POWER AGENCY

GEI CONSULTANTS, INC.

Date\_\_\_\_\_

Date\_\_\_\_\_

\_\_\_\_\_  
JAMES H. POPE, General Manager

\_\_\_\_\_  
WILLIAM RETTBERG, Vice President

Attest:

\_\_\_\_\_  
Assistant Secretary of the Commission

Approved as to Form:

\_\_\_\_\_  
Assistant General Counsel

## EXHIBIT A

### SCOPE OF SERVICES

GEI Consultants, Inc., ("Consultant") shall provide the following services to the NORTHERN CALIFORNIA POWER AGENCY ("Agency") at any one of its facilities:

- Dam Safety Engineering in accordance with 18 CFR12D;
- Geology, Hydrology, Hydraulics, Geotechnical, and Structural consulting; and
- Preparation of signed/stamped construction documents

## EXHIBIT B

### COMPENSATION SCHEDULE AND HOURLY FEES

Compensation for all tasks, including hourly fees and expenses, shall not exceed \$750,000. The hourly rates and or compensation break down and an estimated amount of expenses is as follows:

#### FEE SCHEDULE

<u>Personnel Category</u>	<i>Hourly Billing Rate</i> <u>\$ per hour</u>
Staff Professional – Grade 1	\$ 101
Staff Professional – Grade 2	\$ 111
Project Professional – Grade 3	\$ 122
Project Professional – Grade 4	\$ 137
Senior Professional – Grade 5	\$ 162
Senior Professional – Grade 6	\$ 184
Senior Professional – Grade 7	\$ 218
Senior Consultant – Grade 8	\$ 246
Senior Consultant – Grade 9	\$ 303
Senior Principal – Grade 10	\$ 303
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Senior CADD Drafter and Designer	\$ 122
CADD Drafter / Designer and Senior Technician	\$ 111
Technician, Word Processor, Administrative Staff	\$ 91
Office Aide	\$ 71

NOTE: As a public agency, NCPA shall not reimburse Consultant for travel, food and related costs in excess of those permitted by the Internal Revenue Service.

EXHIBIT C

CERTIFICATION

Affidavit of Compliance for Consultants

I,

---

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

---

(Company name)

for contract work at

---

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

---

(Signature of officer or agent)

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.



## Lodi Energy Center Project Participant Committee

### Staff Report

AGENDA ITEM NO.: 11

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**Date:** June 9, 2014

**To:** Lodi Energy Center Project Participant Committee

**Subject:** Herold & Mielenz, Inc. First Amendment to General Services Agreement

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#### Proposal

Approve a First Amendment to the existing five year Multi-Task General Services Agreement with Herold Mielenz, Inc. increasing the Compensation from a not to exceed amount of \$90,000 to a not to exceed amount of \$350,000 for miscellaneous motor maintenance services as requested by NCPA. Contract sponsor is the Geothermal Facility.

#### Background

NCPA executed the existing agreement with Herold & Mielenz in April 2013 and it has been providing motor maintenance services for NCPA since that time. Over the past year, Harold & Mielenz has consistently been the low cost bidder and was awarded the vast majority of the motor work during the Geothermal Unit 1 and 2 overhauls. The reason staff is seeking approval of an amendment at this time is to ensure there are adequate funds available if Herold & Mielenz continues to be the lowest cost provider of these services for the remainder of the contract term.

#### Fiscal Impact

Total cost of the agreement is not to exceed three hundred fifty thousand dollars (\$350,000) over the five-year term to be paid out of NCPA approved generation services budgets as services are required. Purchase orders referencing the terms and conditions of the Agreement will be issued following NCPA procurement policies and procedures. Cost allocation will be based on project participation percentages.

#### Environmental Analysis

This activity would not result in a direct or reasonably foreseeable indirect change in the physical environment and is therefore not a "project" for purposes of Section 21065 the California Environmental Quality Act. No environmental review is necessary.

#### Recommendation

NCPA staff recommends that the PPC pass a motion approving a First Amendment to the Herold & Mielenz Multi-Task General Services Agreement, with any non-substantial changes as approved by the General Counsel, increasing the Compensation from a not to exceed limit of \$90,000 to a new not to exceed limit of \$350,000 for use at all Generation Services facilities.

Respectfully submitted,

/s/

KEN SPEER

Assistant General Manager, Generation Services

Attachments: (2) First Amendment to Agreement between NCPA and Herold & Mielenz, Inc.  
Multi-Task General Services agreement dated April 1, 2013



**FIRST AMENDMENT TO MULTI-TASK GENERAL SERVICES AGREEMENT BETWEEN  
THE NORTHERN CALIFORNIA POWER AGENCY AND HEROLD & MIELENZ INC.**

This First Amendment ("Amendment") to General Services Agreement is entered into by and between the Northern California Power Agency ("Agency") and Herold & Mielenz Inc. ("Contractor") (collectively referred to as "the Parties") as of \_\_\_\_\_, 2014.

WHEREAS, the Parties entered into a Multi-Task General Services Agreement dated effective April 1, 2013, (the "Agreement") for Contractor to provide specified motor services at all NCPA Generation Services facilities; and

WHEREAS, the Agency now desires to amend the Agreement to increase the total compensation authorized by the Agreement from a "NOT TO EXCEED amount of \$90,000 to a NOT TO EXCEED amount of \$350,000; and

WHEREAS, the Agency now desires to replace Exhibit A- Scope of Work with an updated Exhibit A; and

WHEREAS, the Parties have agreed to modify the Agreement as set forth above; and

WHEREAS, in accordance with Section 8.2 all changes to the Agreement must be in writing and signed by all the Parties; and

NOW, THEREFORE, the Parties agree as follows:

of the Agreement is otherwise terminated or modified, as provided for herein.

1. **Section 2—Compensation** of the Agreement is amended and restated to read as follows:

Agency hereby agrees to pay Contractor an amount NOT TO EXCEED Three Hundred Fifty Thousand dollars (\$350,000) for the Work, which shall include all fees, costs, expenses and other reimbursables, as set forth in Contractor's fee schedule, attached hereto and incorporated herein as Exhibit B. This dollar amount is not a guarantee that Agency will pay that full amount to the Contractor, but is merely a limit of potential Agency expenditures under this Agreement.

The remainder of Section 2 of the Agreement is unchanged.

2. **Exhibit A – SCOPE OF WORK** is amended and restated to read in full as set forth in the attached Exhibit A.
3. **Exhibit B – COMPENSATION SCHEDULE** is amended and restated to read in full as set forth in the attached Exhibit B.

4. This Amendment in no way alters the terms and conditions of the Agreement except as specifically set forth herein.

The Parties have executed this Amendment as of the date first written above.

NORTHERN CALIFORNIA POWER AGENCY

HEROLD & MIELENZ, INC.

\_\_\_\_\_  
James H. Pope, General Manager

\_\_\_\_\_  
William Mielenz, Manager/CEO

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Attest:

\_\_\_\_\_  
Assistant Secretary of the Commission

Approved as to Form:

\_\_\_\_\_  
Assistant General Counsel

**Exhibit A**

**SCOPE OF WORK**

Contractor to provide motor maintenance and other necessarily included services as requested by Agency.

## Exhibit B

### COMPENSATION SCHEDULE AND HOURLY FEES

Compensation for all work, including hourly fees and expenses, shall not exceed \$350,000. The hourly rates and/or compensation break down and an estimated amount of expenses is as follows:

Hourly Rates are as follows:

Labor	\$ 85.00/hr.
Overtime Labor	\$ 127.50/hr.
Service Call	\$ 125.00/hr.
Pickup and Delivery	No Charge

NOTE: As a public agency, NCPA shall not reimburse Contractor for travel, food, and related costs in excess of those permitted by the Internal Revenue Service.



**MULTI-TASK  
GENERAL SERVICES AGREEMENT BETWEEN  
THE NORTHERN CALIFORNIA POWER AGENCY AND  
HEROLD & MIELENZ INC.**

This agreement for general services ("Agreement") is made by and between the Northern California Power Agency, a joint powers agency with its main office located at 651 Commerce Drive, Roseville, CA 95678-6420 ("Agency") and Herold & Mielenz Inc., a corporation, with its office located at 3531-51<sup>st</sup> Avenue, Sacramento, CA 95823-1092 ("Contractor") (together sometimes referred to as the "Parties") as of April 1, 2013 ("Effective Date") in Roseville, California.

**Section 1. SCOPE OF WORK.** Subject to the terms and conditions set forth in this Agreement, Contractor is willing to provide to Agency the range of services and/or goods described in the Scope of Work attached hereto as Exhibit A and incorporated herein ("Work").

- 1.1 **Term of Agreement.** The term of this Agreement shall begin on the Effective Date and shall end when Contractor completes the Work, or no later than five (5) years from the date this Agreement was signed by Agency, whichever is shorter.
- 1.2 **Standard of Performance.** Contractor shall perform the Work in the manner and according to the standards observed by a competent practitioner of the profession in which Contractor is engaged and for which Contractor is providing the Work. Contractor represents that it is licensed, qualified and experienced to provide the Work set forth herein.
- 1.3 **Assignment of Personnel.** Contractor shall assign only competent personnel to perform the Work. In the event that Agency, in its sole discretion, at any time during the term of this Agreement, requests the reassignment of any such personnel, Contractor shall, immediately upon receiving written notice from Agency of such request, reassign such personnel.
- 1.4 **Request for Work to be Performed.** At such time that Agency determines to have Contractor perform Work under this Agreement, Agency shall issue a Purchase Order. The Purchase Order shall identify the specific Work to be performed ("Requested Work"), may include a not-to-exceed cap on monetary cap on Requested Work and all related expenditures authorized by that Purchase Order, and shall include a time by which the Requested Work shall be completed.

**Section 2. COMPENSATION.** Agency hereby agrees to pay Contractor an amount **NOT TO EXCEED** Ninety Thousand dollars (\$90,000) for the Work, which shall include all fees, costs, expenses and other reimbursables, as set forth in Contractor's fee schedule, attached hereto and incorporated herein as Exhibit B. This dollar amount is not a guarantee that Agency will pay that full amount to the Contractor, but is merely a limit of potential Agency expenditures under this Agreement.

2.1 **Invoices.** Contractor shall submit invoices, not more often than once a month during the term of this Agreement, based on the cost for services performed and reimbursable costs incurred prior to the invoice date. Invoices shall contain the following information:

- The beginning and ending dates of the billing period;
- Work performed;
- The Purchase Order number authorizing the Requested Work;
- At Agency's option, for each work item in each task, a copy of the applicable time entries or time sheets shall be submitted showing the name of the person doing the work, the hours spent by each person, a brief description of the work, and each reimbursable expense, with supporting documentation;
- At Agency's option, the total number of hours of work performed under the Agreement by Contractor and each employee, agent, and subcontractor of Contractor performing work hereunder.

Invoices shall be sent to:

Northern California Power Agency  
651 Commerce Drive  
Roseville, California 95678  
Attn: Accounts Payable

2.2 **Monthly Payment.** Agency shall make monthly payments, based on invoices received, for Work satisfactorily performed, and for authorized reimbursable costs incurred. Agency shall have thirty (30) days from the receipt of an invoice that complies with all of the requirements above to pay Contractor.

2.3 **Payment of Taxes.** Contractor is solely responsible for the payment of all federal, state and local taxes, including employment taxes, incurred under this Agreement.

2.4 **Authorization to Perform Work.** The Contractor is not authorized to perform any Work or incur any costs whatsoever under the terms of this Agreement until receipt of a Purchase Order from the Contract Administrator.

2.5 **Timing for Submittal of Final Invoice.** Contractor shall have ninety (90) days after completion of the Requested Work to submit its final invoice for the Requested Work. In the event Contractor fails to submit an invoice to Agency for any amounts due within the ninety (90) day period, Contractor is deemed to have waived its right to collect its final payment for the Requested Work from Agency.

**Section 3. FACILITIES AND EQUIPMENT.** Except as set forth herein, Contractor shall, at its sole cost and expense, provide all facilities and equipment that may be necessary to perform the Work.

**Section 4. INSURANCE REQUIREMENTS.** Before beginning any Work under this Agreement, Contractor, at its own cost and expense, shall procure the types and amounts of insurance listed below and shall maintain the types and amounts of insurance listed below for the period covered by this Agreement.

**4.1 Workers' Compensation.** If Contractor employs any person, Contractor shall maintain Statutory Workers' Compensation Insurance and Employer's Liability Insurance for any and all persons employed directly or indirectly by Contractor with limits of not less than one million dollars (\$1,000,000.00) per accident.

**4.2 Commercial General and Automobile Liability Insurance.**

**4.2.1 Commercial General Insurance.** Contractor shall maintain commercial general liability insurance for the term of this Agreement, including products liability, covering any loss or liability, including the cost of defense of any action, for bodily injury, death, personal injury and broad form property damage which may arise out of the operations of Contractor. The policy shall provide a minimum limit of \$1,000,000 per occurrence/\$2,000,000 aggregate. Commercial general coverage shall be at least as broad as ISO Commercial General Liability form CG 0001 (current edition) on "an occurrence" basis covering comprehensive General Liability, with a self-insured retention or deductible of no more than \$100,000. No endorsement shall be attached limiting the coverage.

**4.2.2 Automobile Liability.** Contractor shall maintain automobile liability insurance form CA 0001 (current edition) for the term of this Agreement covering any loss or liability, including the cost of defense of any action, arising from the operation, maintenance or use of any vehicle (symbol 1), whether or not owned by the Contractor, on or off Agency premises. The policy shall provide a minimum limit of \$1,000,000 per each accident, with a self-insured retention or deductible of no more than \$100,000. This insurance shall provide contractual liability covering all motor vehicles and mobile equipment to the extent coverage may be excluded from general liability insurance.

**4.2.3 General Liability/Umbrella Insurance.** The coverage amounts set forth above may be met by a combination of underlying and umbrella policies as long as in combination the limits equal or exceed those stated.

**4.3 Professional Liability Insurance.** (Intentionally omitted)

**4.4 All Policies Requirements.**

**4.4.1 Verification of coverage.** Prior to beginning any work under this Agreement, Contractor shall provide Agency with (1) a Certificate of Insurance that demonstrates compliance with all applicable insurance provisions contained herein and (2) policy endorsements to the policies referenced in Section 4.2, adding the

Agency as an additional insured and declaring such insurance primary in regard to work performed pursuant to this Agreement.

**4.4.2 Notice of Reduction in or Cancellation of Coverage.** Contractor shall provide at least thirty (30) days prior written notice to Agency of any reduction in scope or amount, cancellation, or modification adverse to Agency of the policies referenced in Section 4.

**4.4.3 Higher Limits.** If Contractor maintains higher limits than the minimums specified herein, the Agency shall be entitled to coverage for the higher limits maintained by the Contractor.

**4.5 Waiver of Subrogation.** Contractor agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of Agency for all work performed by Contractor, its employees, agents and subcontractors.

**4.6 Contractor's Obligation.** Contractor shall be solely responsible for ensuring that all equipment, vehicles and other items utilized in the performance of Work are operated, provided or otherwise utilized in a manner that ensues they are and remain covered by the policies referenced in Section 4 during this Agreement. Contractor shall also ensure that all workers involved in the provision of Work are properly classified as employees, agents or independent contractors and are and remain covered by any and all workers' compensation insurance required by applicable law during this Agreement.

## **Section 5. INDEMNIFICATION AND CONTRACTOR'S RESPONSIBILITIES.**

**5.1 Effect of Insurance.** Agency's acceptance of insurance certificates and endorsements required under this Agreement does not relieve Contractor from liability under this indemnification and hold harmless clause. This indemnification and hold harmless clause shall apply to any damages or claims for damages whether or not such insurance policies shall have been determined to apply. By execution of this Agreement, Contractor acknowledges and agrees to the provisions of this section and that it is a material element of consideration.

**5.2 Scope.** Contractor shall indemnify, defend with counsel reasonably acceptable to the Agency, and hold harmless the Agency, and its officials, commissioners, officers, employees, agents and volunteers from and against all losses, liabilities, claims, demands, suits, actions, damages, expenses, penalties, fines, costs (including without limitation costs and fees of litigation), judgments and causes of action of every nature arising out of or in connection with any acts or omissions by Contractor, its officers, officials, agents, and employees, except as caused by the sole or gross negligence of Agency.

Notwithstanding, should this Agreement be construed as a construction agreement under Civil Code section 2783, then the exception referenced above shall also be for the active negligence of Agency.

**Section 6.**     **STATUS OF CONTRACTOR.**

**6.1**     **Independent Contractor.** Contractor is an independent contractor and not an employee of Agency. Agency shall have the right to control Contractor only insofar as the results of Contractor's Work and assignment of personnel pursuant to Section 1; otherwise, Agency shall not have the right to control the means by which Contractor accomplishes Work rendered pursuant to this Agreement. Notwithstanding any other Agency, state, or federal policy, rule, regulation, law, or ordinance to the contrary, Contractor and any of its employees, agents, and subcontractors providing services under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any and all claims to, any compensation, benefit, or any incident of employment by Agency, including but not limited to eligibility to enroll in the California Public Employees Retirement System (PERS) as an employee of Agency and entitlement to any contribution to be paid by Agency for employer contributions and/or employee contributions for PERS benefits.

Contractor shall indemnify, defend, and hold harmless Agency for the payment of any employee and/or employer contributions for PERS benefits on behalf of Contractor or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of Agency. Contractor and Agency acknowledge and agree that compensation paid by Agency to Contractor under this Agreement is based upon Contractor's estimated costs of providing the Work, including salaries and benefits of employees, agents and subcontractors of Contractor.

**6.2**     **Contractor Not Agent.** Except as Agency may specify in writing, Contractor shall have no authority, express or implied, to act on behalf of Agency in any capacity whatsoever as an agent. Contractor shall have no authority, express or implied, pursuant to this Agreement to bind Agency to any obligation whatsoever.

**6.3**     **Assignment and Subcontracting.** This Agreement contemplates personal performance by Contractor and is based upon a determination of Contractor's unique professional competence, experience, and specialized professional knowledge. A substantial inducement to Agency for entering into this Agreement was and is the personal reputation and competence of Contractor. Contractor may not assign this Agreement or any interest therein without the prior written approval of the Agency. Contractor shall not subcontract any portion of the performance contemplated and provided for herein, other than to the subcontractors identified in Exhibit A, without prior written approval of the Agency. Where written approval is granted by the Agency, Contractor shall supervise all work subcontracted by Contractor in performing the Work and shall be responsible for all work performed by a subcontractor as if Contractor itself had performed such Work. The

subcontracting of any work to subcontractors shall not relieve Contractor from any of its obligations under this Agreement with respect to the Work and Contractor is obligated to ensure that any and all subcontractors performing any Work shall be fully insured in all respects and to the same extent as set forth under Section 4, to Agency's satisfaction.

**6.4 Certification as to California Energy Commission.** (Intentionally Omitted).

**Section 7. LEGAL REQUIREMENTS.**

- 7.1 Governing Law.** The laws of the State of California shall govern this Agreement.
- 7.2 Compliance with Applicable Laws.** Contractor and its subcontractors and agents, if any, shall comply with all laws applicable to the performance of the work hereunder.
- 7.3 Licenses and Permits.** Contractor represents and warrants to Agency that Contractor and its employees, agents, and subcontractors (if any) have and will maintain at their sole expense during the term of this Agreement all licenses, permits, qualifications, and approvals of whatever nature that are legally required to practice their respective professions.
- 7.4 Work Requiring Payment of Prevailing Wages.** If applicable, in accordance with California Labor Code Section 1771, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which these services are to be performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in the California Labor Code shall be paid to all workers engaged in performing the services under this Agreement.

**Section 8. TERMINATION AND MODIFICATION.**

- 8.1 Termination.** Agency may cancel this Agreement at any time and without cause upon ten (10) days prior written notice to Contractor.

In the event of termination, Contractor shall be entitled to compensation for Work satisfactorily completed as of the effective date of termination; Agency, however, may condition payment of such compensation upon Contractor delivering to Agency any or all records or documents (as referenced in Section 9.1 hereof).

- 8.2 Amendments.** The Parties may amend this Agreement only by a writing signed by all the Parties.
- 8.3 Survival.** All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating liability between Agency and Contractor shall survive the termination of this Agreement.

**8.4 Options upon Breach by Contractor.** If Contractor materially breaches any of the terms of this Agreement, including but not limited to those set forth in Section 4, Agency's remedies shall include, but not be limited to, the following:

**8.4.1** Immediately terminate the Agreement;

**8.4.2** Retain the plans, specifications, drawings, reports, design documents, and any other work product prepared by Contractor pursuant to this Agreement;

**8.4.3** Retain a different Contractor to complete the Work not finished by Contractor; and/or

**8.4.4** Charge Contractor the difference between the costs to complete the Work that is unfinished at the time of breach and the amount that Agency would have paid Contractor pursuant hereto if Contractor had completed the Work.

**Section 9. KEEPING AND STATUS OF RECORDS.**

**9.1 Records Created as Part of Contractor's Performance.** All reports, data, maps, models, charts, studies, surveys, photographs, memoranda, plans, studies, specifications, records, files, or any other documents or materials, in electronic or any other form, that Contractor prepares or obtains pursuant to this Agreement and that relate to the matters covered hereunder shall be the property of the Agency. Contractor hereby agrees to deliver those documents to the Agency upon termination of the Agreement. Agency and Contractor agree that, unless approved by Agency in writing, Contractor shall not release to any non-parties to this Agreement any data, plans, specifications, reports and other documents.

**9.2 Contractor's Books and Records.** Contractor shall maintain any and all records or other documents evidencing or relating to charges for Work or expenditures and disbursements charged to the Agency under this Agreement for a minimum of three (3) years, or for any longer period required by law, from the date of final payment to the Contractor to this Agreement.

**9.3 Inspection and Audit of Records.** Any records or documents that this Agreement requires Contractor to maintain shall be made available for inspection, audit, and/or copying at any time during regular business hours, upon oral or written request of the Agency. Under California Government Code Section 8546.7, if the amount of public funds expended under this Agreement exceeds ten thousand dollars (\$10,000.00), the Agreement shall be subject to the examination and audit of the State Auditor, at the request of Agency or as part of any audit of the Agency, for a period of three (3) years after final payment under the Agreement.

## 9.4 Confidential Information and Disclosure.

**9.4.1 Confidential Information.** The term "Confidential Information", as used herein, shall mean any and all confidential, proprietary, or trade secret information, whether written, recorded, electronic, oral or otherwise, where the Confidential Information is made available in a tangible medium of expression and marked in a prominent location as confidential, proprietary and/or trade secret information. Confidential Information shall not include information that: (a) was already known to the Receiving Party or is otherwise a matter of public knowledge, (b) was disclosed to Receiving Party by a third party without violating any confidentiality agreement, (c) was independently developed by Receiving Party without reverse engineering, as evidenced by written records thereof, or (d) was not marked as confidential Information in accordance with this section.

**9.4.2 Non-Disclosure of Confidential Information.** During the term of this Agreement, either party may disclose ("The Disclosing Party") confidential Information to the other party ("the Receiving Party"). The Receiving Party: (a) shall hold the Disclosing Party's Confidential Information in confidence; and (b) shall take all reasonable steps to prevent any unauthorized possession, use, copying, transfer or disclosure of such Confidential Information.

**9.4.3 Permitted Disclosure.** Notwithstanding the foregoing, the following disclosures of Confidential Information are allowed. Receiving Party shall endeavor to provide prior written notice to Disclosing Party of any permitted disclosure made pursuant to Section 9.4.3.2 or 9.4.3.3. Disclosing Party may seek a protective order, including without limitation, a temporary restraining order to prevent or contest such permitted disclosure; provided, however, that Disclosing Party shall seek such remedies at its sole expense. Neither party shall have any liability for such permitted disclosures:

**9.4.3.1** Disclosure to employees, agents, Contractors, contractors, subcontractors or other representatives of Receiving Party that have a need to know in connection with this Agreement.

**9.4.3.2** Disclosure in response to a valid order of a court, government or regulatory agency or as may otherwise be required by law; and

**9.4.3.3** Disclosure by Agency in response to a request pursuant to the California Public Records Act.

**9.4.4 Handling of Confidential Information.** Conclusion of Agreement. Receiving Party shall return to Disclosing Party or destroy Confidential Information (including all copies thereof) upon termination of this Agreement, if requested by Disclosing Party in writing. Notwithstanding the foregoing, the Receiving Party may retain

copies of such Confidential Information, subject to the confidentiality provisions of this Agreement: (a) for archival purposes in its computer system; (b) in its legal department files; and (c) in files of Receiving Party's representatives where such copies are necessary to comply with applicable law. Party shall not disclose the Disclosing Party's Information to any person other than those of the Receiving Party's employees, agents, Contractors, contractors and subcontractors who have a need to know in connection with this Agreement.

**Section 10. PROJECT SITE.**

- 10.1 Operations at the Project Site.** Each Project site may include the power plant areas, all buildings, offices, and other locations where Work is to be performed, including any access roads. Contractor shall perform the Work in such a manner as to cause a minimum of interference with Agency's operations and the operations of other contractors at the Project site and to protect all persons and property thereon from damage or injury. Upon completion of the Work at a Project site, Contractor shall leave such Project site clean and free of all tools, equipment, waste materials and rubbish, stemming from or relating to Contractor's Work.
- 10.2 Contractor's Equipment, Tools, Supplies and Materials.** Contractor shall be solely responsible for the transportation, loading and unloading, and storage of any equipment, tools, supplies or materials required for performing the Work, whether owned, leased or rented. Agency will not be responsible for any such equipment, supplies or materials which may be lost, stolen or damaged or for any additional rental charges for such. Equipment, tools, supplies and materials left or stored at a Project site, with or without permission, is at Contractor's sole risk. Agency may assume that anything left on the Project site an unreasonable length of time after the Work is completed has been abandoned. Any transportation furnished by Agency shall be solely as an accommodation and Agency shall have no liability therefor. Contractor shall assume the risk and is solely responsible for its owned, non-owned and hired automobiles, trucks or other motorized vehicles as well as any equipment, tools, supplies, materials or other property which is utilized by Contractor on the Project site. All materials and supplies used by Contractor in the Work shall be new and in good condition.
- 10.3 Use of Agency Equipment.** Contractor shall assume the risk and is solely responsible for its use of any Agency owned equipment and property provided by Agency for the performance of Work.

**Section 11. WARRANTY.**

- 11.1 Nature of Work.** In addition to any and all warranties provided or implied by law or public policy, Contractor warrants that all Work shall be free from defects in design and workmanship, and that Contractor shall perform all Work in accordance with applicable federal, state, and local laws, rules and regulations including engineering, construction and

other codes and standards and prudent electrical utility standards, and in accordance with the terms of this Agreement.

**11.2 Deficiencies in Work.** In addition to all other rights and remedies which Agency may have, Agency shall have the right to require, and Contractor shall be obligated at its own expense to perform, all further Work which may be required to correct any deficiencies which result from Contractor's failure to perform any Work in accordance with the standards required by this Agreement. If during the term of this Agreement or the one (1) year period following completion of the Work, any equipment, supplies or other materials or Work used or provided by Contractor under this Agreement fails due to defects in material and/or workmanship or other breach of this Agreement, Contractor shall, upon any reasonable written notice from Agency, replace or repair the same to Agency's satisfaction.

**11.3 Assignment of Warranties.** Contractor hereby assigns to Agency all additional warranties, extended warranties, or benefits like warranties, such as insurance, provided by or reasonably obtainable from suppliers of equipment and material used in the Work.

**Section 12. HEALTH AND SAFETY PROGRAMS.** The Contractor shall establish, maintain, and enforce safe work practices, and implement an accident/incident prevention program intended to ensure safe and healthful operations under their direction. The program shall include all requisite components of such a program under Federal, State and local regulations and shall comply with all Agency site programs.

- 12.1** Contractor is responsible for acquiring job hazard assessments as necessary to safely perform the Work and provide a copy to Agency upon request.
- 12.2** Contractor is responsible for providing all employee health and safety training and personal protective equipment in accordance with potential hazards that may be encountered in performance of the Work and provide copies of the certified training records upon request by Agency. Contractor shall be responsible for proper maintenance and/or disposal of their personal protective equipment and material handling equipment.
- 12.3** Contractor is responsible for ensuring that its lower-tier subcontractors are aware of and will comply with the requirements set forth herein.
- 12.4** Agency, or its representatives, may periodically monitor the safety performance of the Contractor performing the Work. Contractors and its subcontractors shall be required to comply with the safety and health obligations as established in the Agreement. Non-compliance with safety, health, or fire requirements may result in cessation of work activities, until items in non-compliance are corrected. It is also expressly acknowledged, understood and agreed that no payment shall be due from Agency to Contractor under this Agreement at any time when, or for any Work performed when, Contractor is not in full compliance with this Section 12.

- 12.5** Contractor shall immediately report any injuries to the Agency site safety representative. Additionally, the Contractor shall investigate and submit to the Agency site safety representative copies of all written accident reports, and coordinate with Agency if further investigation is requested.
- 12.6** Contractor shall take all reasonable steps and precautions to protect the health of its employees and other site personnel with regard to the Work. Contractor shall conduct occupational health monitoring and/or sampling to determine levels of exposure of its employees to hazardous or toxic substances or environmental conditions. Copies of any sampling results will be forwarded to the Agency site safety representative upon request.
- 12.7** Contractor shall develop a plan to properly handle and dispose of any hazardous wastes, if any, Contractor generates in performing the Work.
- 12.8** Contractor shall advise its employees and subcontractors that any employee, who jeopardizes his/her safety and health, or the safety and health of others, may be subject to actions including removal from Work.
- 12.9** Contractor shall, at the sole option of the Agency, develop and provide to the Agency a Hazardous Material Spill Response Plan that includes provisions for spill containment and clean-up, emergency contact information including regulatory agencies and spill sampling and analysis procedures. Hazardous Materials to include diesel fuel used for trucks owned or leased by the Contractor.

**Section 13**      **MISCELLANEOUS PROVISIONS.**

- 13.1**      **Attorneys' Fees.** If a party to this Agreement brings any action, including an action for declaratory relief, to enforce or interpret the provision of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees in addition to any other relief to which that party may be entitled. The court may set such fees in the same action or in a separate action brought for that purpose.
- 13.2**      **Venue.** In the event that either party brings any action against the other under this Agreement, the Parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of Placer or in the United States District Court for the Eastern District of California.
- 13.3**      **Severability.** If a court of competent jurisdiction finds or rules that any provision of this Agreement is invalid, void, or unenforceable, the provisions of this Agreement not so adjudged shall remain in full force and effect. The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.

13.4 **No Implied Waiver of Breach.** The waiver of any breach of a specific provision of this Agreement does not constitute a waiver of any other breach of that term or any other term of this Agreement.

13.5 **Successors and Assigns.** The provisions of this Agreement shall inure to the benefit of and shall apply to and bind the successors and assigns of the Parties.

13.6 **Conflict of Interest.** Contractor may serve other clients, but none whose activities within the corporate limits of Agency or whose business, regardless of location, would place Contractor in a "conflict of interest," as that term is defined in the Political Reform Act, codified at California Government Code Section 81000 *et seq.*

Contractor shall not employ any Agency official in the work performed pursuant to this Agreement. No officer or employee of Agency shall have any financial interest in this Agreement that would violate California Government Code Sections 1090 *et seq.*

13.7 **Contract Administrator.** This Agreement shall be administered by Ken Speer, Assistant General Manager, or his/her designee, who shall act as the Agency's representative. All correspondence shall be directed to or through the representative.

13.8 **Notices.** Any written notice to Contractor shall be sent to:

Herold & Mielenz Inc.  
3531-51<sup>st</sup> Avenue  
Sacramento, CA 95823-1092  
(916) 422-7493

Any written notice to Agency shall be sent to:

James H. Pope  
General Manager  
Northern California Power Agency  
651 Commerce Drive  
Roseville, CA 95678

With a copy to:

Michael F. Dean  
General Counsel  
Northern California Power Agency  
Meyers Nave  
555 Capitol Mall, Suite 1200  
Sacramento, CA 95814

- 13.9 Professional Seal.** Where applicable in the determination of the Agency, the first page of a technical report, first page of design specifications, and each page of construction drawings shall be stamped/sealed and signed by the licensed professional responsible for the report/design preparation.
- 13.10 Integration; Incorporation.** This Agreement, including all the exhibits attached hereto, represents the entire and integrated agreement between Agency and Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. All exhibits attached hereto are incorporated by reference herein.
- 13.11 Alternative Dispute Resolution.** If any dispute arises between the Parties that cannot be settled after engaging in good faith negotiations, Agency and Contractor agree to resolve the dispute in accordance with the following:
- 13.11.1** Each party shall designate a senior management or executive level representative to negotiate any dispute;
  - 13.11.2** The representatives shall attempt, through good faith negotiations, to resolve the dispute by any means within their authority.
  - 13.11.3** If the issue remains unresolved after fifteen (15) days of good faith negotiations, the Parties shall attempt to resolve the disagreement by negotiation between legal counsel. If the above process fails, the Parties shall resolve any remaining disputes through mediation to expedite the resolution of the dispute.
  - 13.11.4** The mediation process shall provide for the selection within fifteen (15) days by both Parties of a disinterested third person as mediator, shall be commenced within thirty (30) days and shall be concluded within fifteen (15) days from the commencement of the mediation.
  - 13.11.5** The Parties shall equally bear the costs of any third party in any alternative dispute resolution process.
  - 13.11.6** The alternative dispute resolution process is a material condition to this Agreement and must be exhausted as an administrative prior to either Party initiating legal action. This alternative dispute resolution process is not intended to nor shall be construed to change the time periods for filing a claim or action specified by Government Code §§ 900 *et seq.*
- 13.12 Controlling Provisions.** In the case of any conflict between the terms of this Agreement and the Exhibits hereto, and Contractor's Proposal (if any), the Agreement shall control. In the case of any conflict between the Exhibits hereto and the Contractor's Proposal, the Exhibits shall control.

**13.13 Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which together shall constitute one agreement.

**13.14 Construction of Agreement.** Each party hereto has had an equivalent opportunity to participate in the drafting of the Agreement and/or to consult with legal counsel. Therefore, the usual construction of an agreement against the drafting party shall not apply hereto.

**13.15 No Third Party Beneficiaries.** This Agreement is made solely for the benefit of the parties hereto, with no intent to benefit any non-signator third parties.

The Parties have executed this Agreement as of the date signed by the Agency.

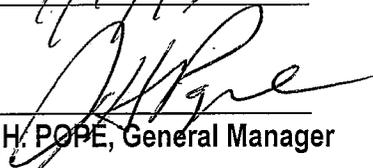
NORTHERN CALIFORNIA POWER AGENCY

Herold & Mielenz Inc.

Date

4/1/13

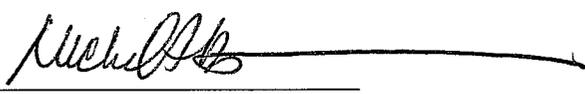
Date

  
\_\_\_\_\_  
JAMES H. POPE, General Manager

  
\_\_\_\_\_  
William Mielenz, Manager / CEO

Attest:

  
\_\_\_\_\_  
Assistant Secretary of the Commission  
Approved as to Form:

  
\_\_\_\_\_  
General Counsel

**EXHIBIT A**  
**SCOPE OF WORK**

Provide service for miscellaneous motor repair, maintenance and replacement as requested by NCPA.

## EXHIBIT B

### COMPENSATION SCHEDULE AND HOURLY FEES

Compensation for all work, including hourly fees and expenses, shall not exceed \$90,000. The hourly rates and or compensation break down and an estimated amount of expenses is as follows:

Hourly Rates are as follows:

Labor	\$ 85.00/hr.
Overtime Labor	\$127.50/hr.
Service Call	\$125.00/hr.
Pickup and Delivery	No charge

NOTE: As a public agency, NCPA shall not reimburse Contractor for travel, food and related costs in excess of those permitted by the Internal Revenue Service.



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

2/28/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> McGee & Thielen Insurance Brokers, Inc. 3780 Rosin Court Suite 120 Sacramento, CA 95834  www.mcgeethielen.com      0633187	<b>CONTACT NAME:</b>	
	PHONE (A/C, No, Ext): 916-646-1919	FAX (A/C, No): 916-646-0995
<b>INSURED</b> Herold & Mielenz, Inc 3531 51st Ave Sacramento, CA 95823	<b>E-MAIL ADDRESS:</b>	
	<b>INSURER(S) AFFORDING COVERAGE</b>	
	<b>INSURER A:</b> Nova Casualty Company	
	<b>INSURER B:</b> Wesco Insurance Company	
	<b>INSURER C:</b>	
	<b>INSURER D:</b>	
<b>INSURER E:</b>		
<b>INSURER F:</b>		

MAR - 8 2013

**COVERAGES**      **CERTIFICATE NUMBER:** 15617896      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC		M50-CL-0010029-3	12/1/2012	12/1/2013	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS  <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		M50-CL-0010029-3	12/1/2012	12/1/2013	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$10,000		M50-UM-0010018-3	12/1/2012	12/1/2013	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000 \$ \$
B	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N    N/A		WWC3050385	1/1/2013	1/1/2014	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

RE: Evidence of Insurance

<b>CERTIFICATE HOLDER</b>	<b>CANCELLATION</b>
Northern California Power Agency 651 Commerce Drive Roseville CA 95678	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE
	 Craig Wubben

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ACORD 25 (2010/05)

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# LEC LTP And Advanced Hardware Proposal



# Agenda

- Current LTP Review
- Interval Overview Comparison 12.5K/900ES vs 25K/1200ES
- Overview of Advanced Components
- Component Comparison
- Contract Key Points
- Financials
- Recommendations

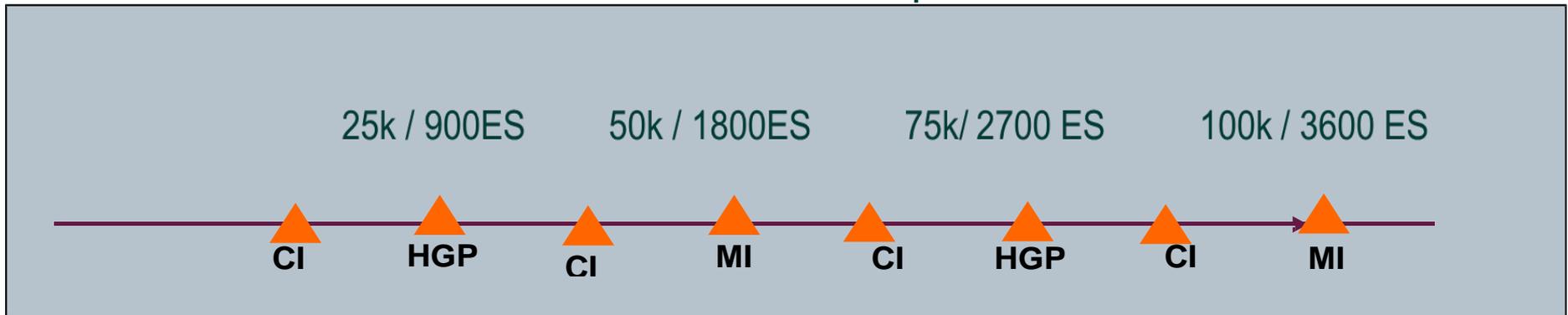
# LEC Long Term Maintenance Program

## ■ Current Summary

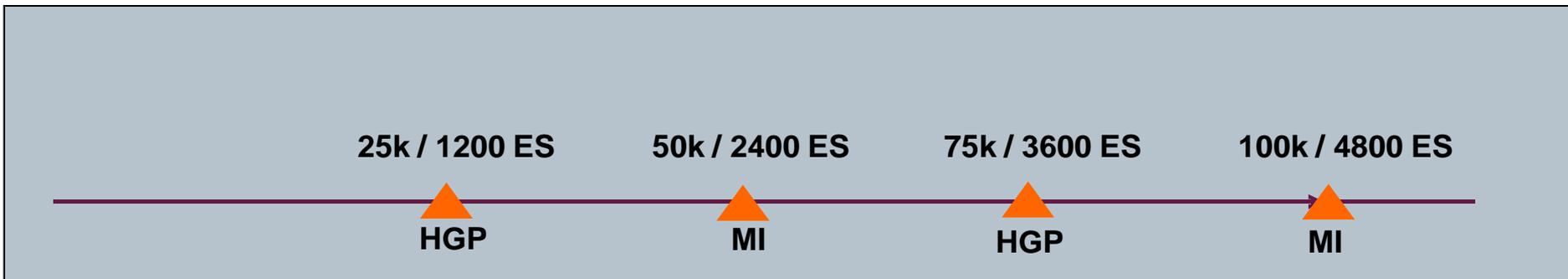
- NCPA and Siemens LTP Agreement signed Sept 10th, 2013
- Under the Current LTP terms, the contract shall expire upon the earlier of;
  - 18 years
  - 100K Equivalent Base Hours (EBH)
- **Cost**
  - Cost of \$521/fired hour
  - Penalty Cost if Early Hot Gas Path or Major Inspection before 25k EBH Limits
    - ◆ True-Up Cost (25k EBH minus Actual EBH) x \$521
- **Warranty Coverage**
  - Total Aggregate Financial limitation - \$6m
  - Limit Per Event - \$1m
  - Limit Per Calendar Year - \$2m
  - Open/Close responsibility is disputed
- **Schedule**
  - 12.5k EBH or 900 Equivalent Starts (CI,HGP,CI,MI)

# Interval Overview Comparison

Current: 12.5K EBH or 900ES Current Inspection Intervals



New Proposal: 25K EBH or 1200ES Extended Inspection Intervals



# Components Comparison

## Support Housings (12.5K)

- Hast-X body
- Address reparability issues with SS
- Improved temperature capability
- Restraint design feature still applied

## Pilots

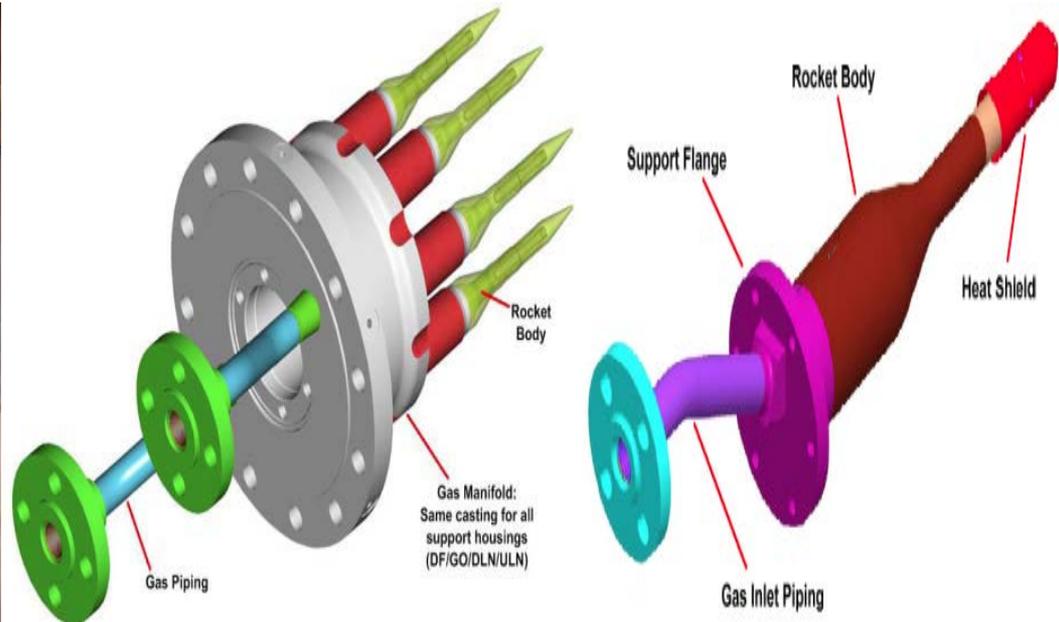
- Robust design (same as 8k)

## Support Housings (25K)

- Inconel body to improve durability/capability
- Improved rockets for fatigue resistance
- Reduced rockets distortion
- Eliminating Pilot restraint feature

## Pilots

- Redesigned with Inconel and robust body



# Components Comparison

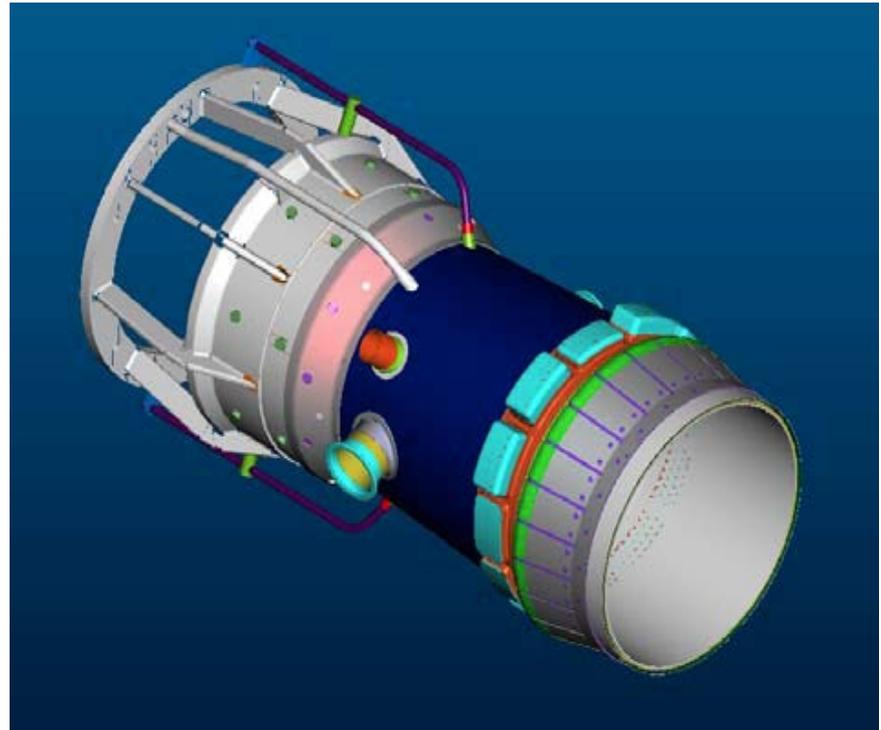
## VGP (12.5k/900ES) Basket

- Resonator design basket
- Improved durability
- Wear: redesigned spring clip
- Local fatigue locations improved
- Local cooling improved



## Advanced VGP (25k/ 1200ES) Basket

- Further evolution for improved durability/structural
- Wear: further spring clip enhancements
- Integral ring/resonator reduces weld fabrication points
- Local cooling further enhanced



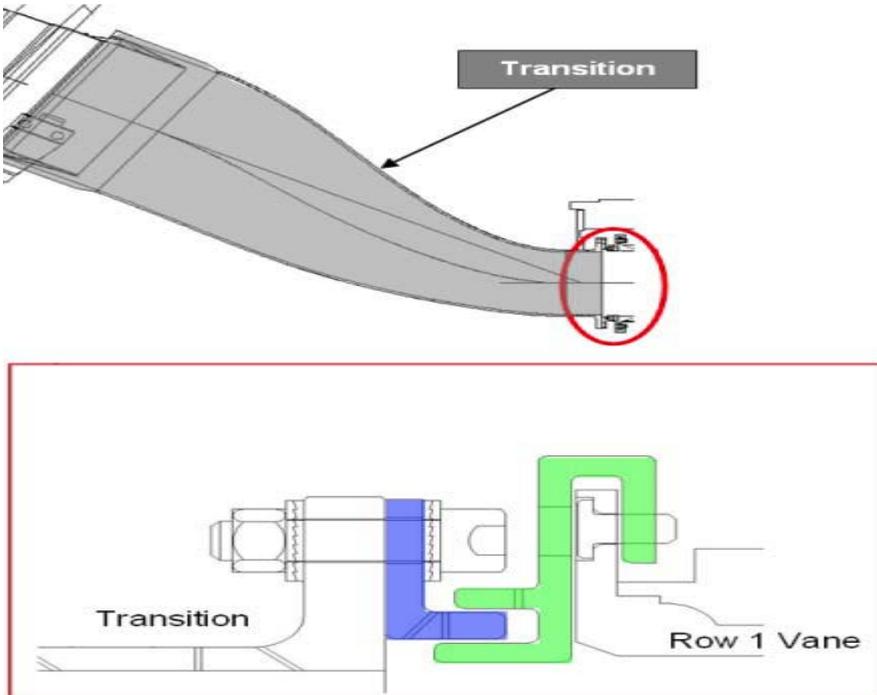
# Component Seal Details

## Transition Seals

- Redesigned from 8K seals
- Improved durability
- Improved sealing interface
- Improved wear durability

## Advanced VGP Seals

- VGP with material improvement to Ni-alloy
- Better cooling and geometric revision
- Ni-alloy floating seals

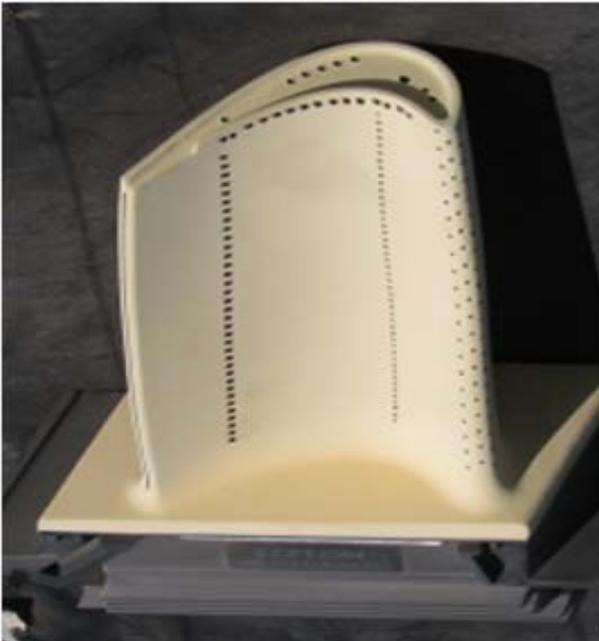


## Component R1, R2 Blades

### R1 & R2 Blades

- VGP Design blades & vanes
- IN939 vanes and CM247 blades
- 3D Aero blades with 2464 advanced coatings
- Advanced shaped-film cooling
- Geometric improvements and application for higher temps

Row 1 Blade



Row 2 Blade



## Contract Key points

- Variable fee maintained at \$521/EBH baseline – escalation continues as before
- Or
- Starts fee of \$11,836.47 / ES - introduced from 1st HGP
- Program extended to 3rd major (increased from 2 majors)
- ST inspections continue - included up to 3rd Major in price
- EWA allowances continue for HGPs and Majors as before
- Open/Close for warranty parts Now undisputed; Siemens will cover
- Property Damage limits increased to \$9M (maintain \$1mm/event \$2mm/year limit)
- Borescope inspections now included
- Min of 25k or 1200 ES between scheduled outages –
  - Outages and scope could be moved based on periodic inspections to provide more run time
  - Current projections do not change sunset date

## Cost

- Capital cost for Hardware \$0
- Installation (performed under Hot Gas Path) \$0
- Base Rate remains \$521 EBH (plus escalation)
  - (despite elimination of 4 Combustion Inspections)
- Contract extends to 3 Majors

# Economic Evaluation

## ▪ Assumptions

- Forecasted Capacity – NCPA Fiscal Year 2015 Section L, Page 20
- Starts Remain Driving Maintenance Interval Component
  - Average 19.4 for last 16 months (excludes commissioning)
  - CI costs (app. 5 at \$1mm each)
  - Borescope Inspections (app. 5 at \$100k each)
    - ◆ Overall Benefit to Siemens - NPV at 3% across future - \$3.1m

## ▪ Summary

- NCPA Potential Benefit ~ \$11.1m (reduced start penalty cost)  
See next slide for cash flow

Actual Cash Flow  
Analyzed to 2034  
(3<sup>rd</sup> Major)

# Economic Evaluation

## Current Parts

LTSA (12.5K/900)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capacity	53%	45%	40%	33%	31%	24%	22%	24%	24%	24%	24%	24%	24%	24%	24%
Starts	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232
EBH Reset Counter	10,206	14,139	17,678	2,908	5,624	7,761	9,706	2,059	4,152	6,228	8,296	2,067	4,135	6,202	8,269
ES Reset Counter	626	858	1,089	232	464	695	927	232	464	695	927	232	464	695	927
LTSA EBH	\$2,418,899	\$2,049,218	\$1,843,840	\$1,515,235	\$1,414,828	\$1,113,606	\$1,013,199	\$1,072,531	\$1,090,786	\$1,081,659	\$1,077,095	\$1,077,095	\$1,077,095	\$1,077,095	\$1,077,095
LTSA Start Penalty	\$0	\$0	\$3,814,720	\$0	\$0	\$0	\$7,968,132	\$0	\$0	\$0	\$8,702,930	\$0	\$0	\$0	\$8,716,622
<b>Totals</b>	<b>\$2,418,899</b>	<b>\$2,049,218</b>	<b>\$5,658,560</b>	<b>\$1,515,235</b>	<b>\$1,414,828</b>	<b>\$1,113,606</b>	<b>\$8,981,331</b>	<b>\$1,072,531</b>	<b>\$1,090,786</b>	<b>\$1,081,659</b>	<b>\$9,780,024</b>	<b>\$1,077,095</b>	<b>\$1,077,095</b>	<b>\$1,077,095</b>	<b>\$9,793,716</b>
			<b>CI/HGP</b>				<b>CI/MI</b>				<b>CI/HGP</b>				<b>CI/HGP</b>

**NPV for Start Penalty @ 3% (2014 - 2034) = \$26.82m**

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capacity	53%	45%	40%	33%	31%	24%	22%	24%	24%	24%	24%	24%	24%	24%	24%
Starts	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232
EBH Reset Counter	10,206	14,139	17,678	2,908	5,624	7,761	9,706	11,765	13,858	2,076	4,143	6,211	8,278	10,346	12,413
ES Reset Counter	626	858	1,089	232	464	695	927	1,159	1,391	232	464	695	927	1,159	1,391
LTSA EBH	\$2,418,899	\$2,049,218	\$1,843,840	\$1,515,235	\$1,414,828	\$1,113,606	\$1,013,199	\$1,072,531	\$1,090,786	\$1,081,659	\$1,077,095	\$1,077,095	\$1,077,095	\$1,077,095	\$1,077,095
LTSA Start Penalty	\$0	\$0	\$3,814,720	\$0	\$0	\$0	\$0	\$0	\$5,804,815	\$0	\$0	\$0	\$0	\$0	\$6,557,869
<b>Totals</b>	<b>\$2,418,899</b>	<b>\$2,049,218</b>	<b>\$5,658,560</b>	<b>\$1,515,235</b>	<b>\$1,414,828</b>	<b>\$1,113,606</b>	<b>\$1,013,199</b>	<b>\$1,072,531</b>	<b>\$6,895,602</b>	<b>\$1,081,659</b>	<b>\$1,077,095</b>	<b>\$1,077,095</b>	<b>\$1,077,095</b>	<b>\$1,077,095</b>	<b>\$7,634,963</b>
			<b>CI/HGP</b>						<b>CI/MI</b>						<b>CI/HGP</b>

**NPV for Start Penalty @ 3% (2014 - 2034) = \$15.68m**

# LEC LTP And Advanced Hardware Proposal

- Recommendation
  - Revise Long Term Maintenance Program
  - Notify Siemens to reserve parts for April 2015 Outage



## Lodi Energy Center Project Participant Committee

### Staff Report

AGENDA ITEM NO.: 12

---

**Date:** June 4, 2014  
**To:** Lodi Energy Center Project Participant Committee  
**Subject:** Amendment to the LEC Long Term Maintenance Program

---

#### Proposal

Amend the Long Term Maintenance Program for Lodi Energy Center to reflect a start-up operational profile. This includes upgrading combustion turbine parts to increase equivalent start intervals for Hot Gas Path (HGP) and Major Inspections (MI). In addition the proposed revisions include a program extension, contract clarity for “open/close” warranty parts liability, and an increase to property damage limits.

#### Background

NCPA and Siemens entered into a Long Term Maintenance Program (LTP) on September 13<sup>th</sup> 2010. The LTP outlines the responsibilities between NCPA and Siemens for minor and major inspections for the combustion and steam turbine. The program also outlines the intervals of inspection by equivalent base hours (EBH) or equivalent starts (ES). Since LEC was commissioned the operation profile of LEC has triggered the equivalent start based maintenance scenario. In doing so, the intervals for minor and major inspection are coming much sooner than an equivalent base hour interval scenario.

Recently Siemens has proposed new advance parts that can extend the equivalent start based maintenance interval or major inspections and eliminate the smaller Combustion Inspections (CI). These new advance parts are used for Siemens new combustion turbines and are now being offered for older combustion turbines. Since the newer combustion turbines run at higher temperature and output, these new parts are not as detrimentally impacted by LEC’s lower temperature and output hence the longer life and intervals.

In addition to the increased proposed time intervals for inspections, Siemens will increase the program life to the 3<sup>rd</sup> Major inspection, increase property damage limits to \$9m, and clarify the program “open/close” access to the warranty parts within the property damage limits.

#### Fiscal Impact

The capital cost of the project is \$0. The project will be paid for through the continued payment of equivalent base hours as well as a contract extension. This project was not included in the current fiscal year budget. Funds are not required to fund this project.

**SR:**

Environmental Analysis

The combustion components being replaced are upgraded in materials and coatings for improved life and reliability. There were no design changes to the combustion itself or the emissions, fuel input or power output.

This activity would not result in a direct or reasonably foreseeable indirect change in the physical environment and is therefore not a "project" for purposes of Section 21065 the California Environmental Quality Act. No environmental review is necessary.

Recommendation

NCPA staff recommends that the PPC pass a motion authorizing NCPA to negotiate with Siemens to amend the Long Term Maintenance Program to reflect a start-up operational profile. This includes upgrading combustion turbine parts to increase equivalent start intervals for Hot Gas Path (HGP) and Major Inspections (MI). In addition the proposed revisions include a program extension, contract clarity for "open/close" warranty parts liability, and an increase to property damage limits.

Prepared by:

MICHAEL DeBORTOLI  
Lodi Energy Center Plant Manager

Attachments: (1)

- Siemens Long Term Maintenance Agreement

**SR:**

# SIEMENS

September 20, 2010

Ed Warner  
Northern California Power Agency  
Combustion Turbine Facilities Manager  
Lodi Energy Center Project Manager  
PO Box 1478  
12745 N. Thornton Rd.  
Lodi, CA. 95242  
ed.warner@ncpagen.com  
209.333.6370 ext. 100

Subject: Executed Long Term Maintenance Program

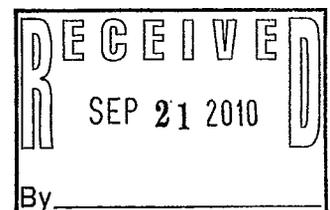
Dear Mr. Ed Warner,

Siemens has included herewith one (1) fully executed copy of the Long Term Maintenance Program for the Lodi Energy Center Project.

Sincerely,



Travis A Douglas  
Marketing Manager  
Service Program Marketing



PROGRAM PARTS, NON-PROGRAM PARTS, MISCELLANEOUS HARDWARE, PROGRAM  
MANAGEMENT SERVICES AND SCHEDULED OUTAGE SERVICES CONTRACT

between

NORTHERN CALIFORNIA POWER AGENCY

and

SIEMENS ENERGY, INC.

Dated as of 9 13, 2010

LODI ENERGY CENTER PROJECT

## TABLE OF CONTENTS

<b>ARTICLE 1. DEFINITIONS; GENERAL REFERENCES .....</b>	<b>1</b>
1.1 <u>DEFINED TERMS</u> .....	1
1.2 <u>GENERAL REFERENCES</u> .....	6
<b>ARTICLE 2. CONTRACT DOCUMENTS .....</b>	<b>6</b>
2.1 <u>CONTRACT DOCUMENTS</u> .....	6
2.2 <u>CONFLICTING PROVISIONS</u> .....	6
<b>ARTICLE 3. SCOPE OF WORK .....</b>	<b>7</b>
3.1 <u>SELLER'S SCOPE</u> .....	7
3.2 <u>BUYER'S SCOPE</u> .....	7
<b>ARTICLE 4. CONTRACT PRICE AND PAYMENT TERMS .....</b>	<b>7</b>
4.1 <u>CONTRACT PRICE</u> .....	7
4.2 <u>TAXES</u> .....	7
4.3 <u>INVOICES</u> .....	7
4.4 <u>PAYMENT</u> .....	7
4.5 <u>NOTICE OF PAYMENT DISPUTES</u> .....	7
4.6 <u>LATE PAYMENTS</u> .....	8
<b>ARTICLE 5. TERM AND OUTAGES .....</b>	<b>8</b>
5.1 <u>TERM</u> .....	8
5.2 <u>UNSCHEDULED OUTAGE</u> .....	8
5.3 <u>UNSCHEDULED OUTAGE WORK</u> .....	8
5.4 <u>SELLER'S RESPONSIBILITY FOR DAMAGE TO BUYER'S PROPERTY</u> .....	8
<b>ARTICLE 6. CHANGES .....</b>	<b>10</b>
6.1 <u>REQUEST FOR CHANGES</u> .....	10
6.2 <u>ADJUSTMENT</u> .....	10
6.3 <u>NO ADDITIONAL COMPENSATION CHANGES</u> .....	10
6.4 <u>MINIMUM OPERATING REQUIREMENTS</u> .....	10
6.5 <u>CHANGES IN PROGRAM PARTS</u> .....	10
6.6 <u>ALLOWANCE FOR CERTAIN EXTRA WORK</u> .....	10
6.7 <u>EXHAUST CYLINDER AND MANIFOLD REPLACEMENT</u> .....	10
<b>ARTICLE 7. DELIVERY, TITLE, RISK OF LOSS AND TRANSPORTATION.....</b>	<b>11</b>
7.1 <u>PROGRAM PARTS, NON-PROGRAM PARTS; MISCELLANEOUS HARDWARE OR EXHAUST COMPONENTS</u> .....	11
7.2 <u>TITLE AND RISK OF LOSS</u> .....	11
7.3 <u>TRANSPORTATION</u> .....	11
<b>ARTICLE 8. WARRANTIES .....</b>	<b>12</b>
8.1 <u>PROGRAM PARTS TERM WARRANTY AND EXCLUSIVE REMEDY</u> .....	12
8.2 <u>MISCELLANEOUS HARDWARE AND NON-PROGRAM PART WARRANTY AND EXCLUSIVE REMEDY</u> .....	12
8.3 <u>SERVICES WARRANTY AND EXCLUSIVE REMEDY</u> .....	13
8.4 <u>WARRANTY CONDITIONS</u> .....	13
8.5 <u>EXCLUSIVITY OF WARRANTIES AND REMEDIES</u> .....	14
8.6 <u>WARRANTY LIABILITIES</u> .....	15
8.7 <u>EXHAUST COMPONENTS WARRANTY AND EXCLUSIVE REMEDY</u> .....	15
<b>ARTICLE 9. INTELLECTUAL PROPERTY .....</b>	<b>15</b>
9.1 <u>PATENT, TRADEMARK OR COPYRIGHT INFRINGEMENT</u> .....	15
9.2 <u>LIMITATION OF INTELLECTUAL PROPERTY OBLIGATIONS</u> .....	16
9.3 <u>PROTECTION OF SELLER'S INTELLECTUAL PROPERTY RIGHTS</u> .....	16
9.4 <u>EXCLUSIVITY OF DUTIES AND REMEDIES</u> .....	16
<b>ARTICLE 10. COMPLIANCE WITH LAWS.....</b>	<b>16</b>
10.1 <u>GENERALLY</u> .....	16
10.2 <u>CHANGES IN LAW</u> .....	16

<b>ARTICLE 11. INSURANCE</b>	<b>17</b>
11.1 SELLER'S INSURANCE	17
11.2 BUYER'S INSURANCE	18
<b>ARTICLE 12. TERMINATION</b>	<b>18</b>
12.1 TERMINATION FOR SELLER'S INABILITY TO PERFORM	18
12.2 TERMINATION FOR SELLER'S FAILURE TO PERFORM	19
12.3 BUYER'S AND SELLER'S RIGHTS, DUTIES AND OBLIGATIONS UPON BUYER'S TERMINATION	19
12.4 TERMINATION PRIOR TO PERIOD 1	20
12.5 TERMINATION BY SELLER	20
12.6 BUYER'S AND SELLER'S RIGHTS, DUTIES AND OBLIGATIONS UPON SELLER'S TERMINATION	21
<b>ARTICLE 13. INDEMNIFICATION</b>	<b>22</b>
13.1 SELLER'S INDEMNITY	22
13.2 BUYER'S INDEMNITY	23
<b>ARTICLE 14. LIMITATION OF LIABILITY</b>	<b>23</b>
14.1 RESTRICTIONS ON RECOVERABLE DAMAGES	23
14.2 EXCLUSIVE REMEDY AND LIMITATION ON LIABILITY	24
14.3 EXTENT OF WAIVERS	24
14.4 EXTENT OF CONFLICTS	24
<b>ARTICLE 15. FORCE MAJEURE</b>	<b>25</b>
15.1 EXCUSE BY FORCE MAJEURE	25
15.2 EFFECT OF FORCE MAJEURE	25
<b>ARTICLE 16. MISCELLANEOUS</b>	<b>25</b>
16.1 CONFIDENTIAL OR PROPRIETARY INFORMATION	25
16.2 SUBCONTRACTORS	26
16.3 THIRD PARTIES	27
16.4 DISPUTE RESOLUTION	27
16.5 ASSIGNMENT AND DELEGATION	28
16.6 SEVERABILITY	28
16.7 AMENDMENTS	28
16.8 JOINT EFFORT	28
16.9 CAPTIONS	28
16.10 NON-WAIVER	28
16.11 APPLICABLE LAW	29
16.12 SUCCESSORS AND ASSIGNS	29
16.13 COUNTERPARTS	29
16.14 NOTICES	29
16.15 COMPLETE CONTRACT	29
16.16 SITE ACCESS	30
16.17 PERMITS AND LICENSES	30
16.18 SPECIAL PACKING	30
16.19 RETURN OF PROGRAM PARTS, NON-PROGRAM PARTS OR MISCELLANEOUS HARDWARE	30
16.20 TRANSFER	30
16.21 SURVIVAL	30
16.22 ENVIRONMENTAL COMPLIANCE	30
16.23 ASBESTOS AND THERMAL INSULATION	31
16.24 EXPORT LAW COMPLIANCE	31
<b>EXHIBIT A SCOPE OF WORK DESCRIPTION</b>	<b>1</b>
ADDENDUM 1A SCHEDULED OUTAGE SERVICES DESCRIPTION	4
ADDENDUM 1B SST-900RH STEAM TURBINE SCHEDULED OUTAGE SERVICES DESCRIPTION	11
ADDENDUM 2A COMBUSTION TURBINE SCHEDULED OUTAGE DIVISION OF RESPONSIBILITIES	14
ADDENDUM 2B STEAM TURBINE SCHEDULED OUTAGE DIVISION OF RESPONSIBILITIES	15
ADDENDUM 3 SCOPE OF PROGRAM MANAGEMENT SERVICES	19
<b>EXHIBIT B COMBUSTION TURBINE PROGRAM PARTS LIST</b>	<b>1</b>

**EXHIBIT C PROJECTED SCHEDULED OUTAGE PLAN.....1**  
**EXHIBIT D SERVICE BULLETIN 55004.....1**  
**EXHIBIT E PAYMENT SCHEDULE.....1**  
**EXHIBIT F NOT USED.....1**  
**EXHIBIT G CANCELLATION SCHEDULE .....1**  
**EXHIBIT H CHANGE ORDER FORMAT .....1**  
**EXHIBIT I NATURAL GAS, FUEL OIL AND WATER SPECIFICATIONS.....1**  
**EXHIBIT J MAINTENANCE LABOR AGREEMENT .....1**  
**EXHIBIT K REMOTE MONITOR SYSTEM .....1**

PROGRAM PARTS, NON-PROGRAM PARTS, MISCELLANEOUS HARDWARE, PROGRAM  
MANAGEMENT SERVICES AND SCHEDULED OUTAGE SERVICES CONTRACT

THIS PROGRAM PARTS, NON-PROGRAM PARTS, MISCELLANEOUS HARDWARE, PROGRAM MANAGEMENT SERVICES AND SCHEDULED OUTAGE SERVICES CONTRACT is entered into as of September 13, 2010 (the "Effective Date"), by and between NORTHERN CALIFORNIA POWER AGENCY, a Joint Powers Agency formed under the California's Joint Exercise of Powers Act pursuant to Government Code § 6500, et seq., ("Buyer"), and SIEMENS ENERGY, INC., a Delaware corporation ("Seller").

WHEREAS, Buyer is developing a power project to be located in Lodi, California (the "Project"); and

WHEREAS, in connection with the Project, Buyer desires to purchase, from Seller, and Seller agrees to provide, Program Parts, Non-Program Parts, Miscellaneous Hardware, Scheduled Outage Services and Program Management Services all as more particularly described herein;

NOW, THEREFORE, in consideration of these premises and mutual covenants contained herein, the Parties hereby agree as follows:

ARTICLE 1. DEFINITIONS; GENERAL REFERENCES

1.1 Defined Terms. The following terms shall have the following meanings when used in this Contract, unless the context requires otherwise:

"Buyer" has the meaning set forth in the Preamble. (Unless otherwise stated herein, the Buyer owns the plant ("Owner")).

"Calendar Year" means the period of time beginning on January 1<sup>st</sup>, 00:01 and concluding on December 31<sup>st</sup>, 24:00.

"Change" has the meaning set forth in Article 6.

"Change Order" means a change order to the Contract as mutually agreed by the Parties and issued in accordance with Article 6.

"Combustion Turbine" means the Project's one (1) SGT6-5000F combustion turbine.

"Combustor Inspection Scheduled Outage" or "Combustor Scheduled Outage" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1A of Exhibit A.

"Commercial Operation" shall mean when the Project or any Combustion Turbine is operated by Buyer, or any agent, contractor, lessee, assignee or affiliate of Buyer or the Owner of the Project for commercial purposes.

"Contract" means this Program Parts, Non-Program Parts, Miscellaneous Hardware, Program Management Services and Scheduled Outage Services Contract, including all Exhibits hereto, as amended from time to time.

"Contract Price" has the meaning set forth in Section 4.1.

"Covered Work" has the meaning set forth in Exhibit J.

"Day" means a calendar day.

"Delayed Payment Rate" means a rate of interest per annum equal to ten percent (but not to exceed ten percent (10%)) or the maximum rate permitted by applicable Law, whichever is less.

"Delivery" has the meaning set forth in Article 7.

"Disputed Documents" has the meaning set for in Section 16.1.2.

"Dollar(s)" or "\$" means the lawful currency of the United States.

"Effective Date" means the date set forth in the opening paragraph of this Contract.

"Equivalent Base Hours" or "EBH" means the calculated result of equivalent base hours determined in accordance with Exhibit D, Service Bulletin 55004 as amended from time to time by Seller.

"Equivalent Starts" or "ES" means the calculated result of equivalent starts determined in accordance with Exhibit D, Service Bulletin 55004 as amended from time to time by Seller.

"Escalation Factor" means the net percentage increase or decrease (as the case may be) in the U.S. Consumer Price Index – Urban CUUR0000SA0 over the period from the published value for January 2010 ("Base Value") through the value as of the date of the invoice utilizing the most current escalation data that is released at the time such invoice is issued. If such index ceases to be published then such similar substitute index as is mutually agreed to by the Parties, shall apply. All payments to Seller of Fees shall be in U.S. Dollars, escalated at the time of invoice according to the Escalation Factor. All Fees are subject to the Escalation Factor calculated from the Base Value. With each invoice, Seller shall provide to Buyer the Escalation Factor applicable for such invoice. The Escalation Factor shall be calculated by the following formula:

Escalation Factor =  $1 + ((X - \text{Base Value}) / \text{Base Value})$ , where X is the lesser of:  
(a) the latest month's U.S Consumer Price Index-Urban (CUUR0000SA0) at the time such invoice is issued or (b) the Escalation Factor Cap.

"Escalation Factor Cap" means the net total allowable increase in the U.S. Consumer Price Index – Urban (CUUR0000SA0) over the period from the Base Value through the date of the applicable invoice during the Term. The Escalation Factor Cap shall be calculated by the following formula:

Escalation Factor Cap = the greater of:

(a)  $\text{Base Value} * (1.04)^{(n/12)}$ , where n = number of months from the base date of January 2010 to the date of invoice, or

(b) the latest month's value for the U.S Consumer Price Index-Urban (CUUR0000SA0) at the time such invoice is issued \* 0.95.

"Exhaust Components" means the following components: single piece exhaust cylinder, exhaust spacer piece transition, exhaust manifold, and exhaust expansion joint.

"Exhaust Components Warranty" has the meaning set forth in Section 8.7.

"Fee" or "Fees" means the payment amount calculated pursuant to the rates listed in Exhibit E, Payment Schedule.

"First Fire" means the date on which a Combustion Turbine has experienced combustion for the first time after initial installation.

"Fixed Annual Fee" has the meaning set forth in Exhibit E, Payment Schedule.

"Force Majeure" has the meaning set forth in Section 15.1 of this Contract.

"Government Authority" has the meaning set forth in Section 16.1.2.

"Hot Gas Path Inspection Scheduled Outage" or "Hot Gas Path Scheduled Outage" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1A of Exhibit A.

"Laws" means the laws applicable to the performance of this Contract, and includes statutes, rules, regulations, orders and ordinances or specified standards or objective criteria contained in any applicable license, permit or approval, or other legislative or administrative act, of the United States of America or any state of the United States, agency, department, authority, political subdivision or other instrumentality thereof, or a decree, judgment or order of a court, including but not limited to those governing wages, hours, employment discrimination and safety, laws regarding workers' compensation, disability laws and employee benefit laws.

"Major Inspection Scheduled Outage" or "Major Scheduled Outage" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1A of Exhibit A.

"Miscellaneous Hardware" means miscellaneous hardware items such as pins, springs, studs, gaskets, tie wires, fasteners, screws, washers, nuts or bolts which are required to roll out and roll in the Program Parts during a Scheduled Outage which is supplied by Seller during a Scheduled Outage under this Contract or in accordance with a Change Order hereto, issued pursuant to Article 6, Changes.

"Miscellaneous Hardware and Non-Program Part Warranty" has the meaning set forth in Section 8.2.

"Normal Carriage" has the meaning set forth in Section 7.3.2, Normal Carriage.

"Non-Program Part(s)" means all parts and components of a Combustion Turbine other than Program Parts, Miscellaneous Hardware and all instrumentation, control devices and wiring maintained by Buyer; *provided* that such parts or components are located on or inside of the

applicable Combustion Turbine within the following boundaries: (a) from the Combustion Turbine side of the inlet bellmouth flange to and including (b) the Combustion Turbine side of the exhaust cylinder and (c) the Combustion Turbine side of all flanges and/or connections located directly on the Combustion Turbine proper which may be purchased by Buyer and supplied by Seller hereunder pursuant to a Change Order.

"Normal Wear and Tear" means the wear and tear incurred by the Program Parts as a result of operation and maintenance of the Combustion Turbine by Buyer in accordance with (i) Buyer's obligations specified in Exhibit A, Scope of Work Description and (ii) the warranty conditions specified in Section 8.4 below. Normal wear and tear expressly excludes any secondary/up or down stream/up or down flow damage caused by the failure of some other item, piece, part or equipment up or down stream/up or down flow.

"Original Equipment Supply Contract ("OESC")" means the contract for supply of the one (1) SGT6-5000F Combustion Turbine, and one (1) Steam Turbine between Siemens Energy, Inc. and Northern California Power Agency dated May 6, 2009.

"Parties" means Buyer and Seller.

"Party" means Buyer or Seller as applicable.

"Period" means the interval from the completion of one Scheduled Outage of the Combustion Turbine or the Steam Turbine through the completion of the next Scheduled Outage of such Combustion Turbine or Steam Turbine, per Exhibit C Projected Scheduled Outage Plan. For the purpose of this definition, the initial period shall begin on the date of First Fire of the Combustion Turbine.

"Price List" means the price quoted by Seller pursuant to this Contract, as amended from time to time by Seller.

"Program Initialization Fee" has the meaning set forth in Exhibit E, Payment Schedule.

"Program Management Services" means all of the services associated with Combustion Turbine or Steam Turbine maintenance program to be provided by Seller hereunder during the Term, as described in Exhibit A, Scope of Work Description.

"Program Part(s)" means the type of part(s) of the Combustion Turbine that are listed in Exhibit B, Program Parts List plus the equivalent parts to those listed in Exhibit B, Program Parts List, which were included in the original Combustion Turbine once the warranty for those equivalent parts under the OESC has expired.

"Program Parts Term Warranty" has the meaning given in Section 8.1.

"Project" has the meaning set forth in the Preamble.

"Project Financing Close" means Buyer's written notice to Seller that Buyer has successfully acquired financing for the Project.

"Remote Monitor System" has the meaning set forth in Exhibit K, Remote Monitor System.

"Scheduled Outage" means a planned outage of the Combustion Turbine or the Steam Turbine, each as applicable, to perform the applicable Scheduled Outage Services described in Exhibit A, Scope of Work Description.

"Scheduled Outage Services" means all of the services to be provided by Seller hereunder during the applicable Scheduled Outage, as described in Exhibit A, Scope of Work Description.

"Scheduled Outage TFA Services" means all of the TFA Services to be provided by Seller hereunder during the applicable Scheduled Outage.

"Scheduled Outage Technical Field Specialist Services" means all of the Technical Field Specialist Services to be provided by Seller hereunder during the applicable Scheduled Outage.

"Seller" has the meaning set forth in the Preamble.

"Serviceable Program Part" means, with respect to a Program Part, that such Program Part is suitable for operation in the Combustion Turbine until such Program Part's next Scheduled Outage.

"Services" means any and all services to be provided by Seller under this Contract including but not limited to Scheduled Outage TFA Services, Scheduled Outage Technical Field Specialist Services, Scheduled Outage Services, Program Management Services and any services performed in accordance with a Change Order hereto issued pursuant to Article 6, Changes.

"Services Warranty" has the meaning given in Section 8.3.

"SGSC" has the meaning set forth in Section 16.2.

"Site" means the real property located in Lodi, California, on which the Project is to be or has been constructed.

"Steam Turbine" means the Project's one (1) steam turbine.

"Steam Turbine Annual Safety Inspection" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1B of Exhibit A.

"Steam Turbine Limited Overhaul" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1B of Exhibit A.

"Steam Turbine Major Overhaul" means the type of Scheduled Outage and its associated Services as set forth in Addendum 1B of Exhibit A.

"Subcontractor(s)" shall mean any licensor, subcontractor or supplier of any tier supplying material, equipment, labor, goods or services directly to Seller in connection with its obligations under the Contract.

"Technical Field Specialist Services" means the Combustion Turbine or Steam Turbine disassembly, field inspection, field welding and reassembly services provided by a technical field specialist of Seller on the Combustion Turbine or Steam Turbine.

"Term" has the meaning given in Section 5.1.

"TFA Services" or "Technical Field Assistance Services" means the advice and consultation given to Buyer's personnel by a technical field assistance service representative of Seller with respect to:

- (i) installation, inspection, repair and maintenance activities performed by others at the Site, and
- (ii) any Seller recommended quality assurance procedures for activities performed at the Site.

TFA Services does not include management, supervision or regulation of Buyer's personnel, agents and contractors.

"Unscheduled Outage" means any outage of a Combustion Turbine or Steam Turbine other than a Scheduled Outage per Exhibit C, Projected Scheduled Outage Plan.

"Variable Fee" has the meaning set forth in Exhibit E, Payment Schedule.

1.2 General References. As used in this Contract, the terms "herein," "herewith" and "hereof" are references to this Contract, taken as a whole, the term "includes" or "including" shall mean "including, without limitation," and references to a "Section," "subsection," "clause," "Article" or "Exhibit" shall mean a Section, subsection, clause, Article or Exhibit of this Contract, as the case may be, unless in any such case the context requires otherwise. The singular shall include the plural and the masculine shall include the feminine and neuter, and vice versa.

## ARTICLE 2. CONTRACT DOCUMENTS

2.1 Contract Documents. This Contract consists of this contract document itself and the following Exhibits which are specifically made a part hereof by reference:

Exhibit A	-	Scope of Work Description
Exhibit B	-	Combustion Turbine Program Parts List
Exhibit C	-	Projected Scheduled Outage Plan
Exhibit D	-	Service Bulletin 55004
Exhibit E	-	Payment Schedule
Exhibit F	-	Not Used
Exhibit G	-	Cancellation Schedule
Exhibit H	-	Change Order Format
Exhibit I	-	Natural Gas, Fuel Oil and Water Specifications
Exhibit J	-	Maintenance Labor Agreement (MLA)
Exhibit K	-	Remote Monitor System

2.2 Conflicting Provisions. This Contract document and the Exhibits are intended to be interpreted consistently to the maximum extent possible. In the event of any conflict between this document and any Exhibit hereto, the terms and provisions of this document, as amended from time to time, shall control. In the event of any conflict among the Exhibits, the following order of precedence shall govern: Exhibit G, E, A, J, B, C, D, I, K and H. Subject to the foregoing, the several instruments forming part of this Contract are to be taken as mutually

explanatory of one another and in the case of ambiguities or discrepancies within or between such parts the same shall be explained and adjusted by the mutual agreement of the Parties.

### ARTICLE 3. SCOPE OF WORK

3.1 Seller's Scope. During the Term, Seller shall fulfill its workscope obligations specified in Exhibit A, Scope of Work Description, and shall supply any equipment, Program Parts, Non-Program Parts, Miscellaneous Hardware, Exhaust Components or Services mutually agreed to by the Parties and specified in a Change Order issued pursuant to Article 6, Changes.

3.2 Buyer's Scope. During the Term, Buyer shall fulfill its workscope obligations specified in Exhibit A, Scope of Work Description, and shall perform any other workscope obligations mutually agreed to by the Parties and specified in a Change Order issued pursuant to Article 6, Changes.

### ARTICLE 4. CONTRACT PRICE AND PAYMENT TERMS

4.1 Contract Price. In consideration of the Program Parts, Non-Program Parts, Miscellaneous Hardware and Services provided by Seller, Buyer will pay to Seller the Fees as adjusted either up or down by the Escalation Factor at the time of each invoice. The "Contract Price" shall be the aggregate total of the Fees as adjusted plus any additional payment amount mutually agreed to by the Parties pursuant to a Change Order hereto.

4.2 Taxes. The Contract Price does not include any federal, state, or local property, license, privilege, sales, use, excise, value added, gross receipts, or similar taxes now or hereafter applicable to, measured by, or imposed upon or with respect to the transaction, the property, its sale, its value or its use, or any services performed in connection therewith. Buyer agrees to pay or reimburse Seller for any such taxes levied by the United States of America, the State of California, or other United States local political subdivision, which Seller or its Subcontractors are required to pay, except Seller will be responsible for its own federal and state income taxes as well as taxes on its own payroll. Should Buyer be exempted from any such tax, it shall provide Seller with certification thereof within thirty (30) Days after the Effective Date or at the time the exemption is obtained, whichever first occurs. In the event of an audit by a taxing authority, the Parties shall cooperate with each other and disclose necessary documentation, subject to the provisions of Article 16, as required by the taxing authority in conjunction with the audit.

4.3 Invoices. Per Exhibit E, Payment Schedule, Seller shall furnish Buyer an invoice indicating the Fee being invoiced, as adjusted up or down by the Escalation Factor at the time of such invoice.

4.4 Payment. Within thirty (30) Days following the date Buyer receives each invoice under Section 4.3, Buyer shall pay to Seller the undisputed amount of the invoice. All payments to Seller shall be made by electronic transfer of funds to the account of the Seller at Mellon Bank, N. A. Account Number 038-0269, ABA No. 043000261, or such other depository as Seller shall designate by written notice to Buyer.

4.5 Notice of Payment Disputes. If prior to the expiration of the applicable period for payment referenced in Section 4.4, Buyer disputes any amount invoiced by Seller on the basis that any Program Parts, Miscellaneous Hardware or Scheduled Outage Services have not been

provided in accordance with this Contract, then Buyer shall, prior to the expiration of such period, provide Seller with written notice identifying the basis for and precise amount of such dispute. Thereafter, the payment of any such genuinely disputed amounts may be deferred until such dispute has been resolved to the satisfaction of Buyer and Seller. Any dispute which is not resolved by mutual agreement shall be resolved in accordance with Section 16.4.

4.6 Late Payments. Any past due amounts shall, without prejudice to Seller's right to payment when due, bear interest at the Delayed Payment Rate beginning upon the Day following the date payment is due. If there is a dispute about any amount invoiced by Seller, the amount not in dispute shall be promptly paid as described in this Article 4, and any disputed amount which is ultimately determined to have been payable prior to the actual date of payment shall be paid with interest, at the Delayed Payment Rate, from the date due to the date of payment.

## ARTICLE 5. TERM AND OUTAGES

5.1 Term. The Term of the Contract shall commence on the Effective Date and unless terminated early pursuant to Article 12, shall expire upon the earlier of:

- (i) the date the Combustion Turbine accumulates one hundred thousand (100,000) EBHs, or
- (ii) the date that is eighteen (18) years after the Contract's Effective Date.

5.2 Unscheduled Outage. If, during the Term, an Unscheduled Outage occurs, then Buyer shall, pursuant to a Change Order, hire Seller to supply any Program Parts, Non-Program Parts, Miscellaneous Hardware, TFA Service work, Technical Field Specialist Service work and/or Services on the Combustion Turbine and Steam Turbine required for such Unscheduled Outage, and Seller shall supply same to the extent not covered by Seller's warranties contained in Article 8 of this Contract, at the prices specified in Seller's then current domestic Price List(s) in effect at the time of supply or performance or in Seller's price quote at the time of supply or performance for elements not included in Seller's domestic Price List(s).

5.3 Unscheduled Outage Work. Seller shall be entitled to a Change Order for any additional Program Parts, Non-Program Parts, Miscellaneous Hardware, TFA Service work, Technical Field Specialist Service work and/or Services on the Combustion Turbine and Steam Turbine pursuant to Section 5.2 above in accordance with Article 6. In addition, Buyer shall give Seller the opportunity to perform, at Seller's expense, a root cause analysis of the Unscheduled Outage. In the case of an Unscheduled Outage, Seller, upon notification from Buyer via a Change Order, agrees to take prompt action(s) to mobilize its service personnel to the Site to provide the Services requested in such Change Order, and agrees to provide any Program Parts, Non-Program Parts or Miscellaneous Hardware specified in such Change Order, as soon as reasonably practicable, to minimize downtime.

### 5.4 Seller's Responsibility for Damage to Buyer's Property.

5.4.1 Subject to the provisions stated in this Section 5.4 below, if a Program Part, an item of Miscellaneous Hardware or a Service provided by Seller pursuant to this Contract fails to conform to the corresponding Program Parts Term Warranty stated in Section 8.1, the Miscellaneous Hardware and Non-Program Part Warranty stated in Section 8.2 or the

Services Warranty stated in Section 8.3, and such failure causes sudden and accidental damage to Buyer's property then for each such event Seller shall credit Buyer for the actual direct costs incurred by Buyer for the following:

- (i) Seller's uncovering, gaining access to, removing and replacing the Program Part, Miscellaneous Hardware or Service, including disassembly and reassembly of the Combustion Turbine or Steam Turbine that does not conform to its respective warranty as set forth in Section 8, Warranties, to the extent that Seller provided such uncovering; gaining access to, removal and replacement of the non-conforming Program Part, item of Miscellaneous Hardware or such Services hereunder and
- (ii) damage to Buyer's property to the extent that such property damage was caused by the failure of a Program Part, an item of Miscellaneous Hardware or a Service to conform to its respective warranty as set forth in Article 8, Warranties.

Seller's obligations under this Section 5.4 shall be limited on a per event basis to the lesser of:

- (a) the actual direct cost incurred by Buyer to repair the property damage including uncovering, gaining access to, removal and replacement costs, to be substantiated to the reasonable satisfaction of Seller, or
- (b) an amount of one million Dollars (U.S. \$1,000,000).

Seller's obligations under this Section 5.4 shall be limited to an aggregate financial limitation of two million Dollars (U.S. \$2,000,000) for all such events occurring within each Calendar Year and a total aggregate financial limitation of six million Dollars (\$6,000,000) for all such events occurring during the Contract's Term.

- 5.4.2 As a condition precedent to Seller's performance of its obligations under this Section 5.4, the Parties shall enter into a Change Order pursuant to which Buyer shall purchase and Seller shall provide all labor, parts, repairs and materials required for the repair of the related property damage necessary to return the applicable Combustion Turbine or Steam Turbine to an operable condition. Seller's obligations under Section 5.4, shall not apply to any liabilities arising out of or related to events or circumstances occurring after either the expiration of the Contract's Term or the termination of the Contract, whichever occurs first.
- 5.4.3 If Buyer has property damage insurance, it shall obtain waivers of rights of subrogation from its property damage insurer(s) against Seller. If any such waiver of subrogation is not obtained by Buyer, Buyer shall defend, indemnify and hold Seller and its affiliates harmless in and from any claim or proceeding by Buyer's insurer(s) seeking subrogation which should have been waived.
- 5.4.4 The crediting of the amounts by Seller to Buyer as set forth in this Section 5.4 shall be Buyer's sole and exclusive remedy for damage to Buyer's Property and access to warranty non-conformities including uncovering, gaining access to, removing and replacing the Program Part, Miscellaneous Hardware or Service, including disassembly and reassembly of the Combustion Turbine and Steam Turbine whether claims of the Buyer are based in contract, in tort (including negligence and strict liability) or otherwise.

Such amounts due Buyer by Seller pursuant to this Section 5.4 shall be effected by a credit to Buyer's account toward payments due under this Contract.

## ARTICLE 6. CHANGES

6.1 Request For Changes. Buyer or Seller may request changes within the scope of the Contract and if accepted by the other Party the price, performance, schedule, and other pertinent provisions of the Contract will be adjusted by mutual agreement of the Parties and documented in a written "Change Order" prior to implementation of the "Change". The format for Change Orders is listed in Exhibit H, Change Order Format.

6.2 Adjustment. Additional expenses incurred and time spent by Seller due to (i) delays, other than delays within the reasonable control of Seller, and (ii) changes in applicable Laws and requirements after the Effective Date of the Contract, as applicable, will be treated as changes to the scope of work and the Contract will be adjusted as set forth in the previous paragraph.

6.3 No Additional Compensation Changes. Seller may make a change(s) in its Program Parts and Miscellaneous Hardware, or Services supplied hereunder without additional compensation from Buyer if such change(s) does not adversely affect the warranties or performance of any Scheduled Outage.

6.4 Minimum Operating Requirements. The basis of this Contract is that the Combustion Turbine shall be operated at (a) no less than four thousand (4,000) Equivalent Base Hours per Calendar Year and (b) no more than two hundred fifty (250) Equivalent Starts per Calendar Year. Should the actual operations differ from these operating parameters then the Seller shall be entitled to adjustment in its scope, schedule and price to address such differences pursuant to a Change Order.

6.5 Changes in Program Parts. To the extent that Seller makes changes in style or configuration of any Program Parts and the style numbers of such Program Parts, as originally supplied at the inception of this Contract, are no longer made available for sale by Seller, such changed or re-configured Program Parts shall be made available to Buyer in their normal replacement sequence, without additional charge, during the Term of this Contract. However, if both the originally supplied Program Part and a changed or reconfigured Program Part are made available by Seller, then Buyer shall receive the original styles without additional charge, or at its option, Buyer may elect to use any upgraded styles available at an additional price to be mutually agreed upon by the Parties.

6.6 Allowance for Certain Extra Work. If Buyer and Seller agree pursuant to a Change Order that in connection with a Scheduled Outage Seller will perform additional work that is not included in Seller's Scheduled Outage workscope pursuant to Addendum 1A of Exhibit A, then Seller shall bear without charge to Buyer, the following: (a) the first seventy five thousand Dollars (U.S. \$75,000.00) of price for additional work purchased from Seller related to a Combustor Inspection Scheduled Outage, (b) the first one hundred thousand Dollars (U.S. \$100,000.00) of price for additional work purchased from Seller related to a Hot Gas Path Inspection Scheduled Outage, and (c) the first one hundred twenty five thousand Dollars (U.S. \$125,000.00) of price for additional work purchased from Seller related to a Major Inspection Scheduled Outage.

6.7 Exhaust Cylinder and Manifold Replacement.

6.7.1 Components. If Buyer elects to purchase replacements for the Combustion Turbine's exhaust cylinder or exhaust manifold during the Term, then Buyer may purchase such components from Seller pursuant to a Change Order at the prices specified in Seller's then current domestic Price List(s) in effect at the time of supply with a twenty percent (20%) discount applied. In addition to such discounts, and provided that the applicable allowance set forth in Section 6.6 above has not been exhausted, Buyer may apply any remaining balance from the extra work allowance toward the replacement price for such exhaust cylinder or exhaust manifold.

6.7.2 Services. Buyer may elect, pursuant to a Change Order, to hire Seller to install such Exhaust Components at the prices specified in Seller's then current domestic Price List(s) in effect at the time of performance or in Seller's price quote at the time of performance for elements not included in Seller's domestic Price List(s). The Parties agree that such installation shall be covered by, and subject to, the provision of Section 8.3, Services Warranty.

## ARTICLE 7. DELIVERY, TITLE, RISK OF LOSS AND TRANSPORTATION

7.1 Program Parts, Non-Program Parts, Miscellaneous Hardware or Exhaust Components. Delivery of each Program Part, Non-Program Part, item of Miscellaneous Hardware or Exhaust Component supplied under this Contract shall be made when the transporting conveyance comes to a rest at the place of unloading at the delivery point ("Delivery"). The delivery point shall be to the Site, the area on the Site or adjacent laydown area designated by Buyer. If a scheduled Delivery cannot be accommodated by Buyer, then Delivery will be made to a Buyer-designated storage facility and Buyer shall be responsible for all storage costs. Buyer shall be responsible for unloading the cargo from the transporting conveyance upon Delivery.

7.2 Title and Risk of Loss. In the case of Section 7.1, risk of loss or damage shall pass from Seller to Buyer upon Delivery. Legal and equitable title to Non-Program Parts and Exhaust Components shall pass from Seller to Buyer upon Delivery. Legal and equitable title to Program Parts and Miscellaneous Hardware shall pass from Seller to Buyer upon installation into the Combustion Turbine. Upon removal of Program Parts from a Combustion Turbine, transfer of title and risk of loss of such Program Parts shall be as specified in Section 8.1.

### 7.3 Transportation

7.3.1 Transportation and Storage. When Program Parts, Non-Program Parts or Miscellaneous Hardware are ready for shipment, Seller will (i) in the absence of shipping instructions, inform Buyer of pending shipment and Buyer will thereafter promptly give shipping instructions to Seller, (ii) determine the method of transportation and the routing of the shipment and (iii) ship the Program Parts, Non-Program Parts or Miscellaneous Hardware freight prepaid and included in the price by Normal Carriage to the Site.

7.3.2 Normal Carriage. Normal Carriage means carriage by either highway transport (provided this does not necessitate use of specialized riggers trailers) or by rail transport on normal routing from the manufacturing/repair facility to the Site as designated in Section 7.1, above.

7.3.3 Special Transportation and Services. Buyer agrees to pay for, or to reimburse, in accordance with the Change Order provisions set forth in Article 6 of the Contract, any verifiable and substantiated transportation charges incurred by Seller in excess of those for Normal Carriage due to changes in the existing transportation conditions, which changes may include without limitation, the construction and repair of transportation and handling facilities, bridges and roadways, excess charges for special routing, special trains, special vessels, specialized riggers trailers, demurrage and air transport. Seller agrees to use all reasonable efforts to minimize such excess transportation charges. Additional transportation costs and impacts on Delivery or other times in connection with performance of the work, if any, shall be submitted to Buyer or Seller, each as applicable and processed through the Change Order process.

## ARTICLE 8. WARRANTIES

8.1 Program Parts Term Warranty and Exclusive Remedy. Seller warrants that each Program Part and Miscellaneous Hardware used to affix a Program Part supplied or warranted hereunder, including any Program Part that is (i) included in the original Combustion Turbine once the warranty for those equivalent Program Parts under the OESC has expired or (ii) repaired or provided as a replacement pursuant to this warranty, will not require repair or replacement (other than for Scheduled Outage maintenance and associated Program Part and Miscellaneous Hardware maintenance) due to defects in material or workmanship of such Program Part or of such Miscellaneous Hardware used to affix a Program Part or due to Normal Wear and Tear from the date supplied until the end of the Term (the "Program Parts Term Warranty"). If prior to the end of the Term, a Program Part or an item of Miscellaneous Hardware used to affix a Program Part fails to conform to the above warranty and Seller is notified in writing by Buyer of the failure, Seller shall, at its option and as its exclusive warranty obligation either (i) repair the non-conforming Program Part or at Seller's expense (ii) provide a replacement Serviceable Program Part for the non-conforming Program Part or provide replacement Miscellaneous Hardware for the non-conforming Miscellaneous Hardware (Seller shall provide unencumbered title to Buyer for all Program Parts and Miscellaneous Hardware furnished under this Contract). Unless Seller elects otherwise, if a replacement Program Part is provided under this warranty or during either a Scheduled Outage or Unscheduled Outage, then title to, possessory right to, and risk of loss to such replaced Program Part shall transfer from the Buyer to Seller upon such Program Part's replacement and the Parties hereby agree that such Program Part shall be scrap with a deemed value of \$0. Furthermore, unless Seller elects otherwise, Buyer shall waive any and all liens/security interests with respect to such Program Part, shall do everything necessary to effectuate such waiver, and shall indemnify Seller against any loss or damage Seller may incur as a result of any liens/security interests being asserted against such Program Part.

8.2 Miscellaneous Hardware and Non-Program Part Warranty and Exclusive Remedy. Seller warrants that the Miscellaneous Hardware not otherwise covered under the Program Parts Term Warranty and Non-Program Parts provided to Buyer hereunder, including any item of Miscellaneous Hardware or Non-Program Part repaired or provided as a replacement by Seller under this Miscellaneous Hardware and Non-Program Part Warranty, will be free of defects in workmanship and materials until the earlier of:

- (i) one (1) year from the date of installation of the original item of Miscellaneous Hardware or original Non-Program Part, as applicable, into the Combustion Turbine;
- (ii) four hundred (400) Equivalent Starts after installation of the original item of Miscellaneous Hardware or original Non-Program Part, as applicable, into the Combustion Turbine;
- (iii) eight thousand (8,000) Equivalent Base Hours after installation of the original item of Miscellaneous Hardware or original Non-Program Part, as applicable, into the Combustion Turbine; or
- (iv) one (1) year from the date of Delivery of the original item of Miscellaneous Hardware or original Non-Program Part, as applicable;

except that the warranties on all Miscellaneous Hardware and Non-Program Parts shall expire no later than the earlier of either the termination of the Contract or the conclusion of the Term of the Contract, (the "Miscellaneous Hardware and Non-Program Part Warranty"). In no event shall a re-warranty of a Non-Program Part or an item of Miscellaneous Hardware extend beyond the original warranty period for such Non-Program Part or item of Miscellaneous Hardware. If during the Miscellaneous Hardware and Non-Program Part Warranty period, an item of Miscellaneous Hardware or a Non-Program Part fails to conform to the Miscellaneous Hardware and Non-Program Part Warranty and Seller is promptly notified in writing by Buyer of the failure, Seller shall, at its option and as its exclusive warranty liability, either (i) repair the non-conforming Miscellaneous Hardware or non-conforming Non-Program Part or at Seller's expense (ii) provide a replacement for the non-conforming Miscellaneous Hardware or non-conforming Non-Program Part.

8.3 Services Warranty and Exclusive Remedy. Seller warrants for each item of Services provided hereunder that (i) the engineering services of its personnel will be competent and consistent with prudent engineering practices, (ii) the technical information, reports, analyses and recommendations transmitted by Seller in connection therewith will be competent and consistent with prudent engineering practices, and (iii) the Services will be free from defects in the workmanship for a period of one (1) year from the date of completion of that item of Services; except that the warranties on Services shall expire no later than the earlier of either one (1) year after the termination of the Contract or the conclusion of the Term of the Contract, (the "Services Warranty"). In no event shall a re-warranty of a Service extend beyond the original warranty period for such Service. If during the Services Warranty period any portion of the Service fails to conform to the Services Warranty and Seller is promptly notified in writing thereof, Buyer's sole remedy shall consist of Seller's reperformance of such nonconforming portion of the Services.

8.4 Warranty Conditions. The warranties and remedies set forth herein are conditioned upon:

- (1) Buyer's receipt, handling, storage, operations and maintenance during any storage, operation and maintenance, including tasks incident thereto, of the Project, including any Program Parts, Non-Program Parts, Exhaust Components and Miscellaneous Hardware, shall be in all material respects in accordance with the terms of the Combustion Turbine and Steam Turbine instruction manuals, Exhibit D Service Bulletin 55004 Seller's written instructions provided to Buyer, the operating criteria provided to Buyer by the original equipment manufacturer and in general accordance with independent power industry practices.

- (2) the Combustion Turbine shall have been operated using natural gas, fuel oil and water consistent with the requirements specified in Exhibit I, Natural Gas, Fuel Oil and Water Specifications and neither the Combustion Turbine nor the Steam Turbine shall have been subject to alteration, abuse or misuse;
  - (3) any accidental damage to the Combustion Turbine or Steam Turbine shall be repaired consistent with the original equipment manufacturer's reasonable recommendations,
  - (4) the Buyer, without expense to Seller:
    - (a) providing working access to the non-conforming Program Parts, Non-Program Parts, Miscellaneous Hardware or Services, except as provided for and subject to the financial limitations set forth in Section 5.4, including disassembly and reassembly of the Combustion Turbine or Steam Turbine;
    - (b) bearing the expense of, and paying as and when due Seller's invoices for amounts in excess of those amounts for which Seller provides a credit as set forth in Section 5.4 above. Monitoring and calculation of the foregoing amount shall be based upon Seller's then current prices for which Seller would normally charge a customer for Seller's performance of such activity;
    - (c) providing reasonable access to the Project and operating and maintenance data, including but not limited to continuous access to the control system and associated data for monitoring purposes;
    - (d) making its Site facilities and Site operators available to assist Seller in the performance of its warranty obligations, to the extent they are reasonably available; and
    - (e) hiring Seller to provide (i) labor, parts, repairs and materials required to remove the Combustion Turbine casing and to repair, and install or replace the Program Parts, Non-Program Parts, Exhaust Components or Miscellaneous Hardware in the Combustion Turbine after it has been disassembled, (ii) labor and repairs required for the Steam Turbine,
- and
- (5) Buyer will maintain and operate the Steam Turbine in accordance with the original equipment manufacturer's recommendations.

8.5 Exclusivity of Warranties and Remedies. THE WARRANTIES/GUARANTEES SET FORTH IN THIS ARTICLE ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES/GUARANTEES WHETHER STATUTORY, EXPRESS, OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE). The remedies set forth in this Article by correction of non-conformities in the manner and for the period of time provided shall constitute Seller's sole

liability and Buyer's exclusive remedies for failure of Seller to meet its warranty or guarantee obligations whether claims of the Buyer are based in contract, in tort (including negligence and strict liability), or otherwise.

8.6 Warranty Liabilities. In the event that physical loss of or damage to Buyer's property results from the failure of (i) a Program Part to comply with the Program Parts Term Warranty per Section 8.1, (ii) Miscellaneous Hardware to comply with the applicable provisions of the Program Parts Term Warranty per Section 8.1 or the Miscellaneous Hardware and Non-Program Part Warranty per Section 8.2, (iii) a Non-Program Part provided hereunder to comply with the Miscellaneous Hardware and Non-Program Part Warranty per Section 8.2, (iv) a Service to comply with the Services Warranty per Section 8.3 or (v) or an Exhaust Component to comply with the Exhaust Components Warranty per Section 8.7, Seller's liability under the terms of such respective warranties shall not exceed the cost of performing the warranty remedy, either by repair, modification, re-performance, or replacement, which Seller would have had to perform if such warranty remedy had been completed immediately prior to the occurrence of the resultant physical loss or damage. In no event shall Seller have liability under this Article 8 for physical loss or damage to Buyer's property that results from the failure to comply with the warranties under this Article 8. Seller's responsibility for any such resultant physical loss or damage shall be exclusively as set out in Section 5.4 above.

8.7 Exhaust Components Warranty and Exclusive Remedy. Seller warrants that new Exhaust Components provided to Buyer pursuant to Section 6.7.1, including any Exhaust Components repaired or provided as a replacement by Seller pursuant to this warranty, will be free of defects in workmanship and materials until the earlier of (i) twelve (12) months from the date of Delivery of the original Exhaust Component item or (ii) for a period of twelve (12) months from the date of installation of the original Exhaust Component; except that the warranties on all Exhaust Components shall expire no later than the earlier of either the termination of the Contract or the conclusion of the Term of the Contract ("the Exhaust Components Warranty"). In no event shall a re-warranty of an Exhaust Component extend beyond the original warranty period for such Exhaust Component. If during the Exhaust Components Warranty period, an Exhaust Component fails to conform to the Exhaust Component Warranty and Seller is promptly notified in writing by Buyer of the failure, Seller shall, at its option and as its exclusive warranty liability, either (i) repair the non-conforming Exhaust Component or at Seller's expense (ii) provide a replacement for the non-conforming Exhaust Component.

## ARTICLE 9. INTELLECTUAL PROPERTY

9.1 Patent, Trademark or Copyright Infringement. Seller will, at its own expense, indemnify and defend or at its option settle any suit or proceeding brought against Buyer provided that such claim is based on an allegation that any Program Parts, Miscellaneous Hardware or any of the processes used by Seller in connection with the Services, supplied by Seller hereunder and used for its intended purpose, constitutes an infringement of any filed or registered United States patent, trademark or copyright, if Seller is notified promptly in writing and given authority, information and assistance in a timely manner for the defense of said suit or proceeding. Seller will pay the damages and costs awarded in any suit or proceeding so defended. Seller will not be responsible for any settlement of such suit or proceeding made without its prior written consent. However, in no event shall Seller have any authority to accept or enter any judgment against Buyer without the express written consent of Buyer after approval of Buyer's governing

body, which approval shall not be unreasonably withheld. In case the Program Parts, Miscellaneous Hardware or processes used by Seller in connection with the Services supplied by Seller hereunder, as a result of any suit or proceeding so defended, is held to constitute infringement of any United States patent, trademark or copyright, or its use by Buyer is enjoined, Seller will, at its option and its own expense, either: (a) procure for Buyer the right to continue using said Program Part, Miscellaneous Hardware or process; (b) replace it with a substantially equivalent noninfringing Program Part, Miscellaneous Hardware or process; or (c) modify it so it becomes noninfringing.

9.2 Limitation of Intellectual Property Obligations. Seller will have no duty or obligation to Buyer under this Article to the extent that the Program Parts, Miscellaneous Hardware or any of the processes used by Seller in connection with the Services supplied by Seller hereunder is (a) supplied according to Buyer's design or instructions wherein compliance therewith has caused Seller to deviate from its normal course of performance, (b) modified by Buyer or its contractors after delivery, or (c) combined by Buyer or its contractors with items not furnished hereunder and by reason of said design, instruction, modification, or combination a suit is brought against Buyer. In addition, if by reason of such design, instruction, modification or combination, a suit or proceeding is brought against Seller, Buyer shall protect Seller in the same manner and to the same extent that Seller has agreed to protect Buyer under the provisions of Section 9.1 above.

9.3 Protection of Seller's Intellectual Property Rights. Buyer acknowledges and agrees that Seller and its affiliates have a considerable investment in its intellectual property rights and technology associated with the Combustion Turbine, Steam Turbine and Program Parts. Buyer therefore agrees not to take any action, either directly or through an affiliate, which would infringe or violate Seller's or its affiliates' rights in its patents, trademarks, copyrights, trade secrets or other intellectual property. Buyer further agrees to use its best efforts to ensure that its suppliers, contractors and other agents not take any action inconsistent with Seller's or its affiliates' intellectual property rights.

9.4 Exclusivity of Duties and Remedies. THIS ARTICLE IS AN EXCLUSIVE STATEMENT OF ALL THE OBLIGATIONS AND LIABILITIES OF THE SELLER, RELATING TO PATENTS, TRADEMARKS OR COPYRIGHTS AND DIRECT OR CONTRIBUTORY INFRINGEMENT THEREOF AND OF ALL THE REMEDIES OF BUYER RELATING TO ANY CLAIMS, SUITS, OR PROCEEDINGS INVOLVING PATENTS, TRADEMARKS OR COPYRIGHTS. Compliance with this Article as provided herein shall constitute fulfillment of all liabilities of the Seller under the Contract with respect to patents, trademarks or copyrights.

## ARTICLE 10. COMPLIANCE WITH LAWS

10.1 Generally. Subject to the provisions of Section 10.2, Seller shall at all times comply, and shall assure that the Program Parts, Miscellaneous Hardware and Services supplied by Seller, at the time of Delivery or performance comply in all material respects with all Laws applicable to the design and manufacture of the Program Parts and Miscellaneous Hardware, and the performance by Seller of its other obligations hereunder.

10.2 Changes in Law. In the event that any change in Laws enacted or otherwise approved after the Effective Date of this Contract requires or makes advisable any modifications to the Program Parts, Non-Program Parts, Miscellaneous Hardware or Services, Buyer or Seller, as

the case may be, shall reasonably promptly notify the other thereof in writing upon its discovery of such change in Laws. If any such modification is required by any changes in Laws, Seller shall make such modification provided such modification is reasonably technically feasible, and if such modification increases Seller's cost of producing the Program Parts, Non-Program Parts Miscellaneous Hardware, or performing the Services, or delays Seller's schedule or affects any other provision of this Contract, the Parties shall negotiate in good faith and enter into a Change Order in accordance with the provisions of Section 6.2 above.

## ARTICLE 11. INSURANCE

11.1 Seller's Insurance. Without limiting Seller's liability under this Contract, Seller shall maintain in full force and effect during the Term of this Contract with insurance companies having a Best's Insurance Guide rating of "A" or better (or otherwise satisfactory to Buyer), the insurance described in 11.1(a), (b), (c), and (d) below, with coverage limits as indicated, and shall provide to Buyer certificates evidencing such coverages, or, if requested by Buyer (in the event of a claim that falls within the scope of coverage conferred by such insurance), copies of applicable policies. The minimum required coverage limits set forth below in 11.1(a), (b), (c), and (d) may be met by any combination of applicable policies and limits as long as the combined limits thereof equal or exceed the required limits:

- (a) Commercial general liability insurance, including bodily injury, property damage, products/completed operations, contractual, and personal injury liability, with a combined single limit of one million Dollars (U.S. \$1,000,000) per occurrence with a two million Dollar (U.S. \$2,000,000) annual aggregate;
- (b) Excess liability coverage providing excess general liability, automobile liability and employer's liability with a combined single limit of five million Dollars (U.S. \$5,000,000);
- (c) Workers' compensation insurance with statutory limits, and employers liability insurance with limits of one million Dollars (U.S. \$1,000,000) per accident; and
- (d) Business automobile liability insurance in comprehensive form covering owned, non-owned and hired automobiles for a combined single limit of one million Dollars (U.S. \$1,000,000) per occurrence.

11.1.2 Seller agrees to cause such insurance policies to be endorsed to provide that it is primary to any insurance carried by Buyer, and agrees to cause its commercial general liability, umbrella excess liability, employer's liability and automobile liability policies/coverages listed in Sections 11.1(a), (b), and (d) to name Buyer, its affiliates and its subcontractors of every tier, identified in writing for this purpose to Seller by Buyer, as an additional insured to the extent that bodily injury, death or third party property damage are caused by the negligence of Seller or Seller's Subcontractors. Buyer shall be given thirty (30) Days advance notice of cancellation or material change. All policies furnished by Seller shall include waivers of subrogation rights against Buyer and its affiliates. If any such waiver of subrogation is not obtained by Seller, Seller shall defend, indemnify and hold Buyer and its affiliates harmless in and from any claim or proceeding by Seller's insurer(s) seeking subrogation which should have been waived. Buyer shall not be obligated to perform under this Contract at any time when Seller is not in full compliance with this Article 11.

### 11.2 Buyer's Insurance.

11.2.1 Without limiting Buyer's liability under this Contract, Buyer shall maintain in full force and effect during the Term of this Contract with insurance companies having a Best's Insurance Guide rating of "A" or better (or otherwise satisfactory to Seller), the insurance described below, with coverage limits as indicated, and shall provide to Seller certificates evidencing such coverages, or, if requested by Seller, copies of applicable policies. The minimum required coverage limits set forth below may be met by any combination of applicable policies and limits as long as the combined limits thereof equal or exceed the required limits:

- (a) Property damage insurance, including boiler and machinery coverage covering all real and personal property of Buyer on a replacement cost basis and business interruption/extra expense insurance coverage reasonably customary for a not-for-profit public entity, for twelve (12) months. (Subject to availability, the maximum waiting period on the business interruption insurance shall not be more than sixty (60) Days.);
- (b) Commercial general liability insurance, including bodily injury, property damage, products/completed operations, contractual, and personal injury liability, with a combined single limit of one million Dollars (U.S. \$1,000,000) per occurrence with a two million Dollar (U.S. \$2,000,000) annual aggregate;
- (c) Excess liability coverage providing excess general liability, automobile liability and employer's liability with a combined single limit of five million Dollars (U.S. \$5,000,000);
- (d) Workers' compensation insurance with statutory limits, and employers liability insurance with limits of not less than one million Dollars (U.S. \$1,000,000) per accident; and
- (e) Business automobile liability insurance in comprehensive form covering owned, non-owned and hired automobiles for a combined single limit of one million Dollars (U.S. \$1,000,000) per occurrence.

11.2.2 Buyer agrees to cause such insurance policies to be endorsed to provide that it is primary to any insurance carried by Seller, and agrees to cause its commercial general liability, umbrella excess liability, employer's liability and automobile liability policies/coverages listed in Sections 11.2.1(b), (c) and (e) to name Seller, its affiliates and its Subcontractors of every tier, identified in writing for this purpose to Buyer by Seller, as an additional insured to the extent that bodily injury, death or third party property damage are caused by the negligence of Buyer or Buyer's other subcontractors. Seller shall be given thirty (30) Days advance notice of cancellation or material change. All policies furnished by Buyer shall include waivers of subrogation rights against Seller and its affiliates. If any such waiver of subrogation is not obtained by Buyer, Buyer shall defend, indemnify and hold Seller and its affiliates harmless in and from any claim or proceeding by Buyer's insurer(s) seeking subrogation which should have been waived. Seller shall not be obligated to perform work under this Contract at any time when Buyer is not in full compliance with this Article 11.

## ARTICLE 12. TERMINATION

12.1 Termination for Seller's Inability to Perform. If any proceeding is instituted against Seller seeking to adjudicate Seller as bankrupt or insolvent, or if Seller makes a general

assignment for the benefit of its creditors, or if a receiver is appointed on account of the insolvency of Seller, or if Seller files a petition seeking to take advantage of any other Law relating to bankruptcy, insolvency, reorganization, winding up or composition or readjustment of debts and, in the case of any such proceeding instituted against Seller (but not by Seller) if such proceeding is not dismissed within forty-five (45) Days of such filing, Buyer may terminate this Contract by written notice to Seller.

12.2 Termination for Seller's Failure to Perform. If Seller is in material default of any provision of this Contract, and provided Seller has not commenced cure of such default within thirty (30) Days after receipt of written notice from Buyer of such material default, Buyer may terminate this Contract by written notice to Seller.

12.3 Buyer's and Seller's Rights, Duties and Obligations Upon Buyer's Termination. If Buyer elects to terminate this Contract pursuant to Section 12.1 or 12.2, then Seller shall be entitled to retain or receive amounts paid or payable hereunder at the time of termination. Upon such a termination, Seller shall stop work on this Contract and place no further orders or lower tier subcontracts. Buyer shall transfer title to all Program Parts that are not installed in the Combustion Turbine as of the date of termination to Seller. Seller, at its expense, shall arrange transportation for and shall remove from the Site, all Program Parts to which Seller holds title. Seller shall protect Buyer's property which is in Seller's possession (if any), and upon Buyer's written instructions, Seller shall deliver to Buyer any of Buyer's property that is in Seller's possession and to which Seller has no claim of title. The cost of such delivery will be paid by Seller. Within thirty (30) Days from the effective date of such termination, Buyer shall either (a) return to Seller any of Seller's Confidential Information which had been in Buyer's possession (excluding this Contract) or (b) certify to Seller that all of Seller's Confidential Information which had been in Buyer's possession has been destroyed. If Buyer elects to terminate this Contract pursuant to the provisions of Section 12.1 or 12.2, then:

- (a) Seller shall credit Buyer's account for the applicable portion of the Variable Fee that Buyer has paid to Seller for the Combustion Turbine since the completion of the most recent Scheduled Outage or Unscheduled Outage (whichever most recently occurred) for such Combustion Turbine during which the workscope of a Combustor Inspection Scheduled Outage was completed (the Parties acknowledge that such workscope can be completed as part of an outage including the full or partial workscope of a Hot Gas Path Scheduled Outage or an outage including the full or partial workscope of a Major Inspection Scheduled Outage), and
- (b) Seller shall credit Buyer's account on a pro-rated basis, for the applicable portion of the Fixed Annual Fee that, based upon the date of termination, Buyer has paid but not used under the Contract or Seller shall charge Buyer's account for the portion of the Fixed Annual Fee that Buyer has used but has not paid for (each as applicable).

Within thirty (30) Days after receipt of Buyer's notice of termination, Seller will submit to Buyer in writing its calculation of the amount owed to Buyer or amount owed to Seller as a result of such termination, including the items stated in subclauses (a) and (b) above. The Party due the net credit hereunder (the "Invoicing Party") will then invoice the other Party (the "Paying Party") therefore, and the Paying Party will pay the undisputed amounts of such invoice within thirty (30) Days of its receipt of such invoice. If prior to the expiration of such thirty (30) Day period of

time, the Paying Party disputes all or any portion of such invoice, the Paying Party shall, prior to the expiration of such time period, provide the Invoicing Party with written notice identifying the basis for such dispute. Thereafter, the payment of such disputed amount shall be deferred until such dispute has been resolved to the satisfaction of the Parties or pursuant to the provisions of Section 16.4. Any disputed amount which is ultimately determined to have been payable prior to the actual date of payment shall be paid with interest, at the Delayed Payment Rate, from the date due to the date of payment. No further rights or obligations shall exist between the Parties with respect to this Contract except for those that expressly survive, per Section 16.21, Survival.

WITH THE EXCEPTION OF THOSE RIGHTS AND REMEDIES THAT EXPRESSLY SURVIVE PURSUANT TO SECTION 16.21, THIS SECTION IS AN EXCLUSIVE STATEMENT OF ALL THE RIGHTS, DUTIES AND OBLIGATIONS OF THE PARTIES, RELATING TO TERMINATION UNDER SECTIONS 12.1 AND 12.2 AND OF ALL THE REMEDIES RELATING TO TERMINATION FOR SELLER'S INABILITY OR FAILURE TO PERFORM. Compliance with this Section as provided herein shall constitute fulfillment of all liabilities of the Parties under the Contract with respect to termination for Seller's inability or failure to perform.

12.4 Termination Prior to Period 1. The Parties expressly agree that the terms and conditions of this Contract, including in particular the prices stated herein, are based upon this Contract being in full force and effect beginning with the Effective Date of the Contract and continuing through the full Term of the Contract. The Parties further agree that it would be extremely difficult to determine the precise amount of economic harm that would be suffered by Seller due to the occurrence of any of the following after the Effective Date and prior to the beginning of Period One as identified in Exhibit C, Projected Scheduled Outage Plan: (a) Buyer's termination of the OESC or (b) Seller's termination of this Contract for Buyer's breach or default of the same or of the OESC. The Parties accordingly agree that an amount of ten percent (10%) of the Contract Price is a fair and reasonable estimation of the amount of economic harm that would be suffered by Seller for any such termination, and that the amount does not constitute a penalty. In the event of any such termination the Buyer agrees to make payment to Seller of the amount stated above within thirty (30) Days of Seller's invoice for same. If termination is effected under this Section 12.4, Termination Prior to Period 1, then the obligations of the Parties pursuant to either Section 12.3 or Section 12.6 (each as applicable) shall remain.

12.5 Termination by Seller. Seller may at its option terminate or suspend its performance of the work under this Contract or suspend its performance of the work under this Contract then terminate the Contract by written notice to Buyer if:

- (i) with respect to any invoice delivered pursuant to Section 4.3, Buyer neither makes payment thereon in accordance with Section 4.4 nor provides a notice of dispute relating thereto in accordance with Section 4.5, in either case within the thirty (30) Day period provided in such Sections,

- (ii) a proceeding is instituted against Buyer seeking to adjudicate Buyer as bankrupt or insolvent and such proceeding is not dismissed within forty-five (45) Days of such filing,
- (iii) Buyer makes a general assignment for the benefit of its creditors,
- (iv) a receiver is appointed on account of the insolvency of Buyer,
- (v) a force majeure event has persisted for six (6) months or longer,
- (vi) Buyer files a petition seeking to take advantage of any other Law relating to bankruptcy, insolvency, reorganization, winding up or composition or readjustment of debts,
- (vii) a change in Laws has made Seller's performance impracticable as determined by Seller,
- (viii) Buyer is in material default of any provision of this Contract and provided Buyer has not commenced cure of such default within thirty (30) Days after receipt of written notice of such material default from Seller or
- (ix) a change in the ownership or ultimate management control of Buyer that Seller reasonably believes could materially affect Seller's interests, including without limitation the sale of any ownership interest in Buyer or the Project to any entity in competition with Seller.

12.6 Buyer's and Seller's Rights, Duties and Obligations Upon Seller's Termination. If Seller elects to terminate this Contract pursuant to Section 12.5, then, upon such a termination, Seller shall stop work on this Contract and place no further orders or lower tier subcontracts. Buyer shall transfer title to all Program Parts that are not installed in the Combustion Turbine as of the date of termination to Seller. Seller, at its expense, shall arrange transportation for and shall remove from the Site, all Program Parts to which Seller holds title. Seller shall protect Buyer's property which is in Seller's possession (if any), and upon Buyer's written instructions, Seller shall deliver to Buyer any of Buyer's property that is in Seller's possession and to which Seller has no claim of title. The cost of such delivery will be paid by Buyer. Within thirty (30) Days from the effective date of such termination, Buyer shall either (a) return to Seller any of Seller's Confidential Information which had been in Buyer's possession (excluding this Contract) or (b) certify to Seller that all of Seller's Confidential Information which had been in Buyer's possession has been destroyed. If Seller elects to terminate this Contract pursuant to Section 12.5, then:

- (a) Seller shall credit Buyer's account for the applicable portion of the Variable Fee that Buyer has paid to Seller for the Combustion Turbine since the completion of the most recent Scheduled Outage or Unscheduled Outage (whichever most recently occurred) for such Combustion Turbine during which the workscope of a Combustor Inspection Scheduled Outage was completed (the Parties acknowledge that such workscope can be completed as part of an outage including the full or partial workscope of a Hot Gas Path Scheduled Outage or an outage including the full or partial workscope of a Major Inspection Scheduled Outage),

- (b) Seller shall credit Buyer's account on a pro-rated basis, for the applicable portion of the Fixed Annual Fee that, based upon the date of termination, Buyer has paid but not used under the Contract or Seller shall charge Buyer's account for the portion of the Fixed Annual Fee that Buyer has used but has not paid for (each as applicable),
- (c) Buyer's account shall be charged the cancellation amount listed in Exhibit G, in effect at the time of such termination. For the avoidance of doubt, if the Contract is terminated by Seller pursuant to the provisions of Section 12.4, Termination Prior to Period 1, then the cancellation charge stated in this Section 12.6(c) shall not be additionally applied to such termination,
- (d) Buyer's account shall be charged for demonstrable reasonable expenses actually incurred by Seller in settling Seller's terminated orders and subcontracts hereunder and the protection of Buyer's property that is in Seller's possession (if any), and
- (e) Buyer's account shall be charged for demonstrable reasonable expenses of demobilization, equipment storage, transportation, and handling.

Within thirty (30) Days after receipt of Seller's notice of termination, Seller will submit to Buyer in writing its calculation of the amount owed to Buyer or amount owed to Seller as a result of such termination, including the items stated in subclauses (a), (b), (c), (d), and (e) above. The Party due the net credit hereunder (the "Invoicing Party") will then invoice the other Party (the "Paying Party") therefore, and the Paying Party will pay the undisputed amounts of such invoice within twenty-five (25) Days of its receipt of such invoice. If prior to the expiration of such twenty-five (25) Day period of time, the Paying Party disputes all or any portion of such invoice, the Paying Party shall, prior to the expiration of such time period, provide the Invoicing Party with written notice identifying the basis for such dispute. Thereafter, the payment of such disputed amount shall be deferred until such dispute has been resolved to the satisfaction of the Parties or pursuant to the provisions of Section 16.4. Any disputed amount which is ultimately determined to have been payable prior to the actual date of payment shall be paid with interest, at the Delayed Payment Rate, from the date due to the date of payment. No further rights or obligations shall exist between the Parties with respect to this Contract except for those that expressly survive, per Section 16.21, Survival.

The Parties agree that it would be difficult or impossible to determine the precise amount of damages that would be incurred by Seller as a result of Buyer's breach or early termination of this Contract. Accordingly, the Parties expressly agree that Buyer's payment of the amounts listed in the Cancellation Schedule set forth in Exhibit G are in lieu of actual damages, are the Parties' reasonable estimates of fair compensation for the losses that may reasonably be anticipated to be incurred by the Seller in respect of such matters and do not constitute a penalty.

## ARTICLE 13. INDEMNIFICATION

13.1 Seller's Indemnity. Seller shall defend, indemnify and hold harmless Buyer from and against liability resulting from injury to or death of persons and from physical damage to or loss

of third party property to the extent caused by the negligent acts or omissions or willful misconduct of Seller while performing Services at the Site. Seller's indemnity obligation under this Section 13.1 shall not apply to any liabilities arising out of or relating to events or circumstances occurring after the end of the Contract's Term. In no event shall Seller's indemnification obligations apply to any claim by a customer of Buyer for voltage or frequency fluctuation or service interruption of any kind, or to any claim by any third party for failure of Buyer to provide power or capacity under any contract. For the purposes of this Section 13.1, third party property shall be deemed to exclude property of the Buyer, operator, lender, Buyer's affiliates, or any other property at the Site (except for property belonging to contractors temporarily working at the Site). If a third party claim is filed against Buyer pursuant to Seller's obligations under this Section 13.1, then Buyer shall provide Seller with prompt written notice thereof and Buyer shall give Seller the unrestricted right to defend the respective claim on Buyer's behalf. However, in no event shall Seller have any authority to accept or enter any judgment against Buyer without the express written consent of Buyer after approval of Buyer's governing body, which approval shall not be unreasonably withheld.

13.2 Buyer's Indemnity. Buyer shall defend, indemnify and hold harmless Seller from and against liability resulting from injury to or death of persons and from physical damage to or loss of third party property to the extent caused by the negligent acts or omissions or willful misconduct of Buyer. Buyer's indemnity obligation under this Section 13.2 shall not apply to any liabilities arising out of or relating to events or circumstances occurring after the end of the Contract's Term.

#### ARTICLE 14. LIMITATION OF LIABILITY

14.1 Restrictions on Recoverable Damages. BUYER EXPRESSLY AGREES THAT NEITHER SELLER NOR ITS SUBCONTRACTORS, AGENTS, AFFILIATES OR ASSIGNS WILL UNDER ANY CIRCUMSTANCES BE LIABLE TO BUYER FOR CLAIMS UNDER OR ARISING OUT OF OR RELATING TO THIS CONTRACT UNDER ANY THEORY OF RECOVERY, WHETHER BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY, OR OTHERWISE, FOR: ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE OR PUNITIVE DAMAGES WHATSOEVER; DAMAGE TO OR LOSS OF BUYER'S PROPERTY OR EQUIPMENT (EXCEPT AS OTHERWISE PROVIDED FOR AND SUBJECT TO THE LIMITATIONS STATED IN SECTION 5.4); LOSS OF DATA AND INFORMATION; LOSS OF PROFITS OR REVENUE; LOSS OF USE BY THE BUYER OF ITS MATERIAL, EQUIPMENT OR POWER SYSTEM; INCREASED COSTS OF ANY KIND, INCLUDING BUT NOT LIMITED TO CAPITAL COST, FUEL COST AND COST OF PURCHASED OR REPLACEMENT POWER; OR CLAIMS OF CUSTOMERS OF BUYER.

SELLER EXPRESSLY AGREES THAT BUYER WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO SELLER FOR CLAIMS UNDER OR ARISING OUT OF OR RELATING TO THIS CONTRACT UNDER ANY THEORY OF RECOVERY, WHETHER BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY, OR OTHERWISE, FOR: ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE OR PUNITIVE DAMAGES WHATSOEVER; LOSS OF DATA AND INFORMATION; OR LOSS OF PROFITS OR REVENUE.

NOTHING IN THIS SECTION 14.1 SHALL LIMIT: (A) EITHER PARTY'S RIGHT TO AMOUNTS EXPRESSLY AGREED TO BY THE PARTIES PURSUANT TO A CHANGE ORDER HERETO, OR APPLICABLE AMOUNTS CALCULATED PURSUANT TO ARTICLE 12; OR (B) SELLER'S

RIGHT TO (i) ALL OR ANY PART OF THE CONTRACT PRICE OR OTHER AMOUNTS OTHERWISE PAYABLE HEREUNDER INCLUDING BUT NOT LIMITED TO ANY OVERHEAD OR PROFITS, (ii) INTEREST ON AMOUNTS NOT PAID BY BUYER, (iii) ANY DAMAGES RESULTING FROM A CLAIM FOR INTELLECTUAL PROPERTY INFRINGEMENT OR MISAPPROPRIATION UNDER APPLICABLE LAWS, AND (iv) ANY DAMAGES RESULTING FROM VIOLATION OF CONFIDENTIALITY OBLIGATIONS.

EXCEPT FOR BUYER'S OBLIGATIONS UNDER ARTICLE 9 (INTELLECTUAL PROPERTY), SECTION 16.1 (CONFIDENTIAL OR PROPRIETARY INFORMATION), AND SECTION 16.20 (TRANSFER), EACH PARTY EXPRESSLY AGREES THAT NEITHER THE OTHER PARTY NOR IN THE CASE OF THE SELLER, SELLER'S SUBCONTRACTORS WILL, UNDER ANY CIRCUMSTANCES, BE LIABLE UNDER ANY THEORY OF RECOVERY, WHETHER BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY, OR OTHERWISE BEYOND FOUR (4) YEARS SUBSEQUENT TO THE EARLIER OF EITHER THE EXPIRATION OR TERMINATION OF THE TERM.

14.2 Exclusive Remedy and Limitation on Liability. BUYER EXPRESSLY AGREES THAT THE REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND THAT UNDER NO CIRCUMSTANCES SHALL THE TOTAL AGGREGATE CLAIMS AGAINST OR LIABILITY OF SELLER DURING A GIVEN CALENDAR YEAR UNDER ANY THEORY OF RECOVERY, WHETHER BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY, OR OTHERWISE, EXCEED THE GREATER OF FIVE MILLION DOLLARS (\$5,000,000) OR ONE HUNDRED PERCENT (100%) OF THE TOTAL PRICE PAID TO SELLER FOR THAT GIVEN CALENDAR YEAR UNDER THIS CONTRACT. THE PARTIES FURTHER EXPRESSLY AGREE THAT UNDER NO CIRCUMSTANCES SHALL THE TOTAL AGGREGATE CLAIMS AGAINST OR LIABILITY OF EITHER PARTY UNDER ANY THEORY OF RECOVERY, WHETHER BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY, OR OTHERWISE, EXCEED SEVENTY FIVE PERCENT (75%) OF THE TOTAL PRICE PAID TO SELLER UNDER THIS CONTRACT; PROVIDED HOWEVER, THAT THE PROVISIONS AND LIMITATIONS OF SECTION 14.2 SHALL NOT APPLY TO BUYER'S LIABILITIES ARISING OUT OF SECTION 5.4.3, ARTICLE 9, SECTION 11.2.2, ARTICLE 13, SECTION 16.1 AND SECTION 16.20 AND EXPRESSLY EXCLUDE ALL PAYMENTS MADE OR REQUIRED TO BE MADE FROM BUYER TO SELLER FOR WORK PERFORMED UNDER THIS CONTRACT OR UPON TERMINATION OF THIS CONTRACT.

14.3 Extent of Waivers. THE WAIVERS AND DISCLAIMERS OF LIABILITY, RELEASES FROM LIABILITY, AND LIMITATIONS ON LIABILITY EXPRESSED IN THIS ARTICLE SHALL EXTEND TO SELLER AND ITS AFFILIATES, SUCCESSORS AND ASSIGNS, AND ITS AND THEIR RESPECTIVE PARTNERS, PRINCIPALS, SHAREHOLDERS, DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS.

14.4 Extent of Conflicts. THE PROVISIONS OF THIS ARTICLE SHALL PREVAIL OVER ANY CONFLICTING OR INCONSISTENT PROVISIONS SET FORTH ELSEWHERE IN THIS CONTRACT.

## ARTICLE 15. FORCE MAJEURE

15.1 Excuse by Force Majeure. Seller will not be liable for failure to perform any obligation or delay in performance resulting from or contributed to by any cause beyond the reasonable control of Seller or its Subcontractors including without limitation any act of God; act of civil or military authority; act of war whether declared or undeclared; act of terrorism; act (including delay, failure to act, or priority) of any governmental authority or Buyer; civil disturbance; insurrection or riot; sabotage; fire; inclement weather conditions; earthquake; flood; strike; work stoppage or other labor difficulty; embargo; car shortage; fuel or energy shortage; delay or accident in shipping or transportation; or failure or delay beyond its reasonable control in obtaining necessary manufacturing facilities, labor, necessary import or export licenses or materials from usual sources. Notwithstanding the foregoing and for the avoidance of doubt, the following shall not be considered events of Force Majeure: economic hardship; lack of money or credit; loss of profit or loss of return on investment; changes in commodity prices and the price of raw materials, fuel and supplies; changes in labor costs, wages and benefits; changes in exchange rates; Seller's inability to perform and complete the work for the Contract Price; and, for either Party, the obligation to make payment in accordance with the terms of the Contract.

15.2 Effect of Force Majeure. In the event of a delay in performance excusable under this Article, the date of Delivery or time for performance of the work will be extended by a period of time reasonably necessary to overcome the effect of such delay and Buyer will reimburse Seller for its reasonable and identifiable additional costs and expenses resulting from said delay.

## ARTICLE 16. MISCELLANEOUS

### 16.1 Confidential or Proprietary Information.

16.1.1 Confidentiality Obligation. Information furnished pursuant to the Contract may be regarded by Seller as confidential or proprietary information ("Confidential Information"), including Seller's proposal and the Contract itself. Buyer will (a) maintain Confidential Information in confidence with the same level of care as Buyer maintains its own confidential or proprietary information but in no event maintained with any less than a reasonable standard of care; (b) restrict the disclosure of Confidential Information within Buyer to those persons having a need for access; (c) not disclose to any third party (including affiliates, contractors or financing entities) any such information which is specifically designated as confidential or proprietary information of Seller without the prior written permission of Seller; and (d) not use any such Confidential Information for other than the express purpose for which it is supplied. Prior to disclosing such Confidential Information to any party, Buyer shall (i) enter into an agreement with such third party requiring said third party to protect the Confidential Information and to keep it confidential, and (ii) obtain Seller's prior written approval (not to be unreasonably withheld or unduly delayed) of the agreement before any Confidential Information is disclosed to the third party. The provisions of this paragraph shall not apply to information, notwithstanding any confidential designation thereof, which was rightfully known by Buyer without any restriction as to disclosure or use at the time it is furnished, which is or becomes generally available to the public without breach of any agreement, or which is received from a third party without limitation or restriction on said third party or Buyer at the time of disclosure.

16.1.2 Disclosure Pursuant to Government Mandate. When required by appropriate governmental authority, including governmental regulations, applicable law or regulation, by

order of a court of competent jurisdiction or lawful subpoena (hereinafter collectively referred to as ("Government Authority") or when Buyer has received a valid request under the California Public Records Act, Buyer may disclose such proprietary information to such Government Authority or requestor under any California Public Records Act request, subject to the following conditions: (a) Buyer shall provide Seller within five (5) Days of receiving the request written notice of the request and will include a copy of such request with the written notice; (b) Buyer shall provide to Seller reasonable access to the documents Buyer proposes to produce in response to any such request; (c) after Seller is provided reasonable access to the documents Buyer proposes to produce, Seller shall have twenty (20) Days within which to provide Buyer with a list of those documents that Seller objects to the Buyer producing based on said documents being confidential, proprietary or trade secret information of Seller (hereinafter the "Disputed Documents"); (d) within five (5) Days of receiving any objection from Seller, Buyer shall provide a written notice to Seller stating whether Buyer agrees with Seller's objections; (e) if Buyer does not agree to some or all of Seller's objections, Buyer shall so state this in the response and shall specifically identify to Seller which Disputed Documents Buyer proposes to produce; and (f) Buyer agrees, however, that it shall not produce any Disputed Documents until ten (10) days after it has provided Seller with written notice in accordance with 16.1.2 (d) above so that Seller can take further action to protect any Disputed Documents from being produced including the filing of a motion for protective order in court. In the event that Buyer is found by a court of competent jurisdiction to be responsible for reimbursing attorneys' fees or costs as a result of failing to produce Disputed Documents to such requestor that files a valid California Public Records Act request, Seller agrees to indemnify Buyer for such fees and costs to the extent that Buyer's failure to produce documents was based solely on Seller's actions.

Under any and all circumstances relating to a request to the Buyer for documentation, Buyer shall make every reasonable effort (which shall include participation by Seller in discussions with the Government Authority involved) to secure confidential treatment and minimization of the proprietary information to be provided. In the event that efforts to secure confidential treatment are unsuccessful, Seller shall have the prior right to revise such information to minimize the disclosure of such information in a manner consonant with its interests and the requirements of the Government Authority involved.

16.1.3 Indemnity. Buyer shall be responsible for maintaining Seller's Confidential Information subject to the provisions of Section 16.1.1 and 16.1.2. Any unauthorized disclosure of Confidential Information or other violation of the provisions of this Contract shall be deemed a material breach of this Contract. The Parties agree that monetary damages for any breach of the provisions of this Article are inadequate and that the non-breaching Party is entitled to appropriate equitable relief (including without limitation, injunctive relief or specific performance) for any breach of such provisions. Such remedies shall neither be exclusive nor be in derogation of any other rights or remedies which a Party may have under this Contract or under applicable law. All of the non-breaching Party's rights and remedies shall be cumulative and may be exercised separately or concurrently.

16.1.4 Other Agreements. The provisions of this Section 16.1 shall be in addition to, and not in lieu of, any other confidentiality agreements or arrangements between Seller and Buyer.

16.2 Subcontractors. Seller shall have the right to have individual items of the Program Parts, Non-Program Parts or Miscellaneous Hardware supplied to it or Services performed by Subcontractors, provided that no such Subcontractor is intended to be or shall be deemed a third party beneficiary of this Contract. Notwithstanding the foregoing, no arrangements

between Seller and any Subcontractor shall create any contractual relationship between any Subcontractor and Buyer. Seller shall be solely responsible for the engagement and management of Subcontractors in the performance of work, for all work performed and items provided by Subcontractors and for all acts and omissions of Subcontractors.

Seller will not sign the Lodi Energy Center Project Maintenance Labor Agreement ("MLA") (attached hereto as Exhibit J), however, Seller agrees to subcontract Covered Work as defined in Exhibit J that is included in the Contract only to Subcontractors who abide by the project MLA. Seller anticipates subcontracting the labor for Covered Work that is included in the Contract to the Seller's subsidiary company named Siemens Generation Services Co. ("SGSC"). SGSC is a national contractor which specializes in using union building trade labor to perform maintenance on combustion turbine generators, steam turbine generators and their auxiliaries.

16.3 Third Parties. Except as otherwise expressly provided in this Contract, nothing in this Contract shall be construed to create any duty to, or standard of care with respect to or any liability to any person who is not a Party to this Contract.

16.4 Dispute Resolution. In the event a dispute arises between Seller and Buyer regarding the application or interpretation of any provision of this Contract that cannot be resolved pursuant to the alternative dispute resolution procedures described below, the Parties expressly agree, notwithstanding that the Project is located in the City of Lodi, San Joaquin County, California that the County of San Francisco and specifically, the Superior Court of the State of California in and for the County of San Francisco or the United States District Court for the Northern District of California shall be the venue for any action or proceeding between the Parties with respect to this Contract. Pending the resolution of any dispute, protest or claim under this Section 16.4, Seller or Buyer shall proceed with the performance of its undisputed obligations consistent with its respective position in the dispute, including but not limited to payment. Notwithstanding any provisions of this Dispute Resolution Article, including the alternative dispute resolution procedures described below, Seller shall have the right at any time to pursue equitable relief, including injunctive relief, under Section 16.1.

16.4.1 All questions of fact, and any and all disputes with reference thereto, arising out of the performance of this Contract, or changes therein, or extra work in connection therewith, shall be submitted in writing to the applicable Party.

16.4.2 Prior to initiating litigation in a court of competent jurisdiction, both Seller and Buyer shall undergo alternative dispute procedures as outlined in California Public Contract Code Section 20104, et seq. for claims that do not exceed one million, five hundred thousand Dollars (\$1,500,000). The Parties also expressly agree that the Alternative Dispute Resolution procedures outlined in California Public Contract Code Sections 20104, et seq. shall apply to all claims that exceed three hundred seventy-five thousand Dollars (\$375,000) but are equal to or less than one million five hundred thousand Dollars (\$1,500,000), and that such procedures are incorporated as though fully set forth in this Contract.

16.4.3 For claims in excess of one million five hundred thousand Dollars (\$1,500,000) in the aggregate, both Seller and Buyer agree to the following process:

- (a) The claim shall be in writing and include documentation, if available, that substantiates the claim;

- (b) The Party receiving the claim shall have sixty (60) Days to respond in writing to the claim;
- (c) If the claimant disputes the written response, or a written response has not been provided within the sixty (60) Day period, claimant may notify the other Party, within fifteen (15) Days of receipt of the written response or within fifteen (15) Days of when the response was due, that it demands an informal conference to meet and confer for settlement of the issues in dispute. This meeting must be held within thirty (30) Days of such demand and shall be attended by senior management of the Parties;
- (d) Following the meet and confer set forth in Section 16.4.3(c), claimant is free to pursue any legal remedies accorded by the law including, but not limited to, filing a lawsuit in court; and
- (e) Seller and Buyer agree that the procedures set forth in California Public Contract Code Sections 20104, et seq., do not apply to disputes that exceed one million, five hundred thousand Dollars (\$1,500,000) in the aggregate.

16.5 Assignment and Delegation. The Contract will not be assigned by either Party without the prior written consent of the other Party, which consent will not be unreasonably withheld. However, Seller may assign the Contract without prior written consent, in whole or in part, to any subsidiary, parent, or successor organization (whether as a result of reorganization, restructuring or sale) or affiliate of Seller, or may assign the Contract in whole or in part, to such entity that substantially all of the assets or direct ownership thereof relating to the power generation business have been transferred. Any purported assignment without such prior written consent shall be null and void.

16.6 Severability. If any phrase, sentence, clause, Section or Article contained in this Contract is held invalid by a court of competent jurisdiction, such a ruling shall not affect the validity of the remaining portions of the Contract so long as the material purposes of this Contract can be determined and effectuated. The Parties shall negotiate appropriate modifications to the Contract to restore the Contract to the Parties' original intent.

16.7 Amendments. No change, amendment or modification of this Contract shall be valid or binding upon the Parties hereto unless such change, amendment or modification shall be in writing and duly executed by both Parties hereto.

16.8 Joint Effort. Preparation and negotiation of this Contract has been a joint effort of the Parties and neither the Contract nor any of its provisions shall be construed against either of the Parties as the drafting party or otherwise. Each Party has retained its own experts and professionals, and has not relied on the expert or professional advice of the other Party hereto.

16.9 Captions. The captions contained in this Contract are for convenience and reference only and in no way define, describe, extend or limit the scope or intent of this Contract or the intent of any provision contained herein.

16.10 Non-Waiver. Any failure of any Party to enforce any of the provisions of this Contract or to require compliance with any of its terms at any time during the pendency of this Contract

shall in no way affect the validity of this Contract, 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.

16.11 Applicable Law. This Contract shall be governed by, construed and enforced in accordance with the laws of the State of California, exclusive of conflicts or choice of law provisions or the United Nations Convention on Contracts for the International Sale of Goods.

16.12 Successors and Assigns. This Contract shall be binding upon and inure to the benefit of the Parties hereto, their successors and permitted assigns.

16.13 Counterparts. This Contract may be signed in any number of counterparts and each counterpart shall represent a fully executed original.

16.14 Notices. Any written notice, direction, instruction, request, or other communication required or permitted under this Contract, including payment invoices from Seller to Buyer, shall be deemed to have been duly given on the date of receipt, and shall be either served personally or by telefacsimile to the Party to whom notice is to be given, or mailed to the Party to whom notice is to be given, by first class registered or certified mail, return receipt requested, postage prepaid, and addressed to the addressee at the address stated opposite its name below, or at the most recent address specified by written notice given to the other Party in the manner provided in this Section 16.14.

BUYER: Northern California Power Agency  
Lodi Energy Center  
12745 North Thornton Rd.  
P.O. Box 1478  
Lodi, CA 95242  
Attention: Plant Manager  
Tel: (209) 333-6730

With copies to

Northern California Power Agency  
651 Commerce Drive  
Roseville, CA 95678  
Attention : General Manager and General Counsel  
Tel : (916) 781-3636  
Fax : (916) 781-4254

SELLER: Siemens Energy, Inc.  
4400 Alafaya Trail MC-605  
Orlando, FL 32826-2399  
Attention: Long-Term Programs c/o Gregory Wendt  
Telephone: (407) 736-3543  
Fax: (407) 736-5015

16.15 Complete Contract. This Contract, including all Exhibits attached hereto, constitutes the complete agreement between the Parties as of the Effective Date of the Contract, and

supersedes any and all agreements (oral or written), proposals, discussions or representations made or dated prior thereto concerning the subject matter therein.

16.16 Site Access. Seller's personnel performing Services at the Site shall comply with Buyer's Site safety and security measures at the Site.

16.17 Permits and Licenses. Buyer shall be responsible for obtaining all necessary approvals, permits and licenses for the Project from governmental agencies having jurisdiction including any import and export licenses. Notwithstanding any other provision herein, the obligation of Buyer to pay for Program Parts, Non-Program Parts, Miscellaneous Hardware or Services as set forth in this Contract shall not be affected by any delay or failure to secure or renew, or by the cancellation of, any such necessary approvals, permits or licenses.

16.18 Special Packing. Seller will pack for standard shipment via truck or rail transportation. When this packing will not meet Buyer's requirements covering preparation of Program Parts, Non-Program Parts or Miscellaneous Hardware for special shipments, Buyer must notify Seller of the special packing specifications involved during negotiation of the Contract. The charge made for such packing will be based on its cost to Seller and will be shown as a separate item on the invoice.

16.19 Return of Program Parts, Non-Program Parts or Miscellaneous Hardware. Seller shall pack and arrange for transportation off of the Site, all Program Parts that were removed from the Combustion Turbine during the preceding outage and, when possible, Seller shall use the same shipping containers for such Program Parts as Seller provided to Buyer. In no event will Seller be responsible for Program Parts, Non-Program Parts or Miscellaneous Hardware returned by Buyer without proper authorization and identification.

16.20 Transfer. Prior to the transfer to a third party of any Program Parts, Non-Program Parts and Miscellaneous Hardware or the transfer of any interest in said Program Parts, Non-Program Parts and Miscellaneous Hardware or Buyer's power generation facility in which said Program Parts, Non-Program Parts and Miscellaneous Hardware are installed, Buyer shall obtain for Seller written assurances from the transferee of limitation of and protection against liability following the proposed transfer at least equivalent to that afforded Seller and its Subcontractors under the Contract. Transfer contrary to the provisions of this Section shall make Buyer the indemnitor of Seller and its Subcontractors against any liabilities incurred by Seller and its Subcontractors in excess of those that would have been incurred had no such transfer taken place.

16.21 Survival. The provisions of Articles 9, Intellectual Property, 13, Indemnification, and 14, Limitation of Liability and Sections 16.1, Confidential or Proprietary Information, and 16.20, Transfer, of this Contract shall survive the expiration or other termination of the Contract.

16.22 Environmental Compliance. The performance of Service at the Site may involve the generation of regulated waste (as defined below).

Buyer shall be responsible for the handling, storage and disposal of all regulated wastes at its expense and agrees to indemnify Seller against any related claims or actions. Buyer shall furnish Seller with appropriate containers for regulated wastes and shall designate a waste storage facility at the Site where such containers are to be placed by Seller for removal and disposal by Buyer. Buyer shall handle, store and dispose of regulated waste in accordance with

all applicable governmental, federal, state and local laws, rules, regulations and ordinances. "Regulated waste" shall mean (a) (i) "hazardous waste" or (ii) "industrial waste", as either (i) or (ii) is defined in or regulated under or by the national laws of the country, the state/provincial and the local laws applicable to the Site, or (b) any other waste the handling, storage, or disposal of which requires a permit, license, authorization, approval, or other special handling.

#### 16.23 Asbestos and Thermal Insulation.

The terms "Asbestos" and "Presumed Asbestos Containing Material" shall have the meanings set forth in United States Code of Federal Regulations Chapter 29 Section CFR 1926.1101 et seq.

- (1) The Buyer, by allowing access to any Site, thereby warrants, represents, and certifies that any areas there associated with the Seller's scope of work, including, without limitation, areas of ingress and egress thereto (the "Work Areas") either (a) are free of asbestos or asbestos containing materials (collectively "ACM"), or (b) any ACM there present is lawfully abated and conspicuously and specifically marked as asbestos or ACM, and all thermal insulation, sprayed-on surfacing material, and/or Presumed Asbestos Containing Material ("PACM") the disturbance of which could occur in or removal of which is required for the performance of the Services has been removed. Without limiting its other rights and remedies Seller shall not be obligated to commence or may stop any work in any Work Areas unless fully satisfied that the Buyer is in compliance with this paragraph and shall be entitled to an equitable adjustment in the schedule, price and other provisions of the Contract affected thereby or otherwise affected by Buyer's non-compliance.
- (2) Seller does not represent that it is licensed to abate ACM. Where the Services include activities such as handling, modification, removal, or reinstallation of generator wedges, packing, or high temperature gaskets (such materials herein "GPW"), then, and unless Seller is provided satisfactory written evidence that such GPW is not ACM, Seller shall be obligated only to the extent (a) such activities would be classified as Class II or Class III activity under United States Code of Federal Regulations Chapter 29 Section CFR 1926.1101 et seq., (b) such activities do not require a permit, license, or authorization, (c) such activities are not likely to generate airborne asbestos fibers, and (d) all such GPW is non-friable. In all other cases, such activities shall be Buyer's responsibility and Seller shall be entitled to an equitable adjustment in the schedule, price and other pertinent affected provisions of this Contract should the same not be performed in a timely manner. The disposal of any GPW or scrap or waste material resulting from its disturbance or removal shall in all cases be the Buyer's responsibility.

16.24 Export Law Compliance. Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Program Parts, Non-Program Parts, Miscellaneous Hardware and Services provided under the Contract, including any export license requirements. Buyer agrees that such Program Parts, Non-Program Parts, Miscellaneous Hardware and Services shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in a non-compliance with such applicable export laws

and regulations. It shall be a condition of the continuing performance by Seller of its obligations hereunder that compliance with such export laws and regulations be maintained at all times.

NOW, THEREFORE, the Parties hereto have entered into this Contract as of the Effective Date first appearing above.

SELLER

SIEMENS ENERGY, INC

By: Craig A Weeks  
Name: Craig A Weeks  
Title: President Operating Service Division

BUYER

NORTHERN CALIFORNIA POWER AGENCY

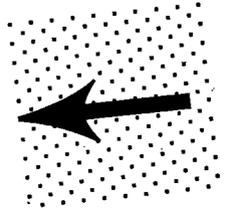
By: Ken Speer for Jim Pope  
James H. Pope, General Manager

ATTEST

By: Denise Dow  
Denise Dow, Assistant Secretary

APPROVED AS TO FORM

By: Michael F. Dean  
Michael F. Dean, General Counsel



**SIGN  
HERE**

Exhibit A  
Scope of Work Description

1.0 SCOPE DOCUMENTS

1.1 Scope Documents. This Scope of Work Description consists of this general description and the following addenda which are specifically made a part hereof by reference:

Addendum 1A	-	Combustion Turbine Scheduled Outage Services Description
Addendum 1B	-	Steam Turbine Scheduled Outage Services Description
Addendum 2A	-	Combustion Turbine Scheduled Outage Division of Responsibilities
Addendum 2B	-	Steam Turbine Scheduled Outage Division of Responsibilities
Addendum 3	-	Scope of Program Management Services

1.2 Conflicting Provisions. In the event of any conflict between this document and any addendum hereto, the terms and provisions of this document, as amended from time to time, shall control. In the event of any conflict among the addenda, the following order of precedence shall govern: Addendum 1A, 1B, 2A, 2B, and 3. Subject to the foregoing, the several instruments forming part of this Scope of Work Description are to be taken as mutually explanatory of one and another and in the case of ambiguities or discrepancies within or between such parts shall be explained and adjusted by the mutual agreement of the Parties.

2.0 SELLER'S OBLIGATIONS

2.1 Program Part(s) During the Term, Seller shall deliver the type and quantity of Serviceable Program Parts as required per the Scheduled Outage plan jointly developed and revised in accordance with Section 4.2 of this Exhibit A, Scope of Work Description.

2.2 Miscellaneous Hardware, Non-Program Parts, and Exhaust Components. During the Term, Seller shall deliver the type and quantity of Miscellaneous Hardware as required per the Scheduled Outage plan jointly developed and revised in accordance with Section 4.2 of this Exhibit A, Scope of Work Description. Seller shall supply any Non-Program Parts and Exhaust Components as mutually agreed to by the Parties and specified in a Change Order issued pursuant to Article 6.

2.3 Scheduled Outage Services. During the Term, Seller shall, per the Scheduled Outage plan jointly developed and revised in accordance with Section 4.2 of this Exhibit A, Scope of Work Description, provide all labor, supervision and technical field assistance (TFA engineering) to complete its Scheduled Outage Services, specified in Addenda 1A and 1B hereto for the applicable Scheduled Outage. Furthermore, as part of such Scheduled Outage Services, Seller is responsible for those responsibilities listed in Addenda 2A and 2B which have an "X" in the Seller column.

2.4 Program Management Services. Seller shall provide Program Management Services to manage the Steam Turbine and Combustion Turbine maintenance program, in accordance with Addendum 3 hereto, throughout the Term of this Contract.

2.5 Remote Monitor System. Seller, at its sole discretion, at any time during the Term of this Contract, may place, at no cost to Buyer, a monitoring system pursuant to the provisions of Exhibit K, Remote Monitor System.

2.6 Transportation. Seller will transport Program Parts, Non-Program Parts and items of Miscellaneous Hardware to and from the Site in accordance with its obligations under the Contract.

### 3.0 BUYER'S OBLIGATIONS

3.1 Storage. Buyer will store and maintain the parts, including any Program Parts, Non-Program Parts, Exhaust Components and Miscellaneous Hardware supplied by Seller hereunder, materials, tools and bolting kits at the Site in accordance with the original equipment manufacturer's and Seller's written instructions.

3.2 Project Operation. Buyer will maintain and operate the Combustion Turbine and Steam Turbine consistently with the warranty conditions stated in Article 8, Warranty, of the Contract.

3.3 Training. Buyer will ensure that its operator and maintenance personnel are properly trained in the correct operation and maintenance of the Project including the control system.

3.4 Scheduled Outage. Buyer will provide indoor work space for the Scheduled Outage Services personnel, including the outage manager, outage engineers and Combustion Turbine and Steam Turbine technicians. Additionally, Buyer will provide the resources listed in Addenda 2A and 2B which have an "X" in the Buyer column.

3.5 Hazardous Waste. Buyer will arrange for the disposal of all hazardous wastes generated by the Seller and Buyer.

3.6 Operating Data. At the end of each month Buyer will provide to Seller the number of Equivalent Starts and EBHs incurred by the Combustion Turbine and Steam Turbine during that month and the data to support the calculations.

3.7 Remote Monitor System. If a monitoring system is provided by Seller pursuant to Exhibit K, Remote Monitor System, Buyer shall also perform the obligations stated therein.

3.8 Transportation. Buyer will transport Program Parts that are removed from the Combustion Turbine after outages from the Site to Seller's designated facility.

### 4.0 JOINT OBLIGATIONS

4.1 Deviations to Scope. Either Party shall inform the other of any unexpected findings or any deviations from the Scheduled Outage plan and Seller and Buyer shall jointly modify, pursuant to a Change Order, the scope of the deliverables and Services related to the affected Scheduled Outage.

4.2 Outage Schedule. Buyer and Seller shall jointly develop the Scheduled Outage plan and shall jointly revise such plan during each interval between each Scheduled Outage, if necessary. The projected Scheduled Outage plan is contained in Exhibit C, Projected

Scheduled Outage Plan. The Parties shall mutually agree upon the commencement date for each Scheduled Outage at least six (6) months prior to such Scheduled Outage's expected date of commencement. Should this plan be revised, changing the number or type of Program Parts, Non-Program Parts or Services to be provided or the type of Scheduled Outage(s) or the dates for which the Scheduled Outages are to be performed, such shall constitute a Change in scope and entitle Seller to a Change Order pursuant to Section 6.4, Minimum Operating Requirements. Buyer will schedule each Combustor Scheduled Outage, Hot Gas Path Scheduled Outage and Major Scheduled Outage for the Combustion Turbine at no longer than the applicable interval indicated in the then current version of Exhibit D, Service Bulletin 55004. Buyer will schedule each Steam Turbine Major Overhaul, Steam Turbine Limited Overhaul, and Steam Turbine Annual Safety Inspection Scheduled Outages as set forth in Exhibit C. Seller will be entitled to a Change Order in the event of such a change in the applicable Scheduled Outage interval.

Addendum 1A  
Combustion Turbine Scheduled Outage Services Description

Disassembly, inspections, and reassembly will be performed per applicable Seller field Service procedures. The following Scheduled Outage workscope description illustrates a typical outage but may not reflect the actual workscope performed which may vary, at Seller's discretion, from this description.

**COMBUSTOR INSPECTION**

**INLET SECTION**

*Disassembly*

- Remove access cover on inlet manifold.

**Inspection**

- Visually inspect compressor inlet for damage and oil leaks.
- Visually inspect the inlet guide vanes and row #1 compressor blades.
- Measure the row #1 compressor blade radial clearances.

**Assembly**

- Install the inlet manifold access cover.

**COMBUSTOR SECTION**

**Disassembly**

- Remove the combustor access manway covers.
- Remove the following components:
  1. Fuel nozzles and piping
  2. Cross-flame tubes
  3. Combustor baskets
  4. Transitions
  5. Row #1 vanes

**Inspection**

- Visually inspect the fuel nozzles, cross-flame tubes, combustor baskets, and transitions for damage.
- Perform visual inspection of the rotor cooling air pipes in place.
- Perform visual inspection of the row #1 turbine vanes.
- Perform visual inspection of row #1 blades in place.
- Perform boroscope inspection of row #2 in place.

**Assembly**

- Install row #1 vanes
- Install and align replacement transitions per the applicable Service Bulletin and measure clearances.
- Measure and record transition outlet mouth clearances.
- Install replacement combustor baskets and check alignment to the transitions.
- Install replacement cross-flame tubes.
- Install replacement fuel nozzles.

- Install fuel nozzle piping.

## **EXHAUST SECTION**

### **Inspection**

- Perform visual inspection of the turbine exhaust including the strut shields.
- Visually inspect the row #4 turbine blades and measure the radial clearances.

### **Notes:**

1. Document and map all defects, cracks, wear, etc. as found.
2. Document all as found clearances and as left clearances.
3. Document all parts by location and serial number as installed in the engine and removed from the engine.

## **HOT GAS PATH INSPECTION**

### **INLET SECTION**

#### **Disassembly**

- Remove access cover on inlet manifold.

#### **Inspection**

- Visually inspect compressor inlet for damage and oil leaks.
- Visually inspect the inlet guide vanes and row #1 compressor blades.
- Measure the row #1 compressor blade radial clearances.

#### **Assembly**

Install the inlet manifold access cover.

### **COMBUSTOR SECTION**

#### **Disassembly**

- Remove the following components:
- Turbine cylinder cover
- Fuel nozzles and piping
- Cross-flame tubes
- Combustor baskets
- Transitions

#### **Inspection**

- Visually inspect the fuel nozzles, cross-flame tubes, combustor baskets, and transitions for damage.
- Visually inspect the rotor cooling air pipes in place.

#### **Assembly**

- Install and align replacement transitions per the applicable Service Bulletin.
- Measure and record the transition outlet mouth clearances.
- Install replacement combustor baskets and measure alignment to transitions.
- Install replacement cross-flame tubes.
- Install replacement fuel nozzles.
- Install fuel nozzle piping.

### **TURBINE SECTION**

#### **Disassembly**

- Remove the turbine cooling air piping and cylinder cover.
- Unbolt and remove the upper half rows 2, 3, and 4 blade rings and interstage seals.
- Measure the turbine axial and radial clearances.
- Remove the lower half rows 2, 3, and 4 blade rings.
- Remove the rows 1, 2, 3, and 4 vanes.
- Remove the turbine blades.

#### **Inspection**

- Clean and NDE the turbine discs per the applicable Service Bulletin.

- Visually inspect the turbine ring segments.
- Clean and inspect the vanes per the applicable Service Bulletin.
- Clean and inspect the blades per the applicable Service Bulletin.
- Clean and visually inspect the turbine cylinder and piping.

### **Assembly**

- Install replacement ring segments as needed.
- Install replacement vanes.
- Install replacement turbine blades.
- Install lower half rows 2, 3, and 4 blade rings and measure the axial and radial clearances.
- Install and bolt the upper half interstage seals and blade rings.
- Align the blade rings to the rotor.
- Install and bolt the turbine cylinder cover and piping.

### **EXHAUST SECTION**

#### **Inspection**

- Perform visual inspection of the turbine exhaust including the strut shields.

#### *Notes:*

1. Document and map all defects, cracks, wear, etc., as found.
2. Document all as found clearances and as left clearances.
3. Document all parts by location and serial number as installed in the Combustion Turbine and removed from the Combustion Turbine.
4. Provide moment weight and sequence charts for all rotating parts (i.e., 1<sup>st</sup> stage blades) by serial number and location.

## **MAJOR INSPECTION**

### **INLET SECTION**

#### **Disassembly**

- Remove upper half inlet manifold and inlet casing.
- Measure the inlet end journal bearing clearances and remove the bearing.
- Measure thrust bearing axial clearance and disassemble bearing.
- Measure air and oil seal clearances and remove seals.

#### **Inspection**

- Clean and visually inspect inlet manifold, inlet casing, and inlet guide vanes.
- Perform ultrasonic inspection of journal bearing babbitt.
- Perform ultrasonic inspection of thrust bearing babbitt.
- Perform visual and dimensional inspection of the oil and air seals.

#### **Assembly**

- Install air and oil seals and measure clearances.
- Install journal bearing and measure clearances.
- Assemble thrust bearing and measure clearance.
- Install and bolt upper half inlet casing and inlet manifold.

### **COMPRESSOR SECTION**

#### **Disassembly**

- Remove upper half compressor covers.
- Measure compressor axial and radial clearances.
- Remove compressor diaphragms.

#### **Inspection**

- Clean and visually inspect compressor cylinders.
- Clean and visually inspect compressor diaphragms.

#### **Assembly**

- Install compressor diaphragms.
- Measure compressor axial and radial clearances.
- Install and bolt compressor cylinder covers.

### **COMBUSTOR SECTION**

#### **Disassembly**

- Remove the following components:
- Fuel nozzles and piping.
- Combustor baskets.
- Transitions.
- Rotor cooling air pipes.

#### **Inspection**

- Visually inspect the combustor components for damage.
- Visually inspect the rotor cooling air pipes.

## **Assembly**

- Install the rotor cooling air pipes.
- Install and align replacement transitions per the applicable Service Bulletin.
- Measure the transition outlet mouth clearances.
- Install replacement combustor baskets, and check alignment to the transitions.
- Install replacement cross-flame tubes.
- Install replacement fuel nozzles.
- Install fuel nozzle piping.

## **TORQUE TUBE SEAL HOUSING**

### **Disassembly**

- Remove the upper half torque tube seal housing.
- Measure the torque tube seal clearances.
- Remove the torque tube seals.

### **Inspection**

- Clean and visually inspect the torque tube seals.
- Visually inspect the static seal segments.
- Clean and visually inspect the torque tube seal housing.

### **Assembly**

- Install the torque tube seals and measure clearances.
- Install and bolt the upper half torque tube seal housing.

## **TURBINE SECTION**

### **Disassembly**

- Remove the turbine cooling air piping and cylinder cover.
- Unbolt and remove the upper half rows 2, 3, and 4 blade rings and interstage seals.
- Measure the turbine axial and radial clearances.
- Remove the lower half rows 2, 3, and 4 blade rings.
- Remove the rows 1, 2, 3, and 4 vanes.
- Remove the turbine blades.

### **Inspection**

- Visually inspect the turbine ring segments.
- Clean and inspect the vanes per the applicable Service Bulletin.
- Clean and inspect the blades per the applicable Service Bulletin.
- Clean and visually inspect the turbine cylinder and piping.

### **Assembly**

- Install replacement ring segments as needed.
- Install replacement vanes.
- Install replacement turbine blades.
- Install the lower half rows 2, 3, and 4 blade rings and measure the axial and radial clearances.
- Install and bolt the upper half interstage seals and blade rings.
- Align the blade rings to the rotor.
- Install and bolt the turbine cylinder cover and piping.

## **EXHAUST SECTION**

### **Disassembly**

- Remove the exhaust cylinder cover.
- Measure the exhaust end journal bearing clearances and remove the bearing.
- Measure the air and oil seal clearances and remove the seals.

### **Inspection**

- Clean and visually inspect the exhaust cylinder including the struts and strut shields.
- Perform ultrasonic inspection of journal bearing babbitt.
- Perform visual and dimensional inspection of the oil and air seals.

### **Assembly**

- Install air and oil seals and measure clearances.
- Install the journal bearing and measure the clearances.
- Install and bolt the exhaust cylinder cover.

## **ROTOR SECTION**

### **Disassembly**

- Unbolt turbine/generator coupling and measure alignment.
- Rig and remove the rotor.
- Remove the turbine blades.

### **Inspection**

- Clean and NDE the turbine discs.
- Clean and inspect the compressor blades in place per the applicable Service Bulletin.
- Clean and dimensionally inspect the bearing journals and thrust collar.
- Clean and inspect the coupling.

### **Assembly**

- Rig and install rotor.
- Measure coupling alignment and bolt coupling.

Addendum 1B  
SST-900RH Steam Turbine Scheduled Outage Services Description

Disassembly, inspections, and reassembly will be performed per applicable Seller field Service procedures. The following Scheduled Outage workscope description illustrates a typical outage but may not reflect the actual workscope performed which may vary, at Seller's discretion, from this description.

**STEAM TURBINE ANNUAL SAFETY INSPECTION (ASI)**

This consists of verification and testing of the Steam Turbine and generator instrumentation and safety systems. The purpose of this inspection is to verify the turbine-generator set protection equipment are working and will function when necessary.

- Participation and observation at shut down of the plant
- Visual inspection for leaks, noises or other deviations from normal turbine behavior.
- Shut down procedure
- Leakage test, control valves
- Stroke test, emergency stop valve and check valves
- Test of tripping devices (switches and transmitters)
- Function and logic test of hydraulic oil system
- Function and logic test of lube oil system
- Gear box inspection (through inspection covers)
- Visual inspection of earth grounding device

**STEAM TURBINE LIMITED OVERHAUL (LO)**

This inspection also incorporates the Steam Turbine Annual Safety Inspection. The Steam Turbine Limited Overhaul includes inspection of several components of the Steam Turbine and is listed below.

- Participation and observation at shut down of the plant
- Visual inspection for leaks, noises or other deviations from normal turbine behavior
- Shut down procedure
- Leakage test, control valves
- Stroke test, emergency stop valve and check valves
- Linearity test, control valves
- Test of tripping devices (switches and transmitters)
- Function and logic test of hydraulic oil system
- Function and logic test of lube oil system
- Turbine bearing inspection
- Perform borescope inspection of accessible areas
- Turbine coupling alignment check
- Turbine bearing housing to foundation alignment inspection
- Turbine rupture disk inspection
- Disassemble/clean & inspect/reassemble all turbine stop/control valves
- Disassemble/clean & inspect/reassemble bypass stop/control valve (if applicable)
- Disassemble/clean & inspect/reassemble non-return valve (if applicable)

## **STEAM TURBINE MAJOR OVERHAUL (MO)**

This inspection also incorporates the Steam Turbine Annual Safety Inspection and the Steam Turbine Limited Overhaul. The Steam Turbine Major Overhaul includes inspection of several components of the Steam Turbine and is listed below.

- Participation and observation at shut down of the plant
- Visual inspection for leaks, noises or other deviations from normal turbine behavior.
- Shut down procedure.
- Dismantling procedure on HP and LP-turbine.
- Inspection and NDT of turbine casing, rotor, blades, diaphragms, guide vanes, bearings, couplings and sealings on turbine.
- Inspection and NDT of wheel, pinion, bearings on the gearbox.
- Inspection and NDT of main valves, inlet steam valves, extraction valves.
- Inspection of valves, actuators, strainers for gland- and leak-off system.
- Inspection of valves, pumps, motors, filters, coolers, servomotors, for lube- and hydraulic oil system.

### **Turning Gear**

- Disassemble
- Clean and inspect
- Reassemble

### **Bearing Pedestals**

- Check alignment of bearing housing
- Clearance check of bearing housing to seal rings
- Check anchor bolt pre-stress

### **Bearings**

- Disassemble bearings – check bearing seats in bearing housing
- Inspect bearing guides for wear and binding
- Check bearing surfaces
- Ultrasonic test babbitt bonding
- Check bearing clearances
- Check seal rings
- Check condition and performance of shaft lift oil system
- Check condition and performance of temperature monitoring
- Reassemble bearings

### **Coupling**

- Open coupling, inspect coupling bolts
- Check axial and radial alignment and runnout check
- Close coupling

**Bypass Stop and Control Valves (If applicable)**

- External inspection
- Steam side inspection, clearance check
- Perform NDE

**Electric Hydraulic Actuators**

- Function test
- Inspect cup spring packs
- Inspect for wear, binding, clearance check

**Hydraulic Supply System**

- Drain control Fluid tank
- Clean control-fluid tank
- Perform functional testing
- Record results

**Non-return Valve (extraction and exhaust valves if applicable)**

- External Inspection
- Steam side inspection, clearance check

**Control and Governing System**

- Functional check of control and governing system
- Functional test of mechanical, electrical, hydraulic and pneumatic equipment and calibration
- Check of internals

**Turbine**

- Open casing
- Remove rotor
- Cleaning and NDE on turbine internals (rotor, diaphragms)
- Inspection of casing

Addendum 2A  
Combustion Turbine Scheduled Outage Division of Responsibilities

The following list specifies the key resources necessary to perform the Scheduled Outages and assigns responsibility for their supply, either to Seller or Buyer.

Outage Responsibility Checklist

		Seller	Buyer
1.	Review the scope of work, scheduling and planning with Owner's representative(s).	X	
2.	Provide field engineers, and specialists as required by the scope of work.	X	
3.	Provide qualified labor and perform the work with good safety and housekeeping practices.	X	
4.	Provide tools for workforce including transportation	X	
5.	Expendable materials	X	
6.	Clerical support/administrative support	X	
7.	Final field report	X	
8.	Dustblast equipment, material and services	X	
9.	NDE equipment, material and services	X	
10.	Compressed air		X
11.	Removal and replacement of insulation	X	
12.	Office trailer, change trailers, chemical toilets, potable water		X
13.	Telephone service		X**
14.	Cribbing for disassembled parts/scaffolding (as required)		X
15.	Cable slings, lifting devices and associated special tooling supplied with the original equipment order		X
16.	Operated crane & crane operators	X	
17.	Electrician for disconnection and connections		X
18.	Electrical power including: (120/480 VAC single phase and 480 VAC three phase up to 100 amps), service water, oxygen, acetylene gas, and lubricants as necessary		X
19.	Trash containers and disposal service		X
20.	Fire protection equipment/first aid facilities		X
21.	All asbestos removal and disposal		X
22.	Disposal of hazardous waste		X
23.	Forklifts & welding machine		X
24.	I&C technicians		X
25.	Painting		X

\*\* Seller responsible for the phone bill

Addendum 2B  
Steam Turbine Scheduled Outage Division of Responsibilities

The following list specifies the key resources necessary to perform the Scheduled Outages and assigns responsibility for their supply, either to Seller or Buyer.

Outage Responsibility Checklist

	Seller	Buyer
<b>PRE-OUTAGE REVIEW</b>		
Review the scope of work and provide a schedule	X	X
Review the availability of required outage parts including asbestos free gaskets and gasket material in Buyer's stock	X	X
Review inventory and condition of Buyer supplied Steam Turbine special tooling	X	X
Review masonry work requirements and provide recommendations prior to outage	X	X
Review lighting requirements and provide recommendations prior to outage	X	X
Review crane and scaffold requirements and provide recommendations for any supplemental cranes or scaffold	X	X
Review fork truck requirements and provide recommendations	X	X
Review gasses and lubricant requirements and provide recommendations	X	X
Review fire protection requirements and provide recommendations for any supplemental fire protection measures	X	X
Review storage and enclosure requirements and provide recommendations	X	X
Review Foreign Materials Exclusion (FME) program to assure all debris, tools and other materials do not enter or are left inside the equipment that may cause damage or operational problems.	X	X
Review Site for obstacles of interference and provide recommendations	X	X

	Seller	Buyer
<b>OUTAGE STAFFING / SUPPORT</b>		
Provide field engineers, technicians and specialists as required by the scope of work	X	
Provide qualified craft labor and perform the work with good safety and housekeeping practices	X	
Outage clerical support/administrative support	X	
Instrument and controls (I & C) technicians		X
Electrician(s) for electrical disconnect and reconnect		X
Certified crane and operator	X	
<b>DOCUMENTATION</b>		
Observe unit operation during shutdown and obtain data as necessary	X	X
Scheduling and planning	X	X
Detailed final report and recommendations	X	
Supply daily updates to the schedule manager and attend progress meetings with work updates during the outage	X	
<b>MATERIAL &amp; FACILITIES</b>		
Provide tool set for the craft labor	X	
Bolt induction heating	X	
Expendable materials	X	
Non-destructive (NDE) testing service and material	X	
Supply rigging equipment (not to include special equipment supplied with Steam Turbine)	X	
Provide oxygen, acetylene gas, argon, hydrogen, carbon dioxide and lubricants as necessary.		X
Supply tooling (except as noted below) including bolt-heating equipment, slug wrenches, chain falls	X	
Provide all turbine / generator tools that were originally supplied by the original equipment manufacture for these units. These include jack bolts, major lifting cables, lifting beam, hydrogen cooler lifting brackets, generator skid pan, shoes and hydrogen seal housing brackets, cable slings and lifting devices		X
Washroom facilities, portable toilets and potable water		X
Office trailer and equipment, change trailers, and telephones		X**
Telephone service and high-speed internet connection		X
Provide turbine floor protection when required to prevent damage during material storage and work activities.		X
Overhead and portable crane(s)	X	
Scaffolding materials and erection		X

Plant machine facilities and operators, if required		X
Fork trucks		X
Compressed air at 100 psi, 480 and 120 volt outlets, phone lines to office facilities, non-potable water source, trash containers outside of building and parts storage trailer		X

	Seller	Buyer
<b>SUPPORT SERVICES</b>		
Provide start-up and balancing support (performed on a 1-10-6 shift arrangement basis)	X	
Dustblast equipment, material and services for cleaning turbine components	X	
Arc welding machine(s), if required	X	
Storage and work enclosures for disassembled components	X	
Transport (if required) of disassembled parts from/to T/G to/from work/storage areas.	X	
Support the moving, loading in and out, prepping for shipment and receiving of equipment for all the turbine work		X
Pre-inspection of the overhead crane(s) as required		X
Operations for tagging, draining, filling and testing of equipment		X
Removal and installation of acoustical enclosure, as required	X	
Removal and replacement of non-asbestos insulation blankets	X	
All asbestos insulation removal and disposal		X
Disposal of hazardous and non-hazardous waste including material containing asbestos, if encountered		X
Removal and disposal of lead paint		X
Trash containers and disposal service		X
Oil flush program (This service can be provided by Seller upon request on time & material basis.)	X	
Electrical power including: (120/240V single phase and 240/480, three phase)		X
Area lighting		X
Check and calibrate gauges, instrumentation and thermocouples associated with the turbine-generator		X
Fire protection equipment (existing plant equipment)		X
Repack, repair or replace small hand valves		X
Repaint as necessary		X
Weather protection		X

On-site first aid facilities and ambulance service		X
Sufficient and convenient lay down, cleaning, storage and work areas in close proximity to T/G which isolates the Seller work area from routine plant activity		X
Removal of any obstacles of interference outside of the control of Seller that may be encountered prior to or during the outage which may hinder or prevent Seller from performing the work outlined in this offer		X

In Addition to "General" Section		
Rotor stands available for the LP rotor and one set of power rollers. Cribbing and pallets for disassembled parts	X	
Condenser protection	X	

\*\*Seller responsible for the phone bill.

Addendum 3  
Scope of Program Management Services

Seller will provide Program Management Services throughout the Contract's Term, commencing twelve (12) months prior to the Project's scheduled date of First Fire.

**The Program Management Services will include:**

1. Providing contacts for communication between Seller and the Buyer's designated representatives (Operation and Maintenance staff) for the major maintenance of the plant.
2. Working with the Seller's inventory and manufacturing personnel (located at Seller factories throughout the world) to expedite Program Parts and Miscellaneous Hardware as required to facilitate the success of each Scheduled Outage.
3. Maintaining a parts tracking database on Program Parts.
4. Communicating and coordinating with the plant purchasing agent regarding warehouse stock of Program Parts and Miscellaneous Hardware, delivery and shipment of Program Parts and Miscellaneous Hardware.
5. Providing final review of Program Parts and Miscellaneous Hardware inventory prior to Scheduled Outages to verify that all required Program Parts and Miscellaneous Hardware are on Site.
6. Initiating and resolving product warranty claims to the best interest of all Parties involved.
7. Initiating, determining the status, and verifying completion of (E-FAR's) regarding plant issues.
8. Providing technical support, assistance, and evaluation when operating or maintenance problems occur. Assisting in areas of technical issues and helping to facilitate resolution.
9. Communicating to Buyer's designated representative technical bulletin updates as published.
10. Delivering to Buyer's designated representative outage reports and repair reports after Scheduled Outages.
11. Providing sourcing assistance for procurement of Siemens Energy, Inc. parts.

## **QUARTERLY DELIVERABLES**

1. Updated Projected Scheduled Outage Plan if requested
2. Issues summary report indicating maintenance issues and outage findings at other similar frame plants
3. Updated Seller's section of the Schedule Outage Plan
4. Program Parts order and delivery status report
5. Program Parts status report

Exhibit B  
Combustion Turbine Program Parts List

- **Combustor Baskets**
- **Fuel Nozzles**
- **Transitions**
- **Transition Seals**
- **Ring Segments – Row 1**
- **Ring Segments – Row 2**
- **Ring Segments – Row 3**
- **Ring Segments – Row 4**
- **Row 1 Blade**
- **Row 1 Vane**
- **Row 2 Blade**
- **Row 2 Vane**
- **Row 3 Blade**
- **Row 3 Vane**
- **Row 4 Blade**
- **Row 4 Vane**
- **Compressor Blades**
- **Compressor Diaphragms**
- **Diaphragm Seals**

Exhibit C  
Projected Scheduled Outage Plan

The projected Scheduled Outage plan below is based on the current revision of the Combustion Turbine Service Bulletin 55004 as of the Effective Date of the Contract. Combustion Turbine Scheduled Outages will be performed as required by the Service Bulletin, which may be amended from time to time. All Steam Turbine Scheduled Outages will be performed in conjunction with the corresponding Combustion Turbine Scheduled Outage as set forth below; should a change to the Service Bulletin adversely affect the Buyer, the Parties will negotiate changes to the Contract in good faith.

<b>Period</b>	<b>Equivalent Base Hours (Since First Fire)</b>	<b>Combustion Turbine Outage Type</b>	<b>Steam Turbine Outage Type</b>
1	12,500	CI	ASI
2	25,000	HGP	LO
3	37,500	CI	ASI
4	50,000	Major	MO
<b>Period</b>	<b>Equivalent Base Hours (Since First Major Inspection)</b>	<b>Combustion Turbine Outage Type</b>	<b>Steam Turbine Outage Type</b>
5	12,500	CI	ASI
6	25,000	HGP	LO
7	37,500	CI	ASI
8	50,000	Major	MO

Outage Definitions:

- CI – Combustor Scheduled Outage
- HGP – Hot Gas Path Scheduled Outage
- Major – Major Scheduled Outage
- ASI – Steam Turbine Annual Safety Inspection
- LO – Steam Turbine Limited Overhaul
- MO – Steam Turbine Major Overhaul

Exhibit D  
Service Bulletin 55004

**To Be Attached.**

## SERVICE BULLETIN 55004

### Gas Turbine Maintenance and Inspection Intervals, W501F and SGT6-5000F

Rev. No: 0	Rev. Date:	Created: 06/12/06
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#### Notice to Service Bulletin Users

This Gas Turbine Service Bulletin has been distributed to customers of Siemens Power Generation, Inc. (Siemens), without charge, as a Proprietary document. The purpose of this publication is to provide gas turbine users with information considered useful in the maintenance and operation of Siemens gas turbines. The information in this bulletin represents a compendium of ideas and experiences by Gas Turbine Engineering, Operating Plant Services, other Siemens Divisions, Siemens suppliers, and customers. These publications are provided to the user so that the user may enhance the reliability, efficiency and maintainability of its units.

Siemens reserves the right to withdraw any publication at any time without notice. Siemens does not warrant applicability to any specific gas turbine engine (or system) since service bulletins are written to apply to most, not necessarily all, gas turbines in most circumstances. In addition, Siemens has no control over the implementation of a service bulletin or the mechanical configuration of customer-owned and maintained equipment.

It is the sole responsibility of the user to carefully consider the data set forth in the service bulletin, to determine if the information is specifically appropriate to the user's specific engine (or system) in a particular circumstance, and to exercise reasonable care and skill in the implementation of the suggestions provided therein.

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While Siemens does sincerely attempt to eliminate errors and inaccuracies, on occasion Siemens finds it necessary to correct, clarify, and even withdraw information as experience is gained and feedback is received from the field. Your constructive criticism and comments can help us to provide more useful publications in the future.

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## SERVICE BULLETIN 55004

### Gas Turbine Maintenance and Inspection Intervals, W501F and SGT6-5000F

Rev. No: 0	Rev. Date:	Created: 06/12/06
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#### REASON FOR BULLETIN

This bulletin provides recommendations for gas turbine inspection intervals and inspection requirements for certain W501F and SGT6-5000F units. Consult your Siemens representative regarding the applicability of this document, Service Bulletin 36803, or Service Bulletin 51009 to your gas turbine(s).

#### BULLETIN APPLIES TO

This bulletin applies to certain W501F and SGT6-5000F units meeting the following criteria:

- 1) The unit must have installed a specific group of components, details of which can be provided through the User's Siemens representative.
- 2) Engine operation and maintenance must be in accordance with all applicable Siemens recommendations, including control system settings. Operation at other conditions may change the recommendations with respect to inspection and service intervals and will void applicable warranties. Contact your Siemens representative for an evaluation of your unique situation.
- 3) The unit must have continuous combustor dynamic monitoring (Siemens or Siemens-approved system).
- 4) The unit must operate on natural gas or distillate meeting the applicable Siemens fuel specifications. Contact your Siemens representative for details.

#### SCOPE

In addition to recommending revised inspection intervals, this bulletin provides Definitions of required parameters, and Algorithms used to calculate service counters, and a description of various recommendations.

These inspection recommendations were developed using Original Equipment Manufacturer (OEM) design knowledge and fleet experience. They are provided in the interest of helping you maximize your unit availability and reliability. All owners/operators of the Siemens gas turbine W501F and SGT6-5000F frames should implement, as a minimum, the inspection recommendations in this document. If you have questions about how this service bulletin affects your particular unit, contact your Siemens representative.

Inspection recommendations are based on a combination of factors that include model or frame number, fuel type, number of operating hours, number of starts, types of starts, whether operation or starts were

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*W501F Gas Turbines sold after January 01, 2005 will be sold as "SGT6-5000F" gas turbines.*

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performed using a single fuel or multiple fuels, and the number of trips from load. The inspections and intervals stated in this bulletin may be modified or supplemented by special instructions. These include any additional requirements specified by Technical Advisories, Product Improvement Bulletins (PIBs), and Service Bulletins as recommended in outage planning instructions and in outage plans established for a specific unit. These may require **more frequent intervals and/or different inspections. This Service Bulletin does not supersede those requirements. If you have any questions regarding your specific unit, contact Siemens immediately.**

These recommendations are based on the assumption that the units have been operated and maintained according to Siemens operation and maintenance recommendations, including control and alarm setpoints. It is assumed that any fluids and gases consumed by the turbine meet Siemens specifications.

Operators should perform inspections at least as frequently as these recommended intervals, but some site-specific operating conditions may suggest more frequent and stringent inspection or maintenance practices. Additionally, site-specific practices may produce conditions that do not fit the definitions or recommendations set forth in this bulletin. Siemens should be contacted with any questions.

**Note – the calculations of Equivalent Base Hours, etc. set forth below are solely for purposes of computing inspection intervals for purposes of this Service Bulletin and not for any other purpose.**

**Siemens, a world leader in Gas Turbine manufacture and repair, can provide quotations on specific information or services that you may request as a result of this bulletin.**

## SPECIAL RECOMMENDATIONS

Owners/operators of specific Siemens W501F and SGT6-5000F gas turbines should implement, as a minimum, the inspection recommendations in this document, as set forth in the owner's purchase or maintenance contract.

The inspections and intervals stated in this bulletin may be modified or supplemented by additional communications from Siemens. These include any additional requirements specified by Technical Advisories and Service Bulletins and as recommended in outage planning instructions and in outage plans established for a specific unit.

## INSTRUCTIONS

1. Maintain accurate records of unit operation, including the parameters listed below. Definitions of the parameters are found in Table 1. Keep a running total of these parameters for each fuel. An operating history spreadsheet, such as shown in Table 2, can be used to do this. Parameters are:

Fired Hours

Normal Starts (subcategorized for rotor counters)

Fired Aborts

Trips (record the load at which each trip occurred)

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## NOTE

Unit operating history can be tracked based on operator's log records. The counters installed on existing units may not be configured to track operating history data at the level of detail required by this procedure.

2. Calculate service counters, such as Equivalent Base Hours (EBH) and Equivalent Starts (ES).
3. Determine which inspections are appropriate, for particular hardware, based on the calculated counter levels.

### Summary

Component / Inspection	Interval
Combustor (minor)	2000 EBH or 100 ES on engines operating on oil
Combustor	12,500 EBH or 900 ES
Turbine	25,000 EBH or 900 ES
Compressor and Cylinders	50,000 EBH or 1800 normal starts
Rotor	At 100,000 EBH and at 150,000 EBH, providing turning gear limit satisfied, or when cyclic counter ( $U_{cyclic}$ ) reaches 1.0

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**Table 1. Definitions of Operational Parameters**

<p><b><u>HOURS</u></b></p> <p><b>Fired Hours</b> – Generally, all the time between synchronization and closing the fuel valve. The time between ignition and synchronization is not counted towards fired hours. Extended operation at FSNL (typically synchronization occurs in less than 30 seconds) is to be counted toward fired hours.</p>
<p><b><u>STARTS</u></b></p> <p>A <b>Normal Start</b> occurs when a unit reaches synchronization. Starting control logic, including ramp and loading rates, must be per Siemens supplied control settings. See Figure 1.</p>
<p><b><u>ABORTS</u></b></p> <p><b>Fired Abort</b> A fired abort is a start attempt that aborts or is aborted after combustor ignition has occurred (signified by BPT and/or EGT rise), but shuts down before reaching synchronization.</p> <p><b>Unfired Abort</b> occurs if the unit shuts down before combustor ignition. Unfired aborts are to be DISREGARDED in calculating equivalent starts.</p>
<p><b><u>TRIPS</u></b></p> <p>Any post-load shutdown that does not include at least a 5 sec. FSNL cool down counts as a trip. Any load rejection that results in a trip at a lower load (including FSNL) would count as a trip from the original load prior to the load rejection.</p> <p>When calculating the percentage of base load, use base load at time of trip. Base load at time of trip is dependent on current ambient conditions. This parameter is typically available at the control system output (JN6001). For any trips that have occurred during operation above base load, consult Siemens for additional recommendations.</p>

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**Table 2. Operating History Spreadsheet**

OPERATING HOURS (TRACK SEPARATELY FOR EACH FUEL.)		
FIRING MODE	NATURAL GAS / PROPANE	DISTILLATE OIL
FIRED HOURS		

STARTS (TRACK SEPARATELY FOR EACH FUEL.)		
TYPE OF START	NATURAL GAS/PROPANE	DISTILLATE OIL
NORMAL START		
FIRED ABORT		

LOAD AT WHICH TRIP OCCURRED	NATURAL GAS / PROPANE	DISTILLATE OIL
Greater Than Base Load *		
75% ≤ load ≤ 100%		
50% ≤ load ≤ 75%		
25% ≤ load ≤ 50%		
10% ≤ load ≤ 25%		
Load < 10%		

\* Record load for each event that occurs at greater than base load.

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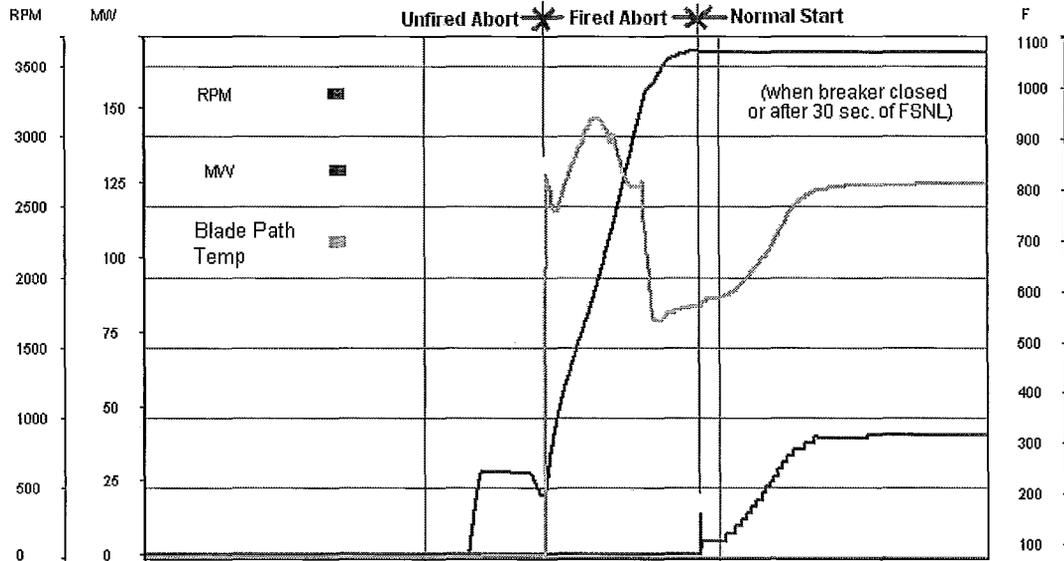


FIGURE 1 Illustration of a Start Up Cycle

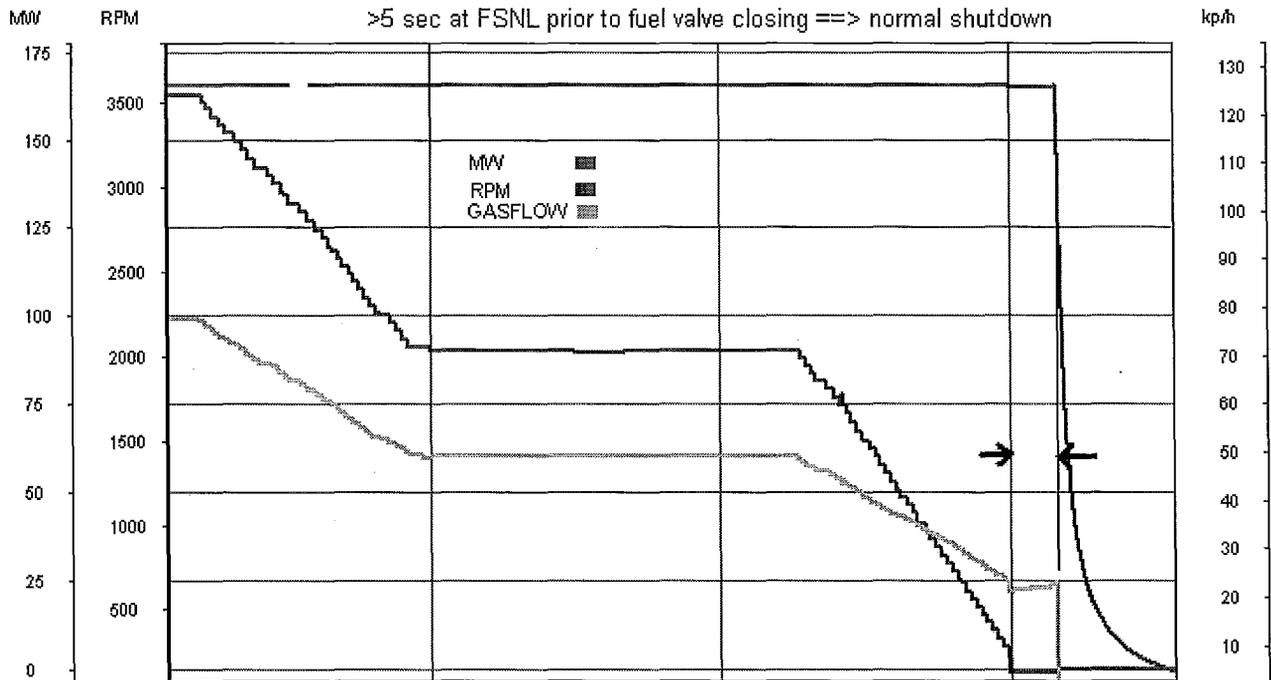


FIGURE 2 Illustration of a Shutdown

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< 5 sec at FSNL prior to fuel valve closing ==> trip  
 use power level prior to trip to determine trip factor .

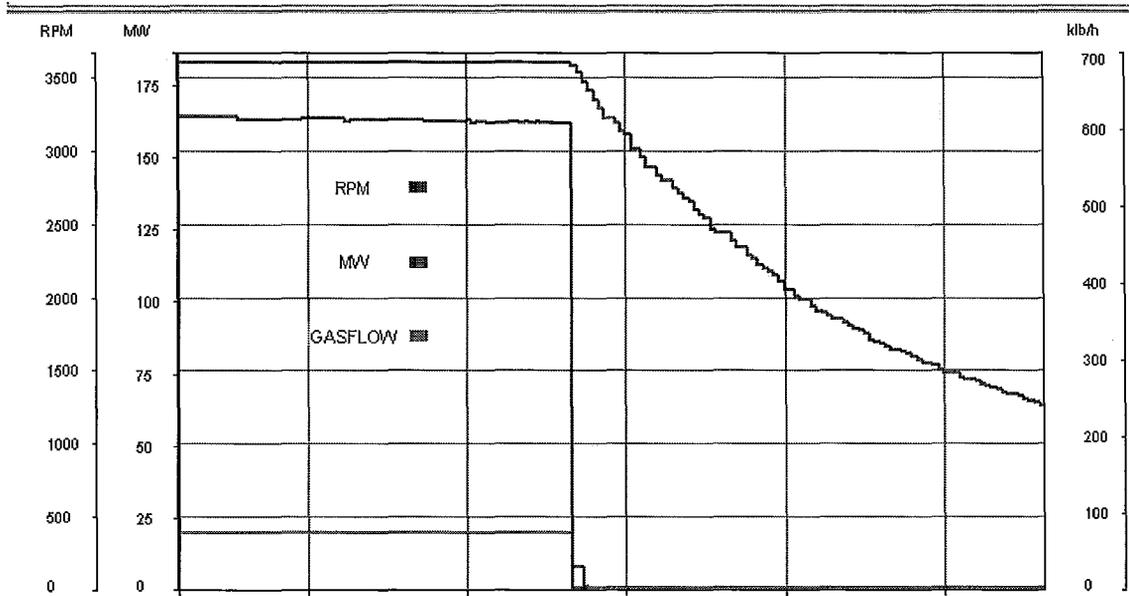


FIGURE 3 Illustration of a Trip

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## How to Calculate Service Counters

### Equivalent Base Hours (EBH) Counter

The effects of time at temperature are monitored using Equivalent Base Hours (EBH).

$$EBH = FH_{fg} + 1.3(FH_{fo})$$

Where:

EBH= the equivalent base hours

$FH_f$  = Fired Hours at or below base firing for given fuel type "f".

Subscript fg refers to natural gas/propane, fo refers to distillate oil.

### NOTE

**Fuel must in all cases meet the requirements of the applicable Siemens fuel specification for your unit.**

### Equivalent Starts (ES) Counter

The effects of cyclic thermal stress caused by some starts, trips and load changes are cumulative and are monitored using Equivalent Starts (ES). Use the factors below in the ES equation to calculate ES.

$$ES = \Sigma(S \cdot F_f) + \Sigma(A \cdot F_f) + \Sigma(T \cdot T_f \cdot F_f)$$

**S** Normal Starts

**A** Fired Aborts

**T** Trip from load

$T_f$  Trip factor

$F_f$  Fuel factor

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## Fuel Factors - Ff

<u>Fuel Used</u>	<u>Fuel Factor</u>
Natural Gas	1.0
Distillate Oil / Naphtha	1.3

## Trip Factors - Tf

<u>Percentage of Base Load at Time of Trip</u>	<u>Trip Factor</u>
Greater Than Base Load	Consult Siemens
75% ≤ load ≤ 100%	8.0
50% ≤ load ≤ 75%	6.0
25% ≤ load ≤ 50%	4.0
10% ≤ load ≤ 25%	2.0
Load < 10%	1.0

## Rotor Counters

There are two rotor cyclic counters that can be used, depending on how detailed the engine operating records are.

### 1. Default Counter

If detailed start data is not available, then cyclic life consumption can be estimated:

$$U_{\text{cyclic}} = (\text{number of normal starts}) / 2055$$

### 2. Modified Counter

If it is possible to distinguish between "warm" and "cold" starts, then this counter may be utilized. A start is classified as warm if the engine had operated at base load at any time in the 12 hours preceding the start initiation (eg. Normal starts = cold starts + warm starts). A cold start is any start not identified as warm. In this case, cyclic life consumption is:

$$U_{\text{cyclic}} = \text{Maximum (cold starts / 2040, normal starts / 2500)}$$

When the rotor cyclic counter ( $U_{\text{cyclic}}$ ) reaches 1.0, then the rotor should be disassembled, and the disks inspected to determine the remaining capability,

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## RECOMMENDED SERVICE INSPECTIONS

Included below are general descriptions of the various inspections. For detailed information or workscope, consult Siemens.

### Running Inspections

An inspection is performed while the unit is operating. This inspection involves monitoring various engine operating parameters to identify changes from a new or clean/overhaul condition. Engine monitoring includes, but is not limited to:

- Blade path temperatures, spreads, and trends
- Exhaust temperatures
- Disc cavity temperatures
- Vibration levels and trends
- Bearing temperatures and oil pressure
- Compressor fouling
- Combustor shell pressure.

During normal operation, the operating data should be monitored and trended. An abnormal reading or trend in the direction of a problem area in any parameter should prompt an investigation and the correction of the cause (even if data levels are still within acceptable ranges).

### Combustion System Minor Inspection

No minor combustor inspection is recommended when operating on natural gas; however, when operating on oil a minor combustor inspection is recommended at intervals of 2000 EBH or 100 ES (reaching either limit triggers an inspection).

The minor combustor inspection involves the removal, cleaning, and inspection of the fuel nozzle assemblies, and the inspection of the interior surfaces of the combustors and transitions through the nozzle openings. On units that have man-way access, a crawl-through inspection should also be performed. The inspection is to verify that the nozzles are clean, and free of debris and leaks; and that the combustor baskets are clean and free of distortions or distress. For units with DLN combustion systems fitted with an external bypass valve system, the bypass valve system external piping/connections shall be inspected per Technical Advisory-2000-010 "Safety Hazard/Potential Equipment Failure at Critical Combustor Bypass Flange Interface" recommendations.

### Combustion System Inspection

The combustor inspection involves removal of combustor and turbine end components that are accessible without performing a cover lift and is recommended at intervals of 12,500 EBH or 900 ES. Combustion parts are thoroughly cleaned and inspected in accordance with appropriate service bulletin information. Components that are not removable without a cover lift are inspected in-place. If hot spots are observed on turbine Row 1 vanes, it may be necessary to re-position vanes.

Visually inspect of Row 1 blades. Visual inspections also can be made in-place for last row turbine blades, compressor inlet guide vanes (IGVs), Row 1 compressor blades, and compressor last-row outlet guide vanes (OGVs). On units that have the internal bypass mechanism, inspection of the bypass valve disc, bypass valve

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driveshaft, and linkage mechanism should be performed. For units with DLN combustion systems fitted with an external bypass valve system, the bypass valve system external piping/connections shall be inspected in accordance with Technical Advisory -2000-010. Contact your Siemens representative if you need a copy. Units that have operated primarily on crude/residual fuel should be borescoped to observe blade coating integrity and to confirm the satisfactory removal of deposits by the water washing system.

## **Turbine Inspection**

The turbine section inspection typically coincides with a major combustor inspection (together called a hot gas path inspection) and is recommended at intervals of 25,000 EBH or 900 ES. Access requires removal of the appropriate cylinder cover and blade rings. In most cases, blades and associated parts are removed from the rotor, cleaned and inspected. Turbine disc blade root serrations are also cleaned and inspected. In units without blade rings, turbine vane diaphragms are removed for cleaning and inspection. Vanes and ring segments are removed from the blade ring as required for cleaning and inspection; and interstage vane seals and baffles are inspected before disassembly.

## **Compressor and Cylinders**

At intervals of 50,000 EBH or 1800 normal starts, the compressor and cylinders are recommended to be inspected. When conducted in concert with a hot gas path inspection, this is referred to as a "major" inspection. Compressor diaphragms are removed, cleaned and inspected. Compressor blades and discs are cleaned and inspected in-place. The rotor may be removed or inspected in place. Cylinders and bearings are inspected. For units with DLN combustion systems fitted with an external bypass valve system, the bypass valve system external piping/connections shall be inspected per Technical Advisory-2000-010 recommendations.

## **Rotor**

When the rotor reaches 100,000 EBH, the following additional inspections are recommended:

- Rotor assembly 10 point runouts – dimensional
- Measure Turbine Disc Seal Arm Deformation – dimensional
- Inspect Compressor Shear pin flanges for distress – visual
- Turbine Disc Steeples, R1, R2, R3, and R4 – ET
- Air Separator to R1 Turbine Disc Interference – ET
- Torque Tube/Air Separator and Accessible Regions – UT
- Check for Corrosion Hot Spots to determine lifetime effects – Visual and Analysis required

After the 100,000 EBH inspection, the rotor can continue to operate up to 150,000 EBH providing that total turning gear hours are less than that shown in Figure 4. The turning gear requirement applies only to units with slow speed turning gears, which allow blade movement during turning. These gears operate at 1-3 rpm.

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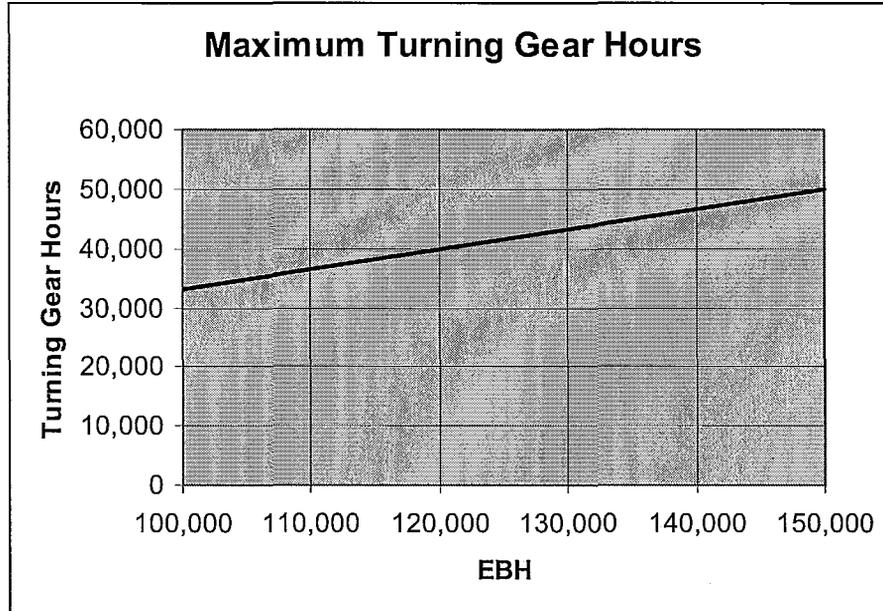


FIGURE 4 Maximum turning gear hours (slow speed gears only)

**As a world leader in gas turbine manufacture and repair, Siemens can provide quotations on specific information or services you may request as a result of this bulletin.**

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Exhibit E  
Payment Schedule

**Pricing Schedule:**

1. Program Initialization Fee:

Within 30 Days of Effective Date Seller shall invoice Buyer and Buyer shall pay to Seller a Program Initialization Fee in the amount of one million five hundred thousand Dollars (U.S. \$1,500,000.00)

2. Fixed Annual Fee:

Seller shall invoice Buyer and Buyer shall pay to Seller a "Fixed Annual Fee" of one hundred thousand Dollars (U.S. \$100,000.00) to be paid in advance of each Calendar Year, beginning on June 1, 2012.

3. Variable Fee:

Seller shall invoice Buyer and Buyer shall pay to Seller a Variable Fee of five hundred twenty one Dollars per Equivalent Base Hour (US \$521.00/EBH).

The "Variable Fee" is calculated and invoiced based upon the Equivalent Base Hours (EBH) accumulated by the Combustion Turbine. Commencing as of First Fire with respect to the Combustion Turbine, at the end of each calendar quarter thereafter for such Combustion Turbine (or at the time of a Scheduled Outage), Seller shall invoice Buyer for the Variable Fee (per above), based on the actual operation of such Combustion Turbine during such calendar quarter (or during such calendar quarter up to the commencement of the next Scheduled Outage).

**True Up of Variable Fees:**

1. At the commencement of each Hot Gas Path Scheduled Outage, Seller, notwithstanding other amounts invoiced under this Contract, will invoice Buyer from First Fire or from the commencement of the first Major Inspection, each as applicable to the commencement of the Hot Gas Path Scheduled Outage, the Variable Fee multiplied by twenty-five thousand (25,000) EBH.

2. At the commencement of each Major Scheduled Outage, Seller, notwithstanding other amounts invoiced under this Contract, will invoice Buyer from the most recent Hot Gas Path Scheduled Outage to the Major Scheduled Outage, the Variable Fee multiplied by twenty-five thousand (25,000) EBH.

**Escalation:**

Payments will be due net thirty (30) Days from date of each invoice. All payments shall be in U.S. Dollars, escalated at the time of invoice according to the Escalation Factor.

Exhibit F  
Not Used

[This Exhibit Intentionally Left Blank]

Exhibit G  
Cancellation Schedule

Termination Interval	Fee
After First Fire but prior to completion of Period 1	\$2,500,000
After Period 1 but prior to completion of Period 2	\$4,000,000
After Period 2 but prior to completion of Period 3	\$4,000,000
After Period 3 but prior to completion of Period 4	\$7,000,000
After Period 4 but prior to completion of Period 5	\$7,000,000
After Period 5 but prior to completion of Period 6	\$4,000,000
After Period 6 but prior to completion of Period 7	\$2,000,000
After Period 7 but prior to completion of Period 8	\$1,000,000

Exhibit H  
Change Order Format

CHANGE ORDER NO.

**Contract:**

**Effective Date:**

**Buyer:**  
**Seller:**

1. **Introduction.** This Change Order No. \_\_\_\_ (this "Change Order") is agreed to pursuant to that certain Program Parts, Non-Program Parts, Miscellaneous Hardware, Program Management Services and Scheduled Outage Services Contract, dated \_\_\_\_\_, \_\_\_\_\_ (the "Contract") by and between Siemens Energy, Inc. ("Seller") and Northern California Power Agency ("Buyer"). Capitalized terms used but not defined herein shall have the meaning given them in the Contract. This Change Order as submitted by one Party to the other shall constitute a request for a Change Order. Upon its countersignature in the space provided below, this Change Order shall constitute a Change Order within the meaning of the Contract.
  
2. **Scope of Change.** Describe in pertinent detail (a) the addition or removal of a Program Part, Non-Program Part or Miscellaneous Hardware Item from the Contract, (b) a change to the Services, (c) a change in schedule of Program Parts, Non-Program Parts or Services, (d) any other change to the workscope obligations. Attach any necessary documentation as Attachment 1 hereto, including any revisions to Exhibits to the Contract.  
  
(a) \_\_\_\_\_  
  
(b) \_\_\_\_\_  
  
(c) \_\_\_\_\_  
  
(d) \_\_\_\_\_
  
3. **Timing.** Describe in pertinent detail the timing of implementation of this Change Order. Attach any necessary documentation as Attachment 2 hereto, including any revisions to Exhibits to the Contract.  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_
  
4. **Payment and Term.** Describe in pertinent detail the effect of this Change Order on the Fees and/or the Term. If payment is to be made by other than an adjustment to the

Fees, specify. Attach any necessary documentation as Attachment 3 hereto, including any revisions to Exhibits to the Contract.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. **Other Terms and Conditions.** Except as otherwise specifically provided in this Change Order, all other terms and conditions of the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, the Parties, intending to be legally bound, have caused this Change Order No. \_\_\_ to be executed by their duly authorized representatives to be effective as of the date first above written.

[Seller]

[Buyer]

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_  
Name:

By: \_\_\_\_\_  
Name

Title:

Title:

Date:

Date:

Exhibit I  
Natural Gas, Fuel Oil and Water Specifications

**To Be Attached.**

# SIEMENS

Siemens Power Generation  
A Siemens Company

## ENGINEERING SPECIFICATION

Title	FUEL GAS SPECIFICATION
Titel	

ZDX555	DC01	KKS MBP CNS 2500	01	UNID	3705971
Proj. Code/Proj.-Kennz.	Doc./UA	Contents Code/Inhaltskennzeichen	Count no./Zähl-nr.		

		Confidential	Vertraulich
Original / Ursprung	Module Coordinator / Modulverantwortlicher	Handling	Handhabung

See Section 2.0 APPLICABLE DOCUMENTS	3
Related Documents/Zugehörige Dokumente	Review Level

	Department	Dept. Code	Name	Signature	Date
Prepared by	Operating Plants Technical Support	E96P5	Fred W. Shoemaker, Engineer	<i>F W Shoemaker</i>	2006.08.24
Reviewed by	Environmental Engineering	E96P2	Ramesh Kagolanu, Manager	<i>J M Haywood</i> <i>For R Kagolanu</i>	2006.08.24
Reviewed by	BOP Fluid Systems & Mechanical Components	E9632	Abol Moulavi, Manager	<i>A Moulavi</i>	2006.08..24
Reviewed by	Thermal Component Engineering	E9631	David Boyce, Manager	<i>D Boyce</i>	2006.08.24
Reviewed by	Operating Plants Technical Support	E96P5	Patrick Solomon, Manager	<i>P M Solomon</i>	2006.08.24
Approved by	Plant Integration	E96P	George Schott, Manager	<i>G A Schott</i>	2006.09.01

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Title: FUEL GAS SPECIFICATION	ZDX555-DC01-MBP-2500-01		
Project: E9 GENERIC DOCUMENTS	Issued: 2006-09-01		
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 1 of 22



## TABLE OF CONTENTS

SECTION	PAGE
REVISION SHEET .....	2
1. PURPOSE .....	4
2. SCOPE/APPLICABILITY .....	4
3. ABBREVIATIONS AND DEFINITIONS .....	4
4. PROCEDURE .....	5
4.1 GENERAL .....	5
4.2. ENERGY CONTENT .....	5
4.3 PRESSURE .....	6
4.4 TEMPERATURE .....	7
4.5 CONDENSABLE LIQUIDS IN THE FUEL .....	7
4.6 FUEL COMPOSITION .....	8
4.7 CONTAMINANTS .....	10
4.8 REQUIRED EVALUATIONS FOR AIR, WATER/STEAM, FUEL, AND FUEL ADDITIVES .....	13
5. REFERENCES .....	14
6. APPENDICES .....	14

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Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 3 of 22

## 1. PURPOSE

The purpose of this specification is to define the properties of gaseous fuels which are acceptable for use in Siemens Power Generation (SPG) gas turbines used in large scale power applications, including combined cycle plants.

## 2. SCOPE/APPLICABILITY

The information presented in this document applies to the SPG gas turbine frames listed below:

SGT-1000F

SGT6-2000E(6), SGT5-2000E(3),(6),(7)

SGT6-3000E, SGT5-3000E(2)

SGT6-4000F(2),(4), SGT5-4000F(2),(4)

SGT6-5000F(2),(3)

SGT6-6000G(M),(1)

This document describes specific limits that are placed on fuel gas properties to ensure operability and maintainability of the gas turbine equipment. The fuel supply must meet these limits at the ECONOPAC boundary. The ECONOPAC Boundary is defined as follows:

(a) For SGT6-3000E, SGT6-5000F(2),(3) and SGT6-6000G(M),(1) premix combustion systems, the ECONOPAC boundary is defined as the inlet flange to the fuel gas filter/seperator(s).

(b) For all other combustion systems, the ECONOPAC boundary is defined as the inlet to the ECONOPAC fuel gas strainer.

## 3. ABBREVIATIONS AND DEFINITIONS

API	American Petroleum Institute
ASTM	American Society for Testing and Materials
FBN	Fuel Bound Nitrogen
GI	Gas Index
GT	Gas Turbine
HHV	Fuel Gas Higher Heating Value
HRSG	Heat Recovery Steam Generator
LHV	Fuel Gas Lower Heating Value
NO <sub>x</sub>	Nitrogen Oxide(s)
SCR	Selective Catalytic Reduction
SPG	Siemens Power Generation
Wo	Wobbe Index

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation; Orlando, FL	Rev. 013	Type: ESP	Page 4 of 22

## 4. PROCEDURE

Fuel gases intended for use in SPG gas turbines shall be verified to meet the requirements specified in this document. If no limits are listed for a fuel property in question, SPG must be consulted for further information on a case-by-case basis. In cases where there are deviations from the requirements specified in this document, SPG must be consulted and approval obtained in writing. A chemical analysis of the fuel must be submitted to SPG for review and approval prior to operation of the gas turbine. Ultimately, only those fuels stipulated in the supply contract shall be permissible for operation in the gas turbines. Operation with fuels other than those contractually stipulated is not permitted.

### 4.1 GENERAL

SPG gas turbines are equipped with either a diffusion flame or premix combustion system. The diffusion flame combustion system can be applied to a variety of fuels ranging from those with low energy content, such as coal gas, to those with high energy content, such as natural gas, butane, or propane. Gas mixtures with a widely varying chemical content, such as refinery waste gases, have also been successfully used. The premix combustion system has more stringent fuel requirements than the diffusion flame system. However, with premix combustion it is possible to achieve lower NO<sub>x</sub> emissions without requiring steam or water injection when burning gas fuel.

For satisfactory operation, the fuel must meet requirements as described in Appendix 1 and Appendix 2. Use of some fuels may require equipment modification due to properties not discussed in this document. For this reason, SPG must review all fuels being considered for use in any SPG gas turbine.

### 4.2. ENERGY CONTENT

Energy content shall be reported on the basis of both lower and higher heating values. This will be done on both a volumetric (e.g. kJ/Nm<sup>3</sup>, Btu/scf) and mass (e.g. MJ/kg, Btu/lb) basis. Fuel gas heating value can be calculated based on the gas constituents using standard heating value reference data for these constituents. From these calculations, a "design value" for the fuel energy content must be selected. This value should lie between the maximum and minimum limits as specified in Appendix 1.

#### 4.2.1 Wobbe Index

The lower Wobbe Index (henceforth referred to as Wobbe Index) is defined as the ratio of the lower heating value of the fuel to the square root of the specific gravity of the fuel at reference temperature and pressure:

$$W_o = \frac{LHV_{vol}}{\sqrt{SG}}$$

Where:

W<sub>o</sub> = Wobbe Index

LHV<sub>vol</sub> = volumetric lower heating value at reference temperature and pressure

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Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 5 of 22

SG = ratio of fuel gas density to the density of air at reference temperature and pressure

Reference temperature and pressure for calculation of  $W_o$  are 0°C and 101.325 kPa.

A specific standard burner and system design is specified for the following gas turbine frames. SPG must be consulted on a project specific basis for the appropriate  $W_o$  range.

SGT-1000F

SGT6-2000E(6), SGT5-2000E(3),(6),(7)

SGT5-3000E(2)

SGT6-4000F(2),(4), SGT5-4000F(2),(4)

Once a design fuel is selected for these gas turbine frames, the  $W_o$  of that fuel can be allowed to fluctuate during operation,  $\pm 5\%$  for premix system or  $\pm 15\%$  for diffusion system, provided that at maximum variance the fuel LHV still lies within the acceptable range. In the event of larger fluctuations, SPG must be consulted for further details and any requisite modification of parts.

A specific standard burner and system design is also specified for the following gas turbine frames. SPG must be consulted on a project specific basis for the appropriate  $W_o$  range

SGT6-3000E

SGT6-5000F(2),(3)

SGT6-6000G(M),(1)

Once a design fuel is selected for these gas turbine frames, the  $W_o$  of that fuel can be allowed to fluctuate during operation as per the limits specified in Appendix 1, provided that at maximum variance the fuel LHV still lies within the acceptable range. In the event of larger fluctuations, SPG must be consulted for further details and any requisite modification of parts.

#### 4.3 PRESSURE

The required fuel gas supply pressure is the pressure needed at the ECONOPAC fuel gas system boundary in order to meet the maximum volumetric fuel flow needed by the gas turbine. The required fuel pressure depends upon site specific parameters such as fuel gas composition, fuel gas temperature, fuel gas density, site ambient temperature, site elevation, unit frame size, combustion system, and options such as steam injection for power augmentation. When determining the required fuel pressure, fuel flow demands while operating under a wide range of conditions are considered, including but not limited to the following:

Lowest ambient temperature (with consideration for maximum load limit)

Maximum water or steam injection (with consideration for maximum load limit)

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 6 of 22

Minimum fuel lower heating value (LHV)

Maximum fuel gas temperature

The required fuel gas pressure is considered the “design value” for a given gas turbine unit at a specified site and applies to all operating conditions for that gas turbine. It is required for various items in the fuel gas system, and it is entered into the gas turbine control system. Specified tolerances apply to this fuel pressure, per Appendix 1. In addition, regulators shall have sufficient provisions for deadband, gain, and dampening adjustment to tune out any critical oscillations that may occur between regulators and the gas turbine system demand.

#### 4.4 TEMPERATURE

The maximum and minimum temperature limits for the fuel gas depend upon the fuel gas composition and the fuel gas supply pressure. The fuel gas must be at a temperature sufficiently higher than the fuel gas and water dew point temperatures so that the fuel fed to the SPG supplied filter/separator is free of any constituents in liquid state. See Section 4.5 for further details on limits associated with fuel gas and water dew point temperatures.

The fuel gas may be heated to meet these dew point limits and/or to improve turbine efficiency. Maximum fuel gas temperature is limited depending on composition and frame and must be assessed by SPG. Increasing the fuel gas temperature increases nozzle fuel jet velocities which affects the required fuel gas supply pressure. This can adversely affect emissions and combustor stability. Fuel gas temperature may need to meet certain limits during gas turbine startup for some configurations (See Appendix 1). Any plans for fuel heating above the limits in Appendix 1 or for fuel temperatures less than 5°C must be reviewed by SPG in advance.

#### 4.5 CONDENSABLE LIQUIDS IN THE FUEL

Liquid carryover from the fuel to the gas turbine can be detrimental to gas turbine and auxiliary parts life. Therefore, the fuel gas as fed to the SPG supplied filter/separator at the gas turbine must be free of any constituents in liquid state. This requires that the fuel gas temperature must exceed the measured dew point temperature of the fuel by the values specified in Appendix 1. If the dew point cannot be measured, it must be calculated based on chromatographic analysis including all hydrocarbons up to, and including, hydrocarbons of C<sub>14</sub>. The use of knockout scrubbers followed by traps, separators and heaters in the fuel supply system can further assure that all traces of liquid hydrocarbons and liquid water are excluded from the fuel system. Design considerations should be given to minimizing long runs of pipe between the gas conditioning equipment and the SPG supplied filter/separator. Proper liquid level alarms and shutdown protection are also recommended. In projects with a fuel gas compressor, carryover of lubricating oil is possible. A gas chromatograph alone may not detect lube oil. Therefore liquids from the separator drains should have an extended fuel analysis performed to test for lubricating oil.

It is possible for liquids with high boiling temperatures to be present in the fuel supply system, for example, lubricating oil from gas compressors. Much of this material will be removed by the same gas filter/separator used in removing lower boiling liquids. Limits for carryover of this material are included in Appendix 2.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 7 of 22

## 4.6 FUEL COMPOSITION

Some fuel components of particular interest are discussed in this section. Appendix 1 and Appendix 2 combined contain the complete specification of limits on a natural gas fuel composition. In some cases, additional limits may apply that are not presented in this document. SPG must review all fuels to be considered for use in any SPG gas turbine. A chemical analysis of the fuel is required to determine its acceptability for use.

### 4.6.1 Hydrocarbons

The presence of hydrocarbons heavier (having a greater molecular weight) than methane (CH<sub>4</sub>) may result in higher emissions and can adversely affect operability of the gas turbine. The greater the amount of these higher hydrocarbons, the lower the auto-ignition temperature will be. This can lead to combustion instabilities such as flashback. The measures required to avoid these effects may result in greater production of NO<sub>x</sub> emissions. A fuel supply with a widely varying content of higher hydrocarbons will require even more extensive measures to maintain stable combustion. SPG will review all fuels on a case-by-case basis for higher hydrocarbon content and evaluate the effect on emissions and operability.

#### 4.6.1.1 Hydrocarbon Considerations for Specific GT Frames – Part A

This section applies to the following gas turbine frames only:

SGT-1000F

SGT6-2000E(6), SGT5-2000E(3),(6),(7)

SGT5-3000E(2)

SGT6-4000F(2),(4), SGT5-4000F(2),(4)

SPG should be consulted in the case of fuels containing greater than 20% by volume higher hydrocarbons or greater than 10% by volume of higher hydrocarbons (excluding ethane). Ethane (C<sub>2</sub>H<sub>6</sub>) contents of up to a maximum of 15% by volume are permissible and do not require the approval of SPG.

Fuels with acetylene (C<sub>2</sub>H<sub>2</sub>) content greater than 0.1% by volume shall only be used in diffusion flame combustion systems. Use of fuels containing more than this amount in premix combustion systems would risk destruction of the burners due to reactions in the premix piping.

#### 4.6.1.2 Hydrocarbon Considerations for Specific GT Frames – Part B

This section applies to the following gas turbine frames only:

SGT6-3000E

SGT6-5000F(2),(3)

SGT6-6000G(M),(1)

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 8 of 22

Diffusion flame combustion systems for these gas turbine frames can operate without restrictions on the hydrocarbons present in the fuel. See Appendix 1 for the hydrocarbon limits associated with premix combustion systems for these gas turbines.

#### 4.6.2 Olefins

The presence of olefins, hydrocarbons of the form  $C_nH_{2n}$ , may lead to coking of the fuel nozzles. This is of particular concern in premix combustion systems because of the small gas port sizes. Fuel heating can increase the tendency for coking to occur and is not recommended for gas turbines burning fuels with a high olefin content.

#### 4.6.3 Oxygen

Oxygen ( $O_2$ ) content must be limited in fuels containing olefins because the presence of oxygen will increase the coking reaction discussed in Section 4.6.1.3. See Appendix 1 for the limits associated with specific gas turbine and combustion system configurations.

#### 4.6.4 Hydrogen

##### 4.6.4.1 Hydrogen Limits for Specific GT Frames – Part A

This section applies to the following gas turbine frames only:

SGT-1000F

SGT6-2000E(6), SGT5-2000E(3),(6),(7)

SGT5-3000E(2)

SGT6-4000F(2),(4), SGT5-4000F(2),(4)

Fuels with a hydrogen ( $H_2$ ) content of 1% or less may be used in diffusion flame and premix combustion systems. Use of fuels containing more than 1% hydrogen in premix combustion systems could risk destruction of the burners due to reactions in the premix piping. Fuels with a hydrogen content greater than 1% but less than 10% by volume shall only be used in diffusion flame combustion systems. SPG must be consulted and approval obtained in cases where there are deviations from these requirements.

##### 4.6.4.2 Hydrogen Limits for Specific GT Frames – Part B

This section applies to the following gas turbine frames only:

SGT6-3000E

SGT6-5000F(2),(3)

SGT6-6000G(M),(1)

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Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 9 of 22

For diffusion flame combustion systems, the maximum amount of hydrogen (H<sub>2</sub>) allowable in a fuel is 40% by volume, provided all other fuel requirements are met.

For premix combustions systems, the maximum limit of hydrogen content is 8.5% by volume, provided all other fuel requirements are met.

Fuels exceeding these limits may be permitted only by special agreement with SPG. This will depend upon such factors as firing temperature, emissions requirements, and possible steam injection.

Note: NO<sub>x</sub> emissions for fuels with high levels of molecular hydrogen may be higher than for standard natural gas. This is most evident with diffusion flame combustors.

#### 4.6.5 Fuel Bound Nitrogen

Fuel bound nitrogen (FBN) may be present in some fuels in the form of ammonia (NH<sub>3</sub>) or hydrogen cyanide (HCN). FBN is readily converted to nitrogen oxides (NO<sub>x</sub>) during the combustion process. The amount of NO<sub>x</sub> formed due to FBN may be determined in accordance with 40 CFR 60, Subpart GG, Section 60.332(a)(3) or as in SIGAMA H.3. Maximum acceptable FBN content of a fuel is dictated by the emissions requirements of the specific application. In the case of stringent NO<sub>x</sub> requirements, fuels containing FBN must be reviewed.

#### 4.7 CONTAMINANTS

Contaminants from all sources must be considered when checking the limits defined in this specification, including but not limited to non-fuel sources such as compressor inlet air, steam/water injection for NO<sub>x</sub> control or power augmentation, and water for evaporative coolers. The total of the fuel-borne and non-fuel borne contaminants must not exceed the specified limits. The equation given in Section 4.7.7 must be used to determine the effective contaminant concentration. Contaminant limits are given in Appendix 2.

The compressor inlet air can greatly increase the level of impurities entering the hot gas path. For gas turbine installations where the total of the concentrations of sodium, potassium, vanadium, and lead, in the inlet air are greater than those levels specified in this document, additional air filtration units are required. When evaluating the amount of air contaminants, care should be taken to determine the contaminants that will enter the turbine, after all filtration is complete. An accurate assessment of the filtration efficiency is required.

Water and steam employed for evaporative cooling, emissions control, or power augmentation can also increase the level of impurities entering the hot gas path. Water/steam borne solids are assumed to oxidize during the combustion process and result in added particulate emissions. When evaporative coolers are employed, samples of the air should be taken downstream of the equipment. Thus, the contaminants in the water being used by the evaporative cooler will be accounted for in the air analysis.

Sodium, potassium, vanadium, and lead induce corrosion of metals in the hot gas path of the turbine, and calcium causes deposits that may be difficult to remove. This results in degradation of performance. Special coatings and materials may be selected to minimize corrosion of components in the turbine hot gas path. Also, the unit may be derated or operated at partial load to further minimize the effects of certain trace elements. However, to meet expected parts life and to sustain

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Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 10 of 22

good performance, it is required that the total of these trace elements (from all sources), as corrected to a fuel equivalent basis, be held within the limits specified in Appendix 2.

#### 4.7.1 Particulates

Particulates are limited to minimize clogging of filters and prevent erosion and deposition on the components in the turbine and the compressor. Large particles will cause erosion on the trailing edges of airfoils and ceramic coatings. Airfoil cooling effectiveness could be affected if erosion is severe. Small particles will deposit onto the leading surfaces of the airfoils and restrict the flow path. If deposition is severe, performance will deteriorate, and the compressor surge margin will diminish. Particulate level limitation becomes especially crucial when using coal gases.

#### 4.7.2 Sodium and Potassium

The behavior of sodium (Na) and potassium (K) in the gas turbine is very similar to that of vanadium (V). During passage through the hot gas path, these elements can combine with sulfur and/or vanadium to form highly corrosive compounds.

#### 4.7.3 Calcium

Calcium can lead to hard and tenacious deposits, such as anhydrite (CaSO<sub>4</sub>), which are neither self-spalling when the gas turbine is shut down, nor readily removable by water washing of the turbine. These deposits will degrade performance and may also abrade turbine coatings.

#### 4.7.4 Sulfur and Hydrogen Sulfide

Elemental sulfur (S) is not permitted at any level. If elemental sulfur were present in a gas fuel, it is possible that deposition could occur in the fuel system restricting the safe and efficient operation of the gas turbine. Using gas fuels which contain sulfur compounds may result in sulfur deposits, particularly if the fuel also contains CO<sub>2</sub> and has a low heating value. It has been found that heating the fuel to a temperature between 55°C and 60°C can prevent these deposits from occurring.

The sulfur compound content in the natural gas must be limited since the sulfur products have a tendency to condense as acids in the exhaust of the gas turbine and in progressively colder sections of heat recovery steam generators (HRSGs). In addition, in units with selective catalytic reduction (SCR) units for NO<sub>x</sub> reduction, further limits may be required to reduce the potential for formation of ammonium sulfate compounds in the HRSG.

The gas turbine and auxiliaries can be operated without restriction provided that the hydrogen sulfide (H<sub>2</sub>S) partial pressure is kept below 0.0003 MPa abs. This is in accordance with the material requirements set forth in NACE MR01750-2003. SPG should be consulted if the partial pressure is higher than allowed. The maximum expected partial pressure of H<sub>2</sub>S may be calculated by multiplying the maximum system total pressure by the mole fraction of H<sub>2</sub>S:

$$p_{\text{partial}}[\text{H}_2\text{S}] = p_{\text{total}} \times \text{H}_2\text{S}$$

where:

$$p_{\text{partial}}[\text{H}_2\text{S}] = \text{maximum expected partial pressure of H}_2\text{S}$$

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 11 of 22

$p_{total}$  = maximum system total pressure

$H_2S$  = mole fraction of hydrogen sulfide (as decimal)

For protection of the gas turbine, the total content of all sulfur compounds in the natural gas shall not exceed 2,000 ppmw (parts per million by weight) unless otherwise restricted by more stringent contract requirements and/or non-SPG supplied equipment limitations such as for HRSGs, SCRs, or oxidation catalysts (CO or VOC).

See Appendix 2 for a summary of the acceptable levels of sulfur compounds. Both absolute limits and "guidance" are provided. Guidance is a rough estimate of the appropriate sulfur levels for environmental and HRSG corrosion issues to be resolved. Actual limits for sulfur in the fuel gas will be determined on a project specific basis taking into account thermal performance, corrosion and environmental issues.

#### 4.7.5 Other Contaminants

In addition to the contaminants discussed in this document, SPG will review all other contaminants on a case-by-case basis per applicable ASTM or equivalent test methods.

#### 4.7.6 Additives

All fuel additives require SPG approval prior to use. A complete chemical analysis of the additives are needed for a meaningful evaluation. Any contaminants contributed by additives must be included in evaluation of the total equivalent contaminant level.

#### 4.7.7 Calculation of Contaminants

Evaluation of contaminants must account for all sources, including non-fuel sources such as compressor inlet air, steam/water injection for  $NO_x$  control or power augmentation, and water for evaporative coolers. Contaminant concentrations contributed by each non-fuel source must be corrected to a fuel-equivalent basis. The equation below shall be used to calculate total effective contaminant levels. A sample calculation is given in Appendix 2.

$$TCL[i] = R \times \{ I_f + [ I_{air} \times (1 - K_A) \times (A/F) ] + [ I_{stm} \times (S/F) ] + [ I_w \times (W/F) ] + [ I_{add} \times (AD/F) ] \}$$

where:

$TCL[i]$  = total equivalent contaminant level [ppmw],  $i$  is the individual species of concern

$R$  = (LHV of Reference Fuel)\* / (LHV of Actual Fuel)

$I_f$  = contaminant level of fuel at the ECONOPAC boundary [ppmw]

$I_{air}$  = contaminant level of air entering filters [ppmw]

$K_A$  = total efficiency of air filter(s) (0 = no filtering; 1.00 = 100% filter efficiency) †

$A/F$  = air to fuel weight ratio

$I_{stm}$  = contaminant level of injection steam entering gas turbine [ppmw]

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 12 of 22

S/F = steam to fuel weight ratio

$I_w$  = contaminant level of injection water entering gas turbine [ppmw]

W/F = water to fuel weight ratio

$I_{add}$  = contaminant level of additives entering gas turbine [ppmw]

AD/F = additive to fuel weight ratio

\* LHV of the Reference Fuel is 43,031 kJ/kg (18,500 BTU/lb)

† If an evaporative cooler is present and air samples are taken downstream of the evaporative cooler equipment, then  $K_A$  should be set to zero.

Note: A/F, S/F, W/F, and AD/F are the actual values for the specific fuel being used.

The total contaminant level entering the gas turbine must be less than the limit given in Appendix 2, for each contaminant species. If fuel additives are used which affect the heating value of the fuel, this altered LHV (fuel + additive) should be used as the "LHV of Actual Fuel".

The contaminant limits stated in this document are based on a fixed impurity mass flow through the combustor as based on the LHV of the Reference Fuel stated above. Fuels with lower LHVs require higher fuel flow into the gas turbine for an equivalent heat input. This increased fuel flow means possible greater contribution of contaminants. The "R" term in the above equation corrects for increased or decreased fuel flow based on the fuel LHV. Therefore, it should be noted that fuels with lower LHVs may need to meet reduced limits in order for the total contaminant level to meet the required limit stated in Appendix 2.

#### 4.8 REQUIRED EVALUATIONS FOR AIR, WATER/STEAM, FUEL, AND FUEL ADDITIVES

Prior to operation, it is required that a complete evaluation of the following be submitted to SPG for review and approval:

- air entering the gas turbine (after the evaporative cooler, if applicable)
- water entering the gas turbine for injection
- steam entering the gas turbine for injection
- fuel entering the gas turbine as supplied to the ECONOPAC boundary
- fuel additive(s)

See the attached appendices for the required analysis methods and results to be reported. Existing units with possible contamination issues must also have these analyses performed and the results submitted to SPG for review.

Since certain constituents are significant at the part per million level, extreme care must be taken in sampling to ensure that a representative sample is delivered to the laboratory. Measurements for each parameter shall be accurate within the following ranges:

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 13 of 22

CONTAMINANT LIMIT LISTED

IN APPENDIX 2

- > 1% by volume
- < 1% by volume
- >3.0 ppmw
- <3.0 ppmw

REQUIRED ACCURACY

OF MEASUREMENT

- +/- 0.05%
- +/- 0.001%
- +/- 0.1 ppmw
- +/- 0.01 ppmw

All samples should be obtained using proper sampling methods, per approved standards. The sampling point shall be located such that it will provide a well mixed sample for an accurate representation. The specific sampling point location shall be documented on all samples and on all laboratory reports.

All fuel sample analyses are to be performed at qualified laboratories using ASTM and API methods as specified in Appendices 3 and 4, as appropriate. Other laboratory procedures are included in Appendices 4, 5 and 6 for air, additives and water. If analytical services are not readily available to the customer then SPG should be contacted to help determine how to best to acquire these services.

**5. REFERENCES**

NACE MR0175-2003: "Standard Material Requirements – Metals for Sulfide Stress Cracking and Stress Corrosion Cracking Resistance in Sour Oilfield Environments"

**6. APPENDICES**

Appendix 1: Fuel Properties and Composition Limits

Appendix 2: Total Contaminant Limits

Appendix 3: Required Fuel Analysis and Test Methods

Appendix 4: Fuel Contaminants for Synthetic/Low Heating and Waste Gases (per ASTM D3605)

Appendix 5: Water/Steam Fuel Additive Analysis Requirements

Appendix 6: Air Analysis

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 14 of 22

## APPENDIX 1: FUEL PROPERTY AND COMPOSITION LIMITS

<b>PART A: FUEL PROPERTY AND COMPOSITION LIMITS FOR GAS TURBINE FRAMES: SGT-1000F, SGT6-2000E(6), SGT5-2000E(3),(6),(7), SGT5-3000E(2), SGT6-4000F(2),(4), SGT5-4000F(2),(4)</b>			
For limits associated with other gas turbine frames, see Part B.			
COMBUSTION SYSTEM TYPE	PREMIX		DIFFUSION
Combustor Model	Annular	Silo	Silo
FUEL PROPERTIES			
LHV mass	40 to 50 MJ/kg	35 to 50 MJ/kg	20 to 50 MJ/kg
LHV vol	34 to 42 MJ/Nm <sup>3</sup>	30 to 42 MJ/Nm <sup>3</sup>	21 to 42 MJ/Nm <sup>3</sup>
Wobbe Index (Wo)	41.5 to 51 MJ/Nm <sup>3</sup>	37 to 51 MJ/Nm <sup>3</sup>	25 to 50 MJ/Nm <sup>3</sup>
Wo Variation	±5 of design value		±15% of design value
Wo Variation Rate	≤ 6%/minute		
Pressure	Project Specific		
Pressure Variation	±5% of design setpoint for fuel flow < 15% of max flow ±2.5% of design setpoint for fuel flow > 15% of max flow		
Pressure Variation Rate	≤ 20 kPa/s		
Temperature	Project Specific (See Section 4.4)	-10°C to 130°C	
Temperature During Startup	±10°C from design value		
Temperature Variation Rate	1°C/s		
Dew Point Approach	≥ 10°C for hydrocarbons, ≥ 15°C for H <sub>2</sub> O		
FUEL COMPOSITION (BY VOLUME)			
Methane (CH <sub>4</sub> )	≥ 80%		
Ethane (C <sub>2</sub> H <sub>6</sub> )	≤ 15%		
Propane (C <sub>3</sub> H <sub>8</sub> )	N/A		
Hydrocarbons of C <sub>3</sub> +	≤ 10% *		
Aromatics (C <sub>n</sub> H <sub>2n-6</sub> , C <sub>n</sub> H <sub>2n-12</sub> )	Report †		
Diolefins (C <sub>n</sub> H <sub>2n-2</sub> )	≤ 0.1%	≤ 1%	
Olefins (C <sub>n</sub> H <sub>2n</sub> )	≤ 4%		
Paraffins (C <sub>n</sub> H <sub>2n+2</sub> )	Report †		
Oxygen (O <sub>2</sub> )	≤ 1.0 %		
Hydrogen (H <sub>2</sub> )	≤ 1%	≤ 10%	
CO	Report ‡		
FBN	Project Specific (Per Emissions Requirements. See Section 4.6.4)		
(N <sub>2</sub> + Ar + CO <sub>2</sub> )	≤ 18%		

N/A = Not Applicable

\* The limits stated for Hydrocarbons of C<sub>3</sub>+ apply to the total of all hydrocarbons in this category, including Aromatics, Diolefins (such as Acetylene C<sub>2</sub>H<sub>2</sub>), Olefins, and Paraffins.

† The limit for this component is governed by the limit stated for Hydrocarbons of C<sub>3</sub>+. However, the amount of this component should still be reported for review.

‡ SPG does not currently limit the quantity of this component for this application. However, the amount of this component should still be reported for review.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 15 of 22

## APPENDIX 1: FUEL PROPERTY AND COMPOSITION LIMITS

<b>PART B: FUEL PROPERTY AND COMPOSITION LIMITS FOR GAS TURBINE FRAMES: SGT6-3000E, SGT6-5000F(2),(3), SGT6-6000G(M), (1)</b>					
For limits associated with other gas turbine frames, see Part A.					
COMBUSTION SYSTEM TYPE	PREMIX				DIFFUSION
GT Application	SGT6-3000E with DLN	SGT6-5000F with DLN	SGT6-5000F with DLN++	SFT6-6000G with DLN	SGT6-3000E SGT6-5000F with DF-42
FUEL PROPERTIES					
LHV mass	42 to 51 MJ/kg		46 to 50 MJ/kg		≥ 20 MJ/kg
LHV vol	32 to 41 MJ/Nm <sup>3</sup>		34 to 39 MJ/Nm <sup>3</sup>		≥ 9 MJ/Nm <sup>3</sup>
Wobbe Index (Wo)	40.2 to 54.3 MJ/Nm <sup>3</sup>				
Wo Variation	±2% during startup to stable operation				
	±2% w/o active tuning ±7% w/ active tuning	±2% w/o active tuning ±4% w/ active tuning		±15%	
Wo Variation Rate	≤ 2%/minute				
Pressure	Project Specific				
Pressure Variation	±5% of design setpoint				
Pressure Variation Rate	≤ 20 kPa/s				
Temperature	Project Specific (See Section 4.4)				
Temperature During Startup	Project Specific (See Section 4.4)				
Temperature Variation Rate	N/A				
Dew Point Approach	≥ 28°C for hydrocarbons and H <sub>2</sub> O				
FUEL COMPOSITION (BY VOLUME)					
Methane (CH <sub>4</sub> )	≥ 80%			Report †	
Ethane (C <sub>2</sub> H <sub>6</sub> )	≤ 20%	≤ 16%	≤ 8%	Report †	
Propane (C <sub>3</sub> H <sub>8</sub> )	≤ 15%	≤ 2.5%	≤ 1.5%	Report †	
Hydrocarbons of C <sub>4</sub> +	≤ 5% *	≤ 1% *		Report †	
Aromatics (C <sub>n</sub> H <sub>2n-6</sub> , C <sub>n</sub> H <sub>2n-12</sub> )	Report †				
Diolefins (C <sub>n</sub> H <sub>2n-2</sub> )	Report †				
Olefins (C <sub>n</sub> H <sub>2n</sub> )	≤ 4%	≤ 1%		≤ 4%	
Paraffins (C <sub>n</sub> H <sub>2n+2</sub> )	Report †				
Oxygen (O <sub>2</sub> )	≤ 1.0 %				
Hydrogen (H <sub>2</sub> )	≤ 8.5%			≤ 40%	
CO	Report †				
FBN	Project Specific (Per Emissions Requirements. See Section 4.6.4)				
(N <sub>2</sub> + Ar + CO <sub>2</sub> )	≤ 18%		≤ 5%	≤ 18%	

DLN, DLN++ = Subcategories of premix combustion systems. Applicable only for the GT frames listed. "DLN" stands for "Dry Low NO<sub>x</sub>".

DF-42 = Subcategory of diffusion flame combustion systems. Applicable only for the GT frames listed.

N/A = Not Applicable

\* The limits stated for Hydrocarbons of C<sub>4</sub> apply to the total of all hydrocarbons in this category, including Aromatics, Diolefins, Olefins, and Paraffins.

† The limit for this component is governed by the limit stated for Hydrocarbons of C<sub>4</sub>+. However, the amount of this component should still be reported for review.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>		
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 16 of 22	

‡ SPG does not currently limit the quantity of this component for this application. However, the amount of this component should still be reported for review.

## APPENDIX 2: TOTAL CONTAMINANT LIMITS

CONTAMINANT	MAXIMUM LIMIT	
<b>Particulates / Dust (PM)</b>		
Maximum Particle Size (d)	10 µm	
Maximum Allowable Content (by weight)		
d < 5 µm	18.5 ppmw	
5 ≤ d ≤ 10 µm	1.5 ppmw	
Maximum Allowable Content (by heat input)		
d < 5 µm	1.7x10 <sup>-15</sup> kg/mJ (LHV)	
5 ≤ d ≤ 10 µm	6.4x10 <sup>-17</sup> kg/mJ (LHV)	
<b>Liquid Carryover</b>		
Maximum Allowable at Econopac Boundary	0.05 ppmw	
<b>Trace Elements</b>		
Sodium and Potassium (Na + K)	0.3 ppmw (uncoated turbine blades and vanes) 1.0 ppmw (coated turbine blades and vanes)	
Calcium (Ca)	10 ppmw	
Vanadium (V)	0.5 ppmw	
Lead (Pb)	1.0 ppmw	
Chlorine (Cl)	6.0 ppmw	
Magnesium (Mg)	2.0 ppmw	
Barium (Ba)	0.1 ppmw (with SCR)	
Phosphorous (P)	0.1 ppmw (with SCR)	
<b>Compounds</b>		
	<b>Limits</b>	<b>Guidance (ppmv)</b>
Hydrogen Sulfide (H <sub>2</sub> S)	0.0003 MPa (absolute)	
Total of Sulfur Compounds (including H <sub>2</sub> S)	2000 ppmw	30-40 (SC emissions) 5-8 (CC with SCR + oxidation catalyst) 9-12 (CC with SCR)
<b>All other contaminants must be reported and reviewed.</b>		

**NOTES:**

1. These limits apply to the total contaminant level as calculated on a fuel equivalent basis.
2. If any of these limits are exceeded, SPG must be contacted for review and approval.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 17 of 22

## APPENDIX 2: TOTAL CONTAMINANT LIMITS (CONTINUED)

### Sample Calculation for Checking Total Contaminant Levels:

Consider a gas turbine with no evaporative cooler is operating under the following conditions: fuel gas LHV = 46520 kJ/kg, air-to-fuel ratio = 45:1, air filter efficiency = 90%, water-to-fuel injection ratio = 0.8/1, and the following results are obtained from analysis:

FUEL (at ECONOPAC boundary):	AIR (prior to filters):	WATER (supplied to combustor):
[Ca]: 0.01 ppmw	[Ca]: 0 ppmw	[Ca]: 1 ppmw
[PM]: 0 ppmw	[PM]: 0.02 ppmw	[PM]: 0 ppmw
[Na]: 0.01 ppmw	[Na]: 0.01 ppmw	[Na]: 0.01 ppmw
[K]: 0 ppmw	[K]: 0.02 ppmw	[K]: 0.03 ppmw

$$TCL = R \times \{ I_f + [ I_{air} \times (1 - K_A) \times (A/F) ] + [ I_{stm} \times (S/F) ] + [ I_w \times (W/F) ] + [ I_{add} \times (AD/F) ] \}$$

$$TCL[Ca] = (43031 / 46520) \{ 0.01 + (1)(0.8) \} = 0.75 \text{ ppmw}$$

$$TCL[PM] = (43031 / 46520) \{ (0.02)(1 - 0.90)(45) \} = 0.08 \text{ ppmw}$$

$$TCL[Na+K] = (43031 / 46520) \{ 0.01 + (0.02 + 0.01)(1 - 0.90)(45) + (0.01 + 0.03)(0.8) \} = 0.17 \text{ ppmw}$$

Comparing to the table above, all contaminants meet the specified limits.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 18 of 22

### APPENDIX 3: REQUIRED FUEL ANALYSIS AND TEST METHODS

The tables below specify the required standards for analysis.

Corresponding ASTM, ISO or DIN standards may be substituted.

Properties / Contaminants	ASTM/ISO Method	Value	Units
Dew Point (water) *	D 1142/ISO 6327		°C
Moisture Content *	D 1142/ISO 10101		ppmv
Dew Point (Hydrocarbon)	Calculated/ISO 6976		°C
Specific Gravity @ 15.6°C, 101.325 kPa	D 3588/ISO 6976		-
Density	Calculated		kg/m <sup>3</sup>
Higher Heating Value (HHV)	D 3588/ISO 6976		kJ/m <sup>3</sup>
Lower Heating Value (LHV)	D 3588/ISO 6976		kJ/m <sup>3</sup>
Higher Heating Value (HHV)	D 3588/ISO 6976		kJ/kg
Lower Heating Value (LHV)	D 3588/ISO 6976		kJ/kg
Molecular Weight	Calculated		
Total of Sulfur Compounds †	D 3246/ISO 6326		

\* Not required for performance test samples

† Including Hydrogen Sulfide (H<sub>2</sub>S).

#### Chemical Composition (per ASTM D 1945, ISO 6974, 6975)

Component	% mol	Component	% mol
Argon (Ar)		Methane (CH <sub>4</sub> )	
Helium (He)		Ethane (C <sub>2</sub> H <sub>6</sub> )	
Nitrogen (N <sub>2</sub> )		Propane (C <sub>3</sub> H <sub>8</sub> )	
Oxygen (O <sub>2</sub> )		i-Butane (C <sub>4</sub> H <sub>10</sub> )	
Carbon Monoxide (CO)		Butane (C <sub>4</sub> H <sub>10</sub> )	
Carbon Dioxide (CO <sub>2</sub> )		i-Pentane (C <sub>5</sub> H <sub>12</sub> )	
Water Vapor (H <sub>2</sub> O)		Pentane (C <sub>5</sub> H <sub>12</sub> )	
Hydrogen (H <sub>2</sub> )		Hexane (C <sub>6</sub> H <sub>14</sub> )	
Acetylene (C <sub>2</sub> H <sub>2</sub> ) ‡		Heptane (C <sub>7</sub> H <sub>16</sub> ) ‡	
Ethylene (C <sub>2</sub> H <sub>4</sub> ) ‡		Octane (C <sub>8</sub> H <sub>18</sub> ) ‡	
Propylene (C <sub>3</sub> H <sub>6</sub> ) ‡		Nonane (C <sub>9</sub> H <sub>20</sub> ) ‡	
Butylene (C <sub>4</sub> H <sub>8</sub> ) ‡		Decane (C <sub>10</sub> H <sub>22</sub> ) ‡	
		Undecane (C <sub>11</sub> H <sub>24</sub> ) ‡	
		Dodecane (C <sub>12</sub> H <sub>26</sub> ) ‡	
		Tridecane (C <sub>13</sub> H <sub>28</sub> ) ‡	
		Tetradecane (C <sub>14</sub> H <sub>30</sub> ) ‡	

‡ Required only if presence is suspected

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 19 of 22

**APPENDIX 3: REQUIRED FUEL ANALYSIS AND TEST METHODS (CONTINUED)**

**Additional Tests** (May be required for certain fuels.)

<u>Properties / Contaminants</u>	<u>ASTM/ISO/DIN Method</u>	<u>Value</u>	<u>Units**</u>
Critical Pressure	Calculated	_____	_____
Critical Temperature	Calculated	_____	_____
Condensed Liquids	E 700/ISO 10101	_____	_____
Hydrogen Sulfide (H <sub>2</sub> S)	D 5504/ISO 19739	_____	ppmv
Carbonyl Sulfide (COS)	D 5504/ISO 19739	_____	ppmv
Hydrogen Cyanide (HCN)	D 5504/ISO 19739	_____	ppmv
Ammonia (NH <sub>3</sub> )	D 5504/ISO 19739	_____	ppmv
Alkali	D 3605/DIN 51790	_____	% wt.
Other contaminants at concentration ≥ 0.001% vol.	D 5504/ISO 19739	_____	ppmv

\*\* ppmv = part per million by volume. % wt. = percent by weight.

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Title: <b>FUEL GAS SPECIFICATION</b>		<b>ZDX555-DC01-MBP-2500-01</b>	
Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 20 of 22

**APPENDIX 4. WATER/STEAM FUEL ADDITIVE ANALYSIS REQUIREMENTS**

The following results shall be obtained and the method(s) used to determine each item shall be provided.

PROPERTY	RESULT
Oxygen content	ppmw (determined by O2 saturated water)
pH level	(see text)
Condensables	% weight
Cation Conductivity	
Total Dissolved Solids	
Ammonia	

CONTAMINANT (ASTM D3605)							
COMPONENT	SYMBOL	RESULT	UNITS	COMPONENT	SYMBOL	RESULT	UNITS
Sodium	Na		ppmw	Copper	Cu		ppmw
Potassium	K		ppmw	Zinc	Zn		ppmw
Vanadium	V		ppmw	Nickel	Ni		ppmw
Lead	Pb		ppmw	Chlorides			ppmw
Magnesium	Mg		ppmw				
Manganese	Mn		ppmw				
Silica	SiO <sub>2</sub>		ppmw				
Silicon	Si		ppmw				
Barium	Ba		ppmw				
Phosphorous	P		ppmw				
Calcium	Ca		ppmw				
Iron	Fe		ppmw				

SAMPLE OBTAINED BY: \_\_\_\_\_ DATE SAMPLE WAS TAKEN: \_\_\_\_\_

LOCATION WHERE SAMPLE WAS TAKEN: \_\_\_\_\_

LAB NAME: \_\_\_\_\_ DATE OF TEST: \_\_\_\_\_

Use these results to calculate total contaminants as described in Appendix 2.

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Project: <b>E9 GENERIC DOCUMENTS</b>		Issued: 2006-09-01	
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 21 of 22

### APPENDIX 5. AIR ANALYSIS

The following results shall be obtained and the method(s) used to determine each item shall be provided.

CONTAMINANT COMPONENT	SYMBOL	RESULT	UNITS
Sodium	Na		ppmw
Potassium	K		ppmw
Vanadium	V		ppmw
Lead	Pb		ppmw
Magnesium	Mg		ppmw
Manganese	Mn		ppmw
Silica	SiO <sub>2</sub>		ppmw
Silicon	Si		ppmw
Barium	Ba		ppmw
Phosphorous	P		ppmw
Calcium	Ca		ppmw
Iron	Fe		ppmw
Copper	Cu		ppmw
Zinc	Zn		ppmw
Nickel	Ni		ppmw
Chlorides	Cl		ppmw
Other Trace Metals			ppmw
			ppmw
			ppmw

SAMPLE OBTAINED BY: \_\_\_\_\_ DATE SAMPLE WAS TAKEN: \_\_\_\_\_

LOCATION WHERE SAMPLE WAS TAKEN: \_\_\_\_\_

LAB NAME: \_\_\_\_\_ DATE OF TEST: \_\_\_\_\_

Use these results to calculate total contaminants as described in Appendix 2.

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Project: <b>E9 GENERIC DOCUMENTS</b>			Issued: 2006-09-01
Siemens Power Generation, Orlando, FL	Rev. 013	Type: ESP	Page 22 of 22

## DEMINERALIZED WATER QUALITY REQUIREMENTS FOR GAS TURBINE APPLICATIONS

Written by: Fred Shoemaker 28-09-2005  
 Fred Shoemaker, Engineer Date  
 Operating Plant Technical Support

Approved by: Patrick Solomon 28-09-2005  
 Patrick Solomon, Manager Date  
 Operating Plant Technical Support

**This document was formerly referred to as 22T1523.**

Reference: \_\_\_\_\_

WBS: \_\_\_\_\_

Review Level: 1

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<b>DOCUMENT NO. ZDX555-DC01-GC-4421-01</b>		<b>DISTRIBUTION CODE: 270-000-605</b>	
<b>TITLE: DEMINERALIZED WATER QUALITY REQUIREMENTS FOR GAS TURBINE APPLICATIONS</b>		<b>TYPE ESP</b>	<b>REV 002</b>
<b>Siemens Power Generation, Inc. - Orlando, FL</b> <i>A Siemens Company</i>		<b>Issue Date: 09/28/05</b>	<b>Page: 1 of 7</b>



## TABLE OF CONTENTS

SECTION	PAGE
REVISION SHEET .....	2
1.0 PURPOSE .....	4
2.0 WATER QUALITY REQUIREMENTS .....	4

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<b>Siemens Power Generation, Inc. - Orlando, FL</b>		<b>Issue Date: 9/28/05</b>	<b>Page: 3 of 7</b>

## 1.0 PURPOSE

The purpose of this document is to define the water quality requirements for the use of demineralized water in Siemens Power Generation, Inc. gas turbines. Demineralized water is required for certain applications such as wet compression, inlet fogging, on-line water washing, etc. In order to minimize the fouling, erosion, or corrosion of the gas turbine, the following demineralized water requirements have been developed.

These requirements represent the recommended allowable concentrations and it is the customer's responsibility to ensure these recommendations are followed.

## 2.0 WATER QUALITY REQUIREMENTS

The allowable concentrations in the demineralized water supplied to the gas turbine are as follows.

Substance	Maximum Concentration Allowed in water to compressor (ppmw)	Reason for Requirement
Sodium & Potassium	0.02	Corrosion
Calcium	0.4	Deposits
Chlorides	0.25	Corrosion
Iron & Copper	0.01	Deposits
Silica	0.1	Deposits
Total dissolved solids*	1.0	Deposits/Fouling/Erosion
Minimum pH*	6.0 (SS Piping) 7.5 (Carbon Steel Piping)	Corrosion
Maximum pH*	8.0	Corrosion
Conductivity*	0.5 $\mu$ Siemens/cm	Additional Detection

\*Continuous analysis recommended

In order to limit suspended particulates, all water must pass through a 5 micron filter prior to entering the engine.

**Note:** The total contaminants present in the fuel, air, and injection fluids must meet the requirements of the latest Siemens Power Generation, Inc. liquid and gas fuel specifications (21T4424 & 21T0306).

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<b>Siemens Power Generation, Inc. - Orlando, FL</b>		<b>Issue Date: 9/28/05</b>	<b>Page: 4 of 7</b>

To determine the extent of contamination on a fuel equivalent basis due to the added water, the water contaminant level in ppmw (ppm by weight) is multiplied by the water-to-fuel ratio. For example:

$$\text{ppm (fuel flow equivalent)} = \frac{\text{ppm (water)} \times \text{lb/hr (water)}}{\text{lb/hr (fuel)}}$$

where: lb/hr (water) = GPM x 500

Simply adhering to the total contaminant levels defined in the fuel specifications would in most cases, with clean fuel and air, allow for substantially more contaminants in the water. However, exceeding the above values or operating outside the range of pH levels will increase the rate of fouling, corrosion, or erosion and will lead to a loss of performance and component life.

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<b>DOCUMENT NO. ZDX555-DCO1-GC-4421-01</b>		<b>DISTRIBUTION CODE: 270-000-605</b>	
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<b>Siemens Power Generation, Inc. - Orlando, FL</b>		<b>Issue Date: 9/28/05</b>	<b>Page: 5 of 7</b>

## WATER QUALITY RECOMMENDATIONS FOR EVAPORATIVE COOLERS

Written by: Christopher Ritter Feb 3, 2005  
 Christopher Ritter, Engineer Date  
 G 1232 - Inlet, Exhaust, V84

Reviewed by: Volker Wild Feb 3, 2005  
 Volker Wild, Tech Lead Engineer Date  
 G1232 - Inlet, Exhaust, V84

Approved by: P. Ritland Feb 3, 2005  
 Paul Ritland, Manager Date  
 G1232 - Inlet, Exhaust, V84

Reference: \_\_\_\_\_  
 WBS: 351  
 Review Level: 4

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<b>DOCUMENT NO. 22T3387</b>			
<b>TITLE: WATER QUALITY RECOMMENDATIONS FOR EVAPORATIVE COOLERS</b>		<b>TYPE</b> ESP	<b>REV</b> 002
Siemens Westinghouse Power Corporation - Orlando, FL <i>A Siemens Company</i>		<b>Issue Date: Feb 4, 2005</b>	<b>Page: 1 of 6</b>



## TABLE OF CONTENTS

SECTION	PAGE
REVISION SHEET .....	2
1.0 PURPOSE .....	4
2.0 MAKEUP WATER QUALITY RECOMMENDATIONS .....	4
Table I. Evaporative Cooler Makeup Water Quality Recommendations .....	4
3.0 SCALING INDEX.....	4
Table II. Recommended Scaling Indices for Evaporative Cooling .....	5
4.0 ADDITIONAL RECOMMENDATIONS .....	5
4.1 Blending .....	5
4.2 Chemical Additives .....	5

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<b>Siemens Westinghouse Power Corporation - Orlando, FL</b>		<b>Issue Date: Feb 4, 2005</b>	<b>Page: 3 of 6</b>

## 1.0 PURPOSE

The purpose of this document is to define the water quality recommendations for the use of evaporative coolers. In order to minimize the scaling and corrosion, the number of cycles of concentration in the evaporative cooler, as well as makeup water quality are addressed.

These requirements represent the recommended allowable concentrations and it is the operator's responsibility to ensure these recommendations are followed.

## 2.0 MAKEUP WATER QUALITY RECOMMENDATIONS

The allowable concentrations in the makeup water supplied to the evaporative cooler are as follows.

**Table I. Evaporative Cooler Makeup Water Quality Recommendations**

Constituent	Concentration Range (ppm)
Calcium Hardness (as CaCO <sub>3</sub> )	50 – 150
Total Alkalinity (as CaCO <sub>3</sub> )	50 – 150
Chlorides (as Cl)	< 50
Silica (as SiO <sub>2</sub> )	< 25
Iron (as Fe)	< 0.2
Oil and Grease	< 2.0
Total Dissolved Solids	30 - 500
Suspended Solids	< 5
pH	6.0 – 8.5
Conductivity	50 – 750 µmhos

Makeup water maintained within these recommendations is expected to allow operation at 1.5 to 3 cycles of concentration in the evaporative cooler with an acceptable scaling index level. The scaling index for site specific water analysis at site operating conditions must be verified by the operator based on the limits presented below.

## 3.0 SCALING INDEX

The determination of the maximum number of cycles of concentration (as defined as the ratio of the makeup water flow to the blowdown flow) for any water source should be verified utilizing a scaling index. The determination of the number cycles of concentration also determines the blowdown requirement during operation of the system. There are many scaling indices for determining the scaling characteristics of a given water. For evaporative cooling, it is desirable to maintain a slightly corrosive or scale dissolving index. However, water that is very corrosive such as demineralized water can soften the media in the cooler.

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Siemens Westinghouse Power Corporation - Orlando, FL		<b>Issue Date: Feb 4, 2005</b>	<b>Page: 4 of 6</b>

The water at the operating conditions in the evaporative cooler should be maintained such that the scaling index lies within the ranges presented in Table II. Although a several indices are listed, the Practical (Puckorius) Stability Index (PSI) is the preferred index of the media vendors.

**Table II. Recommended Scaling Indices for Evaporative Cooling**

Index	Recommended Range
Langlier Saturation Index (LSI)	0.25 - 0.75
Ryznar Stability Index (RSI)	5.5 - 6.5
Practical (Puckorius) Stability Index (PSI)	6.0 - 7.0

**4.0 ADDITIONAL RECOMENDATIONS**

4.1 Blending

The blending of demineralized, treated or purified water with potable water or raw water is an acceptable means of obtaining the water quality to meet the recommendations. Consideration as to the reliability of the sources is important since use of only demineralized water or raw water could cause scaling or degradation of the cooler media. Generally, interruption of either supply for even a short period of time can cause damage to the media.

4.2 Chemical Additives

Use of chemicals is not recommended to treat the water. Any use of chemicals shall be approved by the media vendor.

4.2.1 Scale Control Additives

4.2.1.1 Cooling tower chemical treatment programs for controlling scale should not be used in evaporative coolers. Cooling tower chemicals are designed to protect the metal heat transfer surfaces from scale deposits. The cooling tower media stays clean due to the high volume of water that flows over the surface. In evaporative coolers, the media is the heat transfer surface and the evaporative surface. Low flow allows salts to concentrate and deposit on the media surface.

4.2.1.2 Chemical treatment utilizing scale inhibitors is not recommended in evaporative coolers. The antiscalants are not effective in the inhibition of scale. The scale inhibitors also concentrate and become a part of the scale deposit.

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Siemens Westinghouse Power Corporation - Orlando, FL		Issue Date: Feb 4, 2005	Page: 5 of 6

#### 4.2.2 Additives to Increase Hardness and Alkalinity

Utilizing chemicals to increase hardness and alkalinity in demineralized water is not recommended. The appropriate chemical balance is delicate and is easy to overdose chemicals. Evaporative cooler operators have typically experienced reduced media life when chemically treated demineralized water is the water source. Therefore, media suppliers are reluctant to approve the use of chemically treated demineralized water.

#### 4.2.3 Biocides

Biocides are not recommended for use in evaporative coolers. Biological growth should be controlled by good housekeeping. Keeping the media dry while the system is down is critical to good housekeeping. The evaporative cooler operator is advised to consult with the evaporative cooler supplier for additional information regarding biocides.

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<b>Siemens Westinghouse Power Corporation - Orlando, FL</b>		<b>Issue Date: Feb 4, 2005</b>	<b>Page: 6 of 6</b>

Exhibit J  
Maintenance Labor Agreement (MLA)

**To Be Attached.**

**MAINTENANCE LABOR AGREEMENT**  
**FOR**  
**THE LODI ENERGY CENTER PROJECT**  
  
**LODI, CALIFORNIA**

## 1. INITIAL PROVISIONS

1.1. This Maintenance Labor Agreement (“Agreement”) is entered into by the Northern California Power Agency (“Primary Employer”), the State Building and Construction Trades Council of California (“State Council”) and the Building and Construction Trades Council of San Joaquin, Calaveras, and Alpine Counties (“Local Council”) and the local unions who have executed this Agreement, all of whom are referred to collectively as the “Unions.”

1.2. The Lodi Energy Center Project (the “Project”) is an approximately 255 MW power plant located in the City of Lodi, San Joaquin County, California. The Project is owned by the Northern California Power Agency (“Owner”). It is understood and agreed by and between the Parties to this Agreement that the final plans for the Project may be subject to modifications and approval by those public agencies possessing lawful approval authority over the Project and that this Agreement applies to the Project as it is finally approved by such entities and agencies.

1.3. The Primary Employer is a California Joint Power Agency. It is an employer in the construction industry. Its employees currently perform construction work and will perform construction work on the Project. It has a collective bargaining relationship with the International Brotherhood of Electrical Workers and Operating Engineers.

1.4. As provided below, all project managers, construction managers, contractors, subcontractors or other persons or entities assigning, awarding or subcontracting Covered Work (as defined in Article 2), or authorizing another party to assign, award or subcontract Covered Work or performing Covered Work will be subject to this Agreement by executing Attachment A, the Employer Agreement to be Bound (all of whom, including the Primary Employer, are individually and collectively referred to as “Employer” or “Employers”).

1.5. The Unions are labor organizations whose members are construction industry employees who generally work in close proximity to one another at

construction job sites and whose jobs are closely related and coordinated. Each of the Unions is a party to a multi-employer collective bargaining agreement (“Master Agreement”) that covers the geographic area of the Project. Where the term Master Agreement is used, it means the existing Master Agreement currently in effect as to each of the Unions.

1.6. The Project will be a large, complex construction project that will require periodic maintenance by skilled craft workers. A large pool of skilled labor represented by the Unions will be required to execute the work involved in maintaining the Project. Employers wish and it is the purpose of this Agreement to ensure that a sufficient supply of skilled craft workers are available at the Project, that all maintenance work and related work performed by the members of the Unions on this Project shall proceed continuously, without interruption, in a safe and efficient manner, economically with due consideration for the protection of labor standards, wages and working conditions. In furtherance of these purposes and to secure optimum productivity, harmonious relations between the parties and the orderly performance of the work, the parties to this Agreement agree to establish adequate and fair wage levels and working conditions.

1.7. It is a central purpose of the parties in executing this Agreement to protect the Project against the jobsite friction that could arise at a common-situs jobsite if union employees had to work alongside non-union employees in their own craft or in those other crafts with which they generally work in close proximity performing work that is closely related and coordinated. This Agreement accomplishes this purpose by ensuring that all Covered Work will be performed by workers who are union members. In the event that any construction work falls outside the scope of this Agreement, the Primary Employer further protects itself from the natural result of jobsite friction by prohibiting all strikes, picketing or similar activity for any reason whatsoever, and by imposing severe penalties on any Union that violates this prohibition.

1.8. In the interest of the future of the construction industry in the local area, of which the Unions are a vital part, and to maintain the most efficient and competitive posture possible, the Unions pledge to work and cooperate with the management of the Project to produce the most efficient utilization of labor and equipment in accordance with this Agreement.

## 2. SCOPE OF AGREEMENT

2.1. This Agreement applies to the Project and includes all planned outage maintenance, major overhauls, and other maintenance work performed on the Project that is contracted out to a contractor in the construction industry. All work within the scope of this Agreement is referred to as "Covered Work."

2.2. The following work is excluded from the scope of this Agreement:

2.2.1. Work which is performed by an Original Equipment Manufacturer's ("OEM") labor forces for warranty, repair or maintenance on the vendor's equipment if required by the OEM's warranty agreement between the OEM and the Owner.

2.2.2. Construction or repair work performed by the Primary Employer's general or EPC contractor under a Project Labor Agreement approved by the Councils and the Owner.

2.2.3. Work performed by technical representatives or technicians performing specialized work on equipment where such employees have special or unique skills or experience on that equipment which employees represented by the Unions do not possess.

2.2.4. Work performed by non-construction craft employees.

2.2.5. Work performed by Primary Employer's regular workforce.

2.2.6. Work performed by Pacific Gas & Electric or another utility or local water purveyor.

2.2.7. Work performed on the existing 49.9 MW steam injected gas turbine adjacent to the Project site.

2.2.8. Worked that is performed in the existing 230 KV Switchyard.

2.2.9. Work performed on the existing waste water treatment plant adjacent to the Project site.

2.2.10. Work that is immediately necessary to repair a unit or piece of equipment as the result of an emergency, act of God or other sudden unexpected events outside of the control of the Primary Employer.

2.2.11. Work if, at the time the work is to be performed, union signatory contractors are not reasonably available to bid the work.

### 3. SUBCONTRACTING

3.1. Primary Employer and each other Employer agree that they will contract for the assignment, awarding or subcontracting of Covered Work, or authorize another party to assign, award or subcontract Covered Work, only to a person, firm, corporation or other entity that, at the time the contract is executed, has become a party to this Agreement by executing Attachment A, the Employer Agreement to be Bound.

3.2. Primary Employer and each other Employer agree that they will subcontract Covered Work only to a person, firm, corporation or other entity who is or becomes party to this Agreement and who is or becomes bound for purposes of performing Covered Work to either a local, area or regional Master Agreement with the craft Union having traditional and customary building trades craft jurisdiction over the work or, only in the case of a national contractor, a national agreement with the International Union(s) of the craft Union(s) having traditional and customary jurisdiction over the work. Any Employer (including Primary Employer) performing Covered Work on the Project shall, as a condition to working on the Project, perform all work under the terms of this Agreement and the applicable Master Agreement. Before being authorized to perform any Covered Work, Employers (other than Primary Employer) shall become a party to this Agreement by signing Attachment A, the Employer Agreement to be Bound. Every Employer

shall notify the Local Council and the State Council in writing within five business days after it has subcontracted work, and shall at the same time provide to the Local Council and the State Council a copy of the executed Employer Agreement to be Bound.

3.3. Notwithstanding Section 3.2, any Employer not already bound to a Master Agreement, who signs and becomes bound to a Master Agreement to participate on this Project, shall not be required to apply the terms of that Master Agreement to any other construction project.

3.4. Nothing in this Agreement shall in any manner whatsoever limit the rights of the Primary Employer, or any other Employer, to subcontract Covered Work or to select its contractors or subcontractors; provided, however, that all Employers, at all tiers, assigning, awarding, contracting or performing, or authorizing another to assign, award, contract or perform Covered Work shall be required to comply with the provisions of this Agreement. Primary Employer and every other Employer shall notify each of its contractors and subcontractors of the provisions of this Agreement and require as a condition precedent to the assigning, awarding or subcontracting of any Covered Work or allowing any subcontracted Covered Work to be performed, that all such contractors and subcontractors at all tiers become signatory to this Agreement. Any Employer that fails to provide the Local Council and State Council with the Employer Agreement to be Bound executed by its contractor or subcontractor shall be liable for any failure of that contractor or subcontractor, or any contractor or subcontractor at a lower tier, to comply with the provisions of this Agreement, including any contributions to any trust funds that the contractor or subcontractor, or any subcontractor to that subcontractor, fails to make.

#### 4. WAGES AND BENEFITS

4.1. All employees covered by this Agreement (including foremen and general foremen if they are covered by the Master Agreement) shall be classified

and paid wages, other compensation including but not limited to travel, subsistence, and shift premium pay, and contributions made on their behalf to multi-employer trust funds, all in accordance with the then current multi-employer Master Agreement of the applicable Union.

4.2. Any special interest bargaining which establishes wage rates, classifications, zones, or wage escalations which apply exclusively to the Project will not be recognized. In addition, there shall be no redlining of the Project in any future multi-employer collective bargaining agreements by singling out, either by name or by effect, the Project or the Employers for less favorable wages, benefits or working conditions than are generally accorded other industrial projects in the same general geographic area.

## 5. UNION RECOGNITION

5.1. The Employers recognize the Unions signatory to this Agreement as the sole and exclusive collective bargaining agents for their respective construction craft employees performing Covered Work for the Project, and further recognize the traditional and customary craft jurisdiction of each Union.

5.2. All employees performing Covered Work shall be or shall become and then remain members in good standing of the appropriate Union as a condition of employment on or before the eighth (8th) day of employment, or the eighth (8th) day following the execution of this Agreement, whichever is later.

5.3. The Unions shall be the source of all craft employees for Covered Work for the Project. Employers agree to be bound by the hiring and layoff practices of the respective Union, including hiring of apprentices, and to utilize its registration facilities and referral systems.

5.4. In the event the referral facilities maintained by the Unions do not refer the employees as requested by the Employer within a forty-eight (48) hour period after such requisition is made by the Employer (Saturdays, Sundays and holidays excepted), the Employer may employ applicants from any source.

5.5. Each Union shall have the right to designate one working journeyman per shift as a steward. The steward shall be a qualified employee performing the work of that craft and shall not exercise any supervisory functions. Each steward shall be concerned with the employees of the steward's Employer and not with the employees of any other Employer. A steward at the appropriate time of day shall be allowed sufficient time to perform his duties. This provision shall not be abused.

## 6. WORK STOPPAGES AND LOCKOUTS

6.1. During the term of this Agreement, there shall be no strikes, sympathy strikes, picketing, work stoppages, slow downs, interference with the work or other disruptive activity for any reason by the Union or by any employee, and there shall be no lockout by any Employer. Failure of any Union or employee to cross any picket line established at the Employer's project site is a violation of this Article.

6.2. The Union shall not sanction, aid or abet, encourage or continue any work stoppage, strike, picketing or other disruptive activity at the Project site and shall undertake all reasonable means to prevent or to terminate any such activity. No employee shall engage in activities which violate this Article. Any employee who participates in or encourages any activities which interfere with the normal operation of the Project shall be subject to disciplinary action, including discharge, and, if justifiably discharged for the above reasons, shall not be eligible for rehire on the same project for a period of not less than ninety (90) days.

6.3. The Union shall not be liable for acts of employees for which it has no responsibility. The principal officer or officers of a Union will immediately instruct, order and use the best efforts of his office to cause the employees the Union represents to cease any violations of the Article. A Union complying with this obligation shall not be liable for unauthorized acts of employees it represents. The failure of the Employer to exercise its right in any instance shall not be deemed a waiver of its right in any other instance.

6.4. The Union(s) agrees that if any union or any other persons, whether parties to this Agreement or otherwise, engage in any picketing or work stoppages, the signatory Unions shall consider such work stoppage or picketing to be illegal and refuse to honor such picket line or work stoppage.

6.5. In the event of any work stoppage, strike, sympathy strike, picketing interference with the work or other disruptive activity in violation of this Article, the Employer may suspend all or any portion of the Project work affected by such activity at the Employer's discretion and without penalty.

6.5.1. Any Union which initiates or participates in a work stoppage in violation of this Article, or which recognizes or supports the work stoppage of another Union which is in violation of this Article agrees, as a remedy for said violation, to pay liquidated damages in accordance with Section 6.6.8 of this Article.

6.6. In lieu of, or in addition to, any other action at law or equity, any party may institute the following procedure when a breach of this Article is alleged, after the Union(s) and/or local union(s) has been notified of the fact.

6.6.1. The party invoking this procedure shall notify Norman Brand or Joe Grodin who the parties to this agreement agree shall be the permanent Arbitrators under this procedure. In the event that either of the permanent Arbitrators is unavailable at any time, the American Arbitration Association shall select an alternative arbitrator within twenty-four (24) hours of notice. Notice to the Arbitrator shall be by the most expeditious means available, with notice by fax or electronic means or any other effective written means to the party alleged to be in violation and the involved International Union President and or local union.

6.6.2. Upon receipt of said notice, the Arbitrators named above shall set and hold a hearing within twenty-four (24) hours if it is contended that the violation still exists.

6.6.3. The Arbitrator shall notify the parties by fax or electronic means or any other effective written means of the place and time he has chosen for this hearing. Said hearing shall be completed in one session. A failure of any party or

parties to attend said hearing shall not delay the hearing of evidence or issuance of an Award by the Arbitrator.

6.6.4. The sole issue at the hearing shall be whether or not a violation of this Article has in fact occurred. The Award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without an opinion. If any party desires an opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with, or enforcement of, the Award. The Arbitrator may order cessation of the violation of this Article by the Union, and such Award shall be served on all parties by hand or registered mail upon issuance.

6.6.5. Such Award may be enforced by any court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to hereinabove in the following manner. The fax or electronic notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the Arbitrator's Award as issued under Section 6.6.4 of this Article, all parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order of enforcement. The Court's order or orders enforcing the Arbitrator's Award shall be served on all parties by hand or by delivery to their last known address or by registered mail.

6.6.6. Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance therewith are hereby waived by the parties to whom they accrue.

6.6.7. The fees and expenses of the Arbitrator shall be borne by the party or parties found in violation, or in the event no violation is found, such fees and expenses shall be borne by the moving party.

6.6.8. If the Arbitrator determines that a violation has occurred in accordance with Section 6.6.4 above, the party or parties found to be in violation shall pay as liquidated damages the following amounts: for the first shift in which the violation occurred, \$20,000; for the second shift, \$25,000; for the third shift,

\$30,000; for each shift thereafter on which the craft has not returned to work, \$30,000 per shift. The Arbitrator shall retain jurisdiction to determine compliance with this section and this Article.

6.7. The procedures contained in Section 6.6 shall be applicable to alleged violations of this Article. Disputes alleging violation of any other provision of this Agreement, including any underlying disputes alleged to be in justification, explanation or mitigation of any violation of this Article, shall be resolved under the grievance procedures of Article 8.

6.8. Notwithstanding the provisions of Section 6.1 above, it is agreed that with twenty-four (24) hour prior notice to the Primary Employer, a Union retains the right to withhold the services of its members from a particular contractor or subcontractor who fails to make timely payments to the Union's benefit plans or fails to timely pay its weekly payroll in accordance with its agreements with the Union; provided, however, that in the event the Union or any of its members withhold their services from such contractor or subcontractor, Primary Employer shall have the right to replace such contractor or subcontractor with any other contractor or subcontractor who executes the Agreement to be Bound.

6.9. It will not be a violation of this Agreement when the Employer considers it necessary to shut down to avoid the possible loss of human life because of an emergency situation that could endanger the life and safety of an employee. In such cases, employees will be compensated only for the actual time worked. In the case of a situation described above whereby the Employer requests employees to wait in a designated area available for work, the employees will be compensated for the waiting time.

6.10. In the event that any applicable labor agreement expires and the parties to that agreement fail to reach agreement on a new contract by the date of expiration, a Union shall continue to provide employees to the Employers working on the Project under all the terms of the expired agreement until a new agreement is negotiated, at which time all terms and conditions of that new agreement shall be

applied to Covered Work at the Project, except to the extent they conflict with any provision of this Agreement. In addition, if the new labor agreement provides for wage or benefit increases, then any Employer shall pay to its employees who performed Covered Work at the Project during the hiatus between the effective dates of such labor agreements, an amount equal to any such wage and benefit increases established by the new labor agreement for such work performed.

## 7. HOURS OF WORK AND HOLIDAYS

7.1. The standard work day shall consist of eight (8) hours of work between 6:00 a.m. and 5:30 p.m. with one-half hour designated as an unpaid period for lunch. Common start times may be established by the Employer during this window period. Proposed modifications to the standard work day may be submitted by an Employer to the Local Council for approval. This approval shall not be unreasonably withheld. The standard work week shall be five (5) consecutive days of work commencing on Monday. Proposed modifications to the standard work week may be submitted by an Employer to the Local Council for approval. The Local Council shall respond within five (5) working days and bargain in good faith over any such proposed modification. Nothing herein shall be construed as guaranteeing any employee eight (8) hours of work per day or forty (40) hours of work per week.

7.2. Common shifts may be established when considered necessary by the Employer. The Employer shall provide at least one week notice to the Local Council prior to any change in shift time. Any shifts established shall continue for the established work week.

7.3. Recognized holidays shall be as follows: New Year's Day, Martin Luther King, Jr. Day, Presidents' Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day. No other holidays or black-out dates will be recognized. In the event a holiday falls on Saturday, the previous day, Friday, shall be observed as such holiday. In the event a holiday falls on Sunday, the following day, Monday, shall be observed as such

holiday. There shall be no paid holidays. If employees are required to work on a holiday, they shall receive the appropriate rate; but in no case shall such overtime rate be more than double the straight time rate.

## 8. GRIEVANCE PROCEDURE

8.1. It is mutually agreed that any question arising out of and during the term of this Agreement involving its interpretation and application (other than jurisdictional disputes or successorship) shall be considered a grievance. Questions between or among parties signatory to a Master Agreement arising out of or involving the interpretation of a Master Agreement shall be resolved under the grievance procedure provided in that Master Agreement.

8.2. The Primary Employer and other Employers, as well as the Unions, may bring forth grievances under this Article.

8.3. A grievance shall be considered null and void if not brought to the attention of the Employer(s) within five (5) working days after the incident that initiated the alleged grievance occurred or was discovered, whichever is later. The term "working days" as used in this Article shall exclude Saturdays, Sundays or holidays regardless of whether any work is actually performed on such days.

8.4. Grievances shall be settled according to the following procedure, except that grievances that do not involve an individual grievant shall be discussed by the Primary Employer, State Council and Local Council and then, if not resolved within five (5) working days of written notice unless extended by mutual consent, commence at Step 4:

### Step 1

The Steward and the grievant shall attempt to resolve the grievance with the craft supervisor within five (5) working days after the Grievance has been brought to the attention of the Employer.

### Step 2

In the event the matter remains unresolved in Step 1 above after five (5) working days, within five (5) working

days thereafter, the alleged grievance may be referred in writing to the Business Manager(s) of the Union(s) affected and the site construction manager or Labor Relations representative of the Employer(s) for discussion and resolution. A copy of the written grievance shall also be mailed, faxed, or emailed to the Primary Employer.

Step 3

In the event the matter remains unresolved in Step 2 above within five (5) working days, within five (5) working days thereafter, the grievance may be referred in writing to the Business Manager(s) of the affected Union(s) involved and the Manager of Labor Relations of the Employer(s) or the Manager's designated representative and the Primary Employer for discussion and resolution.

Step 4

If the grievance is not settled in Step 3 within five (5) working days, within five (5) days thereafter, either party may request the dispute be submitted to arbitration or the time may be extended by mutual consent of both parties. The request for arbitration and/or the request for an extension of time must be in writing with a copy to the Primary Employer. Should the parties be unable to mutually agree on the selection of an Arbitrator, selection for that given arbitration shall be made by seeking a list of seven (7) labor arbitrators with construction experience from the Federal Mediation and Conciliation Service and alternately striking names from the list of names on the list until the parties agree on an Arbitrator or until one name remains. The first party to strike a name from the list shall alternate between the party bringing forth the grievance and the party defending the grievance. Primary Employer shall keep a record of the sequence and shall notify the parties to the grievance as to which party has the right to strike a name first.

8.5. The Arbitrator shall conduct a hearing at which the parties to the grievance shall be entitled to present testimonial and documentary evidence. Hearings will be transcribed by a certified court reporter. The parties shall be entitled to file written briefs after the close of the hearing and receipt of the transcript.

8.6. Upon expiration of the time for the parties to file briefs, the Arbitrator shall issue a written decision that will be served on all parties and on the Primary Employer. The Arbitrator shall have the authority to utilize any equitable or legal remedy to prevent and/or cure any breach or threatened breach of this Agreement. The Arbitrator's decision shall be final and binding as to all parties signatory to this Agreement.

8.7. The cost of the Arbitrator and the court reporter, and any cost to pay for facilities for the hearing, shall be borne equally by the parties to the grievance. All other costs and expenses in connection with the grievance hearing shall be borne by the party who incurs them.

8.8. The Arbitrator's decision shall be confined to the issue(s) posed by the grievance and, except as provided in Section 13.1.1, the Arbitrator shall not have the authority to modify, amend, alter, add to or subtract from any provision of this Agreement.

8.9. Any party to a grievance may invite the Primary Employer to participate in resolution of a grievance. The Primary Employer may, at its own initiative, participate in Steps 1 through 3 of the grievance procedure.

8.10. In determining whether the time limits of Steps 2 through 4 of the grievance procedure have been met, a written referral or request shall be considered timely if it is personally delivered, sent by overnight mail or faxed within the five (5) working day period. Any of the time periods set forth in this Article may be extended in writing by mutual consent of the parties to the grievance, and any written referral or request shall be considered timely if it is personally delivered, sent by overnight mail or faxed during the extended time period.

## 9. JURISDICTIONAL DISPUTES

9.1. The assignment of work will be solely the responsibility of the Employer performing the work involved, and shall be made in accordance with traditional and customary building trades craft jurisdiction. All jurisdictional

disputes between or among the Unions and their employees, parties to this Agreement, shall be settled and adjusted according to the plan described in this Article 9. Decisions rendered shall be final, binding and conclusive on the Employers involved and the Unions that are parties to this Agreement. Provisions of Section 6.1 apply to any issues associated with jurisdictional disputes.

9.2. A party challenging an assignment shall notify all affected Unions, the Employer and the Local Council, by facsimile, within two (2) days of the time that a dispute occurs. All disputes involving craft work assignments shall be referred to the Local Council which shall convene a meeting with the affected Unions and Employer within two (2) days. Should the Local Council, the affected Unions and the Employer fail to resolve the dispute within five (5) working days from the date they were notified of the dispute, then the matter shall be immediately referred to the affected International Unions with which the local unions are affiliated and they and the Employer shall have the opportunity to resolve the dispute.

9.3. Should the International Unions and the Employer fail to resolve the dispute within five (5) work days from the date they were notified of the dispute, then the matter shall be referred by facsimile by any International Union or Employer directly involved in the dispute for arbitration to the arbitrator chosen by the International Unions from among Gerald McKay, Thomas Angelo, William Riker and Emily Maloney, to resolve jurisdictional disputes under this procedure. If none of these arbitrators is available, an arbitrator shall be selected as provided in Section 8.4, Step 4.

9.4. The arbitrator will set and hold a hearing within seven (7) days of the referral to him or her. The arbitrator shall notify the Employer and the appropriate International Unions by facsimile of the place and time chosen for the hearing. A failure of any party or parties to attend said hearing without good cause, as determined by the arbitrator, shall not delay the hearing of evidence or issuance of a decision by the arbitrator. The time period set forth herein can be extended by mutual agreement of the parties in writing.

9.5. The arbitrator shall issue a decision within three (3) days after the case has been closed. The decision of the arbitrator shall be final and binding on all parties to the dispute. This action of the arbitrator shall be predicated upon the particular facts and evidence presented regarding this dispute and shall be effective only on this particular job.

9.6. In rendering the decision, the arbitrator shall determine first whether a previous decision or agreement of record between the parties to the dispute governs. If the arbitrator finds that the dispute is not covered by an appropriate or applicable decision or agreement of record, the arbitrator shall then consider whether there is an applicable agreement between the crafts governing the case. If no such agreement is in effect, the arbitrator shall then consider the established trade practice and prevailing practice in the locality.

9.7. The arbitrator is not authorized to award back pay or any damages for a mis-assignment of work, except for a willful violation of a well established jurisdiction. Nor may any party to this procedure bring an independent action for back pay or any other damages based upon a decision of the arbitrator.

9.8. Each party to the arbitration shall bear its own expense for the arbitration. The fees and expenses of the arbitrator will be shared equally by the affected International Unions and the Employer.

9.9. The Employer shall not be subject to disputes regarding work assignments made by its subcontractors. However, the Employer must ensure that its subcontractors performing work under the terms and conditions of this Agreement follow the procedures of this Article.

## 10. JOINT LABOR/MANAGEMENT MEETINGS

10.1. During the period of any Covered Work performed under this Agreement, an initial joint Labor/Management meeting will be held before the particular work commences, and thereafter joint meetings will be held as needed between the Primary Employer, the other Employers, the Local Council and the

signatory Unions. The purpose of these meetings is to promote harmonious labor/management relations, ensure adequate communications and advance the proficiency and efficiency of the craft workers and contractors performing work at the Project. These meetings will also include discussion of safety, craft resource requirements, scheduling and productivity of work performed at the Project.

10.2. A Pre-Job Conference will be held prior to the commencement of work to establish the scope of work in each Employer's contract. When a contract has been let to an Employer(s) covered by this Agreement, a Pre-Job Conference and/or Mark-Up Meeting shall be required upon request of any Union, Employer or the Primary Employer.

## 11. SUCCESSORSHIP AND SURVIVABILITY

11.1. This Agreement is and shall be binding and legally effective upon (i) any successor to Primary Employer, whether by merger, consolidation, acquisition or otherwise, and (ii) any person or entity that acquires all or any portion of Primary Employer's right, title or interest in the Project whether by sale, lease, or other transfer, or contribution to partnership, joint venture or other entity. Any agreement for a sale, lease, contribution or other transfer of the Project by the Primary Employer, or an agreement for a merger or acquisition including ownership or control of Primary Employer, shall include an express assumption of the obligations and undertakings of Primary Employer under this Agreement, including this successorship provision. Within ten (10) days following the close of any sale, acquisition, merger, lease or other transfer covered by this Section 11.1, Primary Employer shall provide the State Council and the Local Council with written notice thereof and an original, executed assumption of this Agreement. Any sham transfer is a breach of this clause and shall not release Primary Employer from any of its obligations or undertakings under this Agreement.

11.2. This Article 11 shall be enforceable in any court of competent jurisdiction, and shall not be subject to the grievance procedure of Article 8.

## 12. GENERAL PROVISIONS

12.1. If any article or provision of this Agreement shall become invalid, inoperative and/or unenforceable by operation of law or by declaration of any competent authority of the executive, legislative, judicial or administrative branches of the federal or state government, the Employers and the State Council shall suspend the operation of such article or provision during the period of its invalidity, and the Primary Employer and the State Council shall negotiate in its place and stead an article or provision that will satisfy the objections to its validity and that, to the greatest extent possible, will be in accord with the intent and purpose of the article or provision in question. The new article or provision negotiated by the Primary Employer and the State Council shall be binding on all parties signatory to this Agreement.

12.1.1. If the Primary Employer and the State Council are unable within thirty (30) calendar days to negotiate a substitute article or provision, either of them may at any time thereafter submit the matter directly to interest arbitration pursuant to the procedures set forth in Section 8.4, Step 4, and Sections 8.5 through 8.7. The Arbitrator shall have the authority to modify, amend and alter the Agreement by providing a substitute article or provision to replace the one(s) that have become invalid, inoperative or unenforceable. The Arbitrator's decision, and the new article or provision, shall be final and binding on all parties signatory to the Agreement.

12.2. If any article or provision of this Agreement shall be held invalid, inoperative or unenforceable by operation of law, or by any of the above mentioned tribunals of competent jurisdiction, the remainder of the Agreement or application of such article or provision to persons or circumstances other than to which it has been held invalid, inoperative or unenforceable shall not be affected thereby.

12.3. Except as enumerated in this Agreement, all other terms and conditions of employment described in the Master Agreement of the Union having traditional and customary jurisdiction over the Covered Work shall apply.

12.4. The provisions of this Agreement shall take precedence over conflicting provisions of any Master Agreement or any other collective bargaining agreement.

12.5. Each person executing this Agreement represents and warrants that he or she is authorized to execute this Agreement on behalf of the party or parties indicated.

12.6. This Agreement may be executed in any number of counterparts, and each counterpart shall be deemed to be an original document. All executed counterparts together shall constitute one and the same document, and any signature pages may be assembled to form a single original document.

12.7. To the fullest extent consistent with the applicable Master Agreement and trust agreement, it is agreed that any liability under this Agreement by Primary Employer, the State Council, the Local Council, a Union, or any other Employer shall be several and not joint. Any alleged breach of this Agreement by a party shall not affect the rights, liabilities, obligations, and duties among the other parties or between that party and any other party.

12.8. Any notices required under this Agreement shall be given as follows:

To Primary Employer:

Ed Warner, Project Manager  
Northern California Power Agency  
651 Commerce Drive  
Roseville, CA 95678  
Telephone: (209) 333-6370 ext. 100

To the State Council:

Robert L. Balgenorth, President  
State Building and Construction Trades  
Council of California  
1225-8<sup>th</sup> Street, Suite 375  
Sacramento, CA 95814  
Telephone: 916-443-3302

With a copy to:

Scott W. Blek  
Galati Blek LLP  
100 N. Brand Blvd., Suite 618  
Glendale, CA 91203  
Telephone: (818) 476-0063

To the Local Council:

Building and Construction Trades  
Council of San Joaquin, Calaveras, and  
Alpine Counties  
P.O. Box 5306  
Stockton, CA 95205  
Telephone: (209) 467-1849  
With a copy to:

Marc D. Joseph  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080  
Telephone: 650-589-1660

Either party may notify the other in writing if its person designated to receive notice is changed.

### 13. ANTI-DISCRIMINATION

13.1. During the performance of this Agreement, the Employers and the Unions shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. The Employers and the Unions shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment.

### 14. WAIVER

14.1. The parties hereby acknowledge that this Agreement is a lawful pre-hire agreement within the meaning of Section 8(f) of the National Labor Relations Act; and the Primary Employer and each other Employer hereby expressly waives

its right to contest, challenge, repudiate or void (hereinafter collectively “challenge”) this Agreement, directly or indirectly, on any basis, in any proceeding before any federal, state or local court, agency or other tribunal, including the National Labor Relations Board, or before any arbitrator or hearing officer, including any challenge to the validity of this Agreement that is raised as a defense to any action or claim brought by the Unions. This Agreement shall be a complete defense to any such challenge.

14.2. Primary Employer and each Employer further agrees that it shall not solicit, finance or participate in any challenge to this Agreement by any other person or entity. Payment of regular annual dues to an organization or association does not constitute “solicitation,” “financing” or “participation in” a challenge as those terms are used in this Agreement.

14.3. This Article shall be enforced pursuant to Article 8 of this Agreement and any grievance shall commence at Step 3 of Section 8.4. The parties agree that the economic damages to the Unions from a breach of this Article include the reasonable fees and costs of defense.

## 15. TERM OF AGREEMENT

15.1. This Agreement shall be effective upon commencement of commercial operation of the Project, and shall continue for thirty (30) years thereafter (the “Term”). This Agreement will be reviewed and revised if necessary by the State Council, Local Council and Primary Employer every then (10) years during the Term. Any revisions, deletions or additions at that time will be agreed to by all three parties.

15.2. In the event that the Application for Certification submitted to the California Energy Commission for the Project is withdrawn and the Application proceeding is terminated pursuant to 20 CCR § 1709.8, or the Application is denied by the California Energy Commission and the time periods for reconsideration under Public Resources Code § 25530 and appeal of the denial under Public

Exhibit K  
Remote Monitor System

Seller, at its sole discretion, at any time during the term of this Contract, may place at no cost to Buyer a remote monitor system ("Remote Monitor System") at a location selected by Seller, to access data from the control system of the Combustion Turbine and Steam Turbine. The Remote Monitor System (which is provided solely for Seller's purposes) will be connected (as described in (g) below) to a diagnostic center located in either Orlando, Florida or Erlangen, Germany. Buyer agrees and consents to such installation and connection. Buyer agrees to provide Seller and its representatives reasonable access to the area where the Remote Monitor System will be located to effect such installation, removal or modification, and to carry out any other activities to which Seller is entitled pursuant to this Exhibit.

The Remote Monitor System includes the following general components:

1. A personal computer system including software.
2. Interconnection devices to interface with the "Link" as further described in (g) below.
3. The software package and configuration to collect and monitor data from the control system, and any other devices mutually agreed upon between the Parties.

The following conditions and/or requirements shall apply to the Remote Monitor System:

- (a) The Remote Monitor System is passive and neither it nor its installation interferes with the operation of the Combustion Turbine(s).
- (b) Title to the Remote Monitor System hardware and software shall remain with Seller or its affiliates. No ownership or license or any other right, title or interest to or in the Remote Monitor System is granted to Buyer or any other party. Buyer shall not (and shall not permit others to) alter the hardware, software, connections or configuration of the Remote Monitor System or its connection to the data stream, and will not add tags, links to other devices or systems or otherwise change the Remote Monitor System setup, function and configuration, or connectivity.
- (c) The Remote Monitor System may include the capability for display of certain data which, in the sole discretion of Seller, Buyer may view, and Seller may furnish to Buyer the password(s) necessary to do so. Seller assumes no liability whatsoever (whether express or implied) for any use, application, action, (or inaction) or interpretation of any data viewed or otherwise obtained by Buyer.
- (d) Buyer agrees not to attempt to access any data, displays, information, software or other parts or functions of the Remote Monitor System that have not been specifically made available to it by Seller, whether or not protected or otherwise restricted.
- (e) Buyer shall not (and shall not permit others to) access, copy, download, disassemble, reverse engineer, reverse assemble, decompile, tamper with or otherwise attempt to derive the source code of any Remote Monitor System software, including without

limitation any third party software. Buyer shall indemnify and hold harmless Seller (and its suppliers or vendors) from all claims, losses, damages, judgments, expenses, including attorney's fees and litigation expenses, arising out of or related to any such violation of this paragraph (e) by Buyer (including Buyer's employees) or its subcontractors, vendors or suppliers.

Seller shall not, except as may be required (i) to assist Seller in performance of its obligations under this Contract or (ii) by any act, statute, law or ruling of governmental authority, release, divulge or otherwise make available to unaffiliated third parties any data or information dealing with the operating characteristics of the Combustion Turbine and Steam Turbine as obtained through the Remote Monitor System in a manner which identifies such information as specifically pertaining to Buyer.

- (f) Seller shall, at its own cost, defend, indemnify and hold harmless Buyer, its affiliates, officers, employees, agents, assigns and successors in interest from and against any and all liability, damages, losses, claims, demands, causes of action and other expenses (including attorney fees) arising out of any claims of infringement by Seller of any patents, copyrights, or other intellectual property rights based upon Seller's manufacture, installation or use of the Remote Monitor System. Notwithstanding the foregoing, Seller will have no duty or obligation under this paragraph f to the extent that the Remote Monitor System or any of its components is modified by Buyer or its subcontractors after delivery and by reason of said modification, a suit is brought against Buyer. In addition, if by reason of such modification, a suit or proceeding is brought against Seller, Buyer shall protect Seller in the same manner and to the same extent that Seller has agreed to protect Buyer under the first sentence of this paragraph (f).
- (g) Buyer shall make an appropriate dedicated communication link (phone line and/or other communication link acceptable to Seller, hereinafter "Link") available for Seller connection to the Remote Monitor System assigned specifically for use of the Remote Monitor System. The Link shall be and remain continuously connected to the Remote Monitor System unless Buyer receives written authorization from Seller to disconnect. The Remote Monitoring System shall comply with all applicable NERC cyber security requirements. In the event that, after the Effective Date, Buyer's facility is subject to security requirements of NERC that are related to the Remote Monitor System and the Remote Monitor System does not meet such requirements, then the Parties will reasonably cooperate to cause the Remote Monitor System interfaces to become compliant with such NERC security requirements. Seller's costs related to the modification of hardware and software of the Remote Monitor System shall be borne by Seller. In the event that, the Remote Monitor System is not compliant, or the Parties are unable to cause the Remote Monitor System to become compliant, then Buyer shall have the right to disconnect the Remote Monitor System until such time as the Remote Monitor System becomes compliant. Seller will provide such cooperation and documentation as reasonably requested by Buyer to demonstrate such compliance by the Remote Monitor System as required by NERC or any other applicable Government Authority.
- (h) Seller will provide instruction to Buyer's personnel on-site concerning the Remote Monitor System features to which Buyer will have access.

- (i) Buyer shall supply and maintain a reliable electric power source for the Remote Monitor System.

The Remote Monitor System may be removed by Seller, at no expense to Buyer, at any time during the Term of the Contract or upon or after termination of this Contract, in the sole discretion of Seller and without recourse by Buyer. However, in the event the Contract is either terminated by Buyer for its convenience, or terminated by Seller for cause, Seller shall (without prejudice to any other rights or remedies) be entitled to recover reasonable expenses incurred by Seller for the installation, maintenance and removal of the Remote Monitor System.

- (j) The Remote Monitor System shall in no case be deemed a deliverable hereunder and Seller's obligations under the provisions of this Contract shall not apply to the Remote Monitor System. FURTHER WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, OR ANY PROTECTIONS AGAINST OR DISCLAIMERS OR LIMITATIONS OF LIABILITY SET FORTH IN THE AGREEMENT, WHETHER BASED IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE (1) SELLER SHALL HAVE NO OBLIGATION OR LIABILITY WHATSOEVER FOR ANY FAILURE TO FURNISH ANY INFORMATION OR DATA FROM THE REMOTE MONITOR SYSTEM TO BUYER OR ADVISE OR NOTIFY BUYER REGARDING ANY CONDITIONS OR EVENTS DESCRIBED IN OR INDICATED IN ANY SUCH INFORMATION OR DATA, (2) ANY INFORMATION OR DATA PROVIDED TO BUYER IS ON AN "AS IS, WHERE IS" BASIS, WITHOUT ANY WARRANTIES WHATSOEVER WHETHER STATUTORY, EXPRESS, OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR PURPOSE, ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, AS TO THE ACCURACY, ADEQUACY, TIMELINESS, COMPLETENESS OR USEFULNESS THEREOF, OR OTHERWISE, AND (3) NEITHER SELLER NOR ITS SUPPLIERS WILL UNDER ANY CIRCUMSTANCES BE LIABLE UNDER ANY THEORY OF RECOVERY, WHETHER IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), UNDER WARRANTY OR OTHERWISE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE WHATSOEVER; DAMAGE TO OR LOSS OF PROPERTY OR EQUIPMENT; LOSS OF PROFITS OR REVENUE; LOSS OF USE OF BUYER'S MATERIAL, EQUIPMENT OR POWER SYSTEM; CLAIMS OF CUSTOMERS; OR INCREASED COSTS OF ANY KIND.

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# Memo

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**Date:** June 4, 2014  
**To:** Lodi Energy Center PPC  
**From:** Power Management Staff  
**Subject:** LEC Bidding Strategy – Real-Time Market

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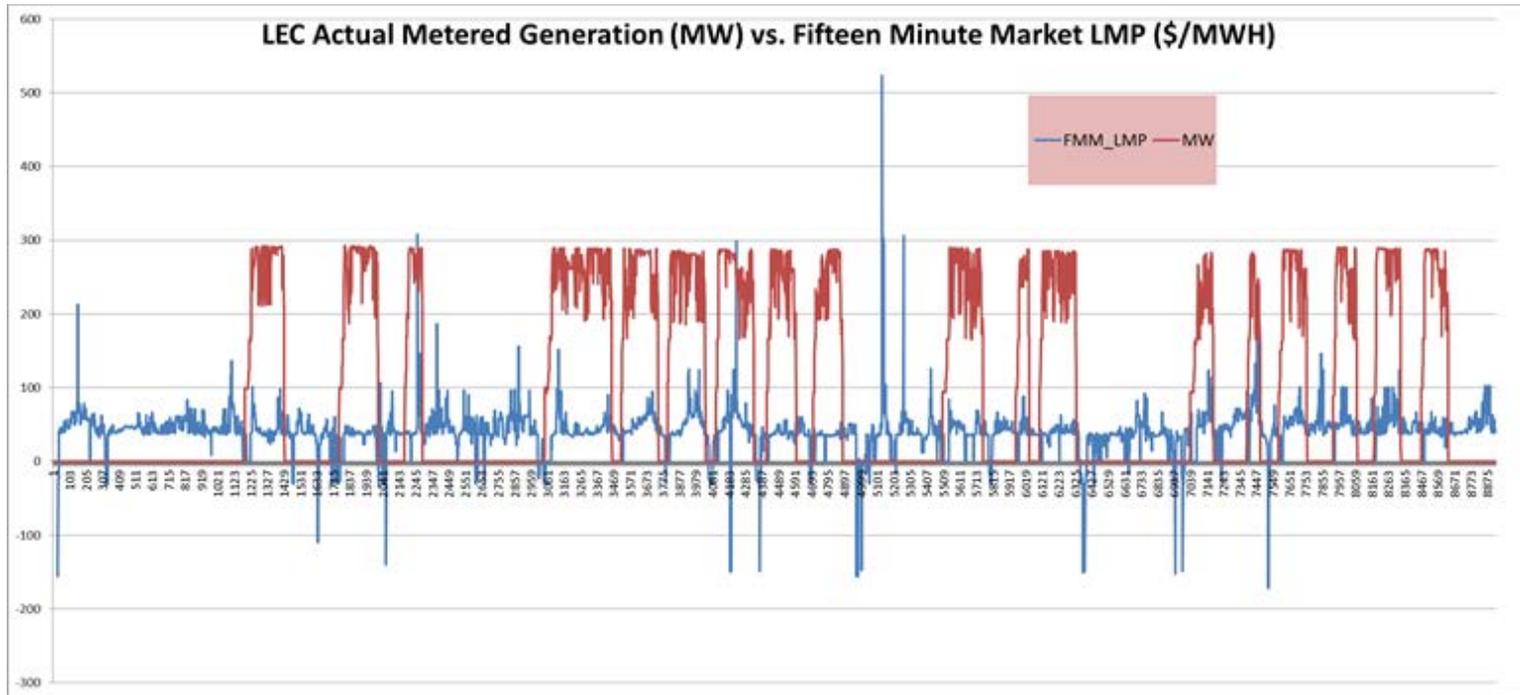
## Background

On May 1, 2014, the CAISO began operating a new Fifteen Minute Market (FMM) as part of its existing Real-Time Market (RTM) process. The FMM effectively replaces the existing Hour Ahead Scheduling Process (HASP) and produces financially binding awards for both Inter-Tie schedules and internal generation for each 15-minute interval during an hour. While initially prompted by FERC Order 764, the FMM design is primarily intended to align pricing between inter-tie schedules and internal generation to reduce RTM settlement neutrality (imbalance energy/congestion offset), and to reduce RTM price volatility.

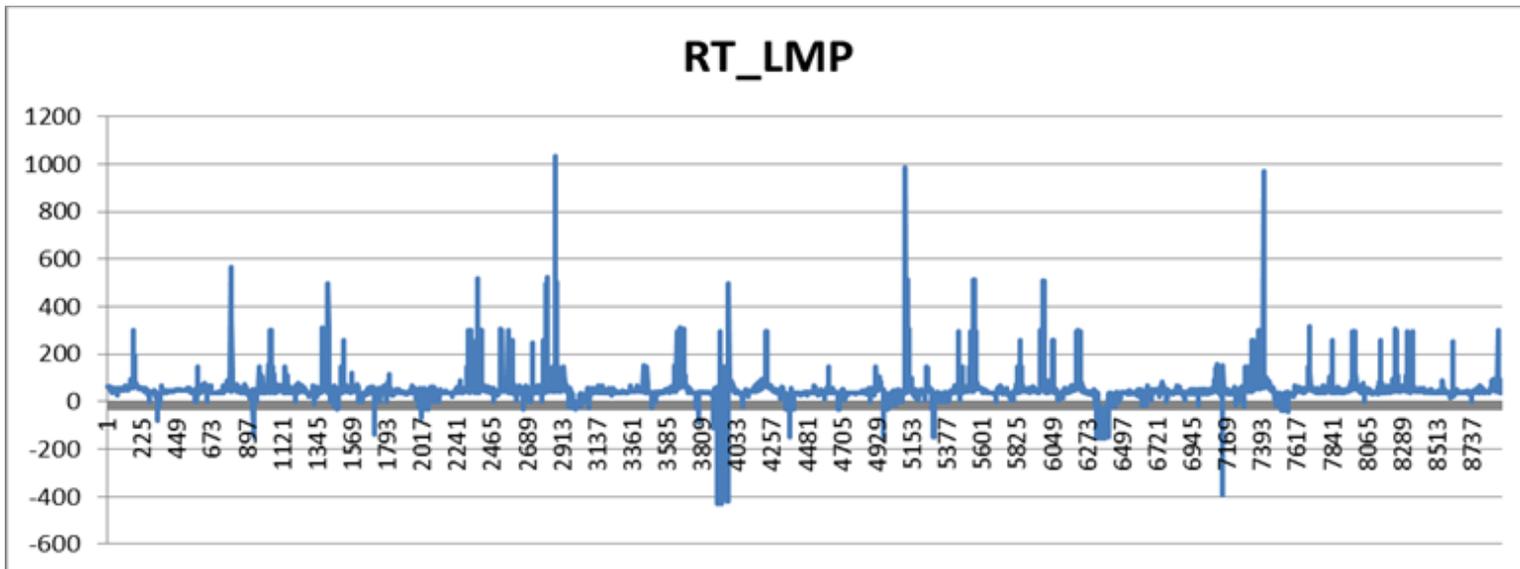
## Observations

The new FMM has now been operating for one (1) full month. The following graphs show the FFM and RTD locational marginal prices calculated at the LEC pricing node during May 2014. The graphs below demonstrate that there is still significant price volatility in the RTM. Prices for energy in the FMM ranged between \$500/MWH and (\$150)/MWH (as shown in Graph 1), while RTD prices ranged from \$1000/MWH to (\$400)/MWH (as shown in Graph 2). In addition to the FMM prices, Graph 1 below also contains the LEC's actual metered generation during May 2014. Graph 1 shows that the LEC was not operating during many of the periods where the FMM prices were extremely volatile.

**Graph 1 – FMM Prices**



**Graph 2 – RTD Prices**



**Revised Bidding Strategy**

Based on these observations NCPA staff believes that it would be beneficial to explore actively participating in the RTM through the submission of incremental and decremental energy offers to CAISO; such may enable NCPA to capture additional

value for the project during periods in which the RTM prices are volatile. Based on the May 2014 RTM prices NCPA estimates that each MW “incremented” consistently throughout May at a price of \$100/MWH could have yielded a cumulative gain of \$400/MW-month. NCPA also estimates that the cost savings for each MW “decremented” at \$0/MWH (i.e., the LEC would buy back generation at negative prices) could have yielded a cumulative savings of \$200/MW-month. Although the estimated economic outcomes for actively submitting incremental and decremental Bids in the RTM during the month of May would have been relatively modest, it’s possible that RTM prices could become more volatile as temperatures and loads increase during the summer.

For this reason, NCPA intends to begin actively submitting LEC incremental and decremental energy Bids into the RTM during the balance of June to gain experience with this strategy.

### **Authorization**

NCPA believes that Agreement Schedule 1.00 (Scheduling and Dispatch and Economic Criteria) of the LEC Project Management and Operations Agreement (LEC PMOA) provides NCPA authority to implement the proposed strategy discussed in this memorandum.

**DRAFT**

**Agreement Schedule 1.00**

**Scheduling and Dispatch Operations and Economic Criteria**

**General Operating Protocol Guideline**

NCPA shall be the SC for the Project and shall operate and schedule the Project in accordance with the directives of the PPC as manifested in Article 5 and this Agreement Schedule 1.00. NCPA shall comply with applicable regional and Balancing Authority tariffs, business practice manuals, regulations, scheduling requirements and timelines as published or as changed from time to time.

**NCPA Scheduling and Bidding Principles**

1. NCPA will schedule Project output using scheduling option (a) or (b) as shown below. A Participant may additionally elect option (c) up to its GES.
  - a. Awarded schedules resulting from bidding into the CAISO markets: Except as noted in option (b), NCPA will submit Energy and A/S bids into the CAISO markets based on Economic Operations. Economic Operations of the Project shall mean the following over the CAISO scheduling period (currently 24 hours/day):  
$$[LMP_{LEC} + MP(s) \text{ for A/S} + \text{value of other Attributes}] \geq [\text{Heat Rate} \times (\text{GasPrice}_{PG\&E \text{ Citygate}} + LDC) + VOM + \text{Margin} - \text{GenBenefit} + \text{CAISO GMC} + \text{Green House Gas Compliance Cost}]$$

Participants will receive their GES of revenues based on (i) the  $LMP_{LEC}$  for Energy and (ii) the applicable  $MP(s)$  for A/S provided from Project Capacity. In addition, if there are other applicable revenues from Project Attributes, Participants will receive their GES of these revenues. Participants will also receive Bid Cost Recovery revenues from the CAISO when the sum of the product of Energy price bids and the awarded Energy scheduled, startup costs, and Project minimum operating level costs are greater than the sum of the  $LMP_{LEC}$  revenues for Energy from the Project over the CAISO scheduling period (currently 24 hours/day).
  - b. Self-Scheduling: Under certain circumstances and or if the CAISO markets appear to be malfunctioning, NCPA may elect to Self-Schedule Project Energy and Capacity and shall inform the Participants of such action as soon as practicable. Participants will receive their GES of revenues based on (i) the  $LMP_{LEC}$  for Energy, and (ii) the applicable  $MP(s)$  for A/S provided from Project Capacity. In addition, if there are other applicable revenues from Project Attributes, Participants will receive their GES of these revenues.
  - c. IST or unit contingent export: Each Participant has the right to request physical delivery of part or all of its GES of Project Energy and/or Energy associated with its GES of

Capacity, in which case NCPA will schedule as follows:

- i. For delivery inside of the CAISO Balancing Authority Area, NCPA will schedule a physical IST(s) in the DAM or the hour-ahead market at the Project Node.
- ii. For delivery outside the CAISO Balancing Authority Area, NCPA will schedule/coordinate a unit contingent export as described in applicable CAISO Business Practice Manuals and in accordance with regional scheduling and tagging practices.

Participants requesting physical delivery shall be responsible for all related CAISO and NCPA costs, charges, and credits (e.g. due to scheduling, transmission, scheduling/pricing differences, outage, etc.). Exhibit 5 of this Agreement Schedule contains the details for CAISO costs, charges and credits.

2. NCPA will produce monthly reports summarizing the previous months' bidding results. This information will be reviewed by the PPC to assist in making any needed changes or adjustments to bidding principles.
3. NCPA will schedule the Project using the NCPA SCID but outside of the NCPA MSSA portfolio.
4. The SC options (i.e. NCPA SCID, unique SCID to the Project, included as a part the MSSA, etc.) and calculations/parameters involved in making the economic determinations and estimations are subject to review and revision by the PPC from time to time based on Project operating experience, Project production costs, market conditions, and other factors affecting the assessment of Project cost and the value of Project Energy, Capacity, and other Attributes.
5. NCPA may adjust exhibits within this schedule as necessary due to operation and or maintenance obligations and report back to the PPC regarding any such modifications or changes, and attain any requisite approvals from the PPC.

### **Scheduling Timelines and Economic Criteria**

The following provides a listing of daily scheduling and dispatching activities, information requirements, and timelines:

**Day Ahead (“DA”) Bilateral Market for the bilateral electricity and fuel markets** (Activity time-frame is normally 5:00 – 7:00 am the day before the trade day):

NCPA will forecast expected Economic Operations and fuel requirements to determine DA Energy and A/S bids for the CAISO's markets. NCPA shall make such bids over the entire scheduling period when the Project is available for operations.

Fuel requirements (MMBtu/day) – NCPA will manage the fuel supply with the objective of minimizing fuel imbalances by considering forecasts and historical results of the DAM and actual operations.

NCPA will allocate expected Project output and fuel requirements by Participants' GES by 6:30 am.

Participant(s) may supply its own fuel requirements up to Participant's GES of the Project fuel requirements at full Project output.

i) Participant(s) providing its own fuel supply will notify and schedule with NCPA by 6:30 AM. The information required from Participant(s) is as follows: Gas supplier ID and the amount (MMBtu/day). Delivery shall be at PG&E Citygate.

(1) At or after 6:30 AM, NCPA will order remaining fuel supply and/or sell excess fuel supply.

(2) The price at burner-tip is the sum of the day ahead PG&E City Gate Index (or quote) and LDC, pursuant to the Fuel Management Contract per Agreement Schedule 2.00.

ii) NCPA will notify the Project Gas Supplier and Manager of the Fuel Management Contract (see Agreement Schedule 2.00) 1.5 hours prior to 9:30 AM and 2 hours prior to 4:00 PM for the day ahead fuel nominations, and 2 hours prior to 8:00 AM and 3:00 PM on the trade day for the day-of fuel nominations. These nomination revisions are to help mitigate fuel imbalances but do not establish the price for the changes. In general, the price for differences or changes after the day ahead bilateral fuel market, that closes at approximately 7 AM PPT, is established by quote or the change is left as an imbalance to be priced at the next available day ahead bilateral fuel market (at the PG&E Citygate).

**CAISO DAM:** NCPA schedules and bids the Project in the CAISO DAM. (Activity time frame is 10:00 AM – 1:30 PM):

a. NCPA may Self-Schedule Project output (from Project minimum operating level up to maximum Project Capacity) at the Project Node prior to 10:00 AM.

b. NCPA will bid the remaining Project output that is not Self-Scheduled into the DAM based upon Energy and A/S bids determined using the forecasted Economic Operations at the Project Node prior to 10:00 AM.

Energy and A/S bids are awarded by 1:30 PM, and NCPA subsequently shall notify the Project Gas Supplier and Manager of any fuel supply changes and revise initial fuel supply requirements accordingly.

c. If a Participant is using an IST, such Participant must submit its request to NCPA and schedule a DAM IST(s) at the Project Node prior to 8:30 AM. The CAISO will verify the

IST after 12:00 PM.

- d. If a Participant is using a unit contingent export from the CAISO Balancing Authority Area, such Participant must coordinate/schedule the unit contingent export with NCPA prior to 8:30 AM.
- e. Each Participant(s) is responsible for scheduling its load, export, or sales to a third party including all costs and revenues associated with such schedules.

### NCPA Dispatch Operations

- a. ~~CAISO Real-Time Market (“RTM”)-CAISO market: This is the CAISO’s Hour Ahead Scheduling Process (“HASP”)~~RTM includes financially binding Fifteen Minute Market (“FMM”) and Real Time Dispatch (“RTD”). ~~These markets, and it includes, include~~ the following ~~products for,~~ which ~~real-time bids~~ must be ~~submitted~~submitted up until -75 minutes prior to the next trading hour:

- ~~i) i) —~~Supplemental Energy bids (Incremental and Decremental).

- ~~ii) ii) —~~A/S bids.

- iii) Unit contingent exports and ISTs. (Any Participant changes to its DAM unit contingent exports or ISTs must be provided to NCPA 135 minutes or 105 minutes prior to the next trading hour, respectively.)

- b. NCPA dispatch operations include all 24x7 dispatch functions and tasks:

- i) To match Project output with fuel nominations and awarded schedules of Energy and A/S;
- ii) To adjust for emergency operations; and
- iii) To adjust and coordinate for reliability and safety requirements.

### Settlements:

As the SC of the Project using NCPA’s SCID, NCPA shall review, validate, and reconcile CAISO invoices, and file timely disputes and appropriately pursue resolution of disputes with the CAISO. Current CAISO charge types and, if applicable, the basis for allocation of CAISO charges and payments to the Project are detailed in Exhibit 5 of this Agreement Schedule.

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