Berkeley Lab and the Clean Energy Group

CASE STUDIES OF STATE SUPPORT FOR RENEWABLE ENERGY

Using Customer Credits to Stimulate Green Power Sales in California, Rhode Island, and New York

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CASE SUMMARY

Case Description

Several clean energy funds have taken an interest in encouraging the development of the green power market. The idea of providing a "customer credit" to green power marketers originated in California. With a customer credit, a state clean energy fund pays the green power purchaser (or more realistically, marketer) a per-customer or per-kWh incentive for each green power sale.

California's program involves a simple ¢/kWh credit (up to a maximum of 1.5¢/kWh) to green power customers for each kWh of eligible renewable energy purchased. Learning from California's experience, Rhode Island and New York have also begun to experiment with *modified* customer credit programs that offer alternative incentive structures. This case describes the program design, results, and lessons learned from all three programs.

Innovative Features

The idea of stimulating voluntary customer demand for renewable energy is innovative in itself. The use of per-kWh or per-customer sign-up bonuses to encourage such demand has only recently developed. Rhode Island and New York observed some of the problems encountered in California, and have created programs that:

- more strongly target new renewable resources,
- allow certificate-based products to qualify for funds,
- provide incentives that allow for sustainable pricing of green power products, and
- use more discretion in the selection of green power providers to fund.

Results

- California's program has distributed $59.4 million and created a market that grew to 160,000 residential and 40,000 non-residential green power customers.
- California's experience in trying to foster green power demand was influenced by both the overall electricity market structure in which it operated as well as the specific design of the

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customer credit program. The customer credit program operated within a retail electricity market that was fundamentally hostile towards retail choice and price competition. As a result, the customer credit became popular among marketers as one of the few means of offering price discounts, leading to the creation of a green power market that can be characterized as price- rather than value-driven, and therefore unsustainable. The intense focus on price also led to a disproportionate reliance on existing (i.e., cheap) rather than new (i.e., more expensive) renewable resources, which the design of the customer credit did little to discourage. The precise design of California's program, therefore, should not be replicated.

- The modified New York and Rhode Island programs have attempted to address some of these issues, but have been operating for too little time to have clear results.

CASE STUDY DETAILS

With the introduction of customer choice in electricity markets, several state clean energy funds have taken an interest in encouraging the development of the green power market with the goal of developing, over time, a sustainable market for renewable energy that is not dependent on continued subsidization. While the motivation to help build the green power market is clear, identifying an "innovative practice" from among state experience is more challenging.

This case study reviews experience with "customer credits": the use of state funds to directly encourage customer demand for renewable electricity, or "green" power. Three states have experimented with this approach to date: California, Rhode Island, and New York. Only California's program has been operating long enough to have firm results, and experience in that state demonstrates the challenge of designing a properly targeted incentive. New York and Rhode Island have learned from California's experience and have sought to improve upon the concept. This case study reviews the design, experiences, and lessons learned in each state.

California

California pioneered the use of state clean energy funds to support the development of the green power market, and today remains the state that has pursued this market most aggressively. Funded with $75.6 million in total from 1998-2001, the California Energy Commission's (CEC) customer incentive has offered consumers a per-kWh credit for eligible renewable energy that they purchase through the green power market (capped at $1000 per year for customers larger than 20 kW). The credit was initially established at 1.5¢/kWh, but declined to 1¢/kWh as green power demand increased. Though the intent was for the credit to "buy down" the cost of renewable energy for end-use customers, to ease administrative burdens the credit is disbursed directly to power marketers once they have documented that they have passed the credit on to their customers (typically in the form of lower prices).

By some measures, the customer credit has been a huge success. Through June 2002, $59.4 million had been paid to competitive electric suppliers that were, at the peak of the market, selling renewables to approximately 160,000 residential and 40,000 non-residential customers. The customer credit was the major force behind the development of the green market in California; in fact, the mere existence of competitive electric suppliers offering products to small customers in the initial years of the state's restructuring efforts was largely a result of the CEC program. Because California's competitive market structure left little or no room for marketers to compete with incumbent utilities for customers on the basis of price, most marketers soon turned to the CEC's customer credit as the principal means of offering price

discounts to small customers. As a result, virtually all kWh sales to residential and small commercial customers that switched suppliers have been delivered by renewable energy.

Though a pioneering effort, the customer credit has also been criticized:

- **Program Did Not Differentially Target "New" Renewable Sources:** Because it provides an equal credit for new and existing renewable resources, the program offers no incremental incentive for marketers to include new renewables in their products. As a result of this design feature and razor-thin profit margins, the vast majority of green power marketers in the state sourced their power from existing renewable energy projects, which are typically cheaper than new projects, yet arguably provide fewer net environmental benefits to the state.
- **Program Nurtured an Unsustainable Green Power Market:** The customer credit has, at times, been large enough to make renewable energy cheaper than other electricity supplies, creating a price- rather than value-driven market for renewable energy in which customers *save* money by buying green power. In fact, the CEC's own evaluation of the program showed that 40% of residential customers and 72% of non-residential customers purchasing renewable energy were not even aware that their product mix contained renewable energy (RER 2000).[1] Clearly attracted to these products by attributes other than the products' "green-ness" (e.g., low price), these customers are unlikely to generate a truly sustainable market for renewable energy over the long term (though with the suspension of direct access in the wake of the electricity crisis, it is impossible to say definitively).
- **Program Propped Up a Market with Little Underlying Promise:** Within a year or two of the inception of retail competition (i.e., prior to the electricity crisis), it had become clear that the CEC's customer credit was propping up green power marketers within a broader market that was fundamentally hostile to retail electricity choice. While the CEC could not have predicted these market conditions and certainly had no control over them, it is clear that continuing to offer a customer credit in such an environment is akin to swimming against the tide and will likely not lead to a truly self-sustaining market for green power.

The CEC has acknowledged some of these problems, and in its investment plan for the expenditure of 2002-2006 system-benefits charge funds the agency identifies a number of possible changes to the program: (1) eligibility may be restricted to products that contain a minimum percentage of new renewables, and the CEC would consider creating two credit levels, one for new and one for existing generation; and (2) retail electricity marketers receiving the credit may be required to provide renewable energy educational materials to their customers (CEC 2001).

While the precise design of the California customer credit may not deserve emulation, a redesigned program – especially if applied in a market where the long-term prospects for retail competition and green power sales are bright – may be worthwhile to consider. Such has been the conclusion in Rhode Island and New York, where lessons learned in California were applied to create new and redesigned customer incentive programs.

Rhode Island

Rhode Island is a small state with a renewable energy fund of approximately $2-$3 million per year, currently administered by the Rhode Island Renewable Energy Collaborative (RIREC).[2] After initially unsuccessful attempts to develop renewable energy projects in the state, RIREC decided to shift some of

[1] This is true in spite of a CEC requirement that marketers inform customers on their bills that they are receiving a California publicly funded credit on their purchase of renewable power.

[2] Starting in January 2003, the administration of Rhode Island's renewable energy fund will be transferred from RIREC to the State Energy Office.

its focus to developing the demand-side of the equation: the green power market.

In 2001 the Rhode Island PUC gave final approval to a modified customer credit program – funded at $1.365 million – intended to overcome at least some of the problems experienced in California. The design of the Rhode Island program differs from the CEC's in several respects.

- **Sign-Up Incentives Allow Sustainable Pricing:** Rather than per-kWh incentives, Rhode Island's program initially offers retailers $125 per residential or $250 per small commercial customer they are able to switch to green power. After the first 5,000 residential or 1,000 small commercial customers, the incentive levels drop to $75 and $125, respectively. The goal of this design is to buy-down the cost of customer marketing and sign-up, but ideally to not greatly influence product pricing or create incentives for "discount" green power products that would not lead to a sustainable market. Product pricing will be monitored by RIREC. Products that are priced in an "unsustainable" fashion may be denied incentives. Suppliers also must commit to serving green power customers for at least two years, or else may be required to pay damages.
- **Separate Large Customer Program:** The direct credit described above is only available for sales to smaller customers. Larger potential green power customers are targeted through a separate and more flexible $500,000 RFP. Through this RFP, RIREC will fund either large electricity consumers or retail green power marketers to "buy-down" the cost of a green power purchase or sale. Evaluation criteria for selecting winning proposals include the amount of new renewable generation, the "cost-effectiveness" of the funding request, the sustainability of the potential impacts, and the amount of secondary media and promotion promised.
- **New Renewables Requirements:** Qualifying green power products must contain some portion of new renewable resources. In particular, eligible products are those that are Green-e certified or that contain 20% "new" renewable generation.
- **Allowance for Certificates-Based Products:** Eligible products can either be sold through a retail electricity provider or can be sold separately through renewable energy certificates. Allowing certificate offerings to qualify acknowledges the fact that Rhode Island's competitive retail electricity market had not developed yet. Separate product eligibility standards apply to certificates offerings.

In addition to these direct financial incentives, a $350,000 RFP for green power education, market building, and customer aggregation was also released in 2001, as well as a supply RFP targeted at new renewable resources that would serve the Rhode Island green power market.

The success of Rhode Island's efforts remains to be seen. A number of proposals have been received for the programs described above, with several in the funding pipeline and one proposal approved thus far. As a very small state in a larger region, however, the RIREC green power programs are not likely to be sufficient, by themselves, to generate substantial green power interest in the state. The future of the green power market in Rhode Island will therefore continue to be tied to the fate of green power in the larger New England market.

New York

With approximately $14 million per year for renewable energy and a large population over which to spread these funds, New York has a relatively small renewable energy fund. The state also has a somewhat sordid history with electricity reform, and continues to this day to try to attract retail competition to the state.

New York's initial rounds of renewable energy funding focused on the supply side of the renewables market – building renewable energy industry infrastructure and providing incentives for the first large-scale wind projects in the state. What quickly became

apparent, however, is that these renewables projects needed a market in which to sell their electricity. With funding now extended through 2006, NYSERDA is beginning to target the demand side of the market.

New York has opted to take a more targeted approach to supporting the green power market than California and Rhode Island. Rather than funding all retail green power marketers on a first-come basis, NYSERDA opted to develop a solicitation to select eligible marketing programs for support. This allowed NYSERDA the discretion to select and fund marketing programs that they believed had the highest degree of likely success and sustainability. It also provides NYSERDA a higher degree of direct involvement in the marketing plans of the green power suppliers, and a closer tracking of project status and results.

Proposals for the first round of green marketing support were due in November 2001. Under this solicitation, green power companies were able to submit proposals in one of two tracks.

- Under Track A, NYSERDA would provide a total of $300,000 to help one or more organizations develop or refine green power marketing programs and concepts. Successful proposals were to present unique and promising concepts for marketing renewable energy that are not yet ready for funding under Track B. Activities that could be funded under Track A include market research and business plan development.
- Under Track B, NYSERDA would provide financial support to firms that are ready to market renewable generation to New York customers. Payments are to be based on satisfying performance targets and product specifications. $3 million was available under this program in its first year, with a $1 million cap for each award. Subsequent funding depends on the first year's marketing efforts and an assessment of New York's overall competitive retail market. A minimum of 75% of support payments shall be based on performance, such as meeting kWh sales targets, in a manner similar to a direct customer credit. For example, one respondent proposed that 20% of requested funding in the first year be awarded based on achieving several milestones relating to the development and implementation of a marketing plan, with the remaining 80% of funds (and all funds in later years) awarded based on demand for new wind farm capacity (e.g., X¢/W).

Rules for product eligibility built on the lessons learned in California. Recognizing the multiple ways of selling and purchasing green power, both retail electricity and certificates-based products were eligible for support. Products were required to contain a minimum of 20% new in-state renewable resources in the first year, and the minimum will grow by 5% each year thereafter. Of the new renewable generation, 75% must be from new solar or wind facilities.

NYSERDA received three Track A and seven Track B proposals. NYSERDA has contracted with one of the Track B companies (Community Energy) and two of the Track A companies (ConEdison Solutions and 1st Rochdale Cooperative), and is in negotiations with a third Track A contractor. Because contracts have only recently been approved or are still in progress, no experience can yet be reported, though Community Energy has a goal of generating 10-20 MW of wind power demand in the first year of its marketing efforts. NYSERDA has tentatively agreed to issue additional green power solicitations in the upcoming years, similar in spirit to their initial Track B solicitation described above.

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Information Sources

Bolinger, M., R. Wiser, L. Milford, M. Stoddard, and K. Porter. 2001. "Clean Energy Funds: An Overview of State Support for Renewable Energy." LBNL-47705. Berkeley, Calif.: Lawrence Berkeley National Laboratory.

Regional Economic Research (RER). 2000. "Renewable Energy Program Preliminary Evaluation: Emerging Renewable Resources Account (Volume IV)." Prepared for the Governor and California State Legislature.

CEC. 2001. "Investing in Renewable Electricity Generation in California: Report to the Governor and Legislature." P500-0-022. Sacramento, Calif: California Energy Commission.

CEC Guidebook for the Customer Credit Account: http://www.energy.ca.gov/renewables/documents/500-01-014V4.PDF

CEC Program Activity Reports to the Legislature: http://www.energy.ca.gov/renewables/documents/index.html#legislature

Rhode Island Solicitations and Programs Overview: www.narragansett.com/bus/programs/programs/renew/

NYSERDA Program Opportunity Notice 599-01 http://www.nyserda.org/599pon.html

Personal communications with: Robert Grace (consultant to RIREC) and John Saintcross (NYSERDA)

Comments provided by: Kate Ringe-Welch and David Jacobson (Narragansett Electric – RIREC), and Heather Raitt and Rasa Keanini (CEC).

About this Case Study Series

A number of U.S. states have recently established clean energy funds to support renewable and clean forms of electricity production. This represents a new trend towards aggressive state support for clean energy, but few efforts have been made to report and share the early experiences of these funds.

This paper is part of a series of clean energy fund case studies prepared by Lawrence Berkeley National Laboratory and the Clean Energy Group, under the auspices of the Clean Energy Funds Network. The primary purpose of this case study series is to report on the innovative programs and administrative practices of state (and some international) clean energy funds, to highlight additional sources of information, and to identify contacts. Our hope is that these brief case studies will be useful for clean energy funds and other stakeholders that are interested in learning about the pioneering renewable energy efforts of newly established clean energy funds.

Twenty-one total case studies have now been completed. Additional case studies will be distributed in the future. For copies of all of the case studies, see:
http://eetd.lbl.gov/ea/ems/cases/ or http://www.cleanenergyfunds.org/

About the Clean Energy Funds Network

The Clean Energy Funds Network (CEFN) is a foundation-funded, non-profit initiative to support the state clean energy funds. CEFN collects and disseminates information and analysis, conducts original research, and helps to coordinate activities of the state funds. The main purpose of CEFN is to help states increase the quality and quantity of clean energy investments and to expand the clean energy market. The Clean Energy Group manages CEFN, while Berkeley Lab provides CEFN analytic support.

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