

# Agenda Report

July 11, 2011

**TO:** Honorable Mayor and City Council

**THROUGH:** Municipal Services Committee (June 28, 2011)

**FROM:** Water and Power Department

**SUBJECT:** AUTHORIZE THE CITY MANAGER TO ENTER INTO CONTRACTS WITH SEQUENT ENERGY MANAGEMENT, L.P. FOR THE PURCHASE OF BIOGAS UP TO AN ANNUAL AVERAGE AMOUNT OF 1,620 MMBTU PER DAY AND WM RENEWABLE ENERGY LLC FOR THE PURCHASE OF BIOGAS UP TO AN AVERAGE ANNUAL AMOUNT OF 1,100 MMBTU PER DAY UNTIL DECEMBER 31, 2021.

## **RECOMMENDATION:**

It is recommended that the City Council:

1. Find that the purchase of biogas fuel to generate renewable electricity is Categorically Exempt per Sections 15301 (Existing Facilities) and 15308 (Actions by Regulatory Agencies for the Protection of the Environment) of the California Environmental Quality Act (CEQA);
2. Authorize the City Manager to enter into a contract with Sequent Energy Management, L.P. (Sequent) to purchase up to an average annual amount of 1,620 million British thermal units (MMBtu) per day of biogas until December 31, 2021;
3. Authorize the City Manager to enter into a contract with WM Renewable Energy LLC (WM) to purchase up to an average annual amount of 1,100 MMBtu per day of biogas until December 31, 2021;
4. Find that the electricity generated using biogas fuel qualifies as renewable energy to meet Pasadena Water and Power Department's obligations under statutory and regulatory requirements pertaining to renewable portfolio standard (RPS) and does not result in Carbon Dioxide emissions compliance obligation; and,
5. Find that these contracts are exempt from competitive bidding pursuant to City Charter Section 1002(f), contracts for professional or unique services.

## **MUNICIPAL SERVICES COMMITTEE RECOMMENDATION:**

On June 28, 2011, the Municipal Services Committee recommended that the City Council adopt the recommendations stated in the subject agenda report.

**EXECUTIVE SUMMARY:**

The amount of renewable energy used to serve retail electric load is commonly called a renewable portfolio standard, or RPS. Under state law, Pasadena Water and Power (PWP) must achieve a minimum 20% RPS between calendar years 2011 and 2013, and then steadily increase the RPS amount to 33% by 2020. The 2009 Power Supply Integrated Resource Plan (IRP) established even higher RPS goals. PWP must also reduce greenhouse gas (GHG) emissions under “cap and trade” regulations being developed pursuant to Assembly Bill 32, though the details are not finalized yet.

Under the proposed contracts, PWP will purchase one-half of the biogas production from two out of state landfills for ten years at a fixed price of \$10.80 per MMBtu (the City of Burbank will purchase the remaining production from each facility under separate contracts with identical terms). The sellers will deliver the biogas to California, and PWP will consume it at local generation facilities or other power plants certified to produce “in-state” renewable energy, which has the highest value under California law. This will displace the conventional natural gas that would otherwise be consumed by these plants, reducing PWP’s GHG emissions by 24,000 to 37,000 metric tons annually.

With the proposed biogas contracts in place, PWP expects to achieve a 21% RPS for the 2011-2013 compliance period, and up to 23.4% in 2020. Assuming all of PWP’s existing renewable resources perform as expected, PWP anticipates that additional renewable energy supplies will be required starting in 2016 to meet state mandates. In order to meet the City’s higher RPS goals under the IRP adopted by the City Council, additional renewable energy will be needed starting in 2012 or 2013. PWP will prepare an update of the 2009 IRP this fall to provide the City Council an opportunity to revisit Pasadena’s RPS goals.

Although the cost of biogas is nearly double that of conventional natural gas, it will yield the lowest energy cost and best fit of any long-term renewable resource currently available to PWP. Biogas is not expected to carry the GHG compliance costs associated with burning conventional natural gas. Unlike most renewable resources, PWP will be able to use biogas to generate power when it is needed most, and will not incur additional transmission costs or risks. The proposed ten year contract term aligns well with current statutory requirements and helps balance PWP’s renewable portfolio, which currently consists primarily of 20 to 30 year commitments.

The renewable premium will increase PWP’s energy procurement cost by up to \$4.7 million annually versus non-renewable sources. This translates to an approximate increase of up to \$1.95 per month for an average residential customer using 500 kWh and up to \$234 per month for a large commercial customer using 60,000 kWh.

As the legislative and regulatory treatment of renewable resources is continuously evolving, the City Council’s findings that this biogas contract qualifies for RPS and GHG emission reductions is expected to help guard against future legislation affecting the RPS eligibility of such renewable resources.

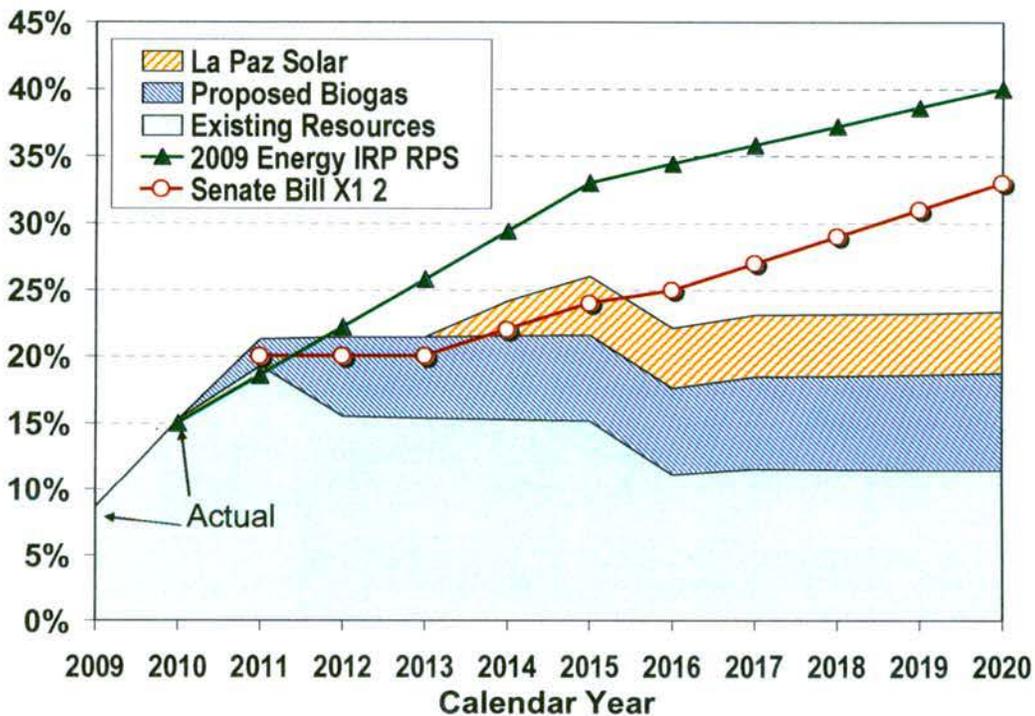
**BACKGROUND:**

Under state law, PWP is required to increase renewable content of the energy it supplies to PWP's retail customers and reduce GHG emissions pursuant to proposed cap and trade program. Penalties and costs for non-compliance will apply, but are not known. The City's 2009 Energy IRP has established goals that exceed statutory requirements. The proposed biogas contracts are a step forward in meeting those goals. Partnering with Burbank provides PWP the opportunity to diversify its renewable portfolio supply and negotiate better terms and reduced exposure to one large contract.

**Renewable Resource Requirements and Projected Supply**

The City's Energy IRP established RPS goals of 15% by 2010, 33% by 2015, and 40% by 2020. With the recent enactment of Senate Bill X1-2 (SBX1-2), all electric utilities in the state must meet an average 20% RPS between calendar years 2011 and 2013, then steadily increase renewable procurement to meet a 25% RPS by 2016 and 33% RPS by 2020. Figure 1 illustrates these RPS goals as well as PWP's RPS supply through 2020.

**Figure 1: PWP's RPS Supply vs. State Law and IRP Goals**



The estimated RPS supply from 2011-2020 includes the likely production from PWP's current portfolio of contracted renewable resources (including the recently-approved biogas contract with EDF Trading North America, LLC) plus the expected energy from the proposed biogas contracts. Projected energy from the La Paz solar power tower contract is highlighted due to the uncertain nature of this technology and viability of the project.

PWP achieved a 15% RPS for calendar year 2010 using a combination of long-term contracts and short-term purchases. PWP will need to secure additional long- and short-term qualifying renewable resource supplies in the range of 5% to 20% to meet statutory RPS requirements over the next ten years, and an additional 6.4% on average to meet the IRP goals. The proposed biogas contracts represent a significant step towards fulfilling this procurement gap.

In addition to setting forth overall RPS objectives, SBX1-2 established minimum or maximum allowable contributions to the RPS requirements for various types of future qualifying resources. The legislature has made it clear that in-state resources are preferred by imposing limits on the maximum amount of out-of-state or renewable energy credit (REC) energy that can be counted. Since PWP will use certified in-state generation facilities to produce electricity using the biogas supply, this energy would qualify as an in-state renewable resource that has no maximum procurement limits.

Future legislation may further refine or clarify RPS requirements and regulations. Senate Bill 23, which is intended to clean up SBX1-2 provisions, is currently being considered by the state legislature. The California Energy Commission (CEC) recently opened a proceeding to develop RPS regulations for municipal utilities, and a similar proceeding is underway at the California Public Utilities Commission for investor owned utilities.

Generation facilities that consume biogas fuel must be certified by the CEC to produce qualifying renewable energy to meet California RPS requirements. PWP's local power plants and the co-owned Magnolia power plant in the City of Burbank have been pre-certified by the CEC. California Air Resources Board (CARB) staff working on cap and trade regulation has recently indicated carbon dioxide emissions from both of these biogas projects would not have a compliance obligation.

***GHG Requirements:***

Last year, CARB approved GHG cap and trade regulation that allocates a certain amount of allowances (1 allowance = 1 metric ton of GHG) on an annual basis to regulated entities such as PWP. These allocations decline over time and facilities emitting more than their allocations can buy allowances from those holding such allowances in excess of their needs. CARB has not provided the actual allocation methodology yet. The program was initially slated for implementation beginning January 1, 2012, but it may be delayed due to a recent court ruling.

In anticipation of imminent state regulation, PWP is pursuing various means to reduce GHG emissions. The biogas based carbon dioxide portion of GHG emissions is expected to be exempted from the proposed cap and trade program.

***Contract Summary and Estimated Impacts***

The proposed contracts require the sellers to collect landfill biogas, treat it to commercial natural gas pipeline grade fuel, and transport and deliver the biogas to PWP at the Southern California Gas Company "Citygate" trading location (where PWP

procures fuel for use in local generation resources). The seller will be responsible to provide necessary documentation to demonstrate biogas quantity and heat content injected into the natural gas pipeline system, nomination details for transportation to Citygate, and transfer of environmental attributes to PWP. Both contracts provide biogas for a fixed price of \$10.80 per MMBtu, and will expire on December 31, 2021.

The contracts differ with respect with contract source and volumes, as shown in Table I.

- **Sequent:** This facility is under construction and the actual output has not been confirmed. The contract calls for a “Base Contract Volume” that would average 610 MMBtu/day in the first contract year and increase steadily to 958 MMBtu/day in the final contract year (year ten). Additionally, the seller has a one-time option to increase or decrease the Base Contract Volume up or down by 30%. In any given year, the seller can deliver, and PWP must purchase, 70% to 130% of the Base Contract Volume without penalties. Seller is responsible to pay liquidated damages to PWP should the delivery be less than 70% of the contracted annual amount.
- **WM:** This facility is in operation and has a demonstrated production history. The contract calls for a fixed “Base Contract Volume” that would average 1,000 MMBtu/day each contract year. In any given year, the seller can deliver, and PWP must purchase, 80% to 110% of the Base Contract Volume without penalties. Seller is responsible to pay liquidated damages to PWP should the delivery be less than 80% of the contracted amount for 12 consecutive months. In the unlikely event that biogas does not qualify for RPS requirements under future legislation, either party may terminate the contract.

**Table I: Biogas Contract Summary**

Supplier	Sequent	WM
Biogas Source	New biogas facility at an existing Landfill; Athens, Tennessee	Existing biogas facility at an existing Landfill Waynesburg, Ohio.
Availability	By August 31, 2011	Within 30 days of contract
Minimum Volume (MMBtu/day)	300 – 470 <sup>[1]</sup>	800 (80%)
Base Contract Volume (MMBtu/day)	610 – 958 <sup>[1]</sup>	1,000
Maximum Volume –Annual average (MMBtu/day)	1,030 - 1,620 <sup>[1]</sup>	1,100 (110%)
Price (\$/MMBtu) <sup>[2]</sup>	\$5.60 (conventional NG) \$5.20 (biogas premium) \$10.80 (total fixed price)	\$5.60 (conventional NG) \$5.20 (biogas premium) \$10.80 (total fixed price)

1. The Sequent contract includes “base” volumes that increase over time, 70% minimum delivery requirement, plus a one-time option for seller to increase or reduce the base volume by 30%.
2. Both contracts specify fixed value for conventional natural gas commodity and the renewable biogas premium. Neither vendor was willing to offer an index-based contract price that would change in tandem with future natural gas prices or renewable premiums.

While PWP is seeking authority for the maximum possible annual deliveries from each of the proposed contracts, actual biogas deliveries are expected to be substantially lower than the authorized volumes. Table II shows the expected average biogas supply volumes that will be delivered over the ten-year contracts, and the corresponding energy, RPS, GHG reduction, and cost impacts.

**Table II: Expected Biogas Supply and Impacts**

Supplier	Sequent	WM
Expected Deliveries (MMBtu/day)	810	935
Expected Energy (MWh/year) <sup>[1]</sup>	35,836	41,367
Expected RPS Contribution <sup>[1]</sup>	3%	3.60%
Cost of Energy Produced (¢/kWh) <sup>[1]</sup>	9.12	9.12
GHG Reduction (metric tons) <sup>[1]</sup>	15,794	18,231
Contract Cost (\$000/yr)	\$3,193	\$3,686
Renewable Premium (\$000/yr)	\$1,537	\$1,775

1. *Expected energy production, RPS contribution, and average energy cost, and GHG reductions will depend on the efficiency of the generation facility used to produce renewable energy from biogas. These results assume a blended average use of combined cycle and peaking plant.*

As a reference to the current market, Table III compares the cost of the biogas and associated renewable energy output under the proposed contract to that of conventional natural gas current market prices for a ten-year contract supply.

**Table III: Biogas vs. Conventional Gas Supply Costs**

Fuel Type	Price (\$/mmbtu)	Energy Cost <sup>[1]</sup> (¢/kWh)
Proposed Biogas Contracts	10.80	8.1 – 10.8
Contract Price for Conventional Gas:	5.60 <sup>[2]</sup>	4.2 – 5.6
Contract Premium for Biogas	5.20	3.9 – 5.2

1. *Energy cost is a function of gas commodity and delivery price and the efficiency of the generation facility used. These prices reflect the potential use of high efficiency combined-cycle plants or peaking plants to produce renewable energy from biogas.*
2. *While both contracts specify fixed value for conventional natural gas commodity and the renewable biogas premium, the actual market value of the gas commodity will change over time. The market price for natural gas is trending up, and is currently about \$6.10/MMBtu for a ten-year contract.*

### ***Comparison with Other Potential Future Resources***

Biogas provides the most economical and flexible long-term renewable resource currently available to PWP (see Exhibit 1 for a comparison of various resources that are currently available to meet PWP's future retail energy needs). Biogas is not expected to carry the GHG compliance costs associated with burning conventional natural gas. Unlike most renewable resources, PWP will be able to use biogas to generate power when it is needed most, and will not incur additional transmission costs or risks. While future pricing is highly uncertain, costs for both conventional and renewable resources have been trending higher over the last decade. Given the increasing demand for natural gas fired generation and renewable resources to meet regulatory requirements and reduce carbon emissions, PWP anticipates that the upward price trend will continue for these resources into the foreseeable future.

### ***Renewable Energy Challenges***

PWP, like most other utilities is facing a multitude of challenges in procuring renewable energy that can be delivered to its retail electric customers. Such challenges include delayed commissioning or abandonment of contracted projects, unavailability of operational or "shovel-ready" projects, barriers to out-of-state wind and solar energy, transmission and operational constraints, limited supply of viable future projects with appropriate transmission access, constricted financing, rapidly escalating costs and regulatory uncertainty. The subject biogas offers some distinct advantages.

### ***Risks***

Risks are inherent to any contract or inaction. The counterparty risk for default are secured through parent company guarantees i.e. AGL Resources for Sequent and Waste Management, Inc. for WM. Technology risk is largely covered by renewable fuel that can be used in a variety of energy generation equipment including but not limited to gas turbines, boilers, fuel cells and internal combustion engines. Fixed price risk is considered relatively low as potential for existing renewable energy premiums are projected to increase by industry experts and also evident from past ten years trend. Sellers did not accept market index based pricing and any term shorter than ten years.

### **COUNCIL POLICY CONSIDERATION:**

The recommended contract is consistent with Pasadena's Urban Accords Goals with respect to renewable energy and GHG emission reduction goals, the General Plan Energy Element, the City Council's Strategic Planning Goals, the 2009 energy IRP and general practice of complying with federal, state and local laws. This project will help PWP achieve the state's legislative goals and regulatory compliance as well as City Council goals in a cost-effective manner.

**ENVIRONMENTAL ANALYSIS:**

The project has been determined to be exempt from CEQA per Sections 15301 (Existing Facilities) and 15308 (Actions by Regulatory Agencies for the Protection of the Environment). Section 15301 allows for the operation, repair and maintenance etc. of existing private and public facilities that involve negligible or no expansion of the use. Section 15308 exempts actions taken by regulatory agencies to assure the maintenance, restoration, enhancement or protection of the environment. The proposed project is a contract for a renewable energy source to substitute for a nonrenewable source (natural gas) and will be transmitted through existing facilities, will not result in an increase in emissions or energy output at PWP's power plants, and will require no modifications to PWP's power plants. PWP is subject to various RPS and GHG emission requirements under existing law. Biogas to energy resources currently qualify as "eligible renewable resources" for RPS compliance under Section 25741(a)1 of the California Public Resources Code. Under current protocols for the California Air Resources Board Cap and Trade program, the energy produced by biogas generation resources does not carry a carbon dioxide portion of GHG emission obligation.

**FISCAL IMPACT:**

The cost of these renewable biogas purchase agreements will be approximately \$47.2 million to \$97.3 million over a ten year period. The anticipated total cost of this contract in FY 2012 is approximately \$4.33 million to approximately \$8.40 million. Funding for this action in FY 2012 will be addressed by the utilization of budgeted appropriations in Account Number 8229 – Gas Expense and Account Number 8268 – Long Term Renewable Energy Attribute and Account Number 8270 – Short Term Renewable Energy Attribute. The remainder of the costs will be spent over the next nine fiscal years, and will be recovered in the Power Cost Adjustment component of PWP's electric energy rates.

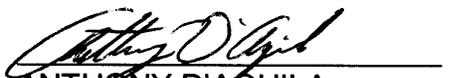
Like other renewable energy contracts, approving this contract may result in a future electricity rate increase. The proposed contracts include renewable gas premiums that could range from \$23 million to \$47 million over the life of the contracts, or about \$2.3 million to \$4.7 million annually on average. This translates to an average retail electric rate impact of approximately 0.19¢ per kWh to 0.39¢ per kWh to secure the renewable energy from the proposed biogas contracts.

The cumulative rate impact of PWP's portfolio of approved renewable resources and these proposed biogas contracts is estimated at 0.79¢ per kWh to 1.29¢ per kWh.

Respectfully submitted,

  
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PHYLLIS E. CURRIE  
General Manager  
Water and Power Department

Prepared by:

  
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ANTHONY D'AQUILA  
Wholesale Operations Manager

Approved by:

  
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MICHAEL J. BECK  
City Manager

**Exhibit I: Estimated Costs of Potential Future Resources**

Resource Option	Energy Profile	Energy Price (¢/kWh)	Availability	Pros	Cons
<b>Non-Renewable Resources</b>					
Conventional Natural Gas -1 yr*	Peaking / Dispatchable	3.9 - 5.3	Immediately	Least cost, best fit (can use hourly as needed)	GHG liability, No RPS
Conventional Natural Gas -10 yr*	Peaking / Dispatchable	4.6 to 6.1	Immediately	Least cost, best fit	GHG liability, No RPS
Spot Market Power - 3 Year Contract	Base Load	4 - 5	Immediately	Least cost	Not needed (PWP has sufficient resources)
Spot Market Power - 3 Year Contract	On Peak	5 - 6	Immediately	Least cost, good fit, short-term price stability	Long-term market exposure Not needed in many hours
<b>Renewable Resources</b>					
"In-State" Short Term Purchases	On Peak or Base Load	9.2 - 10	Immediately	Good fit and high value	Limited supply, no long-term benefit, no capacity value
Biogas Fuel *	Peaking / Dispatchable	9 - 11.2	Within 0 to 6 months	Least cost, highest value, best fit, displaces required local gen fossil fuel burn	Limited supply, future regulatory risk
Wind Contracts **	Intermittent	9.8 - 11.6	1 to 5 years	Proven technology, many project options (mostly out-of-state)	Very high integration costs, transmission constraints, variable output, poor fit to demand, CAISO prohibition on imports
Biomass, Geothermal **	Base Load	10 - 11	2 to 5 years	Stable energy output	Short supply of viable projects, transmission constraints, output may decline over time
Imported Solar **	Peaking	10 - 14	2 to 5 years	Good fit to demand	High integration cost, variable energy output, CAISO prohibition on imports, large area needed
Solar PV (Local)	Peaking	> 20	6 to 18 months	Good fit to demand	Few viable sites in City for large installations; system impacts

\* Energy Price reflects fuel costs only. \*\* Indicative pricing from responses to Southern California Public Power Authority RFP's.

**Disclosure Pursuant to the  
City of Pasadena Taxpayer Protection Amendment of 2000  
Pasadena City Charter, Article XVII**

Contractor hereby discloses its trustees, directors, partners, officers, and those with more than a 10% equity, participation, or revenue interest in Contractor, as follows:  
(If printing, please print legibly. Use additional sheets as necessary.)

**1. Contractor Name:**

Sequent Energy Management, L.P.

**2. Name(s) of trustees, directors, partners, officers of Contractor:**

John W. Somerhalder II, CEO; Peter I. Tumminello, President; Paul R. Shlanta, EVP and General Counsel; Darilyn R. Jones, SVP, and Chief Process Officer;
Mark R. Homestead, SVP, Trading; Marshall D. Lang, SVP, Marketing; Brian K. Little, SVP and CFO; Kelly Adams, VP, Gulf Coast Transportation & Exchange;
John Hodge, VP, Trading & Marketing, MA; Scott E. Maddox, VP, Information Systems & Technology; Lance Roth, VP, Asset Management; Gregory Schockling, VP, Financial; Berney Aucoin, VP, Structure & Strategy; James Goerig, VP, Risk Control; Myra C. Bierria, Corporate Secretary; Andrew W. Evans, Assistant Secretary; L. Stephen Cave, Treasurer; Dat T. Tran, Assistant Corporate Secretary; Barbara P. Christopher, Assistant Corporate Secretary

**3. Names of those with more than a 10% equity, participation or revenue interest in Contractor:**

AGL Resources Inc.
AGL Investments, Inc.
Sequent Holdings, LLC

Prepared by: Christopher Russo

Title: Manager, State Regulatory Affairs

Date: 6/14/11

For office use only
Contract No. _____

Disclosure Pursuant to the  
City of Pasadena Taxpayer Protection Amendment of 2000  
Pasadena City Charter, Article XVII

Contractor hereby discloses its trustees, directors, partners, officers, and those with more than a 10% equity, participation, or revenue interest in Contractor, as follows:  
(If printing, please print legibly. Use additional sheets as necessary.)

1. Contractor Name:

WMRE of Ohio - American, LLC

2. Name(s) of trustees, directors, partners, officers of Contractor:

Don P. Carpenter, President
Linda J. Smith, Vice President and Secretary
David C. Unger, Vice President
Edward R. Schauble, Vice President
Greg A. Robertson, Vice President, Chief Financial Officer
John Tsai, Vice President & Assistant General Counsel
Cherie Rice, Vice President and Treasurer
Paul A. Pabor, Vice President of Renewable Energy
James H. Dawland, Vice President
Courtney A. Tippy, Assistant Secretary

3. Names of those with more than a 10% equity, participation or revenue interest in Contractor:

WM Renewable Energy, LLC	100%
WM Partnership Holdings, Inc.	100%
Waste Management Holdings, Inc.	100%
Waste Management, Inc.	100%

Prepared by: David C. Unger

Title: Vice President

Date: 6-22-11

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Contract No. \_\_\_\_\_

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(If printing, please print legibly. Use additional sheets as necessary.)

1. Contractor Name:

WMRE of Ohio - American, LLC

2. Name(s) of trustees, directors, partners, officers of Contractor:

<u>Mark A. Lockett, Assistant Treasurer</u>
<u>Devina A. Rankin, Assistant Treasurer</u>

3. Names of those with more than a 10% equity, participation or revenue interest in Contractor:


Prepared by: David S. Unger

Title: Vice President

Date: 6-22-11

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