

M e m o r a n d u m**ITEM 7**

To: Chair Robert B. Weisenmiller
Commissioner Karen Douglas
Commissioner David Hochschild
Commissioner Andrew McAllister
Commissioner Janea A. Scott

Date: October 19, 2018

From: Drew Bohan
Executive Director

Subject: APPROVAL OF A LOS ANGELES DEPARTMENT OF WATER AND POWER EMISSION PERFORMANCE STANDARD COMPLIANCE FILING

On October 3, 2018, the Los Angeles Department of Water and Power (LADWP) submitted a compliance filing requesting the Energy Commission find that LADWP's covered procurement for the proposed Intermountain Power Project (IPP) Repowering Project (Project) be determined to be compliant with the Energy Commission's Greenhouse Gases Emission Performance Standard (EPS), pursuant to Title 20 of the California Code of Regulations, Section 2900, et seq.

Senate Bill 1368 (Perata, Chapter 598, Statutes of 2006) limits long-term investments in baseload generation by the state's utilities to power plants that meet an EPS jointly established by the Energy Commission and the California Public Utilities Commission. The CO₂ emission rate limit is 1,100 pounds per megawatt-hour. The EPS establishes a public process for determining the compliance of proposed utility investments. Utilities are required to submit a compliance filing upon committing to an investment that is required to meet the EPS.

A prior compliance filing by LADWP for the IPP Project was submitted to the Energy Commission in September 2016 and approved pursuant to Order No. 16-1019-3. In that Order, the Energy Commission approved the procurement of energy from IPP's proposed 1,200 megawatt natural gas combined cycle (NGCC) facility. Since that time, participants in the IPP Project have re-evaluated their long-term power needs and have determined that new advanced class gas turbines with a reduced combined total output of 840 megawatt will allow additional capacity of renewable energy on the transmission lines associated with IPP.

The Siting Division has informed Energy Assessments Division staff that the three proposed NGCC manufacturers presented in LADWP's compliance filing will meet the EPS, even if operated at their least efficient, highest greenhouse-gas-emitting load of 50 percent. This change in natural gas turbine technology in the IPP Project will still result in LADWP's complete divestiture of all coal-based fuel in their generation resources portfolio two years earlier than was originally planned.

Chair Robert B. Weisenmiller
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Energy Commission staff completed a review of the compliance filing and determined that it is compliant with the Emission Performance Standard pursuant to Section 2902(a); specifically, that the proposed NGCC power plant design in the compliance filing is below the EPS limit of 1,100 pounds per megawatt-hour. Therefore, staff recommends the Energy Commission find that the covered procurement described in LADWP's compliance filing complies with the Energy Commission's Greenhouse Gases Emission Performance Standard, Title 20, Section 2900 et seq., of the California Code of Regulations.



Drew Bohan
Executive Director

10-19-18

Date

Attachment

September 26, 2018

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

Dear Sir or Madam:

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

Summary

The Los Angeles Department of Water and Power (LADWP) 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. The LADWP is IPA's Project Manager and Operating Agent for IPP. The LADWP, 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 October 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, LADWP 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. LADWP buys the largest share of IPP's generation. The Purchasers include 23 Utah municipalities, six Rural Electric Cooperatives, and six California municipalities as follows:

**UTAH MUNICIPAL
PURCHASERS:**

Beaver
Bountiful
Enterprise
Ephraim
Fairview
Fillmore
Heber
Holden
Hurricane
Hyrum
Kanosh
Kaysville
Lehi
Logan
Meadow
Monroe
Morgan
Mt. Pleasant
Murray
Oak City
Parowan
Price
Spring City

**UTAH COOPERATIVE
PURCHASERS:**

Bridger Valley REA
Dixie-Escalante REA
Flowell Electric Assoc.
Garkane Power Assoc.
Moon Lake Elec. Assoc.
Mt. Wheeler Power, Inc.

**CALIFORNIA
PURCHASERS:**

Anaheim
Burbank
Glendale
LADWP
Pasadena
Riverside

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, LADWP and Purchasers entered into the Renewal Contracts in early 2017.

September 26, 2018

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 LADWP hereby submits the attached Compliance Filing. LADWP 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 includes LADWP's Board of Water and Power Commissioners Resolution No. 2018-XX, adopted on June 12, 2018, approving the submission of this latest Compliance Filing to the CEC. Attachment C 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. Paul R. Schultz, Director of Power External Energy Resources Division at (213) 367-2929.

Sincerely,



Reiko A. Kerr
Senior Assistant General Manager – Power System
Engineering, Planning, and Technical Services

Enclosures

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 CO₂ 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 °F, 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 MW¹

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.

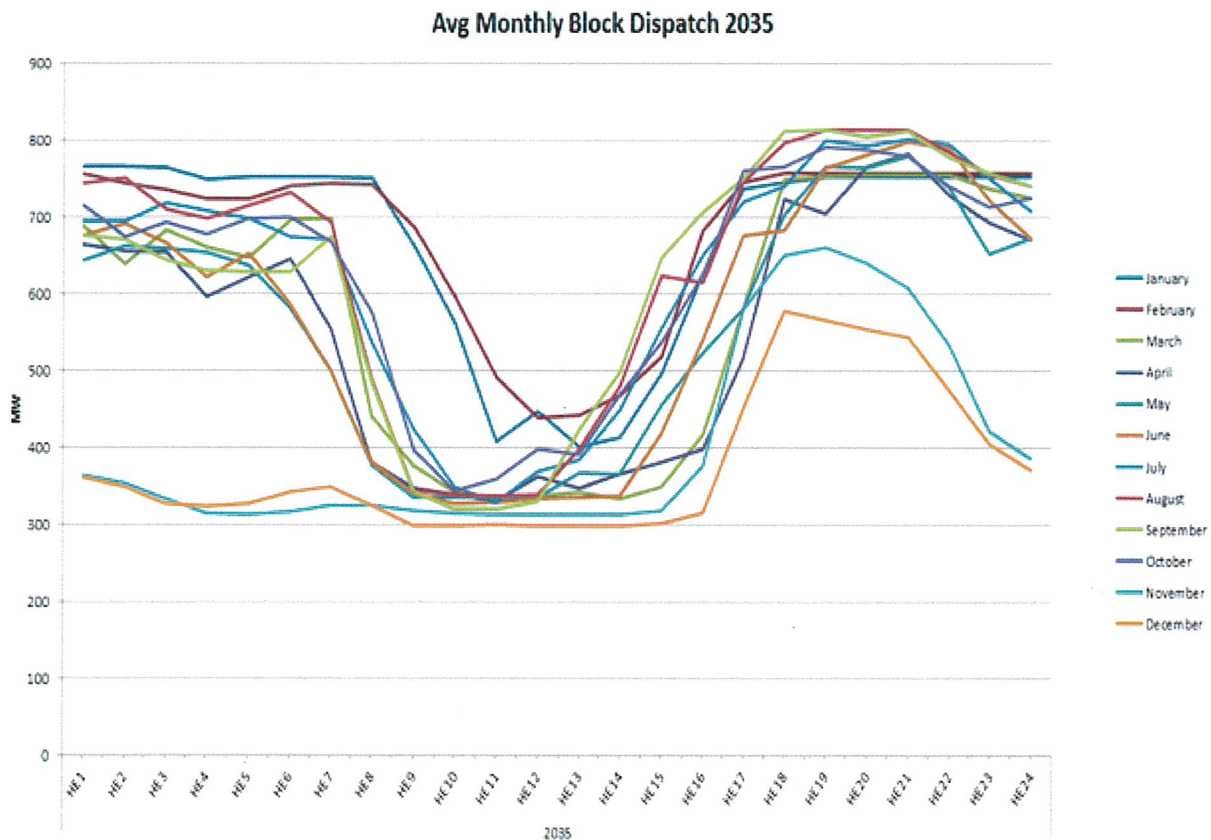


Figure 3 - Average Monthly Block Dispatch

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
Load		100%	100%	80%
Net Block Output	MW	435	385	313
Block Heat Input (HHV)	MMBTU/h	2,794	2,484	2,073
CO2 Emissions	lbs/MWh	752	755	775

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%.

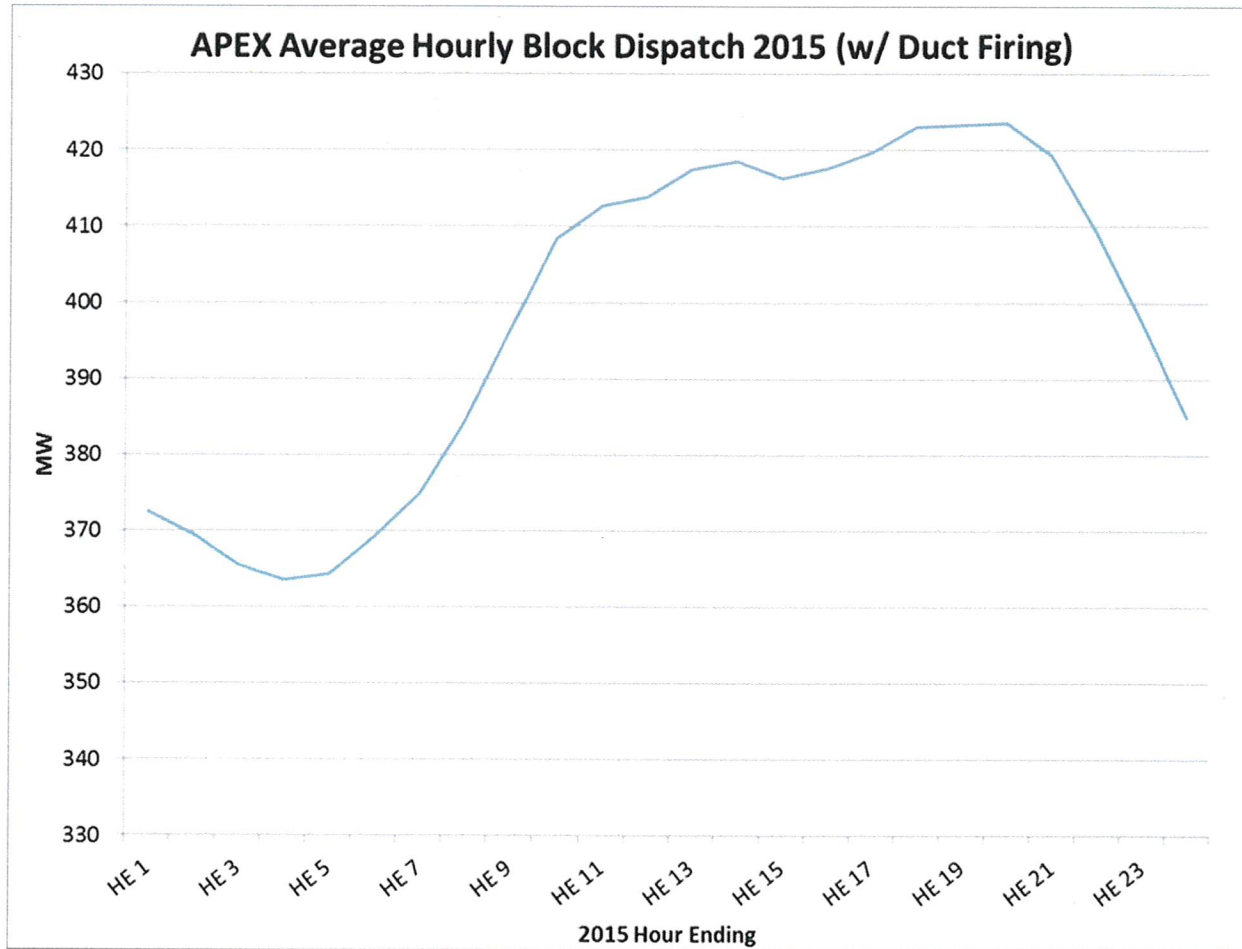


Figure 7 - Apex 2015 Load Profile

Apex - Data		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

WHEREAS, by Resolution No. 512 dated April 3, 1980, the Board of Water and Power Commissioners (Board) requested the Los Angeles City Council (City Council) to authorize the General Manager of the Los Angeles Department of Water and Power (LADWP) or designated representative to authorize the Board, in its discretion, to enter into LADWP Agreement No. 10437, Power Sales Contract, to purchase coal-fired generation from the Intermountain Power Project (IPP); and

WHEREAS, by Ordinance No. 153889, passed by the City Council on May 15, 1980, the City Council provided such authorization; and

WHEREAS, by Resolution 220 dated January 20, 1983, the Board authorized an Amendatory Power Sales Contract as an amendment to DWP Agreement No. 10437; and

WHEREAS, by Ordinance No. 157464, passed by the City Council on February 4, 1983, the City Council provided such authorization; and

WHEREAS, by Resolution 15-232 dated June 2, 2015, the Board authorized the Second Amendatory Power Sales Contract as an amendment to DWP Agreement No. 10437 and the delegation of authority to enter into the Renewal Power Sales Contract and the Agreement for Sale of Renewal Excess Power (Renewal Contracts); and

WHEREAS, by Ordinance No. 183818, passed by the City Council on August 18, 2015, the City council provided such authorization; and

WHEREAS, IPP has been operating as a coal-fired power plant for over 30 years, and LADWP has served as the Project Manager and Operating Agent on behalf of IPP's owner, the Intermountain Power Agency (IPA); and

WHEREAS, the Renewal Contracts for IPP generation are subject to the California Energy Commission's (CEC) Emission Performance Standard regulations (EPS; 20 CCR § 2900 *et seq.*), including the requirement in 20 CCR § 2909 that a publicly-owned utility submit a compliance filing with the CEC within 10 business days of entering into a "covered procurement" as therein defined (Compliance Filing); and

WHEREAS, the Second Amendatory Power Sales Contract, DWP Agreement No. 10437, provides for the ability to repower IPP's fuel source from its current 1,800 Megawatts (MWs) net of coal-fired generation to no more than 1,200 MWs of EPS-compliant natural gas-fired combined cycle generation; and

WHEREAS, on October 19, 2016, pursuant to Order No: 16-1019-3, the CEC found the proposed repowering of IPP from its current 1800 MWs of coal-fired generation to approximately 1200 MWs of EPS-compliant natural gas-fired combined cycle generation to be EPS-compliant as discussed in a prior Compliance Filing by LADWP; and

WHEREAS, the Second Amendatory Power Sales Contract, and Renewal Contracts also allow for an Alternative Repowering to modify or further reduce the 1,200 MWs of EPS-compliant natural gas-fired combined cycle generation; and

WHEREAS, LADWP and the other IPP participants are considering a future vote on an Alternative Repowering resulting in EPS-compliant natural gas-fired combined cycle generation with a reduced output of 840 MWs; and

WHEREAS, the EPS regulations require that a Compliance Filing be first approved by the Board prior to submitting it to the CEC.

NOW, THEREFORE, BE IT RESOLVED, that the Compliance Filing regarding the Alternative Repowering for a reduced output of 840 MWs now on file with the Secretary of the Board and approved as to form and legality by the City Attorney, be and the same are hereby approved.

BE IT FURTHER RESOLVED, that the President or Vice President of the Board, or the General Manager of the LADWP or such other person as the General Manager shall designate in writing, and the Secretary, Assistant Secretary or the Acting Secretary of the Board are hereby authorized and directed to execute and submit the Compliance Filing and any all other related documents and instruments to the CEC.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of the resolution adopted by the Board of Water and Power Commissioners of the City of Los Angeles at its meeting held **JUN 26 2018**

Barbara E. Moschos
Secretary

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER CITY ATTORNEY

MAY 09 2018

By Vaughn Minassian
VAUGHN MINASSIAN
DEPUTY CITY ATTORNEY

ATTACHMENT C

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 Los Angeles Department of Water and Power (LADWP) authorized by its Board of Water and Power Commissioners (Board) to sign this attestation on its behalf;
2. The Board has reviewed and approved in noticed public meetings both the covered procurement (on June 2, 2015) and the Compliance Filing (on June 12, 2018) to which this attestation is attached;
3. Based on the Board's knowledge, information, and belief, the Compliance Filing does not contain a material misstatement or omission of fact;
4. Based on the Board'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 2nd day of October, 2018, at Los Angeles, California.

APPROVED AS TO FORM AND LEGALITY
MICHAEL N FEUER CITY ATTORNEY

MAY 25 2018

By

VAUGHN MINASSIAN
DEPUTY CITY ATTORNEY

Reiko A. Kerr

Senior Assistant General Manager – Power System
Engineering, Planning, and Technical Services

CALIFORNIA ENERGY COMMISSION

1516 Ninth Street
 Sacramento, California 95814

**STATE OF CALIFORNIA
 ENERGY RESOURCES CONSERVATION
 AND DEVELOPMENT COMMISSION**

IN THE MATTER OF:)	DOCKET No. 18-EPS-01
)	[PROPOSED] ORDER No.
)	
LADWP EMISSION PERFORMANCE STANDARD)	
COMPLIANCE FILING)	
)	

I. INTRODUCTION

Pursuant to Public Utilities Code section 8341(e)(1), the Energy Commission established a greenhouse gases emission performance standard (EPS) of 1,100 pounds carbon dioxide per megawatt hour, as codified in Title 20 of the California Code of Regulations, sections 2900 *et seq.* The Energy Commission is responsible for reviewing all long-term financial commitments entered into by local publicly owned electric utilities for compliance with the EPS.

II. FINDINGS

a. On October 3, 2018, the Los Angeles Department of Water and Power (LADWP) submitted a compliance filing requesting that the Energy Commission find that LADWP's Second Amendatory Power Sales Contract (contract) with the Intermountain Power Agency (IPA) for electricity from the Intermountain Power Project (IPP) Repowering Project, which involves replacing the existing coal facility as LADWP's source of generation with a new natural gas-fired combined cycle power plant, be determined to be compliant with the EPS;

b. On October 19, 2018, Energy Commission staff submitted a review of LADWP's filing and found it complete. Based on its review, staff recommended that the procurement be found to be in compliance with the EPS; and

c. The Energy Commission concurs with staff's recommendation that LADWP's compliance filing is complete and that the contract with IPA, as described in the compliance filing, complies with the EPS.

III. CONCLUSION AND ORDER

The California Energy Commission hereby adopts staff's recommendation and orders that the long-term financial commitment described in LADWP's compliance filing complies with the Energy Commission's Greenhouse Gases Emission Performance Standard, as codified in Title 20 of the California Code of Regulations, sections 2900 *et seq.* Should the final design significantly change from the specifications provided in the compliance filing, LADWP must submit a subsequent compliance filing providing the updated information.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the California Energy Commission held on November 7, 2018.

AYE:

NAY:

ABSENT:

ABSTAIN:

Cody Goldthrite, Secretariat
California Energy Commission