Board of County Commissioners

March 22, 2012

Mr. Alfred Pollard
General Counsel
Federal Housing Finance Agency
400 7th St., N.W.
Washington, DC 20024

RE: RIN 2590-AA53 Mortgage Assets Affected by PACE Programs

Dear Mr. Pollard:

Between April 2009 and May 2010, Boulder County proudly operated the ClimateSmart Program, a Property Assessed Clean Energy ("PACE") program here in Boulder County.[1] ClimateSmart was a successful program that protected the environment, promoted local energy security, and improved the lives of the participants and the communities in which they lived. Until Boulder County was forced, in July 2010, to shut down its ClimateSmart program, the program was met with overwhelming public support because it effectively addressed two of Boulder County's most pressing issues: energy security and economic vitality.

The ClimateSmart Program provided a voluntary mechanism for property owners to obtain financing for renewable energy and/or energy efficiency improvements to properties in Boulder County. In the first year of operation, the ClimateSmart Program funded 612 residential energy efficiency and renewable energy projects throughout Boulder County totaling nearly $10 million. This program was the first countywide financing mechanism to comprehensively address renewable energy and energy efficiency in the United States; the program was buoyed by multi-jurisdictional support from all Boulder County municipalities.

Given that more than half of Boulder County's greenhouse gas emissions come from existing buildings (both residential and commercial), the ClimateSmart Program was an effective voluntary-based approach to reducing our greenhouse gas emissions—a major goal identified in Boulder County's Sustainable Energy Plan. In addition, the ClimateSmart Program did more than just encourage property owners to implement energy efficiency and renewable energy measures; it also generated green-collar jobs and stimulated the local and state economy. Nearly $6 million of the total money distributed in 2009 funded energy efficiency upgrades and almost $4 million went to renewable energy projects, all of which boosted the local economy and provided job opportunities for more than 290 installers, contractors and

[1] Please see the attached detailed report on the Boulder County's ClimateSmart program.

vendors. In addition, 75% of the ClimateSmart Program bonds were sold locally, providing excellent local green investment opportunities. Finally, given that a vast majority of the work was completed by the local workforce, we believe that recirculation of project dollars within our community has occurred, producing a positive economic ripple effect. In contrast, approximately 75 cents on the dollar currently leaves the Boulder County community when residents and businesses pay their utility bills.

Boulder County believes that FHFA's July 6, 2010, decision to unilaterally halt local government PACE programs was unwarranted. We appreciate the opportunity provided by FHFA to comment on the decision, correct misinformation and misunderstandings, and to recommend that FHFA adopt reasonable underwriting standards that ensure local PACE programs are designed to maximize benefit and minimize risk. Our response to questions outlined in FHFA's Advanced Notice of Proposed Rulemaking ("ANPR") follows.

Re: Questions 2-5: PACE assessments are valid tax assessments rather than "loans" as asserted by the FHFA, and description of PACE financing as "lien-priming" is a mischaracterization. Opponents of PACE assessments incorrectly classify these assessments as "loans," rather than tax assessments operated through special assessment districts. Other special districts allow property owners to act voluntarily and individually to adopt municipally financed improvements to their property that are repaid with assessments. PACE special assessment districts are not significantly distinguishable from special assessment districts in other contexts, including special assessment districts designed to fund septic systems, sewer systems, sidewalks, lighting, parks, open space acquisitions, business improvements, seismic improvements, fire safety improvements, and even sports arenas. Such special districts have been in existence since 1736, and are typically created at the voluntary request of property owners who vote to allow their local governments to finance improvements that serve a public purpose, such as energy efficiency improvements.

Throughout the ANPR, FHFA characterizes PACE programs as having a "lien-priming feature." This characterization conveys a fundamental misunderstanding and mischaracterization. All special assessments collected for special improvement districts are secured by liens which are senior to the first mortgage, and therefore FHFA's characterization of PACE as having a "lien-priming" feature is misleading. Energy retrofits and renewable energy improvements are merely additional legitimate public purposes for a longstanding legal structure. It is the position of Boulder County that FHFA has no statutory authority to decide whether municipal assessments are valid and no basis to characterize PACE financing as lien-priming.

Questions 2, 3, 6 and 10: PACE assessments do not unduly diminish the security of the first mortgage holder, and energy-related improvements financed through PACE assessments have a positive impact on home values and on homeowners' pocketbooks. FHFA asserts that PACE presents significant safety and soundness concerns to the first mortgage holder, but there is no direct evidence to support this claim here in Boulder County. As of March 2012, 7 of the 612 participating ClimateSmart homeowners had fallen into foreclosure, a rate of 1.1%. The default rates for ClimateSmart homes does not differ

significantly from the overall foreclosure rate in Boulder County during the same period. Further, in 5 of the 7 foreclosure cases, the ClimateSmart assessment was less than 10% of the assessed value of the home, and in 3 cases, less than 5%. In these cases, it is reasonable to believe that the PACE assessment played no or a minor role in the circumstances that led to foreclosure.

Boulder County's experience with PACE suggests that these assessments actually minimize, not increase, risk to homeowners, mortgage lenders, and local governments for any number of reasons, including:

- **Savings**: Because energy efficiency and renewable energy improvements reduce homeowners' energy bills, they are inherently safe investments for homeowners and lenders.
- **Home Value**: Numerous studies show that energy efficiency and renewable energy measures increase a home's value. An April 2011 study of 72,000 homes by the Lawrence Berkeley National Laboratory, for example, showed an average $17,000 sales price premium for homes with solar photovoltaic systems. A second 2011 study published in the Journal of Sustainable Real Estate found that U.S. EPA Energy Star-rated homes commanded $9.00 per square foot more in their sales price than homes without the rating. These recent studies confirm the conclusions of a 1998 study published in The Appraisal Journal, which showed that residential selling prices are positively correlated with lower energy bills, most often attributed to energy efficiency improvements.
- **Hedge**: Energy efficiency and renewable energy projects create a fixed hedge against rising fuel costs and energy price spikes that can endanger a homeowner's ability to make mortgage payments.

Questions 5, 8 and 13: PACE-financed improvements have notable advantages to improvements funded by traditional lenders. Many residents are unwilling to take on debt for energy efficiency upgrades because the benefits of the investment do not follow them if they decide to sell in the future. Unlike traditional financing, PACE-financed improvements have the notable advantage that the assessment stays with the property upon sale. This means that the party that is currently reaping the benefits of the energy efficiency and renewable energy improvements is the party responsible for paying for these improvements on a monthly basis. This also means that property owners who are unsure of how long they will reside at a certain location could nonetheless decide to invest in energy efficiency and renewable energy improvements that have payoff periods longer than the property owners' expected tenancy. This overcomes one of the strongest traditional barriers to implementing energy efficiency and renewable energy projects in American homes today.

Questions 5, 6 and 8: PACE programs facilitate the completion of energy-related home improvement projects that would not be completed by alternate means. PACE programs such as ClimateSmart are able to finance improvements that traditional bank loans are unwilling to finance. Because they are secured through traditional and reliable tax assessments, PACE financing provides bondholders with ample security and provides municipalities with a mechanism within their existing operation to collect payments. As a

result, PACE financing is able to fund energy-reducing improvements for which financing is otherwise unavailable. These loans broaden the means of access to capital for borrowers and increase investment in the types of improvements that not only benefit the borrower, but also the local economy and environment.

Questions 9 and 13: PACE programs have processes and disclosures in place to educate and protect homeowners as well as lenders. With Boulder County's ClimateSmart Program, homeowners attended a mandatory Home Energy 101 workshop. The Home Energy 101 workshops highlighted the ClimateSmart process and its contractual obligations; the pre-approved list of eligible energy efficiency and renewable energy measures; and financing options for funding improvements outside of ClimateSmart. Workshop participants were educated on the benefits of increasing home energy efficiency, and provided guidance on which of the eligible energy efficiency and/or renewable energy measures might be best to implement in their homes. The eligibility list was created by local and national experts, and contained over 40 technologies deemed most appropriate for Boulder County's housing stock and climate zone.

Questions 11 and 12: PACE programs and certified contractors educate participants about energy-related improvements prior to work being completed, including information about cost, value and maintenance requirements of energy-related measures. Homeowners solicit bids from private contractors and installers before deciding which energy efficiency improvements and/or renewable energy measures to implement, through an energy concierge service with ClimateSmart that provided one-on-one counseling to help determine which measures would be best suited to their individual circumstances. After deciding which measures to implement, homeowners were required to obtain project bids from contractors certified or licensed in the appropriate trades for their specific project.

Question 7: Home energy improvements financed through Boulder County's ClimateSmart Program have economic and environmental benefits. Boulder County's ClimateSmart Program, if reinstated, has great potential to help Boulder County achieve important economic and environmental goals. For example, according to a May 2011 Department of Energy study, the Boulder County ClimateSmart Program created more than 290 jobs, generated more than $20 million in overall economic activity, and reduced consumers' energy use by more than $125,000 in the first year alone. In developing a rule that serves the public interest, the FHFA should weigh perceived risks associated with this lending model against the proven economic benefits that may reduce default rates.

Questions 1, 4, 14, 15, 16 and 17: Reasonable and appropriate underwriting standards will ensure the integrity of PACE programs while protection both homeowners-borrowers and lenders. With Boulder County's ClimateSmart Program, various protections were put in place throughout the process to educate and protect homeowners as well as lenders. For example, regarding the amount of PACE financing that was authorized, homeowners applied for loans ranging from a minimum of $3,000 to a maximum of $50,000, or 20% of the most recent valuation of the property as determined by the Boulder County Assessor, whichever was less.

Instead of a broad-based ban on PACE lending, Boulder County recommends FHFA adopt a rule stipulating that mortgage lenders regulated by FHFA be allowed to buy residential mortgages with PACE assessments originated by programs that conform to standards and guidelines such as those established in H.R. 2599 (The PACE Assessment Protection Act of 2011) and by Department of Energy guidelines published in May 2010. Additionally, the October 2009 release by the White House Office of "(A) Policy Framework for PACE Financing Programs," laid out in detail a series of best management practices for PACE programs, which informed the Department of Energy's 2010 guidelines. These best management practices were targeted toward homeowner and lender protection, dealing with such issues as savings-to-investment ratios, quality assurance, loan size relative to house value, default, and negative equity financing.

Reasonable underwriting standards should include provisions for:
1) **Non-Acceleration:** Future, unpaid PACE assessments remain with a property upon sale or other transfer to a new owner, protecting lenders from total extinguishment of unsecured debt or home equity lines in defaults when a home is worth less than its outstanding mortgage balance;
2) **15% Equity Test:** In order to qualify for PACE financing, homeowners must have 15% equity in their home;
3) **Project Limitations:** PACE-financed projects cannot exceed 10% of home value;
4) **Cost Effectiveness**: Projects must pay for themselves by having a savings-to-investment ratio greater than one;
5) **Quality Work**: A required energy audit and any work performed must be done by an accredited, qualified contractor; and
6) **Soundness**: PACE financing is only available to homeowners who have a solid history of on-time mortgage and tax payments and no recent bankruptcies.

As demonstrated above, Boulder County's ClimateSmart Program had in place various education and safeguarding components to protect homeowners and their ability to repay the amounts financed. There was no demonstrable downside to our PACE program, as evidenced through low default rates on ClimateSmart homes and the significantly positive aggregate economic and environmental impacts of the ClimateSmart Program.

Boulder County strongly urges FHFA to reconsider its opposition to PACE programs such as the ClimateSmart Program. Reasonable underwriting standards will enable the continuation of successful PACE programs such as ClimateSmart while simultaneously ensuring protections for homeowners and lenders and benefiting homeowners and communities. By allowing lenders regulated by the FHFA to buy mortgages with PACE assessments, FHFA would simultaneously protect the interests of local governments, homeowners, mortgage lenders and Government Sponsored Enterprises, while facilitating community-led efforts to reduce energy consumption, strengthen local economies, and protect the environment. We appreciate the opportunity to offer our comment, and we urge FHFA to undertake rulemaking that allows for continuation of PACE programs such as Boulder County's successful ClimateSmart Program.

Sincerely,

Boulder County Board of County Commissioners

Cindy Domenico
Chair

Deb Gardner

Will Toor

Enclosure: ClimateSmart Loan Program Summary Report

ClimateSmart
LOAN PROGRAM

The Boulder County ClimateSmart Loan Program: A Summary Review

Boulder County Commissioners' Office

March 22, 2012

INTRODUCTION

In its short, 18-month duration, the residential component of the Boulder County ClimateSmart Loan Program (CSLP) became a national model for implementation of the Property Assessed Clean Energy (PACE) financing tool. Serving 300,000 county residents and 10 municipalities and supporting a comprehensive suite of energy efficiency and renewable energy measures, the CSLP offered affordable financing to home owners wishing to make energy improvements to their properties while helping to advance county-adopted economic development and energy security public policy goals. Received enthusiastically by Boulder County residents, the residential CSLP funded 612 energy efficiency and renewable energy projects totaling $10 million in investments before the July 2010 Lender Letters from the Federal Housing Finance Agency led to the suspension of the program.

HISTORY

In 2005 Boulder County adopted, through resolution, a long-term carbon neutrality goal that will require a significant reduction in the current level of county-wide greenhouse gas emissions *(see Attachment A)*. In support of achieving this goal, the county actively participated in an effort led by the Boulder County Consortium of Cities, a body that includes membership from all eleven local governments located in Boulder County, to develop the Sustainable Energy Plan (SEP; *see Attachment B)*. Completed in 2008, the SEP describes local and statewide voluntary and regulatory strategies and defines an implementation path for achieving the county carbon neutrality goal. (To view the full plan, please visit http://www.bouldercounty.org/find/library/gogreen/susenrgypln.pdf.)

The SEP identifies affordable financing as a key mechanism for accelerating the installation of energy efficiency and renewable energy measures in both the residential and commercial building sectors (combined, these sectors account for over one-half of Boulder County's greenhouse gas emissions). In late 2007, the Board of County Commissioners and county staff took note of a pilot program being developed by the City of Berkeley, California, to provide

funding for solar photovoltaic systems in the city through a pioneering financing mechanism. BerkeleyFIRST was launched in 2008, and became the model for the PACE financing tool *(see Attachment C)*.

That same year, Boulder County staff worked with State Representative Alice Madden, the Colorado Governor's Energy Office, Environment Colorado, and others to support House Bill 08-1350, the enabling legislation which provided Colorado's local governments the authority necessary to implement PACE financing programs. Signed into law in May 2008, HB 08-1350 included important expansions on the Berkeley model in Colorado by allowing for funding of both energy efficiency and renewable energy measures and the use of tax-exempt bonds *(see Attachment D)*.

With authority now provided to Colorado's local governments to implement PACE programs, the Board of County Commissioners referred Ballot Measure 1A to the county's November 2008 ballot. The measure asked for voter authority to sell up to $40 million in bonds to fund the ClimateSmart Loan Program. Recognizing that PACE could be a powerful tool for stimulating the local green economy while advancing county energy security goals, Boulder County voters approved Ballot Measure 1A by a 64% - 36% margin, the first indication of the strong support county residents would ultimately show for the concept of PACE in general and the CSLP in particular *(see Attachments E and F)*.

PROGRAM DESIGN

With voter approval in hand, county staff began working with interested stakeholders, including the banking community, to design the residential component of the ClimateSmart Loan Program. Ultimately, the program followed the path commonly taken by other local governments establishing PACE programs: The county created a local improvement district (LID) contiguous with its incorporated borders; solicited residential property owners to participate in the program; issued bonds sized to cover the costs of the pre-approved energy efficiency and renewable energy improvements; and used bond proceeds to pay for individual project implementation. Bond debt service is currently being repaid through fixed payments that are assessed to the annual property taxes of the program participants.

Like traditional land-secured municipal finance instruments, the CSLP assessment remains with the property in the case of resale, as the improvements financed through PACE are not transitory. Unlike a traditional LID assessment, however, property owner participation is 100% voluntary; only those property owners who chose to participate in the CSLP are paying the cost of the additional assessment.

More specifically, a CSLP participant took the following path in moving through the program:

1. **Homeowner attends a mandatory Home Energy 101 workshop.**
   The Home Energy 101 workshops highlighted the CSLP process and its contractual obligations; the pre-approved list of eligible energy efficiency and renewable energy measures; and financing options for funding improvements outside of the CSLP. Workshop participants were educated on the benefits of increasing home energy efficiency, and provided guidance on which of the eligible energy efficiency and/or renewable energy measures might be best to implement in their homes. The eligibility list was created by local and national experts, and contained over 40 technologies deemed most appropriate for Boulder County's housing stock and climate zone.

2. **Homeowner solicits bids from private contractors and installers.**
   Before deciding which energy efficiency improvements and/or renewable energy measures to implement, homeowners were provided access to an energy concierge service which provided one-on-one counseling to help determine which measures would be best suited to their individual circumstances. After deciding which measures to implement, homeowners were required to obtain project bids from contractors certified or licensed in the appropriate trades for their specific project.

3. **Homeowner applies for a CSLP loan.**
   Through a web-based interface, homeowners applied for loans ranging from a minimum of $3,000 to a maximum of $50,000, or 20% of the most recent valuation of the property as determined by the Boulder County Assessor, whichever was less.

4. **Boulder County staff pre-qualifies homeowner for assessment.**
   County staff ensured that potential participants applied for loans meeting the minimum and maximum loan amounts.

5. **Homeowner finalizes application with a loan originator.**
   After homeowners were pre-qualified for the program, applications were finalized in a face-to-face meeting between homeowners and the county's approved third-party loan originator. Application information such as completion of contractor bids, proof of income qualification (if applicable), and other details were reviewed, including the requirement that participation in the CSLP would result in an assessment being placed on the qualifying property. Contractual documents were then signed.

6. **Boulder County issues bonds to cover the total costs of all approved CSLP applications.**
   The CSLP's two bond sales were strategically coordinated to ensure the lowest possible interest rate for program participants.

7. **Homeowner receives notification that project work can begin.**
   Upon completion of the bond sale process, approved CSLP participants received notification from the county that their selected contractor(s) could begin work on their energy efficiency and renewable energy projects.

8. **Homeowner provides certification of project completion to Boulder County.**
   Required certification documents included copies of permit and inspection paperwork, and a letter from the homeowner acknowledging that project work had been completed. Upon receipt of this certification, the county issued checks to the contractors, vendors, and installers that performed the work.

9. **Homeowner begins repayment of CSLP assessment in next property tax payment cycle.**
   As with other assessments, the CSLP assessment is paid through the property tax collection process. Participants are able, at any time, to retire the debt in full should they desire to do so.

All told, over 2,900 individuals attended Home Energy 101 workshops, and 612 homeowners went through the process to secure a CSLP loan *(see Attachment G)*.

PROGRAM REVISION

Like all municipal assessments, a PACE assessment holds a senior lien priority to a mortgage. Almost immediately, this fact attracted the attention of Fannie Mae, Freddie Mac, and their regulator, the Federal Housing Finance Agency (FHFA). In 2008, PACE advocates opened a dialogue with the FHFA to explore options for addressing the agency's concerns. This dialogue led to the October 2009 release by the White House Office of "(A) Policy Framework for PACE Financing Programs," which laid out in detail a series of best management practices for PACE programs *(see Attachment H)*. These best management practices were targeted toward homeowner and lender protection, dealing with such issues as savings-to-investment ratios, quality assurance, loan size relative to house value, default, and negative equity financing. In short, the White House argued that, "…For both homeowners and lenders, the programs should be structured to address risks that could arise given that property tax assessments under PACE usually take priority over private liens in the event of foreclosure."

Boulder County provided a detailed response to the Policy Framework to both the White House Office and the U.S. Department of Energy (DOE). When the DOE released its "Guidelines for Pilot PACE Financing Programs" in May 2010, Boulder County had largely completed its effort to conform the ClimateSmart Loan Program to the guidelines defined by the DOE *(see Attachments I and J)*. Had the CSLP gone to its third round of funding as planned for that same month, the program would have been in compliance with the DOE guidelines.

Boulder County has been a strong advocate of the recent Congressional legislative efforts to restore PACE. Both the White House Framework and the DOE Guidelines informed the clear consumer protections and underwriting standards that have been included in these legislative efforts to protect homeowners and lenders, such as:

- **Non-Acceleration:** Future, unpaid PACE assessments remain with a property upon sale or other transfer to a new owner, protecting lenders from total extinguishment of unsecured debt or home equity lines in defaults when a home is worth less than its outstanding mortgage balance.
- **15% Equity Test:** In order to qualify for PACE financing, homeowners must have 15% equity in their home.
- **Project Limitations:** PACE-financed projects cannot exceed 10% of home value.
- **Cost Effective**: Projects must pay for themselves by having a savings-to-investment ratio greater than one (SIR > 1).
- **Quality Work**: A required energy audit and any work performed must be done by an accredited, qualified contractor.
- **Soundness**: PACE financing is only available to homeowners who have a solid history of on-time mortgage and tax payments and no recent bankruptcies.

Boulder County supports the inclusion of homeowner and lender protection requirements such as these in PACE program design *(see Attachment K)*.

PROGRAM RESULTS AND ACHIEVEMENTS

Given the economic barriers to improving the energy performance of residential and commercial buildings, including uncertainty of savings, split incentives, and length of project paybacks, PACE financing programs like the ClimateSmart Loan Program are critical for achieving significant investment in renewable energy and energy efficiency technologies.

First, the program required little up-front investment (a $75 application fee), directly addressing the barrier of the upfront capital costs needed to implement renewable energy and

energy efficiency measures. Second, the program's long term (up to 15 years) spreads the investment cost over time, allowing property owners to use energy savings to repay the assessment. In combination with the educational efforts that helped to combat homeowner misinformation and make implementation more convenient, the CSLP offered Boulder County residents a unique financing mechanism that defined Boulder County's holistic approach to overcoming the barriers that homeowners face when trying to implement energy efficiency and renewable energy projects.

Before the July 2010 Lender Letters, Boulder County conducted two rounds of bond sales to support the residential CSLP:

Bond Sales	# of Borrowers	Total Dollar Amount	Spending on Energy Efficiency Measures	Spending on Renewable Energy Measures
Round 1 (Apr 2009)	393	$6,600,000	$4,100,000	$2,500,000
Round 2 (Nov 2009)	219	$3,200,000	$1,900,000	$1,300,000
Totals	**612**	**$9,800,000**	**$6,000,000**	**$3,800,000**

Approximately 60% of the loan funds were spent on energy efficiency measures to improve the energy performance of homes. Popular measures included air sealing, highly-efficient exterior windows, high-efficiency furnaces, and on-demand/tankless hot water heaters. Approximately 40% of the loan funds were spent on renewable energy measures, specifically solar photovoltaic and solar hot water systems. The average size of the 612 CSLP-funded projects was $16, 013.00. The program funded the installation of 1,831 energy efficiency or renewable energy measures, or an average of 3 per project. Residents from every county municipality and from across the unincorporated county participated in the program *(see Attachments L and M)*.

Analyses of the two rounds of the residential CSLP reveal significant benefits to the local economy, the local environment, and the wallets of CSLP participants. In addition, Boulder County's experience with the CSLP directly contradicts the concerns of the banking industry in general and the Federal Housing Finance Agency specifically, that PACE loans are a threat and risk to the fiscal soundness of mortgages, given the priority lien status of the loan.

Economic Benefits

The definitive study of the economic benefits of the ClimateSmart Loan Program was completed by the National Renewable Energy Laboratory in July 2011 *(see Attachment N)*. In "***Economic Impacts from the Boulder County, Colorado, ClimateSmart Loan Program:***

Using Property-Assessed Clean Energy (PACE) Financing," Marshall Goldberg, Jill Cliburn, and Jason Coughlin found that:

- CSLP spending in Boulder County alone contributed to **85 short-term jobs, more than $5 million in earnings, and almost $14 million in economic activity** in the county.
- The CSLP **supported another 41 short-term jobs throughout the state** outside of Boulder County, **$2 million in additional earnings, and almost $6 million in additional economic activity** statewide.
- Reduced energy use **saved participants a combined total of about $125,000 during the first year** on their electric and gas utility bills.

In addition to the direct economic impacts, the CSLP delivered a number of indirect impacts through the energy efficiency and renewable energy projects that resulted from the two rounds of program funding. Given that a vast majority of the project work was completed by local contractors, vendors and installers, it is likely that significant recirculation of project dollars within Boulder County occurred (as compared to the approximately 75 cents on the dollar that leaves the community when residents and businesses pay their utility bills). Moreover, it is likely that the program generated homeowner interest in energy efficiency and renewable energy measures, creating a ripple effect of work completed by property owners who were motivated by the ClimateSmart Loan Program educational workshops, but found other ways to finance their upgrades. Finally, 75% of the ClimateSmart Loan Program bonds were sold locally, providing an excellent local green investment opportunity.

Environmental Benefits

In order to assess the impact of the CSLP on energy consumption and other environmental criteria, Boulder County hired Symbiotic Engineering, a Boulder-based sustainability consulting firm, to undertake a comprehensive analysis of the energy performance of the CSLP participant homes. CSLP participants agreed to have their utility bills analyzed as part of the program *(see Attachment O)*. Symbiotic conducted a one-year baseline analysis of participants' energy consumption, then conducted post-installation weather-normalized analyses of utility bills. This analysis revealed the following savings numbers:

	Electricity Consumption (kWh)	Natural Gas Consumption (therms)	Annual Energy Bill Savings
Savings per Average Home	1,600	100	$200
Total all participants	980,000	61,200	$125,000

The reduction in energy consumption achieved through CSLP projects reduces Boulder County's annual GHG emissions by 1,020 metric tons of CO2e, equivalent to permanently removing 200 vehicles from county roads.

Foreclosure Analysis

As described above, before the release of the July 2010 Lender Letters, Boulder County conducted two rounds of bond sales to support the residential CSLP, funding 612 assessments at a total dollar amount of $9.8 million. As of March 2012, seven, or 1.14%, of the 612 participating homeowners had fallen into foreclosure.

While we know that seven of the 612 participants in the CSLP fell into foreclosure, we cannot determine if these foreclosures resulted in losses to either the lenders or Fannie Mae and Freddie Mac. Additionally, we cannot draw any conclusions in respect to the impact the CSLP assessment had on the circumstances that resulted in the seven affected parties falling into foreclosure.

That said, as shown in the table below, in five of the seven foreclosure cases, the CSLP assessment was less than 10% of the assessed value of the home, and in three cases, less than 5%. In these cases, it is reasonable to conclude that the CSLP assessment played little to no role in the circumstances that led to foreclosure.

Property	Assessed Value (2011)	CSLP Assessment	CSLP/Assessed Value	Sale Price	Date of Sale
1	$286,000	$35,670	12.5%	$265,000	Dec 2011
2	$222,000	$19,185	8.6%	$214,000	Jun 2010
3	$159,000	$35,685	22.4%	$140,500	Jul 2011
4	$923,000	$10,250	1.1%	Bank Owned	N.A.
5	$425,000	$29,205	6.9%	Bank Owned	N.A.
6	$423,000	$12,255	2.9%	$335,600	Aug 2011
7	$274,000	$13,380	4.9%	$336,200	Oct 2011

CONCLUSION

Given the economic barriers to improving the energy performance of residential and commercial buildings, including uncertainty of savings, split incentives, and length of project paybacks, PACE financing programs like the ClimateSmart Loan Program are critical for achieving significant investment in renewable energy and energy efficiency technologies.

Boulder County and its municipalities have adopted aggressive goals for reducing greenhouse gas emissions, moving to renewable energy sources, increasing the energy efficiency of the building stock, and strengthening local economies through a robust green economy. As borne out by the experience of the ClimateSmart Loan Program, PACE financing programs possess the ability to meet all of these goals.

ATTACHMENTS

ATTACHMENTS

Attachment A:	Boulder County Resolution 2005-137, Adopting a Sustainable Energy Path for Boulder County
Attachment B:	Executive Summary, Boulder County Sustainable Energy Plan
Attachment C:	Information on the Berkeley FIRST Financing Program
Attachment D:	Colorado PACE Enabling Legislation, HB 08-1350
Attachment E:	Boulder County 2008 Ballot Measure 1A Resolution
Attachment F:	Results, Boulder County 2008 General Election, Ballot Measure 1A
Attachment G:	Home Energy 101 Workshop PowerPoint Presentation
Attachment H:	White House Office, "Policy Framework for PACE Financing Programs"
Attachment I:	U.S. Dept. of Energy, "Guidelines for Pilot PACE Financing Programs"
Attachment J:	Boulder County Analysis of the Federal Guidelines Regarding PACE Financing
Attachment K:	Text, H.R. 2599, The PACE Protection Act of 2011
Attachment L:	ClimateSmart Loan Program, Participants and Amount Spent per Measure
Attachment M:	ClimateSmart Loan Program, Completed Applicant Locations
Attachment N:	"Economic Impacts from the Boulder County, Colorado, ClimateSmart Loan Program: Using Property-Assessed Clean Energy (PACE) Financing"
Attachment O:	ClimateSmart Loan Program Utility Release Form
Attachment P:	Sample ClimateSmart Loan Program Marketing Materials

Attachment A: Boulder County Resolution 2005-137, Adopting a Sustainable Energy Path for Boulder County

RESOLUTION 2005 – 137

Adopting a Sustainable Energy Path for Boulder County

WHEREAS, Article 30-11-107 of the Colorado Revised Statutes enables the Board of County Commissioners to make orders concerning the property of the county; and

WHEREAS, Article 30-28-115 of the Colorado Revised Statutes enables the Board of County Commissioners to promote the health, safety, and welfare of the inhabitants of the county; and

WHEREAS, 30-28-201 of the Colorado Revised Statutes enables the Board of County Commissioners to adopt ordinances and building codes; and

WHEREAS, Boulder County is committed to protecting and enhancing environmental quality in the county now and for future generations; and

WHEREAS, the Boulder County Commissioners are focusing on environmental sustainability as one of three major Commissioner goals; and

WHEREAS, the County plans to fully evaluate greenhouse gas emissions through an inventory of county operations and countywide emissions; and

WHEREAS, in February of 2005, the Kyoto Protocol, an international agreement was adopted in December 1997 in Japan, setting binding targets for developed countries to reduce greenhouse gas emissions on average 5.2 percent below 1990 levels, although the United States has not ratified this protocol; and

WHEREAS, nationwide, 160 local governments have already passed resolutions pledging to reduce greenhouse gas emissions from their government operations and throughout their communities; and

WHEREAS, in November 2004, more than 70% of Boulder County voters approved the passage of Amendment 37 requiring that the state's largest public utilities supply 10% of their power from renewable resources by 2010 and raise energy costs by up to 1% to accomplish this goal; and

WHEREAS, there is increasing scientific evidence that carbon dioxide and other greenhouse gases released into the atmosphere are currently impacting the Earth's climate and will continue to have profound and potentially devastating effects, increasing the risk of extreme weather events, increased flood severity, increased risk and intensity of catastrophic wildfire, increased risk of forest die-offs due to insect invasions, changing rainfall and crop productivity patterns, increased risk of drought, loss of alpine meadows, and migration of infectious diseases; and

WHEREAS, local government actions taken to reduce greenhouse gas emissions through increased energy efficiency, reduced vehicle miles traveled, and waste reduction can provide multiple local benefits by decreasing air pollution, creating jobs, extending landfill life, and reducing energy expenditures for the county, its businesses and its citizens; and

WHEREAS, the Board of County Commissioners desires Boulder County to take a leadership role in increasing energy efficiency and reducing greenhouse gas emissions from county operations;

NOW, THEREFORE, BE IT RESOLVED BY THE BOULDER COUNTY BOARD OF COUNTY COMMISSIONERS (BOCC) AS FOLLOWS:

BOCC hereby declares its intent that the county shall identify and implement actions (action plan) that will reduce Boulder County's contribution to total global greenhouse gas emissions, in direct support of the Commissioner's goals for environmental sustainability.

BOCC hereby directs county staff to develop the action plan, referenced above, with the initial goal of being in alignment with the U.S. Kyoto Protocol target of reducing greenhouse gas emissions 7% below the estimated 1990 level of greenhouse gas emissions generated in Boulder County and by Boulder County operations. The plan will be designed to achieve cost-effectiveness in each county program. The plan will seek to achieve the ultimate goal of making County operations "climate neutral" by significantly reducing energy use and emissions of global warming gases within the county's operations and investing in energy reductions externally to offset the remaining greenhouse gas emissions to achieve a net zero impact on the Earth's climate. The action plan will be completed by December 2006. The plan will, within budget constraints, seek to effectively, efficiently and quickly address the issues identified.

A. BOCC hereby directs county staff to consider, for inclusion in the action plan, energy efficiency and greenhouse gas reduction measures targeting county facilities. The BOCC directs staff to consider the costs and costs savings associated with these actions; their impact on energy use and greenhouse gas emissions; their educational value to the community; their operational feasibility; and the appropriate phasing of such actions. Actions to be considered include but are not limited to:

1. Inventorying global warming emissions in county operations.

2. Increasing the use of clean, alternative energy by, for example, investing in "green tags," advocating for the development of renewable energy resources, installing solar photovoltaic panels on county buildings, using biofuels such as ethanol and biodiesel in county fleets, and using biomass for heating and cooling county buildings.

3. Making energy efficiency a priority through policies and retrofitting county facilities with energy efficient improvements and urging employees to conserve energy and save money.

4. Purchasing equipment and appliances that meet or exceed Energy Star standards.

5. Practicing and promoting sustainable building practices using the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program or similar. New county buildings should be designed, constructed, and operated to meet or exceed - the equivalent of LEED NC Gold level or higher, with a special attention to the energy and

atmosphere impacts of county buildings. Existing county buildings should be audited to meet or exceed the equivalent of LEED EB Certified level, with special attention to the energy and atmosphere impacts of county buildings.

6. Increasing the average fuel efficiency of county fleet vehicles; converting to hybrid and plug-in hybrid vehicles; reducing the number of vehicles; launching an employee education program including anti-idling messages; and using bio-diesel and other biofuels where possible.

7. Developing an employee transportation program designed to minimize the number of single occupant vehicle trips taken by county employees, both to access work and during their work day; and reviewing county programs to look for opportunities to reduce public vehicle travel used to access county services and programs.

8. Increasing recycling rates in county operations.

9. Implementing other energy efficiency or greenhouse gas reduction measures that might be identified through the planning process.

10. Including in the action plan a requirement for an annual report to the BOCC which evaluates these sustainability efforts, progress in reduction of green house emissions, and other efforts as identified in the plan.

B. BOCC hereby declares its intent to consider energy efficiency and greenhouse gas emissions reductions through education, regulatory measures, and public policy initiatives. The county will consider the impact of these measures on residents, businesses, and communities and will conduct inclusive public processes incorporating affected parties. Measures to be considered include but are not limited to:

1. Land-use policies that reduce sprawl; preserve open space; create compact, walkable urban communities; and promote tree preservation and planting to increase shading and absorb carbon dioxide.

2. Transportation programs that promote bicycle trails, encourage trip reduction, and encourage the use of public transportation and car pooling.

3. Transportation programs that provide information, incentives, and infrastructure to assist members of the public, county employees, and the business community in making the transition to low-emission vehicles,

including high-efficiency hybrid electric vehicles, plug-in hybrid electric vehicles, and vehicles which use biodiesel or other biofuels.

4. Building codes that enhance energy efficiency in new and existing buildings and promote sustainable building practices using the U.S. Green Building Council's LEED program or similar.

5. Programs to provide information, incentives, and infrastructure to assist homeowners and businesses with the transition to renewable energy sources, such as solar photovoltaics, solar hot water, solar space heating, wind-generated electricity, and geothermal heating and cooling.

6. Incorporating these principles into updates of the Boulder County Comprehensive Plan.

7. Seeking public and private partnerships to leverage limited public resources to accomplish our sustainable energy goals.

C. BOCC hereby directs members of the Sustainability Task Force to draft an action plan as outlined in this document, recommend actions for consideration in the upcoming budget cycle, and identify additional activities that merit consideration.

ADOPTED this 22nd day of November, 2005.

BOARD OF COUNTY COMMISSIONERS

OF BOULDER COUNTY

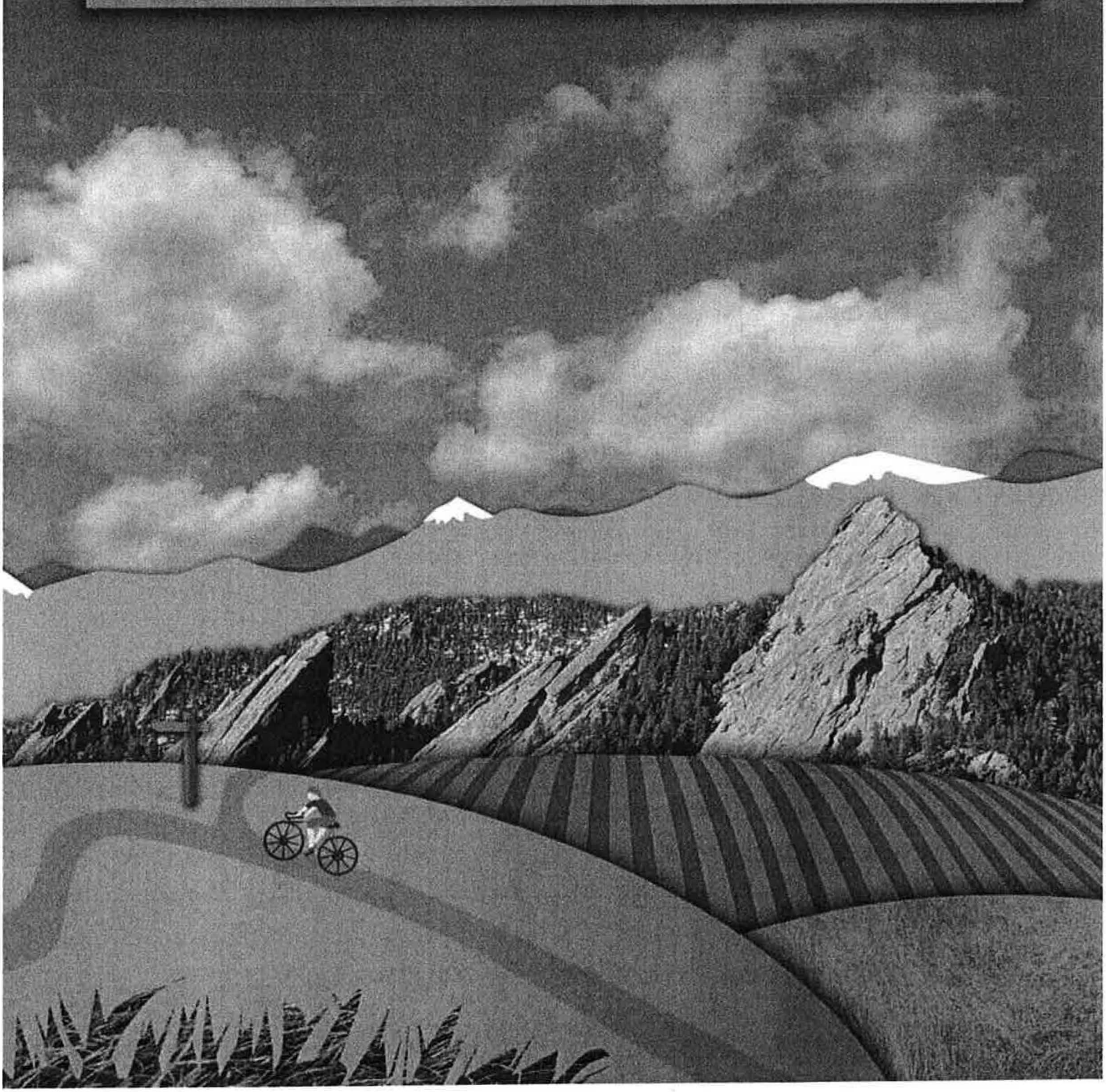
Attachment B: Executive Summary, Boulder County Sustainable Energy Plan

SUSTAINABLE ENERGY PLAN

BOULDER COUNTY
CONSORTIUM OF CITIES

ClimateSmart

Energy Strategy Task Force



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Executive Summary

Scientific evidence now incontrovertibly demonstrates that carbon dioxide and other greenhouse gases (GHG) released into the atmosphere are currently impacting the Earth's climate and will continue to have profound and devastating effects. To address the local impacts and embrace the opportunities presented by this critical issue, the Boulder County Consortium of Cities convened the Energy Strategy Task Force. One of the chief aims of the Task Force is to provide "a framework for local and regional action on energy sustainability."

The Sustainable Energy Plan (SEP) seeks to provide such a framework. The SEP identifies a host of strategies to reduce greenhouse gas emissions and make our communities "ClimateSmart." These strategies are designed to reduce the major sources of greenhouse gas emissions. Accordingly, the strategies are organized by the main ways we use energy: in our homes, businesses, industries, government operations, and transportation. In addition to making our homes, businesses, industries, and governments ClimateSmart, the Plan is designed to make our power supply ClimateSmart, too.

Highlighted in the SEP are 20 key recommended actions that will lead to meaningful progress toward a sustainable energy future. These actions will not only reduce our county's impact on global climate change, they also result in significant cost savings through increased energy efficiency. In fact, most of the actions identified pay for themselves in five years or less. Cost, cost savings, and GHG reduction impacts have been quantified for 30 of the 35 recommended actions. The remaining five strategies focus on planning, educational, and revenue generating efforts that could not be quantified.

Out of the 35 actions identified, these 20 actions are recommended for "first tier" adoption. These strategies were selected based on: their emissions reductions potential, their cost effectiveness, their persistence, and an effort to ensure equitable contributions across the main GHG contributing sectors and address any social equity concerns. The key strategies include voluntary and support actions as well as statewide and local regulatory programs. Combined, and accounting for overlap between strategies, these key strategies, if implemented, will lead toresult in the county successfully reaching the following goals:

- Emissions reductions in 2012 of more than 1.3 million metric tons of carbon dioxide equivalent and 3.6 million metric tons in 2020
- Emissions reductions 11% below 1990 levels by 2020
- Annual cost savings in 2020 of more than $445 million dollars

Putting the impact of these strategies into perspective, the Kyoto target calls for developed countries to reduce their GHG emissions 7% below 1990 levels by the year 2012. The SEP strategies will bring the county nearly halfway (46%) toward achieving the Kyoto Protocol target. In addition, with only one exception (vehicle-to-grid), all of these strategies pay for themselves in five years or less.

In the longer term, these strategies will reduce emissions even more significantly. As indicated above, by 2020, the SEP strategies will enable the county to reduce GHG emissions 11% below 1990 levels. Putting this in terms of Governor Ritter's Climate Action goal (which uses a 2005 baseline) the SEP will result in a reduction of emissions 40% below 2005 levels in the year 2020. This is a reduction nearly twice that called for by the Governor.

The SEP is also intended be a "living document." Participating communities will continue to seek new and innovative strategies to achieve the overall goal of the plan. In addition, these communities have adopted resolutions directing staff to develop programs, projects, and policies that reflect the strategies set forth in the SEP; work in a collaborative manner with other public and private entities to implement these strategies; and seek appropriate funding, within budget constraints, to effectively, efficiently and quickly address GHG emissions in the county in order to achieve the reduction goals set forth in the SEP.

Attachment C: Information on the Berkeley FIRST Financing Program

ENERGY & SUSTAINABLE DEVELOPMENT

Office of Energy and Sustainable Development

Berkeley FIRST
Financing Initiative for Renewable and Solar Technology .

In 2008, the City of Berkeley launched the Berkeley Financing Initiative for Renewable and Solar Technology (FIRST), a program to promote solar photovoltaic (PV) installations using a pioneering financing mechanism. The now concluded pilot program provided property owners an opportunity to borrow money from the City's Sustainable Energy Financing District for the installation of solar photovoltaic electric systems. The Berkeley FIRST program served as a model for Property Assessed Clean Energy (PACE) programs across the country. Although Berkeley FIRST program is no longer available, take advantage of our other solar and renewable energy programs. *Photo Courtesy Sungevity Corp*

- **Free Solar Analysis:** The **SmartSolar Program** offers free indiviualized information and technical assistance to help property owners understand their building's potential for solar, including the costs and benefits of going solar. The service is offered by the nonprofit organization Community Energy Services Corporation, which can be reached at 510-981-7750.

- **Solarmap:** The **Berkeley Solar Map** is an interactive tool for viewing existing solar installations in Berkeley. It allows users to calculate the benefits of going solar by determining the potential size and cost for solar electric and hot water systems on any rooftop within the City of Berkeley.

The City of Berkeley is committed to meeting its Climate Action Plan goals by creating a healthy and sustainable community. Promoting renewable energy is an important component of the Climate Action Plan as it helps us reduce greenhouse gas emissions. Check out how local solar photovoltaic installations are helping us reach our renewable energy target. For more information about other Climate Action Plan goals see: www.cityofberkeley.info/climate

Berkeley FIRST Pilot Program

Berkeley FIRST program was intended to solve many of the financial hurdles of incorporating solar on their homes. The advantages of the Berkeley FIRST program were:

- There was relatively little up-front cost to the property owner.
- The cost for the solar system is paid for through a special tax on the property, and is spread over 20 years.
- The financing costs were comparable to a traditional equity line or mortgage.
- Since the solar system stays with the property, so does the tax obligation—if the property is transferred or sold, the new owners will pay the remaining tax obligation.

The City of Berkeley has produced a guide on how to institute property tax based financing districts; to download, see **Berkeley FIRST How To Guide**.

The FIRST program concluded its pilot phase in November. The pilot program used Berkeley's powers as a charter city to provide property owners an opportunity to borrow money from the City's Sustainable Energy Financing District. Renewable Funding LLC, the third party administrator for the Berkeley FIRST program, conducted the application process and administered the program.

The purpose of the Berkeley FIRST pilot program was to test the viability of the financing mechanism. It was limited to PV to keep the process simple by referring to existing State standards. Other PACE programs have operated at much larger scales and have included energy and water efficiency measures which generally have better financial

returns. Thirteen solar installation projects, distributed throughout Berkeley, received funding through the Berkeley FIRST pilot program. The Berkeley FIRST Program was funded by grants from the Bay Area Air Quality Management District and the Environmental Protection Agency.

Next Steps

Since the completion of the Berkeley pilot, there have been many developments related to PACE. Most importantly, the Federal Housing Finance Authority, Freddie Mac and Fannie May have issued strict rulings against any PACE program that places a PACE loan in a superior position to a mortgage. Unless and until these issues are resolved, Berkeley will not be establishing an ongoing program.

Berkeley FIRST Documents

- **Berkeley FIRST How To Guide**
- **Update to Berkeley FIRST How To Guide** (with links for ongoing updates)
- **Berkeley FIRST Pilot Initial Evaluation**
- **Berkeley FIRST Final Evaluation**
- **Berkeley FIRST Program Frequently Asked Questions**
- **Berkeley FIRST Legislative History** - Links to City Council reports & legislation

Other Solar Resources

Rebates: see **California Solar Initiative** (CSI) and **IRS** for Federal Energy Tax Credits.

Permits: see the **Solar Photovoltaic Permit Guide** and **Solar Permit Checklist**.

Check the **Updates** link for the most current announcements. **Subscribe** for email notifications on news related to Berkeley FIRST and other clean energy programs. If you have questions about the program, email us at solar@cityofberkeley.info.

Return to Energy and Sustainable Development homepage

Attachment D: Colorado PACE Enabling Legislation, HB 08-1350

NOTE: This bill has been prepared for the signature of the appropriate legislative officers and the Governor. To determine whether the Governor has signed the bill or taken other action on it, please consult the legislative status sheet, the legislative history, or the Session Laws.

An Act

HOUSE BILL 08-1350

BY REPRESENTATIVE(S) Madden, Borodkin, Carroll M., Fischer, Frangas, Green, Hodge, Kefalas, Kerr A., Labuda, Massey, McFadyen, Merrifield, Middleton, Peniston, Primavera, Rice, Riesberg, Romanoff, Solano, Stafford, Summers, Todd, and Rose;
also SENATOR(S) Romer, Bacon, Boyd, Gibbs, Keller, Kester, Schwartz, Shaffer, Tupa, and Williams.

CONCERNING THE FACILITATION OF THE FINANCING OF RENEWABLE ENERGY.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. 40-9.7-102 (2), Colorado Revised Statutes, is amended to read:

40-9.7-102. Legislative declaration. (2) The general assembly further finds and declares that the purpose of this article is to create the Colorado clean energy development authority and to endow the authority with powers sufficient to enable it to:

(a) Facilitate the production and consumption of clean energy; ~~and~~

(b) Increase the transmission and use of clean energy by financing and refinancing projects located within or outside the state for the

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.

production, transportation, transmission, and storage of clean energy, including pipelines, and related supporting infrastructure and interests therein; AND

(c) FACILITATE THE EFFICIENT USE OF ENERGY.

SECTION 2. 40-9.7-103, Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW SUBSECTIONS to read:

40-9.7-103. Definitions. As used in this article, unless the context otherwise requires:

(5.5) "ENERGY EFFICIENCY IMPROVEMENT" MEANS AN INSTALLATION OR MODIFICATION THAT IS DESIGNED TO REDUCE ENERGY CONSUMPTION IN RESIDENTIAL OR COMMERCIAL BUILDINGS AND INCLUDES ANY OTHER MODIFICATION, INSTALLATION, OR REMODELING AUTHORIZED AS A UTILITY COST-SAVINGS MEASURE BY THE BOARD.

(13.5) "RENEWABLE ENERGY IMPROVEMENT" MEANS ANY FIXTURE, PRODUCT, SYSTEM, DEVICE, OR INTERACTING GROUP OF DEVICES INSTALLED BEHIND THE METER OF ANY RESIDENTIAL OR COMMERCIAL BUILDING THAT PRODUCES ENERGY FROM RENEWABLE RESOURCES, INCLUDING, BUT NOT LIMITED TO, PHOTOVOLTAIC SYSTEMS, SOLAR THERMAL SYSTEMS, SMALL WIND SYSTEMS, BIOMASS SYSTEMS, OR GEOTHERMAL SYSTEMS, AS MAY BE AUTHORIZED BY THE BOARD; EXCEPT THAT NO RENEWABLE ENERGY IMPROVEMENT SHALL BE AUTHORIZED THAT INTERFERES WITH A RIGHT HELD BY A PUBLIC UTILITY UNDER A CERTIFICATE ISSUED BY THE PUBLIC UTILITIES COMMISSION UNDER ARTICLE 5 OF THIS TITLE. THE PUBLIC UTILITIES COMMISSION SHALL HAVE PRIMARY JURISDICTION TO ADJUDICATE DISPUTES AS TO WHETHER A RENEWABLE ENERGY IMPROVEMENT INTERFERES WITH SUCH A RIGHT.

SECTION 3. 40-9.7-103 (10), Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW PARAGRAPH to read:

40-9.7-103. Definitions. As used in this article, unless the context otherwise requires:

(10) (c) "PROJECT" ALSO MEANS ANY RENEWABLE ENERGY

IMPROVEMENT OR ENERGY EFFICIENCY IMPROVEMENT.

SECTION 4. 29-3-103 (10) (k) and (10) (l), Colorado Revised Statutes, are amended, and the said 29-3-103 (10) is further amended BY THE ADDITION OF A NEW PARAGRAPH, to read:

29-3-103. Definitions. As used in this article, unless the context otherwise requires:

(10) "Project" means any land, building, or other improvement and all real or personal properties, and any undivided or other interest in any of the foregoing, except inventories and raw materials, whether or not in existence, suitable or used for or in connection with any of the following:

(k) Research, product-testing, and administrative facilities; ~~and~~

(l) Facilities for private and not-for-profit institutions of higher education; AND

(m) CAPITAL IMPROVEMENTS TO EXISTING RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL STRUCTURES TO RETROFIT SUCH STRUCTURES FOR SIGNIFICANT ENERGY SAVINGS OR INSTALLATION OF SOLAR OR OTHER ALTERNATIVE ELECTRICAL ENERGY-PRODUCING IMPROVEMENTS TO SERVE THAT STRUCTURE OR OTHER STRUCTURES ON CONTIGUOUS PROPERTY UNDER COMMON OWNERSHIP.

SECTION 5. 30-11-107 (1) (ii), Colorado Revised Statutes, is amended, and the said 30-11-107 (1) is further amended BY THE ADDITION OF A NEW PARAGRAPH, to read:

30-11-107. Powers of the board. (1) The board of county commissioners of each county has power at any meeting:

(ii) To provide in the county budget for programs that support education and outreach on environmental sustainability AND FOR FINANCING CAPITAL IMPROVEMENTS FOR ENERGY EFFICIENCY RETROFITS AND THE INSTALLATION OF RENEWABLE ENERGY FIXTURES, AS DEFINED IN SECTION 30-11-107.3, FOR PRIVATE RESIDENCES AND COMMERCIAL PROPERTY within the county but THAT do not exempt the county from the requirements of any other statute;

(jj) TO ENCOURAGE HOMEOWNERS TO PARTICIPATE IN UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS WHERE APPLICABLE.

SECTION 6. 30-11-107.3 (2) (b), Colorado Revised Statutes, is amended to read:

30-11-107.3. Incentives for installation of renewable energy fixtures - definitions. (2) For purposes of this section, unless the context otherwise requires:

(b) "Renewable energy fixture" means any fixture, product, system, device, or interacting group of devices INSTALLED BEHIND THE METER OF ANY RESIDENTIAL OR COMMERCIAL BUILDING that produces ~~electricity~~ ENERGY from renewable resources, including, but not limited to, photovoltaic systems, solar thermal systems, small wind systems, biomass systems, or geothermal systems.

SECTION 7. The introductory portion to 40-9.7-108 (1), Colorado Revised Statutes, is amended to read:

40-9.7-108. Colorado clean energy development authority fund - creation - authorization of projects. (1) The AUTHORITY SHALL CREATE A Colorado clean energy development authority fund ~~is hereby created in the state treasury~~ IN A FINANCIAL INSTITUTION WITHIN OR OUTSIDE THE STATE. The following moneys, together with any other moneys appropriated by the general assembly, shall be credited to the fund subject to agreements with the holders of bonds, financing agreements, contracts, agreements, or other obligations of the authority authorized by this article:

SECTION 8. Part 6 of article 20 of title 30, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SECTION to read:

30-20-601.5. Legislative declaration - inclusion of energy efficiency and renewable energy production projects in local improvement districts. (1) THE GENERAL ASSEMBLY FINDS, DETERMINES, AND DECLARES THAT:

(a) THE PRODUCTION AND EFFICIENT USE OF ENERGY WILL CONTINUE TO PLAY A CENTRAL ROLE IN THE FUTURE OF THIS STATE AND THE NATION AS A WHOLE; AND

(b) THE DEVELOPMENT, PRODUCTION, AND EFFICIENT USE OF RENEWABLE ENERGY WILL ADVANCE THE SECURITY, ECONOMIC WELL-BEING, AND PUBLIC AND ENVIRONMENTAL HEALTH OF THIS STATE, AS WELL AS CONTRIBUTING TO THE ENERGY INDEPENDENCE OF OUR NATION.

(2) THE GENERAL ASSEMBLY FURTHER FINDS, DETERMINES, AND DECLARES THAT THE INCLUSION OF ENERGY EFFICIENCY AND RENEWABLE ENERGY PRODUCTION PROJECTS FOR RESIDENTIAL AND COMMERCIAL USE IN LOCAL IMPROVEMENT DISTRICTS, AND POWERS CONFERRED UNDER THIS PART 6, AS WELL AS THE EXPENDITURES OF PUBLIC MONEYS MADE PURSUANT TO THIS ARTICLE, WILL SERVE A VALID PUBLIC PURPOSE AND THAT THE ENACTMENT OF THIS PART 6 IS EXPRESSLY DECLARED TO BE IN THE PUBLIC INTEREST.

SECTION 9. 30-20-602, Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW SUBSECTIONS to read:

30-20-602. Definitions. As used in this part 6, unless the context otherwise requires:

(2.8) "ENERGY EFFICIENCY IMPROVEMENT" MEANS AN INSTALLATION OR MODIFICATION THAT IS DESIGNED TO REDUCE ENERGY CONSUMPTION IN RESIDENTIAL OR COMMERCIAL BUILDINGS AND INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

(a) INSULATION IN WALLS, ROOFS, FLOORS, AND FOUNDATIONS AND IN HEATING AND COOLING DISTRIBUTION SYSTEMS;

(b) STORM WINDOWS AND DOORS, MULTIGLAZED WINDOWS AND DOORS, HEAT-ABSORBING OR HEAT-REFLECTIVE GLAZED AND COATED WINDOW AND DOOR SYSTEMS, ADDITIONAL GLAZING, REDUCTIONS IN GLASS AREA, AND OTHER WINDOW AND DOOR SYSTEM MODIFICATIONS THAT REDUCE ENERGY CONSUMPTION;

(c) AUTOMATIC ENERGY CONTROL SYSTEMS;

(d) HEATING, VENTILATING, OR AIR CONDITIONING AND DISTRIBUTION SYSTEM MODIFICATIONS OR REPLACEMENTS IN BUILDINGS OR CENTRAL PLANTS;

(e) CAULKING AND WEATHERSTRIPPING;

(f) REPLACEMENT OR MODIFICATION OF LIGHTING FIXTURES TO INCREASE THE ENERGY EFFICIENCY OF THE SYSTEM WITHOUT INCREASING THE OVERALL ILLUMINATION OF A RESIDENTIAL OR COMMERCIAL BUILDING UNLESS SUCH INCREASE IN ILLUMINATION IS NECESSARY TO CONFORM TO THE APPLICABLE BUILDING CODE FOR THE PROPOSED LIGHTING SYSTEM;

(g) ENERGY RECOVERY SYSTEMS;

(h) DAYLIGHTING SYSTEMS; AND

(i) ANY OTHER MODIFICATION, INSTALLATION, OR REMODELING APPROVED AS A UTILITY COST-SAVINGS MEASURE BY THE BOARD.

(4.7) "RENEWABLE ENERGY IMPROVEMENT" MEANS A FIXTURE, PRODUCT, SYSTEM, DEVICE, OR INTERACTING GROUP OF DEVICES INSTALLED BEHIND THE METER OF ANY RESIDENTIAL AND COMMERCIAL BUILDING THAT PRODUCES ENERGY FROM RENEWABLE RESOURCES, INCLUDING, BUT NOT LIMITED TO, PHOTOVOLTAIC SYSTEMS, SOLAR THERMAL SYSTEMS, SMALL WIND SYSTEMS, BIOMASS SYSTEMS, OR GEOTHERMAL SYSTEMS, AS MAY BE INCLUDED IN THE APPROVAL OF THE DISTRICT BY THE BOARD; EXCEPT THAT NO RENEWABLE ENERGY IMPROVEMENT SHALL BE AUTHORIZED THAT INTERFERES WITH A RIGHT HELD BY A PUBLIC UTILITY UNDER A CERTIFICATE ISSUED BY THE PUBLIC UTILITIES COMMISSION UNDER ARTICLE 5 OF TITLE 40, C.R.S. THE PUBLIC UTILITIES COMMISSION SHALL HAVE PRIMARY JURISDICTION TO ADJUDICATE DISPUTES AS TO WHETHER A RENEWABLE ENERGY IMPROVEMENT INTERFERES WITH SUCH A RIGHT.

SECTION 10. 30-20-603 (1), Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW PARAGRAPH to read:

30-20-603. Improvements authorized - how instituted - conditions. (1) (e) THE IMPROVEMENTS AUTHORIZED BY THIS PART 6 MAY INCLUDE, WHERE SPECIFIED OR GENERALLY PROVIDED FOR IN THE RESOLUTION OF THE BOARD APPROVING THE DISTRICT, ANY RENEWABLE ENERGY IMPROVEMENT OR ENERGY EFFICIENCY IMPROVEMENT TO ANY RESIDENTIAL OR COMMERCIAL PROPERTY WITHIN THE DISTRICT.

SECTION 11. 30-20-603, Colorado Revised Statutes, is amended

BY THE ADDITION OF A NEW SUBSECTION to read:

30-20-603. Improvements authorized - how instituted - conditions. (11.5) ANY OTHER PROVISION OF THIS PART 6 NOTWITHSTANDING, THE BOARD MAY INITIATE AN IMPROVEMENT DISTRICT FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS OF A CHARACTER AUTHORIZED BY PARAGRAPH (e) OF SUBSECTION (1) OF THIS SECTION. ANY SUCH DISTRICT SHALL INCLUDE ONLY PROPERTY FOR WHICH THE OWNER HAS EXECUTED A CONTRACT OR AGREEMENT CONSENTING TO THE INCLUSION OF SUCH PROPERTY WITHIN THE DISTRICT, AND SUCH CONSENT MAY OCCUR SUBSEQUENT TO THE ADOPTION OF THE RESOLUTION OF THE BOARD FORMING THE DISTRICT. THE INCLUSION OF SUCH PROPERTY WITHIN THE DISTRICT SUBSEQUENT TO THE ADOPTION OF THE RESOLUTION OF THE BOARD FORMING THE DISTRICT MAY BE MADE BY THE ADOPTION OF A SUPPLEMENTAL OR AMENDING RESOLUTION OF THE BOARD. FOR DISTRICTS FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING RENEWABLE ENERGY IMPROVEMENTS OR ENERGY EFFICIENCY IMPROVEMENTS, THE PROVISIONS OF SUBSECTIONS (4) AND (5) OF THIS SECTION CONCERNING COMPETITIVE BIDDING AND PRELIMINARY PLANS AND SPECIFICATIONS, OF SECTION 30-20-601 CONCERNING CONSTRUCTION UNDER THE DIRECTION OF COUNTY OFFICERS, OF SECTION 30-20-622 CONCERNING CONTRACTS FOR CONSTRUCTION, AND OF SECTION 30-20-623 CONCERNING CONTRACT PROVISIONS SHALL NOT APPLY. FOR SUCH DISTRICTS, THE OWNER OF PROPERTY WITHIN A DISTRICT MAY ARRANGE IMPROVEMENTS THAT QUALIFY PURSUANT TO THE RESOLUTION OF THE BOARD AUTHORIZING IMPROVEMENTS FOR THE DISTRICT AND MAY OBTAIN FINANCING FOR SAID IMPROVEMENTS FROM THE DISTRICT THROUGH THE PROCESS SET FORTH IN THE RESOLUTION FORMING THE DISTRICT.

SECTION 12. 30-20-604, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

30-20-604. Cost assessed in accordance with benefits. (4) ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 30-20-603 (11.5) SHALL ASSESS THE COSTS OF THE IMPROVEMENTS TO EACH PROPERTY WHOSE OWNER HAS ENTERED INTO A CONTRACT OR AGREEMENT FOR THE IMPROVEMENTS. THE CONTRACTS AND AGREEMENTS ENTERED INTO WITH THE OWNER OF PROPERTY, AS AUTHORIZED BY THE BOARD, SHALL BE

CONCLUSIVE REGARDING THE SPECIAL BENEFIT TO THE PROPERTY AND THE AMOUNT THAT MAY BE ASSESSED AGAINST THE PROPERTY.

SECTION 13. 30-20-606, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

30-20-606. Determination of special benefits - factors considered. (2) AS USED IN CONNECTION WITH ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 30-20-603 (11.5), THE TERM "BENEFIT" SHALL INCLUDE, BUT NOT BE LIMITED TO, ANY ACKNOWLEDGED VALUE SET FORTH IN THE CONTRACTS AND AGREEMENTS ENTERED INTO BY THE OWNER OF THE ASSESSED PROPERTY.

SECTION 14. 30-20-608, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

30-20-608. Notice of apportionment. (2) ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 30-20-603 (11.5) SHALL NOT BE REQUIRED TO PROVIDE A NOTICE OF APPORTIONMENT BY PUBLICATION; RATHER, SUCH NOTICE, IF ANY, MAY BE PROVIDED IN THE TIME AND MANNER SET FORTH IN THE CONTRACT OR AGREEMENT ENTERED INTO FOR EACH PROPERTY INCLUDED IN THE DISTRICT.

SECTION 15. 30-20-610, Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW SUBSECTIONS to read:

30-20-610. Assessment constitutes a lien - filing with county clerk and recorder - corrections. (4) TO PROVIDE FOR UNANTICIPATED INCREASES IN THE COSTS OF IMPROVEMENTS, THE AMOUNT OF ANY ASSESSMENT IMPOSED BEFORE THE COMPLETION OF THE RELATED IMPROVEMENTS MAY BE INCREASED TO A TOTAL AMOUNT NOT IN EXCESS OF THE SPECIAL BENEFIT CONFERRED UPON THE AFFECTED PROPERTY IF, NOT MORE THAN NINETY DAYS FOLLOWING THE COMPLETION OF SUCH IMPROVEMENTS, THE BOARD GIVES NOTICE OF ITS INTENT TO CONSIDER THE AMENDMENT OF SUCH ASSESSMENT, STATING THE TIME AND PLACE THAT A PUBLIC HEARING SHALL BE HELD THEREON, AND HOLDS SUCH PUBLIC HEARING, IN THE SAME MANNER AS PROVIDED FOR HEARINGS HELD

PURSUANT TO SECTIONS 30-20-608 AND 30-20-609. AT THE CONCLUSION OF SUCH PUBLIC HEARING, THE BOARD MAY DETERMINE WHETHER TO AMEND ONE OR MORE ASSESSMENTS WITHIN A DISTRICT. ANY SUCH AMENDMENT SHALL TAKE EFFECT AS OF THE DATE OF THE ORIGINAL ASSESSMENT.

(5) IF, AS THE RESULT OF ANY SUBDIVISION, RESUBDIVISION, VACATION OF RIGHT-OF-WAY, OR OTHER ACTION TAKEN SUBSEQUENT TO THE ADOPTION OF THE ASSESSMENT RESOLUTION, ANY NEW LOT OR PARCEL IS CREATED WITHIN A DISTRICT, THE BOARD MAY, WITHOUT A PUBLIC HEARING AND WITH THE CONSENT OF THE OWNER OF THE NEW LOT OR PARCEL, MODIFY THE ASSESSMENT RESOLUTION TO REAPPORTION ALL OR ANY PART OF THE TOTAL AMOUNT ASSESSED IN THE DISTRICT TO SUCH NEW LOT OR PARCEL.

SECTION 16. 30-20-612, Colorado Revised Statutes, is amended to read:

30-20-612. When assessments payable - installments. All special assessments for local improvements shall be due and payable within thirty days after the effective date of the assessing resolution without demand, but all such assessments may be paid, at the election of the owner, in installments with interest as provided in section 30-20-614. ALL SPECIAL ASSESSMENTS FOR LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 30-20-603 (11.5) MAY BE DUE AND PAYABLE AT SUCH ALTERNATE TIME OR TIMES AS SET FORTH IN THE ASSESSING RESOLUTION.

SECTION 17. 30-20-613, Colorado Revised Statutes, is amended to read:

30-20-613. Effect of payment in installments. Failure to pay the whole assessment within said period of thirty days shall be conclusively considered and held to be an election on the part of all persons interested, whether under disability or otherwise, to pay in such installments. All persons so electing to pay in installments shall be conclusively held and considered as consenting to said improvements. Such election shall be conclusively held and considered as a waiver of any right to question the power or jurisdiction of the county to construct the improvements, the quality of the work, the regularity or sufficiency of the proceedings, the validity or the correctness of the assessments, or the validity of the lien thereof; EXCEPT THAT, WITH RESPECT TO LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 30-20-603 (11.5), THE OWNER FOR EACH PROPERTY

INCLUDED IN THE DISTRICT SHALL RETAIN ALL RIGHTS OTHERWISE EXISTING BY CONTRACT OR BY LAW AGAINST PARTIES OTHER THAN THE COUNTY WITH RESPECT TO THE FINANCED ENERGY EFFICIENCY IMPROVEMENT OR RENEWABLE ENERGY IMPROVEMENT.

SECTION 18. 30-20-614, Colorado Revised Statutes, is amended to read:

30-20-614. How installments paid - interest. In case of such election to pay in installments, the assessments shall be payable in two or more installments of principal, the first of which installments shall be payable as prescribed by the board in not more than five years and the last in not more than twenty years, with interest in all cases on the unpaid principal. The number and amounts of payment of installments, the period of payment, and the rate and times of payment of interest shall be determined by the board and set forth in the assessing resolution. The times of payment of installments shall be the same as the times of payment for installments of property taxes as specified in section 39-10-104.5 (2), C.R.S.; EXCEPT THAT ALL SPECIAL ASSESSMENTS FOR LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 30-20-603 (11.5) MAY BE PAYABLE AT SUCH ALTERNATE TIMES AS PROVIDED BY THE BOARD IN THE ASSESSING RESOLUTION AND THE BOARD MAY ENTER INTO AGREEMENTS WITH THIRD PARTIES TO ASSIST THE TREASURER WITH THE ADMINISTRATION AND COLLECTION OF SUCH INSTALLMENTS.

SECTION 19. 30-20-619 (1) and (2), Colorado Revised Statutes, are amended, and the said 30-20-619 is further amended BY THE ADDITION OF A NEW SUBSECTION, to read:

30-20-619. Issuing bonds - property specially benefited. (1) For the purpose of paying all or such portion of the cost of any improvement constructed or acquired under the provisions of this part 6 as may be assessed against the property specially benefited and not paid by the sales tax authorized by section 30-20-604.5 or by the county, special assessment bonds of the county may be issued, of such date, in such form, and on such terms, including, without limitation, provisions for their sale, payment, and redemption, as may be prescribed by the board, bearing the name of the street or district improved and payable in a sufficient period of years after SUCH date to cover the period of payment provided, and in convenient denominations. All such bonds shall be issued upon estimates approved by

the board, and the county treasurer shall preserve a record of the same in a suitable book kept for that purpose. All such bonds shall be subscribed by the ~~chairman~~ CHAIR of the board, countersigned by the county treasurer, with the county seal thereto affixed, and attested by the county clerk and recorder. Such bonds shall be payable out of the moneys collected on account of the assessments made for said improvements, FROM RESERVE ACCOUNTS, IF ANY, ESTABLISHED TO SECURE THE PAYMENT OF SUCH BONDS, AND FROM ANY OTHER LEGALLY AVAILABLE MONEYS. All moneys collected from such assessments for any improvement shall be applied to the payment of the bonds issued, until payment in full is made of all the bonds, both principal and interest, OR TO FUND OR REPLENISH RESERVE ACCOUNTS, IF ANY, ESTABLISHED TO SECURE THE PAYMENT OF SUCH BONDS. The bonds may be sold, under such terms and conditions as are established by the board, in such amounts as will be sufficient to pay for the cost of the improvements.

(2) Whenever three-fourths of the bonds issued pursuant to subsection (1) of this section for an improvement constructed under ~~the provisions of~~ this part 6 have been paid and cancelled and for any reason ~~the~~ ANY remaining assessments are not paid in time to pay the remaining bonds for the district and the interest due thereon, the county ~~shall~~ MAY pay, ~~if so provided in the resolution authorizing issuance of the bonds~~ FROM LEGALLY AVAILABLE MONEYS, the bonds when due and the interest due thereon and ~~shall~~ MAY reimburse itself by collecting the unpaid assessments due the district

(8) NOTWITHSTANDING ANY OTHER PROVISION OF THIS PART 6, ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 30-20-603 (11.5) MAY BE AUTHORIZED TO ISSUE ONE OR MORE SERIES OF BONDS, AND BONDS OF ANY SUCH DISTRICT MAY BE PAYABLE FROM THE ASSESSMENTS LEVIED PURSUANT TO ONE OR MORE ASSESSMENT RESOLUTIONS.

SECTION 20. 31-15-711 (1), Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW PARAGRAPHS to read:

31-15-711. Other public improvements. (1) The governing body of each municipality has the power:

(j) TO PROVIDE IN THE MUNICIPAL BUDGET FOR PROGRAMS THAT SUPPORT EDUCATION AND OUTREACH ON ENVIRONMENTAL SUSTAINABILITY AND FOR FINANCING CAPITAL IMPROVEMENTS FOR ENERGY EFFICIENCY RETROFITS AND THE INSTALLATION OF RENEWABLE ENERGY FIXTURES, AS DEFINED IN SECTION 30-11-107.3, FOR PRIVATE RESIDENCES AND COMMERCIAL PROPERTY WITHIN THE MUNICIPALITY BUT THAT DO NOT EXEMPT THE MUNICIPALITY FROM THE REQUIREMENTS OF ANY OTHER STATUTE;

(k) TO ENCOURAGE HOMEOWNERS TO PARTICIPATE IN UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS WHERE APPLICABLE.

SECTION 21. Part 5 of article 25 of title 31, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SECTION to read:

31-25-500.2. Legislative declaration - energy efficiency and renewable energy production projects. (1) THE GENERAL ASSEMBLY FINDS, DETERMINES, AND DECLARES THAT:

(a) THE PRODUCTION AND EFFICIENT USE OF ENERGY WILL CONTINUE TO PLAY A CENTRAL ROLE IN THE FUTURE OF THIS STATE AND THE NATION AS A WHOLE; AND

(b) THE DEVELOPMENT, PRODUCTION, AND EFFICIENT USE OF RENEWABLE ENERGY WILL ADVANCE THE SECURITY, ECONOMIC WELL-BEING, AND PUBLIC AND ENVIRONMENTAL HEALTH OF THIS STATE, AS WELL AS CONTRIBUTING TO THE ENERGY INDEPENDENCE OF OUR NATION.

(2) THE GENERAL ASSEMBLY FURTHER FINDS, DETERMINES, AND DECLARES THAT THE INCLUSION OF ENERGY EFFICIENCY AND RENEWABLE ENERGY PRODUCTION PROJECTS FOR RESIDENTIAL AND COMMERCIAL USE IN SPECIAL IMPROVEMENT DISTRICTS, AND POWERS CONFERRED UNDER THIS PART 5, AS WELL AS THE EXPENDITURES OF PUBLIC MONEYS MADE PURSUANT TO THIS PART 5, WILL SERVE A VALID PUBLIC PURPOSE AND THAT THE ENACTMENT OF THIS PART 5 IS EXPRESSLY DECLARED TO BE IN THE PUBLIC INTEREST.

SECTION 22. 31-25-501, Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW SUBSECTIONS to read:

31-25-501. Definitions. As used in this part 5, unless the context otherwise requires:

(1.9) "ENERGY EFFICIENCY IMPROVEMENT" MEANS AN INSTALLATION OR MODIFICATION THAT IS DESIGNED TO REDUCE ENERGY CONSUMPTION IN RESIDENTIAL OR COMMERCIAL BUILDINGS AND INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

(a) INSULATION IN WALLS, ROOFS, FLOORS, AND FOUNDATIONS AND IN HEATING AND COOLING DISTRIBUTION SYSTEMS;

(b) STORM WINDOWS AND DOORS, MULTIGLAZED WINDOWS AND DOORS, HEAT-ABSORBING OR HEAT-REFLECTIVE GLAZED AND COATED WINDOW AND DOOR SYSTEMS, ADDITIONAL GLAZING, REDUCTIONS IN GLASS AREA, AND OTHER WINDOW AND DOOR SYSTEM MODIFICATIONS THAT REDUCE ENERGY CONSUMPTION;

(c) AUTOMATIC ENERGY CONTROL SYSTEMS;

(d) HEATING, VENTILATING, OR AIR CONDITIONING AND DISTRIBUTION SYSTEM MODIFICATIONS OR REPLACEMENTS IN BUILDINGS OR CENTRAL PLANTS;

(e) CAULKING AND WEATHERSTRIPPING;

(f) REPLACEMENT OR MODIFICATION OF LIGHTING FIXTURES TO INCREASE THE ENERGY EFFICIENCY OF THE SYSTEM WITHOUT INCREASING THE OVERALL ILLUMINATION OF A RESIDENTIAL OR COMMERCIAL BUILDING UNLESS SUCH INCREASE IN ILLUMINATION IS NECESSARY TO CONFORM TO THE APPLICABLE BUILDING CODE FOR THE PROPOSED LIGHTING SYSTEM;

(g) ENERGY RECOVERY SYSTEMS;

(h) DAYLIGHTING SYSTEMS; AND

(i) ANY OTHER MODIFICATION, INSTALLATION, OR REMODELING APPROVED AS A UTILITY COST-SAVINGS MEASURE BY THE GOVERNING BODY; EXCEPT THAT NO RENEWABLE ENERGY IMPROVEMENT SHALL BE AUTHORIZED THAT INTERFERES WITH A RIGHT HELD BY A PUBLIC UTILITY UNDER A CERTIFICATE ISSUED BY THE PUBLIC UTILITIES COMMISSION UNDER ARTICLE

5 OF TITLE 40, C.R.S. THE PUBLIC UTILITIES COMMISSION SHALL HAVE PRIMARY JURISDICTION TO ADJUDICATE DISPUTES AS TO WHETHER A RENEWABLE ENERGY IMPROVEMENT INTERFERES WITH SUCH A RIGHT.

(4) "RENEWABLE ENERGY IMPROVEMENT" MEANS A FIXTURE, PRODUCT, SYSTEM, DEVICE, OR INTERACTING GROUP OF DEVICES INSTALLED BEHIND THE METER OF ANY RESIDENTIAL OR COMMERCIAL BUILDING THAT PRODUCES ENERGY FROM RENEWABLE RESOURCES, INCLUDING, BUT NOT LIMITED TO, PHOTOVOLTAIC SYSTEMS, SOLAR THERMAL SYSTEMS, SMALL WIND SYSTEMS, BIOMASS SYSTEMS, OR GEOTHERMAL SYSTEMS, AS MAY BE AUTHORIZED BY THE GOVERNING BODY.

SECTION 23. 31-25-502, Colorado Revised Statutes, is amended to read:

31-25-502. Powers to make local improvements. (1) A district may be formed in accordance with the requirements of this part 5 for the purpose of constructing, installing, or acquiring any public improvement so long as the municipality that forms the district is authorized to provide such improvement under the municipality's home rule charter or ordinance passed pursuant to such charter, if any, or the laws of this state. Public improvements shall not include any facility identified in section 30-20-101 (8) or (9), C.R.S.

(2) THE IMPROVEMENTS AUTHORIZED BY THIS PART 5 MAY INCLUDE, WHERE SO SPECIFIED OR GENERALLY PROVIDED FOR IN THE ORDINANCE OF THE GOVERNING BODY FORMING THE DISTRICT, ANY RENEWABLE ENERGY IMPROVEMENT OR ENERGY EFFICIENCY IMPROVEMENT TO ANY RESIDENTIAL OR COMMERCIAL PROPERTY WITHIN THE DISTRICT.

(3) It is lawful for any municipality to construct any of the local improvements mentioned in this part 5 and to assess the cost thereof, wholly or in part, upon the property especially benefited by such improvements. The improvements shall be authorized by ordinance duly adopted and shall be constructed under the direction of the municipal engineer or other officer having similar duties or under the direction of the governing body in accordance with plans and specifications adopted by the governing body; EXCEPT THAT FOR DISTRICTS FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING RENEWABLE ENERGY IMPROVEMENTS OR ENERGY EFFICIENCY IMPROVEMENTS, THE OWNER OF PROPERTY WITHIN A

DISTRICT MAY ARRANGE IMPROVEMENTS THAT QUALIFY PURSUANT TO THE ORDINANCE OF THE GOVERNING BODY AUTHORIZING IMPROVEMENTS FOR THE DISTRICT AND MAY OBTAIN FINANCING FOR SAID IMPROVEMENTS FROM THE DISTRICT THROUGH THE PROCESS SET FORTH IN THE ORDINANCE FORMING THE DISTRICT.

SECTION 24. 31-25-503 (9), Colorado Revised Statutes, is amended to read:

31-25-503. What improvements may be made - conditions. (9) (a) Any other provision of this part 5 to the contrary notwithstanding, the governing body may create a district for the purpose of acquiring existing improvements of a character authorized by this part 5, in which case, the provisions of this part 5 concerning construction of improvements by the municipality, competitive bidding, and preliminary plans and specifications shall not apply.

(b) ANY OTHER PROVISION OF THIS PART 5 NOTWITHSTANDING, THE GOVERNING BODY MAY CREATE AN IMPROVEMENT DISTRICT FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING RENEWABLE ENERGY IMPROVEMENTS AND ENERGY EFFICIENCY IMPROVEMENTS OF A CHARACTER AUTHORIZED BY SECTION 31-25-502 (2). ANY SUCH DISTRICT SHALL INCLUDE ONLY PROPERTY FOR WHICH THE OWNER HAS EXECUTED A CONTRACT OR AGREEMENT CONSENTING TO THE INCLUSION OF SUCH PROPERTY WITHIN THE DISTRICT, AND SUCH CONSENT MAY OCCUR SUBSEQUENT TO THE ADOPTION OF THE ORDINANCE OF THE GOVERNING BODY FORMING THE DISTRICT. THE INCLUSION OF SUCH PROPERTY WITHIN THE DISTRICT SUBSEQUENT TO THE ADOPTION OF THE ORDINANCE OF THE GOVERNING BODY FORMING THE DISTRICT MAY BE MADE BY THE ADOPTION OF A SUPPLEMENTAL OR AMENDING ORDINANCE OR RESOLUTION OF THE GOVERNING BODY. FOR DISTRICTS FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING RENEWABLE ENERGY IMPROVEMENTS OR ENERGY EFFICIENCY IMPROVEMENTS, THE PROVISIONS OF SUBSECTIONS (2) AND (3) OF THIS SECTION CONCERNING PRELIMINARY ORDERS, COMPETITIVE BIDDING, AND PRELIMINARY PLANS AND SPECIFICATIONS, OF SECTION 31-25-516 CONCERNING CONTRACTS FOR CONSTRUCTION, AND OF SECTION 31-25-518 CONCERNING CONTRACT PROVISIONS SHALL NOT APPLY.

SECTION 25. 31-25-507, Colorado Revised Statutes, is amended

BY THE ADDITION OF A NEW SUBSECTION to read:

31-25-507. Determination of special benefits - factors considered. (2) AS USED IN CONNECTION WITH ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 31-25-502 (2), THE TERM "BENEFIT" SHALL INCLUDE, BUT NOT BE LIMITED TO, ANY ACKNOWLEDGED VALUE SET FORTH IN THE CONTRACTS AND AGREEMENTS ENTERED INTO BY THE OWNER OF THE ASSESSED PROPERTY.

SECTION 26. 31-25-513, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

31-25-513. Cost assessed in accordance with benefits. (4) ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 31-25-502 (2) SHALL ASSESS THE COSTS OF THE IMPROVEMENTS TO EACH PROPERTY WHOSE OWNER HAS ENTERED INTO A CONTRACT OR AGREEMENT FOR THE IMPROVEMENTS. THE CONTRACTS AND AGREEMENTS ENTERED INTO WITH THE OWNER OF PROPERTY, AS AUTHORIZED BY THE GOVERNING BODY, SHALL BE CONCLUSIVE REGARDING THE SPECIAL BENEFIT TO THE PROPERTY AND THE AMOUNT THAT MAY BE ASSESSED AGAINST THE PROPERTY.

SECTION 27. 31-25-520, Colorado Revised Statutes, is amended to read:

31-25-520. Notice of hearing on assessments. (1) The clerk shall give notice that the assessment roll has been completed and of a hearing on the assessment roll by publication in an issue of a newspaper of general circulation in the municipality, the publication to be at least fifteen days prior to the date of hearing. The same notice of the hearing shall be mailed by first-class mail to each property owner to be assessed for the cost of the improvements who is included within the district. The mailed notice shall be made on or about the date of the publication of the notice of hearing. The notices shall specify: The whole cost of the improvement; the portion, if any, to be paid by such municipality; the share apportioned to each lot or tract of land; that any complaints or objections ~~which~~ THAT may be made in writing by the property owners or any citizen to the governing body, and filed in writing on or prior to the date of the hearing, will be heard and determined by the governing body before the passage of any ordinance

assessing the cost of said improvements; and the date when and the place where such complaints or objections will be heard.

(2) ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 31-25-502 (2) SHALL NOT BE REQUIRED TO PROVIDE A NOTICE OF THE HEARING ON ASSESSMENTS BY PUBLICATION; RATHER, SUCH NOTICE, IF ANY, MAY BE PROVIDED IN THE TIME AND MANNER SET FORTH IN THE CONTRACT OR AGREEMENT ENTERED INTO BY THE OWNER FOR EACH PROPERTY INCLUDED IN THE DISTRICT.

SECTION 28. 31-25-522, Colorado Revised Statutes, is amended BY THE ADDITION OF THE FOLLOWING NEW SUBSECTIONS to read:

31-25-522. Assessment of a lien - filing with county clerk and recorder - corrections. (4) TO PROVIDE FOR UNANTICIPATED INCREASES IN THE COSTS OF IMPROVEMENTS, THE AMOUNT OF ANY ASSESSMENT IMPOSED BEFORE THE COMPLETION OF THE RELATED IMPROVEMENTS MAY BE INCREASED TO A TOTAL AMOUNT NOT IN EXCESS OF THE SPECIAL BENEFIT CONFERRED UPON THE AFFECTED PROPERTY IF, NOT MORE THAN NINETY DAYS FOLLOWING THE COMPLETION OF SUCH IMPROVEMENTS, THE GOVERNING BODY GIVES NOTICE OF ITS INTENT TO CONSIDER THE AMENDMENT OF SUCH ASSESSMENT, STATING THE TIME AND PLACE THAT A PUBLIC HEARING SHALL BE HELD THEREON, AND HOLDS SUCH PUBLIC HEARING, IN THE SAME MANNER AS PROVIDED FOR HEARINGS HELD PURSUANT TO SECTIONS 31-25-520 AND 31-25-521. AT THE CONCLUSION OF SUCH PUBLIC HEARING, THE GOVERNING BODY MAY DETERMINE WHETHER TO AMEND ONE OR MORE ASSESSMENTS WITHIN A DISTRICT. ANY SUCH AMENDMENT SHALL TAKE EFFECT AS OF THE DATE OF THE ORIGINAL ASSESSMENT.

(5) IF, AS THE RESULT OF ANY SUBDIVISION, RESUBDIVISION, VACATION OF RIGHT-OF-WAY, OR OTHER ACTION TAKEN SUBSEQUENT TO THE ADOPTION OF THE ASSESSMENT ORDINANCE, ANY NEW LOT OR PARCEL IS CREATED WITHIN A DISTRICT, THE GOVERNING BODY MAY, WITHOUT A PUBLIC HEARING AND WITH THE CONSENT OF THE OWNER OF THE NEW LOT OR PARCEL, MODIFY THE ASSESSMENT ORDINANCE TO REAPPORTION ALL OR ANY PART OF THE TOTAL AMOUNT ASSESSED IN THE DISTRICT TO SUCH NEW LOT OR PARCEL.

SECTION 29. 31-25-524, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

31-25-524. Payment - assessment roll returned. (4) ALL SPECIAL ASSESSMENTS FOR LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 31-25-502 (2) MAY BE DUE AND PAYABLE AT SUCH ALTERNATE TIME OR TIMES AS SET FORTH IN THE ASSESSING ORDINANCE.

SECTION 30. 31-25-526 (1), Colorado Revised Statutes, is amended to read:

31-25-526. Collection of assessment payments - by municipal treasurer - by county treasurer. (1) The governing body may, by ordinance, direct the municipal treasurer to collect any amount payable as an assessment pursuant to this part 5 OR AUTHORIZE THE MUNICIPAL TREASURER OR OTHER APPROPRIATE MUNICIPAL OFFICIAL TO ENTER INTO CONTRACTS WITH THIRD PARTIES FOR ASSISTANCE IN THE ADMINISTRATION AND COLLECTION OF ASSESSMENTS. If the governing body does not direct, by ordinance, that assessment payments be collected by the municipal treasurer, then such payments shall be collected by the county treasurer.

SECTION 31. 31-25-527, Colorado Revised Statutes, is amended to read:

31-25-527. When assessments payable - installments. All special assessments for local improvements shall be due and payable within thirty days after the final publication of the assessing ordinance without demand; but all such assessments may be paid, at the election of the owner, in installments with interest as provided in section 31-25-528. ALL SPECIAL ASSESSMENTS FOR LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 31-25-502 (2) MAY BE DUE AND PAYABLE AT SUCH ALTERNATE TIME OR TIMES AS SET FORTH IN THE ASSESSING ORDINANCE.

SECTION 32. 31-25-529, Colorado Revised Statutes, is amended to read:

31-25-529. Effect of payment in installments. Failure to pay the whole assessment within said period of thirty days shall be conclusively considered to be an election on the part of all persons interested, whether under disability or otherwise, to pay in installments. All persons so electing

to pay in installments shall be conclusively considered to have consented to said improvements. Such election shall be conclusively considered to be a waiver of any right to question the power or jurisdiction of the municipality to construct the improvements, the quality of the work, the regularity or sufficiency of the proceedings, the validity or the correctness of the assessments, or the validity of the lien thereof; EXCEPT THAT WITH RESPECT TO LOCAL IMPROVEMENTS AUTHORIZED IN SECTION 31-25-502 (2), THE OWNER FOR EACH PROPERTY INCLUDED IN THE DISTRICT SHALL RETAIN ALL RIGHTS OTHERWISE EXISTING BY CONTRACT OR BY LAW AGAINST PARTIES OTHER THAN THE COUNTY WITH RESPECT TO THE FINANCED ENERGY EFFICIENCY IMPROVEMENT OR RENEWABLE ENERGY IMPROVEMENT.

SECTION 33. 31-25-534 (1), Colorado Revised Statutes, is amended, and the said 31-25-534 is further amended BY THE ADDITION OF A NEW SUBSECTION, to read:

31-25-534. Issuing bonds - property specially benefited. (1) For the purpose of paying all or such portion of the cost of any improvement constructed under ~~the provisions of~~ this part 5 as may be assessed against the property specially benefited, special assessment bonds of the municipality may be issued of such date, in such form, and on such terms, including, without limitation, provisions for their sale, payment, and redemption, as may be prescribed by the governing body, bearing the name of the street, alley, or district improved and payable in a sufficient period of years after SUCH date to cover the period of payment provided and in convenient denominations. All such bonds shall be issued upon estimates approved by the governing body, and the municipal treasurer shall preserve a record of the same in a suitable book kept for that purpose. All such bonds shall be subscribed by the mayor, countersigned by the municipal treasurer, with the corporate seal thereto affixed, and attested by the clerk. Such bonds shall be payable out of the moneys collected on account of the assessments made for said improvements, FROM RESERVE ACCOUNTS, IF ANY, ESTABLISHED TO SECURE PAYMENT OF SUCH BONDS, AND FROM ANY OTHER LEGALLY AVAILABLE MONEYS. Whenever three-fourths of the bonds for an improvement constructed under ~~the provisions of~~ this part 5 have been paid and cancelled and for any reason ~~the~~ ANY remaining assessments are not paid in time to pay the remaining bonds for the district and the interest due thereon, the municipality ~~shall~~ MAY pay, ~~if so provided in the ordinance authorizing issuance of the bonds~~ FROM LEGALLY AVAILABLE MONEYS, the bonds when due and the interest due thereon and reimburse

itself by collecting the unpaid assessments due the district. All moneys collected from such assessments for any improvement shall be applied to the payment of the bonds issued until payment in full is made of all the bonds, both principal and interest, OR TO FUND OR REPLENISH RESERVE ACCOUNTS, IF ANY, ESTABLISHED TO SECURE THE PAYMENT OF SUCH BONDS. The bonds may be used in payment of the cost of the improvement as specified; or the governing body, upon advertisement published at least once in a newspaper of general circulation in such municipality and in such other newspapers as may be designated by the governing body, may sell a sufficient number of said bonds to pay such cost in cash for the best bid submitted in accordance with the terms of the notice of sale. All bids may be rejected at the discretion of the governing body. In addition, the bonds may be sold on such terms and conditions at a private sale if determined by the governing body to be in the best interests of the municipality.

(6) NOTWITHSTANDING ANY OTHER PROVISION OF THIS PART 5, ANY DISTRICT FORMED FOR THE PURPOSE OF ENCOURAGING, ACCOMMODATING, AND FINANCING IMPROVEMENTS AS AUTHORIZED IN SECTION 31-25-502 (2) MAY BE AUTHORIZED TO ISSUE ONE OR MORE SERIES OF BONDS, AND BONDS OF ANY SUCH DISTRICT MAY BE PAYABLE FROM THE ASSESSMENTS LEVIED PURSUANT TO ONE OR MORE ASSESSMENT ORDINANCES.

SECTION 34. Applicability. This act shall apply to acts occurring on or after the effective date of this act.

SECTION 35. Safety clause. The general assembly hereby finds,

determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Andrew Romanoff
SPEAKER OF THE HOUSE
OF REPRESENTATIVES

Peter C. Groff
PRESIDENT OF
THE SENATE

Marilyn Eddins
CHIEF CLERK OF THE HOUSE
OF REPRESENTATIVES

Karen Goldman
SECRETARY OF
THE SENATE

APPROVED_____

Bill Ritter, Jr.
GOVERNOR OF THE STATE OF COLORADO

Attachment E: Boulder County 2008 Ballot Measure 1A Resolution

RESOLUTION NO. 2008-99

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF BOULDER COUNTY CALLING AN ELECTION ON NOVEMBER 4, 2008, FOR THE PURPOSE OF SUBMITTING A BALLOT ISSUE FOR CLEAN ENERGY OPTIONS LOCAL IMPROVEMENT DISTRICT; ORDERING THAT THE BALLOT ISSUE BE VOTED COUNTY-WIDE; SETTING THE TITLE AND CONTENT OF THE BALLOT ISSUE FOR THE ELECTION; AND PROVIDING OTHER MATTERS RELATING THERETO.

WHEREAS, Boulder County, Colorado (the "County") is a Colorado county duly organized and operating under the Constitution and laws of the State of Colorado (the "State"); and

WHEREAS, pursuant to Part 6 of Article 20 of Title 30, Colorado Revised Statutes, as amended (the "Act"), the County is authorized to initiate a local improvement district for the purpose of encouraging, accommodating, and financing Renewable Energy Improvements and Energy Efficiency Improvements (both as defined in the Act); and

WHEREAS, the County desires to encourage, accommodate and provide financing for Renewable Energy Improvements and Energy Efficiency Improvements ("RE/EEI") in the County (the "Project") and accordingly expects to initiate a local improvement district to be known as Boulder County Clean Energy Options Local Improvement District (the "District") pursuant to the Act for the purpose of accomplishing the Project, including paying all costs necessary and incidental thereto; and

WHEREAS, coal and natural gas are the principal sources of generation of commercial quantities of electric energy for the power grid in the western United States, and home and business consumption accounts for 73% of the overall usage of electric energy; and

WHEREAS, although new building codes can impact energy usage in new structures, there is a vast quantity of existing structures with many years of remaining life before replacement, and these structures are not very energy efficient by today's standards, nor do they have renewable energy systems installed to provide some or all of their electric energy needs; and

WHEREAS, the continued increase in the costs of electricity and natural gas will have a financial impact on home and business owners, the ability to invest in energy efficiency and renewable energy will decrease this negative impact by allowing for decreasing energy use; and

WHEREAS, if the United States is serious about moving away from fossil fuels in order to limit the greenhouse gas effect leading to global warming, the existing occupied building stock must be retrofitted with energy efficiency materials and modalities, and significant progress towards provision of renewable electric energy, as well as renewable energy for water and space heating, for use in these structures must take place very soon; and

WHEREAS, solving this problem will require creative ways of financing that will provide incentives for property owners to seek to install RE/EEI now rather than later; and

WHEREAS, existing homeowners, and to a certain extent business property owners, are highly leveraged on their properties currently. Even if there is equity available to further pledge for financing for RE/EEI, a declining-value housing market would keep property owners from taking that plunge, for fear of being unable to realize sufficient resale value for these improvements. Since the average homeowner moves every 7-9 years, and the expected life of these improvements is 20 – 25 years, and the energy savings paybacks for at least some of these improvements will take around 20 – 25 years as well, these property owners are unlikely to undertake home equity financing that extends from 20 to 30 years; and

WHEREAS, Boulder County and other local governments in Colorado and elsewhere have attempted to be creative in finding ways to make incentives for financing these improvements available now, and have created legal mechanisms, via Colorado House Bill 08-1350, that allow solar, wind, and other renewable energy and energy efficiency improvements to be financed by local governments with a repayment over 20 years through special assessments collected via the property tax collection system. The responsibility for repayment remains with the property, so that the property owner does not have to worry about covering the improvements costs in the resale price they get for the property. The payment responsibility remains with the person who is getting the benefit of the annual energy costs savings; and

WHEREAS, Boulder County and other local governments will be able to offer, in part, below-market-rate financing through the creation of funding via issuance of double-tax-exempt bonds; and

WHEREAS, the District will be formed pursuant to a separate resolution of the Board of County Commissioners of the County (the "Board") to be adopted pursuant to and in accordance with the provisions of the Act subsequent to the date of adoption of this Resolution; and

WHEREAS, funding the construction and acquisition of the Project requires the issuance of special assessment bonds of the County and, pursuant to the requirements of the Act and Article X of Section 20 of the Colorado Constitution, voter approval is required prior to the issuance of such special assessment bonds; and

WHEREAS, the Board has therefore determined to submit a ballot issue at an election to be held on November 4, 2008, and to set the title and content of the ballot issue to be submitted at the election called by this Resolution; and

WHEREAS, because the Act permits property to be included within the District subsequent to the initial formation thereof by agreement of the owner of such property to such inclusion, it will not be possible for the Board to determine the electors of the District as of the time of such election; and

WHEREAS, the County desires to retain the ability to advance funds for the payment of a portion of such special assessment bonds and reimburse itself for such advances by collecting unpaid assessments as provided in the Act; and

WHEREAS, pursuant to the Act, any ballot issue for any special assessment bonds which are secured by such County advances must be submitted to all registered electors of the County; and

WHEREAS, the County will seek to obtain municipal consent from each municipality in the County for the properties within each municipality respectively to be eligible to become a part of the district and to finance improvements to said properties through the district, and therefore the Board finds it appropriate to submit the ballot issue to all registered electors of the County; and

WHEREAS, the Board has therefore determined to submit such ballot issue to all registered electors of the County; and

WHEREAS, pursuant to Section 1-5-203(3), Colorado Revised Statutes, as amended ("C.R.S."), no later than September 5, 2008, the order of the ballot and ballot content must be certified to the County Clerk and Recorder of the County (the "County Clerk").

NOW, THEREFORE, THE BOARD OF COUNTY COMMISSIONERS OF BOULDER COUNTY, COLORADO HEREBY RESOLVES:

1. An election shall be held on Tuesday, November 4, 2008 (the 2008 general election) at which there shall be submitted to the registered electors of the County a ballot issue regarding the issuance of special assessment bonds (the "Ballot Issue"), which ballot issue shall be in substantially the form attached hereto as Appendix A. Appendix A is hereby incorporated into this Resolution as if set forth in full herein. Pursuant to Section 30-20-619(6), C.R.S., the Board hereby orders that all registered electors of the County shall be eligible to vote on the Ballot Issue.

2. The election shall be conducted as a coordinated election in accordance with articles 1 to 13 of title 1, C.R.S. (the "Uniform Election Code"). The costs of the election shall be paid by the County; provided that the County may elect to reimburse itself for such cost from assessments paid by property owners in the District as a portion of the Project in accordance with the Act.

3. No later than September 5, 2008, the Designated Election Official shall certify the order of the ballot and ballot content to the Clerk and Recorder of the County (the "County Clerk"). The "Designated Election Official" shall be Jana Petersen, Administrative Assistant and Clerk to the Board.

4. For purposes of Section 1-11-203.5, C.R.S., this Resolution shall serve to set the ballot title for the ballot issue set forth herein and the ballot title for such ballot issue shall be as set forth in Appendix A hereto, and the text of the ballot issue shall be the text of this Resolution.

5. The order of the ballot shall be determined by the County Clerk as provided in Section 1-5-407(5), C.R.S., and the rules of the Secretary of State. In accordance therewith, if the County refers more than one ballot issue, the order of the ballot shall, in accordance therewith, be as follows: first, measures to increase taxes; second, measures to retain revenues in excess of its fiscal year spending limit; third, measures to increase debt; fourth, citizen petitions;

and fifth, other referred measures. If the County refers more than one ballot issue within any such type of ballot issue, the order within such type of ballot issue shall, unless otherwise determined by the Board, be the same as the order of the ballot issues in the resolution of the Board that orders that such ballot issues be so referred (with questions set forth in separate resolutions listed in the order in which such resolutions were adopted).

6. The Designated Election Official is hereby authorized and directed to proceed with any action necessary or appropriate to effectuate the provisions of this Resolution and comply with the Uniform Election Code, Article X, Section 20 of the Colorado Constitution ("TABOR") and other applicable laws; provided that all acts required or permitted by the Uniform Election Code relevant to voting by early voters' ballots, absentee ballots and emergency absentee ballots which are to be performed by the designated election official shall be performed by the County Clerk. The election shall be conducted in accordance with the Uniform Election Code, TABOR and all other applicable laws.

7. No later than September 23, 2008, the Designated Election Official shall submit to the County Clerk, in the form, if any, specified by the County Clerk, the notice of election required by subsection (3)(b) of TABOR.

8. No later than October 15, 2008, the Designated Election Official shall ensure that, in accordance with Section 1-7-908, C.R.S., the posting of financial notice required thereby is made on the County's website.

9. The Designated Election Official, the County Clerk and other County officials and employees are hereby authorized and directed to take all action necessary or appropriate to effectuate the provisions of this Resolution.

10. All actions not inconsistent with the provisions of this Resolution heretofore taken by the members of the Board and the officers and employees of the County and directed toward holding the election for the purposes stated herein are hereby ratified, approved and confirmed.

11. All prior acts, orders or resolutions, or parts thereof, by the County in conflict with this Resolution are hereby repealed, except that this repealer shall not be construed to revive any act, order or resolution, or part thereof, heretofore repealed.

12. If any section, paragraph, clause or provision of this Resolution shall be adjudged to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses or provisions of this Resolution, it being the intention that the various parts hereof are severable.

13. This Resolution shall take effect immediately upon its passage.

This Resolution has been adopted this 6th day of August, 2008.

BOARD OF COUNTY COMMISSIONERS OF BOULDER COUNTY, STATE OF COLORADO

(SEAL)

Ben Pearlman, Chair

ATTEST:

Will Toor, Vice-Chair

Jana Petersen,
Administrative Assistant and
Clerk to the Board

Cindy Domenico, Commissioner

APPENDIX A

FORM OF BALLOT TITLE

COUNTY ISSUE 1A: (Boulder County Clean Energy Options LID Debt and Multiple Fiscal Year Financial Obligation Authorization):
SHALL BOULDER COUNTY DEBT (FOR CLEAN ENERGY OPTIONS LOCAL IMPROVEMENT DISTRICT) BE INCREASED BY UP TO $40,000,000, WITH A MAXIMUM REPAYMENT COST OF UP TO $96,800,000, WITH NO INCREASE IN ANY COUNTY TAX OR TAX RATE, FOR THE PURPOSE OF FINANCING THE COSTS OF CONSTRUCTING, ACQUIRING AND INSTALLING SOLAR AND OTHER RENEWABLE ENERGY SYSTEMS OR ENERGY-EFFICIENCY IMPROVEMENTS FOR PROPERTY OWNERS THAT CONSENT TO BE INCLUDED IN THE DISTRICT BY ENTERING INTO A CONTRACT OR AGREEMENT FOR INCLUSION IN THE DISTRICT, AND ANY COSTS NECESSARY OR INCIDENTAL THERETO, INCLUDING WITHOUT LIMITATION THE COST OF ESTABLISHING RESERVES TO SECURE THE PAYMENT OF SUCH DEBT, BY THE ISSUANCE OF SPECIAL ASSESSMENT BONDS PAYABLE FROM SPECIAL ASSESSMENTS IMPOSED AGAINST BENEFITED PROPERTIES FOR WHICH THE OWNERS THEREOF HAVE CONSENTED TO BE INCLUDED WITHIN THE DISTRICT BY ENTERING INTO SUCH A CONTRACT OR AGREEMENT FOR INCLUSION, AND FROM OTHER FUNDS THAT MAY BE LAWFULLY PLEDGED TO THE PAYMENT OF SUCH BONDS, WHICH BONDS SHALL BEAR INTEREST AT A MAXIMUM NET EFFECTIVE INTEREST RATE NOT TO EXCEED 10%, SHALL BE SUBJECT TO REDEMPTION, WITH OR WITHOUT PREMIUM, SHALL BE ISSUED, DATED, AND SOLD AT SUCH TIME OR TIMES, AT SUCH PRICES (AT, ABOVE OR BELOW PAR) AND IN SUCH MANNER, IN ONE OR MORE SERIES, AND SHALL CONTAIN SUCH TERMS, NOT INCONSISTENT HEREWITH, AS THE BOARD OF COUNTY COMMISSIONERS MAY DETERMINE; SHALL THE COUNTY BE AUTHORIZED TO ENTER INTO A MULTIPLE-FISCAL YEAR OBLIGATION TO ADVANCE AMOUNTS FOR PAYMENT OF A PORTION OF SUCH BONDS AND TO REIMBURSE ITSELF FOR SUCH ADVANCES BY COLLECTING UNPAID ASSESSMENTS AS PROVIDED IN SECTION 30-20-619(2), COLORADO REVISED STATUTES, AS AMENDED; AND SHALL THE REVENUES FROM SUCH SPECIAL ASSESSMENTS AND ANY EARNINGS THEREON AND FROM THE INVESTMENT OF THE PROCEEDS OF SUCH BONDS CONSTITUTE A VOTER-APPROVED REVENUE CHANGE; ALL IN ACCORDANCE WITH BOARD OF COUNTY COMMISSIONERS' RESOLUTION NO. 2008-99?

YES ___ NO ___

Attachment F: Results, Boulder County 2008 General Election, Ballot Measure 1A

2008 General Results

Summary Results: Scroll for all contests

2008 General Election	**Ballots Cast:**	**172,531**	**Precinct Reporting:**	**469**
	Active Voters:	**186,220**	**Total Precincts:**	**237**
	Voter Turnout:	**78.43%**	**Percent Precincts Reporting:**	**197.89%**

Website last updated: 11/11/2008

Unofficial Election Results

County Ballot Issue 1A - Active Voters: 184,647	Percent	Votes
YES	63.68%	96,037
NO	36.32%	54,767
	Total Votes	150,804

Attachment G: Home Energy 101 Workshop PowerPoint Presentation

Save money,
save energy.

Home Energy 101 Workshop

Spring 2010

ClimateSmart
Loan Program

Workshop Agenda

- Energy Efficiency and Supply
- Eligible Energy Efficiency& Renewable Energy Measures
- Financing Mechanisms
- ClimateSmart Loan Program
- Program Structure & Timeline
- Recap
- Questions

Energy Basics

Home Energy Use

Space Heating = 31%
Space Cooling = 12%
Water Heating = 12%
Lighting = 11%
Electronics = 9%
Appliances = 8%
Refrigeration = 8%

Source: Xcel Energy 2007 Buildings Energy Data Book, Table 4.2.1, 2005 energy cost data.

Heating and cooling comprises <u>nearly half</u> of the average household's energy costs

Energy Efficiency & Supply

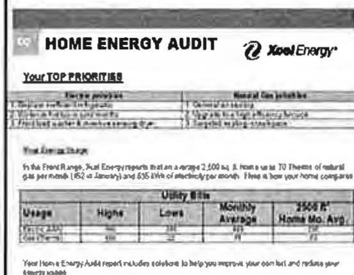
Conservation versus generation

Energy Efficiency First

- 60% of US homes are under-insulated or un-insulated
  - ➢ Home built pre-1980, may fall into this category
- Air leakage = leading causes of energy waste in homes
  - ➢ Plugging those leaks can save 5% to 30% on utility bills – an average of **$450** per year for an American household

Energy Audit

- Gives you a personalized set of recommendations to lower your energy bill
- Helps you understand your energy usage
  - ➢ Gas vs. electric usage
  - ➢ Building envelope and equipment evaluation
  - ➢ Ways to save energy and money for free by changing your behavior



Outlines top priorities for your home

Report includes solutions to help you improve your comfort and reduce your energy use

Energy Efficiency & Renewable Measures

Energy Efficiency Measures

- Air Sealing and Ventilation
- Insulation
- Space Heating and Cooling
- Water Heating
- Lighting
- Day lighting
- Windows, Doors, and Skylights
- Reflective Roof

Air Sealing

- Heated and cooled air can leak out of a home in some obvious (and not-so-obvious) ways
  - ➢ Through attic bypasses via dropped ceilings, floor plenums, interior walls, etc.
  - ➢ Around windows & doors
  - ➢ Through ducts (increases house pressures, leading to infiltration or infiltration)
  - ➢ Around plumbing & electrical penetrations
- Blower door test required before and after air sealing

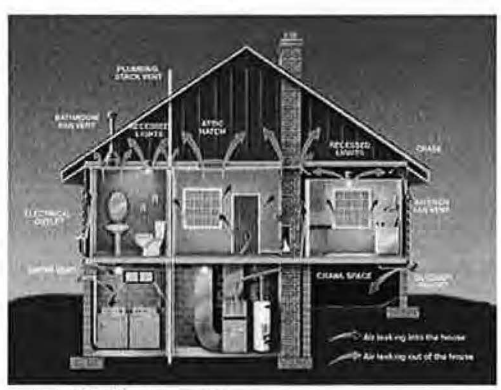


Photo derived from Energy star

Ventilation

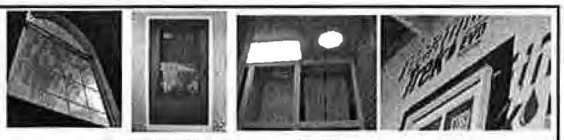
- Heat-recovery ventilation saves heating energy and improves air quality
- If the blower door test reveals that the house has become tighter than .35 nACH, mechanical ventilation will be required to maintain air quality

Insulation

- Maximize insulation levels
  - ➢ Attics to R-38 Minimum
  - ➢ Gap-filling Insulation (foam or blown cellulose) also reduces air leakage

Insulation

- Maximize insulation levels
  - ➢ Walls to R-19, or fill wall cavity
  - ➢ Can fill from outside or inside
  - ➢ Gap-filling insulation (foam or blown cellulose/fiberglass) also reduces air leakage
  - ➢ Rigid Insulation under siding reduces thermal bridging, air leakage
  - ➢ Crawlspace and basement

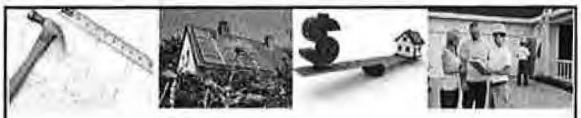


Windows & Doors

- Windows
- Doors
- Skylights
- Day lighting – tubular skylights, light shelves
- No new openings – replacements only, except for solar tubes
- Must be combined with insulation or air sealing *(or establish that is has already been done)*

High Efficiency Heating

- Efficient heating & cooling equipment can save up to half of the energy required
- All gas fired forced air furnaces must have a minimum 90% AFUE, plus sealed combustion
- Tightening of the home may require ducting the combustion air of old equipment or replacing with direct-vent new equipment



Water Heating

gas tankless **efficient gas**

- On-Demand/Tankless
- High Efficiency Natural Gas Storage
- Venting can be an issue for efficient gas appliances

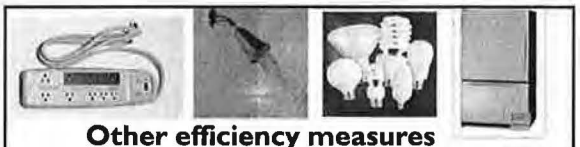
Cooling

- Evaporative cooling is 3-4 times as efficient as air conditioning
- High-efficiency air conditioner to replace existing central A/C
- May not add a new air conditioner
- Roofing material:
  - Light-colored shingles
  - Energy Star listed roofing

Source: KwikCOOL

Ground Source Heat Pumps

- Heat pumps provide both heating and cooling
- Ground-source heat pumps can also provide hot water
- Heat pumps are electric, but have the effective carbon emissions and operating cost impact of natural gas



Other efficiency measures

- These measures not funded, but a great idea
- Appliances
  - Refrigerator efficiency has Improved 60%.
  - Dishwashers & Clothes washers
  - Freezers
- Compact fluorescent lighting
  - 75% more efficient than incandescent, and lasts much longer. Plan for proper disposal at HHW
- LED lighting
- Low-flow showerheads

Renewable Energy

- Solar Hot Water
- Solar Electric (PV)
- Small Wind
- Wood or Pellet Stoves *(no gas)*

Solar Hot Water/Solar Thermal

- Hot water &/or space heating
- Rooftop
  - New systems
  - Replacement/repairs for orphan systems
- Pools
- Hot tubs

Solar PV/ Solar Electric

- Net metering: meter may run backwards in sunny seasons
- Can produce much or all of the electricity you use
- In Xcel service territory, homeowners can receive rebates and RECs.
  - Rebates change frequently
- Limited rebates available from other utilities

Small Wind Systems

Wood/Pellet Stoves

- High efficiency fireplaces and inserts.
- Advanced combustion/gasification wood or pellet stoves
- **New installations allowed only in fully electric homes with no access to natural gas**

Value of Combining Measures

- Windows and wall insulation go together
- Insulation/air sealing and heating/cooling systems complement each other
- Energy efficiency partners with renewable energy:
  - ➢ Efficient cooling and photovoltaics
  - ➢ Heat pumps and photovoltaics

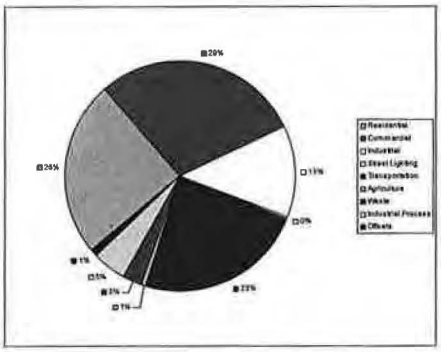
Financing Options

Financing Options

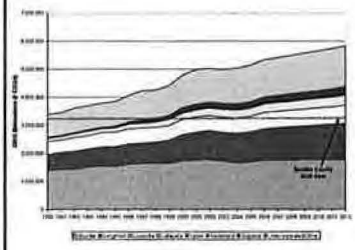
- HELOC (*Home Equity Line of Credit)*
- HEILs *(Home Equity Installment Loan)*
- Third Party Financing for Solar PV
  - – Private solar companies may help fund your system.
- ClimateSmart Loan Program

ClimateSmart Loan Program

Boulder County's Emissions by Sector

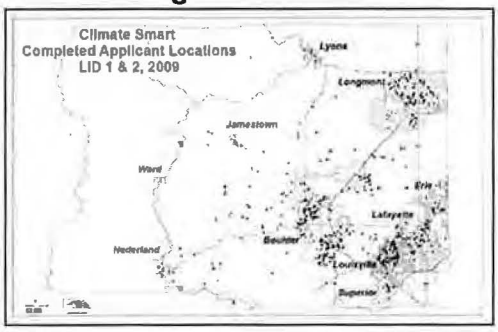


GHG Inventory Results



- Large increase in GHG emissions across the county
- 2012 trajectory = ***85% above*** 1990 Kyoto target
- Long term carbon neutrality goal

Program Success



- 612 participants, totaling nearly $10 million
- Local stimulus program, funded over 282 contractors

ClimateSmart Loan Program

- All residential property owners who are current on their taxes and assessments within Boulder County can participate *(except mobile homes)*
- Countywide pool of funds obtained through sale of bonds
- Up to the full cost of improvement is loaned
- **Min** = $3,000 per home
- **Max** = 20% of statutory actual value of property or $50,000, *whichever is less*

ClimateSmart Loan Program

Compared with Conventional Private Loans:

- Debt is tied to property, not to borrower
- Longer repayment period (lower annual payments)
- Easier to obtain than private loans in current market
- The County pays contractor directly
- Paid back through a special assessment on your property taxes
  - ➢ Tax bills payable in 2011 will include first installment payment

Tracking Success

- Participants will be required to sign a utility bill release (during loan origination) so we can monitor the impact of the program

- We will also monitor the distribution of loans throughout the county

Important Program Information

Loan Types

Open Loans

Income Qualified Loans – lower interest

Persons in Household	115% of AMI
1 -2	HH income less than $99,754.92
3 and up	HH income less than $114,718.16

Based on Form 1040, line 22; Form 1040EZ, line 4; Form 1040A, line 15 for entire household, using most recent filing.

Assessment Rates

	Income-Qualified	Open Loan
2009	5.2% -5.8%	6.68%-6.8%

Bond market interest rates change daily

- Rates set at the time of bond sale
- Bond sale as early as June 16th, 2010

Program Fees & Costs

- Non-refundable $75 application fee ***(paid online)***
- Closing Costs & Cost of Issuance: 4% max
- Debt Service Reserve Fund: **5%** ***(expected to drop)***
  - ➢Helps achieve a better bond rating & interest rate
  - ➢Acts like an escrow account
  - ➢If the default rate on these loans is low, the County may payoff the bond before the end of its term using these funds. If this occurs, the County will be able to release borrowers from any remaining payments at that time.

Actual Costs Previous Rounds

Amount you apply for	Approximate Closing Costs*	Assessment Rate	Annual Assessment
$5,000	$632	5.2%	$550
$13,000	$1,486	5.2%	$1,350
$10,000	$1,594	6.68%	$1,248

*This amount includes 2009 interest, which was rolled into the principal amount.

Repayment Options

- Annual amount due, same options as with property taxes
- Full remaining balance on loan
- No partial prepayment
- Interest is tax deductable
- There is no legal requirement that the loan be paid off when you refinance or sell your home. *However, this may be an item subject to negotiation with a future buyer and mortgage lender.*

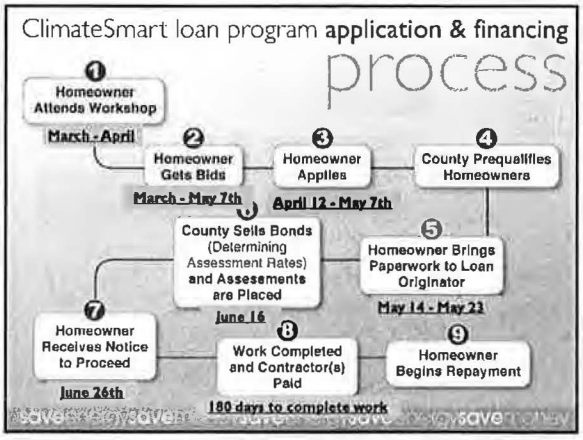
Multiple Properties and HOAs

- Owners of individual units may apply for loans for their own unit if the condominium/townhome declaration permits owner alterations.
- HOAs in general will probably not qualify as the association usually does not own the common elements or limited common elements of the condominiums
- HOAs may contact the County Attorney's Office if they believe they qualify
- If you own and are applying for a loan for multiple properties, you need to see the registration table to list your other addresses.

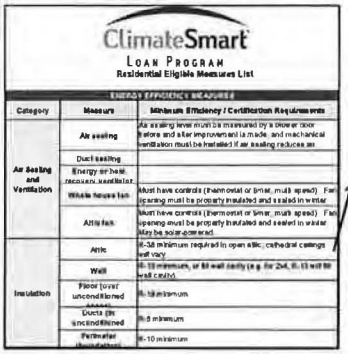
Rebates & Incentives

- The County will not deduct the ITC (Federal) amounts from loans (property owners can if they wish – consult your tax advisor).
- Solar * Rewards (Xcel) payments shall be deducted from amount requested.
- Talk to your installer now about how to lock in rebates.
- Otherwise, rebates/incentives may be deducted from requested amount at homeowners' discretion.

Steps of the Process



Step 1: Review eligible measures


ClimateSmart
Loan Program
Residential Eligible Measures List

Category	Measure	Minimum Efficiency / Certification Requirements
Air Sealing and Ventilation	Air sealing	Air sealing level must be maintained by a blower door before and after improvement is made, and mechanical ventilation must be installed if air sealing reduces air
	Duct sealing	
	Energy or heat recovery ventilator	
	Whole house fan	Must have controls (thermostat or timer, multi speed). For opening must be properly insulated and sealed in winter
	Attic fan	Must have controls (thermostat or timer, multi speed). For opening must be properly insulated and sealed in winter May be solar-powered.
Insulation	Attic	R-38 minimum required in open attic; cathedral ceilings will vary
	Wall	R-13 minimum, or R-9 wall cavity (e.g. for 2x4, R-13 will fill wall cavity)
	Floor (over unconditioned space)	R-19 minimum
	Ducts (in unconditioned space)	R-8 minimum
	Perimeter (foundation)	R-10 minimum

Over 40 different measures

Defines "minimum efficiency requirements"

Example: Attic insulation

R-38 minimum required in open attic; cathedral ceilings will vary.

Step 2: Obtain bids/estimates

- Contractor must fill out our **"Contractor Cover Sheet"** and provide you with a written bid or estimate
- Within the individual measure amounts, have your contractor **include:**
  1.) General contractor fees
  2.) Anticipated permit and/or inspection fees


ClimateSmart
Loan Program
Contractor Bid/Estimate Cover Sheet

Step 3: Apply online
Application open April 12-May 7

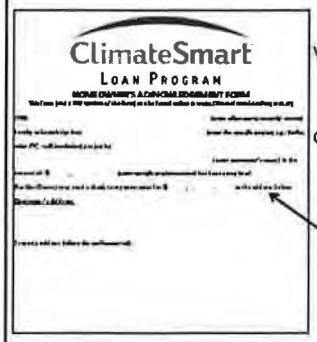
Homeowner enters:

1.) Personal contact information
2.) Property address
3.) "Not to exceed" dollar amount for each individual measure
   - You do not need to upload any documents
4.) Pays $75 application fee online
5.) Continue to update application, if needed, until May 7

Step 4: Loan Origination
May 14 - May 23

- Loan originators provide in-person meetings with **all** property owners
- You bring all documents to loan originator
- You will review the loan fees and terms of the loan
- You will sign your loan agreement – the official contract with County
- After you sign the loan agreement, you cannot withdraw from the program and you cannot change your total loan amount

Step 5: Complete your projects



Wait until you receive your "Notice to Proceed"
- You have 180 days to complete your projects

Once work is completed you submit:
1.) Homeowner acknowledgement form
2.) Final invoice from contractor
3.) Copies of required permits and/or inspections

Required Permits/Inspections

- You must provide copies of all permits and/or inspections required by the jurisdiction where your property is located
- Please check our permit/inspection form online to see whether your project needs a permit

Thank you!

www.ClimateSmartLoanProgram.org
climatesmart@bouldercounty.org
303.441.4565

ClimateSmart
Loan Program

Attachment H: White House Office, "Policy Framework for PACE Financing Programs"

October 18, 2009

Policy Framework for PACE Financing Programs

The following Policy Framework has been developed by the White House and the relevant agencies as a policy framework for Property Assessed Clean Energy (PACE) financing programs. Today, the Vice President is announcing support for the use of federal funds for pilot programs of PACE financing to overcome barriers for families who wish to invest in energy efficiency and renewable energy improvements.

The innovative PACE approach attaches the obligation to repay the cost of improvements to the property, not the individual borrower, creating a way to pay for the improvements if the property is sold. This Policy Framework provides important safeguards for the relevant parties, including homeowners and mortgage lenders. The Policy Framework applies to federal funding of PACE programs and also is designed to serve as a resource for state, local, and tribal governments who seek to carry out PACE activities without federal funding.

The Department of Energy (DOE) is announcing funding for model PACE projects, which will incorporate this Policy Framework's principles for PACE program design. Under the State Energy Program, DOE has received approximately $80 million of applications for PACE-type programs to provide upfront capital. Additional PACE programs are encouraged through a Funding Opportunity Announcement, released today, for competitive grants under the Energy Efficiency Conservation Block Grant Program. These pilot programs will be accompanied by a significant research effort, so that the federal government can assess the efficacy of PACE as a funding source for energy retrofits and evaluate the effectiveness of the homeowner and lender protections set forth in this Policy Framework.

The Promise of PACE Financing

By making energy efficiency investments easier, less expensive, and more effective, PACE can help to increase the amount invested in energy efficiency. Specifically, PACE programs streamline financing of energy efficiency investments in three key ways. First, property assessments provide a secure, well-established payback mechanism that will lead to lower borrowing costs. The security of the payback mechanism often makes it possible for PACE financing to be offered with no money down requirement. Second, the economies of scale from making PACE financing available to a large group of borrowers can reduce overhead and transaction costs. Finally, effective administration of PACE programs at the local-government level will create more consumer confidence in the economic value of energy efficiency investments.

PACE Financing Initiatives: Overview

Land-secured financing districts (also known as special tax or special assessment districts) are a familiar tool in municipal finance. In a typical assessment district a local government issues bonds to fund projects with a public purpose such as streetlights, sewer systems or underground utility lines. Property owners that benefit from the improvement then repay the bond through property assessments, secured by a property lien and paid as a part of the property taxes.

If appropriately designed and implemented, extension of this finance model to energy improvements may allow property owners to pay for efficient enhancements with expected monthly payments that are less than expected utility bill savings.

How it works

This local-government energy financing structure would allow property owners to "opt-in" to attach up to 100% of the cost of energy improvements to their property tax bill. In the event of nonpayment of the assessment, the local government has the ability to foreclose on the delinquent property in the same manner as for nonpayment of taxes, or it may choose to wait for another party to initiate foreclosure. Importantly, as a protection for mortgage lenders on the property, liability for the assessment in foreclosures should be limited to any amount in arrears at that time, and the full costs of the improvement are not accelerated or due in full. The assessment runs with the property at law and successor owners are responsible for remaining balances.

Tying payment to the property solves credit and collateral issues for energy efficiency and renewable energy loans, reduces up-front costs to a minimum payment or zero, and allows for both the payment and the value of the retrofit to be transferred from one owner to the next. Local governments should establish a reserve fund to backstop late assessment payments, helping assure that investors in energy efficiency and renewable energy loans are paid on time. The use of reserve funds also reduces risk to the first mortgage lender and other private lien-holders, because initial losses to those who fund energy efficient and renewable energy loans are paid out of the reserve fund. Municipalities could also share this risk with contractors through a variety of conditional contract mechanisms.

In certain settings, an alternative financing approach would be for homeowners to pay for energy improvement retrofits through their utility bills. There is value going forward in evaluating these different mechanisms and discovering where each may be most effective. Results may vary geographically or with the market role of local utilities.

Existing PACE Programs

PACE programs that are planned or underway include: Albuquerque, NM; Athens, OH; Austin, TX; Babylon, NY; Berkeley, CA (which pioneered the concept); Boulder, CO; Palm Desert, CA; San Diego, CA; San Francisco, CA; and Santa Fe, NM; and at the state level in California, Connecticut, Maryland, Oregon, Texas, Vermont, Virginia, and Wisconsin. If only 15 percent of residential property owners nationwide took advantage of clean energy community financing, the resulting emissions reductions would contribute 4 percent of the savings needed for the U.S. to reach 1990 emissions levels by 2020. Over time, with appropriate policy development that addresses the interests of the various stakeholders, including the definition of allowable energy efficiency and renewable energy investments, it may also be possible to extend the model to multifamily housing and commercial buildings.

Implementation: The Federal Role

As states and local governments have implemented PACE programs, they have begun to develop practices for homeowner and lender protection. Federal funding using ARRA resources provides an opportunity to encourage innovation and improvement in the PACE financing model. A federal role to encourage PACE pilot programs will facilitate the collection of data, objectively measure and evaluate the performance of PACE programs, and speed the adoption of more uniform and universal best practices that include robust and effective homeowner and lender protections.

Clear home improvement standards, accompanying federal and other public funds, will address the risk of substandard home improvements and improve overall contractor quality. For both homeowners and lenders, the programs should be structured to address risks that could arise given that property tax assessments under PACE usually take priority over private liens in the event of foreclosure. Where appropriate, conditions will be placed on DOE's ARRA funding to address these homeowner and lender concerns.

Research on Pilot Programs

PACE collaborations offer a unique opportunity for the federal government to coordinate and aggregate much-needed, program-specific data such as energy consumption and savings obtainable, investment cash flows achievable, effects on property valuation, risks associated with community-financed retrofit programs, and the effects of new homeowner and mortgage lender protections. Where possible, research can also assess benefits from PACE programs such as reductions to greenhouse gases and economic impacts on community spending and job creation. Utility bills from before and after a retrofit are crucial for measuring energy savings, and support from utilities will be important in providing this information, subject to appropriate privacy safeguards.

As an integral part of Federal support for pilot PACE programs, the Department of Energy will support substantial research about key aspects of PACE programs, including: the energy and financial returns of energy efficiency and renewable energy retrofits; the effectiveness of homeowner protections; and the effectiveness of safeguards for mortgage and energy lenders.

Funding

Under the State Energy Program, DOE has received approximately $80 million of applications that could potentially use a PACE financing structure, out of $3.2 billion in total funding. The Department of Energy is also issuing a Funding Opportunity Announcement of $454 million under its Competitive Energy Efficiency and Conservation Block Grant program. This "Retrofit Ramp-Up" program will pioneer innovative models, including PACE loans, for rolling out energy efficiency to hundreds of thousands of homes and businesses in a variety of communities. In the Funding Opportunity Announcement, DOE encourages applications for PACE programs, which would be implemented consistent with this Policy Framework and contribute to research efforts about the effectiveness of such programs.

Challenges

As discussed above, federal agencies can play an important role in developing and publicizing measures that address important homeowner and lender protection issues. The Office of Management and Budget will work with the National Economic Council and key federal agencies on additional guidance (not formal rulemaking) for federal grant programs that fund PACE programs. Because PACE programs are still quite new, such as the new federally-funded pilots, best practices may evolve rapidly, and so some aspects of today's Policy Framework may not apply in all situations.

Homeowner Protection

Effective consumer protection is a crucial first line of defense against defaults that would harm both homeowners and lenders. PACE programs should help assure that energy retrofits are designed to pay for themselves within a reasonable period, and that homeowners are protected against fraud or substandard work.

1. *Savings to Investment Ratio.* As has long been the case for DOE's single-family weatherization program, the "savings to investment ratio" for PACE program assessments should be greater than one. This "pay for itself" principle means that the expected average monthly utility savings to homeowners should be greater than the expected monthly increase in tax assessments due to the PACE energy efficiency or renewable energy

improvements. Improvements should be made where there is a positive net present value, so that expected total utility bill savings are estimated to be greater than expected total costs (principal plus interest). In some instances, tax credits or other subsidies are available to support investments. If so, then the present value of the expected savings to consumers should be greater than the present value of the increase in assessments once those subsidies are included.

2. *Financing Should be for High-Value Investments.* Financing should be limited to investments that have a high return in terms of energy efficiency gains. In some cases, investments can be limited to a set of projects that have well-documented efficiency gains for most houses in a climate zone, such as sealing ducts or installing insulation. In other cases, investments will be based on the results of an authorized energy audit that identifies the energy efficiency gains for a particular house for a particular retrofit. Ensuring that loans are made for these high-value investments will protect homebuyers and mortgage lenders, and maximize the impact of PACE on improving energy efficiency.

3. *Assuring that the Retrofit is Constructed as Intended.* First, the scope of the retrofit should be determined by a list of presumptively-efficient projects or based on an energy audit, conducted by a qualified auditor or inspector. Second, validly licensed contractors or installers should do the actual home improvements. Third, there should be an after-the-fact quality assurance program. Qualified raters should do reviews upon completion, for the portion of houses needed to assure program quality, to assure that correct work was performed and is up to standards. If the property owner or local government administering the contract is not satisfied with a retrofit or if the follow-up rating shows that the work was not completed in a commercially reasonable manner, the contractor should be required to fix the work. If that does not solve the problem, then just as with any construction project, payment to the contractor can be withheld until such a time as the work is done satisfactorily or the homeowner can seek other redress. In circumstances where a project is not completed to standards, the contractor should be disqualified from further work under the PACE program – a strong incentive to complete work correctly.

This approach provides important incentives and safeguards for all of the relevant parties. For homeowners, the "pay for itself" principle assures that the expected savings exceed the investment, and the protections afforded for proper projects and work address concerns about inappropriate or substandard work. For mortgage and other lenders, these safeguards reduce the risk that overly-expensive, substandard, or uneconomic projects will be undertaken, protecting the value of the house that serves as collateral for the loan.

Furthermore, PACE programs must comply with applicable federal and state consumer laws and include adequate disclosures to and training for homeowners participating in the program. For instance, local governments implementing PACE programs must disclose the risks to participating property owners, including risks related to the default and foreclosure that could result from failure to pay assessments. Along with training and certification standards to be established by DOE and the Department of Housing and Urban Development (HUD), effective anti-fraud measures should be implemented. To avoid "copy cat" programs that offer PACE-like programs without these protections, local, state and federal consumer protection enforcement agencies should target mortgage fraud scams and "copy cat" programs.

Lender and Borrower Protection

If poorly designed, PACE programs could increase risk to mortgage lenders, which in turn could lead to higher interest rates for homeowners. Because local property taxes usually take priority over private liens, including mortgages, mortgage lenders face an increased risk of non-payment if a PACE borrower becomes delinquent on payment.

Because of the importance of the housing finance market, and the need to understand and address any risks posed to homeowners and mortgage lenders, the federal government is supporting PACE loans at this time at the pilot and demonstration level. Federal agencies including DOE, HUD, and Treasury have worked together to understand how best to encourage energy efficiency and renewable energy loans while also creating effective rules and practices to prevent losses in the mortgage market. Over time, a variety of approaches might best address the need to ensure a well-functioning mortgage market by protecting the rights of pre-existing lien holders, perhaps including a national-level guarantee fund alongside or in place of local government-level reserve funds. Experience with pilot PACE programs can inform policy in the longer-term.

As noted earlier, effective consumer protection is a crucial first line of defense against default. The "pay for itself" test also helps lenders, because the long-term value of the house may well be improved by energy efficiency investments that make living in the house more affordable. Additional protections come from the year-by-year nature of the property tax lien if a borrower defaults. For instance, if a homeowner defaults on an eight-year assessment after two years, in most programs only any unpaid property taxes would be collected to cure the default, not the remaining six year balance. This benefit of PACE financing, which should be standard in all PACE programs, is that the entire amount financed will not be accelerated, understanding, however, that the additional tax burden may impact the property value upon default. Another important protection is that the scope of home efficiency enhancements paid through property taxes is limited – property taxes would not be expanded to uses other

than energy improvements to the home that have a savings-to-investment ratio of greater than one.

Beginning immediately, this Policy Framework supports additional measures to further limit risk to mortgage lenders:

1. *Assessment Reserve Fund.* A reserve fund should be established at the local-government level, to protect the energy investor against late payment or non-payment of the assessment. This reserve fund means that the value of mortgage lenders' collateral should not be reduced by any failure by the homeowner to pay the PACE assessment.

2. *Length of Time.* The length of time for a homeowner to repay the PACE assessments should not exceed the life expectancy of the energy efficient improvements.

3. *Size of Financing Relative to the House Value.* As a general matter, PACE assessments should not exceed a certain percentage of appraised value of the home, generally 10%.

4. *Clear title.* Applicants must prove they are the legal owners of a property, unanimous approval of property-holders is required, and the title should be clear of easements or subordination agreements that conflict with the assessment.

5. *PACE Financing only where no current default.* Participation in the program should not be allowed unless: (i) property taxes are current; (ii) no outstanding and unsatisfied tax liens are on the property; (iii) there are no notices of default or other evidence of property-based debt delinquency for the lesser of the past three years or the property owner's period of ownership; and (iv) the property is current on all mortgage debt.

6. *No Negative Equity Financing.* PACE loans to borrowers who are "underwater" – whose mortgage and other debt on the property is greater than the current value of the house – raise particular risks because such loans are especially likely to default with less than full payment to private lienholders PACE programs should require a current estimate of appraised value, and outstanding property-based debt cannot be less than the value of the property.

7. *Vulnerable Areas.* Local governments should be cautious in using the PACE model in areas experiencing large home price declines, where large numbers of "underwater" loans may exist. PACE programs in such areas should proceed only after careful attention to local real estate conditions and programmatic safeguards to avoid contributing to additional borrower defaults.

8. *Escrow.* To reduce the risk of non-payment of property assessments, homeowners should escrow payments for PACE programs in the common situations where they already escrow other property tax assessments.

Conclusion

As the innovative PACE programs proceed, state and local governments should work closely with federal agencies to collect and aggregate performance data on the efficacy of consumer and lender safeguards, as well as energy efficiency and renewable energy results, to ensure constant improvement and wide scale program success.

In sum, PACE programs have the potential to increase the accessibility and affordability of energy saving measures, consequently lowering energy bills to residents and reducing the environmental footprints of participating localities. If programs are not properly constructed, however, the programs could potentially create risk for homeowners and lenders. Adoption of best practices, including strong contracting standards in the selection of those doing the retrofits, will help deliver the type of market transformation we need to see retrofitting scale up and achieve our goals. Existing programs have taken steps to design property and project criteria for eligibility, as well as quality assurance measures, that mitigate risk without unnecessarily limiting accessibility. Going forward, reporting to the Department of Energy about the performance of these programs will be important as feedback to improve these innovative programs over time. PACE programs should be conformed and tied to well understood, national scale procedures that will improve the quality and quantity of retrofits, and reduce costs.

Attachment I: U.S. Dept. of Energy, "Guidelines for Pilot PACE Financing Programs"

Department of Energy
Washington, DC 20585

Guidelines for Pilot PACE Financing Programs

May 7, 2010

This document provides best practice guidelines to help implement the Policy Framework for PACE Financing Programs announced on October 18, 2009.[1] Property Assessed Clean Energy (PACE) financing programs allow state and local governments, where permitted by state law, to extend the use of land-secured financing districts to fund energy efficiency and renewable energy improvements on private property.[2] PACE programs attach the obligation to repay the cost of improvements to the property, not to the individual borrower. After consultation within the federal government and with other stakeholders, the Department of Energy has prepared the following Best Practices to help ensure prudent financing practices during the current pilot PACE programs.

These best practice guidelines are significantly more rigorous than the underwriting standards currently applied to land-secured financing districts. Especially in light of the exceptionally challenging economic environment and recovering housing market, the following best practice guidelines for pilot PACE financing programs are important to provide an extra layer of protection to both participants who voluntarily opt into PACE programs, and to lenders who hold mortgages on properties with PACE tax liens. These best practice guidelines may evolve over time as we learn more about the performance of PACE programs and are able to identify new best practices.[3] All pilot PACE financing programs are strongly encouraged to follow these best practice guidelines. This document is divided into two sections: Program Design Best Practice Guidelines and Assessment Underwriting Best Practice Guidelines.

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[1] The Policy Framework for PACE Financing Programs is available here: http://www.whitehouse.gov/assets/documents/PACE_Principles.pdf.

[2] For more information on PACE programs, please visit: http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/PACE.html. PACE programs are paid through a tax lien on the property. Lien priority is a matter of state law, and these best practices do not (and cannot) pre-empt state law.

[3] These best practice guidelines are primarily for the residential market. Different standards may be appropriate in non-residential markets.

Program Design Best Practice Guidelines:

Local governments should consider the following program design features to increase the reliability of energy and economic performance for the benefit of program participants, mortgage holders, and investors.

1. Expected Savings-to-Investment Ratio (SIR) Greater Than One[4]

The primary rationale for PACE programs is to pursue a legally-defined "public purpose", which generally includes environmental, health, and energy independence benefits.[5] Although traditional land-secured assessment districts do not require projects to "pay for themselves", PACE financing should generally be limited to cost effective measures to protect both participants and mortgage holders until PACE program impacts become more widely understood.

The financed package of energy improvements should be designed to pay for itself over the life of the assessment. This program attribute improves the participant's debt-to-income ratio, increasing the participant's ability to repay PACE assessments and other debt, such as mortgage payments. Local governments should consider three program design features to ensure that the expected SIR is greater than one:[6]

- An energy audit and modeling of expected savings to identify energy efficiency and renewable energy property improvement measures that are likely to deliver energy and dollar savings in excess of financed costs over the assessment term. Local governments should limit investment to those identified measures.

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[4] SIR = [Estimated savings over the life of the assessment, discounted back to present value using an appropriate discount rate] divided by [Amount financed through PACE assessment]
Savings are defined as the positive impacts of the energy improvements on participant cash flow. Savings can include reduced utility bills as well as any payments for renewable energy credits or other quantifiable environmental and health benefits that can be monetized. Savings should be calculated on an annual basis with an escalator for energy prices based either on the Energy Information Agency (EIA) U.S. forecast or a substantiated local energy price escalator.

[5] Specific public purposes are defined by the state's enabling legislation, which may vary somewhat between states. Existing legislation is available here:
http://www.dsireusa.org/incentives/index.cfm?EE=1&RE=1&SPV=0&ST=0&searchtype=PTFAuth&sh=1

[6] These program options are not mutually exclusive and programs should consider deploying them in concert. In addition, these measures could be coordinated with the proposed HOMESTAR's Silver and Gold guidelines. More Information on HOMESTAR is available here:
http://www.whitehouse.gov/the-press-office/fact-sheet-homestar-energy-efficiency-retrofit-program

- In lieu of audits, programs may choose to limit eligibility to those measures with well-documented energy and dollar savings for a given climate zone. There are a number of energy efficiency and renewable energy investments that are most likely to yield a SIR of greater than one for most properties in a region.
- Encourage energy efficiency before renewable energy improvements. The economics of renewable energy investments can be enhanced when packaged with energy efficiency measures. The SIR should be calculated for the entire package of investments, not individual measures.

2. The Term of the Assessment Should Not Exceed the Useful Life of the Improvements

This best practice guidelines document is intended to ensure that a property owner's ability to repay is enhanced throughout the life of the PACE assessment by the energy savings derived from the improvements. It is important to note that the useful life of the measure often exceeds the assessment term.

3. Mortgage Holder of Record Should Receive Notice When PACE Liens Are Placed

Mortgage holders should receive notice when residential property owners fund improvements using a PACE assessment.[7]

4. PACE Lien Non-Acceleration Upon Property Owner Default

In states where non-acceleration of the lien is standard for other special assessments, it should also be standard for PACE assessments. After a foreclosure, the successor owners are responsible for future assessment payments. Non-acceleration is an important mortgage holder protection because liability for the assessment in foreclosure is limited to any amount in arrears at the time; the total outstanding assessed amount is not due in full.

5. The Assessment Should Be Appropriately Sized

PACE assessments should generally not exceed 10% of a property's estimated value (i.e. a property value-to-lien ratio of 10:1). In addition, because of the administrative requirements of administering PACE programs, assessments should generally not be issued for projects below a minimum cost threshold of approximately $2500. These measures ensure that improvements are "right-sized" for properties and for the administrative costs of piloting PACE programs. PACE programs may also choose to set the maximum assessment relative to median home values.

[7] A different standard may apply to non-residential properties.

6. Quality Assurance and Anti-Fraud Measures

Quality assurance and anti-fraud measures are essential protections for property owners, mortgage holders, investors, and local governments. These measures should include:

- Only validly licensed auditors and contractors that adhere to PACE program terms and conditions should be permitted to conduct PACE energy audits and retrofits. Where feasible or necessary, auditors and contractors should have additional certifications appropriate to the installed measures.
- Inspections should be completed on at least a portion of participating properties upon project completion to ensure that contractors participating in the PACE program are adequately performing work.
- If work is not satisfactorily completed, contractor payment should be withheld until remedied. If not satisfactorily remedied, programs should disqualify contractors from further PACE-related work.
- Property owners should sign-off before payment is issued for the work.

7. Rebates and Tax Credits

The total amount of PACE financing should be net of any expected direct cash rebates for the energy efficiency or renewable energy improvements chosen. However, other non-direct cash incentives can be more difficult to manage. For example, calculating an expected income tax credit can be complicated, as not all participants will have access to the tax credit and there will be time lags between project completion and tax credit monetization. Programs should therefore consider alternative structures for financing this gap, including assignment of rebates and tax credits to repay PACE assessments, short-term assessment additions, and partnering with third party lenders that offer short-term bridge financing. At the minimum, programs should provide full disclosure to participants on the implications and options available for monetizing an income tax credit.

8. Participant Education

PACE may be an unfamiliar financing mechanism to program participants. As such, it is essential that programs educate potential participants on how the PACE model works, whether it is a property owner's most appropriate financing mechanism, and the opportunities and risks PACE program participation creates for property owners. Programs should clearly explain and provide disclosures of the following:

- How PACE financing works

- Basic information on other financing options available to property owners for financing energy efficiency and renewable energy investments, and how PACE compares
- All program fees and how participants will pay for them
- Effective interest rate including all program fees, consistent with the Good Faith Estimate (GFE) of the Real Estate Settlement Procedure Act (RESPA) and the early and final disclosure of the Truth in Lending Act (TILA).
- PACE assessment impact on escrow payments (if applicable)
- Risk that assessment default may trigger foreclosure and property loss
- Information on transferring the assessment at time of sale
- Options for and implications of including tax credits in the financed amount

9. Debt Service Reserve Fund

For those PACE programs that seek third party investors, including investors in a municipal bond to fund the program, an assessment reserve fund should be created to protect investors from late payment or non-payment of PACE assessments.

10. Data Collection

Pilot programs should collect the data necessary to evaluate the efficacy of PACE programs. Examples of typically collected data would include: installed measures, investment amount, default and foreclosure data, expected savings, and actual energy use before and after measures installation. To the extent possible, it's important that programs have access to participant utility bills, ideally for 18 months before and after the improvements are made. The Department of Energy will provide more detailed information on collecting this data, obtaining permission to access utility bills, and how to report program information to enable a national PACE performance evaluation.

Assessment Underwriting Best Practices Guidelines:

Local governments should design underwriting criteria to reduce the risk of default and impairment to the property's mortgage holders. Many best practices for reducing these risks are included in the previous section. In addition, underwriting criteria for individual assessments should include the following:

1. Property Ownership

- Check that applicant has clear title to property and that the property is located in the financing district.

- Check the property title for restrictions such as details about power of attorney, easements, or subordination agreements.

2. Property-Based Debt and Property Valuation

- Estimated property value should be in excess of property owner's public and private debt on the property, including mortgages, home equity lines of credit (HELOCs), and the addition of the PACE assessment, to ensure that property owners have sufficient equity to support the PACE assessment. Local governments should be cautious about piloting the PACE model in areas with large numbers of "underwater" mortgages.
- To avoid placing an additional tax lien on properties that are in distress, have recently been in distress, or are at risk for distress, the following should be verified:
    - There are no outstanding taxes or involuntary liens on the property in excess of $1000 (i.e. liens placed on property for failure of the owner to comply with a payment obligation).
      Property is not in foreclosure and there have been no recent mortgage or other property-related debt defaults.
- Programs should attain estimated property value by reviewing assessed value. This is typically used in assessment districts. If assessed value appears low or high, programs should review comparable market data to determine the most appropriate valuation. If programs believe the estimated value remains inaccurate or there is a lack sufficient comparable market data to conduct an analysis, they should conduct a desktop appraisal.[8]

3. Property Owner Ability to Pay

PACE programs attach the obligation to repay the cost of improvements to the property (not to the individual borrower). The standard underwriting for other special assessments only consists of examining assessed value to public debt, the total tax rate, and the property tax delinquency rate. However, we deem certain precautions important due to the current vulnerability of mortgage lenders and of the housing market in many regions. These precautions include:

- A Savings-to-Investment Ratio (SIR) greater than one, as described above, to maintain or improve the property owner's debt-to-income ratio.
- Property owner is current on property taxes and has not been late more than once in the past 3 years, or since the purchase of the house if less than three years.[9]

[8] A desktop appraisal involves a licensed appraiser estimating the value of a property without a visual inspection. These appraisals cost approximately $100.

[9] Applicants that have purchased the property within 3 years have recently undergone rigorous credit analyses that compensate for the short property tax payment history.

- Property owner has not filed for or declared bankruptcy for 7 years.

These best practice guidelines will evolve over time with continued monitoring of the performance of pilot PACE financing programs.

Attachment J: Boulder County Analysis of the Federal Guidelines Regarding PACE Financing

Board of County Commissioners

Boulder County Analysis of the Federal Guidelines Regarding PACE Financing

Contact: Ann Livingston, Sustainability Coordinator, Boulder County Commissioners' Office
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Approved November 5, 2009

Vice President Biden recently announced the administration's strong support for PACE (Property Assessed Clean Energy) financing as a key strategy for investment in energy efficiency, in order to meet national goals of climate change and economic recovery. He announced federal investment of over $80 million to support local pilot programs around the nation, and released a set of federal guidelines for programs receiving federal funding.

Boulder County is one of a handful of communities across the country that has implemented such a program, and is the only community to have both implemented on a large scale and used conventional municipal bond financing to fund the finance district. As such, we are in a unique position to understand the likely impact of federal guidelines on the success of PACE programs. While a number of elements of the guidelines are helpful, others are vague or potentially harmful, and important protections are missing.

We are concerned that the unintended effect of these guidelines will be to create significant administrative burdens on local governments administering such programs; place significant process burdens on participating homeowners; increase fixed costs making the program uneconomic for small-scale investments in home energy efficiency; unduly limit the energy efficiency measures that may be financed, thereby restricting homeowners' ability to invest in large-scale efficiency improvements; create significant cost burdens for both local governments and participating homeowners; and undermine the creditworthiness of the PACE bonds, leading to unattractively high interest rates or even making them unmarketable. Taken in total, we believe that as proposed these guidelines could so burden the programs that the PACE model will be unworkable.

Here is a brief response to the proposed PACE financing guidelines:

a. ***No acceleration of special assessment payments*** *in the case of a default in the payment of the annual assessment.*

This will render the bonds used to finance PACE programs to essentially "junk" bond status in many states, not bank-qualified quality, leading most institutional investors to shun them. In Colorado, and other states, this provision is in direct conflict with state law. The principal reason to include acceleration from an investor standpoint is to ensure that the expected cash flow for the District's debt service occurs; without that, a significantly increased reserve fund (financed either via fees imposed on homeowners or from local government funding sources), would be required, increasing costs to the program.

It should also be noted that acceleration on special assessments is standard for all special assessment districts in Colorado; imposing such a requirement would single out investments in clean energy for unfavorable treatment as compared to every other type of investment that is financed through special assessment districts. Colorado is not unusual in that regard; a majority of states have special assessment improvement districts and in a majority of those, bond financing is repaid via special assessments that are accelerated in case of default.

b. ***Assessment reserve funds*** *to "backstop late assessment payments" in order to reduce the risk to private lien-holders of a default.*

It is unclear exactly what is intended by this requirement. The bond rating agencies currently require a reserve account of 6 months as per our October 2009 bond offering (this reserve requirement has already shrunk from the one year requirement we faced when we issued our first PACE bonds in May 2009, indicating that the market is determining an appropriate reserve amount without outside interference). The county has had to help cover the reserve in order to maintain reasonable costs for borrowers (while we will see this investment repaid in the long run, it still requires available funds). Certainly, many local governments do not have the resources to do this and that is precisely one of the reasons that the PACE programs are a useful new tool. It is unclear, then, if this guideline is just a restatement of these market conditions, or an additional reserve requirement beyond that already required by the market. If a reserve account is required as per federal guidelines, the reserve should be moderate in size, not additional to the market requirements, and flexible in terms of funding source (e.g., LID/program participants, local governments, federal guarantees, etc.).

c. Federally-approved energy efficiency retrofit ***improvement standards*** *that the projects in these programs must meet.*

Given that we currently have no national standards and no national certifications for many of the various trades involved in retrofitting and improving the existing building stock, this guideline could be a real issue. From Boulder County's perspective, the danger is that local governments will be put in the position of "certifying or approving" contractors in ways that they do not already and will thereby incur additional costs and liability. Guidance language like assure "that homeowners are protected against fraud or substandard work" presents a potential responsibility for contractor/trades oversight that goes well beyond what local governments regulate today (and what is fiscally efficient). Boulder County suggests that PACE programs should instead be allowed to rely on existing inspection and permit requirements and an additional "right to-inspection" clause that has been included in the loan agreements issued through the County.

d. Federally-approved energy efficiency retrofit ***business and worker certification*** *standards that these programs must utilize.*

If the federal guidelines simply incorporate existing professional standards for the trades, this could be useful and simple to implement. If not, this could be a significant issue in terms of delaying program implementation as these standards are developed as well as a new cost and burden for already struggling businesses, many of which are locally owned small- to medium-sized businesses.

e. ***Utility bill releases*** *and sharing of information and statistics with state and federal agencies will be "subject to privacy safeguards."*

The Boulder County program is using utility bill releases as a means of monitoring and analyzing program effectiveness. While the privacy safeguards requirement is probably not an issue, we haven't yet tested the applicability of the Colorado Open Records Act (our state version of FOIA) in this regard.

f. ***Estimated savings on utility bills for a participating homeowner must be greater*** *over the period of the financing than the aggregate of the loan expense to the homeowner (estimated savings can include tax credit/rebate incentives.)*

This standard is unnecessarily restrictive. In states like Colorado which currently have relatively low energy costs, this requirement is especially problematic. Further, this standard creates a significant administrative burden, particularly in homes that seek to implement multiple energy efficiency measures (precisely the homes we need to target in order to meet our national, state, and local climate goals) as this would require modeling of the existing conditions in the home and the impact of multiple measures. We recommend utilizing locally-appropriate prescriptive lists of allowed measures instead. In fact, for

programs that accept applications prior to a bond sale, the calculation is impossible prior to the moment the bonds are sold, as the interest rate and payments are not determined until that point. In addition, there are multiple assumptions that can be made about future energy cost escalation, which can lead to dramatically varying estimates of utility bill savings. If it is determined that the provision of locally-appropriate prescriptive lists is not an adequate solution for ensuring the effectiveness of allowed measures, another less restrictive approach should be considered. This new approach should not rely on programs such as weatherization as a guideline, as the programs are vastly different in nature.

The approach we have taken here in Boulder County is to develop a list of allowed measures, all of which are commercially available and have significant benefits in reduction of fossil fuel use and greenhouse gas emissions. Homeowners must attend a workshop which, amongst other things, explains the technical aspects of the measures, ensuring that program participants enter the program with a full understanding of the likely reductions to their utility bills and how this may compare to the assessment payments. The public benefit of this program is from the reduction in fossil fuel use and greenhouse gas emissions; property owners should be allowed to voluntarily invest in greenhouse gas reductions that do not lead to immediate costs savings.

g. ***Financed projects must be either*** *(1) on a list of improvements the energy savings from which are well-documented, OR (2) there must be a home energy audit conducted in accordance with federal guidelines by a contractor meeting federal certifications that shows that the project will result in a net positive out-of-pocket cash flow to the homeowner over the duration of the loan repayment.*
If option one is truly available, then this guideline is reasonable. The approach we have taken here in Boulder County is to develop a locally-appropriate prescriptive list of allowed measures, all of which are commercially available and have significant benefits in reduction of fossil fuel use and greenhouse gas emissions. This is a cost-effective solution that does not create undue administrative burdens and is easy to understand from the homeowner perspective. Regarding option 2, in addition to comment under item f. above, the requirement for a home energy audit, while a good goal for major improvements, adds a major fixed cost to those homeowners that would like to undertake a smaller project. The other challenges with option two relate to the lack of federal guidelines and certifications—at the very least this will put programs on hold until guidelines are adopted and sufficient capacity is built up within the auditor community. Further, depending on the federal guidelines that are developed, this could be anything from an inexpensive clipboard audit (which provides little value in terms of assessing the energy efficiency needs of an individual property) to a full scale audit that requires a HERS score and which can be prohibitively expensive.

h. ***No financing can exceed the expected useful life*** *of the particular improvement being financed.*
If applied as written, local governments would be forced to separately finance each improvement with a different expected useful life, resulting in a program that would be so costly to administer that it will never be used. As it stands now, we are able to look at the sum of the measures financed in each tranche to ensure that the expected useful life of the measures exceeds the life of the financing; this approach is more reasonable and much less costly to administer.

i. ***Financed improvements must be inspected*** *to ensure they have been installed properly and meet federally-created quality standards; if not, then the payment to the contractor must be withheld until it is fixed. (This is noted to be a safeguard for the mortgage lender to ensure that the value of their security is not impaired via the retrofit improvement project.)*
Once again, while inspection is a good goal, it adds significant costs to the program, costs that would not necessarily be in place for those property owners that pursue a HELOC or HEIL for financing energy efficiency improvements. These "federally-created quality standards" may not be the same as the standards established in local building codes. Reliance on local building codes and existing local

regulations in terms of permits and inspections is a more cost effective solution to ensure that work is completed in an appropriate manner. Further, the loan agreements could include a "right to inspect" clause to be utilized in cases of suspected fraud. Under our current program guidelines, Boulder County will not pay the contractor until both the property owner has signed off and we have documentation in hand that shows that the work has passed final inspection by the appropriate jurisdiction overseeing any required building permits. The federal guidelines should allow building inspection approval to serve as this standard. Insulation is one key measure that does not currently require inspection in many instances; in this case, utilizing an insulation card as is common practice and required for many rebates may be a cost-effective and easy to implement solution.

*j. Local government **disclosure standards concerning risks** to the homeowners from the loan and potential default on the special assessments are required.*
This does not present an issue if the standards are reasonable, but they are not currently written.

k. Feds will consider creating a federally-financed loan guarantee program to ensure that mortgage lenders and other private lienholders are not adversely impacted by the PACE loan and project.
Boulder County supports this proposal; however, it is unclear when and if this will come to fruition. This provision should be linked to and replace "item b" if instituted. In addition, federal loan guarantees should be enacted before any limitations on acceleration of loans, in order to keep the bonds marketable.

*l. Loan size to a particular homeowner cannot exceed **10% of the property value**.*
This particular guideline will likely impact the more expensive projects, such as renewable energy installations, especially in jurisdictions with lower average home values. A loan cap that combines a percentage and overall cap is reasonable; for example, 20% of the assessors' valuation and $50,000 or some other dollar amount.

*m. **Title work** must be done to ensure that all legal owners consent to the financing and that there are no conflicting easements or subordination agreements.*
Like a number of the other guidelines, this could significantly add to the up-front project costs; Boulder County's current approach of using the Assessor's records is easy, inexpensive, and unlikely to lead to serious problems.

*n. No loans to properties currently in default or that have been in default in the past 3 years on taxes/assessments, **nor to any property where there is current default on a mortgage loan.***
Local governments will have to check with every mortgage lender for every property in order to meet this guideline, as there is typically a long lag time between default and the recording of any foreclosure documents. If such a requirement is imposed, it should only force a check that no foreclosure documents have been recorded.

*o. There must be a **current estimate of appraised value** to ensure that property-based debt does not exceed same.*
Using Assessor (in Colorado, the elected tax appraiser) "statutory actual value" should be adequate, but there is an issue here as to whether the reappraisal scheme in Colorado will meet the "**current**" standard set forth here, given it occurs only every two years and is based upon market data that is at minimum between 6 and 18 months old. Requiring current appraisals would add a significant cost burden, especially to smaller projects. The guidelines should specifically allow for the use of assessed values.

*p. Special assessments should be included in **escrows** set up by mortgage lenders to ensure timely payment.*
The County does not have an issue with this provision and we believe it could, in fact, alleviate a lot of the potential downside for mortgage lenders by itself, reducing the need for some of the other proposed program restrictions.

In addition to the concerns stated above, one important program protection is absent from the guidelines: The federal guidelines should require that PACE programs be administered by state or local governments or special districts. Some states have enacted PACE authorizing legislation that allows contractors and banks to place PACE liens upon a property without the protections to property owners and mortgage holders that are offered by a government run program. Again, this change in and of itself could go a long way to addressing mortgage holder concerns.

Attachment K: Text, H.R. 2599, The PACE Protection Act of 2011

112TH CONGRESS
1ST SESSION

H. R. 2599

To prevent Fannie Mae, Freddie Mac, and other Federal residential and commercial mortgage lending regulators from adopting policies that contravene established State and local property assessed clean energy laws.

IN THE HOUSE OF REPRESENTATIVES

JULY 20, 2011

Ms. HAYWORTH (for herself, Mr. THOMPSON of California, Mr. DANIEL E. LUNGREN of California, Mr. SENSENBRENNER, Mr. SESSIONS, Mr. FLORES, Mr. COLE, Mr. HANNA, Mr. DOLD, Mr. MANZULLO, Mrs. CAPPS, Ms. WOOLSEY, Mr. PERLMUTTER, Ms. MATSUI, and Mr. POLIS) introduced the following bill; which was referred to the Committee on Financial Services

A BILL

To prevent Fannie Mae, Freddie Mac, and other Federal residential and commercial mortgage lending regulators from adopting policies that contravene established State and local property assessed clean energy laws.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "PACE Assessment Protection Act of 2011".

SEC. 2. PURPOSE.

It is the purpose of this Act to ensure that those PACE programs which incorporate prudent programmatic safeguards to protect the interest of mortgage holders and property owners remain viable as a potential avenue for States and local governments to achieve the many public benefits associated with energy efficiency, water efficiency, and renewable energy retrofits. In addition, it is essential that the power and authority of State and local governments to exercise their longstanding and traditional powers to levy taxes for public purposes not be impeded.

SEC. 3. DEFINITIONS.

For purposes of this Act the following definitions apply:

(1) The term "local government" includes counties, cities, boroughs, towns, parishes, villages, districts, and other political subdivisions authorized under State laws to establish PACE programs.

(2) The term "PACE agreement" means an agreement between a local government and a property owner detailing the terms of financing for a PACE improvement.

(3) The term "PACE assessment" means a tax or assessment levied by a local government to provide financing for PACE improvements.

(4) The term "PACE improvements" means qualified clean energy improvements, qualified energy conservation and efficiency improvements, and qualified water conservation and efficiency improvements.

(5) The term "PACE lien" means a lien securing a PACE assessment, which may be senior to the lien of pre-existing purchase money mortgages on the same property subject to the PACE lien.

(6) The term "PACE program" means a program implemented by a local government under State law to provide financing for PACE improvements by levying PACE assessments.

(7) The term "residential property" means a property with up to 4 private residences.

(8) The term "non-residential property" means private property that is—

(A) not used for residential purposes; or

(B) residential property with 5 or more residences.

(9) The term "clean energy improvements" means any system on privately owned property for producing electricity for, or meeting heating, cooling, or water heating needs of the property, using renewable energy sources, combined heat and power sys-

tems, or energy systems using wood biomass (but not construction and demolition waste) or natural gas. Such improvements include solar photovoltaic, solar thermal, wood biomass, wind, and geothermal systems. Such term includes the reasonable costs of a study undertaken by a property owner to analyze the feasibility of installing any of the improvements described in this paragraph and the cost of a warranty or insurance policy for such improvements.

(10) The term "energy conservation and efficiency improvements" means measures to reduce consumption, through conservation or more efficient use, of electricity, fuel oil, natural gas, propane, or other forms of energy by the property, including air sealing, installation of insulation, installation of heating, cooling, or ventilation systems, building modification to increase the use of daylighting, replacement of windows, installation of energy controls or energy recovery systems, installation of building management systems, and installation of efficient lighting equipment, provided that such improvements are permanently affixed to the property. Such term includes the reasonable costs of an audit undertaken by a property owner to identify potential energy savings that could be achieved through instal-

lation of any of the improvements described in this paragraph.

(11) The term "water conservation and efficiency improvements" means measures to reduce consumption, through conservation or more efficient use of water by the property, including installation of low-flow toilets and showerheads, installation of timer or timing system for hot water heaters, and installation of rain catchment systems.

(12) The term "property owner" means the owner of record of real property that is subject to a PACE assessment, whether such property is zoned or used for residential, commercial, industrial, or other uses.

(13) The term "qualified" means, with respect to PACE improvements, that the improvements meet the criteria specified in section 5.

SEC. 4. TREATMENT OF PACE PROGRAMS BY FNMA AND FHLMC.

(a) LENDER GUIDANCE.—The Director of the Federal Housing Finance Agency, acting in the Director's general supervisory capacity, shall direct the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation to—

(1) issue guidance, within 30 days after the date of enactment of this Act, providing that the levy of a PACE assessment and the creation of a PACE lien do not constitute a default on any loan secured by a uniform instrument of Federal National Mortgage Association or Federal Home Loan Mortgage Corporation and do not trigger the exercise of remedies with respect to any provision of such uniform security instrument if the PACE assessment and the PACE lien meet the requirements of section 5;

(2) rescind any prior issued guidance or Selling and Servicing Guides that are inconsistent with the provisions of paragraph (1); and

(3) take all such other actions necessary to effect the purposes of this Act.

(b) PROHIBITION OF DISCRIMINATION.—The Director of the Federal Housing Finance Agency, the Comptroller of the Currency, the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation, the Federal Deposit Insurance Corporation, the National Credit Union Administration, the Board of Governors of the Federal Reserve System, and all Federal agencies and entities chartered or otherwise established under Federal law shall not discriminate in any manner

against States or local governments implementing or participating in a PACE program, or against any property that is obligated to pay a PACE assessment or is subject to a PACE lien, including, without limitation, by—

(1) prohibiting lending within such jurisdiction or requiring more restrictive underwriting criteria for properties within such jurisdiction;

(2) except for the escrowing of funds as permitted by section (5)(g)(2), requiring payment of PACE assessment amounts that are not due or that are not delinquent; or

(3) applying more restrictive underwriting criteria to any property that is obligated to pay a PACE assessment and is subject to a PACE lien than any such entity would apply to such property in the event that such property were subject to a State or municipal tax or assessment that was not a PACE assessment.

SEC. 5. PACE PROGRAMS ELIGIBLE FOR PROTECTION.

(a) IN GENERAL.—A PACE program, and any PACE assessment and PACE lien related to such program, are entitled to the protections of this Act only if the Program meets all of the requirements under this section at the time of its establishment, or, in the case of any PACE program in effect upon the date of the enact-

ment of this Act, not later than 60 days after such date of enactment.

(b) CONSUMER PROTECTIONS APPLICABLE TO RESIDENTIAL PROPERTY.—A PACE program shall provide, with respect to residential property, for the following:

(1) PROPERTY OWNER AGREEMENTS.—

(A) PACE ASSESSMENT.—The property owner shall agree in writing to a PACE assessment, either pursuant to a PACE agreement or by voting in the manner specified by State law. In the case of any property with multiple owners, each owner or the owner's authorized representative shall execute a PACE agreement or vote in the manner specified by State law, as applicable.

(B) PAYMENT SCHEDULE.—The property owner shall agree to a payment schedule that identifies the term over which PACE assessment installments will be due, the frequency with which PACE assessment installments will be billed and amount of each installment, and the annual amount due on the PACE assessment. Upon full payment of the amount of the PACE assessment, including all outstanding interest and charges and any penalties that may

become due, the local government shall provide the participating property owner with a written statement certifying that the PACE assessment has been paid in full and the local government shall also satisfy all requirements of State law to extinguish the PACE lien.

(2) DISCLOSURES BY LOCAL GOVERNMENT.—The local government shall disclose to the participating property owner the costs and risks associated with participating in the PACE program, including risks related to their failure to pay PACE assessments and the risk of enforcement of PACE liens. The local government shall disclose to the property owner the effective interest rate of the PACE assessment, including all program fees. The local government shall clearly and conspicuously provide the property owner the right to rescind his or her decision to enter into a PACE assessment, within 3 days of the original transaction.

(3) NOTICE TO LIENHOLDERS.—Before entering into a PACE agreement or voting in favor of a PACE assessment, the property owner or the local government shall provide to the holders of any existing mortgages on the property written notice of the terms of the PACE assessment.

(4) CONFIDENTIALITY.—Any personal financial information provided by a property owner to a local government or an entity administering a PACE program on behalf of a local government shall comply with applicable local, State, and Federal laws governing the privacy of the information.

(c) REQUIREMENTS APPLICABLE ONLY TO NON-RESIDENTIAL PROPERTY.—A PACE program shall provide, with respect to non-residential property, for the following:

(1) AUTHORIZATION BY LIENHOLDERS.—Before entering into a PACE agreement with a local government or voting in favor of PACE assessments in the manner specified by State law, the property owner shall obtain written authorization from the holders of the first mortgage on the property.

(2) PACE AGREEMENT.—

(A) TERMS.—The local government and the owner of the property to which the PACE assessment applies at the time of commencement of assessment shall enter into a written PACE agreement addressing the terms of the PACE improvement. In the case of any property with multiple owners, the PACE agreement shall be signed by all owners or their legally authorized representative or representatives.

(B) PACE IMPROVEMENTS.—The property owner shall contract for PACE improvements, purchase materials to be used in making such improvements, or both, and upon submission of documentation required by the local government, the local government shall disburse funds to the property owner in payment for the PACE improvements or materials used in making such improvements.

(C) PAYMENT SCHEDULE.—The PACE agreement shall include a payment schedule showing the term over which payments will be due on the assessment, the frequency with which payments will be billed and amount of each payment, and the annual amount due on the assessment. Upon full payment of the amount of the assessment, including all outstanding interest and charges and any penalties that may become due, the local government shall provide the participating property owner with a written statement certifying that the assessment has been paid in full and the local government shall also satisfy all requirements of State law to extinguish the PACE lien.

(3) DISCLOSURES BY LOCAL GOVERNMENT.—The local government shall disclose to the participating property owners the costs and risks associated with participating in the program, including risks related to their failure to make payments and the risk of enforcement of PACE liens.

(4) CONFIDENTIALITY.—Any personal financial information provided by a property owner to a local government or an entity administering a PACE program on behalf of a local government shall comply with applicable local, State, and Federal laws governing the privacy of the information.

(d) PUBLIC NOTICE OF PACE ASSESSMENT.—The local government shall file a public notice of the PACE assessment in a manner sufficient to provide notice of the PACE assessment to potential lenders and potential purchasers of the property. The notice shall consist of the following statement or its substantial equivalent: "This property is subject to a tax or assessment that is levied to finance the installation of qualifying energy and water conservation and efficiency improvements or clean energy improvements. The tax or assessment is secured by a lien that is senior to all private liens.".

(e) ELIGIBILITY OF RESIDENTIAL PROPERTY OWNERS.—Before levying a PACE assessment on a property,

the local government shall ensure that all of the following are true with respect to the property:

(1) All property taxes and any other public assessments are current and have been current for 3 years or the property owner's period of ownership, whichever period is shorter.

(2) There are no involuntary liens, such as mechanics liens, on the property in excess of $1,000.

(3) No notices of default and not more than one instance of property-based debt delinquency have been recorded during the past 3 years or the property owner's period of ownership, whichever period is shorter.

(4) The property owner has not filed for or declared bankruptcy in the previous 7 years.

(5) The property owner is current on all mortgage debt on the property.

(6) The property owner or owners are the holders of record of the property.

(7) The property title is not subject to power of attorney, easements, or subordination agreements restricting the authority of the property owner to subject the property to a PACE lien.

(8) The property meets any geographic eligibility requirements established by the PACE program.

The local government may adopt additional criteria, appropriate to PACE programs, for determining whether to provide PACE financing to a property.

(f) QUALIFYING IMPROVEMENTS AND QUALIFYING CONTRACTORS FOR RESIDENTIAL PROPERTIES.—PACE improvements for residential properties shall be qualified if they meet the following criteria:

(1) AUDIT.—For clean energy improvements and energy conservation and efficiency improvements, an audit or feasibility study performed by a person who has been certified as a building analyst by the Building Performance Institute or as a Home Energy Rating System (HERS) Rater by a Rating Provider accredited by the Residential Energy Services Network (RESNET); or who has obtained other similar independent certification shall have been commissioned by the local government or the property owner and the audit or feasibility study shall—

(A) identify recommended energy conservation, efficiency, and/or clean energy improvements and such recommended improvements must include the improvements proposed to be

financed with the PACE assessment to the extent permitted by law;

(B) estimate the potential cost savings, useful life, benefit-cost ratio, and simple payback or return on investment for each improvement; and

(C) provide the estimated overall difference in annual energy costs with and without the recommended improvements.

State law may provide that the cost of the audit and the cost of a warranty covering the financed improvements may be included in the total amount financed.

(2) AFFIXED FOR USEFUL LIFE.—The local government shall have determined the improvements are intended to be affixed to the property for the entire useful life of the improvements based on the expected useful lives of energy conservation, efficiency, and clean energy measures approved by the Department of Energy.

(3) QUALIFIED CONTRACTORS.—The improvements must be made by a contractor or contractors, determined by the local government to be qualified to make the PACE improvements. A local government may accept a designation of contractors as

qualified made by an electric or gas utility or another appropriate entity. Any work requiring a license under applicable law shall be performed by an individual holding such license. A local government may elect to provide financing for improvements made by the owner of the property, but shall not permit the value of the owner's labor to be included in the amount financed.

(4) DISBURSEMENT OF PAYMENTS.—A local government must require, prior to disbursement of final payments for the financed improvements, submission by the property owner in a form acceptable to the local government of—

(A) a document signed by the property-owner requesting disbursement of funds;

(B) a certificate of completion, certifying that improvements have been installed satisfactorily; and

(C) documentation of all costs to be financed and copies of any required permits.

(g) FINANCING TERMS APPLICABLE ONLY TO RESIDENTIAL PROPERTY.—A PACE program shall provide, with respect to residential property, for the following:

(1) AMOUNT FINANCED.—PACE improvements shall be financed on terms such that the total energy

and water cost savings realized by the property owner and the property owner's successors during the useful lives of the improvements, as determined by the audit or feasibility study pursuant to subsection (f)(1), are expected to exceed the total cost to the property owner and the property owner's successors of the PACE assessment. In determining the amount that may be financed by a PACE assessment, the total amount of all rebates, grants, and other direct financial assistance received by the owner on account of the PACE improvements shall be deducted from the cost of the PACE improvements.

(2) PACE ASSESSMENTS.—The total amount of PACE assessments for a property shall not exceed 10 percent of the estimated value of the property. A property owner who escrows property taxes with the holder of a mortgage on a property subject to PACE assessment may be required by the holder to escrow amounts due on the PACE assessment, and the mortgage holder shall remit such amounts to the local government in the manner that property taxes are escrowed and remitted.

(3) OWNER EQUITY.—As of the effective date of the PACE agreement or the vote required by State

law, the property owner shall have equity in the property of not less than 15 percent of the estimated value of the property calculated without consideration of the amount of the PACE assessment or the value of the PACE improvements.

(4) TERM OF FINANCING.—The maximum term of financing provided for a PACE improvement may be 20 years. The term shall in no case exceed the weighted average expected useful life of the PACE improvement or improvements. Expected useful lives used for all calculations under this paragraph shall be consistent with the expected useful lives of energy conservation and efficiency and clean energy measures approved by the Department of Energy.

(h) COLLECTION AND ENFORCEMENT.—A PACE program shall provide that—

(1) PACE assessments shall be collected in the manner specified by State law;

(2) notwithstanding any other provision of law, in the event of a transfer of property ownership through foreclosure, the transferring property owner may be obligated to pay only PACE assessment installments that are due (including delinquent amounts), along with any applicable penalties and interest, except that before imposition of any pen-

alties or fees, the PACE program shall provide an opportunity to any holder of a senior lien on the property to assume payment of the PACE assessment;

(3) PACE assessment installments that are not due may not be accelerated by foreclosure except as provided by State law; and

(4) payment of a PACE assessment installment from the loss reserve established for a PACE program shall not relieve a participating property owner from the obligation to pay that amount.

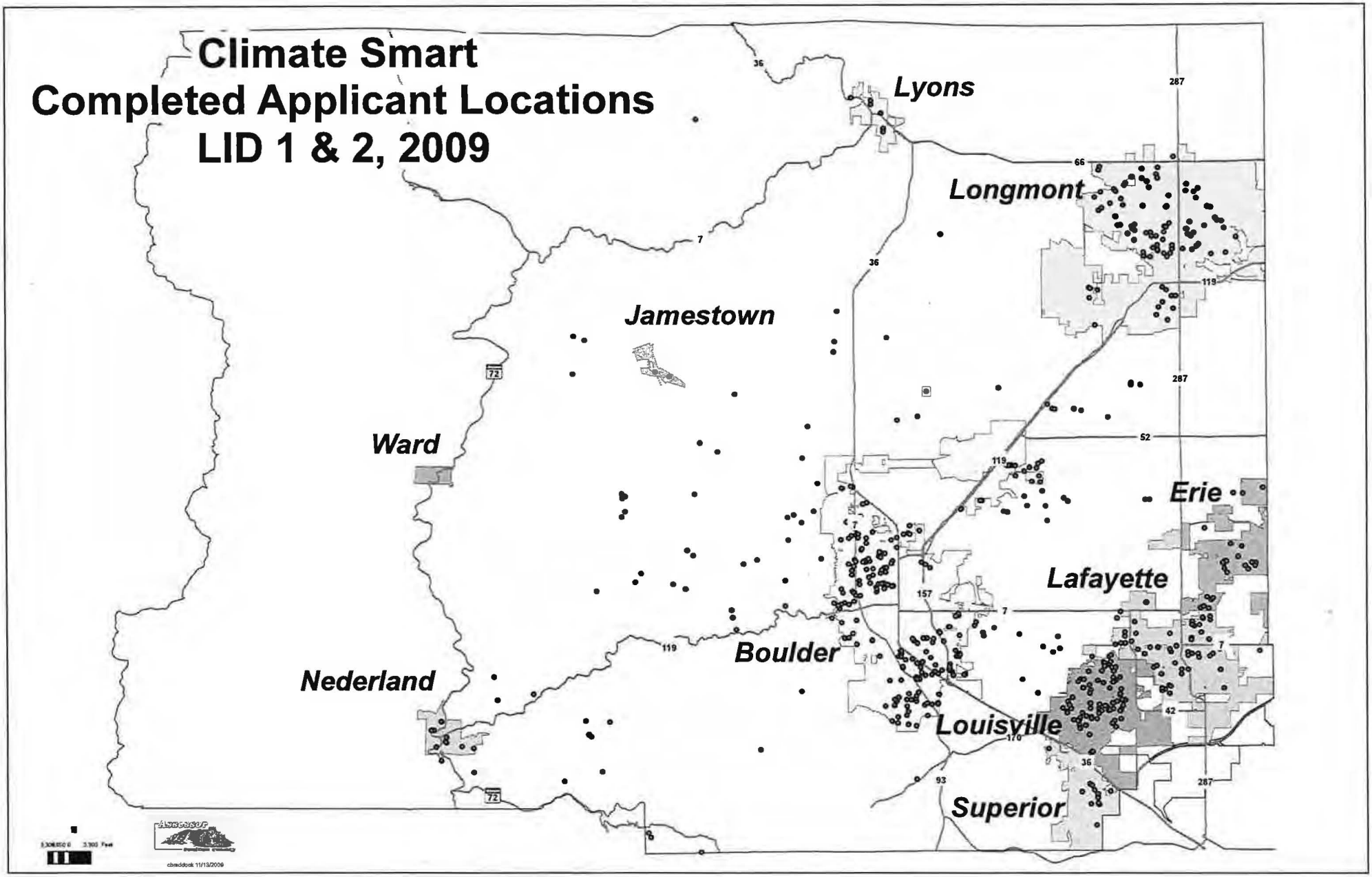
○

Attachment L: ClimateSmart Loan Program, Participants and Amount Spent per Measure

CLIMATESMART LOAN PROGRAM, PARTICIPANTS & AMOUNT SPENT PER MEASURE						
	Round 1 of Funding (Apr 2009)		Round 2 of Funding (Nov 2009)		Total	
Measure	Number Of Participants	Amount Spent	Number Of Participants	Amount Spent	Number Of Participants	Amount Spent
Air sealing	72	$119,855.46	56	$63,340.86	128	$183,196.32
Attic	162	$281,085.18	88	$120,691.11	250	$401,776.29
Attic fan	16	$14,311.03	10	$7,053.00	26	$21,364.03
Automatic pool cover	3	$16,838.18	1	$390.00	4	$17,228.18
Boiler	22	$220,130.80	6	$52,787.00	28	$272,917.80
Central air conditioner	15	$68,742.00	6	$26,112.00	21	$94,854.00
Demand/tankless	49	$178,075.07	17	$64,463.00	66	$242,538.07
Duct sealing	21	$12,234.76	15	$5,386.00	36	$17,620.76
Ducts (in unconditioned space)	14	$10,616.00	5	$4,248.00	19	$14,864.00
Energy or heat recovery ventilator	4	$11,878.88	4	$5,860.00	8	$17,738.88
Evaporative cooler	28	$121,022.08	11	$40,019.00	39	$161,041.08
Exterior windows and glass doors	135	$1,208,046.41	87	$715,933.26	222	$1,923,979.67
Fixtures, ballasts	9	$4,799.00	1	$798.00	10	$5,597.00
Floor (over unconditioned space)	31	$32,127.00	25	$25,169.50	56	$57,296.50
Focused on heating/cooling	1	$825.00	1	$6,084.00	2	$6,909.00
Ground source heat pump	2	$67,200.00	0	$0.00	2	$67,200.00
High efficiency furnace	83	$436,052.91	41	$201,930.37	124	$637,983.28
High efficiency natural gas storage	13	$32,277.00	11	$15,330.81	24	$47,607.81
Hot tub	2	$10,500.00	0	$0.00	2	$10,500.00
Insulating exterior doors	42	$118,768.76	29	$92,674.56	71	$211,443.32
Insulating shutters	2	$2,442.50	0	$0.00	2	$2,442.50
Lightshelves	1	$1,028.50	0	$0.00	1	$1,028.50
Metal or asphalt roof	34	$327,642.17	17	$136,841.15	51	$464,483.32
New Centralized wood-burning boilers (Only all electric homes)	2	$9,269.17	1	$4,286.35	3	$13,555.52
New High efficiency fireplaces and fireplace inserts (Only all electric homes)	2	$10,359.38	1	$4,199.28	3	$14,558.66

Perimeter (foundation)	36	$42,156.50	22	$32,079.73	58	$74,236.23
Programmable Thermostats	22	$8,875.00	9	$2,132.00	31	$11,007.00
Radiant heating and cooling (floor, wall, and ceiling)	6	$34,924.00	1	$17,967.00	7	$52,891.00
Replacement Advanced combustion wood stoves (Only retrofits of existing fireplaces are eligible, not . newly constructed fireplaces)	5	$17,865.71	3	$14,761.19	8	$32,626.90
Replacement High efficiency fireplaces and fireplace inserts (Only retrofits of existing fireplaces are eligible)	11	$45,885.64	5	$11,036.24	16	$56,921.88
Replacement Pellet stove (Only upgrades to a more efficient model)	1	$6,246.61	0	$0.00	1	$6,246.61
Rooftop (Includes replacement for orphan solar hot water systems)	44	$430,921.09	5	$34,514.50	49	$465,435.59
Skylights	14	$36,448.59	3	$2,497.00	17	$38,945.59
Solar photovoltaics	139	$2,330,110.03	90	$1,261,055.57	229	$3,591,165.60
Storm windows	9	$25,672.32	5	$44,375.61	14	$70,047.93
Timers sensors	7	$4,019.44	0	$0.00	7	$4,019.44
Tubular skylights	16	$29,668.28	13	$18,069.50	29	$47,737.78
Wall	86	$212,282.74	34	$110,482.11	120	$322,764.85
Whole house fan	25	$39,200.39	22	$36,746.30	47	$75,946.69

Attachment M: ClimateSmart Loan Program, Completed Applicant Locations


Climate Smart
Completed Applicant Locations
LID 1 & 2, 2009
Lyons
Longmont
Jamestown
Ward
Nederland
Boulder
Lafayette
Erie
Louisville
Superior
287
66
36
7
119
72
52
157
170
93
42

Attachment N: "Economic Impacts from the Boulder County, Colorado, ClimateSmart Loan Program: Using Property-Assessed Clean Energy (PACE) Financing"

Economic Impacts from the Boulder County, Colorado, ClimateSmart Loan Program: Using Property-Assessed Clean Energy (PACE) Financing

Marshall Goldberg and Jill K. Cliburn
MRG & Associates

Jason Coughlin
National Renewable Energy Laboratory

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

Technical Report
NREL/TP-7A20-52231
July 2011

Contract No. DE-AC36-08GO28308

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Economic Impacts from the Boulder County, Colorado, ClimateSmart Loan Program: Using Property-Assessed Clean Energy (PACE) Financing

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National Renewable Energy Laboratory

Prepared under Task No. SM10.1710

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

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Technical Report
NREL/TP-7A20-52231
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Sponsor

This report was made possible through funding from the U.S. Department of Energy (DOE) Solar America Communities program. The Solar America Communities program is designed to increase the use and integration of solar energy in communities across the United States. Through federal-local partnerships and nationwide outreach, DOE supports local governments' efforts to accelerate adoption of solar energy. To learn more, please visit www.solaramericacommunities.energy.gov.

Acknowledgment

This publication was developed for the National Renewable Energy Laboratory by MRG & Associates under Subcontract No. AGG-0-40291-01. The document is not legal or tax advice or a legal opinion on specific facts or circumstances. The contents are intended for informational purposes only. The authors are solely responsible for errors and omissions.

List of Acronyms

CSLP	ClimateSmart Loan Program (Boulder County, Colo.)
DOE	U.S. Department of Energy
FHFA	Federal Housing Finance Agency
IMPLAN	Impact Analysis for Planning Model
HELOC	home equity line of credit
I-O	input-output (economic analysis)
PV	photovoltaic (rooftop solar electric system)
TAA	Trade Adjustment Assistance Program

Table of Contents

Executive Summary

This report examines the economic impacts (including job creation) from the Boulder County, Colorado, ClimateSmart Loan Program (CSLP), an example of Property-Assessed Clean Energy (PACE) financing. The CSLP was the first test of PACE financing on a multi-jurisdictional level (involving individual cities as well as the county government). It was also the first PACE program to comprehensively address energy efficiency measures and renewable energy, and it was the first funded by a public offering of both taxable and tax-exempt bonds. The first phase of the residential CSLP financed about $9.8 million in residential energy retrofits, most of which were completed in 2009. This report focuses on 598 project invoices and $9.0 million in project spending.

The report provides a program overview and economic impact analysis of program spending and energy savings using an input-output (I-O) model. The report also provides a qualitative assessment of factors that affected the resulting economic impacts, and profiles some program participants and contractors. The analysis focuses on Boulder County benefits but also includes an assessment of associated statewide economic benefits.

Results of the analysis indicate that:

- CSLP spending in Boulder County alone contributed to 85 short-term jobs, more than $5 million in earnings, and almost $14 million in economic activity in the county.
- CSLP spending supported another 41 short-term jobs throughout the state but outside of Boulder County, $2 million in additional earnings, and almost $6 million in additional economic activity statewide.
- Assuming the program were extended with the same annual funding and participation, the 5- and 10-year trajectory of economic impacts would forecast additional benefits and sustained job opportunities.
- Reduced energy use saved participants a combined total of about $125,000 during the first year on their electric and gas utility bills.

Total CSLP costs for Phase 1, including the development of a risk-management reserve fund, loan fees, loans, and other costs, totaled about $13 million. Short-term, in-county benefits alone exceed this investment. Statewide economic benefits enhance the program value.

From a qualitative perspective, there are indications that declining program implementation costs (including interest rates and costs related to the reserve fund, as well as marketing and administrative fine-tuning) would improve economic results in future CSLP funding cycles.

Program design decisions, including one that brought in a high percentage of out-of-town contractors, resulted in many of the economic benefits leaking from the local economy. Yet the program had a variety of objectives, including not only creating local jobs but also reducing greenhouse gas emissions from a range of measures. Some products and skill sets needed to meet these objectives were not readily available in the county. Further, the CSLP aimed to prime the pump for green jobs development in the county and statewide. By far, the greatest number of jobs gained (57% of in-county jobs) were related to solar photovoltaic (PV) projects. However, the

first-year energy savings from PV are relatively small compared to the upfront cost of a PV installation, which is designed for long-term (30-year), fuel-free operation.

The qualitative assessment reveals that the CSLP spurred significant energy retrofit spending beyond that reflected on loan applications. Many residents attended CSLP informational sessions to learn more about potential home improvements, but then ended up financing those improvements through channels other than the CSLP, such as home equity lines of credit (HELOC), cash, or in the case of PV systems, leasing the system from a solar company. Cash spending and alternatively financed spending probably increased the total of all program-related spending by 20% or more. Most of this spending escaped documentation because it encompasses many possibilities, from the PV system that was purchased using home-equity lending to the replacement of leaky windows with those of a better quality, that did not meet loan qualification standards. Additionally, there were expenditures for retrofit-related paint jobs and cosmetic improvements, as well as major home remodels inspired by the availability of low-interest financing for at least part of the job. The relationship of these expenditures to the CSLP program was confirmed by surveys of CSLP workshop registrants and energy project contractors. CSLP program participants profiled in this report shed extra light on how the availability of PACE financing spurred the market for energy efficiency and renewables.

The Boulder County ClimateSmart program is one of only a handful of local PACE financing programs that reached implementation before the Federal Housing Finance Agency (FHFA) effectively placed a moratorium on such programs in July 2010. The CSLP proceeded with implementing a commercial PACE program, but it suspended the residential program, which was poised for Phase 2 implementation. The findings of this study show that continuing the CSLP would have additional benefits well beyond the increased cost-effectiveness from administrative and marketing lessons learned. These benefits include:

- Significant, long-term utility bill savings for participants.
- Job creation for Boulder County every year, including more than 90 jobs in 2020 alone if the program were continued to that year.
- An increase in overall economic activity in the county every year for the duration of the program. Countywide economic output in 2020 alone would increase by approximately $15 million.
- Expansion of statewide economic impacts and the likelihood that a growing market for energy efficiency and renewables could attract higher-value manufacturing and related job benefits to the state.

Arguably, programs like the CSLP "prime the pump" establish a market for energy efficiency and renewable energy products that could be manufactured profitably in-state, creating much greater job impacts and economic benefits.

1 Introduction

The Boulder County, Colorado, ClimateSmart Loan Program (CSLP) was the first test of Property-Assessed Clean Energy (PACE) financing on a multi-jurisdictional level (involving individual cities as well as the county government). It was also the first PACE program to comprehensively address energy efficiency measures and renewable energy, and it was the first funded by a public offering of both taxable and tax-exempt bonds. Initiated in 2009, the first phase of the CSLP included two rounds of residential project financing and resulted in about $9.8 million in project loans. Associated program costs and fees and funding of a reserve account for the bonds added $3.2 million, for a total of about $13 million in Phase 1 program spending. This makes it the second largest PACE financing program in operation through mid-2010, second to Sonoma County, California ($32.8 million).

The 2008 ballot measure that funded the CSLP authorized Boulder County to issue up to $40 million in bonds, including $14 million in tax-exempt bonds. The tax-exempt bonds were intended for low-income-qualified projects. Subsequently, the county sponsored two bond issues for Phase 1 residential financing. County administrators planned a second phase of the program to begin by mid-2010 for additional residential and commercial financing. However, due to a freeze on residential PACE programs nationwide that was imposed by federal mortgage agencies, Boulder County suspended residential CSLP financing indefinitely. As it was not directly affected by the freeze, the $12 million commercial program moved forward. Boulder County's first commercial CSLP round closed in August 2010.

The CSLP is one of several programs under a countywide Sustainable Energy Plan, which has key goals in (1) reducing greenhouse gas emissions, (2) improving the environment, (3) saving energy, and (4) providing direct and indirect economic benefits. This study focuses on economic benefits, specifically those from Phase 1 of the residential CSLP. It looks at 598 energy home improvement loans that together comprise just over $9 million in energy efficiency and renewable energy spending through program loans[1] and asks questions such as: How much money was spent in the county and in the state in order to meet home retrofit needs for materials and labor? What was the total related energy bill savings? How did direct and indirect investment in energy efficiency and renewable energy measures generate jobs? What kinds of jobs and where? How might the respending of energy bill savings and related business income result in additional economic benefits and jobs of all kinds?

Though it is specific to the Boulder County experience, this study also sheds light on how the PACE financing model creates economic benefits and how these benefits could be increased. It highlights the drivers of green jobs development locally, statewide, and nationally. It also spotlights common challenges, from the need for longer test periods that would allow administrators to work out program kinks, to the need for innovative ways to promote local contractors when PACE communities are part of large, interdependent metro areas.

[1] The economic analysis for this report drew upon available participant invoice data, which was available for just over $9 million in CSLP lending. This analysis does not include spending on loan fees or required reserves. A small number of customers delayed spending their approved loan dollars, and their spending was not included in this analysis.

Although this study is not a process evaluation, some aspects of program implementation that bear on the economic impacts of the CSLP program are discussed. In this way, the study presents this ClimateSmart program as a useful model for future community-based, energy-related financing programs.

1.1 PACE Financing 2007-2010

Property-Assessed Clean Energy (PACE) financing, or the creation of energy financing districts, is a tool that local governments may use to give residents and business owners access to financing on terms that are well-suited to energy efficiency and renewable energy building improvements. Local governments—including cities, counties, and other entities with taxing authority—may issue bonds that generally have no recourse and provide financing with little or no money down, to be repaid through a 15- to 20-year assessment on each participant's property taxes. If a property owner sells a PACE-assessed home or business, the assessment stays with the property, with responsibility passing to the next owner until the debt is paid.

Thus, PACE addresses three major barriers to energy efficiency and renewable energy (solar PV) investment:

1. Lack of capital. PACE financing programs usually require low fees and no money down for qualified participants.
2. Lack of long-term commitment. Because homeowners in the United States tend to move every seven years or less, they like the fact that PACE assessments are transferable to new property owners.[2]
3. Lack of quality assurance. PACE programs typically address this barrier by offering energy audits or workshops to educate consumers, and they typically place some requirements for quality assurance on participating contractors.

The idea of land-secured financing districts is not new. Such districts support a myriad of local improvements. As with PACE districts, some of these assess costs only upon the beneficiaries. For example, assessments may finance individual hook-ups to city water, to replace individual wells. Property-assessed financing is not legally a loan, though many PACE programs (including Boulder County's) use the term "loan" because it is widely recognized shorthand for debt financing.

The first PACE program in the United States was proposed by the City of Berkeley, California, in 2007 and pilot-tested in 2008 as a way to finance residential solar projects. The concept caught on quickly. By mid-year 2010, 22 states and the District of Columbia had legislation in place to enable PACE programs. About a dozen local programs had started, from Annapolis, Maryland, to Milwaukee, Wisconsin, and Yucaipa, California. The U.S. Department of Energy (DOE) began providing technical assistance and outreach to a number of grant recipients of American Recovery and Reinvestment Act (ARRA) funding.

[2] While the PACE lien legally transfers to the next homeowner, it may be subject to negotiation at the time of sale.

However, federal housing regulators, including the Federal Housing Finance Agency (FHFA) and the Office of the Comptroller of the Currency, expressed safety and soundness concerns with the PACE concept. In July 2010, FHFA released a statement directing the federally backed lenders Fannie Mae, Freddie Mac, and the Federal Home Loan Banks to undertake actions to address safety and soundness concerns in PACE jurisdictions (i.e., adjust underwriting criteria for borrowers in PACE jurisdictions). The FHFA's primary complaint was that most PACE programs gave the energy-related property assessments primary lien status, meaning that the tax assessment would be repaid before the mortgage in the case of a foreclosure. The agency also expressed concern about the stringency of underwriting standards and consumer protections in residential PACE financing programs.

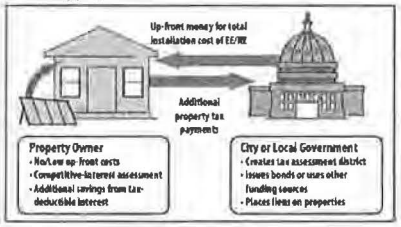


Figure 1. Basic PACE financing process. ***Source: NREL 2010***

The result of the FHFA decision was an indefinite moratorium on nearly all residential PACE programs nationwide. A few residential PACE programs have continued to offer financing, as have certain commercial PACE programs, such as one in Boulder County. As of fall 2010, initiatives that prescribe secondary liens on PACE projects, such as one in Maine, were also in effect. The option for secondary liens has not caught on, as there is no secondary market for bonds tied to this type of investment.

A federal legislative remedy stalled in Congress in fall 2010. Several PACE program sponsors and advocacy groups have brought lawsuits, which are currently pending against FHFA. Some local energy program sponsors have announced plans to keep working on solutions, reviving PACE or working with alternative local financing strategies.[3]

[3] PACE Financing Sources:
B. Speer and R. Koenig, Property-Assessed Clean Energy (PACE) Financing of Renewables and Efficiency, NREL Energy Analysis Fact Sheet Series on Financing Renewable Energy Projects, National Renewable Energy Laboratory, July 2010. (www.nrel.gov).
M. Zimring, I. Hoffman, and M. Fuller, Pace Status Update, Clean Energy Financing Policy Brief, Lawrence Berkeley National Laboratory Environmental Energy Technologies Division, August 2010. (www.eetd.lbl.gov).
J. Farrell, New Rules Project, PACE Presentation: Overview, Update, and Future, for the Southwest Renewable Energy Conference, Santa Fe, New Mexico, September 2010. (www.newrules.org)

1.2 Assessing PACE Economic Benefits

The Boulder County ClimateSmart program made national news when voters passed the program's first bond measure. The implementation of the residential program in Spring through Fall 2009 also won national recognition for its speed to market and widespread reach, encompassing 40 residential measures and attracting participation from 300 contractors. When CSLP launched, Boulder County unemployment was rising. According to county economic development staff, the ratio of applicants to job openings—which for years never averaged more than 10 to 1—surged past 20 to 1 in early 2009. Local policymakers hoped the CSLP could address many goals, including job creation.

This economic analysis will be limited by a number of factors. First, this is by definition a study of early results from a first-time effort. The market for a first-time program typically includes many early adopters, and their behavior differs from that of all homeowners. In addition, the energy bill savings used in this analysis, which were based on usage during the first year after the improvements were made, are likely to differ from average savings over future years. This is because it takes some time for customers to perceive and respond (i.e., adjust habits) to changes such as increased comfort, lower bills, etc. Also by definition, this study is focused on the homeowners who followed through the entire program process and used program financing for specific home improvements. Yet the program spurred other improvements that ultimately used alternative financing or cash. Those program-inspired investments had economic impacts that were not specifically documented. This analysis does not quantify every economic impact, but it provides a framework for understanding the range of impacts and how they might occur.

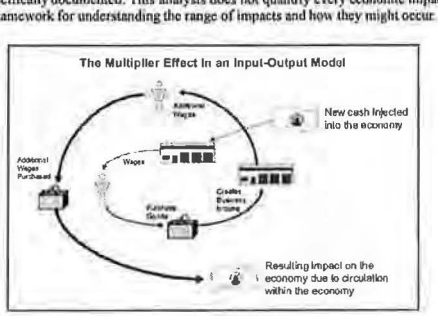


Figure 2. The recirculation of dollars spent on energy efficiency or renewable energy measures is known as the multiplier effect.

In short, jobs and growth in economic activity are related to spending and the circulation of money in the economy. The full impacts on jobs, earnings, and economic activity of investments in CSLP energy measures and the resulting energy bill savings are captured by evaluating the impacts for each change in spending. Note that dollars spent on energy efficiency-related home

improvements create much greater economic benefits and more local jobs than do dollars spent to pay utility bills and build power plants. Figure 2 summarizes the way these dollars circulate from local energy program spending and the resulting benefits. Additional background on economic modeling and specific inputs from the Boulder County CSLP will be discussed in Section 2 of this report, Economic Analysis.

1.3 Program Attributes that Affected Outcomes

Only a handful of PACE programs completed funding rounds by mid-2010, and each of these programs had different goals, target markets, and program implementation plans. The differences and similarities among these programs are discussed in the appendix of this report and summarized in Table A1. Readers of this report should bear in mind that each local PACE program or related financing program yields unique economic results, as well as more universally applicable lessons.

Boulder County's program, conceived in 2008, was unique in its emphasis on climate protection. Economic development was only one of four goals:

- Reduced greenhouse gas emissions
- Reduced environmental impacts, such as air pollution and water use
- Energy savings, with accompanying bill savings in all sectors
- Economic benefits, including green jobs creation.

In Boulder, program planners wanted to encourage a broader range of measures, in part, to improve the average cost per unit of greenhouse gas reduction. The list of qualifying improvements included air sealing and ventilation; insulation, space heating and cooling; water heating; lighting and daylighting; energy efficient windows and doors; reflective roofs; pool equipment; landscaping (e.g., strategically planted trees), and installation of solar PV, solar water heating, small wind turbines, wood/pellet stoves, and much more. Program planners particularly wanted to balance interest in solar PV against low-cost/high-savings measures such as air sealing.

Boulder's emphasis on public education affected the program outcome, as residents were presented with several options for achieving energy savings—besides using PACE financing. CSLP applicants were required to attend an introductory workshop. There, they learned about technologies, program procedures, and the availability of technical support. For example, Boulder County offered a subsidized energy audit, as well as free phone counseling to help customers prioritize investments.

The CSLP addressed the goal of local jobs development, primarily by creating a market for energy efficiency and renewable energy measures that could spur local businesses of many types. Program administrators worked closely with contractors who volunteered their time to help promote the program and support educational workshops. The program paid workshop trainers, but there was mutual benefit for all contractors who pitched in. Press coverage for the program was strong in local newspapers, including photos and interviews with Boulder-area contractors. One paper named the loan program team their "People of the Year" for 2009, giving front-page

coverage to the program and its jobs-development goals.[4] Yet in many ways, program designers opted for simplicity and speed to market, rather than fine-tuned jobs-development strategies. For example, the program only required that participating contractors be licensed in the communities they served. About 300 contractors from across the Denver area ultimately received at least one payment from the program, and of these, more than 40% were from outside of Boulder County (see map on page 40). The number of out-of-county contractors was partly justified by the breadth of qualifying measures. It also was an indication of business appetite for this type of program. One Boulder County contractor who was interviewed (see sidebar below) suggested that contractors in the energy retrofit business need to go wherever the work is—in this case, anywhere within the Denver metro area. Nevertheless, the open invitation to contractors resulted in many energy retrofit dollars leaving Boulder County.

[4] White, Pamela, "2009 Boulder County People of the Year: Team ClimateSmart," *Boulder Weekly*, December 24, 2009.

The Long View—Bestway Insulation

Debbie Weingardt, who owns and manages Bestway Insulation in Lafayette (Boulder County), said she has seen too many workers come and go since her business opened in 1976. "I was excited about the [CSLP], but I'd learned long ago to be cautious about growing my business too fast," Weingardt said.

She estimated as much as a quarter of her $2 million annual revenue in 2009 came from the CSLP, and she added employees to handle the work. Altogether, the business has 25 full-time employees. But Weingardt said that some of the job impact from CSLP might be hidden by two factors: first, her business is affected by the ebb and flow of several incentive programs in the region, and second, she prefers to add hours for existing employees before she commits to hiring anyone new.

Weingardt says she makes a commitment to her employees, including paying for training from the Building Performance Institute and counseling good workers on how to advance their careers from labor to sales and management jobs. She has promoted many employees over the years, she said. Weingardt has also struggled to keep workers on when the fates turn. "I've been known for trying to keep employees on until it almost bankrupts me," she said, recalling at least one time when she took out a loan in order to meet payroll. "It's hard to not have consistency in this business," she said. Boulder's ClimateSmart Loan Program had the greatest single impact of any of these programs, she said. When the freeze on ClimateSmart started to take effect, Bestway let four workers go, Weingardt said. But following new leads, Bestway began sending trucks to Fort Collins (north of Boulder County), which has just launched a new energy efficiency rebate program.

According to Weingardt, the challenges of building the energy efficiency industry and a green-jobs economy are hard to meet when small companies like hers must keep changing their business plans in order to succeed. She said that she has participated on several state and local committees to advise on green jobs development, where her message has been to stress the need for multi-year programs, to open the pipeline from solid job training to secure employment.

Photo by Dennis Schroeder, NREL/PIX 17963

The involvement of many contractors (a simple ratio of about one contractor for every two homes served) spread the benefits of the CSLP thin, so that most companies would not see a big change in their volume of work. Some contractors reported that they appreciated the extra hours for their workers but did not feel justified in hiring new employees because of the CSLP. Other contractors, notably in solar businesses, reported a marked surge in business, which triggered new hires. These impacts are discussed in greater detail in Section 3 of this report, Qualitative Assessment.

The bottom line is that, Phase 1 of the CSLP produced significant jobs-development benefits. Section 2 of this report details how the program created more than 85 jobs from in-county spending alone and at least 126 jobs statewide. Boulder County leaders embraced a secondary goal to reach out beyond the county line and contribute to PACE start-ups statewide. County staff advised leaders in Eagle, Pitkin, and Gunnison counties in Colorado, as they approved their own PACE programs. In this light, the benefits that flowed out of Boulder County had far-reaching effects that could be widely shared.

1.4 CSLP Implementation Steps

Before analyzing its impacts, it is useful to review how Phase 1 of the Boulder County CSLP worked. Program guidelines allowed for:

- Fifteen- (15-) year loans
- Minimum borrowing: $3,000 per home
- Maximum borrowing: For open loans (using taxable bonds), up to 20% of the actual value of the property, or $50,000, whichever is less. For income-qualified loans (using tax- exempt bonds), up to $15,000. For Phase 1 residential projects, interest rates ranged from 5.2% to 6.8% depending on the type of bond and the issue.

Because Boulder County intended to take its project-finance bonds to market, it had to prequalify projects and bundle them together. This led to a multi-step process:

1. Participant attends Home Energy 101 Workshop. The workshop reviews the process, the 40 qualified measures, and the costs and the benefits of making such improvements.
2. Participant obtains two or more bids and submits a preliminary online application.
3. County prequalifies the participant, who then completes a detailed application and submits it with a $75 fee.
4. Participant awaits the aggregated bond issue and notification that the work may proceed.
5. Once the bond is issued and the homeowner receives notice that work may proceed, the contractor or multiple contractors complete work on each home.
6. Contractor submits the final invoice, permit/inspection paperwork, and the participant's approval, for full payment from the county.
7. Participant receives notice of additional payment due on the next property tax bill, and will continue payments through property taxes for 15 years or until the property (and responsibility for tax payments) changes hands.

Program participants paid a $75 application fee and other fees (approximately 4%) added to their principle. The fees covered the cost of issuing the bond, the cost for program and administration staff, and other program costs. The total budget for CSLP Phase 1 was about $800,000, plus $2.4 million was set aside as a reserve fund to help secure the bonds. Participant fees covered all these costs, so the program could be self-sustaining.

Program economic impacts depended most upon participants' bottom-line spending and on energy savings that could be reapent. However, two surveys—one of program participants and one of program contractors—suggest that some aspects of the process and of program costs may have affected outcomes. For example, relatively strict program rules, such as the early application for the exact amount to be financed, and fees, which could be proportionally high on smaller jobs, led some applicants to seek alternative financing. It is also likely that CSLP program publicity and public education triggered community-wide energy efficiency improvements that are not reflected in this relatively short-term and narrowly focused study.

A Homeowner's Perspective

Megan Kram bought her first home in Boulder three years ago, knowing that it needed some work. Kramer is single, keeps a busy schedule, and asserts that she has "pretty basic" maintenance skills. She heard about the Boulder ClimateSmart loan program from a friend, who emailed her an invitation to a free workshop on the program. Kram's furnace was overdue for replacement, and the workshop confirmed her thoughts about the benefits of wall insulation. The house had "practically no insulation to start with," she said. Kram had wanted new energy-efficient windows, too, but the price tag was daunting. She made a spreadsheet with columns and rows listing the estimates that she'd gotten from different contractors, plus estimates of what she expected in tax credits or as a rebate from the utility. Her headings were meaningful to her: "Stuff I'm for sure going to do," "Windows...," "Nicer windows," and "Monthly Cost."

"I decided I could pay about $50 per month, though I understood it would all come through on the annual property tax bill," Kram said. She liked the idea that she would not have to pay the investment off entirely if she decided to sell the house in less than 15 years. "I would say I'm very likely to move within that time," she said. It seemed fair to her that the future owner would share in the costs and continuing benefits of the improvements. She was a little disappointed by the ClimateSmart program-related fees, but the interest rate, at 6.75%, was attractive. She also liked the responsiveness of contractors who were in the program. "The job was easily done. It took half a day for the furnace and half a day for the insulation," she recalled. Her decision to keep the equivalent monthly payments low prompted Kram to chose replacement windows that were not qualified as high-efficiency. She used personal financing to have them installed. "My old windows were so leaky that even a normal window replacement is a huge improvement. I'm sure there will be energy savings there, too," she said.

Other PACE programs around the country have also reported that PACE-related outreach may trigger improvements, whether or not PACE is the ultimate source for financing. In addition, nonqualifying improvements, made along with PACE improvements, affect the community economic impacts in ways that are difficult to track. Such effects are discussed in the Qualitative Analysis section of this report.

Left: Kram used a simple spreadsheet to facilitate her home improvement projects. Right: Kram upgraded the look of her home at the same time she financed invisible energy improvements. *Photos from MRG & Associates*

2 Economic Analysis

The central goal of this study is to analyze employment and other economic impacts of the Boulder County residential ClimateSmart Loan Program (CSLP), an example of Property-Assessed Clean Energy (PACE) financing. The economic analysis used to achieve this goal focuses primarily on CSLP dollars spent. The analysis utilizes an analytic tool called an input-output (I-O) model, which identifies relevant interactions among all sectors of the local and statewide economics. For example, the model shows how homeowner spending on attic insulation or solar panels spurs business on the local level among vendors and contractors, as well as up the supply chain, among suppliers and manufacturers. To the extent that these products are installed by local contractors or purchased from local manufacturers or retail vendors, there is additional benefit to the local economy. The I-O model also identifies other impacts as described below.

Subsequently, Section 3 of this report will go beyond the quantitative analysis provided here. Section 3 includes an assessment of factors that could not be quantified but could affect the total long-term economic impacts of the CSLP or of similar PACE programs

2.1 Methodology

To capture the full economic impacts of the Boulder County PACE program, the economic analysis evaluates three separate effects (i.e., direct, indirect, and induced) for each expenditure. The sum of these effects yields the total effect resulting from a single expenditure.

1. The direct effect refers to the onsite or immediate effect produced by expenditures In the case of installing energy efficiency upgrades in a home, the direct effect is the onsite expenditures and jobs of the construction or trade contractors hired to carry out the work.
2. The indirect effect refers to the increase in economic activity that occurs when a contractor or vendor receives payment for goods or services delivered and he or she is able to pay others who support the business. This includes the equipment manufacturer or wholesaler who provides the products (solar panels, insulation, heating system, windows, etc.). It also includes the bank that provides financing to the contractor, the vendor's accountant, and the owner of the building where the contractor maintains its local offices, and so on.
3. The induced effect results from the spending of worker earnings associated with direct and indirect spending related to energy efficiency expenditures. This includes spending on food, clothing, housing, transportation, recreation, and other goods and services that workers typically purchase with their paychecks.

Moreover, the installation of energy efficiency measures usually reduces electricity and/or natural gas use in a home and enables the household to meet power, heating, cooling, and lighting needs at a lower total cost. This lower cost of home operation makes more money available for individuals and families to spend or invest in the local economy.

2.2 Analyzing the Spending from the CSLP

To analyze the spending on CSLP energy efficiency upgrades (including renewable energy technologies), actual expenditures are matched with appropriate Boulder County- and Colorado-specific industry multipliers.[3] The multipliers reflect the direct, indirect, and induced impacts supported by a $1 million expenditure (change in final demand) for goods or services purchased from a given industry sector.

This analysis includes all changes in consumer and business spending that occur during the actual construction or installation for program measures as well as the ongoing spending of resulting energy bill savings. The impacts from the construction or installation are relatively short-term. That is, the impacts are limited primarily to the period of time during which the actual upgrades and spending occur. In this analysis, the initial construction-related impacts occur over approximately a one-year period from June-July 2009 through June-July 2010. The spending of energy bill savings and resulting reduction in utility revenues happens each year for the life of the measures, typically 20 to 30 years.

Much of the short-term job creation from energy efficiency programs is derived from payments made to in-county contractors and businesses, versus out-of-county contractors and businesses. When in-county contractors or businesses receive money for goods and services, more of the money stays in the local economy. Local contractors usually hire more local residents to work for them, and they typically spend more money in the local area on goods and services (indirect effects). Out-of-county spending—paying contractors or purchasing goods or services from businesses outside the county—is commonly referred to as monetary leakage. A monetary leakage provides little benefit to the local area. One exception might be when local residents are employed by the out-of-county businesses or when some of their products are locally manufactured.

Ongoing job creation is derived in large part from the difference between jobs within the utility and fuel supply sectors and jobs that are supported by the spending of energy bill savings in other sectors of the economy. For example, when residents pay their utility bills, most of the money leaves the local area to purchase fuels, maintain power plants, and support utility operations in general. On the other hand, when residents have savings from lower utility bills, they are able to spend some of those savings in the local area by purchasing goods and services and supporting a variety of local businesses.

This analysis is based on a detailed assessment of CSLP-related customer spending, using data available for 598 residential energy retrofit projects. It includes not only those dollars loaned to Boulder County residents through property tax bond financing but also additional spending by program participants, as documented on the invoices. Table 2.1 shows the actual financing directly for measure expenditures (i.e., not related to loan fees, reserve accounts, or other costs) totaling just over $9 million. These expenditures account for 71% of the $12.7 million in total spending related to these measures. To the extent that information on energy-related rebates from the state and utility companies was documented, it is included in the analysis. Similarly, where

[3] In this study we have adapted industry multipliers derived from the 2008 IMPLAN model for the analysis See Minnesota IMPLAN Group, Hudson, WI, www.implan.com.

information was available on participant spending that was alternatively financed (for example, project add-ons paid for with cash), it was also included in the analysis.

Additional residential projects were completed under the CSLP program (for a final loan total of about $9.8 million), but documentation was not available in time to be included for this analysis.

Table 2.1. Climate Smart Loan Program 2009-2010 Residential Summary Data

Category	Boulder County	Outside Boulder County	Total
Program Participants (projects)	598		
Participant Loans (for measure costs only) [a]	$9,007,868		
Total Measures Installed	1,207		
Total Expenditures (for measures installed) [b]	$12,691,542		
Participating Contractors	171	124	295
Payments for Work Completed	$10,072,036	$2,619,506	$12,691,542
Utility Bill Savings (first-year total) [c]	$124,197		
Utility Bill Savings (average per participant)	$208		

[a] Loan amounts are for approved measure-related costs only. They do not include fees or other associated costs included in final loan amounts.

[b] Total investment includes all program participant spending (including rebates for PV) on energy measures and additional work (spending) completed but not covered by the loan or rebate. It also includes all sales tax paid to Boulder County.

[c] Utility bill savings are based on average participant savings of 1,786 kWh for electricity and 74.9 therms for natural gas. The savings reflect analyses of participants' Xcel Energy electric and gas utility bills by Boulder-based Symbiotic Engineering. Dollar savings were derived by MRG & Associates using current Xcel rate schedules.

Just over $10 million (79%) of the documented efficiency and renewable energy investments (i.e., payments to contractors and vendors) were spent within Boulder County.[6]

Typically, 85%-90% of energy efficiency and renewable energy installations are completed by local contractors and dealers. As discussed in Section 1, the profile of participating businesses for the Boulder County CSLP was much different. Only 171 (58%) of the 295 contractors studied for this analysis were located in Boulder County. The rest were from various locations throughout the Denver metro area.

Similarly, the I-O model would typically assume that all in-county contractors' employees would live in Boulder County. However, Boulder County data reveal that at least 30% of in-county contractors' employees live and spend most of their earnings elsewhere, possibly because the multi-county Denver area is so contiguous and offers many affordable housing options outside of Boulder County.[7] There are more local than nonlocal residents employed by local contractors, and all workers (local and nonlocal) spend money locally while working; these are mitigating conditions that would, on balance, increase local economic benefits associated with the program.

[6] A detailed breakout of spending by measure is included in the next section of this report.

[7] This estimate is an average, based on responses to an online survey of program contractors conducted in August 2010. Anecdotal evidence from interviews with program contractors located in Boulder County in June and July 2010 suggests that in many instances the percentage of employees living in Boulder County is significantly higher.

However, quantifying such impacts is beyond the scope of this analysis. A qualitative assessment is offered in Section 3 of this report.

For purposes of estimating current and future energy bill savings, the analysis assumes that energy prices remain at 2010 levels. This is partly due to the difficulty of accurately predicting future energy prices, but also because it is simpler to match energy prices within an I-O model based upon fixed price relationships. Many analyses would typically apply a 2%-5% annual energy[8] cost escalation rate. The utility bill savings noted in Table 2.1 reflect average savings by all participants. Due to the limited amount of information available from the utility bill analysis, no distinction has been made (nor were adjustments made) for the types of measures installed, measure cost, energy saving potential, or payback periods, or for participant homes that added square footage (or other measures)—all conditions that could result in net increased energy use.

Some participants had higher utility bills when compared with their previous bills, but most participants experienced significant reductions in energy use and utility bills.[9] An examination of possible reasons for this is included in Section 3 of this report, Qualitative Assessment. Considering historical price increases in electricity and natural gas, the utility bill savings expressed here are conservative estimates. There is little doubt that utility prices will continue to rise and that resulting energy bill savings will increase over time.

Finally, it should be noted that the full effects of the Boulder PACE program are not accounted for, due to the conditions and impacts discussed further in Section 3. For example, there is no documentation of county residents who did not receive CSLP financing but made alternatively financed energy improvements using information they received from the CSLP program, yet there is evidence that their spending was significant. As another example, the CSLP program staff spent time and budget on program design and first-year implementation, making notes for future-year improvements. Future program benefits would likely be greater than those reported here.

2.3 Macroeconomic Impacts

The economic analysis for the Boulder County CSLP was carried out by evaluating the net changes in energy expenditures brought about by the investments in energy efficiency and renewable energy (primarily solar PV). Section 1 of this report describes the types of program measures that would qualify for financing and the process for obtaining financing. Actual participant investments and utility bill savings data were used to estimate both local and statewide impacts. The change in spending generates a net impact for Boulder County and for the state as a whole.

Table 2.2 summarizes the investments for each measure during the 2009-2010 period of analysis, as well as the local contractor share and sales tax generated.

[8] Average electric and gas utility bill savings for Xcel customers who participated in the Boulder County CSLP were provided by Tim Hillman, senior energy engineer at Symbiotic Engineering, in December 2010. Symbiotic Engineering is currently analyzing participant utility bills for Boulder County from other utilities in the county.

[9] According to the preliminary analysis completed by Symbiotic, 20% of natural gas customers and 25% of electricity customers had increased energy consumption.

Table 2.2 ClimateSmart Loan Program 2009-2010 Residential Summary Data by Measure

Measure Category	CSLP Loans[a]	Total Investment[b]	Local Contractor Share[c]	Local Sales Tax Generated[d]
Photovoltaics	$3,247,740	$6,801,922	$5,248,104	$125,840
Windows/Doors	$2,213,237	$2,270,722	$1,277,905	$42,008
Insulation	$883,702	$897,644	$517,104	$16,606
Roofing	$496,859	$504,016	$273,970	$9,324
Air/Water Heaters	$1,738,110	$1,757,210	$1,364,442	$32,508
Solar Hot Water Heaters	$411,558	$442,829	$374,833	$8,192
Landscaping	$16,663	$17,198	$15,678	$318
Total	$9,007,868	$12,691,542	$10,072,036	$234,798

[a] Loan amounts are for measure-related costs only. They do not include fees or other associated costs included in final loan amounts.

[b] Total investment includes all program participant spending (including rebates for PV) on energy measures and additional work (spending) completed but not covered by the loan or rebate. It also includes all sales tax paid. The values are based on a detailed review of program expenditure data supplied by the County of Boulder.

[c] Local Contractor Share represents only the portion of Total Investment paid to Boulder County contractors.

[d] Local Sales tax is based on Total Investment and Boulder County sales/use tax rate.

As the table indicates, spending on PV systems totaled $6.8 million. This was the single largest measure in terms of dollars spent, accounting for almost 54% of total investments. Windows and doors were second, accounting for about 18%, followed by air and water heaters at about 14%. Another four measure categories accounted for the remaining 15% of participant investments.

With this measure data, we were able to analyze the macroeconomic impacts. The first of the three impacts evaluated here is the net contribution to the employment base as measured by full-time equivalent jobs. The second impact is the net gain in wage and salary compensation, measured in millions of 2010 dollars. The final category of impact is the net contribution to output (i.e., economic activity), also measured in millions of 2010 dollars. In other words, once the gains and losses are sorted out for each measure, the analysis provides the net benefit of the measure in terms of the overall economy.

The following table summarizes the economic impacts of the investments by measure type. Unlike utility bill savings, which continue to provide benefits for the life of the energy efficiency measure, installation (or construction) impacts are considered one-time or short-term impacts. In other words, the installation-related impacts noted below occur when the actual work is being done and for a short time afterwards. Similarly, the impacts only account for spending that occurs in Boulder County or in the state as a whole. To the extent that equipment or products such as solar panels, roofing, or insulation are manufactured and/or purchased out of the county or state, the expenditures (or a portion of them) are treated as monetary leakages, providing no benefit to the region being analyzed.

Table 2.3. Summary of Macroeconomic Impacts for Installation by Measure

Measure Category	Net Job Gain	Change in Wage and Salary Compensation (Millions)	Change in Output (Millions)
Boulder County – from in-county spending only			
Photovoltaics	49	$2.7	$8.3
Windows/Doors	12	$0.8	$1.8
Insulation	6	$0.5	$0.8
Roofing	3	$0.2	$0.4
Air/Water Heaters	12	$0.8	$1.9
Solar Hot Water Heaters	3	$0.2	$0.5
Misc. Landscaping	0	$0.0	$0.0
Total	85	$5.1	$13.7
State of Colorado – from in-state spending only			
Photovoltaics	61	$3.2	$10.0
Windows/Doors	26	$1.4	$3.7
Insulation	12	$0.8	$1.6
Roofing	6	$0.4	$0.8
Air/Water Heaters	18	$1.1	$2.7
Solar Hot Water Heaters	4	$0.2	$0.7
Misc. Landscaping	0	$0.0	$0.0
Total	126	$7.1	$19.5

Notes: Dollar figures are in millions of 2010 dollars. Net jobs represent actual full-time equivalent (for one year) job totals. All totals reflect direct, indirect, and induced impacts. Totals for the State of Colorado include the totals for Boulder County.

Some aspects of this table are worth noting before focusing on the overall impacts in more detail. The first is that impacts from the installation phase are all positive, resulting in $13.7 million in economic activity in Boulder County and $19.5 million for the state as a whole in 2009-2010. At the same time, the total investments by program participants supported 85 jobs in Boulder County, just under 7 jobs per million dollars of investment in 2009-2010. For the state as a whole, program investments supported 126 jobs, more than 9 jobs per million dollars of investment. Wage and salary earnings increased by $5.1 million in Boulder County and $7.1 million for the state as a whole during this time. These job impacts represent a small portion (less than 0.1%) of the county's total employment in 2009. Still, with the county in recession in 2009, every job—be it a new job, one that is retained, or extra hours added to keep a worker full-time—was a welcome addition.[10] The differences between county and state impacts are likely due to the fact that (1) not all contractors were located in Boulder County, and (2) the larger share of each dollar spent leaves the county but stays within the state.

[10] According to the Bureau of Labor Statistics, employment was estimated at 152,804 in Boulder County at the end of 2009. Unemployment was 6.4%, which was historically high for the county. See U.S. Bureau of Labor Statistics News Release, U.S. Dept. of Labor, Oct. 19, 2010 and Bureau of Labor Statistics, U.S. Dept. of Labor, County Employment and Wages, Fourth Quarter 2009, July 20, 2010, www.bls.gov/cew/.

The results in Tables 2 2 and 2 3 are not intended to be precise forecasts. The totals offer reasonable insights into the benefits of the energy efficiency and renewable energy investments, but due to the small level of spending relative to that studied in most I-O analyses, even modest changes in the assumptions could change the results in individual sectors.

Analysis of the annual utility bill savings alone for one year found that this level of spending ($124,197) resulted in no net gain in jobs and a very slight gain in economic activity for both the county and the state as a whole. This is due primarily to the relatively low level of utility bill savings during the first year. It should be noted that some measures, such as solar PV, are long-term investments. Their savings accumulate over the full 30-year life of the investment. Similarly, the calculation of average utility bill savings used for this analysis was adversely impacted by participants who increased the square footage of their homes, enhanced living spaces, or made lifestyle changes. In some instances, the measures were installed to increase comfort (reduce drafts, provide better lighting, etc.) or to improve aesthetics. Also, first-year energy use may reflect a period of homeowner experimentation. Some might have tested different thermostat settings, for example, to find out for themselves how to balance newfound comfort against energy savings. A more detailed assessment of qualitative impacts is included in Section 3 of this report.

Sustainable Careers

Jeff Cope sat at the reception desk at Bella Energy, a Louisville (Boulder County) solar integrator, looking a little big for his chair. Cope, who held the title of Solar Advisor for Inside Sales, actually handled all kinds of tasks, from answering phones and receiving FedEx packages to providing sales help and sketching preliminary solar designs. At the time of this interview, Cope said he was happy to have a job in solar, as he was in fact a displaced semiconductor industry engineer. He took the job in early 2010. Bella Energy had been growing, largely because of business from the CSLP. In Fall 2009, Bella sales activity, including onsite sales visits, had about doubled thanks to ClimateSmart. At least half of the company's residential projects and one-third of total gross revenues were coming from ClimateSmart program leads. Since the moratorium on residential PACE financing, Bella's residential sales have slowed, but the company is refocusing on the commercial solar market, for which Boulder County still has an active CSLP. Bella hired Cope in anticipation of work in that market.

Cope's career path supports the argument that solar jobs can make a difference. His former employer was an electronic chip manufacturer in Richmond, Virginia, which closed after foreign competitors applied questionable trade practices. Cope qualified for Trade Adjustment Assistance (TAA), including retraining, from the U.S. Department of Labor. "I wanted to move into a green tech industry, and solar fit the bill," he explained. He moved to Colorado at his own expense but received TAA support for retraining at Solar Energy International, a 20-year-old solar training center in Carbondale, Colorado. Cope said he is never bored in his job, even though it would not seem to require a master's degree in engineering. "I don't expect to stay in my current role, though I am sure I will be in the solar industry," he said. He credits his after-hours role as a new parent for giving him the drive to make this career work. "I want to get this clean energy transition going for the next generation," he said.

Sustainable Careers (Cont.)

Bella Solar looks for employees with good educations. Most of the employees have college degrees, and the average wage is about $40,000 per year, according to John Shaw, commercial sales director. With supportive policies and local programs like CSLP, Cope and his solar employer see strong prospects for growth in coming years.

Jeff Cope took a solar job in Boulder County after his computer-industry job had been moved offshore.
Photo from MRG & Associates

2.4 Macroeconomic Impacts Projected Through 2020

The following tables provide an estimate of the net impacts from the CSLP program, assuming it were to continue for the next 10 years through 2020 (or a similar 10-year period). This analysis assumes similar annual participation levels and investment patterns and the same level of per-participant utility bill savings (i.e., the same level of energy savings experienced by current participants and no increase in utility rates) for each year noted. The analysis looks at nine sectors.

The tables show how each of the industry sectors is affected in each of two benchmark years, 2015 and 2020. The impacts shown are not cumulative. The total impact, year on year, indicates that jobs created would be sustained, with some additional job growth as the program continues. For example, total annual jobs in Boulder County increase from a base of 85 in 2010 to 88 in 2015 and then to 93 in 2020. Although the impacts are small, relative to the larger economy, this is only because the scale of investment for the CSLP is small, relative to the entire county economy.[11]

[11] In 2009, the gross domestic product (GDP) for the State of Colorado was estimated to be $252.7 billion for all industries. See, Gross Domestic Product by State, Bureau of Economic Analysis, U.S. Dept. of Commerce, Regional Economic Accounts, www.bea.gov/regional/gsp/.

Table 2.4. Macroeconomic Impacts of the Boulder CSLP by Sector in One Future Year (2015)

Sector	Net Job Gain	Change in Wage and Salary Compensation (Millions)	Change in Output (Millions)
Boulder County – from in-county spending only			
Agriculture	0	$0 0	$0.0
Mining	0	$0 0	$0.0
Construction	33	$3 1	$5 7
Manufacturing	0	$0 0	$0 1
Retail and Wholesale Trade	45	$1 6	$6 8
Transportation, Communication, and Utilities	(0)	($0 0)	($0 0)
Finance, Insurance, and Real Estate	0	$0 0	$0 1
Services	5	$0 2	$0 6
Government	4	$0 2	$0 5
Total	**88**	**$5 3**	**$14 0**
State of Colorado – from in-state spending only			
Agriculture	0	$0 0	$0 0
Mining	0	$0 0	$0 0
Construction	52	$4 5	$8 7
Manufacturing	0	$0 0	$0 1
Retail and Wholesale Trade	63	$2 2	$6 9
Transportation, Communication, and Utilities	(3)	($0 1)	($0 5)
Finance, Insurance, and Real Estate	2	$0 1	$0 5
Services	9	$0 4	$1.4
Government	4	$0 2	$0 6
Total	**128**	**$7.2**	**$19 8**

Notes: Analysis assumes the CSLP program is up and running through 2015 or a similar five-year period. Dollar figures are in millions of 2010 dollars. The numbers in parentheses reflect losses that are projected to occur in that sector. Net jobs represent actual full-time equivalent (for one year) job totals in 2015 (nonscumulative). All totals reflect direct, indirect, and induced impacts. Totals for the State of Colorado include the totals for Boulder County. Individual totals may not add up due to independent rounding.

Table 2.5. Macroeconomic Impacts of the Boulder CSLP by Sector in One Future Year (2020)

Sector	Net Job Gain	Change in Wage and Salary Compensation (Millions)	Change in Output (Millions)
Boulder County – from in-county spending only			
Agriculture	0	$0 0	$0 0
Mining	0	$0 0	$0 0
Construction	33	$3 1	$5 7
Manufacturing	1	$0 1	$0 3
Retail and Wholesale Trade	47	$1 7	$7 0
Transportation, Communication, and Utilities	(1)	($0 1)	($0 3)
Finance, Insurance, and Real Estate	1	$0 0	$0 2
Services	9	$0 4	$1 3
Government	4	$0 2	$0 5
Total	**93**	**$5.5**	**$14.7**
State of Colorado – from in-state spending only			
Agriculture	0	$0 0	$0 0
Mining	0	$0 0	$0 0
Construction	52	$4 5	$8.7
Manufacturing	1	$0 1	$0 3
Retail and Wholesale Trade	64	$2 2	$9 1
Transportation, Communication, and Utilities	(6)	($0 3)	($1 3)
Finance, Insurance, and Real Estate	3	$0 1	$0 6
Services	13	$0 5	$2 0
Government	4	$0 2	$0 6
Total	**132**	**$7 3**	**$20.1**

Notes: Analysis assumes the CSLP program is up and running through 2020 or a similar 10-year period. Dollar figures are in millions of 2010 dollars. The numbers in parentheses reflect losses that are projected to occur in that sector. Net jobs represent actual full-time equivalent (for one year) job totals during 2020 (noncumulative). All totals reflect direct, indirect, and induced impacts. Totals for the State of Colorado include the totals for Boulder County. Individual totals may not add up due to independent rounding.

The analysis indicates that three industries in particular benefit the most from the program in each of the years noted. These are the retail and wholesale trade sectors, the construction sectors and the service sectors. The trade and service sectors are winners largely for two reasons. First, they benefit from the actual investments in the energy efficiency measures made in each of the years. Second, they benefit from the higher level of goods and services sold as program participants spend their energy bill savings elsewhere in the economy.

The construction sector benefits primarily because special trade contractors and others are involved in installing the new renewable systems and making the efficiency upgrades. The construction sector alone pulls in about one-third of the net job increases. Using the annual installation investments as a benchmark for evaluation, it might be noted that about 95% of the net job impacts are from the efficiency investments made in that year. The remaining impacts are the result of spending of utility bill savings by program participants.

As might be expected, the energy industries incur some overall losses in jobs, compensation, and output. But this result must be tempered somewhat as the industries themselves are undergoing internal restructuring. For example, as the electric and natural gas utilities engage in more energy efficiency services and other alternative energy investment activities, they will undoubtedly employ more people from the business services, engineering, and construction sectors.

Therefore, the negative employment impacts should not necessarily be seen as job losses; they might rather be more appropriately seen as a redistribution of jobs in the overall economy and future occupational tradeoffs.

Explained differently, while the electric utilities may lose traditional jobs (due to selling less energy), they would gain many of those jobs back if they moved aggressively into the energy efficiency business, thereby absorbing some of the job gains realized in other sectors, such as the construction and service sectors. In effect, if they expand their participation in the energy efficiency market, their job totals can increase relative to the estimates based on a more conventional definition of an electric or natural utility as solely an energy supplier.

Electric and natural gas utilities are very capital-intensive (i.e., they require greater total assets for each dollar of revenue generated by the utility, relative to other industries). Thus, as the revenues of the utilities decrease under the CSLP and other efficiency programs, the amount of capital investment will also decrease (i.e., fewer new power plants and pipelines are built), lowering the industry's value added and output contribution to the larger economy. As the analysis indicates, this impact is tempered by the investments in efficiency and spending of energy bill savings. The full impact of these investments and the annual savings (in technologies such as PV noted earlier) are not realized until the investments are paid off.

2.5 Economic Analysis Conclusions

Based on the analysis presented in this section, it is clear that Boulder County and the State of Colorado benefited from the residential ClimateSmart Loan Program (CSLP). The PACE financing mechanism set the stage for job growth, increased economic activity throughout the economy, and positioned both to reap even larger benefits in the future. In addition to the county and statewide benefits, the aggressive commitment to energy efficiency provided the opportunity for program participants to reduce their energy bills.

Participant spending in Boulder County alone contributed to 85 short-term jobs, over $5 million in earnings, and almost $14 million in economic activity in Boulder County. Participant utility bill savings totaled about $125,000 for the current year. For the state as a whole, program spending supported another 41 short-term jobs outside of Boulder County, $2 million in earnings, and almost $6 million in economic activity. Viewed in the long term, analysis of an ongoing CSLP program with similar participation levels results in significantly greater savings. The economic impacts noted here and discussed in this section, above, occur in a context that is more fully described in Section 3, Qualitative Assessment. For overall CSLP conclusions and their more general implications for PACE programs, see the discussion in Section 4.

3 Qualitative Assessment of CSLP

3.1 Purpose and Approach

The economic analysis presented previously tracks spending and jobs development that can clearly be traced to Boulder County ClimateSmart-financed spending. Anecdotal reports from this and other PACE programs suggest there are other influences that may be significant as well. For example, reports from PACE programs nationwide concur that economic activity inspired by a local PACE program, but ultimately using other forms of financing, may be significant.

Boulder CSLP administrators, including Ann Livingston, Boulder County Sustainability Coordinator, and Susie Strife, the ClimateSmart program manager, recognized many qualitative influences on the overall program outcome. Contractors and program participants who were interviewed for this report, as well as participants in two online surveys about CSLP, confirmed that there were influences and outcomes that a standard economic analysis would miss. It is beyond the scope of this study to draw detailed conclusions about such influences, but this section provides a qualitative assessment.

The research approach for the qualitative assessment of CSLP included:[12]

- Interviews with CSLP administrators and Phase 1 program data
- Interview with Will Toor, County Commissioner and program policymaker
- Interviews with contractors and trade allies of two solar firms, two weatherization firms, and two green-building associations
- Interviews with five program participants
- Interview with Boulder Daily Camera news reporter and review of coverage from the Camera, the Boulder Weekly, and other media
- Review of results from a July 2009 survey of 325 CSLP workshop registrants, utilizing Survey Monkey online service
- Review of results from an August 2010 survey of about 120 program contractors, utilizing Survey Monkey online service. About 13% of those surveyed responded. This response, given the sample size, was of limited use, but it helped to confirm trends.

The subjects of interviews and participants in surveys represented locations throughout Boulder County. In addition, this assessment draws on observations from other PACE programs around the country, if they dramatically follow or differ from the trends observed here.

[12] Personal interviews occurred in Boulder County in July 2010.

Climate Smart Neighborhoods

When Boulder County and City leaders started planning a PACE financing program, Ron Flax, an architect at Rodwin Architecture in Boulder, started to think about how affordable financing for energy improvements might trigger a transformation for middle-class neighborhoods. He called Boulder's 1960s subdivisions "an energy disaster." Besides, the homes are small, so their prime locations on tree-lined streets close to parks, schools, shopping, and other Boulder attractions makes them ripe for investors who might just as soon tear them down and build mini-mansions instead. Flax said he knew that risk well, because he has lived in one of those old 1,100 square-foot houses himself, with his wife and two school-aged kids. When the ClimateSmart Loan Program came along, he sharpened his pencil and prepared to make his place on Elm Avenue a model of small-home sustainability.

Flax's plan quickly grew to include a deluxe menu of energy-saving possibilities. Recognizing his passion for saving energy, Flax said, "At least I hoped this demonstration would inspire others to go beyond a typical window or furnace upgrade." He invested in a total of $69,000 in energy improvements—and nearly as much again in nonqualifying remodeling. He used a home equity loan to finance nonenergy measures. To finance the energy measures, he took Boulder's income-qualified low-interest financing to the maximum $15,000 allowed. He also obtained a zero-interest loan from a nonprofit, Partnership for Sustainability, to finance the PV system. Tax credits, including a $1,500 tax credit for combined energy efficiency measures and a 30% tax credit for a PV system and ground source heat pump helped lower the total investment cost. In addition, Flax gave himself permission to use $10,000 out of savings. "A personal energy education research grant," he explained.

From a design perspective, Flax intended the home to look like the kind of place a family might aspire to live, rather than a place that is "good enough." He opened up the living room, added a new study, and dressed up the front of the house with a welcoming porch. The addition added only a little floor space, but it changed the dynamic of the home, so Flax's wife could have a home office and so that the living space felt more relaxed.

The Flax home is a demonstration project, using the ClimateSmart program as a starting point for developing livable, sustainable smaller homes. *Photo from MRG & Associates*

Climate Smart Neighborhoods (Cont.)

The home includes many energy improvements, from state-of-the-art crawlspace insulation and a ground-source heat pump to super-E windows. Initially, the home scored an energy efficiency (HERS) rating of 190; afterwards, it scored a 5. The estimated annual energy cost before improvements was $2,100, and the estimated annual energy cost afterward is $160.

Flax represents an example of a CSLP participant spending much more than the program loan application suggests. In his case, ClimateSmart financed $15,000 of a $114,000 project. Flax hired numerous contractors and completed some parts of the project himself.

Flax said, "After people make one investment in their homes, all kinds of good things can start to happen." That includes adding more improvements, keeping up the property, and simply looking at one's home in a different light. Flax hopes that a revived loan program might support widespread promotion of the idea that living simply in Boulder can mean living very well.

3.2 Categorical Discussion of Trends

Taken alone, none of the research approaches above would have been adequate to draw specific conclusions about program influences and outcomes. However, taken together, they indicate four consistent and significant trends:

- Spending on energy improvements inspired by CSLP, but financed differently
- Spending on nonqualifying improvements inspired by CSLP
- Impacts of the economic climate on participants and outcomes
- Impacts of program design and anticipated changes.

Each of these trends is discussed below.

A. Spending on Energy Improvements Inspired by CSLP, but Financed Differently

Data from contractor receipts (discussed in the Economic Analysis section above) indicated some spending on improvements that were concurrent with CSLP-financed improvements but were financed separately. The impact analysis model accounted for that spending and its direct and indirect impacts.

However, some CSLP participants used multiple contractors to complete different parts of their projects. It is difficult to quantify economic impacts from additional improvements that were not financed by the CSLP and were not completed by the same contractors. Some improvements might have been do-it-yourself jobs using materials from the local home store and pocket money. Others might have been major improvements financed through home equity loans and other means. The Boulder County PACE program gathered only clues about the magnitude and kinds of energy-related improvements the program inspired through its marketing but did not finance.

In July 2009, program administrators surveyed registrants for Phase 1 CSLP workshops and captured 325 responses from those who eventually obtained PACE financing and those who did not. This was an online survey through the Survey Monkey service. Due to its informal nature, the survey has limited usefulness today. Still, it shed some light on customer response to PACE compared to financing alternatives. Respondents included about 106 individuals who reported that in the end, they did not use CSLP financing. Of these, about one-third (36) said they decided not to complete energy efficiency or renewable energy projects at that time. Another two-thirds (70) said they did proceed, but used alternative financing. Roughly two-thirds of those paid cash, and one third of them used different kinds of loans.

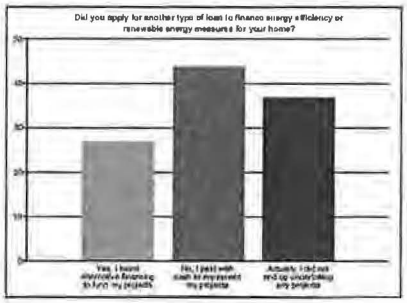


Figure 3. Responses to a survey question addressed to those who registered for a CSLP workshop, but ultimately did not use program financing.

The use of cash was significant, though it is fair to guess that cash spending was not nearly as great per job as spending that was supported by some type of loan. (The survey did not ask those who declined to use CSLP for spending figures.)

A follow-up question, aimed at those who used alternative loans, asked what type of loans these respondents used. The overwhelming response was the home equity line of credit (HELOC).

The evidence of extra spending through cash or home equity loans on energy upgrades matches observations by PACE program sponsors nationwide. Besides cash used for small jobs, the HELOC is the most common financing mechanism for energy home improvements.[13] This form

[13] For a discussion of pros and cons of many kinds of residential energy project financing, see M. Fuller, C. Kunkel, and D. Kammen, "Guide to Energy Efficiency and Renewable Energy Financing Districts for Local Governments," Renewable and Appropriate Energy Laboratory, September 2009.

of credit is extremely convenient—often as easy as writing a check. For customers who already had HELOC accounts, there were no additional fees, and that was appealing, as well. However, a HELOC by definition requires strong equity in the home, and it requires full repayment before the home could be sold. It is not a perfect substitute for PACE financing.

Some CSLP participants who were interviewed for this report used HELOC financing to expand their overall project list, hiring different contractors than those selected for CSLP-financed work. For two such participants, the CSLP income-qualified rates were too attractive to pass up, but the loan ceiling at $15,000 left them with projects to finance. Two participants reported that HELOC covered window replacements and repairs that were likely to save energy, though these projects did not meet CSLP standards. In addition, solar contractors who were interviewed said some of their customers chose HELOC over the CSLP because CSLP-financed contracts had to be arranged to meet a short bond-issue deadline. The migration to HELOC financing was not necessarily a problem. If ClimateSmart outreach drove people to seek whatever financing that suited them for energy improvements, then, in effect, it expanded the market and increased spending for energy efficiency and renewable energy improvements.

Another electronic survey completed in August 2010 was aimed at CSLP contractors. This survey also was informal and had a small response (13%). Despite its limitations, it confirmed several important trends, including the trend to use HELOC or other alternative financing for CSLP-inspired work. One question asked contractors what percentage of their revenues in 2009 was financed through CSLP lending and what percentage they thought was inspired by CSLP, though ultimately using alternative financing. Contractors indicated that about 16% of their 2009 revenues came from jobs financed by CSLP and 15% came from jobs inspired by CSLP, but using alternative financing. Given the small number of respondents, it would be wrong to assume that total spending related to CSLP was nearly double the value of program loans. However, this survey response, in addition to the other information discussed previously, underscores the likelihood that CSLP triggered spending on energy-related home improvements to a much greater degree than the value of CSLP loans suggests.

B. Spending on Nonqualifying Improvements Inspired Under CSLP

The discussion above suggests the likelihood that CSLP triggered significant spending on energy-related improvements beyond those financed by the program. In addition, some spending undoubtedly went to nonqualifying, nonenergy home improvements. This spending also had economic impacts, and should be considered a benefit of green jobs development programs.

Examples of spending that escape documentation on CSLP invoices include, among others, project-related fix-up and spruce-up measures, such as roofing repairs needed before a solar PV installation, repainting a house after a window replacement job, new curtains or drapes, new flooring, or a utility room remodel after installation of a new furnace. All interviewed participants said they felt proud of their homes after CSLP work was done, and this showed in small ways, from adding a plant on the porch to partially finishing a garage. This type of spending is difficult to document, but it is real.

The case of Ron Flax (see preceding sidebar), who spent $15,000 that was financed by ClimateSmart, plus more money on energy and nonenergy improvements to a total of more than

$114,000, is a rare one. Still, it illustrates how CSLP and similar PACE financing programs can trigger additional nonqualifying spending.

C. Impacts of the Economic Climate on Participants and Outcomes

This first phase of the Boulder County ClimateSmart Loan Program took place during the depths of a national and regional recession. This affected homeowner attitudes about spending, and it affected contractor response to CSLP financing opportunities.

How did the economy affect participant willingness to spend money on their homes? Did the prospect of financing home improvements through PACE (whereby the debt remains with the house) increase or decrease interest in the CSLP program in 2009? It is beyond the scope of this research to answer these questions, but they are relevant questions. During 2009, average home prices in Boulder County fell for the first time since the late 1980s, but mid-range home value did not plummet. Any housing market slowdown triggers some investment in home improvements, as homeowners feel destined to stay in their homes longer. Conversely, recessionary times add to homeowner anxiety about taking on debt and increasing property tax bills.

When CSLP launched in Spring 2009, statewide unemployment (reflecting the job market where many Boulder residents worked) had risen to 8.5%.[14] According to the Boulder Economic Council, Colorado lost 100,000 jobs in 2009. County economic development staff said the ratio of applicants to job openings in Boulder County, which for years never averaged more than 10 to 1, surged past 20 applicants per job in early 2009. Unemployment rates in Boulder County remained below the national average, but they were high by local historical standards.

Even as bad economic news toughened the market, it made businesses that provide energy improvements hungrier. The fact that more than 300 contractors from throughout the Denver metro area participated in the CSLP indicates their eagerness to compete. Motivated contractors played an important role in driving energy-related investments in some 600 homes.

On the August 2010 contractor survey described previously, respondents said they increased their workforce by an average of almost two employees between Fall 2008 and Fall 2009. A few respondents cut workers during that time, but others increased their workforces by 20%-50%. Interviews with contractors indicated that some were reluctant to hire new employees but added hours for their existing employees. This was in dramatic contrast to the general job scene in the area in 2009.

A study from Sonoma County, California, focused on the comparison of construction employment in Sonoma County, where a large PACE program was underway, to that in nearby counties in 2009. That study showed construction jobs increasing in Sonoma County by 8.4%, while construction jobs in nearby counties fell off or stayed about the same.[15]

[14] Boulder Economic Council. Personal Communications, August 2010. See also, www.bouldereconomiccouncil.org.
[15] "Growth in Construction Economic Activity in Sonoma County and the Sonoma County Energy Independence Program," November 2009, www.sonomacountyenergy.org.

Anecdotal information suggests a similar, though not as dramatic, trend for the Boulder County program. One difference was that a high proportion of the contractors participating in the Boulder County CSLP were from outside of the county, and that diluted the local economic impact.

D. Impacts of Program Design and Anticipated Changes

PACE financing programs nationwide have been much discussed, but, perhaps surprisingly, few have been implemented. Only about a dozen local programs were underway in 2010, and about half of them were suspended before they actually provided financing to home improvement projects. Boulder County's CSLP was one of only a handful of programs that reached full-scale implementation. Program administrators were incorporating their "lessons learned" from Phase 1 implementation into a new Phase 2 round of residential lending, but those improvements were never tested.

Several elements of Phase 1 program design affected economic outcomes. Comments on these, including how they affected future Phase 2 plans, include:

1. The decision to open contractor participation to all comers, so long as they were licensed within their resident and operating jurisdictions, had a strong impact on the program. More than 40% of participating contractors were from outside of Boulder County. CSLP administrators did not plan to restrict contractor participation in Phase 2, either, but they intended to refine promotional strategies, to support local contractors.
2. CSLP administrators could not predict exact interest rates and fees of future loans because they depended on bond sales that would occur during program implementation—yet the interest rates declined from the first to the second round in Phase 1, and were likely to decline again. Administrators said they hoped to see interest rates in the range of 4.5%, compared to a high of 6.8% in Phase 1 (unsubsidized). Fees were also expected to decline. These lower costs would improve marketing effectiveness and the cost-effectiveness of energy efficiency and renewable energy improvements.
3. One issue cited by many respondents to the July 2009 workshop registrant survey was that contractors had to "front" the cost of the work until completion. Reportedly, some small contractors could not carry this risk and withdrew their bids when they learned that they would not be paid until the job was fully completed. The program's approach to aggregating projects, selling bonds, and then reimbursing contractors probably would not have changed in Phase 2. Most PACE programs nationwide have used a similar approach. However, this approach does favor larger companies that can cover front-end expenses for their work.
4. The August 2010 contractor survey strongly suggests that contractors would have to cut back on employee hours because this program, like all PACE-related programs, had been suspended. Eighty-eight percent (88%) of respondents said yes, they would experience lost revenues and lost jobs. Anecdotally, contractors who were interviewed roundly complained of the need to constantly adjust their marketing as well as employment plans in light of policy-driven program changes. Consistent implementation of the CSLP almost certainly would result in greater efficiencies within these contractor businesses. For example, the need for worker training related to program rules and paperwork would

be reduced. Administrative procedures could be streamlined. Marketing approaches could be fine-tuned instead of abandoned.
5. CSLP administrators also anticipated improving program implementation efficiencies. They reported that their Phase 1 experience gave them many ideas for administrative and outreach improvements.

By improving efficiencies through Phase 2 CSLP evolution, administrators believed they could free resources for new efforts. For instance, the Boulder County Sustainability Program staff had designed a new program to spark interest in comprehensive energy home improvement projects, which could then be financed by CSLP. The program focused on creating a one-stop shop for energy home improvement services so as to shorten the time and frustration between the energy audit and completed measures. It was launched with modifications in Fall 2010, minus the PACE financing component.

3.3 Qualitative Assessment Conclusions

The qualitative assessment of CSLP provides strong evidence that total spending on energy- and nonenergy-related home improvements significantly exceeds that which was documented on homeowner invoices and analyzed in Section 2 of this report. Such undocumented spending likely includes qualifying measures that were not financed with PACE and nonqualifying measures. The latter includes, among other things, new windows that are not Energy Star-rated, roof improvements related to a PV installation and cosmetic improvements.

The HELOC seemed especially popular as a non-PACE financing alternative. Other non-PACE financing reportedly used by those who participated or considered participating in CSLP includes bank or credit union financing, solar company in-house financing, and credit cards. Many home improvements inspired by the program were just paid for in cash.

While participants reported that they were happy to use PACE financing, many seemed reluctant to take on too much tax-assessed debt, concerned it could raise their property taxes too high. Alternative financing options helped them to diversify risks associated with this new PACE concept.

The total economic impact of alternatively financed, CSLP-related improvements is unknown. Going roughly by the number of CSLP survey participants who reported using alternative financing, the spending that was documented on CSLP invoices would have to be increased by 20% or more. Contractors who provided survey information estimated an even greater amount of non-PACE spending. Certainly, the economic impacts discussed in Section 2 are a low-end estimate of total PACE-related impacts from Boulder County's Phase 1 CSLP program.

Another conclusion involves the trajectory of the CSLP. The mortgage regulators' challenge stopped PACE residential financing early on. Boulder County's model had been field tested for about a year. It succeeded, but it almost certainly would have had even greater economic benefits after successive rounds. This is not to say that marketing might not have grown harder instead of easier. Phase 1 may have addressed a pent-up demand. Administrative staff and contractors who were interviewed reported that anticipation for Phase 2 workshops seemed less dramatic than it did for Phase 1, with fewer people signing up in advance. At the same time, it is clear that marketing and administrative improvements were in the works, and one of the strongest

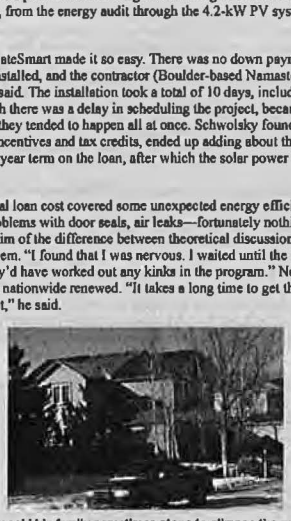
impediments to the program—high fees related to setting up a reserve fund—would have been reduced over time.

Climate Smart Neighborhoods

Rick Schwolsky, who lives with his wife and teen in a newer subdivision on the edge of Boulder, enjoyed participating in the ClimateSmart Loan Program from two angles. First, he had always wanted to add solar PV to his home, but he worried that his family might not stay in their home long enough to enjoy the payback. PACE financing meant that if he did sell, the new owner would pay his or her share of the system cost. Second, Schwolsky wanted to satisfy his professional curiosity about how a PACE program works. As editor of the online EcoHome Magazine, Schwolsky is a professional in the green building business. He looked forward to sharing his experience, from the energy audit through the 4.2-kW PV system interconnection, with his readers.

"The reality was, ClimateSmart made it so easy. There was no down payment. We didn't pay until the system was installed, and the contractor (Boulder-based Namaste Solar) handled most of the paperwork," he said. The installation took a total of 10 days, including the interconnection, though there was a delay in scheduling the project, because the CSLP had to aggregate projects, so they tended to happen all at once. Schwolsky found that the $26,000 project, minus utility incentives and tax credits, ended up adding about the same cost as it saves until the end of the 15-year term on the loan, after which the solar power will be practically free.

Schwolsky said the total loan cost covered some unexpected energy efficiency improvements, too. "We had some problems with door seals, air leaks—fortunately nothing big," he said. The experience reminded him of the difference between theoretical discussions of energy savings and really achieving them. "I found that I was nervous. I waited until the second round of financing, figuring they'd have worked out any kinks in the program." Now Schwolsky hopes to see PACE programs nationwide renewed. "It takes a long time to get the word out and to gain homeowners' trust," he said.



Rick Schwolsky said his family sometimes stops to glimpse the new solar panels that are barely visible on their house. *Photo from MRG & Associates*

One program design decision stands out for its influence on local economic impacts. The relatively open invitation to contractors probably diluted the local jobs development impacts of this program.

One question for PACE program administrators in Boulder County and nationwide is how PACE—or similar financing programs—might be used more effectively to build a clean energy economy. Initially, some contractors and many of the materials they use are likely to come from outside the local area—but perhaps that is part of the process of building a green economy.

For example, solar PV module and balance-of-system manufacturing is just beginning to be established in the United States. One assumes that these high-value elements in the economic model would establish in-state or locally more frequently as the market for them appears more stable. Certainly the track record for established PACE programs is too short to have affected the upstream end of the clean energy value chain so far.

Yet it is important to return to the observation that Phase 1 of the CSLP had significant impacts, not only from directly financing, but also from starting a local conversation about home energy retrofits. Homeowners may ultimately choose PACE financing, an alternative type of loan, or cash to pay for their energy improvements, but the news in Boulder County was that they made their choices and installed improvements. CSLP provided information on how to make smart energy efficiency or renewable energy investments, including addressing the upfront cost barrier.

PACE proved itself in Boulder County through Phase 1 of the residential ClimateSmart Loan Program. The economic benefits that came, despite recessionary pressures throughout Colorado, were impressive and program administrators indicated willingness and strong capabilities to build the program through successive phases, thereby supporting even greater economic results.

Financing for Mainstream Solar Customers

For Steve Schoo, marketing and communications director for Boulder-based solar integrator Independent Power Systems (IPS), the loss of Boulder County's ClimateSmart residential loan program meant a return to old ways of doing business. "We've had a strong reputation in this community. We've had customers with name recognition, whose testimonials mean a lot," Schoo said. On that basis, the 14-year-old company, which has been in Boulder for about four years, built a business mostly with customers that Schoo calls "serious solar supporters."

The promise of ClimateSmart was that IPS could reach a wider audience. As the program started to pick up, IPS heard from more people who were not just scientists, architects, community leaders, and the like. A new tier of customers had started to call, Schoo said. ClimateSmart brought in homeowners of ordinary means who wanted to add a few solar panels along with other energy-based improvements. "On average, we started doing smaller jobs, but there were more and more of them," Schoo said. He also noticed a welcome change in his marketing pitch. "It was a very positive message... ClimateSmart marketing was geared to helping individual homeowners make improvements, which in turn make Boulder a better, more sustainable place to live," Schoo said.

IPS played a lead role in promoting the ClimateSmart loans. Schoo and other IPS staffers put in many volunteer hours to help pass the November 2008 bond measure that funded the program.

They attended forums; they put up yard signs and answered phones. Then, when the first round of funding was announced, they donned ClimateSmart T-shirts and helped run the workshops that customers were required to attend. That experience was rewarding, Schoo said, because until that time, different kinds of contractors—whether heating system installers, insulation contractors or solar companies—seldom came together. ClimateSmart encouraged them to discuss among themselves how to define a complete home energy improvement plan, which would eventually benefit all energy-related contractors.

The news that federal mortgage policymakers had stopped PACE programs including Boulder's ClimateSmart loans) came abruptly in June, when IPS was just gearing up to promote solar improvements through another round of financing. Schoo said he expected the continuing recession to have some effect on this next round, but that the effect could be countered by the marketing inertia—such as word of mouth advertising—from the earlier rounds of the program. At the time of this interview in July 2010, Schoo was rolling out an "old" marketing theme—promoting solar as a way to fight expected utility rate increases. Until that campaign took hold, he figured the company would stay busy through the summer converting "at least a dozen" remaining leads initiated during the CSLP into jobs using conventional financing. However, when asked for numbers, Schoo faced an awakening. He had not assessed his leads for a few weeks, so he called an assistant on the office phone. He waited for her to tally numbers, and then his face dropped. "Wow. It's that bad?" he sighed. "So everyone else cancelled?" He confirmed that all but a few of his leads had already called to say they were reconsidering getting into solar, since the CSLP had been stalled.

Figure 4. A solar subdivision in Boulder includes IPS solar installations.
Photo from MRG & Associates

4 Summary Conclusions and Observations

The preceding sections of this report, Economic Analysis and Qualitative Assessment, each offer conclusions. This section summarizes the conclusions and offers observations on overall program impacts and lessons learned.

Many aspects of the economic analysis described in this report also offer lessons for any local energy home-improvement campaign that spurs significant investments in energy efficiency and renewables. Strong interest in PACE financing, including Boulder County's choice of that model, is based on its appeal to a wide and diverse audience. The workshops that were required for applicants to the CSLP drew a total attendance of more than 3,000 Boulder County residents. Interviews with participating contractors confirmed that this level of public interest in saving energy and installing solar energy systems was previously unheard of in Boulder. Yet once a homeowner makes a decision to invest and secures the necessary financing, the spending creates economic benefits, whether financed through PACE or through another method of financing. For this reason, this study offers lessons for a range of local energy-retrofit programs.

4.1 Results of Input-Output Analysis

The analysis of economic impacts in this report is based on a detailed assessment of CSLP-related customer spending, using invoice data for 598 residential energy retrofits. The total CSLP-financed spending evaluated in this study added up to more than $9.0 million. Additional residential projects valued at $0.8 million were completed under the CSLP program, but documentation on these projects was not available, so they were not included in the analysis.

Additional program loan fees, substantial reserve account funding, and other costs were relatively high (approaching 30% of total program costs) in the first (start-up) phase of the program. Costs for the second round of Phase 1 financing were lower than costs for the first round, and CSLP staff believes that these costs would continue to decline. They were not included in the economic impact study.

Where documentation was available on participant spending that was alternatively financed (for example, project add-ons paid for with cash), it was included in the analysis. In addition, the CSLP triggered additional spending that was not well documented. This spending was not included in the economic analysis, though a qualitative assessment of additional spending is discussed below.

The primary analytic tool used to evaluate the economic impacts was an I-O model, which identifies relevant interactions among all sectors of the local and statewide economies. Results of the analysis indicate that CSLP spending in Boulder County alone contributed to 85 short-term jobs, more than $5 million in earnings, and almost $14 million in economic activity in Boulder County. These results alone more than justify the county's investment in the program. Program spending supported another 41 short-term jobs outside of Boulder County, $2 million in additional earnings, and almost $6 million in additional economic activity statewide. Viewed in the long term, analysis of an ongoing CSLP program with similar participation levels would result in increased total savings and sustained job impacts.

In addition, participant utility bill savings totaled about $125,000 for the current year. The long-term economic benefits of some measures—especially solar PV—are hardly reflected in this first-year energy savings, as they accumulate over the 20- or 30-year life of the measure and increase if (and this is not assumed in this analysis) energy costs increase year after year.

The relative strength of economic benefits in the statewide market is rather unusual. This occurred because more than 40% of contractors participating in this program were located outside Boulder County. Further, many of the in-county contractors in this study had employees that live and spend most of their earnings outside the county.

This effect is explained largely by a program-design decision to welcome all contractors who were licensed to operate in the communities they served. This made implementation simpler, and it also helped to achieve some noneconomic program goals. For example, it increased the likelihood that residents would install relatively uncommon measures for which there were limited numbers of in-county contractors. Administrators hoped this would help achieve greater greenhouse gas emissions reduction goals. They also hoped it would trigger new, competitive businesses, thereby gradually achieving local economic development goals, as well as spreading benefits throughout the Denver metro area and statewide.

For the state as a whole, program investments supported 126 jobs, more than 9 jobs per million dollars of investment. Wage and salary earnings increased by $5.1 million in Boulder County and $7.1 million for the state as a whole in the short term. If the CSLP were continued at the same level of participation and with the same profile of contractor participation for 5 or 10 years into the future, these benefits would clearly multiply.

A longer-term 10-year CSLP program could create a shift in the profile of participating contractors to yield more local benefits, as well as a shift in the industry profile of the state to include more manufacturing related to energy efficiency and renewable energy retrofits. Currently, many of the high-value (and job-creating) products used in these retrofits, such as solar PV panels, are manufactured outside Boulder County—and, in fact, outside the state. Colorado is one of several states that has an economic and energy policy commitment to establishing in-state clean energy industries. Arguably, programs like the CSLP "prime the pump," establishing a market for energy efficiency and renewable energy products that could be manufactured profitably instate, creating much greater job impacts and economic benefits.

4.2 Qualitative Assessment

The most significant theme is that CSLP spurred considerably more spending than the loan-related project invoices suggest. As mentioned earlier, some invoices included charges for improvements that were not financed by CSLP. These were included in the economic analysis. However, those invoices missed work that was done on CSLP homes by other contractors or done by the homeowners themselves for qualifying and nonqualifying improvements.

Additionally, some projects were inspired by effective program outreach, even though they used alternative financing. A survey of CSLP workshop registrants indicated that more than 20% did not use CSLP financing but went ahead with retrofit projects. They reported that they used cash and other types of financing, especially HELOC. A separate survey of CSLP contractors suggested that even greater additional spending came from alternatively financed, CSLP-inspired

projects. Based on information from both surveys and interviews, we conclude that additional CSLP-inspired spending would likely increase total documented spending by 20% or more. This would, in turn, increase program economic impacts.

The general finding of additional non-PACE spending was confirmed anecdotally by other PACE programs nationwide.[16] It may be a measure of success of the PACE model, as homeowners seem well aware of the need to choose the most appropriate financing for their needs, once PACE has triggered an initial, serious interest in making energy improvements.

Other useful observations are included in the qualitative assessment, many related to the aspects of program design that affected economic impacts. Primary among these was the guideline that led to a high percentage of out-of-county contractors (discussed previously). It was also clear that the program was increasing in cost-effectiveness prior to its early suspension.

The benefits of continuing a program of this nature and building on its success were already clear to CSLP administrators, contractors, residents, and other supporters, when the program was suspended. This report finds strong evidence to support their belief. The Boulder County ClimateSmart program, based on the PACE financing model, yielded quantitative and qualitative economic benefits that would in all likelihood increase over time.

Colorado Map Showing Boulder and Denver

[16] "Jumping on the PACE Financing Train," Panel Session at ASES National Solar Conference, May 2010, Phoenix, Ariz., moderated by A. Heinemann, DSIRE, NC Solar Center.

Appendix 1

Boulder County ClimateSmart Loan Program in Context

Of the first dozen PACE programs nationwide, six had funding rounds before federal mortgage regulators put all programs on hold. These were Babylon, New York; Berkeley, California; Boulder County, Colorado; Milwaukee, Wisconsin (a small pilot); Palm Desert, California; and Sonoma County, California. Each of these offered a different program design that was suited to different goals and market conditions. As a result, the economic impacts of each program differ as well. Boulder County PACE administrators adapted some elements of other early PACE programs to their program design; they also created innovations to address their specific goals. It is important to consider program differences and similarities before attempting to apply economic-impact results from one program onto others, whether existing or planned.

Table A1 below summarizes some PACE programs and their innovations.

Table A1. Comparison of Four PACE Programs Underway by Spring 2010

	Berkeley, CA **BerkeleyFirst** **ci.berkeley.ca.us/contentdisplay.aspx?id=26589**	**Boulder County, CO** **ClimateSmart Loan** **climatesmartloanprogram.com**	**Babylon, NY** **Long Island Green Homes** **ligreenhomes.com**	**Sonoma County, CA** **Energy Independence** **sonomacountyenergy.org**
Funding Mechanism	Micro-bonds involving 3rd-party investor.	Public tax and tax-exempt bond offerings. Bonding capacity dedicated by the cities of Boulder and Longmont, plus Boulder County; relatively low interest rates depend on bond market	Initially Municipal Waste Revolving Fund for reducing CO_2 ($2 million); private funding thereafter; Very low (3%) interest rates initially	County unallocated reserve funds from Treasury and Water Authority maximizes flexibility; future bonds may be sold to institutional investors 7% interest rate reported
Eligible Properties for Implemented Round(s)	Residential, Commercial	Residential (initial), Commercial	Residential	Residential, commercial, industrial
Eligible Measures	Solar PV	Energy efficiency and renewables, including solar PV, solar heating, small wind, efficient woodstoves	Energy efficiency (PV if home meets Energy Star for new homes standard)	Energy efficiency, renewables, water conservation
Spending and Participants to Date	$1.5 million allocated but not entirely spent 13 installations in pilot, total 38 projects through Fall 2009	$40 million authorized for residential and commercial About $13 million dedicated to Phase 1 Residential (600+ homes)	$3.19 million authorized through mid-2010; $2 million from Solid Waste Fund (366 homes)	Provided $32.8 million funding through mid-2010 for about 1,050 projects; Commercial program currently active
Collection Mechanism	Property tax bill, senior lien	Property tax bill, senior lien	Separate monthly assessment, transfer to property tax bill if late	Property tax bill, senior lien
General Process	Application, construction, payment	Workshop, quotes, application, bond sale, construction, payment	Appearition, audit, construction, payment	Application, audit, construction, payment
Unique Attributes	Private funding does not affect local government balance sheet. Basic efficiency measures prerequisite	Bonds secured by lien plus a moral obligation from local government. Does not affect local government balance sheet Special rules to low-income applicants.	Had to relate energy waste to solid waste guidelines	Aiming for 10% energy savings per home in litigation with FHFA to support PACE; Funding has little outside risk

Attachment O: ClimateSmart Loan Program Utility Release Form

ClimateSmart™

LOAN PROGRAM

Utility Release Form

By signing this release form, I grant Boulder County and/or its agents permission to access billing information for ongoing energy consumption and usage history. I understand that the information will be used to track energy use one year prior to my application as well as energy use after the implementation of measures funded through the ClimateSmart Loan Program in order to evaluate the program. I understand that any information obtained will be kept confidential and will not be used for any purpose other than that specified herein.

I hereby authorize the below listed utilities to provide Boulder County and/or its agents with billing information for the account numbers listed.

Date _____

Electric Utility Provider_____ **Account Number** _____

Gas Utility Provider _____**Account Number**_____

Printed Name _____

Signature_____

Property Address

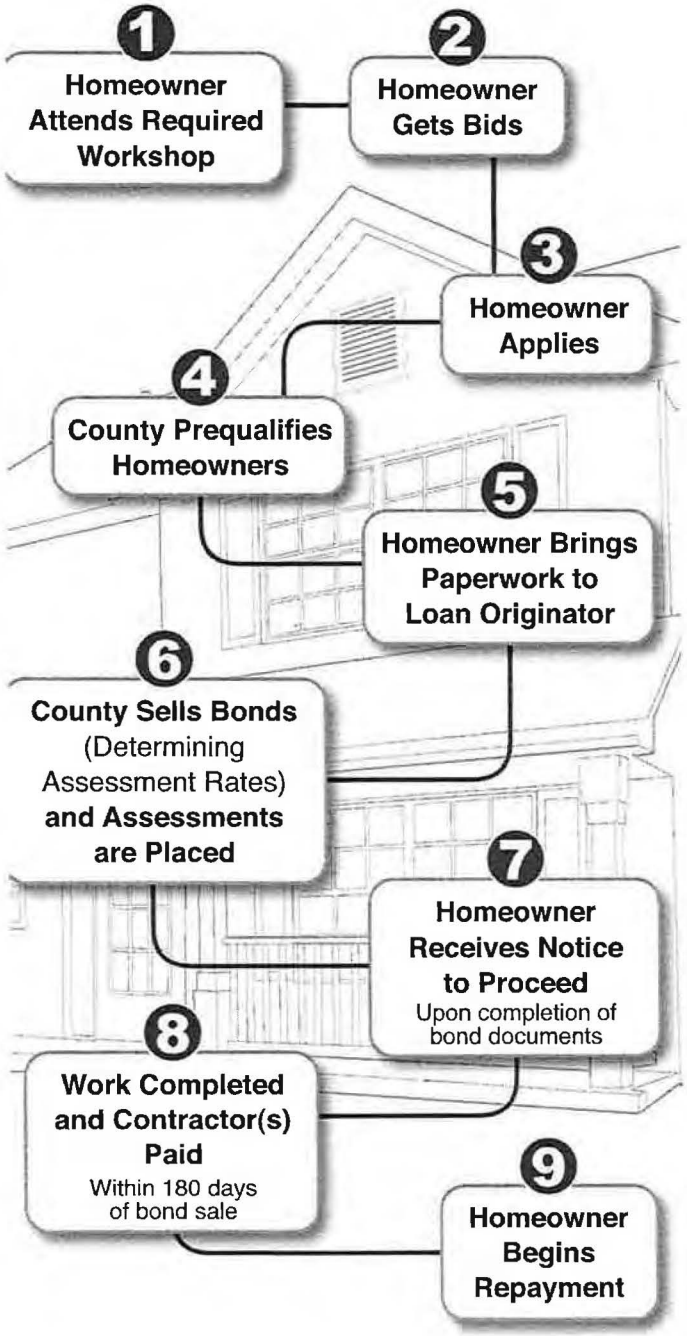
_____

_____

_____

Attachment P: Sample ClimateSmart Loan Program Marketing Materials

Application & Financing Process



Frequently asked questions

1 Who can do the work and what are the requirements for the home improvement projects?
Any contractor licensed or certified in their respective trade may complete the work on your home. Contractors must follow the minimum efficiency requirements on the eligible measures list and obtain copies of all inspections and permits required by the jurisdiction where the property is located.

2 What if contractors require upfront costs for materials?
In order for Boulder County to disburse funds, there must be verification that the work has been completed. If the contractor requires an upfront payment of costs, the homeowner can pay this deposit out of pocket and/or work with the contractor to establish an agreement regarding settling the deposit.

3 Can I continue to get lower bids or estimates for my projects?
Yes, you can update your estimates by modifying your application online. However, your estimates and bids will be finalized during your meeting with the loan originator.

4 What if my final invoice from my contractor ends up being lower than the amount of my loan?
Your loan amount cannot be adjusted once you have met with the loan originator. If the actual project cost comes in lower than your loan amount, you can use the difference toward an energy efficiency or renewable energy measure on the eligible measures approved by Boulder County. If your invoice comes in over the amount of your loan, you are required to pay the difference out of pocket.

5 Who pays the contractor?
Boulder County pays the contractor(s) directly. When the improvement/work is done, the homeowner will submit their final invoices to Boulder County along with a "homeowners acknowledgement form" and copies of permits and inspections required by the jurisdiction where the work occurred. When Boulder County has received all the paperwork, they will pay the contractor within 7-10 business days.

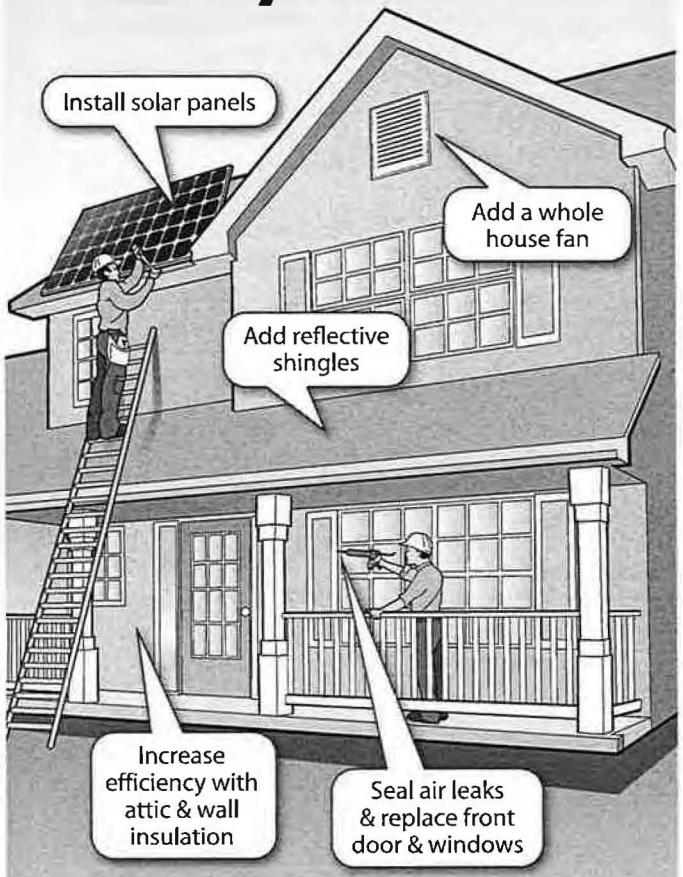
6 Can I still obtain tax credits or rebates available?
You may collect any federal, state, county or utility rebate available to you. You may be able to take tax credits as well; please consult a tax professional.

7 When am I locked into the loan?
You are locked into the loan after you sign the loan agreement during your meeting with the loan originators. After you sign this document, you cannot withdraw from the program.

ClimateSmart
LOAN PROGRAM

For more information
visit us at ClimateSmartLoanProgram.org or
email us at: Climatesmart@BoulderCounty.org or
call 303-441-4565

Improve where you live.



A loan program for Boulder County Residential Properties

ClimateSmart
LOAN PROGRAM

www.ClimateSmartLoanProgram.org

ClimateSmart™
Loan Program

What is the ClimateSmart™ Loan Program?

The ClimateSmart Loan Program offers loans to Boulder County homeowners to make energy efficiency and renewable energy improvements to their property.

How does it work?

Homeowners must first attend a mandatory educational workshop offered throughout the County. Please visit www.ClimateSmartLoanProgram.org for a workshop schedule and to register for a workshop. Then, homeowners choose a set of energy efficiency and renewable energy measures from the eligible measures list and apply online for a $3,000 – $50,000* loan to fund the improvement. Each property owner who receives financing through the program will be responsible for repaying the loan via a special assessment on the improved property.

What are the benefits of this program?

The ClimateSmart Loan Program provides an excellent source of financing for property owners who:

- Would like to access a longer-term loan than typically offered by home equity or other lines of credit;
- Don't want additional debt tied to their personal credit and want the security of a debt that stays with the property;
- May not have the equity or the high credit score to obtain a loan from a bank or lender;
- Want to implement measures that have a longer-term return on investment.

**Income-qualified applicants will be eligible for lower interest rate loans and, as required by federal law, the maximum amount that income-qualified property owners can obtain through these loans is $15,000. Please visit www.ClimateSmartLoanProgram.org to figure out whether you are income-qualified.*

*** Mobile homes cannot receive loans from the ClimateSmart Loan Program.*

www.ClimateSmartLoanProgram.org

Eligible Energy Efficiency Measures

Category	Measure
Air sealing and ventilation	Air sealing
	Duct sealing
	Energy or heat recovery ventilator
	Whole house fan
	Attic fan
Insulation	Attic
	Wall
	Floor (over unconditioned space)
	Ducts (in unconditioned space)
	Perimeter (foundation)
Space heating and cooling	High efficiency furnace
	Boiler
	Ground source heat pump
	Radiant heating and cooling (floor, wall, and ceiling)
	Evaporative cooler
	Central air conditioner
	Programmable thermostats
Water heating	Demand/tankless
	High efficiency natural gas storage
Lighting	Fixtures, ballasts
	Timers, sensors
Daylighting	Lightshelves
	Tubular skylights
Windows, doors and skylights	Exterior windows and glass doors
	Storm windows
	Insulating shutters
	Insulating exterior doors
	Skylights
Reflective roof	Energy Star listed
Pool equipment*	High efficiency pool circulating pump
	Automatic pool cover
	Air source heat pump
Landscaping*	Focused on heating/cooling

** Please visit www.ClimateSmartLoanProgram.org for more information on minimum efficiency requirements and available rebates.*

Eligible Renewable Energy Measures

Category	Measure
Solar hot water	Rooftop (Includes replacement/repairs for orphan solar hot water systems)
	Pool
	Hot tub
Solar photovoltaics	
Small wind	
Wood/pellet stoves	Pellet stoves
	High efficiency fireplaces and fireplace inserts
	Advanced combustion / gasification wood or pellet stoves

Save Energy & Save Money!

Climate Smart Loan Program Measures:

- Insulation: Attic, Walls, Perimeter
- Air Sealing: Ducts, Envelope
- Replace A/C with Evaporative Cooler
- Replace Windows

At Home Do it Yourself Measures:

- HVAC settings
- Fridge Replacement
- Hot Water – low flow & Set back
- Lighting – 20 CFLS
- Clothesline Use (75% time)
- Plug Load: Timer/Strips

Total Project Estimate:	**$14,000**
Rebates and Tax Credits:	**$1,000**
ClimateSmart Loan Construction Amount	**$13,000**
Annual Loan Assessment*	**$1,486**
Estimated Energy Cost Savings**	**$1,714**
Annual Payback (years)	**8.7**

* Includes project costs, interest and program fees.

** Packaged energy cost savings are less than the sum of the parts due to interactions between measures. Implementing the above measures would reduce GHG emissions by an estimated 53%.