

DOCKETED

Docket Number:	16-EPS-01
Project Title:	Emissions Performance Standard
TN #:	214110
Document Title:	EPS Compliance Filing for IPP Repowering
Description:	City of Glendale's EPS Compliance Filing for the Intermountain Power Project Repowering Project pursuant to SB 1368 requirements
Filer:	Ramon Abueg
Organization:	Glendale Water and Power
Submitter Role:	Applicant
Submission Date:	10/19/2016 2:10:47 PM
Docketed Date:	10/19/2016

October 19, 2016

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

Re: EPS Compliance Filing for the Intermountain Power Project (IPP) Repowering Project

Dear Sir or Madam:

Summary

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

IPA, Glendale and the other Purchasers are now pursuing the IPP Repowering Project (Project), which is scheduled to replace IPP's coal generating units with SB 1368 Emission Performance Standards (EPS) compliant Natural Gas Combined Cycle (NGCC) generating units. The target date to replace the coal units is July 1, 2025, almost two years ahead of the June 15, 2027 expiration date of the current Power Sales Contracts between IPA and the Purchasers. However, the ability to meet this earlier date is contingent upon several factors, including permitting, material procurement and final concurrence of all 35 participants. Although the Project is planned to be completed by 2025, the commercial operation date may be delayed due to circumstances beyond Glendale's control.

This project is a critical step towards achieving Glendale's goals of reducing its Greenhouse Gas (GHG) emissions and integrating additional renewable resources into its generation portfolio. This repowering will result in Glendale's complete divestiture of all coal based fuel in its portfolio of generation resources, opens up additional transmission capacity to deliver renewable generation, maintains the stability of the transmission system, and provides quick ramp rates that are essential for integration of renewable generation resources. If this Compliance Filing, together with the corresponding compliance filings of other participating California utilities, is not approved by the CEC, the Project will not proceed, and the existing IPP coal generating units will continue to generate energy until June 15, 2027.

The IPP Repowering Project is uniquely complex because of the number and geographical diversity of the Purchasers and the multiple contracts governing the scope and schedule of the Project. The goal is to build NGCC generating units that can meet the changing demands of utilities in both California and Utah and the changing generation requirements necessary for the successful integration of renewable variable energy resources.

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. Glendale currently receives approximately 37 megawatts (MW) of IPP 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 require 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).

After entering into the Renewal Contracts, all California Purchasers, except the Los Angeles Department of Water & Power (LADWP), have the right to terminate the contracts or to reduce their Generation Entitlement Share no later than November 1, 2019 (the "Off-Ramp Deadline"). If a California Purchaser fails to terminate its interest in the Renewal Contracts by the Off-Ramp Deadline and maintains a Generation Entitlement Share in the repowered facility, it will have a contract commitment for the procurement of electricity with a term of five years or greater.

Description of the IPP Repowering Project

Given IPA's obligation to offer the Purchasers a right to participate in an IPP repowering after the expiration of the current Power Sales Contracts, IPA, Glendale and the other Purchasers are now pursuing entering into Renewal Contracts, which would allow for energy procurement from NGCC generating units. IPA, with

LADWP as Project Manager, is thus undertaking a natural gas repowering, defined in the Second Amendatory Power Sales Contract as the construction and installation of two NGCC power blocks, each with a design capacity of 600 MW.

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.¹

Purchasers who choose to enter into the Renewal Contracts must obtain all Regulatory Contract Approvals, defined in the Renewal Power Sales Contracts as “all governmental regulatory approvals, consents and authorizations required or necessary” for the Purchaser to execute, perform under and be bound by the Renewal Power Sales Contract. If any Regulatory Contract Approval is denied a Purchaser, including one by the CEC, the Renewal Power Sales Contract for that Purchaser will be void.

Compliance Filing:

Pursuant to 20 CCR § 2900 *et seq.*, of the California Code of Regulations, adopted by the CEC to implement Senate Bill 1368, Glendale hereby submits the attached Compliance Filing. This filing is in advance of (i) entering into the subscription process for which Glendale will be making elections for generation entitlement shares and (ii) the Off-Ramp Deadline. In submitting this filing in advance of “entering into a covered procurement” under 20 CCR § 2909, Glendale respectfully requests that the CEC determine that the IPP Repowering Project as currently contemplated in Attachment A pursuant to the Second Amendatory Power Sales Contract, is in compliance with the EPS regulations promulgated by the CEC.

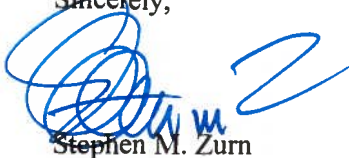
On June 12, 2015, Glendale provided notice to the CEC of its intent to deliberate at its June 16, 2015 Council meeting on a covered procurement, the Renewal Contracts, which provide for the procurement of electricity from the Project until 2077, consistent with 20 CCR § 2908.

On June 16, 2015, the Glendale City Council (Council) at a noticed public meeting consistent with the requirements of the Ralph M. Brown Act (“Brown Act” Cal. Govt. Code § 54950 *et seq.*) (i) approved and authorized the execution and delivery of the Second Amendatory Power Sales Contract, which allows the repowering of IPP’s coal-fired generating units with EPS-compliant NGCC units by July 2025, accelerating the coal divestiture date by two years, assuming Renewal Power Sales Contracts are thereafter in place and (ii) authorized the Glendale City Manager, or his designee, to participate in the IPP subscription process for a Project participation share of up to 50 MW.

The CEC Compliance Filing is shown as Attachment A. Attachment B includes the Glendale City Council Resolution, adopted on October 18, 2016. 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 repowering with NGCC units, please contact Ramon Z. Abueg, Chief Assistant General Manager of Glendale Water & Power, at (818) 548-3297.

Sincerely,



Stephen M. Zurn

General Manager - Glendale Water & Power

SMZ:to

Attachments

¹ Attachment A is based entirely on information received from LADWP, the operating agent for IPP.

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:

Since the Siemens and the Mitsubishi configurations exceed 600 MW each, they will be derated to 600 MW in order to meet the limitations defined by the project of a total maximum 1200 MW output. Duct firing is required for the GE units in order to reach a rated output of 600 MW at site. Preliminary Rated Capacity, and CO₂ emission data were received from each respective vendor for the IPP Repowering Project at site conditions of: 51 °F, 60% RH, and an elevation of 4760 ft.

Prime Mover	2+1 Combined Cycle	2+1 Combined Cycle	2+1 Combined Cycle
Quantity	2	2	2
Manufacturer	GE	Siemens	Mitsubishi
Model	7F.04	SCC6-5000F	M501GAC
Rated Capacity (MW), at IPP Site	600 each, 1200 total, with duct firing	616 each, 1232 total	714 each, 1428 total
Capacity after Derate	Not applicable	600 each, 1200 total	600 each, 1200 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)	744, with duct firing	759	768
Estimated CO ₂ emissions after derate	Not applicable	761	777

Figure 1 - Generation Configuration Options.

Power Purchase Contract Terms

Name of Counter Party: Intermountain Power Agency (IPA)-

Length of Contract: 52 years

Duration: July 1, 2025 – June 15, 2077

Product: Energy (MWh)

Capacity for Project: 1200 MW¹

Capacity for Participants: Below in Figure 2, is the current generation entitlement for each Participant of the current Power Sales Contracts. The final percentage share for each Participant for the Renewal Power Sales Contract will be determined based on many factors, including prior participation rates, number of final participants, and available percentages without commitment, among others.

CALIFORNIA PURCHASERS				
PURCHASER	SHARE TO BE DELIVERED	W/ EXCESS ENTITLMENT SHARES (2015-12-18)	SHARE OF 1200 MW	SHARE OF 1200 MW PLUS ENTITLEMENT SHARES
Anaheim	13.225%	13.225%	159	159
Burbank	3.371%	4.167%	40	50
Glendale	1.704%	2.206%	20	26
LADWP	48.617%	66.785%	583	801
Pasadena	4.409%	6.000%	53	72
Riverside	7.617%	7.617%	91	91
GROUP TOTAL	78.943%	100.000%	947	1200
UTAH COOPERATIVE PURCHASERS				
GROUP TOTAL	7.017%	0.000%	84	0
UTAH MUNICIPAL PURCHASERS				
GROUP TOTAL	14.040%	0.000%	168	0
PURCHASER TOTAL	100.000%	100.000%	1200	1200

Figure 2 - Generation Distribution²

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

¹ The Project size per the Second Amendatory Power Sales Contract is limited to 1200 MW. The Generation Scenarios listed above are based on the available generation sizes from the 3 respective vendors.

² This is based on the assumption that Participant's shares will be equal to its current Generation Entitlement Share in the existing Power Sales Contracts, and Excess Power Sales Contracts

characteristics are comparable, with higher plant energy outputs. The load profile was used to derive the average estimated energy output per year as shown below

Energy Output (MWh): 6,635,768

The average annual capacity factor for all manufacturers is 63%.

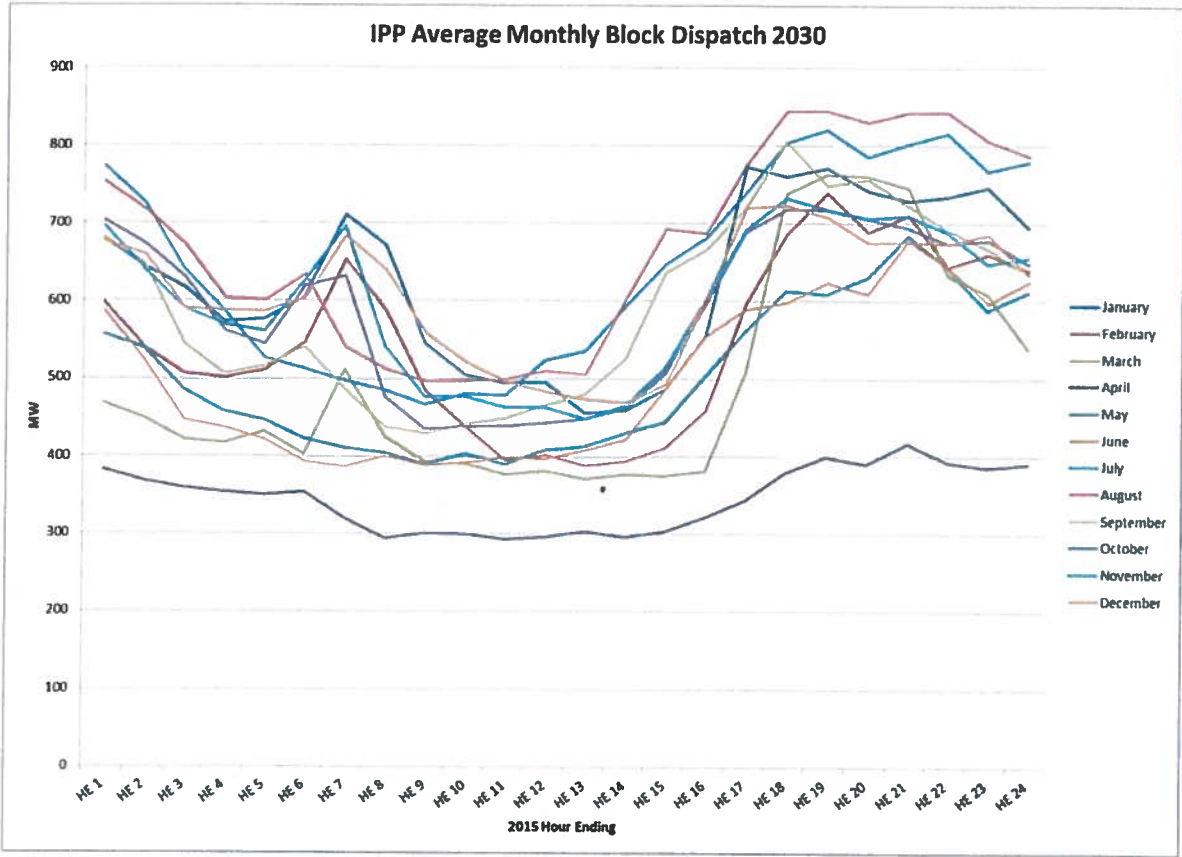


Figure 3 - Average Monthly Block Dispatch

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 Heat Rate Data for IPP Repowering								
All data estimated for site conditions, with duct firing, cooling towers								
2x1 7F.04								
Ambient Temperature °F		51	51	51	51	51	51	51
Duct Firing		On	Off	Off	Off	Off	Off	Off
Load		100%	90%	85%	80%	70%	60%	50%
Net Plant Output	MW	600	540	508	480	420	360	300
Heat Input (LHV)	MMBTU/h	3,669	3,214	2,981	2,828	2,501	2,192	1,908
CO2 Emissions	lbs/MWh	780	759	748	751	759	776	811

Figure 4 - GE Fuel Use Profile

Siemens - Estimated Combined Cycle Heat Rate Data for IPP Repowering								
All data estimated for site conditions, no duct firing, cooling towers								
2x1 SCC6-5000F								
Ambient Temperature °F		51	51	51	51	51	51	51
Load		100%	90%	80%	70%	60%	50%	40%
Net Plant Output	MW	616	563	511	461	411	361	310
Heat Input (LHV)	MMBTU/h	3,619	3,342	3,093	2,864	2,646	2,430	2,203
CO2 Emissions	lbs/MWh	759	767	782	803	832	870	918

Figure 5 - Siemens Fuel Use Profile (received from vendors without derate)

Mitsubishi - Estimated Combined Cycle Heat Rate Data for IPP Repowering								
All data estimated for site conditions, no duct firing, cooling towers								
2x 1 M501GAC								
Ambient Temperature °F		105	105	95	95	47	47	12
Load		100%	55%	100%	55%	100%	55%	100%
Net Plant Output	MW	595	351	616	360	714	401	765
Heat Input (LHV)	MMBTU/h	3,480	2,276	3,606	2,348	4,150	2,552	4,492
CO2 Emissions	lbs/MWh	768	850	770	854	764	836	772

Figure 6 - Mitsubishi Fuel Use Profile (received from vendors without derate)

Data from Existing Plant – Apex Generating Station

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

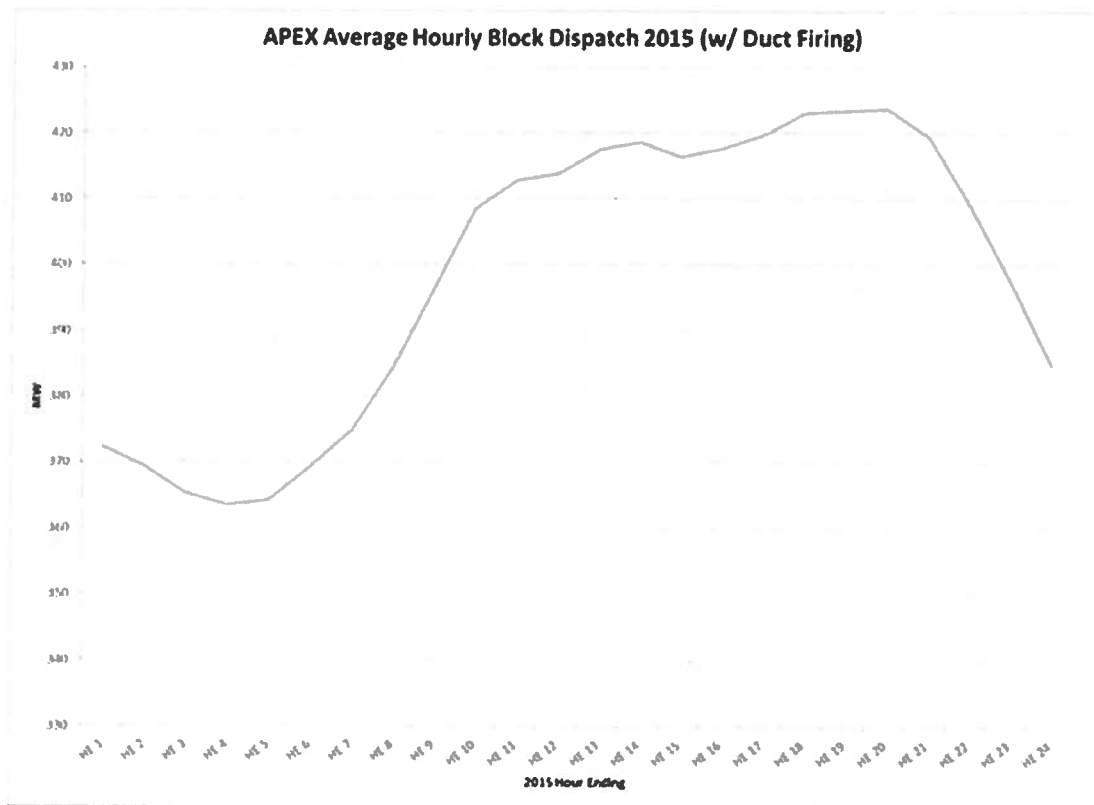


Figure 7 - Apex 2015 Load Profile

Apex - Data								
Load		100%	90%	80%	70%	60%	50%	40%
Net Plant Output	MW	480	432	384	336	288	240	192
CO2 Emissions	lbs/MWh	835	840	852	874	913	976	1,084
Apex - Data (w/ Duct Firing)								
Load		100%	97%	94%	91%			
Net Plant Output	MW	531	515	499	481			
CO2 Emissions	lbs/MWh	884	871	859	847			

Figure 8 - Apex 2015 Fuel Use Profile

Adopted
10/18/16
Friedman/Charpetian
Absent: Devine

RESOLUTION NO. 16-172

**A RESOLUTION OF THE COUNCIL OF THE CITY OF GLENDALE, CALIFORNIA
RATIFYING AND APPROVING OF AN EMISSIONS PERFORMANCE STANDARD
COMPLIANCE FILING FOR SUBMITTAL TO THE CALIFORNIA ENERGY COMMISSION IN
CONNECTION WITH THE PROPOSED REPOWERING OF THE
INTERMOUNTAIN POWER PROJECT**

WHEREAS, on August 6, 1980, the City of Glendale (Glendale) entered into an agreement (the Power Sales Contract) with the Intermountain Power Agency (IPA) to purchase a share of the coal-fired generation of the Intermountain Power Project (IPP); and

WHEREAS, on February 1, 1983, Glendale and IPA entered into an Amendatory Power Sales Contract as an amendment to the Power Sales Contract; and

WHEREAS, IPP has been operating as a coal-fired power plant for approximately 30 years owned by IPA and operated by the Los Angeles Department of Water & Power (LADWP) as the Project Manager and Operating Agent on IPA's behalf; and

WHEREAS, pursuant to Resolution No. 15-119 dated June 16, 2015, the City Council authorized the Second Amendatory Power Sales Contract amending the Amendatory Power Sales Contract, and further authorized the City Manager to enter into the Renewal Power Sales Contract and the Agreement for Sale of Renewal Excess Power (Renewal Contracts); and

WHEREAS, the Second Amendatory Power Sales Contract 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, IPA requires that the purchasers receive all required governmental regulatory approvals and other required consents or approvals (including all approvals required by Purchaser's governing bodies) before entering into the Renewal Contracts; and

WHEREAS, the proposed action is subject to the California Energy Commission's (CEC) Emission Performance Standard regulations (EPS Regulations; 20 CCR Section 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 EPS Regulations require that the Compliance Filing be first approved by the City Council prior to submitting it to the CEC; and

WHEREAS, on October 4, 2016, at its regular City-Council meeting noticed in accordance with the Ralph M. Brown Act (Government Code Section 54950 et seq.), the City Council adopted a Resolution approving a CEC Compliance Filing and authorized submittal of the same to the CEC; and

WHEREAS, although the City Council's October 4, 2016 consideration of the CEC Compliance Filing was noticed under the Ralph M. Brown Act, Glendale did not provide the CEC and its master contact list with notice of the date, time and location of the meeting, as required under the EPS Regulations (20 CCR Section 2908); and

/ / /

WHEREAS, in order to provide the requisite notices and to allow the public the opportunity to provide input regarding the CEC Compliance Filing, the City Council elected to reopen its deliberations on the Compliance Filing at its October 18, 2016 meeting and to consider, at such meeting, whether the Compliance Filing as approved on October 4, 2016 should be ratified, or whether such Compliance Filing should be amended; and

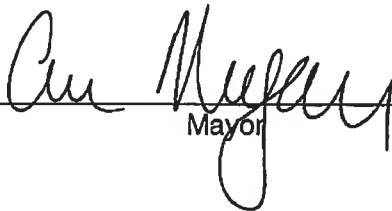
WHEREAS, Glendale has provided notice of the October 18, 2016 deliberations regarding the Compliance Filing in accordance with the CEC Regulations (20 CCR Section 2908); and

WHEREAS, based on the City Council's knowledge, information or belief, the Compliance Filing attached as Attachment 1 to the October 18, 2016 Report to the City Council, and on file with the City Clerk, does not contain a material misstatement or omission of fact and the Renewal Contracts comply with the EPS Regulations.

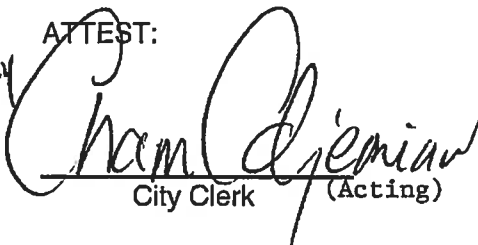
NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENDALE:

1. that, having provided notice in accordance with Title 20 of the California Code of Regulations, Section 2908, and having considered any comments from interested members of the public, the Compliance Filing attached as Attachment 1 to the October 18, 2016 Report to City Council, and on file with the City Clerk, and approved as to form and legality by the City Attorney, be and the same is hereby approved and that the City Council's October 4, 2016 approval of the Compliance Filing is hereby ratified; and
2. that the General Manager of Glendale Water & Power or such other person as the General Manager shall designate in writing, is hereby authorized and directed to execute and submit the Compliance Filing and any and all other related documents and instruments to the CEC.


Adopted this 18th day of October, 2016



Mayor

For Atty
ATTEST:


City Clerk (Acting)

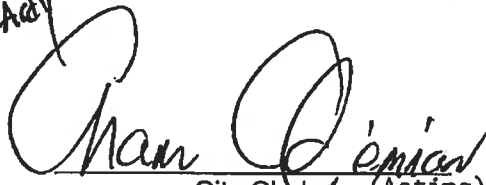
APPROVED AS TO FORM


Principal Assistant City Attorney
Date Oct. 11, 2016

STATE OF CALIFORNIA)
) SS
COUNTY OF LOS ANGELES)

I, Ardashes Kassakhian, City Clerk of the City of Glendale, certify that the foregoing Resolution No. 16-172 was adopted by the Council of the City of Glendale, California, at a regular meeting held on the 18th day of October, 2016, by the following vote:

Ayes: Friedman, Gharpetian, Sinanyan, Najarian
Noes: None
Absent: Devine
Abstain: None

for Acty

City Clerk (Acting)


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 City of Glendale (Glendale) authorized by the Glendale City Council (Council) to sign this attestation on its behalf;
2. The Council has reviewed and approved in noticed public meetings both the covered procurement (on June 16, 2015) and the Compliance Filing (on October 18, 2016) to which this attestation is attached;
3. Based on the Council's knowledge, information, and belief, the Compliance Filing does not contain a material misstatement or omission of fact;
4. Based on the 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 19th day of October, 2016, at Glendale, California.


APPROVED AS TO FORM
Principal Assistant City Attorney
Date Oct 18, 2016


Stephen M. Zurn
General Manager, Glendale Water & Power
City of Glendale