STATE OF CALIFORNIA
EPIC TRIENNIAL INVESTMENT PLAN 2015-17
Proposed Energy Research Initiative
Questionnaire

CALIFORNIA ENERGY COMMISSION

California Energy Commission
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QUESTIONNAIRE SUBMITTED BY WASTE MANAGEMENT

Title of Proposed Initiative (Short and concise):

Funding to support landfill biomethane to electricity.

Investment Areas (Check one or more) – *For definitions, see First Triennial Investment Plan, page 12*:

☐ Applied Research and Development

XX Technology Demonstration and Deployment

☐ Market Facilitation

Electricity System Value Chain (**Check only one**): *See CPUC Decision 12-05-037, Ordering Paragraph 12.a. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.*

☐ Grid operations/market design

XX Generation

☐ Transmission

☐ Distribution

☐ Demand-side management

Issues and Barriers:

Describe the issues and barriers that are impeding full market adoption of the proposed clean energy technology or strategy (such as cost, integration, or lack of information).

EPIC should fund demonstration of technology that will lower the cost of generation and transmission of pipeline-quality biomethane that is derived from waste to produce electricity at combined cycle natural gas plants. The CPUC recently issued its decision establishing stringent standards for the injection of biomethane into common carrier pipelines. However, compliance with these standards will be expensive and the expense threatens the commercial viability of this renewable source of electricity that must compete with fossil natural gas. Technologies necessary to clean and transform biogas into biomethane, and cleaner generation technologies should be subsidized to create a more competitive market and encourage use of landfill biomethane.

Initiative Description and Purpose:

How will this technology or strategy help address the issue/issues? Describe knowledge to be advanced to overcome critical barriers. Include the recommended funding level (minimum and maximum) for each project under this initiative.

Demonstration of advanced technologies that lower costs of biomethane generation from landfill gas and that assures biomethane's compliance with new health, safety and pipeline quality standards will lead to decrease emissions of greenhouse gases, make beneficial use of waste and promote renewable generation of electricity.

Recommended funding level: $10 million - $15 million

Stakeholders:

Identify the stakeholders who support the initiative.

California electricity consumers, utilities, municipal governments and agencies, renewable energy industry, general public, solid waste industry.

Background and the State-of-the-Art:

- What research development and demonstration has been done or is currently being done to advance this technology or strategy (cite past research as applicable)?

  Advanced technology is available for demonstration that will result in lower operational costs, lower cost and greater assurance of meeting stringent new standards and improving the commercialization of landfill biomethane as a renewable fuel available to California electricity customers.

- Describe any public and/or private successes and failures the technology or strategy has encountered in its path through the energy innovation pipeline: lab-scale testing, pilot-scale testing, pre-commercial demonstration, commercial scale deployment, market research, workforce development.

  Technology exists to safely treat and monitor landfill gas for pipeline distribution, as demonstrated by approximately 30 projects in the U.S. outside California. However, the cost of compliance with new California health, safety and pipeline standards is a significant barrier and must be overcome before biomethane is available as an energy source.

- Identify other related programs and initiatives that deal with the proposed technology or strategy, such as state and federal programs or funding initiatives (DOE, ARPA-E, etc.).

Justification:

Describe how this technology or strategy will provide California IOU electric ratepayer benefits and provide any estimates of quantified annual savings/benefits in California, including:

- Name of sector and estimated size and energy use.

  The solid waste sector/biogas sector. Landfill gas is the largest existing source of biogas currently collected in California, yet, according to CalRecycle, only about 53% of collected landfill gas is used beneficially to produce electricity or fuels. The remaining 47% is flared and its energy wasted.

- Quantifiable performance improvements for the proposed technology/strategy.

  Support for advanced technology is needed to meet new biomethane-pipeline standards. Without such support, the market for this renewable natural gas resource is questionable.

- Maximum market potential, if successful. ***See above.***
- Number of direct jobs created in California. ***TBD***
- Why this research is appropriate for public funding.

  Without public support through use of EPIC funds and other public sources, regulations and standards meant to promote a cleaner environment could have the oppose effect of thwarting development of a new source of renewable natural gas.

Ratepayer Benefits (Check one or more)**:**

X☐ Promote greater reliability

X☐ Potential energy and cost savings

X☐ Increased safety

X☐ Societal benefits

X☐ Environmental benefits – specify – lower emissions of greenhouse gases/beneficial use of waste

X☐ GHG emissions mitigation/adaptation in the electricity sector at the lowest possible cost

X☐ Low emission vehicles/transportation

X☐ Waste reduction

X☐ Economic development

Describe specific benefits (qualitative and quantitative) of the proposed initiative

Public Utilities Code Sections 740.1 and 8360:
Please describe how this technology or strategy addresses the principles articulated in California Public Utilities Code Sections 740.1 and 8360. The California Public Utilities Code is available online at www.leginfo.ca.gov/cgi-bin/calawquery?codesection=puc.

Support for landfill biomethane projects offers a high probability of providing benefits to ratepayers and supports, but does not duplicate current research. Projects support:

(1) Environmental improvement.
(2) Public and employee safety.
(3) Conservation by efficient resource use.
(4) Development of new resources, particularly renewable resources.
(5) Improve operating efficiency and reliability and otherwise reduce operating costs.