CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

Notice of Staff Workshop on the California Energy Commission's Public Interest Energy Research (PIER) Renewables Program

Research, Development and Demonstration Initiative for Renewable-based Energy Secure Communities

The California Energy Commission's (Energy Commission) PIER Renewables Program staff will hold an information exchange workshop to obtain inputs and comments from renewable industry, experts, and other interested parties on ongoing activities and interests concerning Renewable-based Energy Secure Communities (RESCO). The main goal of this workshop is to identify critical RD&D issues and potential solutions or opportunities to help accelerate RD&D and increased deployment of RESCO.

RESCO is being defined here as RD&D of mixed renewable energy technologies in an integrated, sustainable, and optimum manner coupled with advancements in energy efficiency, smart grid integration, energy storage, combined cooling, heating and power, and co-production of value-added products such as biofuels in communities that will help make California's electricity and transportation fuels more diverse, safe, cleaner, and affordable.

The information exchange workshop will be held:

WEDNESDAY, AUGUST 6, 2008 at 1:00 to 5:00 p.m.
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
First Floor, Hearing Room A
Sacramento, California 95814
(Wheelchair Accessible)

FRIDAY, AUGUST 8, 2008 at 1:00 to 5:00 p.m.
SOUTHERN CALIFORNIA GAS COMPANY – A Sempra Energy Utility
Energy Resource Center, 9240 Firestone Blvd.
Downey, California, 90241
(Wheelchair Accessible)

TUESDAY, AUGUST 12, 2008 at 1:00 to 5:00 p.m.
PACIFIC GAS AND ELECTRIC COMPANY
77 Beale Street, Room 323, San Francisco, California 94105
(Wheelchair Accessible)

(See WebEX and Audio Participation Below for August 6, 2008 only)

Purpose

A diverse set of renewable energy technologies are now being deployed in an equally diverse array of ways, ranging from utility scale power plants to energy sources for buildings that require no net energy from the local grid. Many renewable technologies can be economically deployed in sizes that fit the demand profile of communities that range from residential subdivisions to medium size cities and include university campuses, business parks, public agency operations, etc. The technical challenges involved no longer relate primarily to the cost and performance of the individual renewable energy technologies but to the technologies, tools and strategies that enable their integrated and symbiotic use. Communities wishing to stabilize their future energy costs, create local jobs, and tap locally available renewable energy resources face the need to develop energy infrastructure that works in harmony with larger fuel and electricity systems. They need to learn by doing, and initial steps may involve a combination of planning and piloting of solutions and capabilities that fit the local resource base and offer promise for future integration and expansion toward the goal of eventually achieving full reliance on renewable energy.

The purpose of this information exchange workshop is to gather input from experts and stakeholders regarding RD&D issues and potential solutions or opportunities for possible implementation of RESCO RD&D Initiative that will provide funding to support its accelerated RD&D and deployment that will help optimize market penetration of mixed renewable energy technologies and will help make California's electricity and transportation sectors more diverse, safe, cleaner, and affordable. Development efforts are to be focused towards making electricity for specific geographical locations or communities in the state:

- forming net zero communities relying on up-to 100 percent use of renewable resources that facilitate development of mixed and linked renewable energy technologies,
- co-producing value added products (such as biofuels),
- advancing in combined cooling, heating and power application,
- improving energy efficiency and demand side management,
- advancing smart grid integration,
- providing services that act in an integrated and coordinated fashion,
- enhancing customer choice and satisfaction,
- minimizing the need of additional transmission capacity,
- improving public health and safety,
- capturing environmental and social benefits, and
- promoting economic development.

Consequently, the approach being used in this Initiative is to encourage RD&D of integrated renewable energy technologies that is market oriented and has a high likelihood of being used in California's electricity and transportation market sectors. In particular, the intent is to develop effective partnerships between market-oriented community-based suppliers or aggregators and renewable energy technology developers to provide electricity to customers, especially in high demand regions of the state facing transmission congestion and reliability problems, e.g. by maximizing utilization of high quality and/or low cost renewable energy sources (solar, wind, and locally available

waste streams), integrating them with energy efficiency and demand response programs, combined heat and power applications, smart grid development, advanced controls and communication, and considering longer term synergistic options as well, e.g. community based biorefineries for transportation fuels application. Figure 1 shows the vision for renewable-based energy secure communities.

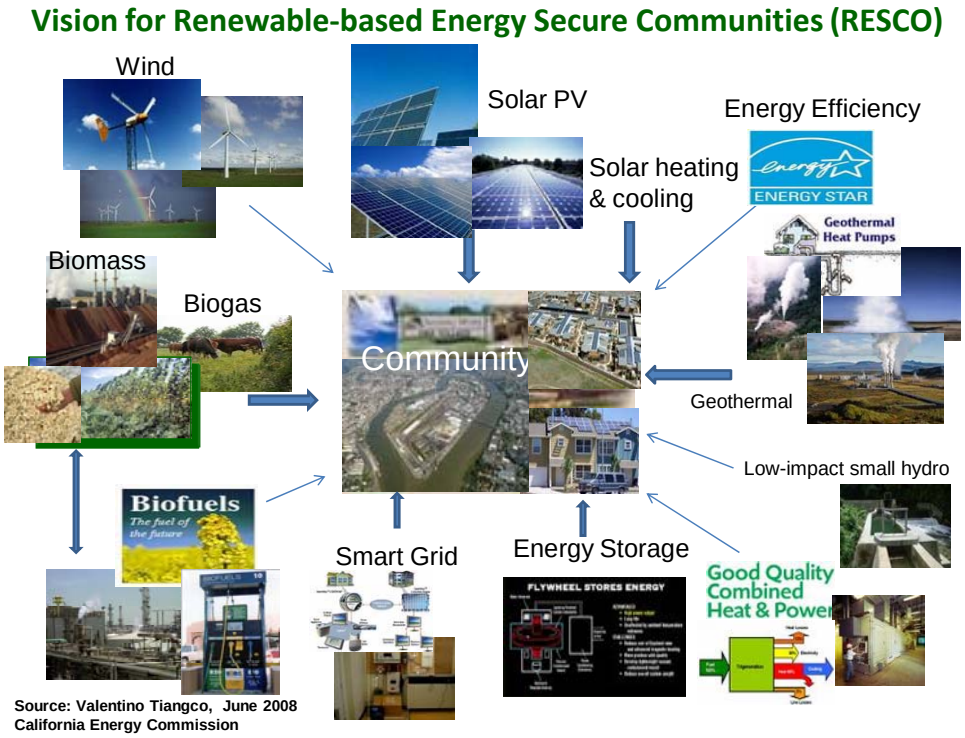

Figure 1. Artistic rendition of Renewable-based Energy Secure Communities (RESCO)

Effective RD&D partnerships may consist of teams of market and technology experts (such as community-based organizations, local governments, cooperatives, university campuses, special school districts, electricity service providers, utilities serving special communities, municipal utility districts, utility distribution companies, and technology developers) that can cut across social and renewable energy technology boundaries in making renewable energy sources as part of a more affordable, diverse and sustainable electricity mix and co-produce transportation fuels for California communities.

Specific RESCO projects are **NOT** being solicited at this time. The workshop input provided may be instrumental in formulating a forthcoming program opportunity notice for a RESCO solicitation and planning documents related to this topic and for the update of PIER Renewables Program Strategic and MultiYear Plan.

Background

The PIER Program supports RD&D projects that will help improve the quality of life in California by bringing environmentally safe, affordable and reliable energy services and products to the marketplace.

To date the PIER Program together with natural gas funding annually awards up to $80 million to conduct the most promising public interest energy research by partnering with RD&D organizations including individuals, businesses, utilities, and public or private research institutions. PIER funding focuses on seven programmatic areas including renewable energy technologies.

The PIER Renewable Program advances and accelerates market adoption of renewable energy technologies that are keys to meeting state energy policy goals. The PIER Renewables Program achieves this by:

- Advancing market adoption of renewable energy resources and generating technologies through innovation, performance improvements and cost reduction, as well as advancing the production of transportation fuels with renewable resources
- Enabling effective interconnection of renewable generation to the electrical transmission and distribution system
- Encouraging end-user adoption of distributed renewables by addressing technology and market issues
- Supporting development of appropriate market mechanisms and policies to enable sustainable renewable energy growth

Traditionally, the PIER Renewables Program has focused on RD&D activities in renewable energy resources and technologies for electricity generation. Recently with PIER's addition of natural gas and transportation RD&D focus, the PIER Renewables Program is expanding RD&D considerations and investments into areas with clear overlap with these areas. The PIER Renewables Program primary focus area and overlaps with natural gas and transportation. Overlaps include:

- Transportation issues as they pertain to biofuels production
- Natural gas issues as they pertain to replacing natural gas use with renewable energy applications.

The PIER Renewables Program funds RD&D across a number of stages of technology development. Funding for renewables RD&D focuses on the applied research through design, development and demonstration stages of technology development. In addition, the PIER Renewables Program funds research to help develop state energy policy and meet adopted energy goals through the advancement of renewable energy technologies across all stages of development.

This particular RD&D Initiative for RESCO is based on deployment venue of achieving renewable-based secured communities that will employ:

- an integrated, sustainable, and optimum mix of renewable energy technologies including:
    - ✓ biomass and biogas for power production,
    - ✓ solar photovoltaic,
    - ✓ solar heating, cooling, and hot water,
    - ✓ energy storage,

  - ✓ direct use application of geothermal such as ground source heat pumps for district heating,
  - ✓ low impact hydro,
  - ✓ wind energy technologies for distributed generation,
- integration of renewables and energy efficiency measures,
- integration of smart grid,
- integration of energy storage,
- integration of combined cooling, heating and power, and
- co-production value-added products such as biofuels.

In addition, this initiative covers increased market penetration of renewable energy technologies that reduce fossil fuel (e.g., petroleum and natural gas) consumption.

Written Comments

Written comments on the attached questions (in Attachment A) and workshop topics can be submitted until 5:00 p.m. on August 8th, August 12th, and August 15th, 2008 for August 6th, August 8th, and August 12th workshops, respectively. Please include the PIER Renewables Program- RESCO RD&D Initiative in the subject line or first paragraph of your comments. Please hand deliver or mail an original to:

Valentino Tiangco
California Energy Commission
Energy Generation Research Office
1516 Ninth Street MS 47
Sacramento, CA 95814-5512

The Energy Commission encourages comments by e-mail. Please include your name or organization's in the name of the file. Those submitting comments by electronic mail should provide them in either Microsoft Word format or as a Portable Document (PDF) to [vtiangco@energy.state.ca.us].

Public Participation

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission activities. If you want information on how to participate in this forum, please contact the Public Adviser's Office at (916) 654-4489 or toll free at (800) 822-6228, by FAX at (916) 654-4493, or by e-mail at [pao@energy.state.ca.us]. If you have a disability and require assistance to participate, please contact Lou Quiroz at (916) 654-5146 at least five days in advance.

Please direct all news media inquiries to Claudia Chandler, Assistant Executive Director, at (916) 654-4989, or by e-mail at [mediaoffice@energy.state.ca.us].

If you have questions related to the subject matter of this notice, please call Valentino Tiangco at 916-654-4664, or by e-mail at [vtiangco@energy.state.ca.us].

Date Posted: July 18, 2008

Note: California Energy Commission's formal name is State Energy Resources Conservation and Development Commission.

Mail Lists: renewablewg (CEC Renewable Energy Programs), geothermal (Geothermal Energy), researchwg (Energy RD&D / PIER program), pierbuilding (PIER Pgm. - Residential & Commercial Bldgs. Program Area), naturalgas (Natural Gas)

August 6th Staff Workshop Only

For participation through WebEx, the Energy Commission's on-line meeting service:

To participate in the meeting using the WebEx onscreen and audio functions, please go to the following URL in your web browser:
https://energy.webex.com/energy/j.php?ED=103977807&UID=1044251742&PW=afb36abf9d3f352a04445e550012

(If the link above does not work, go to: https://energy.webex.com/ and enter the meeting number: 924 483 489. When prompted, enter your information and the following meeting password: meeting@1.)

Provide your phone number, when prompted, to receive a call back on your phone for the audio of the workshop. Alternatively, you can call 1-866-469-3239 (toll free in the U.S. and Canada).

If you have difficulty joining the meeting, please call the WebEx Technical Support number at 1-866-229-3239.

Participation through audio only

If you do not have computer access and wish to participate in the meeting by phone, you can call 1-866-469-3239 (toll free in the U.S. and Canada).

Please be aware that the workshop's WebEx audio and onscreen activity will be recorded.

Attachment A

Staff Workshop on Renewable-based Energy Secure Communities (RESCO) RD&D Initiative

In this workshop, the staff of the Energy Commission seeks public input about the goals, benefits, issues, RD&D solutions, and market mechanisms to help accelerate research and development and increased deployment of mixed renewable energy technologies in an integrated fashion to be applied in a community level.

To assist in the implementation of this RESCO RD&D Initiative, staff seeks public input on the following questions or topics.

1. **What are the goals and desirable benefits in advancing RD&D and deployment of RESCO?**

2. **What are the key technical, economic, environmental and institutional issues or opportunities for RESCO implementation?**

3. **What are the RD&D solutions and market mechanisms for accelerated development and deployment of RESCO?**