California Energy Commission
Public Interest Energy Research (PIER) Program
Renewable Energy Research

Planning for Renewable-based Energy Security and Prosperity in Humboldt County

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Fact Sheet

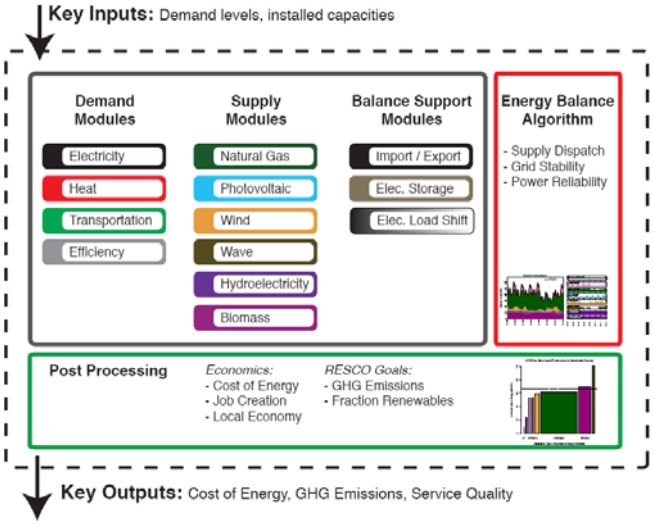
The Issue

Currently, the tools and models needed to identify and implement an optimum, locally-available community energy portfolio do not exist. The need for locally-generated electricity is particularly important in the remote, rural location of Humboldt County, where electricity and natural gas transmission issues are prevalent. While the peak electricity demand exceeds 160 megawatts, the total transmission capacity is only about 70 megawatts.

The geographic location of the county, however, offers much potential. Many indigenous renewable energy resources, such as biomass, wind, small hydro, and ocean wave energy are available for energy generation. With the development of new modeling tools, Humboldt County will be able to formulate a strategic energy plan to deploy these resources and become a renewable-based energy secure community.

Project Description

The project team will develop and implement an energy-optimization model to determine a renewable-based energy portfolio for Humboldt County that reduces greenhouse gas emissions, maximizes local economic benefits and maintains grid stability. In addition, the analysis will consider a variety of economic, regulatory and environmental factors affecting renewable energy in the region. An array of potential ownership models will be considered in an effort to maximize local benefits and gain broad stakeholder support.



Humboldt County Energy Optimization Model
Image Source: Schatz Energy Research Center (SERC)

The output of the model will assist in the design of a practical energy action plan for Humboldt County, which will provide 75 to 100 percent of electricity demand and a significant portion of heating and transportation energy needs from local renewable resources. The methodology and lessons learned during this project will be compiled into a renewable-based energy secure community planning workbook, which will assist communities pursuing similar energy goals.

PIER Program Objectives and Anticipated Benefits for California

- Quantification of technical issues associated with high-penetration levels of renewables in order to support increased renewable energy deployment.
- Development of methodologies necessary to address key scientific and technical barriers to increased renewable energy production.
- Formulation of a renewable-based energy secure community Planning Workbook to provide communities throughout California with guidance in pursuing renewable-based energy secure community goals.
- Identification of sites for potential near-term renewable energy development in Humboldt County.
- Development of a Humboldt County energy optimization model for planning and scenario analysis.
- Development of a practical strategic plan to use Humboldt County's local energy resources in a manner that is environmentally-preferable, economically-viable and broadly supported by local stakeholder groups.

Project Specifics

Contract Number: PIR-08-034
Contractor: Redwood Coast Energy Authority
Location: Humboldt County
Assembly District: 1
Senate District: 2
Application: Regional
Amount: $199,989
Contract Term: June 2009 to March 2013
Co-Funding: $12,323 from Redwood Coast Energy Authority (in-kind); $56,433 from Schatz Energy Research Center (in-kind); $18,000 from PG&E (in-kind)

For more information, please contact:

Michael Sokol
California Energy Commission
PIER Program, Renewable Energy Research
Phone: 916-327-1416
E-mail: msokol@energy.state.ca.us

Matthew Marshall
Executive Director
Redwood Coast Energy Authority
Phone: 707-269-1700
E-mail: mmarshall@redwoodenergy.org

Edmund G. Brown Jr., Governor
California Energy Commission
Chair Robert B. Weisenmiller, Ph.D. | Vice Chair James D. Boyd
Executive Director: Melissa Jones

California Energy Commission
Public Interest Energy Research
1516 Ninth Street,
Sacramento, CA 95814-5512

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