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Project Title:	Emission Performance Standard
TN #:	224944
Document Title:	City of Burbank EPS Compliance Filing for IPP Repowering
Description:	N/A
Filer:	City Burbank
Organization:	City of Burbank, Burbank Water and Power
Submitter Role:	Public Agency
Submission Date:	10/10/2018 3:16:29 PM
Docketed Date:	10/10/2018

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Description:	N/A
Filer:	Allison Mao
Organization:	City of Burbank, Burbank Water and Power
Submitter Role:	Applicant
Submission Date:	10/10/2018 3:12:12 PM
Docketed Date:	10/10/2018

October 8, 2018

California Energy Commission
EPS Compliance
1516 Ninth Street
Sacramento, CA 95814-512
Attention: Compliance Filing

Subject: EPS Compliance Filing for the Intermountain Power Project Repowering Project

Dear Sir or Madam:

Summary

The Burbank Water and Power (BWP) hereby submits the attached Compliance Filing package, seeking California Energy Commission (CEC) approval of the Compliance Filing for the Intermountain Power Project (IPP) Repowering Project as required by the Senate Bill (SB) 1368. The Intermountain Power Agency (IPA) holds legal title to the IPP, which currently includes two 900 MW (net) coal generating units located near Delta, Utah. BWP, along with other municipal and cooperative entities (Purchasers), buy IPP's energy.

A prior Compliance Filing package for the IPP Repowering Project was submitted to the CEC in November of 2016, which was approved by the CEC pursuant to Order No: 16-1019-3. In that order, the CEC approved replacing IPP's combined 1,800 MW coal generating units with SB 1368 Emission Performance Standard (EPS) compliant Natural Gas Combined Cycle (NGCC) units totaling 1,200 MW. Since then, IPA, BWP and the other Purchasers have further evaluated their long-term power needs and have determined that those needs would be best addressed with advanced class gas turbines with a reduced total output of 840 MW (versus the previously approved 1,200 MW). The reduction in output will allow for additional capacity on the transmission lines associated with IPP for renewable energy integration, while still maintaining the minimum required dispatchable generation necessary to support the High Voltage Direct Current Transmission system that connects Utah and the Intermountain West region with California.

Background

IPA, a political subdivision of the State of Utah, began construction of IPP in October 1981, with commercial operation of Unit 1 commencing in June, 1986 and of Unit 2 in May, 1987. Each Purchaser's share of IPP's generation was established by a Power Sales Contract, as entered into between IPA and the Purchasers. BWP buys 4.1% of IPP's generation. The Purchasers include 23 Utah municipalities, six Rural Electric Cooperatives, and six California municipalities as follows:

UTAH MUNICIPAL PURCHASERS:	UTAH COOPERATIVE PURCHASERS:	CALIFORNIA PURCHASERS:
Beaver	Bridger Valley REA	Anaheim
Bountiful	Dixie-Escalante REA	Burbank
Enterprise	Flowell Electric Assoc.	Glendale
Ephraim	Garkane Power Assoc.	LADWP
Fairview	Moon Lake Elec. Assoc.	Pasadena
Fillmore	Mt. Wheeler Power, Inc.	Riverside
Heber		
Holden		
Hurricane		
Hyrum		
Kanosh		
Kaysville		
Lehi		
Logan		
Meadow		
Monroe		
Morgan		
Mt. Pleasant		
Murray		
Oak City		
Parowan		
Price		
Spring City		

Although the Power Sales Contracts will expire on June 15, 2027, those contracts required IPA to offer the Purchasers the right to continue participating in an IPP repowering beyond that date by entering into the Renewal Power Sales Contracts and the Agreement for Sale of Renewal Excess Power (Renewal Contracts).

Subsequent to the CEC's approval of the IPP Repowering Project by Order No: 16-1019-3, BWP and Purchasers entered into the Renewal Contracts in early 2017.

Alternative Repowering of the IPP Repowering Project

Pursuant to the current Power Sales Contracts and Renewal Contracts, which provide for the previously approved EPS-compliant IPP Repowering Project, an Alternative Repowering is also permitted in the event Purchasers choose that course.

Based on the generation power blocks currently available on the market, there are three (3) options for this generation output and generation type, as summarized in Attachment A.

Compliance Filing

Pursuant to 20 CCR § 2900 *et seq.*, of the California Code of Regulations, adopted by the CEC to implement Senate Bill 1368, the BWP hereby submits the attached Compliance Filing. BWP respectfully requests that the CEC determine that the proposed Alternative Repowering of the previously approved IPP Repowering Project is similarly in compliance with the EPS regulations promulgated by the CEC.

The CEC Compliance Filing is shown as Attachment A. Attachment B is the attestation required by 20 CCR § 2909.

If the CEC has any questions or requests additional information regarding this coal divestiture and EPS-compliant repowering, please contact Mr. Himanshu Pandey, Principal Electrical Engineer, at 818-238-3634.

Sincerely,

Jorge Somoano
General Manager
Burbank Water and Power

JS:LB:HP:mm
Attachments

Attachment A

CALIFORNIA ENERGY COMMISSION
EMISSION PERFORMANCE STANDARD COMPLIANCE FILING

DESCRIPTION OF IPP REPOWERING PROJECT

Name of Facility: Intermountain Power Project

Location of Facility: 850 W Brush Wellman Road, Delta Utah 84624

Proposed Technology/Fuel: Natural Gas-Fired Combined Cycle Generating Facility

Planned Commercial Operation Date: July 1, 2025

Generation Configuration Options:

Preliminary Rated Capacity and CO_2 emission estimates were developed from vendor data with station service loads and long term degradation applied for the IPP Repowering Project at site conditions of: 102 ºF, 9.7% RH, and an elevation of 4760 ft. with evaporative inlet cooling. The combined unit output will be limited to a maximum of 840 MW Net.

Prime Mover	1x1 Combined Cycle	1x1 Combined Cycle	1x1 Combined Cycle
Quantity	2	2	2
Manufacturer	GE	Siemens	Mitsubishi
Model	7HA.02	SGT6-9000HL	M501JAC
Rated Capacity (MW), at IPP Site	435 each, 870 total	430 each, 860 total	451 each, 902 total
Fuel Used	Natural Gas	Natural Gas	Natural Gas
EPS Compliant	Yes	Yes	Yes
Expected Operating Profile	See Figure 3	See Figure 3	See Figure 3
Expected energy output (MWh)	See Figure 3	See Figure 3	See Figure 3
Expected fuel use profile	See Figure 4	See Figure 5	See Figure 6
Estimated CO_2 emissions for site conditions, (lbs/MWh)	752	755	764
Estimated CO_2 emissions after derate	756	761	771

Figure 1 - Generation Configuration Options.

Power Purchase Contract Terms

Name of Counter Party: Intermountain Power Agency (IPA)-
Length of Renewal Power Sales Contract: 50 years

Duration: July 1, 2027 – June 15, 2077

Product: Energy (MWh)

Capacity for Project: 840 MW[1]

Capacity for Participants: Below in Figure 2, is the subscribed generation entitlement for each Participant under the Renewal Power Sales Contracts.

CALIFORNIA PURCHASERS		
PURCHASER	SHARE TO BE DELIVERED	SHARE OF 840 MW
Burbank	4.167%	35
Glendale	4.167%	35
LADWP	64.775%	544
Pasadena	1.667%	14
Riverside	4.167%	35
GROUP TOTAL	78.943%	663
UTAH COOPERATIVE PURCHASERS		
GROUP TOTAL	7.017%	59
UTAH MUNICIPAL PURCHASERS		
GROUP TOTAL	14.040%	118
PURCHASER TOTAL	100.000%	840

Figure 2 - Generation Distribution

Expected Deliverables: Please refer to Figure 2

Must Take Provisions: Please refer to Figure 2

Dispatch Provisions: It is assumed that LADWP will continue its responsibilities as the Operating Agent for the repowered IPP units, and will continue to be responsible for the dispatch of the IPP units based on Participant and system demand.

Unit Contingency: N/A

Expected Operating Profiles:

A simulation of the load profile performed by LADWP staff is below in Figure 3 utilizing the GE configuration. The Siemens and Mitsubishi options will follow similar profiles as the heat rates and other characteristics are comparable. The load profile was used to derive the average estimated energy output per year as shown below:

Energy Output (MWh): 5,003,712

The average annual capacity factor for all manufacturers is 68%.

[1] The Project size per the Partnership needs is limited to 840 MW Net. The Generation Scenarios listed above are based on the available generation sizes from the 3 respective vendors.

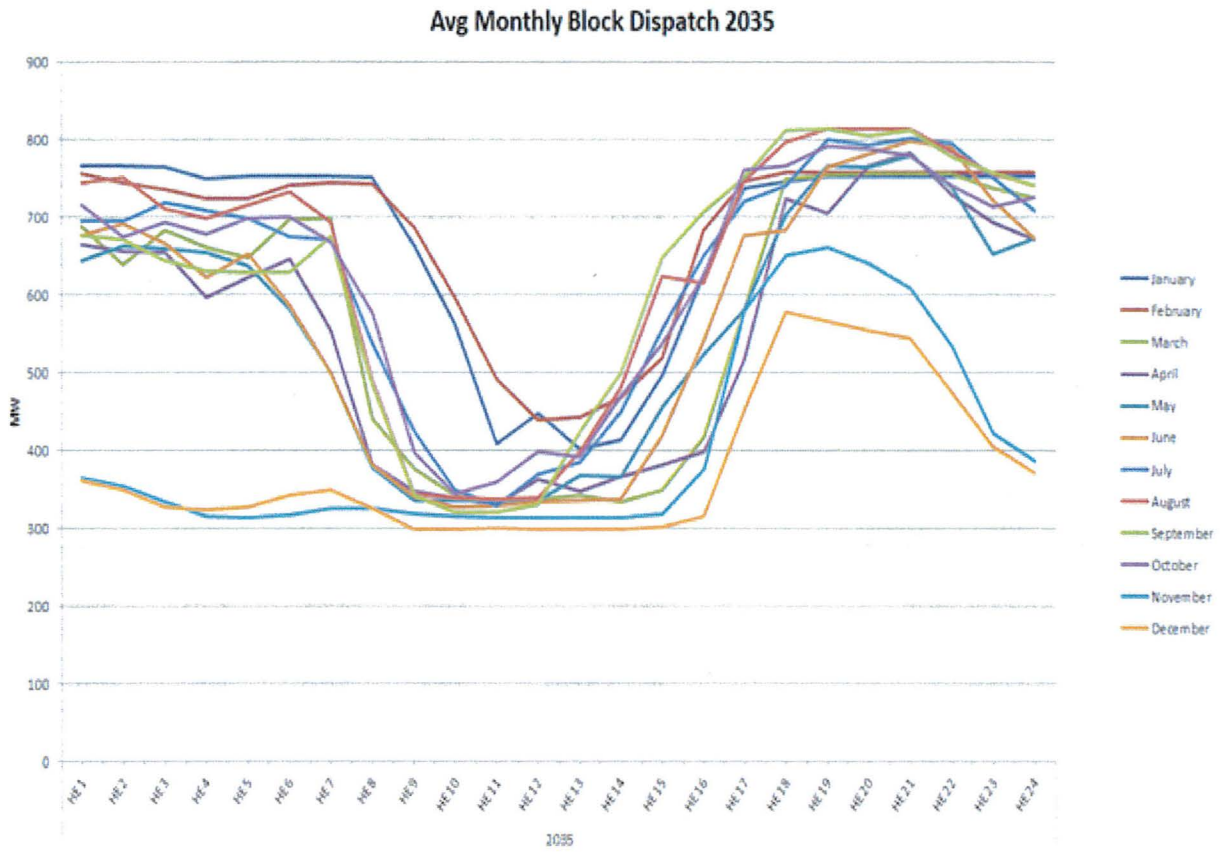

Figure 3 - Average Monthly Block Dispatch

Expected Fuel Use Profile:

Below is the preliminary fuel use data received from each respective vendor, estimated for the IPP site conditions.

GE - Estimated Combined Cycle Data for IPP Repowering All data estimated for site conditions, no duct firing, cooling towers					
Evaporative Cooling		On	Off	Off	Off
Load		100%	100%	80%	60%
Net Block Output	MW	435	385	313	245
Block Heat Input (HHV)	MMBTU/h	2,794	2,484	2,073	1,704
CO2 Emissions	lbs/MWh	752	755	775	815

Figure 4 - GE Fuel Use Profile (from vendor data)

Siemens - Estimated Combined Cycle Data for IPP Repowering All data estimated for site conditions, no duct firing, cooling towers					
Evaporative Cooling		On	Off	Off	Off
Load		100%	100%	80%	60%
Net Block Output	MW	430	381	309	242
Block Heat Input (HHV)	MMBTU/h	2,776	2,475	2,124	1,756
CO2 Emissions	lbs/MWh	755	761	803	849

Figure 5 - Siemens Fuel Use Profile (from vendor data)

Mistubishi - Estimated Combined Cycle Data for IPP Repowering All data estimated for site conditions, no duct firing, cooling towers					
Evaporative Cooling		On	Off	Off	Off
Load		100%	100%	80%	60%
Net Block Output	MW	451	414	339	265
Block Heat Input (HHV)	MMBTU/h	2,942	2,720	2,282	1,860
CO2 Emissions	lbs/MWh	764	768	787	820

Figure 6 - Mitsubishi Fuel Use Profile (from vendor data)

Data from Existing Plant – Apex Generating Station

Below in Figure 7 is average hourly data extracted from LADWP's Apex Generating Station located in Clark County, Nevada. The plant consists of a GE MS7000FA 527 MW 2x1 Combined Cycle generating station. The total energy output for the plant in 2015 was 2,635,293 MWh, with a resultant capacity factor of 57%.

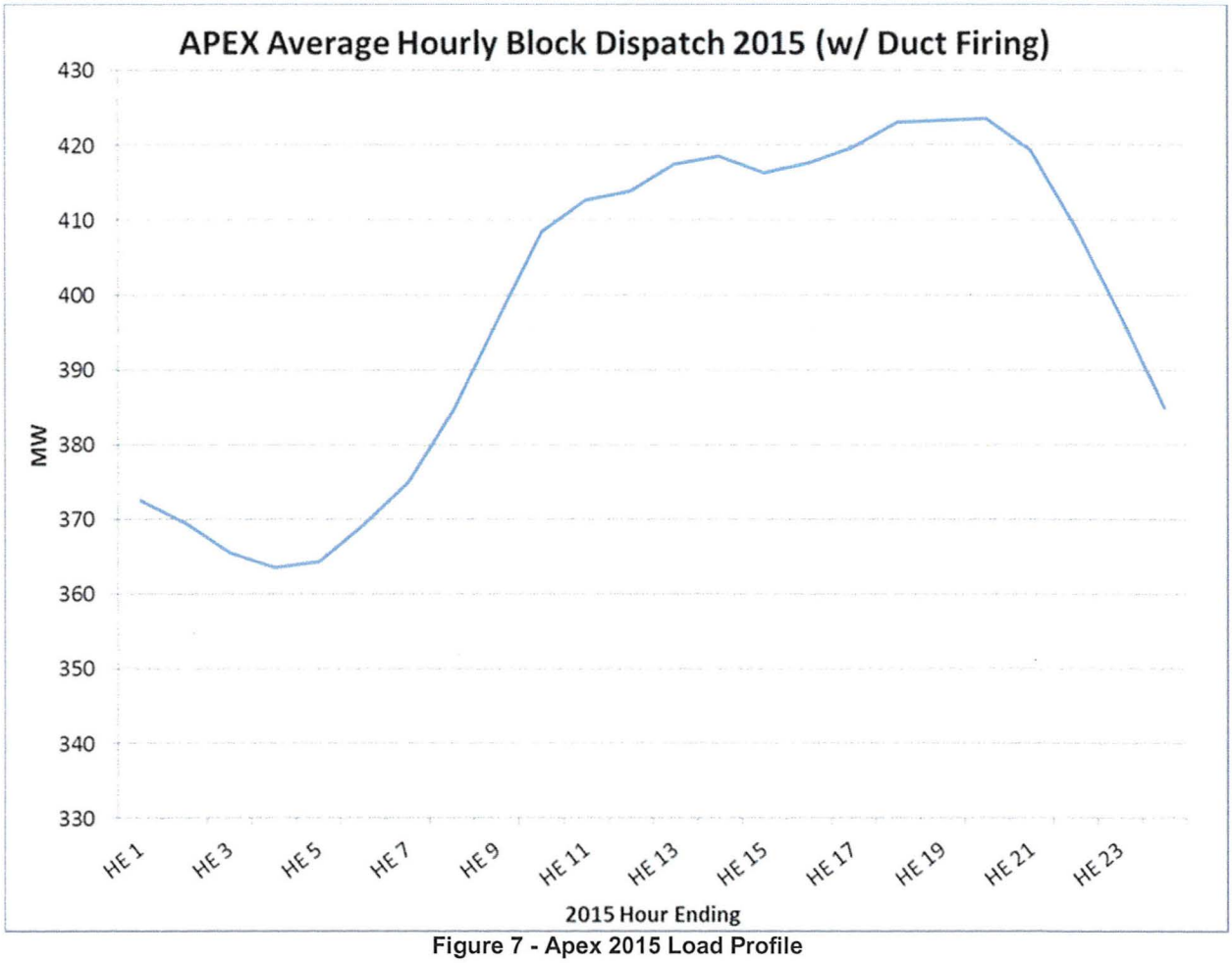

Figure 7 - Apex 2015 Load Profile

Apex - Data									
Load		100%	90%	80%	70%	60%	50%	40%	30%
Net Plant Output	MW	531	478	425	372	319	266	212	192
CO2 Emissions	lbs/MWh	884	835	841	856	886	939	1,031	1,084

Figure 8 - Apex 2015 Fuel Use Profile

ATTACHMENT B

CALIFORNIA ENERGY COMMISSION
EMISSION PERFORMANCE STANDARD COMPLIANCE FILING
COMPLIANCE FILING ATTESTATION

I, the official named below, certify under penalty of perjury, the following:

1. I am an agent of the Burbank Water and Power (BWP) authorized by the Burbank City Council (City Council) to sign this attestation on its behalf;

2. The City Council has reviewed and approved in noticed public meetings both the covered procurement (on October 25, 2016) and the Compliance Filing (on August 14, 2018) to which this attestation is attached;

3. Based on the City Council's knowledge, information, and belief, the Compliance Filing does not contain a material misstatement or omission of fact;

4. Based on the City Council's knowledge, information, or belief, the covered procurement complies with Title 20, Division 2, Chapter 11, Article 1 of the California Code of Regulations; and

5. The covered procurement contains the contractual terms or conditions specifying that the contract or commitment is void and all energy deliveries shall be terminated no later than the effective date of any CEC decision pursuant to 20 CCR § 2910 that the covered procurement fails to comply with 20 CCR § 2900 *et seq*.

Executed this 5th day of October, 2018, at Burbank, California.

Jorge Somoano
General Manager, Burbank Water and Power
City of Burbank

Approved as to Form
Office of the City Attorney

By: _____
Title: Sr Asst City Atty
Date: 10/5/18