

CALIFORNIA ENERGY COMMISSION

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November 28, 2012

To: Researchers and Other Interested Parties:

Since 2008, the California Energy Commission (Energy Commission) has developed annual budget plans for natural gas research, development and demonstration (RD&D) activities. Currently, the Energy Commission is developing the budget plan for fiscal year 2013-14 and estimates that a total of \$24 million will be available for natural gas RD&D. As part of this process, we seek ideas for natural gas research initiatives in the following areas: energy efficiency, renewable energy, natural gas infrastructure, natural gas related environmental research, and natural gas related transportation research.

If you have research ideas, please complete the attached initiative template. This template asks you to discuss the issues/barriers your research will overcome, as well as provide a description of the initiative, stakeholders, background and justification. The information contained in your template should be no more than two pages. Complete one template per initiative.

In 2004, California Public Utilities Commission (CPUC) designated the Energy Commission as the administrator for the natural gas research program. In the last several years, the CPUC allocated an annual funding level of \$24 million and defined public interest natural gas research as those that “are directed towards developing science or technology, and 1) the benefits of which accrue to California citizens and 2) are not adequately addressed by competitive or regulated entities.” The decision also directs that natural gas RD&D projects meet the following criteria:

- Focus on energy efficiency, renewable technologies, conservation, and environmental issues.
- Support state energy policy.
- Offer a reasonable probability of providing benefits to the general public.
- Consider opportunities for collaboration and co funding opportunities with other entities.

Please email your suggested initiatives by **December 14, 2012**, to Jessie Rosales at jesselyn.rosales@energy.ca.gov . A public workshop will be scheduled to discuss proposed natural gas research concepts.

Thank you,

Laurie ten Hope
Deputy Director

PIER Natural Gas – Proposed Research Initiative (Complete pages 1 and 2 for each initiative)

PROGRAM AREA (Check one):

- Building End Use Energy Efficiency.** Reduce on site natural gas use and address technology gaps hindering the achievement of improved efficiency and reduced natural gas use in commercial and residential buildings: a) advance efficient technologies, design tools, and operations; b) demonstrate affordable, comfortable, energy efficient buildings; c) maintain or increase productivity while reducing energy consumption and emissions. Examples include: improvement to water heating and distribution efficiency; improvements to food service cooking equipment, advanced HVAC and envelopes; solar water heating; indoor air quality; and other innovative and advanced natural gas saving systems that also reduce air emissions.
- Industrial Agriculture and Water Sector End Use Efficiency.** Reduce energy use and cost in the industrial, agriculture and water sectors through development of advanced technologies and processes that reduce energy use and costs, increase energy efficiency and maintain or increase productivity while reducing emissions. Examples include: process improvements; heat recovery from combustion systems and natural gas burners; water/wastewater treatment process improvements; irrigation sensor and control improvements; indoor air quality; and other types of research associated with this sector.
- Renewable Energy Research.** Reduce barriers and increase penetration of renewable energy by advancing the science, technology, and market availability of combined heat and power (CHP) and other renewable processes; develop hybrid generation and other low emission natural gas technologies for distributed generation; and develop and demonstrate diversified applications of advanced generation technologies that use renewable natural gas. Note that renewable generation (other than use of renewable gas) is funded in PIER-E or EPIC.
- Natural Gas Infrastructure.** Conduct research that focuses on enhancing transmission and distribution capabilities of the natural gas system, and enhancing the safety and integrity of the natural gas pipeline.
- Energy Related Environmental and Climate Change.** Develop effective approaches to evaluating and resolving environmental effects of natural gas production, delivery and use; and explore how new natural gas applications and products can solve/mitigate environmental problems; complement research to inform policy associated with climate change, air quality and aquatic resources.
- Natural Gas Related Transportation.** Accelerate the commercial viability of natural gas vehicles, improve energy efficiency of natural gas vehicles and advance the clean and cost effective production of renewable natural gas for transportation use.

Name of Initiative (Short and concise):

Estimated Funding Amount:

Issues or Barriers

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

Initiative Description and Purpose

How will this technology or strategy help address the issue/issues?

Stakeholders

Identify the stakeholders who support the initiative

Background and the State-of-the-Art

What has been done or is currently being done on this technology or strategy (cite past research as applicable)? Where in the innovation pipeline is the technology or strategy—applied research (proof of concept, bench scale, prototype) or demonstration, deployment? Describe any public and/or private successes and failures the technology or strategy has encountered in its path through the pipeline. Summarize other related programs and initiatives in California, such as DOE funding initiatives.

Justification

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

- Sector size and energy use
- Maximum technology potential, if successful
- Maximum market potential, if successful

Ratepayer Benefit (Check one or more.)

- Promote greater reliability
- Lower costs
- Increased safety
- Societal benefits
- GHG emissions mitigation at the lowest possible cost
- Economic development