Case Study: Sonoma, Boulder and San Francisco

Three PACE Programs: No substitute for trying it on

Introduction

For an idea that surfaced only four years ago, Property-Assessed Clean Energy Districts (PACE) programs have gained a surprising degree of traction among city, county and state governments searching for ways to scale up building energy retrofits. Many jurisdictions have passed legislation authorizing the establishment of assessment districts, which form the basis for financing a PACE program. And a few bold early adopters have had full-scale programs up and running for close to a year.

A Boulder project funded by a ClimateSmart loan. Courtesy of *Boulder Daily Camera*

Despite the excitement about PACE, many other states and municipalities are still undecided about the program because it it involves complex legislative and political processes; and can be costly to set up and administer. The program's ultimate success also depends on conditions that are still largely uncertain, such as the interest of capital markets in purchasing bonds backed by the energy savings projects that PACE finances. This case study draws on the experience of three existing programs—the Energy Independence Program in Sonoma County, the ClimateSmart Loan Program in Boulder County, and the GreenFinanceSF Program in San Francicso—to illuminate the different choices that can be made about program adminstration, financing models, strategies for securing participation, and the use of data to measure the impacts. The case study also identifies the most important lessons for other jurisdictions that are considering PACE.

Three Different Models

Regardless of the differences in how the three PACE programs are organized, they are remarkably aligned in their goals. This section reviews overall program accomplishments and then briefly describes some of the differences among the programs.

What Are The Results So Far?

In 2005, Sonoma County and all of its cities made a "climate pledge" to reduce community-wide greenhouse gas emissions 25% below 1990 levels by 2015. To meet that goal, an estimated 80% of its buildings would have to be made 30% more energy efficient. Boulder County adopted similarly aggressive goals. Both jurisdictions launched PACE programs in 2009 to help property owners finance renewable energy and efficiency improvements. One year later, both counties are pleased with the results.

John Haig, Sonoma County's Energy and Sustainability Manager, reports that the county has received applications for projects valued at $40 million, and that close to 700 projects, with an average cost of $30,000, have been completed. Ann Livingston, Boulder County's Sustainability Coordinator, reports that Boulder has loaned nearly $10 million for 612 efficiency and renewable projects. The loans have in turn created potent local stimulus packages, generating construction activity and jobs.[1]

Rod Dole, the lead architect of Sonoma County's program and its Auditor-Controller-Treasurer-Tax Collector, confidently projects program growth to $1 billion in loans in 5 years. He points to a professional survey of the County's residential homeowners that found 20% would sign up immediately if 20 year loans with 7% interest were available (and they are). (The Sonoma and Boulder programs have seen less interest among commercial property owners, who can access other types of financing, and both counties are considering strategies to increase participation.)

Sonoma's program, which serves a population of 500,000, is growing by $800,000 a week. "People are ready," says Dole, "Everyone's been asking 'Do you think this is going to slow down?' No, I think this is creating cultural change, just as recycling did. Neighbors are looking at other neighbors' houses and asking why there is an insulation installer in front of the house. When they hear the details of the program and all the benefits of the improvements, they see it's a winner…It's amazing we didn't come up with this idea a long time ago."

ECONOMIC BENEFITS

Boulder County

- 612 projects completed (a majority included energy efficiency)
- $10 mil in construction funds
- 282 contractors participated

Sonoma County

- 671 projects completed (approximately half were energy efficiency)
- $40 million in applications to date, averaging $30,000 per project
- Currently $2.5 to $3 million per month issued in PACE loans.

What Are Some Key Differences Among the Three Programs?

Significant differences among the programs in Sonoma, Boulder and San Francisco spring from their varied approaches to accessing capital for financing.

Boulder County

Boulder County's ClimateSmart Loan Program raises capital through the sale of bonds.

- Total authorization to date is for $40 million.
- The County conducts rounds of financing.
- Property owners finalize contracts, guaranteeing them a loan equal to their estimated project cost, and placing a lien on their homes to secure repayment.
- Boulder bundles the loans and conducts a bond sale on the public bond market.
- The bond sale determines the interest rate that property owners will pay.

Sonoma County

Sonoma County's Energy Independence Program uses the County's treasury pool to capitalize loans.

- Total authorization is for $100 million ($45 from the Treasury, $55 from the water utility).

[1] For detailed data from Sonoma County about program activity and economic impacts, see Appendix A: SCEIP Weekly Report, Friday, March 12, 2010

- The County's Treasury buys its own municipal bonds on a monthly basis at 3% interest; receipts from the sale are used to provide property owners with financing.
- Property owners sign contracts. They receive their financing whenever their project is completed, at a guaranteed 7% interest rate.
- Sonoma County plans to aggregate the loans into large bond offerings and sell them to capital markets.

San Francisco

San Francisco's GreenFinanceSF program is completing the design phase, and property owners will soon be able to submit applications. Like the Energy Independence Program, the program uses an interim source of financing to create liquidity for PACE loans.

- Total authorization is for $150 million.
- San Francisco plans to use capital from a private service provider to make loans in the short term. The provider purchases small bonds issued by the City for each project, providing the funds for the loans. San Francisco is supplementing the program with grant funds.
- Property owners obtain loans at a fixed rate whenever their project is completed.
- The provider will aggregate the small bonds and sell them to capital markets.

Insights and Lessons for Other Cities

A Fork Right at the Beginning: Who Should Administer PACE?

Jurisdictions interested in setting up PACE programs face important questions about how to organize start-up and administration.

One question is whether internal staff should manage the program, or hire a third-party service provider. When Boulder and Sonoma Counties began their programs, this wasn't a real choice, as private firms that could administer PACE were just opening their doors for business. But now cities like San Francisco can select from consultancies that have the expertise to manage the legal and administrative work of PACE. Mimi Frusha, the Chief Operating Officer of Renewable Funding, the firm hired by GreenFinanceSF, reports that these tasks can be costly, often running upwards of half a million dollars.

Ann Livingston and Mimi Frusha advise local governments to consider their organizational culture and available staff resources when deciding how to manage their PACE programs. "We tend to do a lot of stuff in-house at Boulder County," says Livingston. "Smaller jurisdictions may not have that luxury. Also, we wanted to run our PACE program with a conventional bond sale, and it was important to us to be able to fully control the model."

Boulder County convened an internal team of all the key departments and contractors to meet regularly – the Commissioners' office, the County Attorney's office, the Treasurer's office, the Assessor's office, the Finance office, financial advisors, IT and others. The team designed the program and handled the early legal, marketing and administrative tasks. Only loan origination was handled externally, but even that is now slated to come in-house. "Now that we've run two rounds of PACE financing, we see that the loan work isn't rocket science. We can build the capacity to do it in-house, and hopefully lower our administrative costs in the process," says Susie Strife, the Program Manager.

In Sonoma County, the decision to manage internally was driven by the goal of creating a program that would cover a wide geographic area, and provide an opt-in for all of its cities. The cities had already joined the County in a shared Climate Pledge. So the County convened a large internal team, similar in its composition to that of Boulder's, and began working with cities to shape a program that would secure broad participation. "Cities were able to sit down with us and talk about what we could do together, and how to design the program," John Haig recounts. "They participated and were able to suggest modifications."

Sonoma County's storefront service for property owners

San Francisco provides a counterpoint to these approaches. Early in its formation, the program went through a difficult period: the initial financing proposal became part of ongoing policy disagreements among the city's Board of Supervisors, and no one was sure how to move forward. At that critical juncture, the decision was made to simplify the approach by seeking outside assistance in designing and managing the program. An internal team made program decisions, but Renewable Funding provided the start-up capital and assisted the city with program design.

Mike Martin, a Development Project Manager at the San Francisco Utility Commission who has been intimately involved in designing the program, says that the only disadvantage of working with an external contractor is the need for some contingency planning. "Since Renewable Funding is a new business, we have had to think carefully about how we would proceed in the event that their business model does not work. But we are working through these contingencies with them, and baking them into our formal agreements."

Mimi Frusha of Renewable Funding says that hiring an external contractor may be the best option for governments that want to reduce costs, and are willing to forego some program customization and control. "The more your jurisdiction wants to own the program and brand it, the more it will cost," she explains. Hiring an external contractor can also give jurisdictions readier access to the learning that has resulted from other models around the country, and it can avoid the challenges of maintaining an internal staff as the volume of application rises and falls.

Regardless of who administers PACE, all three programs point to the importance of creating a dedicated, cross-agency team at the outset. The respective teams in Boulder, Sonoma and San Francisco have met regularly throughout design and implementation to solve problems and make decisions together.

San Francisco's early experience also suggests that it's important for political leaders to understand the complexity of PACE and to reach a consensus around how to develop their program. When Berkeley announced its program, San Francisco's Board of Supervisors first decided to go with a model similar to Berkeley's, and then decided to create their own, causing some delays in the legislative and administrative work. Mike Martin's recommendation to other cities: "Bring a thoughtful proposal forward to your policymakers early on, one that has room for adjustment based on other issues and concerns those leaders are confronting. A collaborative approach takes more time, but it gives policymakers a better chance to understand and influence the thinking that goes in to creating a program."

Choosing Among Different Financing Models

The differences in the financing strategies adopted by the three PACE programs affect the financing terms, the participation of property owners, and the management of financial risk. Looking at these differences can help jurisdictions find the right financing structure.

Sonoma County

The Energy Independence Program decided at the outset to make PACE loans using its own Treasury pool. In other jurisdictions, treasurers would see such a decision as risky. But Rod Dole saw many advantages to this approach. The Treasury would generate cash for the loans by purchasing its own bonds at 3% interest. The receipts from the sale would be transferred back into the treasury, generating an instant source of capital that was legally and financially sound. "Since the bonds were offering a 3% rate, and this was a better investment than many of the holdings we had at the time, it made great financial sense," he explains.

This steady flow of funding enables the County to provide property owners with almost on-demand financing for their projects. The County's ability to make loans quickly has contributed to the program's popularity. Loan applications average nearly $800,000 in value a week. "We are ready with the funding when people are ready to do the work," says Haig. "If your project has qualified, we have the funds, and you can move ahead on your own schedule."

In Sonoma, property owners receive loans at a fixed interest rate of 7% (3% to cover the interest rate on the bonds, plus 4% to cover administrative costs.) For now the Treasury is holding onto the bonds, but eventually it plans to aggregate and sell them to the public bond market or private lenders. By selling large bond issues for twenty year terms, the County will generate new capital to provide property owners with financing.

The risk in that strategy is that investors may demand an interest rate higher than 7%, either because they don't understand PACE bonds, or because the market for such bonds is very small. If rates rose above 7% a time when the County needed to raise cash, then the County's Treasury would lose money.

To protect itself from that risk, the County legislature passed a law authorizing the County to sell the bonds at any time during their 20-year term. This provision gives Sonoma the flexibility to offer the bonds when market conditions are favorable. The total investment is also capped at what Dole considers a very prudent level: 3% of total Treasury holdings. He also points out that PACE loans are backed by priority liens, which should reassure investors.

The County is exploring and testing a number of strategies for selling the bonds and for reducing the program's administrative costs, which would ultimately translate to a lower interest rate for property owners. The strategies include advocating for a federal law to change the status of the bonds from taxable to tax-exempt, to the establishment of a DOE-administered Clean Energy Fund that could purchase the bonds, to conventional private placement. "The most likely strategy," he says, "is private placement with a major bank."

Boulder County

The ClimateSmart Loan Program doesn't rely on government funding. "From the start, we wanted a conventional bond sale," says Livingston. "Our Board of Commissioners wanted a financing approach that didn't require any initial investment by the County, and we felt we could lower the cost for the borrowers that way."

The decision to use the bond market dictates how the program operates. Since there is no interim source of financing as in Sonoma, the ClimateSmart Loan Program must determine exactly how much money to raise for its PACE program before each bond offering. In turn, property owners must enter into so-called assessment contracts that lock in the cost of the project and the corresponding assessment. The County then sums all the individual assessments to determine the precise amount of money that it must raise by selling bonds. While this approach safeguards Boulder County from the prospect of fluctuating interest rates, it creates challenges for property owners.

Property owners must sign contracts and commit to completing their projects, which includes incurring a lien on their property to secure the loan, before they know their interest rate. They only learn the terms after the bond offering is complete. To reduce the effects of this uncertainty on program participation, the County quotes a range of possible interest rates, based on a conservative market analysis. More importantly, the Board of Commissioners commits to an upper interest rate limit; borrowers will not be bound to participate if the county cannot achieve that rate or better. "After the first round of financing, we realized how critically important it was to do a good job of communicating about the range of interest rate fluctuation, and the maximum rate participants will have to pay," says Suzie Strife, the program's manager.

A Boulder project funded by a ClimateSmart loan.
Courtesy of *Boulder Daily Camera*

The other limitation that property owners face is that they cannot adjust the amount they receive once they sign a contract. If the project costs change after their commitment is made, they are either stuck with too much financing or too little. The responsibility to manage the gap is the property owner's. In the case of excess funds they can apply them towards other eligible measures or towards their first couple of annual payments after project completion.

In the view of county staff, this way of structuring the program also has advantages; it helps to get projects done. "Deadlines, short term opportunities, and perceived scarcity help people to do things in a more timely fashion, says Livingston. "We think running the program in a cyclical way helps people get things done rather than letting projects just sit there." Program staff also regard this structure as a necessity in a jurisdiction that wants to provide financing for renewable and retrofitting projects while minimizing its own financial risk.

"It may not be the best option for some who can get better terms through other credit, but we don't expect to be the only source of financing," says Livingston. "We just want to provide a good option for people."

San Francisco

The GreenFinanceSF Program, which is set to launch this spring, differs from the Boulder and Sonoma programs in its use of an external service provider, Renewable Funding, which is based in Oakland. The firm will supply $5 million, an interim source of capital for PACE loans, and will ultimately bear the responsibility for aggregating them and selling them as bonds. "For us, it was partly a decision about where to put liability, where to put risks," says Mike Martin. San Francisco's decision was also driven by its ability to pay for a third-party service provider through federal stimulus funding and other one-time funding sources.

Like Sonoma, the City has adopted a clear goal of providing loans to qualified property owners as soon as they are ready to proceed. "We really wanted a 'just-in-time financing source,'" says Martin. "We realized that if you are a property owner and a PACE program tells you to wait when you want to go ahead and do your project, the program may find it hard to get you to come back when they want you to." The relationship with Renewable Funding, which has its own private investors and access to credit, gives San Francisco the ability to offer this liquidity without investing its own Treasury pool.

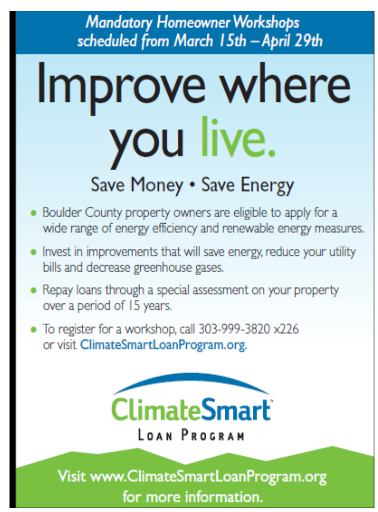
But since Renewable Funding must access capital for PACE loans from credit sources, it can't offer a fixed rate of interest to the program. To reduce any uncertainty for participating property owners about what interest rate they will have to pay for their financing, San Francisco is planning to use a grant from the California Energy Commission to stabilize rates. "The idea behind buying rate stability is that this is a very early market, and it will evolve," says Mimi Frusha. "You'd rather not have the early adopters be penalized for being first in line. San Francisco wants to align what these early adopters get in their financing package with what later adopters get."

As a condition of grant funds from the state, San Francisco will require that property owners undertake energy efficiency projects before installing renewable energy systems.[2] And the City will require that property owners conduct energy audits of their buildings. These requirements represent a new level of commitment from the State and City to ensure projects are high quality and cost-effective.

Increasing Participation Among Property Owners

All three programs have given careful thought to how educate property owners about the PACE opportunity.

Host Educational Workshops. Sonoma and Boulder counties have embraced informational workshops for property owners as a key marketing strategy. Boulder, which makes participation in the workshops a mandatory requirement, has hosted over 2000 people in only six months. Turnouts of 50 or more people are typical. Both programs aim to make these workshops fun and educational. People learn not only about the program, but also about home energy assessments, diagnostic tests, and options for energy efficiency and renewable energy investments. Surveys indicate homeowners regard it as a high point of their participation in the program.



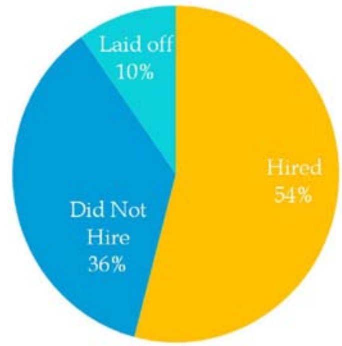
An ad for a Boulder workshop

[2] Sonoma and Boulder currently encourage but do not require this course of action.

Both programs also ensure there is always someone available to answer property owner questions after these workshops. "A single homeowner can take up 8 hours of time with questions about the program and the mechanics of the loans," says Strife. "There needs to be someone in the hot seat every day answering phone calls and e-mails. It's absolutely key to the success of our program." Boulder County now has 2.5 FTEs split between program staff and finance office staff.

Use Contractors as Your Sales Force. Contractors have helped sell these programs to property owners and answer their questions because they see the business benefit.

"Our program is really a public private partnership," says John Haig. "Our contractors are already sales oriented. They know how to seek out opportunities and sell a product." To help contractors explain the program, Boulder allows them to use its materials and brand.



61 construction firms surveyed in Sonoma County added 114 new FTEs due to PACE projects.

Consider Non-Environmental Messages. In Boulder, Strife says that property owners have diverse reasons for signing up with the ClimateSmart Loan Program. "We may have greenies in the city of Boulder, but our broader county-wide audience has different motivations." The County has found strong interest in PACE loans among citizens who are less concerned about greenhouse gas emissions than they are about improving their homes and saving money.

Getting Projects Done

All three PACE programs emphasize the importance of supporting property owners in choosing the best energy savings project and managing the installation. "If you don't have easy access to well-designed services – whether government or otherwise - to help property owners filter through the process of deciding which measures to do, you are going to put a very heavy burden on your financing program," says Livingston.

The solution in Boulder County has been to coordinate with other in-house and utility programs when someone requests a PACE loan. The program connects applicants to the local utility, which can conduct energy audits, and to a County program called REAP for ongoing help in evaluating efficiency upgrades and choosing contractors. Livingston says that working with these other programs can reassure homeowners that the person advising them about the loan doesn't have a stake in the project selection.

Sonoma County has also set up a customer service office with a dedicated staff trained to acquaint people with PACE and other relevant programs. (Boulder County is looking at plans to follow suit.)

Setting up Systems to Track Performance

It is in the area of evaluation that the lessons from existing PACE programs seem least well developed. PACE practitioners acknowledge that more work is needed in performance measurement.

Boulder County requires that participants sign a release giving their local utilities permission to provide bill data to the ClimateSmart Loan Program. Strife reports that the data covers a period one to two years prior to PACE-funded projects. Since program staff knows the exact timing of project work, they can look at the changes in energy use (normalized for weather) immediately after installation. The plan is to use this data to estimate total GHG reductions, providing a means of evaluating the contribution of PACE projects to Boulder County's emissions goals.

San Francisco also plans to collect this data, but is concerned that the City may not always be able to secure it from utilities in a timely way. GreenFinanceSF will include a home performance audit requirement. Martin also envisions a time when smart meters in homes can provide the City with real-time data on energy use.

Sonoma County collects utility data on a voluntary basis, but Haig questions its value for program evaluation. It's difficult to discern from the data whether the property owners have made behavioral changes that are also changing their energy consumption, according to Haig. Instead, the Energy Independence Program is will soon require "whole home complete energy testing and evaluation for renewable energy projects."

The assessment approach under consideration is called HERS II, and relies on a series of diagnostic tests such as blower door tests.[3] "This is what will really help us and our participating property owners understand if we are getting the promised results," notes Haig. Since HERS assessments can cost about $500, Sonoma hopes to subsidize the cost of these assessments, so a requirement to get them won't deter property owners from participating.

Adding this requirement will likely necessitate a lot of education for property owners and participating contractors. Haig recommends deciding on an evaluation strategy right up front, to avoid the hurdles that accompany changes during the operation of the program.

For More Information

Specific Information about the Three PACE Programs:

- Boulder County's ClimateSmart Loan Program
  http://www.bouldercounty.org/bocc/cslp/

- San Francisco's GreenFinanceSF Program
  https://greenfinancesf.org/systems/energy

- Sonoma County's Energy Independence Program
  See: http://www.sonomacountyenergy.org/

General Information About PACE Programs:

- A web site with a diverse set of links to resources about PACE, including resources about passing legislation, financing issues, relevant federal policies, updates on jurisdictions launching PACE programs, and recent media stories.
  http://pacenow.org

[3] This will soon be required of all PACE programs receiving State Energy Program grants in California.

- Information for governments on passing legislation authorizing PACE, and strategies for implementation, including sample documents. http://www.renewfund.com/pace/governments

- Text and slides from three webinars on PACE programs presented by the Department of Energy's Solution Center: 1) Introduction to Property-Assessed Clean Energy (PACE); 2) EECGB Pace Legal Issues; and 3) Getting Started: Legal Authority & Administering PACE Financing Programs. http://www1.eere.energy.gov/wip/solutioncenter/webcasts/default.html

- *Guide to Renewable Energy and Energy Efficiency Finance Districts Financing Programs*, Prepared by Renewable and Appropriate Energy Laboratory (RAEL), University of California Berkeley. http://www.ci.berkeley.ca.us/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Guide%20to%20Renewable%20Energy%20Financing%20Districts2009.pdf

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INSTITUTE FOR Sustainable Communities

This case study was produced for the Climate Leadership Academy Network for the Green Boot Camp, coordinated by the Institute for Sustainable Communities in partnership with Living Cities. The purpose of the CLA Network is to provide peer-to-peer learning opportunities and technical assistance, helping network members advance their work in building energy retrofitting and green job creation. For more CLA Network resources, visit www.iscvt.org/clanetwork. For more about the Institute for Sustainable Communities, visit www.iscvt.org. For more about Living Cities, visit www.livingcities.org.

Appendix A

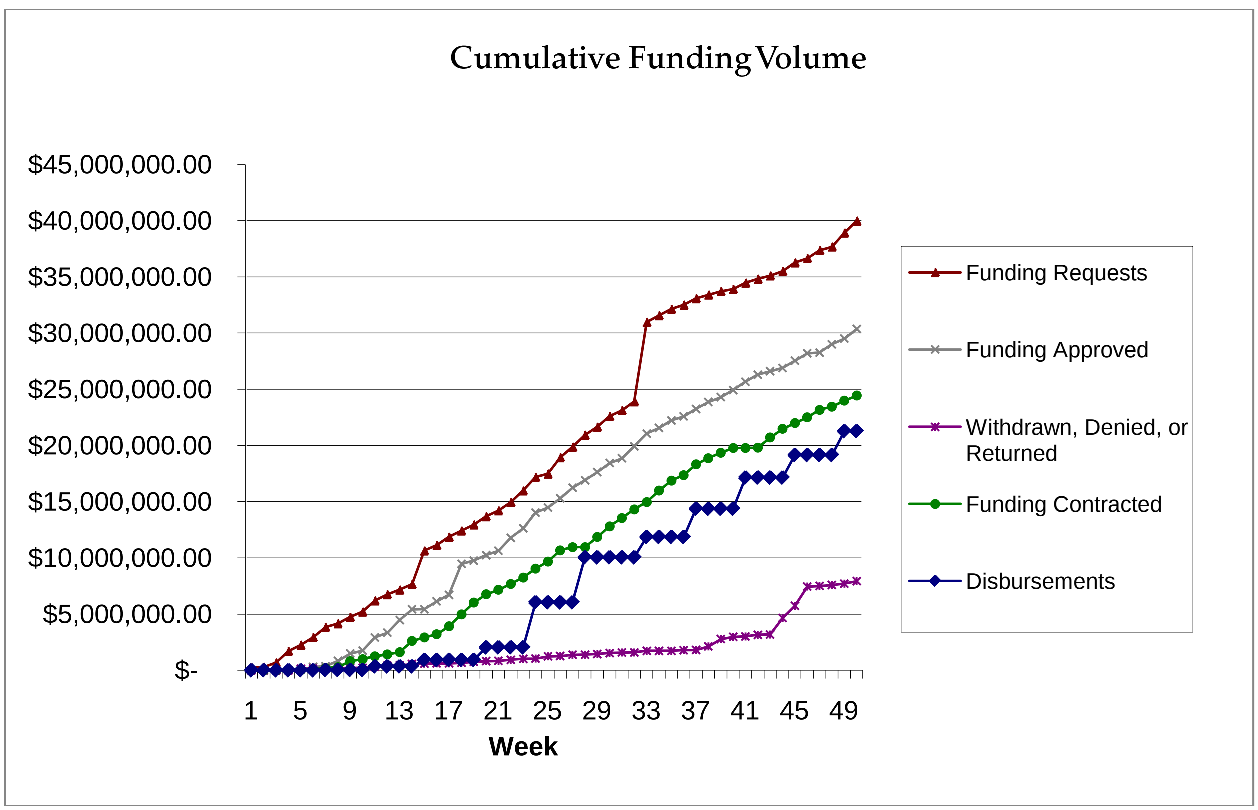
SCEIP Weekly Report
Friday, March 12, 2010

ENERGY INDEPENDENCE
A SONOMA COUNTY PROGRAM

Tables show the past 12 weeks of activity; charts show all data.
(* Withdrawn, denied, and returned applications are *no longer* included in the requested amount.)

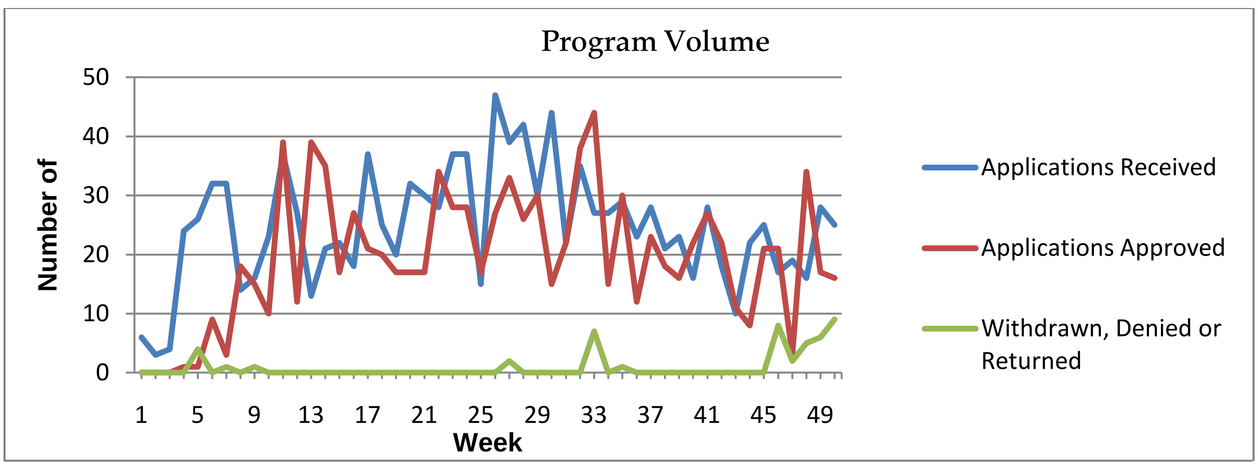
Cumulative Funding Volume

Week Ending	Funding Requests	Funding Approved	Withdrawn, Denied, or Returned	Funding Contracted	Disbursements
12/18/09	$ 307,793.75	$ 426,758.90	$ 653,281.06	$ 484,903.10	
12/25/09	$ 189,640.27	$ 630,269.23	$ 190,373.88	$ 416,137.85	
01/08/10	$ 562,332.20	$ 743,448.20	$ 44,319.80	$ 14,084.60	$ 3,468,812.77
01/15/10	$ 345,116.59	$ 631,851.54	$ 144,506.26	$ 18,691.00	
01/22/10	$ 297,220.61	$ 292,015.60	$ 34,951.00	$ 907,768.63	
01/29/10	$ 388,856.76	$ 297,816.44	$ 1,467,513.50	$ 773,373.50	
02/05/10	$ 763,509.75	$ 643,745.75	$ 1,081,121.87	$ 509,640.77	$ 2,404,086.68
02/12/10	$ 384,370.48	$ 656,754.00	$ 1,697,328.36	$ 509,707.35	
02/19/10	$ 714,274.67	$ 64,742.66	$ 56,247.70	$ 666,325.51	
02/26/10	$ 580,799.44	$ 752,774.57	$ 92,481.64	$ 280,825.46	
03/05/10	$ 975,263.08	$ 484,770.20	$ 129,172.95	$ 537,476.82	$ 2,128,417.86
03/12/10	$ 1,062,661.82	$ 858,640.70	$ 207,796.05	$ 453,990.97	
Pending on 1st					$ 299,464.43
Totals	$ 39,986,450.45	$ 30,360,734.71	$ 7,927,257.75	$ 24,445,285.05	$ 21,278,282.48
Average	$ 799,729.01	$ 607,214.69	$ 158,545.16	$ 488,905.70	



Program Activity

Week Ending	Phone Inquiries	E-mail Inquiries	Walk-in Inquiries	Applications Received	Applications Approved	Withdrawn, Denied or Returned	Contracts Signed	Projects Disbursed
12/18/09	236	29	21	23	16	28	18	
12/25/09	173	15	12	16	22	8	15	
01/08/10	191	23	17	28	27	5	1	131
01/15/10	172	18	13	18	22	4	1	
01/22/10	121	17	18	10	11	2	28	
01/29/10	149	24	15	22	8	21	35	
02/05/10	145	20	15	25	21	46	18	81
02/12/10	146	20	17	17	21	8	16	
02/19/10	136	21	17	19	3	2	16	
02/26/10	133	20	18	16	34	5	10	
03/05/10	143	22	15	28	17	6	23	62
03/12/10	144	20	12	25	16	9	22	
Pending on 1st								14
Totals	8600	1788	1561	1240	976	232	794	671
Average	172	36	31	25	20	5	16	



The Sonoma County Energy Independence Program ("SCEIP") provides financing for the installation of energy efficiency improvements, water efficiency improvements and renewable energy sources that are permanently fixed to real property ("Improvements"). Assessment contracts will be entered into as provided for in State law, Chapter 29 of Part 3 of Division 7 of the California Streets and Highways Code (commencing with Section 5898.10) and the Sonoma County Energy Independence Program Report and Administrative Guidelines dated March