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Lodi Energy Center Project Participant Committee Operational Report

Agenda Item No.: 3

Date: 10/09/2017
To: Lodi Energy Center Project Participant Committee

Safety

- OSHA Recordable: 0 Accidents

Notice of Violations

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

Outage Summaries:

04-Sep-17, 7:32-11:39, Failed vibration sensor due to wiring failure, Forced-4.1
07-Sep-17, 6:00-8:30, Late start IP drum level control, Forced-1.8
15-Sep-17, 16:49 to 19-Sep-17, 16:00 - STG Control System Failure and trip plus cooldown
lockout, Forced-95

Planned Outage Summaries:

- 2018 – April 4th – 15th Steam Turbine , BOP, HRSG Seals, Generator Inspections

Generating Unit Statistics:**Report
Date:**

9/1/2017

1. Monthly Production	93,627	MWH
2. Productivity Factor		
a. Service Hours	387	Hours
b. Service Factor	53.7	%
c. Capacity Factor @ 280MW Pmax	46.4	%
d. Capacity Factor @ 302MW Pmax	43.1	%
3. Equivalent Operating Availability (EOA)	86.0	%
4. Forced Outage Rate (FOR)		
a. Total LEC Plant FOR	20.7	%

5. Heat Rate Deviation

a. Fuel Cost (Not Current Market Price) 4.00 \$/mmBTU

MW Range	PMOA HR BTU/kW- Hr	Average HR BTU/kW- Hr	Deviation %	Production MWH	Cost \$
Seg. 1 296 +	6850	0	0.00%	0	\$0
Seg. 2 284 - 296	6870	6,945	1.09%	142	\$43
Seg. 3 275 - 284	6971	6,975	0.06%	2,347	\$37
Seg. 4 250 - 275	7081	7,011	-0.98%	16,315	-\$4,537
Seg. 5 225 - 250	7130	7,076	-0.76%	4,693	-\$1,022
Seg. 6 200 - 225	7200	7,185	-0.20%	2,953	-\$173
Seg. 7 175 - 225	7450	7,474	0.32%	3,800	\$358
Seg. 8 165 - 175	7760	7,775	0.19%	1,948	\$116
	7,164	7,206	-0.23%	32,197	-\$5,179

6. AGC Control Deviation

MW Range	High Dev MWH	Low Dev MWH	Total Dev MWH	Cost \$
Bad AGC Data for May				
Seg. 1 296 +	0	0	0	\$0
Seg. 2 284 - 296	10	-48	58	\$1,616
Seg. 3 275 - 284	39	-180	219	\$6,110
Seg. 4 250 - 275	102	-204	305	\$8,567
Seg. 5 225 - 250	54	-22	76	\$2,150
Seg. 6 200 - 225	27	-26	53	\$1,517
Seg. 7 175 - 225	18	-52	71	\$2,108
Seg. 8 165 - 175	11	-3	14	\$439
	260	-536	796	\$22,507

7. Starting Reliability

Start Type	Hot Starts	Warm Starts	Cold Starts
Number of Starts	3	17	1
Start Time Benchmark (Minutes)	75	110	200
Start Time Actual (Average Minute)	62	90	135
Start Time Deviation (%)	-18%	-19%	-33%
Start Fuel Benchmark PMOA (mmBTU)	1,300	1,800	3,500
Start Fuel Actual (Average mmBTU)	1,113	1,676	2,592
Fuel Deviation (%)	-14%	-7%	-26%
Costs of Fuel Deviations (\$)	-\$749	-\$496	-\$3,630

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 = $(Actual Fuel Consumed - Expected Fuel) \times Cost of Fuel$