

Sonoma County RESCO

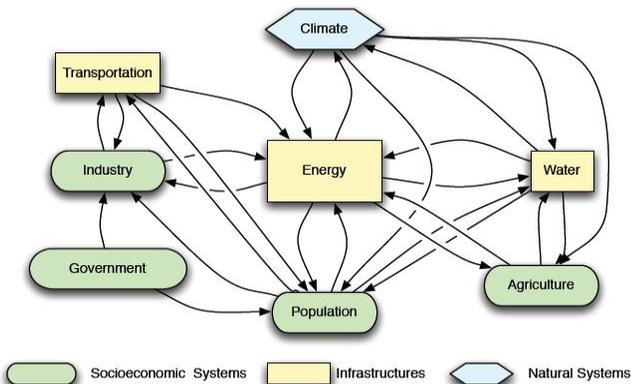
A Local Level Approach to Renewable Energy Portfolios.

November 2010

Fact Sheet

The Issue

To address energy usage that contributes to climate change, California has enacted legislation to guide and empower its institutions to build local renewable energy portfolios. Specifying, designing and building such a portfolio, however, is highly complex and time consuming. To launch renewable portfolio projects effectively, the knowledge required to organize data, financial instruments and project descriptions must be standardized and disseminated efficiently. A standardized automated decision-making support tool needs to be developed, tested and made widely available.



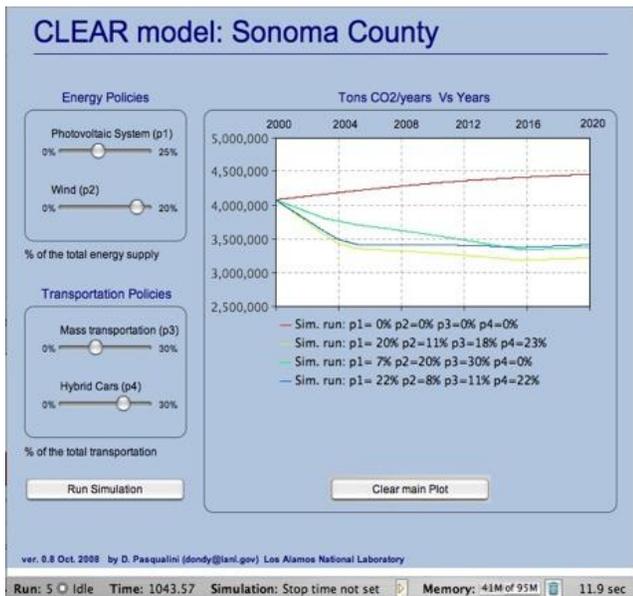
Methodology to designing a renewable energy portfolio. Picture by LANL.

Project Description

The Sonoma County Renewable Energy Secure Community (RESCO) will develop and demonstrate a model for the integration of mature renewable resources, efficiency measures, and demand response to prepare Sonoma County to advance the implementation of a locally-owned, cost-effective renewable portfolio. The project will include the following elements:

- **Prototype Renewable Portfolio Design:** Designing a prototype of an integrated, locally distributed, cost-effective renewable portfolio.
- **Pilot Project:** The project will employ cost-effective integrated renewable energy resources to provide a conceptual proof for identification of neighborhoods, business parks or other sites that can benefit from dedicated energy supply resources. The pilot project will employ geothermal heat pump technology, using tertiary treated wastewater as a "heat sink" powered by existing solar photovoltaic cells (PV); develop onsite renewable energy production (wind and poultry bio-gas); and use onsite energy storage at electric vehicle charging stations powered by PV and wind.
- **System Dynamics Model:** In order to understand the impacts of the renewable portfolio prototype and the pilot project, Los Alamos National Laboratory (LANL) will develop an integrated system dynamics model to assess and simulate renewable energy mixes supporting low-carbon emission goals and to quantify the key factors involved in implementing a mixed renewable resource strategy.
- **Local Government Coordination:** Renewable energy implementation will be enhanced by ongoing communication and collaboration with the local cities, county supervisors, agencies, and other public and private partners. The process of collaborating will develop an increasingly robust local partnership, supported by national experts, to move forward with RESCO implementation. Sonoma County Transportation Authority (SCTA), through its Regional Climate Protection Authority.

program and board members representing the county and its nine cities, will play a lead role in facilitating communication, access to the many data elements county-wide needed for the integrated database, and design of the renewable portfolio. SCTA is also leading the development of a sustainable governance structure for ongoing RESCO activities.



Interface of CLEAR model decision-making tool. Picture by LANL.

- A functional, cost-effective pilot project demonstrating integrated, co-located, mature renewable resources, illustrating the potential for microgrids at certain sites in the county and identifying the criteria for selecting future microgrid sites.
- An evaluation of the potential for establishing a Community Choice Aggregation (CCA) in Sonoma County, including a summary of potential environmental, financial, regulatory and socio-political barriers.
- CCA financial requirements and an assessment of the financial risks and responsibilities for participating governments.
- The proposed governance structure appropriate to Sonoma County to manage and oversee the functioning of a CCA and contracting of the renewable portfolio construction.

Project Specifics

Contract Number: PIR-08-038
 Contractor: Sonoma County Water Agency
 Contract Amount: \$1 Million
 Contract Term: June 2009 to March 2013
 Match Funding: \$8.4 Million

PIER Program Objectives and Anticipated Benefits for California

The research objective is to quantify and qualify the technical, geographic, financial and socio-political features of the Sonoma County RE portfolio. The outcomes include:

- A prototype renewable portfolio design, including potential locations of resources throughout the county.
- The methodology for developing the portfolio design, software, and database tools available for application in other regions.
- A systems model predicting the greenhouse gas reductions attainable for various design scenarios replicable in other regions developing RESCOs.

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