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Los Angeles Department of Water & Power

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March 28, 2014

Mr. Robert P. Oglesby
California Energy Commission
Office of the Executive Director
1516 Ninth Street, MS-39
Sacramento, CA 95814

Re: Petition for Reconsideration of Applications for Renewables Portfolio Standard (RPS) Certification for the Scattergood, Harbor, Valley and Haynes Generating Stations Using Biomethane From 2009 Shell and Atmos Contracts RPS ID 61596A, 61597A, 61598A, 61599A

Dear Mr. Oglesby:

This Petition for Reconsideration is provided to the Office of the Executive Director of the California Energy Commission (CEC or Energy Commission) to appeal the "Energy Commission staff [determination] that the biomethane fuel production facilities under the 2009 Shell and Atmos contracts . . . are not eligible for the RPS," which was issued to the Los Angeles Department of Water and Power (LADWP) in a letter dated February 28, 2014 (CEC Staff's Ineligibility Letter).[1] The LADWP bases its petition as follows:

1. The Use of Biomethane under the 2009 Shell and Atmos Contracts Are Eligible for Certification Under the Third and Fourth Editions of the CEC's RPS Eligibility Guidebooks;

2. The Grandfathering Provision found in Senate Bill (SB)X1-2 Provides for a Transition from the Voluntary RPS Program to the Mandatory Program, as Expressed by the Legislature, which requires the certification of LADWP's RPS Resources, including its Biogas Contracts Entered Into with Shell and Atmos in 2009;

[1] Letter from Suzanne Korosec to Oscar A. Alvarez regarding **Amended Applications for Renewables Portfolio Standard (RPS) Certification for the Scattergood, Harbor, Valley and Haynes Generating Stations, RPS ID 61596A-61599A**, dated February 28, 2014.

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3. The Energy Commission Staff's Decision Harms LADWP's RPS Compliance, Ratepayers via a Financial Cost of almost $78 Million and with Additional to be Determined Potential Penalties; and

4. Legislative Policy Goals in PUC Section 399.11 are satisfied with the use of Landfill Gas at LADWP's In-Basin Power Plants

I. Introduction

The changing legal landscape for eligibility under California's RPS Program, from Public Utilities Code (PUC) Section 387 to the California Renewable Energy Resources Act ("SBX1-2") to the addition of PUC Section 399.12.6 and modification to Public Resources Code (PRC) Section 25741, under Assembly Bill (AB) 2196[2], present several challenges for assessment. To complicate the landscape further, there have been changing iterations and editions of the CEC's RPS Eligibility Guidebooks (RPS Guidebook) with respect to the eligibility of biomethane[3] as a fuel source for generating facilities if the fuel has been injected into a common carrier pipeline, which includes a period of overall suspension by the CEC for such resources.

However, as one walks through the changing legal landscape along with the LADWP applications and expert analysis, under either of the applicable legal scenarios, the biomethane supplied under the 2009 Shell and Atmos Contracts is RPS eligible and should be certified by the CEC. The RPS eligibility is justified under either the Third or Fourth Edition of the RPS Guidebook, PUC Section 399.12.6 (a), or the grandfathering provisions under SBX1-2[4], which incorporates voluntary POU RPS programs into the state's program now mandated for POUs.[5]

II. Background

A. LADWP's 2009 Shell and Atmos Contracts

On or about February 1, 2008, LADWP and Shell Energy North America, L.P. (Shell) entered into a Base Contract for the Sale and Purchase of Natural Gas, which was just for natural gas at the time. This contract was later amended in July 27, 2009, to include landfill

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[2] Stats 2012 Chapter 605 §2 (Assembly Bill 2196), which became effective January 1, 2013.

[3] Biomethane and biogas are terms used interchangeably in this Petition and are intended to be the same.

[4] Public Utilities Code §399.12(e)(1)(C)
Public Utilities Code §399.16(d)

[5] PUC Section 399.30 still provides POU governing boards with the flexibility to determine its mix of eligible renewable energy resources and the reasonable costs incurred by the POU.

gas. The contract was amended again in March 2010, to include additional sources of landfill gas. For ease of reference, this Shell contract along with its amendments is referred to in this Petition as the 2009 Shell Contract. The sources of the landfill gas from the 2009 Shell Contract are:

- Rumpke Sanitary Landfill, Cincinnati, Ohio
- Fort Smith Landfill, Fort Smith, Arkansas
- Greenwood Farms Landfill, Tyler, Texas
- Jefferson Davis Parish Sanitary Landfill, Welsh, Louisiana
- Johnson County Landfill, Shawnee, Kansas
- Stony Hollow Landfill, Dayton, Ohio
- Pinnacle Road Landfill, Moraine, Ohio
- Westside Gas Producers, LLC Landfill, Three Rivers, Michigan

On or about July 30, 2009, LADWP and Atmos Energy Marketing, LLC entered into a Base Contract for the Sale and Purchase of Natural Gas, which was for landfill gas. Two transaction confirmations were entered into on or about August 21, 2009, to begin delivery on September 1, 2009, for the landfill gas. For ease of reference the contract between LADWP and Atmos is referred to in this Petition as the 2009 Atmos Contract. The sources of the 2009 Atmos contract are:

- Seneca Landfill, Evans City, Pennsylvania
- McCarty Road Landfill, Houston, Texas
- Iris Glen Landfill, Johnson City, Tennessee
- Carter Valley Landfill, Church Hill, Tennessee[6]

A copy of the 2009 Shell and Atmos Contracts was provided to CEC in LADWP's July 6, 2011 submittal. Also, the contracts LADWP entered into with Shell and Atmos in 2009 are collectively referred to as the "2009 Shell and Atmos Contracts." Attestations were provided under both contracts to support the transaction and sourcing of the gas.

B. LADWP's Application Process

On July 6, 2011, LADWP submitted a pre-certification application for use of its biomethane from its 2009 Shell and Atmos contracts at LADWP's Harbor, Haynes, Scattergood, and Valley generating facilities (In-Basin Power Plants). This pre-certification was resubmitted on October 14, 2011, with completed fuel attestation forms and transportation path attestations. The CEC's forms were not "altered," as alleged by the CEC staff, but the last line on some of the attestation forms were cut-off due to computer software incompatibility.

[6] The Schlesinger Report, p.13.

Consequently, Additional Supplemental Attestations were submitted on November 8, 2011. The CEC did not act on these pre-certification applications.

On September 28, 2012, LADWP submitted a "Limited Certification Application" for its 2009 Shell and Atmos contracts. This was followed with additional information submitted to the CEC on November 26, 2012, which was after Assembly Bill 2196 had passed, and in anticipation of it becoming effective on January 1, 2013. On July 18, 2013, LADWP submitted an additional Certification Application for use of its biomethane 2009 Shell and Atmos contracts, which followed, by a couple of months, the CEC's adoption of the Seventh Edition RPS Guidebook, which had new forms applicable to the enactment of AB 2196.[7]

III. The Use of Biomethane under the 2009 Shell and Atmos Contracts Are Eligible for Certification under the Third or Fourth RPS Guidebook

A. The Changing Landscape for the CEC's RPS Guidebooks for Biomethane and the Need for Expert Analysis

The CEC adopted the Third Edition to the RPS Guidebook on December 19, 2007. This edition of the guidebook would permit the CEC to certify the use of biomethane, injected into a common carrier pipeline, for generating electricity. The CEC adopted the Fourth Edition to the RPS Guidebook on December 15, 2010. However, on March 28, 2012, the CEC suspended the provisions of the fourth edition RPS Guidebook that applied to biomethane. This suspension remained in place while the CEC came out with a fifth and then a sixth edition to the RPS Guidebook. Following the enactment of Assembly Bill 2196, including adding PUC Section 399.12.6, which directly applied to biomethane as a fuel source, and modifying PRC Section 25741, which added provisions for biomethane, the CEC adopted the Seventh Edition RPS Guidebook and then concurrently lifted its suspension.

1. The Delivery Requirement in the Third and Fourth Editions of the RPS Guidebook for Biomethane

The Third Edition RPS Guidebook allowed the CEC to certify the use of biogas, injected into a common carrier pipeline, for generating electricity with the following itemized conditions:

[7] On June 13, 2013, LADWP submitted its application for certification of its Harbor, Haynes, Scattergood, and Valley generating facilities using biomethane from its 2011 Shell contract, which the CEC certified.

1. The gas must be procured from an RPS-eligible resource, such as biomass or digester gas.
2. The gas must be injected into a natural gas pipeline system that is either within the Western Electricity Coordinating Council (WECC) region or interconnected to a natural gas pipeline system in the WECC region that delivers gas into California.
3. The energy content produced and supplied to the transportation pipeline system must be measured on a monthly basis and reported annually, illustrated by month. Reporting shall be in units of energy (for example, MMBTu) based on metering of gas volume and adjustment for measured heat content per volume of each gas). In addition, the total amount of gas used at the RPS-eligible facility must be reported in the same units measured over the same period, and the electricity production must be reported in Megawatt per Hour (MWh).
4. The gas must be used at a facility that has been certified as RPS-eligible. As part of the application for certification, the applicant must attest that the RPS-eligible gas will be nominated to that facility or nominated to the LSE-owned pipeline serving the designated facility.
5. In its annual RPS Procurement verification report, the Energy Commission will calculate the RPS-eligible energy produced using the same methodology discussed above. [8]

The Fourth Edition RPS Guidebook also allowed the CEC to certify the use of biomethane, injected into a common carrier pipeline, for generating electricity. The Fourth Edition had an additional provision as compared to the Third Edition, which stated:

> "The applicant, or authorized party, must enter into contracts for the delivery (firm or interruptible) or storage of the gas with every pipeline or storage facility operator transporting or storing the gas from the injection point to California (or to the electric generation facility if the electric generation facility is located outside of California). Delivery contracts with the pipeline operators may be for delivery with or against the physical flow of the gas in the pipeline."[9]

According to the Seventh Edition of the RPS Guidebook, with respect to biomethane, "[t]he eligibility requirements for the third and fourth editions of the RPS Eligibility Guidebook are

[8] Renewables Portfolio Standard Eligibility Guidebook, Third Edition. California Energy Commission, Efficiency and Renewable Energy Division. Publication Number: CEC-300-2007-006-ED3-CMF. Section II.B.6. Renewable Facilities Using Multiple Fuels, pp.20-21. (Emphasis added).

[9] Renewables Portfolio Standard Eligibility Guidebook, Fourth Edition. California Energy Commission, Efficiency and Renewable Energy Division. Publication Number: CEC-300-2010-007-CMF. Section II.B.2. "Biogas (including pipeline biomethane)," pp.19-21. (Emphasis added).

largely the same with some additions to the fourth edition of the guidebook that were largely introduced as clarifications to the third edition guidebook."[10]

The CEC Staff's Ineligibility Letter identified the delivery condition as a concerning issue and appeared to rely on unidentified statements and a question from a biomethane supplier in 2009, supposedly as instructive about how the U.S. pipeline system operates. This called for an expert analysis.

2. The Need for a US Pipeline Gas Expert, The Schlesinger Report

With the changing RPS Guidebooks, particularly with respect to biogas delivery conditions in the Third and the Fourth Editions, LADWP engaged the services of a U.S. gas pipeline expert to describe and analyze LADWP's 2009 Shell and Atmos Contracts and the CEC's RPS Guidebooks. Benjamin Schlesinger and Associates, LLC prepared a report entitled "CEC's RPS Compliance Guidelines for Biogas and the U.S. Pipeline Network: Special Report to the Los Angeles Department of Water and Power" dated March 26, 2014, (Schlesinger Report). The Schlesinger Report, dated March 26, 2014, is attached and made a part of this petition for reconsideration.

The principal authors for the Schlesinger Report, including Dr. Benjamin Schlesinger and Dr. John A. Neri, have over thirty years of experience in the gas industry with a "focus on pipelines, utilities, fuel for power generators, [and] landfill gas projects."[11] The Schlesinger Report assessed the extent to which the 2009 Shell and Atmos Contracts, and the "CEC's guidelines, conform with one another and with national policies and regulatory standards governing the way natural gas pipeline capacity is utilized, and gas supplies are transported with the U.S. on the nation's pipeline grid."[12] As discussed below, the Schlesinger Report confirms that the 2009 Shell and Atmos Contracts conform to and satisfy the delivery requirements for biogas found in the Third and Fourth Editions of the RPS Guidebooks.[13]

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[10] Renewables Portfolio Standard Eligibility Guidebook, Seventh Edition. California Energy Commission, Efficiency and Renewable Energy Division. Publication Number: CEC-300-2013-005-ED7-CMF. p.12, n.16.
[11] The Schlesinger Report, p.1; see short bios of Benjamin Schlesinger, Ph.D. and John Neri, Ph.D. p.iii.
[12] The Schlesinger Report, p.1.
[13] The Schlesinger Report, pp.3, 19-21.

B. The Schlesinger Report Is Informative on How the US Gas Pipeline Industry Operates and Assesses the Delivery Conditions for Biogas in the Third and Fourth Editions RPS Guidebook

The Schlesinger Report explains that "every U.S. gas pipeline is physically interconnected with (i.e., is literally bolted to) every pipeline that delivers gas into California."[14] It further explains that there is a physical contract path for the flow of the landfill gas, from these sources, into California, and that "once Department's biogas enters a gas pipeline, it is transported to California the same way any other gas supply is transported to California under U.S. gas pipeline practices and standards that comport with the [Federal Energy Regulatory Commission's] FERC's regulatory market design."[15]

Furthermore, the Schlesinger Report is in accord with the footnote 16 clarification provided in the Seventh Edition RPS Guidebook about the Third and Fourth Editions to the RPS Guidebook.[16] The Schlesinger Report explains that the added condition in the Fourth Edition "underscores the consistency of the Commission's RPS Guidelines with standard U.S. gas pipeline operations" because there are "no limitations as to the operation of the gas pipeline network in delivering biogas to California, since delivery under contract may take place 'with or against the physical flow of gas in the pipeline.'"[17]

Moreover, in a section entitled "The Department's Biogas Contract's Compliance with Pipeline Grid Practices and Regulatory Standards," the Schlesinger Report goes through the analysis to show how the pipeline system is interconnected with California.[18] It further provides an example of the "segments in the physical contract path from the KC Landfill-to-Gas Energy Project," which ends up with delivery to California using LADWP's "firm capacity contract" on the Kern River Pipeline.[19] Therefore, not only do the identified landfill sources and pipeline interconnections satisfy the Third Edition RPS Guidebook, but they also satisfy the Fourth Edition RPS Guidebook.[20]

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[14] The Schlesinger Report, p. 16.
[15] The Schlesinger Report, p. 13.
[16] Footnote 16 on page 12 of the RPS Eligibility Guidebook, 7th Edition, states that "[t]he eligibility requirements for the third and fourth editions of the RPS Eligibility Guidebook are largely the same with some additions to the fourth edition of the guidebook that were largely introduced as clarifications to the third edition guidebook."
[17] The Schlesinger Report, pp. 16-17.
[18] The Schlesinger Report, pp. 12-15.
[19] The Schlesinger Report, pp. 12-15.
[20] The Schlesinger Report, pp.19-20.

C. The Jones Letter of Interpretation Dated September 22, 2009

In the CEC Ineligibility Letter, the CEC staff claims "[a]t least one of LADWP's biomethane suppliers, Cambrian Energy Management, was aware as early as 2009 that exchange was not an acceptable delivery method for RPS eligibility." [21] This position was supposedly sent in a letter from "Melissa Jones to Evan Williams" (Jones Interpretation) dated September 22, 2009, (a date after the execution of LADWP's 2009 Shell and Atmos Contracts). The Jones Interpretation is "surprising because it runs counter to the plain language of the Third Edition" RPS Guidebook.[22] If a pipeline is "interconnected to a natural gas pipeline system in the WECC region" it is interconnected to a pipeline that delivers gas into California.[23]

The Fourth Edition to the RPS Guideline, adopted about 15 months after the Jones Interpretation, supports the "CEC's acknowledgment of how the pipeline system operates to deliver biogas to California." It expressly stated that delivery could be "with or against the physical flow of the gas in the pipeline." [24] If the Jones Interpretation were to apply it "would have required that transportation function in a way that cannot coexist with regulatory standards for pipeline operations" and a way that is inconsistent with how pipeline systems and their shippers operate under Federal and California regulations.[25]

An interpretation to prevent a system designed to function in accordance with FERC standards for the U.S. gas pipeline industry would be an interpretation counter to the basic operation of interstate commerce.[26] Furthermore, such alternative interpretations to the "pipeline grid are extreme in their expense, unnecessary and accomplish nothing in return."[27] Thus, this cannot be the intended interpretation for the Third or Fourth RPS Guidebook.

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[21] Letter from Suzanne Korosec to Oscar A. Alvarez regarding **Amended Applications for Renewables Portfolio Standard (RPS) Certification for the Scattergood, Harbor, Valley and Haynes Generating Stations, RPS ID 61596A-61599A**, dated February 28, 2014.
[22] The Schlesinger Report, p.18.
[23] The Schlesinger Report, p.18.
[24] The Schlesinger Report, p.18.
[25] The Schlesinger Report, p.19.
[26] The Schlesinger Report, pp.20-21.
[27] The Schlesinger Report, p.20.

D. PUC Section 399.12.6 May Apply the Third or Fourth Editions; However, The Delivery Requirements Provide the Same Result for Affirmatively Certifying the 2009 Shell and Atmos Contracts

Taking a look at PUC Section 399.12.6, which became effective on January 1, 2013, subsection (a) (1) suggests that either the Third or Fourth Editions of the RPS Guidebook could apply.

PUC Section 399.12.6 (a) (1) provides:

Any procurement of biomethane delivered through a common carrier pipeline under a contract executed by a retail seller or local publicly owned electric utility and reported to the Energy Commission prior to March 29, 2012, and otherwise eligible under the rules in place as of the date of contract execution shall count toward the procurement requirements established in this article, under the rules in place at the time the contract was executed, including the Fourth Edition of the Energy Commission's Renewables Portfolio Standard Eligibility Guidebook, provided that those rules shall apply only to sources that are producing biomethane and injecting it into a common carrier pipeline on or before April 1, 2014.

LADWP's 2009 contracts it executed with Shell and Atmos were prior to March 29, 2012, and prior to December 15, 2010, when the Fourth Edition was adopted. The phrase "otherwise eligible under the rules in place as of the date of contract execution," in conjunction with the date of contract execution for the 2009 Shell and Atmos Contracts means the CEC's Third Edition RPS Guidebook applies. The subsequent phrase "under the rules in place at the time the contract was executed, including the Fourth Edition of the Energy Commission's Renewables Portfolio Standard Eligibility Guidebook," conflicts with the prior phrase for applicability of the Third RPS Guidebook depending on when a contract may have been executed. However, under applying either the Third or the Fourth Edition of the RPS Guidebook, the CEC could certify the use of the biomethane under the 2009 Shell and Atmos Contracts by applying either the Third or the Fourth Edition of the RPS Guidebook.

The Schlesinger Report supports this interpretation since "all flowing gas on pipelines is either front-haul or back-haul, . . . [c]onsequently, the Third and Fourth Edition guidelines permitted biogas to flow to California power plants along the U.S. pipeline network in a way that is consistent with operations that are FERC-authorized (and CPUC-authorized, for in-state gas pipelines)."[28] Hence, the CEC could and should certify the In-Basin Power Plants using the fuel source from the 2009 Shell and Atmos Contracts.

[28] The Schlesinger Report, p. 17.

IV. The Transition from the Voluntary Program to the Mandatory Program under SBX1-2 requires the Grandfathering of LADWP's RPS Resources, including its Biogas Contracts Entered Into with Shell and Atmos in 2009

A. The Legislature Intended the CEC to Certify a POU's Resources, which it approved to Satisfy its RPS, this Includes LADWP's In-Basin Power Plants Using Biomethane from the 2009 Shell and Atmos Contracts

The legislative transition from the voluntary renewables program for POUs for renewables under PUC Section 387 to the mandatory program in SBX1-2 is critical to understand. The Legislature recognized and facilitated this transition in SBX1-2 under its grandfathering provision found in PUC Section 399.12(e) (1) (C). This provision requires the CEC to certify POU's resources that it used to satisfy its voluntary Renewables Portfolio Standard ("RPS") program pursuant to PUC Section 387.

In 2002, California Senate Bill 1078 (SB 1078) added Sections 387, 390.1, 399.25, and Article 16 (commencing with Section 399.11) to Chapter 2.3 of Part I of Division 1 of the PUC, establishing a 20% Renewable Portfolio Standard (RPS) for California investor-owned electric utilities (IOUs). Public Utilities Code Section 387, as enacted within SB 1078, provided the voluntary nature of the law for POUs. Then "current law exempt[ed] local publicly owned utilities from the state RPS program."[29]

The expressed legislative intent was that each "governing board of a local publicly owned electric utility would be responsible for implementing and enforcing a renewables portfolio standard" that recognized the goals of the Legislature, which encouraged renewable energy resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources.[30] The City of Los Angeles took that responsibility seriously. In the ensuing years, the City of Los Angeles adopted RPS Policies to encourage the development of renewable energy resources.

On June 29, 2004, the Los Angeles City Council (City Council) passed Resolution 03-2064-S1 requesting that the Board of Water and Power Commissioners ("LADWP Board") adopt a Renewables Portfolio Standard Policy ("RPS Policy"). It set a goal to achieve 20 percent renewable energy by 2017. On May 23, 2005, the LADWP Board added an interim goal of 13 percent renewable energy by 2010. On June 29, 2005, the City Council approved the LADWP RPS Policy.

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[29] See Senate Energy, Utilities and Communications Committee Description in the Bill Analysis for SBX1-2, February 15, 2011.

[30] Id; and see Legislative Counsel's Digest to SB 1078, subsection (3).

On April 11, 2007, the LADWP Board amended the RPS Policy by accelerating the goal of requiring that 20 percent of energy sales to retail customers be generated from renewable resources by December 31, 2010. In May of 2008, the LADWP Board approved the "City of Los Angeles Department of Water and Power Renewables Portfolio Standard Policy" ("2008 RPS Policy"), which included an additional RPS goal of requiring that 35 percent of energy sales to retail customers be generated from renewable resources by December 31, 2020.

This 2008 RPS Policy included, as an eligible renewable energy resource, "the use of biogas injected into natural gas pipelines."[31] This addition was intended to include the use of biogas delivered to LADWP's electric generating units at Haynes, Harbor, Valley and Scattergood.

When the California Senate was considering SBX1-2, it identified the existing "grandfathered" renewable resources by stating, "[t]his bill [SBX1-2] grandfathers all contracts consummated by an IOU, ESP, or POU prior to June 1, 2010."[32] The Legislature knew that POUs were given "flexibility in developing utility-specific targets, timelines, and resource eligibility rules" per PUC Section 387 as part of SB 1078.[33] This is one of the reasons why grandfathering language was included in SBX1-2.

B. The Rules In Place for certification with CEC under PUC Section 399.12 and PRC Section 25741, Provide for certification of the In-Basin Power Plants Using Biomethane from the 2009 Shell and Atmos Contracts

Not only does the grandfathering provision in PUC Section 399.12(e)(1)(C) recognize the rules in place at the time LADWP executed its 2009 contracts with Shell and Atmos, but so does the grandfathering provision of recently enacted PUC Section 399.12.6(a)(1). With the enactment of AB 2196, the Legislature expressly recognized "the rules in place" at the time of the contract execution.[34] The "rules in place" in 2009 were the voluntary RPS for POUs as recognized by PUC Section 387, and expressly by PRC Section 25741.

In 2009, PRC Section 25741(b) (1) provided for the use of landfill gas as an allowable resource for the generation of electricity. Moreover, in assessing the qualifications of a

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[31] See LADWP Board letter and Resolution, certified as adopted by the Board Secretary, May 20, 2008; ¶5, attached to this Petition. The inclusion of the additional RPS eligible technologies in this policy was initiated when the CEC issued its Third Edition RPS Eligibility Guidebook.

[32] Senate Energy, Utilities and Communications Committee, Background in the Bill Analysis for SBX1-2, February 15, 2011 (emphasis added).

[33] Senate Energy, Utilities and Communications Committee, Background in the Bill Analysis for SBX1-2, February 15, 2011.

[34] PUC Section 399.12.6(a) (1).

facility's eligibility for certification, this same statute specifically recognized a POU's RPS under PUC Section 387 by stating:

> The facility has been part of the existing baseline of eligible renewable energy resources of a retail seller established pursuant to paragraph (2) of subdivision (b) of Section 399.15 of the Public Utilities Code <u>or has been part of the existing baseline of eligible renewable energy resources of a local publicly owned electric utility established pursuant to Section 387 of the Public Utilities Code</u>.[35]

In 2008, Assembly Bill 3048 was the last major overhaul of the California Renewables Portfolio Standard before SBX1-2 was enacted. The other provisions of this Assembly Bill added, modified, or repealed approximately 32 various provisions including PUC Sections 399.12 and PRC Section 25741. This Assembly Bill expressly stated that the Legislature was still respecting and including the voluntary program for POUs found in of PUC Section 387.[36] Moreover, the definitions of "procure" and "[r]enewables portfolio standard" in the 2009 PUC Section 399.12 refers to the RPS that a POU implemented pursuant to the voluntary program of PUC Section 387.[37] Hence, the rules in place at the time the 2009 Shell and Atmos Contracts were executed were PUC Sections 387, 399.12, and PRC Section 25741, which expressly recognized and respected the voluntary RPS program of POUs under PUC Section 387.

C. The Grandfathering Provision of SBX1-2, found in PUC Section 399.12 interacting with PRC Section 25741, Demands a Commonsense Interpretation to Certify Resources that were part of LADWP'S RPS

Within the definitional framework of PRC Section 25741 and PUC 399.12, PRC Section 25741 defines a "[r]enewable electrical generation facility" to include a list of technologies, including landfill gas, while PUC Section 399.12 defines what an "[e]ligible renewable energy resource" means. In trying to understand how the two statutes interact, PUC Section 399.12(e) states that a "renewable electrical generation facility" in PRC Section 25741 is "<u>subject to</u>" PUC Section 399.12(e) (1). Category (A) addresses hydroelectric generation; category (B) addresses conduit hydroelectric generation; and category (C) addresses the grandfathering provision, which is the focus here.

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[35] Circa 2009 PRC Section 25741(b) (2) (B) (ii), as found in Assembly Bill 3048, which became effective January 1, 2009.

[36] Stats 2008 Chapter 558 (Assembly Bill 3048), which became effective on January 1, 2009.

[37] Stats 2008 Chapter 558 (Assembly Bill 3048), which became effective on January 1, 2009, PUC Section 399.12 subsections (d) and (e).

PUC Section 399.12(e) (1) (C) reads as follows:

> *(e) "'Eligible renewable energy resource' means an electrical generating facility that meets the definition of a 'renewable electrical generation facility' in Section 25741 of the Public Resources Code, subject to the following:*
>
> > *(1) (C) A facility approved by the governing board of a local publicly owned electric utility prior to June 1, 2010, for procurement to satisfy renewable energy procurement obligations adopted pursuant to former Section 387, shall be certified as an eligible renewable energy resource by the Energy Commission pursuant to this article, if the facility is a "renewable electrical generation facility" as defined in Section 25741 of the Public Resources Code."*

What is confusing is the last phrase in PUC Section 399.12(e) (1) (C), which states "'*if the facility is a "renewable electrical generation facility' as defined in Section 25741 of the Public Resources Code.*" This added phrase appears to loop the definition back to PRC Section 25741, which is then subject to PUC Section 399.12(e)(1)(C). This could mean several possibilities.

One possibility is that the Legislature reserved to itself the ability to change the grandfathering provision at will by continuously changing PRC Section 25741 regardless of what POUs had accomplished prior to June 1, 2010, under the voluntary program. This interpretation could render the grandfathering provision meaningless because the Legislature could add new limitations that retroactively change the eligibility of resources approved by POUs.

A second possibility is that the CEC would certify facilities if the facilities used the types of renewable technologies included in PRC Section 25741 prior to June 1, 2010. This interpretation would focus on grandfathering technologies; however, it does not necessarily remove the circular reasoning looped by the last phrase "*as defined in Section 25741 of the Public Resources Code.*"

A third possibility would be to render the provision meaningless, which in the context of the prior controlling phrases in PUC Section 399.12(e)(1)(C), would then read "[a] *facility approved by the governing board of a local publicly owned electric utility prior to June 1, 2010, for procurement to satisfy renewable energy procurement obligations adopted pursuant to former Section 387, shall be certified as an eligible renewable energy resource by the Energy Commission pursuant to this article.*" This could mean that the CEC would be obligated to certify a facility as long as it was approved by a POU prior to June 1, 2010, to satisfy its RPS. This supports the Legislative intent for the grandfathering provision

without the complicating tautological phrase "as defined in Section 25741." Also, it ends the Catch 22 cycle at a logical and intended conclusion.

The Legislature intended SBX1-2 to apply to POUs and to have their resources deem certified by the CEC. POUs were under the voluntary program set forth in PUC Section 387, which was effective January 1, 2003, over eight years before SBX1-2 became effective on December 10, 2011. There was a substantial amount of public outreach and effort for LADWP to develop its RPS Policy, as amended over the years, to identify and procure additional renewable energy resources while minimizing impacts to its ratepayers. LADWP successfully met the goals it established under its voluntary program by achieving a 20% RPS in 2010.

Here, the use of landfill gas and digester gas (collectively "biogas"), was included in LADWP's 2008 RPS Policy. This meets the statutory framework found in SBX1-2 and its Legislative intent. In 2009, LADWP executed biogas supply contracts with Shell and Atmos for LADWP's generating units at Harbor, Haynes, Scattergood, and Valley. These contracts also met the statutory framework as "the rules in place" at that time under PRC Section 25741 and PUC Section 387. In addition, as provided above, the 2009 Shell and Atmos Contracts satisfy the Third and Fourth Editions of the RPS Guidebook. Therefore, under the grandfathering provisions of SBX1-2, and under the "rules in place" at that time, the CEC should certify its In-Basin Power Plants using the biogas from the 2009 Shell and Atmos Contracts.

V. The Energy Commission Staff's Decision Harms LADWP's RPS Compliance, Ratepayers via a Financial Cost of almost $78 Million and with Additional Potential Penalties

A. The Energy Commission Staff's Delayed Action to Respond to the Certification Application Prevented LADWP from Purchasing Renewable Energy Credits During the First Compliance Period

Under SBX1-2, LADWP was required to meet a 20 percent target of its RPS during the first compliance period, which ended on December 31, 2013. Under CEC's guidance of implementing AB2196, LADWP submitted the application for certification for the 2009 Shell and Atmos Contracts in July 2013. During the moratorium imposed on biomethane, LADWP was unable to seek certification until after the Seventh Edition of the RPS Guidebook was adopted. The letter dated February 28, 2014, from the Energy Commission staff with its determination along with the moratorium imposed on biomethane severely impacted LADWP's ability to assess its RPS status with the use of biomethane for over 1.5 years and after the end of the first compliance period. The CEC's regulations, however, prohibit LADWP from purchasing any renewable energy credits now to comply

with targets for the first compliance period. Section 3202 (d) of the CEC's regulations states:

> (d) A POU may not use a REC to meet its RPS procurement requirements for a compliance period that precedes the date of generation of the electricity associated with that REC. For example, a POU may not retire a REC associate with electricity in April 2014 to meet its RPS procurement requirements for the 2011-2013 compliance period.[38]

The timing of the response from the Energy Commission's staff makes it impossible for LADWP to purchase renewable energy credits to make-up the difference for the generation lost during the first compliance period, if the CEC does not certify the facilities with the use of the biomethane from the 2009 Shell and Atmos Contracts.

In addition, SBX1-2 required the CEC to have adopted its regulations before July 1, 2011.[39] However, the regulations were not effective until October 1, 2013, more than two years late and only two months before the end of the first compliance period. These delayed actions along with the Energy Commission staff's interpretations that seek ways to exclude rather than include grandfathered resources severely prejudices LADWP. The decisions appear to be arbitrary and capricious, impacting LADWP's interests in its resources approved in its RPS Policy pursuant to PUC Section 387.

B. Financial Impact to LADWP of almost $78 Million and with Additional to be Determined Penalties

The In-Basin Power Plants have been generating electricity with the additional biomethane fuel source since the 2009 Shell and Atmos Contracts were effective. LADWP has included the electricity generated from the biomethane contracts as part of its RPS, including the first compliance period under SBX1-2. Denying the certification for the facilities using biomethane from the 2009 Shell and Atmos Contracts will shortfall LADWP's RPS compliance by nearly 3%. This calculates to almost $78 million over the first compliance period, assuming a Renewable Energy Credit (REC) loss at $40 per REC for Portfolio Content Category 1 energy. This cost impact to LADWP is also compounded by potential enforcement actions by the CEC and penalties imposed by the California Air Resources Board for not meeting the targets established under SBX1-2.[40]

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[38] Enforcement Procedures For the Renewables Portfolio Standard for Local Publicly Owned Electric Utilities. California Energy Commission. Publication Number CEC-300-2013-002-CMF. Effective October 1, 2013.
[39] PUC Section 399.30 (l).
[40] PUC Section 399.30 subsections (c), (l), and (m). The dollar cost of potential penalties is unknown since the CPUC has not yet decided its penalty structure under SBX1-2 and the ARB is supposed to have penalties "comparable to those adopted by the commission [CPUC] for noncompliance by retail sellers." PUC Section 399.30(m).

As stated above, an interpretation to prevent a system designed to function in accordance with FERC standards for the U.S. gas pipeline industry would be an interpretation counter to the basic operation of interstate commerce. Thus, this cannot be the intended interpretation for the Third or Fourth RPS Guidebook.

Moreover, under SBX1-2, POUs and IOUs are to be similarly situated. Both are to generate electricity from renewable energy resources, and both are to meet the same RPS targets. However, POUs renewable energy resources that existed prior to SBX1-2, which should be grandfathered resources under the law, are now being treated differently from Investor-owned utilities. It is a discriminatory practice that severely impacts LADWP. It needs to end. The Energy Commission staff needs to treat LADWP fairly under the law.

VI. Legislative Policy Goals in PUC Section 399.11 are Satisfied With the use of Landfill Gas at LADWP's In-Basin Power Plants

The Legislature's goals for the RPS Program are identified in PUC Section 399.11. This section provides that:

> (b) Achieving the renewables portfolio standard through the procurement of various electricity products from eligible renewable energy resources is intended to provide unique benefits to California, including all of the following, <u>each of which independently justifies the program</u>:
>
> (1) Displacing fossil fuel consumption within the state.
>
> (2) Adding new electrical generating facilities in the transmission network within the WECC service area.
>
> (3) Reducing air pollution in the state.
>
> (4) Meeting the state's climate change goals by reducing emissions of greenhouse gases associated with electrical generation.
>
> (5) Promoting stable retail rates for electric service.
>
> (6) Meeting the state's need for a diversified and balanced energy generation portfolio.
>
> (7) Assistance with meeting the state's resource adequacy requirements.

(8) Contributing to the safe and reliable operation of the electrical grid, including providing predictable electrical supply, voltage support, lower line losses, and congestion relief.

(9) Implementing the state's transmission and land use planning activities related to development of eligible renewable energy resources.[41]

The Legislature specifically stated that each of the identified goals "independently justifies the program." These Legislative policy goals are realized by reducing emissions of greenhouse gases, which are negatively impacting climate change.[42] Biomethane is also "ideal for electricity generation," because it can be readily treated to meet natural gas pipeline standards, easily transported on existing gas pipelines, and burned for generation with lower emissions than other fuels, all of which contribute to providing a fuel source with a predictable electric supply.[43]

[41] Public Utilities Code Section 399.11 (emphasis added)
[42] The Schlesinger Report, Section entitled "Biogas from Sanitary Landfills – What is it and What is the Best Use for it?" pp. 5-8
[43] The Schlesinger Report, Section entitled "Biogas from Sanitary Landfills – What is it and What is the Best Use for it?" pp. 5-8.

VII. Conclusion

When LADWP executed the 2009 Shell and Atmos Contracts, the biomethane provided thereunder satisfied LADWP's RPS then existing under California's voluntary RPS program. As supported by the Schlesinger Report, these contracts met the delivery requirements under the then adopted Third Edition of the CEC's RPS Guidebooks and the Fourth Edition RPS Guidebook. Moreover, the facilities using the biomethane under the 2009 Shell and Atmos Contracts should be certified under the grandfathering provisions of SBX1-2, meeting the intent and letter of the California Renewable Energy Resources Act. While the benefits to California with the use of biomethane are unique and satisfy the Legislature's goals with a renewable energy resource, the cost impact for not certifying the facilities with this fuel source would be dramatic and counterproductive to the Legislature's expressed intent and goals it entrusted to the CEC administration. The CEC should certify the use of the biomethane from the 2009 Shell and Atmos Contracts for LADWP's In-Basin Power Plants.

Sincerely,

John R. Dennis
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VERIFICATION

I, John R. Dennis, am the Interim Director of the Power System Planning and Development Division at the Los Angeles Department of Water and Power (LADWP). I have been working as an engineer and manager at LADWP since 1982. I received my Bachelor of Science in Mechanical Engineering from California State University, Northridge and I am a California licensed Professional Mechanical Engineer.

I declare the following:

1. I am authorized to make this verification on behalf of LADWP.
2. I am familiar with the applications LADWP submitted to the California Energy Commission for certification of its facilities using biogas from the 2009 Shell and Atmos Contracts.
3. The factual matters provided by LADWP engineers within LADWP's petition for reconsideration are true and accurate to the best of my knowledge and belief.
4. Attached to the petition for reconsideration is a true and correct copy of the approval by the LADWP Board, which is seen from a document entitled "LADWP Board Approval Letter," which includes a resolution certified by the LADWP Board secretary and a copy of the LADWP 2008 RPS Policy.

I declare under penalty and perjury under the laws of the State of California that the foregoing is true and correct.

Executed on this 28th day of March 2014 at Los Angeles, California.

By: _____

John R. Dennis, Interim Director of the Power System Planning and Development Division, Los Angeles Department of Water and Power

CEC'S RPS COMPLIANCE GUIDELINES FOR BIOGAS AND THE U.S. PIPELINE NETWORK: SPECIAL REPORT TO THE LOS ANGELES DEPARTMENT OF WATER AND POWER

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BENJAMIN SCHLESINGER AND ASSOCIATES, LLC

MARCH 26, 2014

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CEC'S RPS COMPLIANCE GUIDELINES FOR BIOGAS AND THE U.S. GAS PIPELINE NETWORK:

SPECIAL REPORT TO THE LOS ANGELES DEPARTMENT OF WATER AND POWER

By
Benjamin Schlesinger and Associates, LLC
Bethesda, MD

Introduction

Biogas from landfills – sometimes also called biomethane or landfill gas (LFG) – is a renewable resource whose supply does not run out as long as communities dispose of their solid wastes in sanitary landfills on a continuing basis. The Los Angeles Department of Water and Power uses biogas to generate electricity in several of its electricity generating plants in order to help meet its goals under California's renewable portfolio standards (RPS). The Department buys biogas under commercial contracts, much like they and other utilities purchase natural gas, and biogas is delivered to its power plants via the same pipeline network that also delivers natural gas around the State and the nation.

The Department asked Benjamin Schlesinger and Associates, LLC (herein, "BSA" or "Schlesinger"), a consulting firm specializing in the energy and pipeline industries, and in economic analysis of natural gas transportation, to prepare a report that describes and analyzes the Department's biogas contracts and the CEC's RPS eligibility guidelines. The overall goal of the BSA report is to determine the extent to which the Shell and Atmos contracts, and the CEC's guidelines, conform with one another and with national policies and regulatory standards governing the way natural gas pipeline capacity is utilized, and gas supplies are transported, within the U.S. on the nation's pipeline grid.

BSA is uniquely qualified to carry out this assignment because of its four decades of experience as gas industry analyses and economics, with focus on pipelines, utilities, fuel for power generators, landfill gas projects and other aspects. For example, BSA advised the NYMEX in developing its natural gas futures contract, advised lenders and developers of more than 100 power plants – including the Department's power plants, and others in California – on fuel supply planning and risks. BSA also served as consultants to CEC to help develop information about gas pipeline operations, costs and capacities to help improve CEC's North American regional gas economic forecasting model.

Further information about BSA's qualifications, representative clients and key personnel may be found at www.BSAenergy.com.

Executive Summary of Major Conclusions

BSA's report addresses the following issues, and its major conclusions and implications are as follows:

- **What is biogas from landfills, how is it produced, and how and why does its production relate to greenhouse gas emissions? What happens to landfill gas if it is not produced and consumed?**

Biogas from landfills is a renewable resource that can be transported on the nation's gas pipeline network. Since biogas consists largely of methane, its capture prevents emissions of methane, a powerful greenhouse gas; capturing biogas also reduces air emissions and removes public dangers and nuisance in and around landfills. Recycling and composting programs have succeeded in stabilizing the growth in municipal solid waste that is actually landfilled in the U.S., although enough biogas is, or can be produced to power approximately 1 GW of electricity generation capacity.[1] California's prodigious demand for renewable fuels, resulting from its nationally leading RPS goals, serves as a catalyst for recovery of biogas from the approximately 450 U.S. landfills that still do not now recover biogas.

- **In general, how does the US pipeline network function both contractually and economically? What arrangements are necessary to deliver transport gas from pipeline receipt points within and outside California to in-state delivery points for at RPS certified power plants? How are gas deliveries commonly performed?**

North American gas pipelines function as an interconnected grid, under "open access" rules promulgated by the Federal Energy Regulatory Commission (FERC). As it has evolved over three decades, the nation's policy regarding gas pipelines is aimed at encouraging fair market trading of gas and efficient use of pipeline capacity, rather than forcing gas along one or another prescribed path. Consequently, concepts of "upstream" and "downstream" have less meaning than in the past; they might relate to actual gas supply flow paths in one month or on one day, but then not so in the next month or day. Instead, pipeline gas supplies flow in a way that takes advantage of multiple arbitrage opportunities, i.e., gas commerce in pipeline markets rebalances prices. The result is that gas travels from lower priced hubs to higher-priced hubs thus ensuring the system operates in the most efficient and economical way possible.

- **Under LADWP's biogas contracts that are currently in effect, where is the landfill biogas sourced, what pipeline system(s) initially receives it, and which pipeline(s) transport that gas to the Department's RPS certified electricity generating plants in California, either with or against the physical flow of the gas in the pipeline? Did LADWP's biogas contracts with Shell and Atmos, executed in**

[1] Based on information from the EPA and EIA, assuming 1,020 landfills produce enough electricity to power 500,000 homes (http://www.epa.gov/lmop/faq/lfg.html), and average electricity demand of 903 kwh per month per home, with 50% load factor.

2009, conform to the delivery standards for the US pipeline gas industry and its network in 2009?

Under the Department's biogas contracts with Shell and Atmos, flows of biogas move along the physical contract path in a way that is consistent with Federal regulatory policy. Flows along the physical contract path may from time to time include front-haul or backhaul, as needed to optimize pipeline system operations and minimize the cost of transportation. Pipeline quality and heat content standards require that biogas injected into pipelines be identical to, and interchangeable with natural gas in all respects. Consequently, Shell and Atmos are delivering biogas to the Department at the Kern River Pipeline and other natural gas pipeline systems in the WECC region that deliver gas into California in a way that complies with Federal regulatory policy and operates exactly as those regulations intend, as outlined in this report and in Appendix A.

- **In general, are CEC's RPS guidelines and required attestations with respect to the producing location of biogas, and its transportation and delivery, consistent with approved pipeline tariffs and actual practices at the Federal level and within California?**

Yes. The CEC could not have stated more clearly in its RPS eligibility guidelines that were in effect at the time the Atmos and Shell contracts were executed that biogas deliveries could be made to California power plants via the U.S. gas pipeline network according to the standards under which that network operates under FERC rules – namely, market-based flows enabling efficient operations along lines described in the preceding section of this report, as amplified in Appendix A.

- **Did LADWP's biogas contracts with Shell and Atmos, executed in 2009, conform to and satisfy the delivery requirements for biogas found in the Third Edition of the CEC's RPS eligibility guidelines? The Fourth Edition?**

The answer is yes to both. For reasons described above, the LADWP's biogas contracts with Shell and Atmos both conform to and satisfy the delivery requirements for biogas found in the CEC's Third Edition and Fourth Edition of its RPS eligibility guidelines, issued in January 2008 and January 2011, respectively.

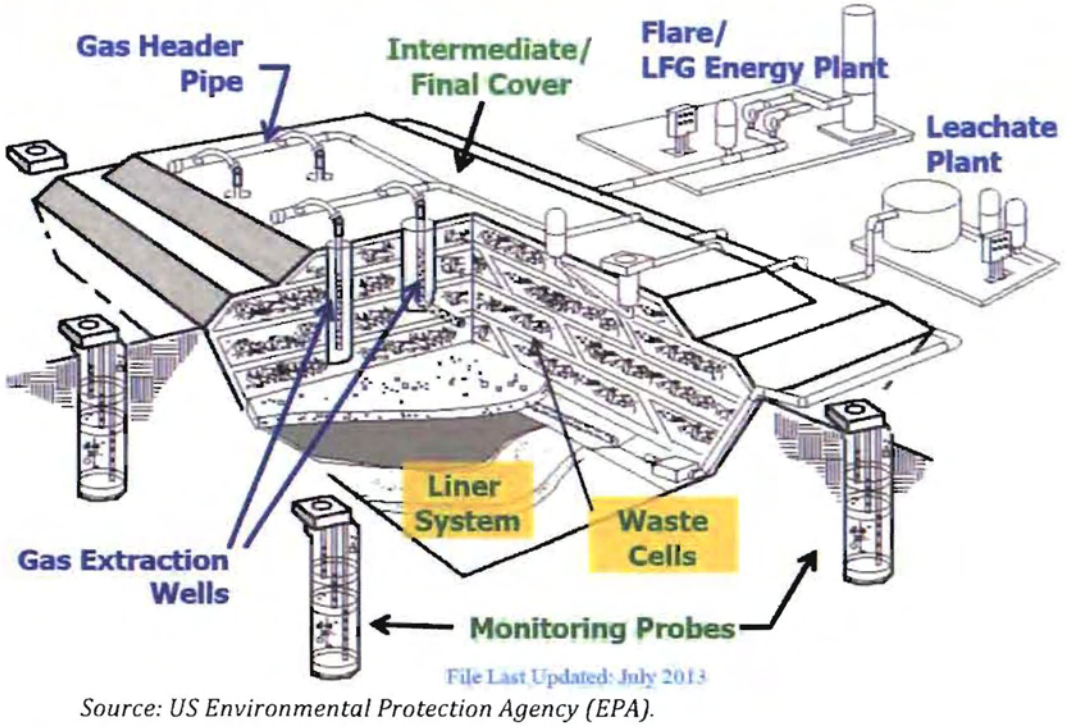
The language in both editions, as it refers to eligible pipeline deliveries, clearly allows delivery of biogas in a way that is consistent with regulatory standards at the Federal and California levels. Any arbitrary requirement to move gas on pipelines in some prescribed fashion would forbid altogether the use of the U.S. gas pipeline grid to transport biogas to the Department's power plants. To prevent use of the grid in this way would remove California's biogas demand from the nation's potential landfill gas supplies because the alternatives to the pipeline grid would be extreme in their expense, unnecessary and accomplish nothing in return, e.g., private pipelines or small-scale LNG. As indicated above, gas and biogas move on the pipeline grid under regulatory standards that ensure the most efficient and economical operations.

In summary, placing special requirements on the way the nation's gas pipeline grid delivers biogas – which is identical to natural gas once received by a pipeline – could not be guaranteed, and would frustrate RPS goals by increasing GHG emissions in several ways – by forcing added flaring at landfills because national markets for biogas could not be accessed by California buyers, or by requiring less efficient biogas transportation options such as very small-scale LNG. Ending any possible RPS compliance for biogas because the CEC cannot control the way pipelines operate would effectively retard interstate commerce by leaving only options available that would frustrate or circumvent FERC and CPUC gas pipeline policies and operations.

Biogas from Sanitary Landfills – What Is It and What Is the Best Use for It?

The biogas story begins with sanitary landfills.[2] After municipal solid wastes (MSW) are deposited, these sites are covered daily with earth and other material in order to protect public safety and health, and prevent odors and other nuisances. This process effectively top-seals the MSW on a regular basis, thus it minimizes MSW exposure to oxygen and thereby contributes to anaerobic decomposition. The result of anaerobic decomposition of the MSW is production in-place of raw biogas that consists mostly of carbon dioxide and methane in roughly equal measure, plus various impurities. After treatment (see Figure 1), the biogas that is delivered into pipelines (for redelivery to power plants, buildings and industries) consists primarily of methane, which is essentially the same as natural gas.[3]

Figure 1 Biogas Formation and Treatment Steps at Municipal Sanitary Landfills



Source: US Environmental Protection Agency (EPA).

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2 "In order to be designated a sanitary landfill, a disposal site must meet the following three general but basic conditions: 1) compaction of the wastes, 2) daily covering of the wastes (with soil or other material) to remove them from the influence of the outside environment, and 3) control and prevention of negative impacts on the public health and on the environment (e.g., odors, contaminated water supplies, etc.)." "Thus, all definitions of "sanitary landfill" call for the isolation of the landfilled wastes from the environment until the wastes are rendered innocuous through the biological, chemical, and physical processes of nature. " United Nations Environmental Program (UNEP), International Environmental Technology Center (IETC), *Solid Waste Management*, Vol. 1, Part III, pp. 323-324.

3 Further technical detail on biogas capture, treatment and electricity generation technologies can be found in a number of resources, e.g., U.S. Environmental Protection Agency, *LFG Energy Project Development Handbook*, International Methane to Markets (M2) Partnership: *Landfill Gas Energy Technologies*. Kracow 2010.

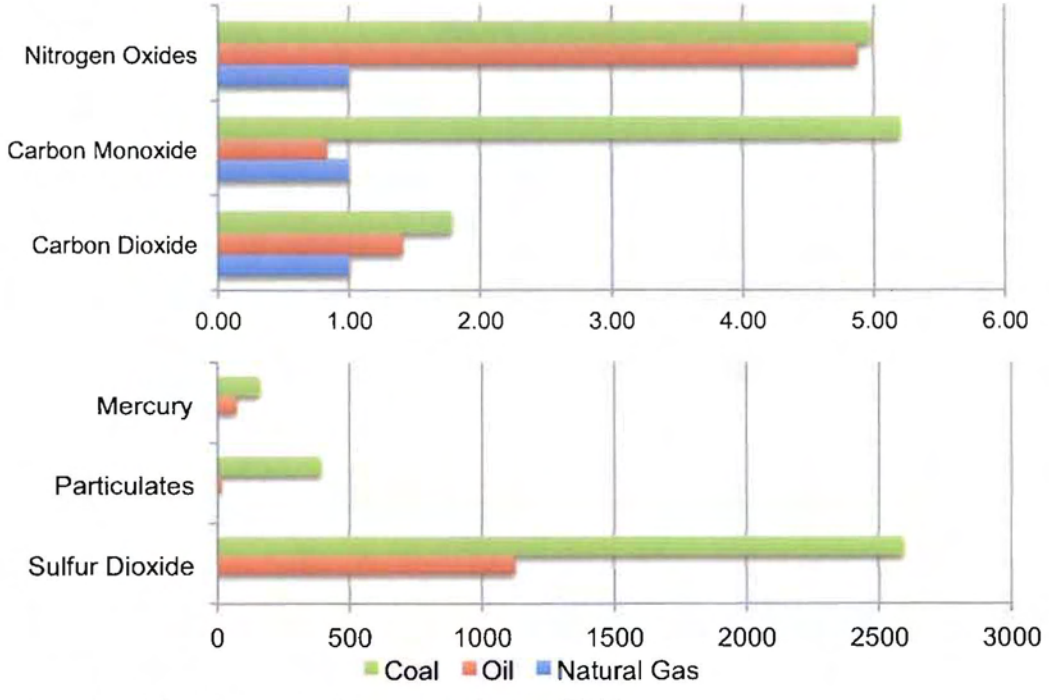
Biogas left in place in landfills and not recovered eventually works its way up to the surface, escapes through the top-sealing material, and enters the atmosphere. The problems created by atmospheric releases of biogas from landfills are numerous:[4]

- Public hazard, as the methane contained in biogas is explosive
- Nuisance and health risks to surrounding areas caused by noxious fumes and odors
- Air pollution, because unburned biogases act as photo-oxidants that form smog
- Global climate change –methane, a major component of biogas, is a powerful greenhouse gas, with global warming effects that are approximately 20 to 70 times that of carbon dioxide.

To prevent problems caused by escaping biogas, most communities with sanitary landfills require that it be captured and disposed of, typically by either one of two ways:

- Simply burning off the raw biogas (flaring)
- Treating the biogas to meet certain specifications so it may be transported along with, and intermingled with natural gas in pipelines and gas utility mains.

Figure 2 Comparison of Air Emissions from Burning Biogas versus Other Fuels (Biogas=1)



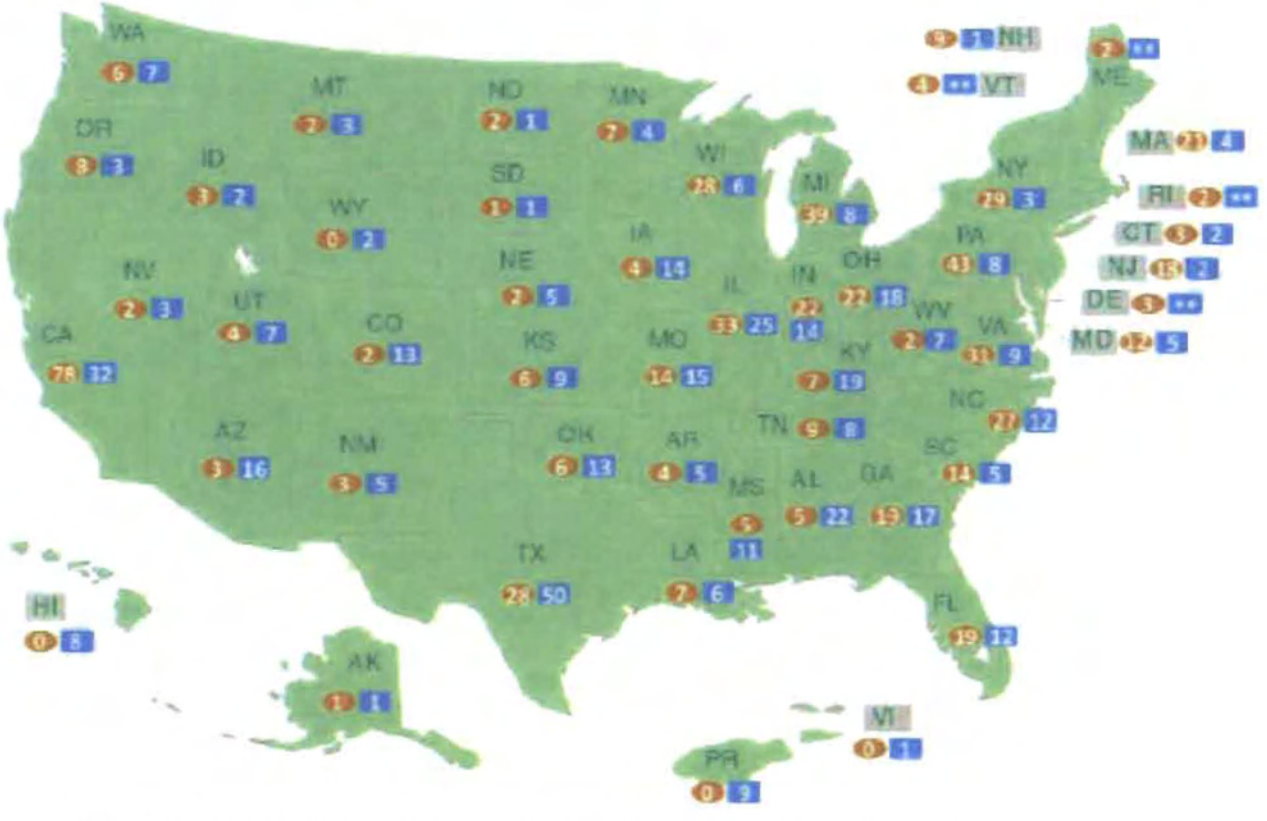
Source: US Environmental Protection Agency (EPA).

[4] See, for example, July 18, 2013 Notice of Intent issued by The Conservation Law Foundation to sue Broadrock Gas Services, LLC, Rhode Island LFG Genco, LLC, and Rhode Island Resource Recovery Corporation for violations of the Clean Air Act, which states, "Fugitive landfill gas threatens public health, disrupts the quality of life for many living near and around the Landfill, and contributes to climate change." (Page 3).

In particular, biogas is a nearly ideal fuel for electricity generation because it can be transported readily on existing gas pipelines and its air emissions when burned for electricity generation are minimal, as shown above in Figure 2.

At the present time, approximately 58% of the nation's landfills recover biogas for electricity generation or other such beneficial uses as supplemental natural gas supply, natural gas vehicles, etc. In other words, approximately 450 operating or recently closed landfills with one million tons of waste or more have no biogas recovery projects (see Figure 3).[5] There are reasons for this – only 29 of the 50 states have renewable portfolio standards (RPS), and none have goals that are as aggressive as those required in California under AB 32. In addition, low U.S. natural gas prices have reduced the incentive to recover biogas. Consequently, it is clear that California's demand for renewable resources can be a major driver for biogas recovery nationally on the U.S. gas pipeline grid (discussed further below).

Figure 3 Existing and Untapped Biogas Supply Projects, by State



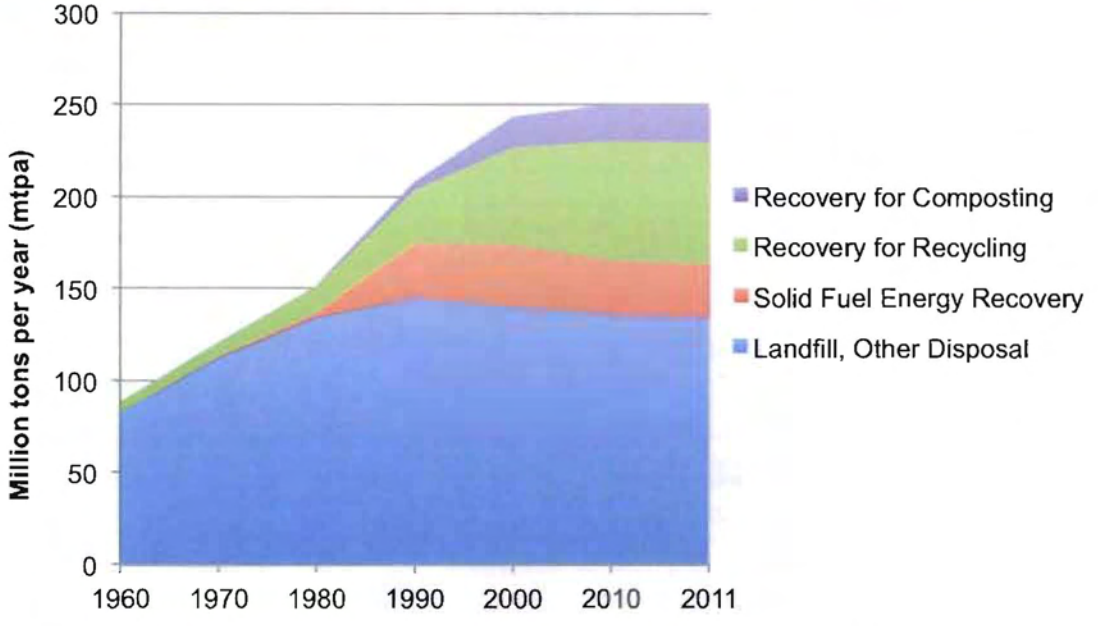
Source: U.S. EPA Landfill Gas Outreach Program, data current to June 2013.

Before leaving this section, it is worth noting that growth in MSW volumes is eventually limited by available landfill sites; therefore, as a matter of policy, MSW volumes are being curbed in the U.S. through concerted recycling and other programs. As shown in Figure 4, only about

5 An Overview of Landfill Gas Energy in the United States, U.S. Environmental Protection Agency Landfill Methane Outreach Program (LMOP), July 2013.

half the MSW produced in the U.S. (53.6% in 2011) is disposed of in landfills; the rest is recycled for use in a number of industries,[6] recovered and converted to solid fuel for electricity and steam generation, and composted.

Figure 4 Municipal Solid Waste (MSW) Generation and Recycling: 1960-2011



Source: U.S. Environmental Protection Agency, Municipal Solid Waste in the United States, 2011 Facts and Figures, Office of Solid Waste (5306P), EPA 530-R-13-001, May 2013.

After recycling and other recapture shown in Figure 4, the remaining 134 million tons per annum (mtpa) of MSW that is landfilled is sufficient to produce 1 GW of electric power, if it were all producing biogas. Not all biogas that could be produced, however, is being produced; the EPA reports that approximately 450 landfills in the U.S. do not now recover biogas.[7]

Conclusions. Biogas from landfills is a renewable resource that can be transported on the nation's gas pipeline network. Since biogas consists largely of methane, its capture prevents emissions of methane, a powerful greenhouse gas; capturing biogas also reduces air emissions and removes public dangers and nuisance in and around landfills. Recycling and composting programs have succeeded in stabilizing the growth in MSW that is actually landfilled in the U.S., although enough biogas is, or can be produced to power approximately 1 GW of electricity generation capacity.[8] California's prodigious demand for renewable fuels, resulting from its nationally leading RPS goals, serves as a catalyst for recovery of biogas from the approximately 450 U.S. landfills that do not now recover biogas.

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6 Recovery for recycling includes newsprint and other paper materials, auto batteries and tires, steel, aluminum, yard clippings, glass, and a variety of recyclable plastics.

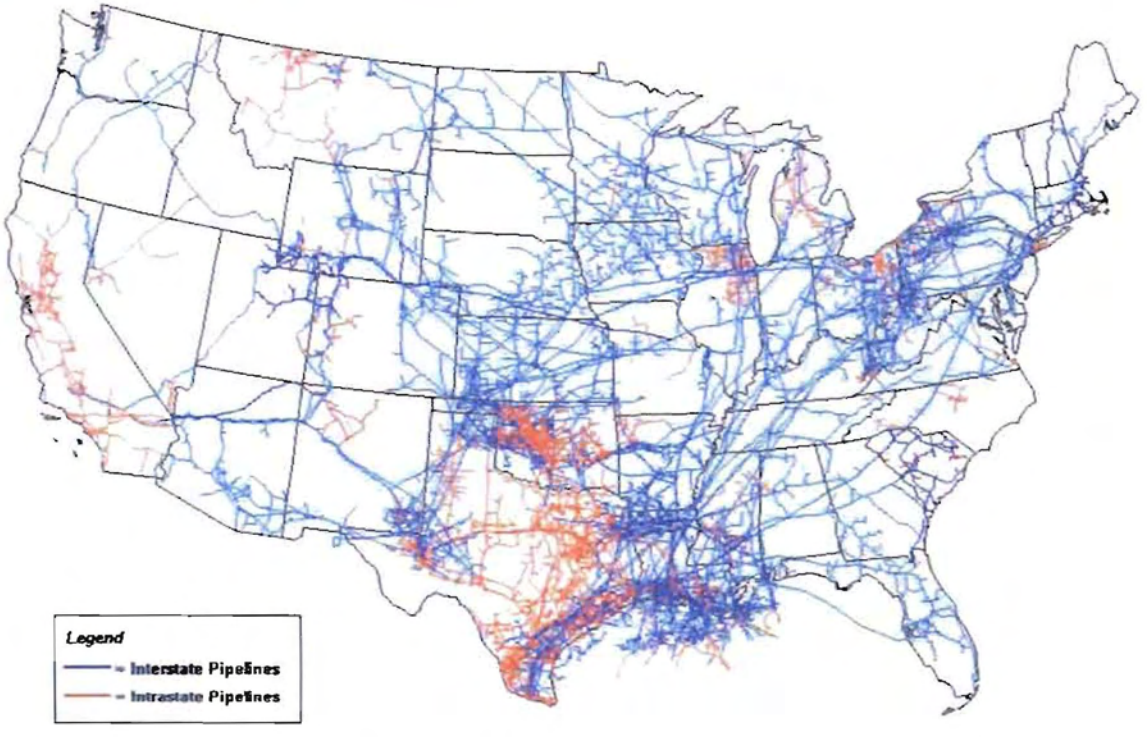
7 Ibid., EPA Overview of Landfill Gas Energy.

8 Based on information from the EPA and EIA, assuming 1,020 landfills produce enough electricity to power 500,000 homes (http://www.epa.gov/lmop/faq/lfg.html), and average electricity demand of 903 kwh per month per home, with 50% load factor.

The Gas Pipeline Network

Biogas is delivered to the Department's power generating facilities via the U.S. gas transmission pipeline network. This network is an interconnected grid consisting of more than 310,000 miles of high-pressure long-distance pipelines in the U.S. (illustrated in Figure 5), and more than two million miles of gas distribution utility lines, plus addition miles of gas-lines in Canada.

Figure 5 Natural Gas Pipeline Network



Source: EIA, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System.

The pipeline grid in North America is interconnected throughout the continent – the only exception is Alaska because its gas pipelines have no physical connection to the continental gas grid (Hawaii has no gas pipelines).[9] Consequently, every natural gas pipeline is interconnected with every other gas pipeline.

Before the 1980s, the nation's gas pipelines operated as merchants, with only limited interchanges of gas among them, thus natural gas flowed along a predictable path from contracted producers, down the pipeline, to contracted utilities. Gas or biogas produced in one consuming region could not, and did not, move to another consuming region.[10] Most gas

9 See Appendix A for further detail on the gas pipeline network and its interrelationship with gas price formation, and gas contracting and trading.

10 Except during certain gas supply emergencies.

pipeline networks outside the U.S. and Canada continue to function in this way, i.e., as individual merchant companies.

During the 1980s, following enactment of the Natural Gas Policy Act of 1978 and ensuing regulatory reforms, U.S. gas pipelines were transformed from a set of merchant companies independent of one another, to interdependent open access carriers.[11] During the 1990s and 2000s, the gas pipeline network strengthened its operations as open access carriers, and today it operates as an essentially unified grid. Gas flows along its most economical routes, following complex and always-changing paths from low price hubs to higher price points in a large number of ongoing supply auctions (discussed in more detail in Appendix A). In this way, gas finds its most economical route to market, and the pipeline grid functions in the most economical way to minimize consumer costs.

Since this transformation, tracing the movement of molecules of natural gas has been all but impossible, and commercially irrelevant.[12] Specific gas resources that are purchased under contract do not predictably, if at all, reach their buyers. Instead, gas now moves from hub to hub among more than 100 "pooling points" throughout the U.S. and Canada. At each pooling point, each molecule of gas, from all contracted sources, is comingled with all others, and then follows along its most economical path. The paths and flow directions may change daily in response to price signals that are volatile and change continually.

Figure 6 Illustration of Natural Gas Pipeline Hubs and Pooling Points

Source: Benjamin Schlesinger and Associates, LLC.

Figure 6 illustrates what takes place at pipeline hubs and pooling points, and shows how complex and irrelevant physical gas flows have become in commerce. On the left side of the figure, at the intersection of two or more pipelines, gas moves from a seller who has gas on one pipeline to a buyer needing gas on another pipeline based on relative prices, with gas sellers seeking the highest price. In other words, as depicted on the right side of the figure, gas from

[11] Open access as it applies to U.S. pipelines refers to a contract carriage system under which the right to transport gas on the pipeline (up to a set maximum amount) may be reserved or booked by any third-party creditworthy shipper, who then may release capacity rights into secondary markets, i.e., much like a rental condo that may be sublet.

[12] Much as it is neither possible nor relevant to trace individual electrons in the power transmission and distribution grids.

any source (represented by different colors) is acceptable to the buyer, rather than the particular gas molecules being delivered by his seller. In this way, the fungible nature of natural gas molecules – or biogas, to the extent those molecules are also present in the mix – means the most economical path will always be followed. The point of this structure is to maximize consumer benefit.

In the nation's gas grid, the decision to ship gas is intertwined with the decision to buy and sell gas. If the price of gas at two different hubs, A and B, is the same, but a pipeline would have to be paid the regulated rate to transport gas from A to B, then gas needing to move from one hub to the other would, in fact, be sold at one hub and a same quantity of other gas (identical) will be purchased at the other hub.

The foregoing realities mean that concepts of "upstream" and "downstream" have less meaning than in the past; i.e., these terms might relate to actual gas supply flow paths in one month or on one day, but then not so in the next month or day. As described above and further in Appendix A, under Federal open access gas pipeline policies, price makes that determination. In other words, to ensure that the most economical gas supplies are made available to consumers, pipeline gas supply flows or is traded, so as to minimize transportation costs. Thus, even though a gas pipeline might flow in the direction of California, any individual gas or biogas supply contracted from a particular source might or might not flow physically to the customer.[13]

Likewise, under the 1997 Gas Accord and ensuing CPUC regulatory reforms, intra-state California gas pipelines operate in much the same way as Federally regulated pipelines, and commerce in natural gas takes place using the same kinds of commercial mechanisms in the interstate market. Even though a California gas pipeline might flow in the direction of Los Angeles, any individual gas or biogas supply contracted from a particular source might or might not flow physically to the specific customer.

Conclusion. North American gas pipelines function as an interconnected grid, under "open access" rules promulgated by the Federal Energy Regulatory Commission (FERC). As it has evolved over three decades, the nation's policy regarding gas pipelines is aimed at encouraging fair market trading of gas and efficient use of pipeline capacity, rather than forcing gas along one or another prescribed path. Consequently, concepts of "upstream" and "downstream" have less meaning than in the past; they might relate to actual gas supply flow paths in one month or on one day, but then not so in the next month or day. Instead, pipeline gas supplies flow in a way that takes advantage of multiple arbitrage opportunities, i.e., gas commerce in pipeline markets rebalances prices, so that gas travels from lower priced hubs to higher-priced hubs. Gas deliveries on the pipeline grid take place in a way that ensures the system operates in the most efficient and economical way possible. Thus, even though some Western gas

[13] The fact that it might or might not, and that flows are intertwined with arbitrage in a complex way, cannot be overlooked. Thus, biogas produced in the Houston, TX area where gas prices are, say $6.00 per MMBtu, will not flow to Wyoming, where gas prices are lower by, say $.75 per MMBtu; instead, trades will take place so as to effectively transport the gas most efficiently. But, conversely, biogas produced in a landfill in Pennsylvania, where prices are, say $4.00 per MMBtu, might physically travel to Houston in this example.

pipelines typically flow in the direction of California, the flow of any individual gas or biogas supply contracted from a particular source cannot be guaranteed to move in any prescribed direction.

The Department's Biogas Contracts' Compliance with Pipeline Grid Practices and Regulatory Standards[14]

The Department has filed with the CEC current information regarding the landfills from which Shell and Atmos have arranged to procure biogas on its behalf, which include the following:[15]

- Shell
    - Air Liquide -Live Oak Landfill, Atlanta, GA
    - Beacon Landfill, PA
    - Fort Smith Landfill, Fort Smith, AR
    - Greenwood Farms Landfill, Tyler, TX
    - Imperial Landfill, Pittsburgh, PA
    - Jefferson Davis Parish Sanitary landfill, Welsh, LA
    - Johnson County Landfill, Shawnee, KS
    - Pinnacle Road Landfill, Moraine, OH
    - Rumpke Sanitary Landfill, Cincinnati, OH
    - Stony Hollow Landfill, Dayton, OH
    - Turkey Creek Landfill, Houston, TX
    - Westside Gas Producers, LLC Landfill, Three Rivers, MI.
- Atmos
    - Seneca Landfill, Evans City, PA
    - McCarty Road Landfill, Houston, TX
    - Iris Glen Landfill, Johnson City, TN
    - Carter Valley Landfill, Church Hill, TN.

Information supplied by the Department identifies locations where the biogas is sourced, as well as the pipeline system that initially receives the Department's biogas. In addition, each interconnecting pipeline is identified. Each initial receiving and linked gas pipeline is part of the pipeline grid that transports biogas to the Department's RPS certified electricity generating plants in California.

In light of the information that the Department has supplied, we address the question of whether or not the Department's biogas contracts with Shell and Atmos, executed in 2009,

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14 Summaries of the Department's biogas purchase contracts with Shell and Atmos are contained in Appendix B.

15 Locations are approximate; further information is on file with the CEC.

conform to and are consistent with the delivery standards and operations in the US gas pipeline gas network.

The answer to the foregoing question is yes. Under the Shell and Atmos contracts, biogas from each of the foregoing landfills is transported to the Department's facilities via gas pipelines that are interconnected under arrangements that are typical of, and consistent with the way gas is transported along the U.S. gas pipeline network. As described in the foregoing section, natural gas is a fungible commodity, and this includes biogas from landfills. Once biogas has been produced from landfills, it consists largely of methane and other materials in a way that meets gas pipeline acceptability standards with respect to quality and heat content. If biogas were not interchangeable with natural gas and failed to meet pipeline quality and heat content standards, then it would be rejected by the pipeline and could not be delivered anywhere via the nation's gas pipeline grid. When biogas is accepted by the pipeline and is injected into a pipeline system, it is then completely indistinguishable from, and is commingled with natural gas derived from other sources.

At that point, once Department's biogas enters a gas pipeline, it is transported to California the same way any other gas supply is transported to California under U.S. gas pipeline practices and standards that comport with the FERC's regulatory market design as described above in this report and in Appendix A. For the Department's biogas under the Shell and Atmos contracts, this works in either of the following two ways:

- Front-Haul with the flow of gas along the physical contract path. To the extent gas hub prices are uniformly rising along the physical contract path from the contracted landfill to the Department's power plants, then the biogas will be "front-hauled," i.e., will travel in the direction of the final delivering pipeline to California, i.e., to the Kern River Pipeline in each of the Department's sources of biogas under its contracts with Shell and Atmos.

- Back-Haul against the flow of gas along the physical contract path. To the extent gas hub prices are not uniformly rising along the physical contract path from the contracted landfill to the Department's power plants, then the biogas will be "back-hauled," i.e., will move physically against the direction of flow or will be sold elsewhere and be delivered through repurchase at the necessary location. The purpose of back-hauls is to minimize the cost of transporting gas in pipelines, and to signal markets about the need for changes in pipeline capacity. In this instance, under the Department's contracts with Shell and Atmos, the physical biogas supplies will travel to their most economical destination, and Shell or Atmos, as the case may be, will purchase an equivalent volume of gas for delivery to the Department's power plants via the Kern River Pipeline.

In the foregoing way, the Department's biogas contracts with Shell and Atmos are transported in a way that is consistent with operations in the U.S. gas industry under the FERC's rules and regulations that apply to the pipeline network, within the pipelines' FERC-approved transportation tariffs.

For example, the segments in the physical contract path from the KC Landfill-to-Gas Energy Project, which is located adjacent to the Johnson County Landfill in Shawnee, Kansas, are as follows:[16]

- The EIF KC Landfill-to-Gas Energy Project injects the Department's biogas into the Quest Pipeline (currently, KPC Pipeline). The KPC Pipeline is a Federally regulated interstate pipeline that operates under its FERC tariff on an open access basis along lines described in this report.

- In the next link en route to California, KPC Pipeline interconnects near Kansas City, Kansas, with the Panhandle Eastern Pipeline ("PEPL"), which is also a Federally regulated interstate pipeline that operates under its FERC tariff along lines described in this report.

- PEPL interconnects in Indiana with the Rockies Express Pipeline ("REX"), which is an east-west gas pipeline, and is also Federally regulated as above.

- REX is interconnected in Western Wyoming with the Kern River Pipeline, which is a WECC region pipeline that delivers gas to California.

- Finally, the Department's biogas is delivered to California using its firm capacity contract on Kern River.

As of March 2014, the array of hub prices along the foregoing contract path is as shown in Figure 7.

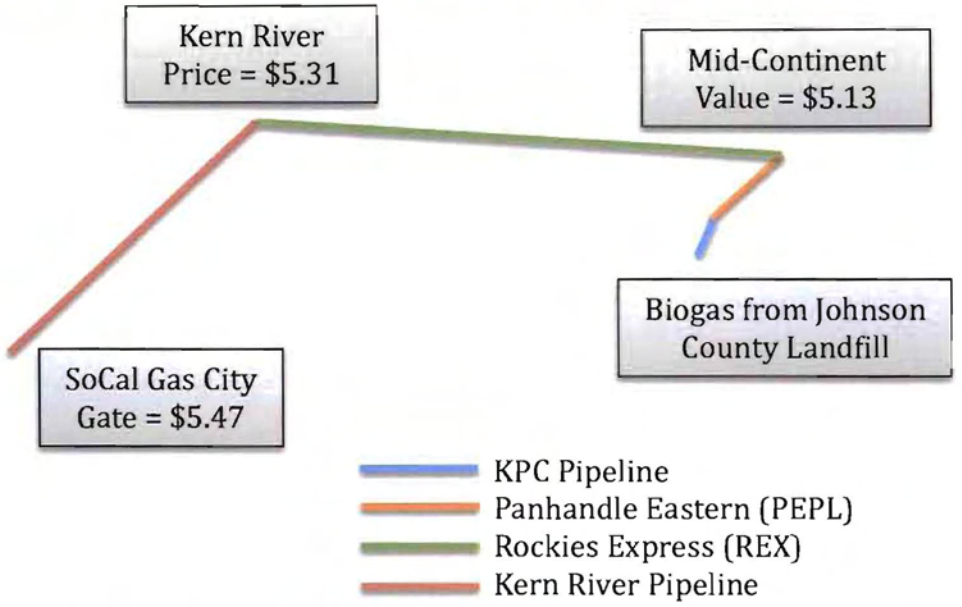
At first glance, it appears that March 2014 gas hub prices are uniformly rising along the physical contract path from the Johnson County Landfill to the Department's power plants in Los Angeles, and that the Department's biogas is being "front-hauled" in the direction of California. However, gas prices are volatile, thus the Department's biogas supplies will follow pricing signals and flow against the physical contract path from time to time, at any time. In other words, under the regulatory system in place for U.S. interstate gas pipelines, there can be no guaranty of front-haul or back-haul, only that the gas will physically flow from point to point in its most economical and efficient direction. The gas delivery mechanisms described above, in the previous section of this report, and in Appendix A, are a valid, efficient and necessary means of gas transportation on the nation's pipeline grid.

Conclusion. Under the Department's biogas contracts with Shell and Atmos, flows of biogas move along the physical contract path in a way that is consistent with Federal regulatory policy. Flows along the physical contract path may from time to time include front-haul or backhaul, with front-haul or back-haul gas deliveries taking place as needed to optimize pipeline system operations and minimize the cost of transportation. Pipeline quality and heat

[16] First amendment to the June 30, 2008 Base Contract for Sale and Purchase of Natural Gas between the LADWP and Coral Energy Resources (Shell), LADWP Agreement No. 96 125-510, Attachment C: "Landfill Gas Producer Attestation."

content standards require that biogas injected into pipelines be identical to, and interchangeable with natural gas in all respects. For this reason, by delivering natural gas to the Department at the Kern River Pipeline for biogas produced at landfills elsewhere, Shell and Atmos are complying with Federal regulatory policy and operating exactly as those regulations intend, as outlined in this report and in Appendix A.

Figure 7 Physical Contract Path: Johnson County Landfill Biogas to Los Angeles



Source: Benjamin Schlesinger & Associates, LLC, from Platts McGraw Hill Financial, Inside FERC's Gas Market Report, Prices of Spot Gas Delivered to Pipelines, March 1, 2014.

CEC RPS Guidelines, Pipeline Regulatory Policies, and Industry Standards

This section addresses the question of whether or not the CEC's RPS eligibility standards and guidelines with respect to the transportation of biogas from its sources of production to the Department's possession are consistent with approved pipeline tariffs and actual standards of practice at the Federal level and within California.

The answer is yes, they were at the time the Department entered into the Shell and Atmos contracts. Over the past several years, the CEC's guidelines for certification of facilities under the State's Renewable Portfolio Standards have undergone a number of changes and revisions with respect to the way biogas may be delivered. RPS guidelines in effect at the time the Shell and Atmos contracts were entered were those set forth in the CEC's Third Edition, dated January 2008.[17] The Third Edition remained in effect until January 2011, when CEC

[17] California Energy Commission (CEC), Commission Guidebook: Renewables Portfolio Standard Eligibility, Third Edition, January 2008 (CEC-300-2007-006-ED3-CMF).

promulgated the Fourth Edition.[18] The Fourth Edition was issued in large measure as a clarifying document to the Third Edition.[19]

In each of these documents, the eligibility for certification of biogas delivered by pipelines to California power plants required the following:

> "The gas must be injected into a natural gas pipeline system that is either within the WECC region ***or interconnected to a natural gas pipeline system in the WECC region that delivers gas into California....***"[20]

As discussed in the foregoing section, every U.S. gas pipeline is physically interconnected with (i.e., is literally bolted to) every pipeline that delivers gas into California. This includes, for example, the Rockies Express (REX) pipeline, described above, that moves gas between Marcellus shale fields in the Ohio Basin and the interconnection in Wyoming with the Kern River Pipeline, which delivers gas to California. REX also has interconnections with a number of pipelines between Wyoming and Ohio, including PEPL in the example discussed above. The foregoing language also includes the Enterprise Partners Pipeline that moves gas between the Houston area and interconnections in West Texas with the El Paso and Transwestern Pipelines, both of which deliver gas to California. Likewise, the CEC's language covers each of the physical contract paths from each source of biogas in Department's contracts with Shell and Atmos.

Consequently, the clause in the foregoing provision that is italicized and in bold demonstrates that the CEC understands clearly the way the interstate (and in-state) gas pipeline network functions, i.e., through its interconnections or hubs, and that it will allow transshipments of biogas from distant landfills to the state's power plants, as long as the pipeline receiving the biogas is interconnected with a pipeline located in the WECC region that delivers gas to California.

A clarifying provision was added in the Fourth Edition that further underscores the consistency of the Commission's RPS Guidelines with standard U.S. gas pipeline operations, as follows:

> "The applicant, or authorized party, must enter into contracts for the delivery (firm or interruptible) or storage of the gas with every pipeline or storage facility operator transporting or storing the gas from the injection point to California (or to the electric generation facility if the electric generation facility is located outside of California).

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18 California Energy Commission (CEC), Commission Guidebook: Renewables Portfolio Standard Eligibility, Fourth Edition, January 2011 (CEC- 300- 2010- 007- CMF).

19 In the Seventh Edition of the Commission Guidebook, footnote 16 on page 22 states: "The eligibility requirements for the third and fourth editions of the RPS Eligibility Guidebook are largely the same with some additions to the fourth edition of the guidebook that were largely introduced as clarifications to the third edition guidebook."

20 Ibid., Third Edition, page 21; in the Fourth Edition, see page 20 (note that, in the Fourth Edition, the term biomethane is used instead of the term gas, and the word "located" is added to this provision; otherwise, the two corresponding provisions are identical in wording).

> ***Delivery contracts with the pipeline operators may be for delivery with or against the physical flow of the gas in the pipeline.***"[21]

This provision also poses no limitations as to the operation of the gas pipeline network in delivering biogas to California, since delivery under contract may take place "with or against the physical flow of gas in the pipeline" i.e., clearly referring to front-haul and back-haul as practiced throughout the gas pipeline grid.,

For this reason, it is clear that the foregoing clarification reinforces the consistency of the Commission's guidelines with standard industry practice because essentially all flowing gas on pipelines is either front-haul or back-haul, as discussed above. Consequently, the Third and Forth Edition guidelines permitted biogas to flow to California power plants along the U.S. pipeline network in a way that is consistent with operations that are FERC-authorized (and CPUC-authorized, for in-state gas pipelines).

Conclusion. CEC could not have stated more clearly in its RPS eligibility guidelines that were in effect at the time the Atmos and Shell contracts were entered that biogas deliveries could be made to California power plants via the U.S. gas pipeline network according to the standards under which that network operates under FERC rules. These operations involve market-based flows enabling efficient operations along lines described in the preceding section of this report, as amplified in Appendix A.

The Jones "Letter of Interpretation" Dated September 22, 2009

Between the time the CEC issued the Third and Fourth Editions of its Eligibility Guidelines, On September 22, 2009, Melissa Jones of the CEC staff sent to Cambrian Energy Management, LLC a five-paragraph letter captioned "Letter of Interpretation - California Renewables Portfolio Standard Biogas Injected Into a Natural Gas Pipeline."

At its core, the Jones letter states as follows:

> "According to the Renewables Portfolio Standard Eligibility Guidebook, Third Edition, biogas injected into a natural gas transportation pipeline must be "delivered into California for use in an RPS-certified multi-fuel facility" (Footnote to Third Edition, Page 20) to result in the facility's generation being considered as RPS- eligible electricity. Consequently, there must be a physical contract path from the injection facility to a point within the state of California. Other natural gas transport mechanisms are not satisfactory methods of delivery. For example, selling biogas at an out-of-state hub and purchasing an equivalent amount of gas from an in-state hub is not a satisfactory method of demonstrating delivery into California and would not meet the RPS eligibility requirements.

21 Ibid., Fourth Edition, page 20.

> "Biogas injected into a natural gas pipeline may be delivered as either firm or interruptible. However, only the biogas that is delivered may be counted towards the renewable component of the designated electric generation facility. In the event of an audit, at a minimum the parties must provide monthly invoices demonstrating delivery at each delivery point along the physical contract path. Further documentation may be required at the discretion of Energy Commission staff."

The foregoing interpretation (herein, the "Jones Interpretation") is surprising because it runs counter to the plain language of the Third Edition, which (again) states:

> "The gas must be injected into a natural gas pipeline system that is either within the WECC region or interconnected to a natural gas pipeline system in the WECC region that delivers gas into California."[22]

This passage is the only portion of the Third Edition of the CEC's RPS eligibility guidelines that addresses directly the matter of how biogas procured from out-of-state landfills and injected into gas pipelines must be transported to California. The passage clearly states that one of the choices available for delivery of biogas is through a pipeline that interconnects with a Western pipeline that delivers gas to California (herein, a "WECC pipeline"). As stated above, this requirement for an interconnection could refer to any pipeline in North America other than those located in Alaska, which would not qualify, as they are not "interconnected to a natural gas pipeline system in the WECC region that delivers gas into California" or any other pipeline in the Lower 48 states.

Moreover, there is no limitation in the foregoing passage as to which way the interconnecting gas pipeline must flow, only that the "gas pipeline system in the WECC region...delivers gas into California." In addition, there is no limitation as to the number of pipelines through which the required interconnection must be present. In other words, a pipeline interconnects with a WECC pipeline if it interconnects with another pipeline that interconnects with a WECC pipeline – if it takes more than one pipeline, there is still an interconnection present to a WECC pipeline.

The term "physical contract path" appears nowhere in the Third Edition of the CEC's RPS regulatory guidelines as they relate to biogas; indeed, its first mention by the CEC at all is in the Jones Interpretation. But even this requirement does not change matters because the term does not, on its face, preclude back-haul in order to deliver gas to the WECC pipeline.

The Fourth Edition, which was issued approximately 15 months after the Jones Interpretation, lends further support to the CEC's acknowledgement of how the pipeline system operates to deliver biogas to California. In the Fourth Edition, the following clarification was added:

> "Delivery contracts with the pipeline operators may be for delivery with or against the physical flow of the gas in the pipeline."[23]

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22 Ibid., Third Edition, page 21.

23 Ibid., Fourth Edition, page 20.

This passage utterly belies the Jones Interpretation. In fact, the practice of delivering gas by buying at one hub and selling at another is fully consistent with the way pipeline systems and their shippers operate under both Federal and California regulations.

Had the CEC precluded back-haul as a biogas delivery mechanism, as would the Jones Interpretation, biogas could not be delivered via pipelines because, in so doing, the CEC would have required that transportation function in a way that cannot coexist with regulatory standards for pipeline operations. As described in preceding sections, these standards came into effect for good reasons – namely, to prevent uneconomic and inefficient gas flows from taking place on the pipeline network, just the kinds of flows that the Jones Interpretation would attempt to enforce.

Conclusion. The Jones Interpretation stands apart from the plain meaning of the CEC's Third Edition of its RPS Eligibility Guidelines as they refer to pipeline deliveries of biogas. The clarification CEC put forth in the Fourth Edition even further isolates the Jones Interpretation from the CEC's intent at the time.[24] To accept the 2009 Jones Interpretation under which "selling biogas at an out-of-state hub and purchasing an equivalent amount of gas from an in-state hub is not a satisfactory method of demonstrating delivery into California and would not meet the RPS eligibility requirements"[25] would be to run counter to the regulatory and commercial mechanisms that are in place throughout the grid, nor, indeed, could any such a limitation be guaranteed to take place at all. By disallowing the fluid gas pipeline market mechanisms in place for three decades, the Jones Interpretation would altogether preclude the use of natural gas pipelines to make biogas deliveries.

Compliance of the Shell and Atmos Contracts with CEC Guidelines

This section addresses the following two questions:

a) Did LADWP's biogas contracts with Shell and Atmos, executed in 2009, conform to and satisfy the delivery requirements for biogas found in the 3rd Guidebook for the CEC?

The answer is yes. For reasons described above, the LADWP's biogas contracts with Shell and Atmos both conform to and satisfy the delivery requirements for biogas found in the CEC's 3rd Guidebook. The language in this Guidebook, as it refers to eligible pipeline deliveries, clearly allows biogas transportation as encouraged by both Federal and California rules.

b) Did LADWP's biogas contracts with Shell and Atmos, executed in 2009, conform to and satisfy the delivery requirements for biogas found in the 4th Guidebook for the CEC?

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24 Later on, in the Seventh Edition, the CEC changed its RPS certification guidelines in a way that absolutely forecloses the use of the U.S. gas pipeline network to deliver biogas.

25 Letter from Melissa Jones, CEC, to Evan Williams, Cambrian Energy Management, LLC, dated September 22, 2009, page 1.

Again, the answer is yes. If there was any doubt as to the CEC's intent to allow biogas deliveries along lines of open access pipeline policies, the Fourth Edition erased those doubts because it allows "delivery with or against the physical flow of the gas in the pipeline." The alternative offered by the Jones Interpretation would preclude transportation of biogas on the U.S. gas pipeline system because, under the FERC's regulations and pipeline operations as practiced in the industry, there can be no guaranty of front-haul or back-haul at any given time or location along the physical contract path.

The only alternatives available to use the nation's gas pipeline grid by which the Department could obtain biogas from distant sources would force an excessive and unnecessary economic penalty on the Department's ratepayers. Individual landfills produce fairly limited quantities of biogas, e.g., at most 2,000 Dth to 5,000 Dth per day, therefore, constructing a new, special gas pipeline to transport biogas from a distant landfill to California – which is what it would take to guaranty front-haul – would be unprecedentedly uneconomical. The alternatives to using the nation's pipeline grid to deliver biogas as it operates are generally uneconomical, e.g., to liquefy biogas at its point of production, converting it into liquefied natural gas (LNG), then deliver the LNG to California by truck or rail. Again, such small-scale LNG options are only used where there is no alternative delivery mechanism because they are very costly compared to pipelines in terms of dollars and energy required. Consequently, requiring LNG at such small scale would be extremely inefficient and uneconomical and would, likewise, exact a prohibitive penalty on biogas and upon the Department's ratepayers with no corresponding benefit.[26]

Conclusion. As described above, here in the U.S., we have an elaborate gas pipeline network that operates by intent through front-hauls and back-hauls taking place in ways that make the most efficient and economical use of the grid. There is and cannot be any guaranty that molecules of gas will move in any particular direction. Indeed, this is also true within California, along in-State gas pipelines – gas deliveries to power plants and other buyers can be guaranteed, and a path may be designated. However, as it is regulated and functions much like the Federal gas pipeline grid, California gas pipelines also operate, by intent, to deliver gas in the most economical way possible.

In summary, the Third and Fourth Edition of the CEC's RPS Eligibility Guidelines encourage biogas transportation and delivery via the U.S. pipeline grid. Any other interpretation would have forbid the use of the U.S. gas pipeline grid altogether to transport biogas to the Department's power plants, thus removing California's biogas demand from the nation's landfills. The alternatives to the pipeline grid are extreme in their expense, unnecessary and accomplish nothing in return. Any interpretation like that in the Jones letter would, moreover, frustrate RPS goals by increasing GHG emissions in several ways – by forcing added flaring at landfills because markets for biogas cannot be accessed, or by requiring less efficient biogas transportation options such as very small-scale LNG. By ending all possible RPS compliance for biogas by preventing shipment through US gas pipelines, the Jones Interpretation would

[26] Further information about construction and operational costs of small-scale LNG, energy consumed in its processes, and when and why it is sometimes used may be found in several references, e.g., the UN Economic Commission for Europe (ECE) Sustainable Energy Program, *Current state and prospects of LNG in the ECE Region*, 2014.

retard interstate commerce by leaving only options available that would frustrate or circumvent FERC and CPUC gas pipeline policies and operations.

Appendix A: How Natural Gas Pipelines and Pricing Work

This appendix provides a description of North American gas price formation in relation to the gas pipeline network, including pricing methodology and trends, volatility, and review of underpinning assumptions and the impact of underlying key drivers.

North American gas prices are formed explicitly by the forces of supply and demand acting at each of a large number of individual trading locations (hubs, or pooling points). The major concepts and assumptions that underpin this market have changed dramatically in the past several decades, and today they differ sharply from the underpinnings of more traditional markets elsewhere. Some of the important differentiating aspects of the way prices are formed in the North American gas pipeline markets include:

Gas spot markets. Most gas is bought and sold in the US and Canada in physical spot transactions on trading clearinghouses and in short and immediate term bilateral transactions. Transactions may be bilateral in the sense that the legal ownership of gas changes in each trade passes from one seller to one buyer at a specified volume, price, time and location (i.e. at a specific hub or market centre, see below). Alternatively, transactions may take place on clearinghouses, with multiple buyers and sellers acting in to establish a single pool price, much like power pools, e.g., on the InterContinental Exchange (ICE). Whether they take place within clearinghouses or in bilateral transactions, spot gas trades reconcile instantaneous supply/demand imbalances when and where they occur, thus they act as market-clearing mechanisms in an economic sense. In other words, spot gas prices are usually arrived at without direct reference to other fuels such as oil or coal. Longer term transactions take price signals from reported gas spot prices at hub locations.

Hubs and indices. A hub where participants can buy and sell gas typically consists of a pipeline receipt or delivery zone, a multi-pipeline intersection, or a gas storage facility. Examples of each of these include:

Hype of Hub or Pooling Point	Examples
Pipeline receipt or delivery zone	Permian Basin, Houston Ship Channel (HSC), Socal City Gates
Multi-pipeline intersection	Socal border, Henry Hub, Wheeler Ridge, Malin
Gas storage facility	Lebanon, PA

Henry Hub is an especially active intersection-based hub where buyers and sellers can move gas from any one of eight intersecting pipelines to another. Henry Hub is the physical delivery location in the highly-traded NYMEX gas futures contract, thus underpinning its importance in the North American gas trade. As illustrated in Figure 6, natural gas at a hub is fungible because quality and other pipeline gas specifications do not differ greatly from one pipeline system to another. Price reporting services – e.g. Platts, Natural Gas Intelligence, Natural Gas

Week – continually survey dozens or hundreds of market participants and, from these data, they construct and publish daily, weekly and next-month price indices.

Capacity markets. FERC-regulated pipelines are not allowed to buy and sell gas (apart from incidental amounts); instead, they offer tolling services for hire – transportation, storage, etc. The same regulatory structure holds true for most state-regulated pipelines, e.g., pipelines within California. The right of third-party access to pipeline capacity guarantees that the pipeline's owners cannot act to create bottlenecks that would otherwise interfere with the market or compete with buyers and sellers.[27] Capacity is acquired directly with the pipeline by contract, or from existing contract holders in secondary markets in which firm capacity rights are released to other shippers. In this way, pipeline capacity rights are available in a flexible array of durations, some for a decade or more and some as short as a day or less (e.g. for power generation needs), and along various paths.

Marketers and brokers. With the profusion of buyers and sellers in North America, and the many spot gas and pipeline capacity choices, most trading is carried out between and through marketing companies whose role it is to facilitate transactions. Some consultants and brokers also facilitate trades, although most marketers act as traders in that they buy and sell gas at a price, rather than as brokers who simply match parties, and they deal directly with infrastructure owners to transport and store gas in separate transactions. For any gas buyer or seller, there is always a marketer willing to serve as a counterparty, albeit at a market price. This market structure has been crucial to the development of shale gas, whose supply may vary considerably and on short notice.

Physical and financial transactions. Price risk management services (often purely hedging) are available in separate markets and contracts apart from, and alongside, physical market transactions in North America. These markets include regulated exchanges such as the Chicago Mercantile Exchange's New York Mercantile Exchange (CME-NYMEX) and the Inter-Continental Exchange (ICE), as well as in less-regulated over-the-counter (OTC) transactions. Some degree of bundling physical and financial transactions is frequently available as well, thus presenting numerous choices of how to structure transactions. The availability of price risk management services in separate markets contributes to liquidity of gas spot markets in North America because it frees them to focus on physical gas matters while pricing at index, leaving them unburdened by the need to define and incorporate longer term pricing matters in each deal.

Standardized contracts. Liquidity requires a large number of transactions, which would not be possible if each contract had to be scripted individually. North American gas markets operate efficiently using standard sales and purchase agreements (SPA). For physical transactions, the standardized contract issued by the North American Energy Standards Board (NAESB) reduces the individual transaction to filling out a few blank spaces in a single cover sheet – names, identification, volume, receipt and delivery points, start date, end date. Most other terms and conditions are stated in the body of the standard contract, including

[27] The ability to do so could severely distort markets, e.g., in 2000, when a physical break in the El Paso pipeline during a low hydro season reduced capacity, causing a massive upsurge in gas prices in California and elsewhere throughout North America.

responsibilities of the parties, default conditions, force majeure, billing, balancing, etc. Creditworthiness is typically agreed and demonstrated in advance. Likewise, pipeline transportation arrangements are handled in standard-form contracts along lines of examples contained in each pipeline's tariff. Financial contracts are also offered at standard terms and conditions, e.g. the NYMEX gas futures contract is lengthy but has only two blanks to be completed: the price of gas and the month of physical delivery, all else is standardized.

Variety and flexibility. Prices may be biased upward or downward depending on the degree of flexibility one party has relative to the other party, or other conditions. For example, swing contracting enables one party to backstop the other's requirements, at a premium. Likewise, put conditions enable sellers to dispose of gas when and where it becomes available, i.e. put gas to the buyer, also with an agreed price bias relative to index.

As the US and Canadian gas markets evolved the foregoing ways of doing business over the past three decades, trading has become all the more smooth, flexible and widespread. Market information has become excellent at each of more than 100 hubs around the continent. As described above, competing suppliers and buyers in North America continually negotiate and establish gas prices throughout each day at hubs in spot markets, with diurnal, geographic, and service differentiation as needed in individual cases. Weather, pipeline capacity availability, electricity and other demand surges, and other forces affect changes in the value of gas throughout the day and throughout the grid every day, thus buyers and sellers are continually bidding and settling under different circumstances that drive prices in different directions. As production and demand changes take place, gas demand and supply can vary greatly from point to point throughout the grid over days, seasons, and decades – and these variations drive differences among hub prices.

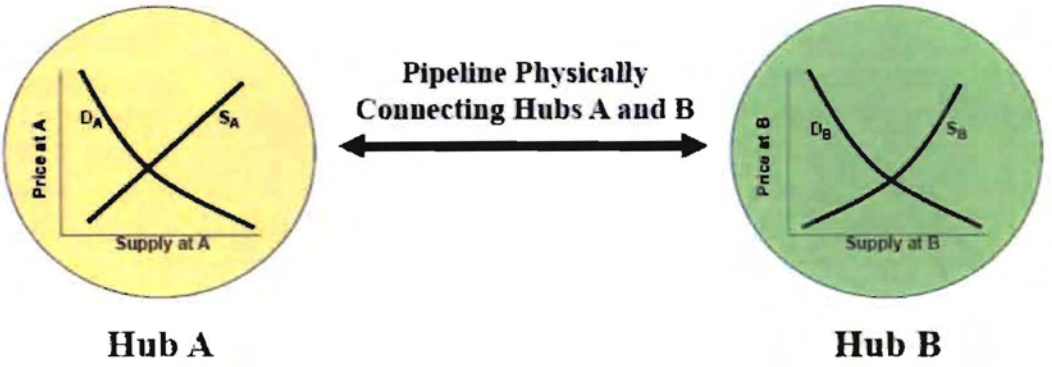
Decision to Transport or Trade[28]

Basis differential (or just "basis") is defined as the difference in the value of gas, the commodity, at one location versus at another location. As primary and secondary pipeline capacity markets gained in trading activity, competitive basis differentials have emerged among dozens of market centers, or hubs, throughout North America.

Importantly, basis bears little relation to pipeline transportation rates, which are set under U.S. regulation taking into account costs of service, i.e., capital recovery, rate of return, etc. Instead, basis is determined by gas prices reflective of supply-demand balances in different markets. In Figure 8, Hub A and Hub B each represent active gas markets, at which trading is liquid enough so that price is determined by the interaction of supply and demand at any point in time. In other words, gas may always be bought or sold at each hub because there is always a counterparty, at a price.

[28] This discussion is adapted and taken largely from Energy Law and Transactions, Section 87.02(9), authored by Benjamin Schlesinger.

Figure 8 Interaction of Hubs and the Transport or Trade Decision



For example, if the cost of gas is $4.00 per MMBtu at Hub A and $4.10 per MMBtu at Hub B, then the basis differential is $.10/MMBtu.

If one assumes that the pipeline's maximum allowable transportation rate to transport gas from point A to point B equals $.45/MMBtu, then basis markets work as follows:

If Basis is less than maximum rates, e.g., the $.45 per MMBtu referred to above, then the pipeline may discount to meet basis: Apart from long-term contract pricing arrangements that may be extant, no pipeline can reasonably expect to receive more than the basis at any point in time for shipping gas from Hub A to Hub B at that same time, regardless of its lawful maximum tariff rates.

In short-term capacity markets, which accounts for the overwhelming majority of gas industry transactions, a pipeline's attempt to collect maximum rates in excess of basis would encounter competition from the trade in gas: a shipper in this example who needs to move gas from Hub A to Hub B would sell off his gas at Hub A for $4.00/MMBtu, and repurchase gas at Hub B for $4.10/MMBtu, calling his loss of $.10/MMBtu the cost of "transportation" from A to B. Thus, basis limits the rates pipelines can charge as long as Hub A and Hub B are both competitive points of supply and demand.

Appendix B: Summaries of Shall and Atmos Contracts

This appendix provides brief summary points in the Department's contracts to purchase biogas from Coral Energy Resources. L.P., a subsidiary of Shell Energy North America ("Shell"), and from Atmos Energy Marketing ("Atmos").

There are two parts to each of these contracts:

- Base Contract for Sale and Purchase of Natural Gas. For their basic buy-sell terms and conditions, both Shell and Atmos have adopted the North American Energy Standards Board (NAESB) standard form contract (NAESB Standard 6.3.1) that is widely used throughout the gas industry. The NAESB is a voluntary group organized to increase transactional efficiency and reduce cost by providing, at nominal charge, standard form agreements of this kind for common transactions. Parties to contract need to complete the first page, in which they identify themselves for notice, billing and other purposes, and they make a number of elections presented throughout the contract. Parties also frequently append additional terms and conditions that fit their individual transactions, as both Shell and Atmos have done. In each case, the parties have appended to the standard NAESB contract language a number of specific provisions that are primarily technical and legal clarifications.

- Transaction Confirmation for Immediate Delivery. For specific aspects of the transaction, such as price, delivery conditions and other transaction-specific elements, both Shell and Atmos have used the NAESB format, but have added a number of terms and conditions, certifications, and the like that apply to the biogas transaction.

Specifics for each contract follow:

Key provisions of Shell Contract (LADWP Agreement No. 96 125-510)

1. The standard NAESB contract between LADWP and Shell is dated February 1, 2008.

2. In the second part of the agreement, entitled Transaction Confirmation for Immediate Delivery, provisions are as follows:

    a. Transporter is Kern River Transmission (KRT), under transportation contract Nos. 1006 and 1706, which are held by the Department.
    b. Price is redacted.
    c. Duration - August 1, 2009 to June 30, 2014.
    d. Performance Obligation – Quantity is 3,500 MMbtu/day increasing to 8,200 consisting of environmental attributes and base load gas as specified in special provisions.

e. Special Provisions: Lay out definition of landfill gas as defined by CEC January 2008 Guidebook. "parties understand that this landfill gas will be delivered to Buyer through an exchange rather than direct long-haul transportation. Specifically, that environmental attributes will be unbundled from the gas near the landfill source, and the resulting gas without environmental attributes will be sold by the Seller in the local market. The gas will be with an equal quantity of gas and re-bundled with environmental attributes for delivery to Buyer at the specified delivery point as Standard Base Load gas".
f. Delivery Point: Opal, Wyoming, the initial receipt point of KRT.
g. Attestations by seller that this is biogas.
h. No excusal from obligations of the parties should the CEC change the rules.

Key provisions of Atmos Contract (LADWP Agreement No. 96 125-516)

1. The standard NAESB contract between LADWP and Atmos is dated July 30, 2009.

2. In the second part of the agreement, entitled Transaction Confirmation for Immediate Delivery, provisions are as follows:

    a. Transporter is Kern River Transmission (KRT), under transportation contract Nos. 1006 and 1706, which are held by the Department.
    b. Price is redacted.
    c. Duration - September 1, 2009 to July 31, 2014.
    d. Performance Obligation – Quantity is 5,000 MMbtu/day consisting of environmental attributes and base load gas as specified in special provisions.
    e. Delivery Point: KRT – Opal, Wyoming.
    f. Point of Sale, Purchase: Opal/Kern receipt.
    g. Attestations by seller that this is biogas.
    h. There is a second Transaction Confirmation for Immediate Delivery for 600 MMbtu that states in the Special Provision: this is landfill gas that as defined by CEC January 2008 Guidebook. In addition, the "parties understand that this landfill gas will be delivered to Buyer through an exchange rather than direct long-haul transportation. Specifically, that environmental attributes will be unbundled from the gas near the landfill source, and the resulting gas without environmental attributes will be sold by the Seller in the local market. The gas will be with an equal quantity of gas and re-bundled with environmental attributes for delivery to Buyer at the specified delivery point as Standard Base Load gas."
    i. No excusal from obligations of the parties should the CEC change the rules.

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LADWP BOARD APPROVAL LETTER

TO: BOARD OF WATER AND POWER COMMISSIONERS	DATE: April 30, 2008
SUBMITTED BY: ARAM BENYAMIN Acting Senior Assistant General Manager Power System H. DAVID NAHAI Chief Executive Officer and General Manager	SUBJECT: The City of Los Angeles Department of Water and Power Renewables Portfolio Standard Policy as Amended April 2008
BOARD COMMITTEE APPROVAL:	FOR COMMISSION OFFICE USE: RES. No. 008 247 MAY 20 2008 3-COPY RESO TO Acting Sr. Asst. Power System 5/30/08
CITY COUNCIL APPROVAL REQUIRED: Yes ☐ No ☒	IF YES, BY WHICH CITY CHARTER SECTION:

RECEIVED
MAY 16 2008
Board of Water & Power Com'rs.
CITY OF LOS ANGELES

RECEIVED BY
2014 APR -3 PM 1:35
CHIEF COUNSEL'S OFFICE

PURPOSE:

The Board of Water and Power Commissioners (Board) is requested to consider the attached City of Los Angeles Department of Water and Power (LADWP) Renewables Portfolio Standard (RPS) Policy as amended April 2008, which comprehensively updates the existing policy to:

- Include the goal requiring the LADWP to increase its supply of electricity from "eligible" renewable resources until a target portfolio level of 35 percent is reached by December 31, 2020.
- Add additional "eligible" renewable technologies, including conduit hydroelectric, hydroelectric incremental generation from efficiency improvements, renewable facilities using multiple fuels, and the use of biogas injected into natural gas pipelines.
- Allow the delivery of "eligible" RPS energy to be firmed or shaped within the calendar year. This will provide the ability to use transmission resources most efficiently and will increase system reliability.
- Provide methodology to calculate RPS Goals during periods of temporarily lower energy production, such as low hydro snow pack or low wind performance.

BACKGROUND:

In 2002, the California Legislature passed Senate Bill (SB) 1078 that established the California RPS, with a goal for all investor-owned utilities to increase their use of renewable resources by at least one percent per year, until 20 percent of their retail sales are procured from renewables by 2017. SB 1078 provides that each government body of a local publicly owned electric utility shall be responsible for implementing and enforcing a RPS that recognizes the intent of the Legislature to encourage renewable

resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.

On June 29, 2004, the Los Angeles City Council passed Resolution 03-2064-S1 requesting that the Board adopt a LADWP RPS Policy of 20 percent renewable energy by 2017.

On May 23, 2005, the Board adopted a LADWP RPS Policy that established the goal of increasing the amount of energy the LADWP generates from renewable power sources to 20 percent of its energy sales to retail customers by 2017, with an interim goal of 13 percent by 2010. On June 29, 2005, the Los Angeles City Council approved the LADWP RPS Policy in order to further promote stable electricity prices, protect public health, improve environmental quality, provide sustainable economic development, create new employment opportunities, and reduce reliance on imported fuels.

In December 2005, the Board accelerated the LADWP RPS goal to a mandated 20 percent renewables by 2010. During the fiscal year 2006/2007 budget process, consistent with the "System Rate Impact" provision of the RPS policy, the Board acted to implement a "Renewable Resource Surcharge" to assist in funding the procurement of renewable power resources. This surcharge eliminated the need for subsidies from the Public Benefit Program. On April 11, 2007, the LADWP's Board amended the LADWP RPS policy by accelerating the goal of requiring 20 percent of energy sales to retail customers to be generated from renewable resources by December 31, 2010, established the "Renewable Resource Surcharge," and also established renewable energy procurement ownership targets.

In January, 2008, the California Energy Commission (CEC) updated its Renewables Portfolio Standard Eligibility Guidebook. In this revision, the CEC expanded its list of "eligible" renewable resources to include "conduit hydroelectric" and "hydroelectric incremental generation from efficiency improvements." Additionally, it allows "eligible" energy from renewable facilities using multiple fuels, and the use of biogas injected into natural gas pipelines. A conduit hydroelectric facility must use, for its generation only, the hydroelectric potential of an existing pipe, ditch, flume, siphon, tunnel, canal, or other manmade conduit that is operated to distribute water for a beneficial use. The hydroelectric incremental increase in generation that results from efficiency improvements to hydroelectric facilities are RPS eligible if such improvements were initiated on or after January 1, 2008.

This CEC revision also includes Section II (D) "Delivery Requirements", which states; "Electricity may be delivered into California at a different time than when the RPS-certified facility generated electricity, pursuant to Public Resources Code Section 25741, Subdivision (a). Further, the electricity delivered into California may be generated at a different location than that of the RPS-certified facility. In practical terms, out-of-state energy may be "firmed" or "shaped" within the calendar year. Firming and

shaping refers to the process by which resources with variable delivery schedules may be backed up or supplemented with delivery from another source to meet customer load."

The LADWP recommends that the LADWP RPS Policy be updated to include these limited revisions. Because the LADWP desires to own and/or operate its generation facilities and is interested in the physical delivery of renewables, it is not recommending adoption of all CEC provisions.

COST AND DURATION:

N/A

FUNDING SOURCE:

Power Revenue Fund

FISCAL IMPACT STATEMENT:

N/A

TYPE OF INSURANCE COVERAGE(S):

N/A

PRE-AWARD CHECKLIST:

N/A

CONTRACT ADMINISTRATION:

N/A

FORMAL OBJECTIONS TO AWARD OF CONTRACT:

N/A

JOB OPPORTUNITIES AND TRAINING POLICY:

☐Applicable ☒Not Applicable

INTERNAL AUDIT: ☐Yes ☒No

EXTERNAL AUDIT: ☐Yes ☒No

CHARTER SECTION 1022 FINDINGS AND BASIS THEREOF:

N/A

MEMORANDUM OF UNDERSTANDING PROPOSED CONTRACT REVIEW PROCESS:

N/A

METHOD OF SELECTION:

N/A

OUTREACH METHODS TAKEN:

N/A

MINORITY/WOMEN BUSINESS ENTERPRISE (MBE/WBE) SUBCONTRACTING PARTICIPATION:

N/A

Vendor History:

N/A

VENDOR PERFORMANCE:

N/A

ENVIRONMENTAL DETERMINATION:

In accordance with the California Environmental Quality Act (CEQA), it has been determined that the proposed LADWP RPS Policy as amended April 2008, is exempt pursuant to the General Exemption described in CEQA Guidelines Sections 15061 (b) (3). General Exemptions apply in situations where it can be seen with reasonable certainty that there is no possibility that the activity in question may have a significant effect on the environment.

New renewable energy generation facilities will be individually assessed pursuant to CEQA.

RECOMMENDATION:

It is recommended that your Honorable Board approve the accompanying resolution, approved as to form and legality by the City Attorney, amending the Los Angeles Department of Water and Power Renewables Portfolio Standard Policy.

BLP:ms
Attachment
c/att: H. David Nahai
Raman Raj
Joseph S. Avila
Richard M. Brown
Stanton J. Snyder
Aram Benyamin
James B. McDaniel
Robert K. Rozanski
Ronald O. Vazquez
James H. Caldwell Jr.
Hal D. Lindsey
Pamela T. Porter
Cecilia K.T. Weldon
Jeffery Peltola
Albert A. Stephens
Randy S. Howard
Brian C. Koch
Bradford L. Packer

City of Los Angeles Department of Water and Power
Renewables Portfolio Standard Policy
As Amended April 2008

1. Purpose:

In 2002, California Senate Bill 1078 (SB 1078), an act to add Sections 387, 390.1 and 399.25, and to add Article 16 (commencing with Section 399.11) to Chapter 2.3 of Part I of Division 1 of the Public Utilities Code, was passed establishing a 20 percent Renewables Portfolio Standard (RPS) for California investor-owned utilities. SB 1078 provides that each government body of a local publicly owned electric utility shall be responsible for implementing and enforcing a RPS that recognizes the intent of the Legislature to encourage renewable resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.

On June 29, 2004, the Los Angeles City Council passed Resolution 03-2064-S1 requesting that the Board of Water and Power Commissioners (Board) adopt an RPS Policy of 20 percent renewable energy by 2017 setting applicable milestones to achieve this goal, and incorporate this RPS into a future Integrated Resource Plan (IRP).

On May 23, 2005, the Los Angeles Department of Water and Power (LADWP) Board adopted a LADWP RPS Policy that established the goal of increasing the amount of energy LADWP generates from renewable power sources to 20% of its energy sales to retail customers by 2017, with an interim goal of 13% by 2010. On June 29, 2005, the Los Angeles City Council approved the LADWP RPS Policy.

On April 11, 2007, LADWP's Board amended the LADWP RPS policy by accelerating the goal of requiring 20% of energy sales to retail customers be generated from renewable resources by December 31, 2010. In addition, the amended policy established a "Renewable Resource Surcharge", and also established renewable energy procurement ownership targets.

This RPS Policy, as amended April 2008, represents LADWP's continued commitment to renewable resource supply as requested by the City Council Resolution 03-2064-S1 and is consistent with the provisions of SB 1078 (2002). It also includes an additional RPS goal of requiring 35% of energy sales to retail customers be generated from renewable resources by December 31, 2020, expands list of eligible renewable resources, and provides a new definition of when RPS energy can be delivered to LADWP.

2. Goal:

To promote stable electricity prices, protect public health, improve environmental quality, provide sustainable economic development, create new employment

opportunities, and reduce reliance on imported fuels, LADWP will increase its supply of electricity from "eligible" renewable resources until a target portfolio level of 20 percent is reached by December 31, 2010, measured by the amount of electric energy sales to retail customers. An additional goal is that 35% renewables will be met by December 31, 2020.

Also, LADWP will continue to encourage voluntary contributions from customers to fund renewable resources above the stated RPS goal.

3. Eligible Resources:
Electricity produced from the following technologies constitute "eligible" resources: biodiesel; biomass; conduit hydroelectric (hydroelectric facilities such as an existing pipe, ditch, flume, siphon, tunnel, canal, or other manmade conduit that is operated to distribute water for a beneficial use); digester gas; fuel cells using renewable fuels; geothermal; hydroelectric incremental generation from efficiency improvements; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas (meeting the heat content and quality requirements to qualify as pipeline-grade gas) injected into a natural gas pipeline for use in renewable facility; multi-fuel facilities using renewable fuels (only the generation resulting from renewable fuels will be eligible), small hydro 30 MW or less, and the Los Angeles Aqueduct hydro power plants; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later.

4. Long-Term Resource Plan:
LADWP will integrate the RPS into its long-term resource planning process, and the RPS will not compromise LADWP's Integrated Resource Plan (IRP) objectives of service reliability, competitive electric rates, and environmental leadership.

5. Renewable Resource Acquisition:
LADWP's renewable acquisitions will be based on a competitive bid process, and least-cost, best-fit project selection criteria will be utilized. Furthermore, preference will be given to projects that are located within the City of Los Angeles and are to be owned and operated by LADWP to further support LADWP's economic development and system reliability objectives.

For acquisitions before December 31, 2010, LADWP will pursue its twenty percent (20%) RPS goal in a manner which will result in a minimum of forty percent (40%) renewable energy generation ownership that LADWP develops or that LADWP acquires through contracts with providers of renewable energy. Further, with respect to the foregoing contracts with providers, such contracts will provide for LADWP ownership or an option to own, either directly or indirectly (including through joint power authorities).

On or after January 1, 2011, a minimum of seventy five percent (75%) of all new renewable energy generation acquired by LADWP will either be owned or acquired by LADWP through an option-to-own, either directly or indirectly (including through joint powers authorities) until at least half of the total amount of the renewable resources are supplied by renewable resources owned or optioned either directly or indirectly (including through joint power authorities) by LADWP.

The first priority for LADWP will be to pursue outright ownership opportunities, and the second priority will be consideration of option-to-own cost-based renewable resource acquisitions. In comparing outright ownership to "option-to-own," option-to-own projects must show clear economic benefits, such as pass-through of Federal or State tax credits or incentives, which could not otherwise be obtained, or the need to evaluate new technology. The option-to-own will be exercisable with the minimum terms necessary to obtain and pass those tax credits and/or incentives to LADWP and/or upon a reasonable amount of time to evaluate the operation of the new technology.

6. System Rate Impact:
The Board established a "Renewable Resources Surcharge", to cover the additional costs of renewable resources to meet the RPS goals beginning on July 1, 2006. LADWP may not make any major financial commitment to procure/acquire renewable resources prior to evaluating the rate impact and any potential adverse financial impact on the City transfer.

7. Solar Set Aside:
Following further assessment by LADWP, and adopted legislation, the Board may establish a solar set aside. The Board may also establish the appropriate prices to be paid for solar resources and a "Solar Surcharge" to cover the additional cost of a solar set aside.

8. Reporting Requirement:
LADWP will provide an annual report of the following information to its customers and the California Energy Commission (CEC) as required by SB 1078 and SB 107: (1) expenditure of Public Benefits Charge funds for renewable energy resources development, (2) the resource mix used to serve its retail customers by fuel type, and (3) status in implementing an RPS and progress toward attaining the standard. LADWP will continue to provide a quarterly Power Content Label Report to its customers as required by SB 1305 (1997), and an annual report of the total expenditure for renewable resources funded by voluntary customer contributions. For purposes of attaining RPS goals, given that there may be significant fluctuations from year to year in the amount of energy generated, particularly from hydroelectric, wind and solar resources due to weather conditions, LADWP RPS goals may report energy that would have been generated in an average year from individual projects utilizing these technologies.

9. Flexible Compliance:

Renewable resource procurements will be limited to development and acquisition of physical generation assets and energy purchase contracts, and therefore, LADWP will not purchase the "renewable energy credit" from a renewable resource, without purchasing the associated energy. In the event that RPS goals cannot be achieved due to limitations in the Renewable Resources Surcharge, or the availability of renewables that meet the IRP requirements, the Board shall consider adjusting this RPS Policy as needed.

10. RPS Energy Delivery:

Renewable energy may be delivered to LADWP's Power System at a different time than when the renewable facility generated the energy. Further, the energy delivered to LADWP may be generated at a different location than that of the renewable facility. In practical terms, renewable energy may be "firmed" or "shaped" within the calendar year. Firming and shaping will allow renewable energy that is generated in a variable manner to be delivered to LADWP in a consistent manner. This will allow transmission capacity to be utilized more efficiently, and will also increase system reliability.

Supplemental Information

City of Los Angeles Department of Water and Power (LADWP)
Renewables Portfolio Standard Policy as Amended April 2008

Background:

- In August 2000, the LADWP adopted an Integrated Resource Plan (IRP) that established a goal of meeting 50 percent of projected load growth through a combination of Demand-Side-Management, Distributed Generation, and Renewable Resources. Under this IRP, the LADWP established a goal of developing 30 megawatts (MW) of renewables by 2001, 100 MW by 2005, and 150 MW by 2010.
- In 2002, the California Legislature passed California Senate Bill 1078 that established the California Renewables Portfolio Standard (RPS), with a goal for all investor-owned utilities to increase their use of renewable resources by at least 1 percent per year, until 20 percent of their retail sales are procured from renewables by 2017. Although publicly owned utilities like the LADWP are exempt from the California Senate Bill 1078, they are encouraged to establish renewable resource goals consistent with the intent of the Legislature.
- In late 2003, the Mayor of Los Angeles and the City Council took several steps toward developing a new RPS for the LADWP. This included the creation of the Green Ribbon Commission by the Mayor, and convening a Renewable Energy Summit by the Commerce, Energy, and Natural Resources Committee.
- On June 29, 2004, the Los Angeles City Council adopted a LADWP RPS Framework that was used as the basis for establishing a RPS Policy. While adopting LADWP's RPS Framework, the City Council requested that the LADWP establish a RPS Policy. Specifically, the City Council requested the Board of Water and Power Commissioners "to adopt a RPS of 20 percent renewable energy by 2017 setting applicable milestones to achieve this goal," and "incorporate this RPS into all future energy system planning. It should also be reflected in the IRP now being prepared, to identify actions to be taken in the next year toward increased renewable energy procurement and/or development."
- On October 15, 2004, the Los Angeles City Council adopted a resolution approving the inclusion of existing LADWP hydroelectric generation units greater than 30 MW in size, excluding Hoover hydroelectric plant, as part of the City's RPS list of eligible resources.
- In mid 2004, the LADWP initiated a competitive Request for Proposals (RFP) process to acquire renewable resources to meet an interim RPS goal of 13 percent by 2010.

- On June 29, 2005, the City Council approved the LADWP RPS policy, which has many similarities to the State mandate for the investor owned utilities. The RPS is designed to increase the amount of energy the LADWP generates from renewable power sources to 20 percent of its energy sales to retail customers by 2017, with an interim goal of 13 percent by 2010. The policy will provide a long-term framework to achieve the 20 percent goal without compromising power reliability or the financial stability of the LADWP and its customers.
- In August 2005, the Southern California Public Power Authority (SCPPA) issued a RFP to acquire renewable resources. The LADWP is a member of SCPPA.
- In December of 2005, the Board of Water and Power Commissioners recommended that that the LADWP accelerate the RPS goal to obtain 20 percent renewables by 2010. This recommendation included updating the LADWP's IRP to include this goal, proceeding with the negotiation and contract development for renewable resources proposed and selected in the LADWP's 2004 RFP and SCPPA's 2005 RFP, and to prepare and submit for consideration a mechanism to support the cost of accelerating the RPS and to maintain the financial integrity of of the LADWP's Power System during times of natural gas price volatility.
- In January 2007, the LADWP issued an additional RFP to acquire renewable resources to meet the RPS goal of 20 percent by 2010.
- On April 11, 2007, the LADWP's Board amended the LADWP RPS policy by accelerating the goal of requiring 20 percent of energy sales to retail customers to be generated from renewable resources by December 31, 2010. In addition, the amended policy established a "Renewable Resource Surcharge," and also established renewable energy procurement ownership targets.

Attachments:

1) The City of Los Angeles Department of Water and Power Renewables Portfolio Standard Policy, as approved by the City Council on June 29, 2005.

2) Amendment No. 1 of the City of Los Angeles Department of Water and Power Renewables Portfolio Standard Policy.

Attachment 1

City of Los Angeles Department of Water and Power
Renewables Portfolio Standard Policy

Purpose:
On June 29, 2004, the Los Angeles City Council passed Resolution 03-2064-S1 requesting that the Board of Water and Power Commissioners adopt a Renewables Portfolio Standard (RPS) Policy.

In 2002 California Senate Bill 1078 (SB1078), an act to add Sections 387, 390.1 and 399.25, and to add Article 16 (commencing with Section 399.11) to Chapter 2.3 of Part 1 of Division 1 of the Public Utilities Code, was passed establishing a 20% RPS for California investor-owned utilities.

This RPS Policy represents Los Angeles Department of Water and Power's (LADWP) commitment to renewable resource supply as requested by the City Council Resolution 03-2064-S1 and consistent with the provisions of SB1078 (2002). SB1078 provides that each government body of a local publicly-owned electric utility shall be responsible for implementing and enforcing a RPS that recognizes the intent of the Legislature to encourage renewable resources, while taking into consideration the effect of the standard of rates, reliability, and financial resources and the goal of environmental improvement.

Goal:
Los Angeles City Council Resolution 03-2064-S1 requires that the Board of Water and Power Commissioners adopt a RPS of 20% renewable energy by 2017 setting applicable milestones to achieve this goal, and incorporate this RPS into all future energy system planning. Furthermore, the Council instructed LADWP to include in its report on RPS the impact on the local economy and jobs.

The public policy goals stated in SB1078 include increasing California's reliance on renewable energy resources up to 20% by 2017 to promote stable electricity prices, protect public health, improve environmental quality, stimulate sustainable economic development, create new employment opportunities, and reduce reliance on imported fuels.

In furtherance of the above-expressed goals, LADWP will increase its supply of electricity from "eligible" renewable resources until a target portfolio level of 20% is reached by December 31, 2017, measured by the amount of electric energy sales to retail customers. LADWP will increase the RPS level by approximately 1% per year with an interim goal of 13% by 2010. Also, LADWP will continue to encourage voluntary contributions from customers to fund renewable resources above the stated RPS goal.

Eligible Resources:
Electricity produced from the following technologies constitute "eligible" resources: biomass; biodiesel; digester gas; fuel cells using renewable fuels; geothermal; landfill gas; municipal solid waste only if the energy conversion process does not employ direct combustion of solid fuel; ocean wave, ocean thermal, and tidal current technologies; solar photovoltaic; small hydro 30 MW or less, and the Los Angeles Aqueduct hydro power plants; solar thermal; wind; and other renewables that may be defined later.

Long-Term Resource Plan:
LADWP will integrate the RPS into its long-term resource planning process, and the RPS will not compromise LADWP's Integrated Resource Plan (IRP) objectives of service reliability, competitive electric rates, and environmental leadership. LADWP will not terminate any existing long-term contract, or otherwise create stranded generation assets in order to meet the RPS goals.

Renewable Resource Acquisition:
LADWP's renewable acquisitions will be based on a competitive bid process, and least-cost, best-fit project selection criteria will be utilized. Furthermore, preference will be given to projects that are located within the City of Los Angeles and are to be owned and operated by LADWP to further support LADWP's economic development and system reliability objectives. This will not preclude LADWP from developing its own renewable resources, provided that they are in support of the RPS goals and meet criteria established in the IRP.

Price Benchmarking:
The appropriate prices to be paid or expended for renewable resources ("Renewable Resources Price Cap") will be established by the Water and Power Board of Commissioners (Board), on an as needed basis, and shall include the cost of associated interconnection, transmission, and energy losses to deliver the energy to LADWP's load center.

System Rate Impact:
The Board will establish a "Renewable Resources Surcharge" if deemed required covering the additional costs of renewable resources to meet the RPS goals beginning on July 1, 2007. LADWP will not make any major financial commitment to procure/acquire renewable resources prior to the establishment of any such required surcharge to mitigate any potential adverse financial impact on the City transfer.

Solar Set Aside:
Following further assessment by LADWP, and pending legislation, the Board may establish a solar set aside. The Board may also establish the appropriate prices to be paid for solar resources and a "Solar Surcharge" to cover the additional cost of the solar set aside.

Above Market Subsidies:
LADWP may utilize "Public Benefits Charge" (PBC) funds to subsidize the above-market costs of renewable energy, as may be directed by the Board.

Reporting Requirement:
LADWP will provide an annual report of the following information to its customers as required by SB1078: (1) expenditure of PBC funds for renewable energy resources development, and (2) the resource mix used to serve its retail customers by fuel type. LADWP will continue to provide a quarterly Power Content Label Report to its customers as required by SB1305 (1997), and an annual report of the total expenditure for renewable resources funded by voluntary customer contributions.

Flexible Compliance:
Renewable resource procurements will be limited to development and acquisition of physical generation assets and energy purchase contracts, and therefore, LADWP will not purchase the "renewable energy credit" from a renewable resource, without purchasing the associated energy. In the event that RPS goals cannot be achieved due to limitations in the "Above Market Subsidies," "Surcharge," or the availability of renewables that meet the IRP requirements, the Board shall adjust this RPS Policy as needed.

Attachment 2

City of Los Angeles Department of Water and Power
Renewables Portfolio Standard Policy
As Amended April 2007

1. Purpose:

In 2002 California Senate Bill 1078 (SB 1078), an act to add Sections 387, 390.1 and 399.25, and to add Article 16 (commencing with Section 399.11) to Chapter 2.3 of Part I of Division 1 of the Public Utilities Code, was passed establishing a 20 percent Renewables Portfolio Standard (RPS) for California investor-owned utilities. SB 1078 provides that each government body of a local publicly owned electric utility shall be responsible for implementing and enforcing a RPS that recognizes the intent of the Legislature to encourage renewable resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.

On June 29, 2004, the Los Angeles City Council passed Resolution 03-2064-S1 requesting that the Board of Water and Power Commissioners adopt a RPS Policy of 20 percent renewable energy by 2017 setting applicable milestones to achieve this goal, and incorporate this RPS into a future Integrated Resource Plan (IRP).

On May 23, 2005, the Los Angeles Department of Water and Power (LADWP) Board of Commissioners (Board) adopted a LADWP RPS Policy that established the goal of increasing the amount of energy that the LADWP generates from renewable power sources to 20 percent of its energy sales to retail customers by 2017, with an interim goal of 13 percent by 2010. On June 29, 2005, the Los Angeles City Council approved the LADWP RPS Policy.

In order to further promote stable electricity prices, protect public health, improve environmental quality, provide sustainable economic development, create new employment opportunities, and reduce reliance on imported fuels, in December 2005, the Board accelerated the LADWP RPS goal to a mandated 20 percent renewable energy by 2010.

This RPS Policy, as amended April 2007, represents the LADWP's continued commitment to renewable resource supply as requested by the City Council Resolution 03-2064-S1 and is consistent with the provisions of SB 1078 (2002).

2. Goal:

To promote stable electricity prices, protect public health, improve environmental quality, provide sustainable economic development, create new employment opportunities, and reduce reliance on imported fuels, LADWP will increase its supply of electricity from "eligible" renewable resources until a target portfolio level of 20 percent is reached by December 31, 2010, measured by the amount of electric energy sales to retail customers.

Also, the LADWP will continue to encourage voluntary contributions from customers to fund renewable resources above the stated RPS goal.

3. Eligible Resources:
Electricity produced from the following technologies constitute "eligible" resources: biomass; biodiesel; digester gas; fuel cells using renewable fuels; geothermal; landfill gas; municipal solid waste, only if the energy conversion process does not employ direct combustion of solid fuel; ocean wave, ocean thermal, and tidal current technologies; solar photovoltaic; small hydro 30 megawatts (MW) or less, and the Los Angeles Aqueduct hydro power plants; solar thermal; wind; and other renewables that may be defined later.

4. Long-Term Resource Plan:
The LADWP will integrate the RPS into its long-term resource planning process, and the RPS will not compromise the LADWP's IRP objectives of service reliability, competitive electric rates, and environmental leadership.

5. Renewable Resource Acquisition:
The LADWP's renewable acquisitions will be based on a competitive bid process, and least-cost, best-fit project selection criteria will be utilized. Furthermore, preference will be given to projects that are located within the City of Los Angeles and are to be owned and operated by the LADWP to further support the LADWP's economic development and system reliability objectives.

For acquisitions before December 31, 2010, the LADWP will pursue its twenty percent (20%) RPS goal in a manner which will result in a minimum of forty percent (40%) renewable energy generation ownership that the LADWP develops or that the LADWP acquires through contracts with providers of renewable energy. Furthermore, with respect to the foregoing contracts with providers such contracts will provide for LADWP ownership or an option to own, either directly or indirectly (including through joint power authorities).

On or after January 1, 2011, a minimum of seventy-five percent (75%) of all new renewable energy generation acquired by the LADWP will either be owned or acquired by the LADWP through an option-to-own, either directly or indirectly (including through joint powers authorities), until at least half of the total amount of the renewable resources are supplied by renewable resources owned or optioned either directly or indirectly (including through joint power authorities) by the LADWP.

The first priority for the LADWP will be to pursue outright ownership opportunities; the second priority will be consideration of option-to-own cost-based renewable resource acquisitions. In comparing outright ownership to "option-to-own," option-to-own projects must show clear economic benefits, such as pass-through of Federal or State tax credits or incentives, which could not otherwise be obtained, or the need to evaluate new technology. The option-to-own will be exercisable with the minimum terms necessary to obtain and pass

those tax credits and/or incentives to the LADWP and/or upon a reasonable amount of time to evaluate the operation of the new technology.

6. System Rate Impact:
The Board established a "Renewable Resources Surcharge," to cover the additional costs of renewable resources to meet the RPS goals beginning on Julyon July 1, 2006. The LADWP may not make any major financial commitment to procure/acquire renewable resources prior to evaluating the rate impact and any potential adverse financial impact on the City transfer.

7. Solar Set Aside:
Following further assessment by the LADWP, and adopted legislation, the Board may establish a solar set aside. The Board may also establish the appropriate prices to be paid for solar resources and a "Solar Surcharge" to cover the additional cost of a solar set aside.

8. Reporting Requirement:
The LADWP will provide an annual report of the following information to its customers and the California Energy Commission as required by SB 1078 and SB 107: (1) expenditure of PBC funds for renewable energy resources development, (2) the resource mix used to serve its retail customers by fuel type, and (3) status in implementing an RPS and progress toward attaining the standard. The LADWP will continue to provide a quarterly Power Content Label Report to its customers as required by SB 1305 (1997), and an annual report of the total expenditure for renewable resources funded by voluntary customer contributions.

9. Flexible Compliance:
Renewable resource procurements will be limited to development and acquisition of physical generation assets and energy purchase contracts, and therefore, the LADWP will not purchase the "renewable energy credit" from a renewable resource, without purchasing the associated energy. In the event that RPS goals cannot be achieved due to limitations in the "Above Market Subsidies," "Surcharge", or the availability of renewables that meet the IRP requirements, the Board shall consider adjusting this RPS Policy as needed.

RESOLUTION NO. 008 247

WHEREAS in August 2000, the Water and Power Board of Commissioners approved a resolution that authorized the Los Angeles Department of Water and Power (LADWP) to adopt an Integrated Resource Plan that established a goal of meeting 50 percent of projected load growth through a combination of Demand-Side-Management, Distributed Generation, and Renewable Resources; and

WHEREAS In 2002, the California Legislature passed the California Senate Bill 1078 that established the California Renewables Portfolio Standard (RPS), and a goal for all investor-owned utilities to increase their use of renewable resources by at least 1 percent per year, until 20 percent of their retail sales are procured from renewables by 2017; and

WHEREAS publicly-owned utilities like the LADWP are exempt from the California Senate Bill 1078, however they are encouraged to establish renewable resource goals consistent with the intent of the California Legislature; and

WHEREAS on June 29, 2004 the Los Angeles City Council adopted a LADWP RPS Framework that was used as the basis for the establishment of the RPS Policy. While adopting the LADWP's RPS Framework, the City Council had requested the LADWP to establish a RPS Policy. Specifically, the City Council had requested the Board of Water and Power Commissioners, "to adopt a RPS of 20 percent renewable energy by 2017 setting applicable milestones to achieve this goal," and "Incorporate this RPS into all future energy system planning. It should also be reflected in the Integrated Resource Plan now being prepared to identify actions to be taken in the next year toward increased renewable energy procurement and/or development"; and

WHEREAS on October 15, 2004, the Los Angeles City Council adopted a resolution approving the inclusion of existing LADWP hydroelectric generation units greater than 30 megawatts in size, excluding Hoover hydroelectric plant, as part of the City's RPS list of eligible resources.

WHEREAS on June 29, 2005, the City Council approved the City of Los Angeles Department of Water and Power Renewables Portfolio Standard Policy, which has many similarities to the state mandate for the investor owned utilities. The RPS is designed to increase the amount of energy the LADWP generates from renewable power sources to 20 percent of its energy sales to retail customers by 2017, with an interim goal of 13 percent by 2010. The policy will provide a long-term framework to achieve the 20 percent goal without compromising power reliability or the financial stability of the LADWP and its customers.

WHEREAS in December of 2005, the Board of Water and Power Commissioners recommended that the LADWP accelerate the RPS goal to obtain 20 percent

renewables by 2010. This recommendation included updating LADWP's Integrated Resource Plan to include this goal, proceeding with the negotiation and contract development for renewable resources proposed and selected in LADWP's 2004 RPS and Southern California Public Power Authority 2005 RPS, and to prepare and submit for consideration a mechanism to support the cost of accelerating the RPS and to maintain the financial integrity of LADWP's Power System during times of natural gas price volatility.

WHEREAS on April 11, 2007, LADWP's Board of Water and Power Commissioners amended the LADWP RPS policy by accelerating the goal of requiring 20 percent of energy sales to retail customers be generated from renewable resources by December 31, 2010. In addition, the amended policy established a "Renewable Resource Surcharge," and also established renewable energy procurement ownership targets.

NOW, THEREFORE BE IT RESOLVED that the City of Los Angeles Department of Water and Power RPS Policy as amended April 2008, approved as to form and legality by the City Attorney and on file with the Secretary of the Board, be and the same is hereby approved.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Water and Power Commissioners of the City of Los Angeles at its meeting held MAY 20 2008

Barbara E. Moschos

Secretary

APPROVED AS TO FORM AND LEGALITY
ROCKARD J. DELGADILLO, CITY ATTORNEY

APR 29 2008

BY STANTON J. SNYDER
Assistant City Attorney