



Residential PACE Best Practices: Designing and Implementing Effective Programs

Tuesday, May 16, 2017

2:00 – 5:00 PM

Session Goals and Objectives

Participants will engage in dialogue and learn about:

- How residential PACE financing works, including roles and responsibilities of states, local governments and PACE administrators
- Best Practices for R-PACE programs, including DOE Guidelines and informational resources
- Program design and policy considerations for state and local governments
- Implementation steps and strategies for developing and launching a residential PACE financing program
- Methods for quantifying energy savings and other impacts of PACE, including considerations for data collection, reporting and analysis of program impacts



Session Presenters

- Steve Dunn, US DOE (*Moderator*)
- Jeff Deason, Lawrence Berkeley National Lab
- Sandy Fazeli, NASEO
- David Gabrielson, PACE Nation
- Michael Yaki, Renovate America

Workshop Agenda

- **Part I (2:00 – 3:15 pm)**
 - **Introductions**
 - **Presentations**
 - **The Data-Driven Case for R-PACE**, David Gabrielson, PACE Nation
 - **How PACE Works**, Michael Yaki, Renovate America
 - **Tracking Residential PACE Program Impacts**, Jeff Deason, LBNL
 - **BREAK (3:15 – 3:45 pm)**
 - *‘Ask the Experts’: DOE staff, Session Leads available*
 - *Idea Wall – share your suggestions, ideas and comments*

Workshop Agenda, continued

- Part 2 (3:45 – 5:00 pm)
 - **Residential PACE Policy and Program Design Considerations**, Sandy Fazeli, NASEO
 - **Small group breakouts (select one):**
 - Policy and Program design strategies and considerations, *David Gabrielson, Sandy Fazeli*
 - Stakeholder mapping, *Steve Dunn, Michael Yaki*
 - Measuring impacts and communicating results, *Jeff Deason, Alison Berry*
- Small group report-outs
- Workshop summary / action items
- Adjourn

Guidelines for Residential PACE Financing Programs

- Released November 2016 (update to 2010 guidelines)
- Recommends best practices for residential PACE program design, including:
 - Consumer and lender protections
 - Compatibility of PACE with other energy efficiency programs and services
 - Minimum contractor requirements and performance standards
 - Evaluation of program outcomes (e.g. energy savings, economic benefits)
 - Informational resources for state and local governments

DOE recommends the Best Practice Guidelines for Residential PACE Financing Programs be incorporated and followed by States, Local Governments, PACE program administrators, & contractors to plan, develop, and implement programs and improvements that effectively deliver home energy and related upgrades.

DOE Resources and Assistance

- **State and Local Solution Center**
 - DOE Best Practice Guidelines for Residential PACE
 - Resource guides, case studies
 - <https://energy.gov/eere/slsc/>
- **State and Local Technical Assistance**
 - PACE program design, best practices, implementation strategies
 - Residential energy efficiency measures and technologies
- **Better Buildings Residential Network**
 - Networking: monthly peer exchange calls and newsletter
 - Residential Solution Center, Toolkits, Case Studies
 - <https://energy.gov/eere/better-buildings-residential-network/>

The Data-Driven Case for R-PACE

David Gabrielson, PACE Nation



The Data-driven Case for R-PACE

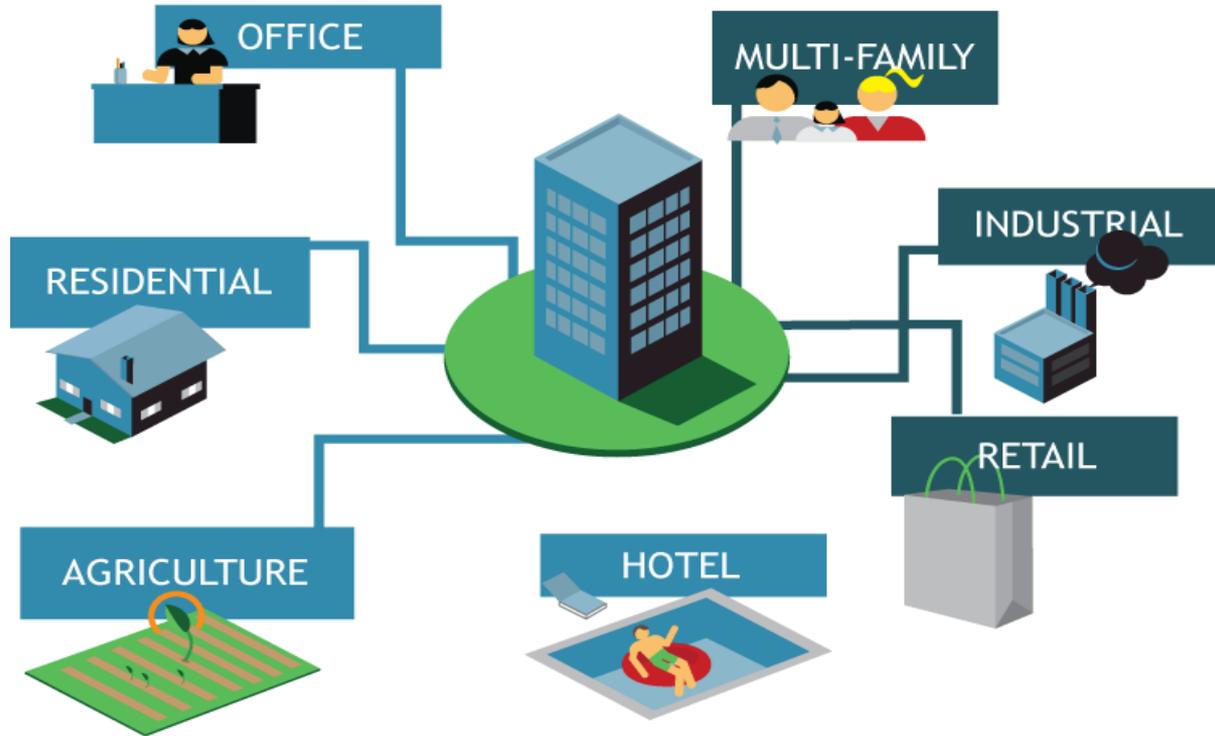
*DOE Better Buildings Summit
May 16th, 2017*

What is PACE?

PACE is **tax-assessment** financing for energy efficiency, renewable energy, water conservation, and certain resiliency projects for buildings.

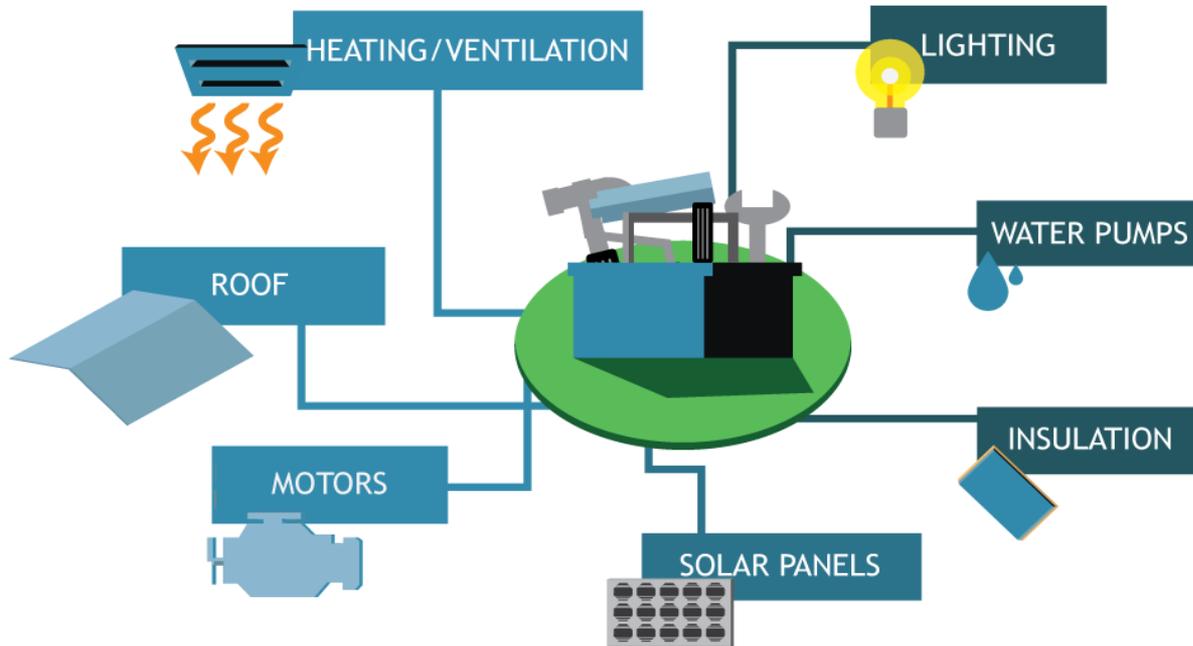


What Buildings?



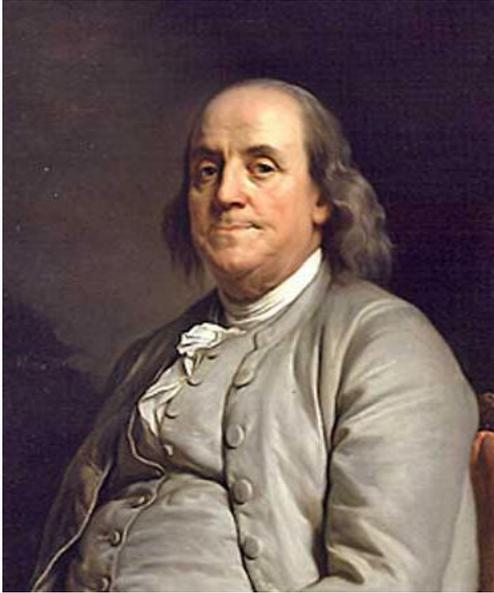
For What Projects?

Projects that save or generate energy, conserve water, or promote resiliency



Old Idea – New Adaptation

Financing a Public Purpose



1736 – First Assessment District
in Philadelphia

Today – 37,000 Assessment
Districts nationwide

- ✓ Water & Sewer Service
- ✓ Parks
- ✓ Sidewalks
- ✓ Lighting
- ✓ Downtown renewal
- ✓ Energy Efficiency (PACE)

PACE Process

Public Private Partnership

1. **State legislation** enables use of property-based tax assessments for qualifying projects. (Public Purpose)
2. **Municipalities** decide whether or not to establish or join a PACE program. (Voluntary)
3. **Programs** can be administered by the state, a municipality, or contracted to an independent third party.
4. **Funding** for PACE **projects** provided by non-recourse municipal bonds or PACE capital providers.

Important Considerations

Public Private Partnership

1. Based on **property value** – not the individual credit of the property owner
 - Subject to conditions
2. Repaid on **property tax bill** – similar treatment
 - Senior lien to mortgages
 - No acceleration or extinguishment on default

Two Distinct Markets

Residential

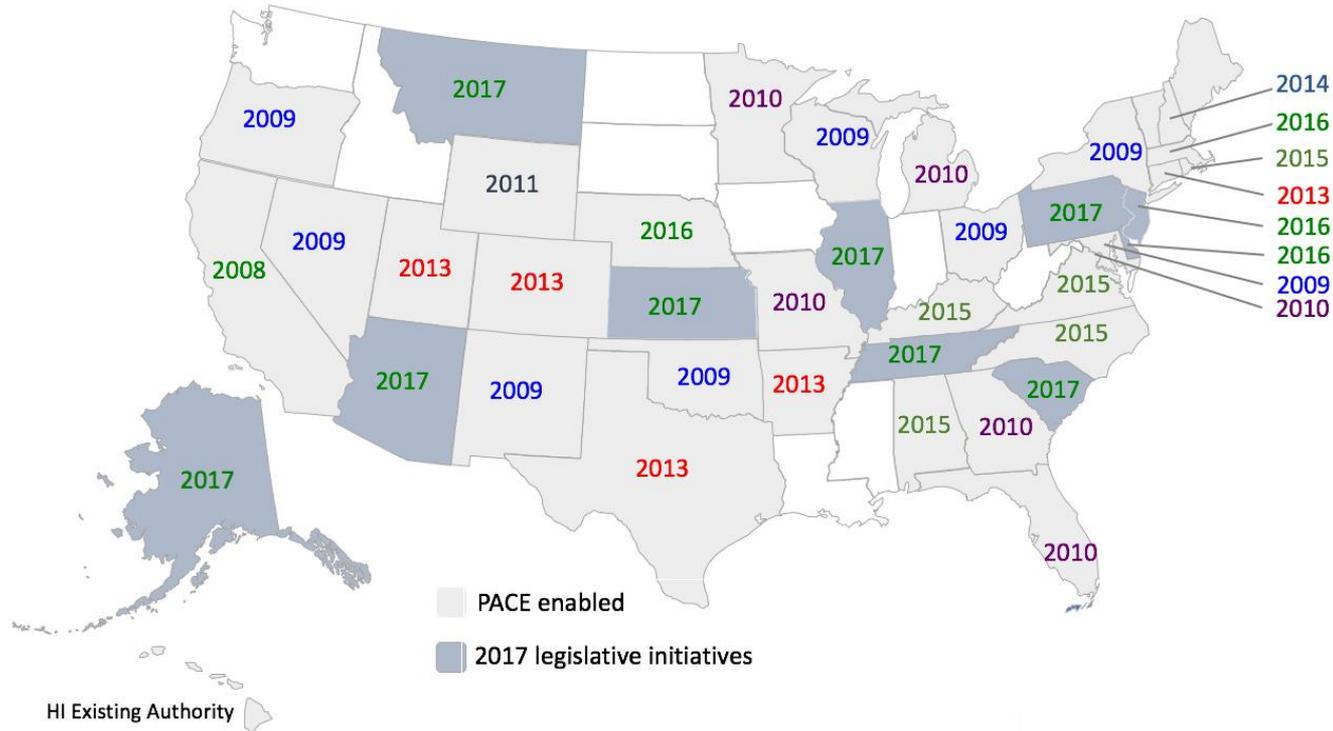
1. Since 2008
2. Opposition from MLs
3. Hiatus
4. CA resurgence in 2014
5. Availability (CA, FL, MO)
6. Data is our friend
7. Protections

Commercial

1. Since 2012
2. Consent leads to cooperation
3. National presence
4. Long sales cycle
5. Steady build-out

PACE Legislation

33 States and DC - 80+% of the U.S. Population

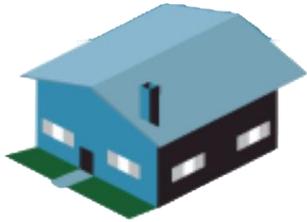




How and Why

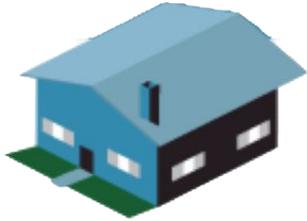
What Makes a PACE Project?

Home owner.....



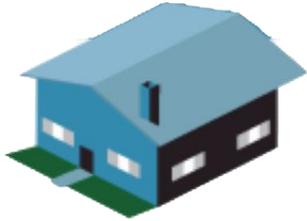
What Makes a PACE Project?

Chooses a Project and a Contractor



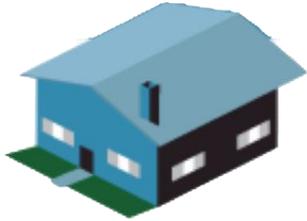
What Makes a PACE Project?

Private sector funding.....



What Makes a PACE Project?

Local Government “Services” the financing



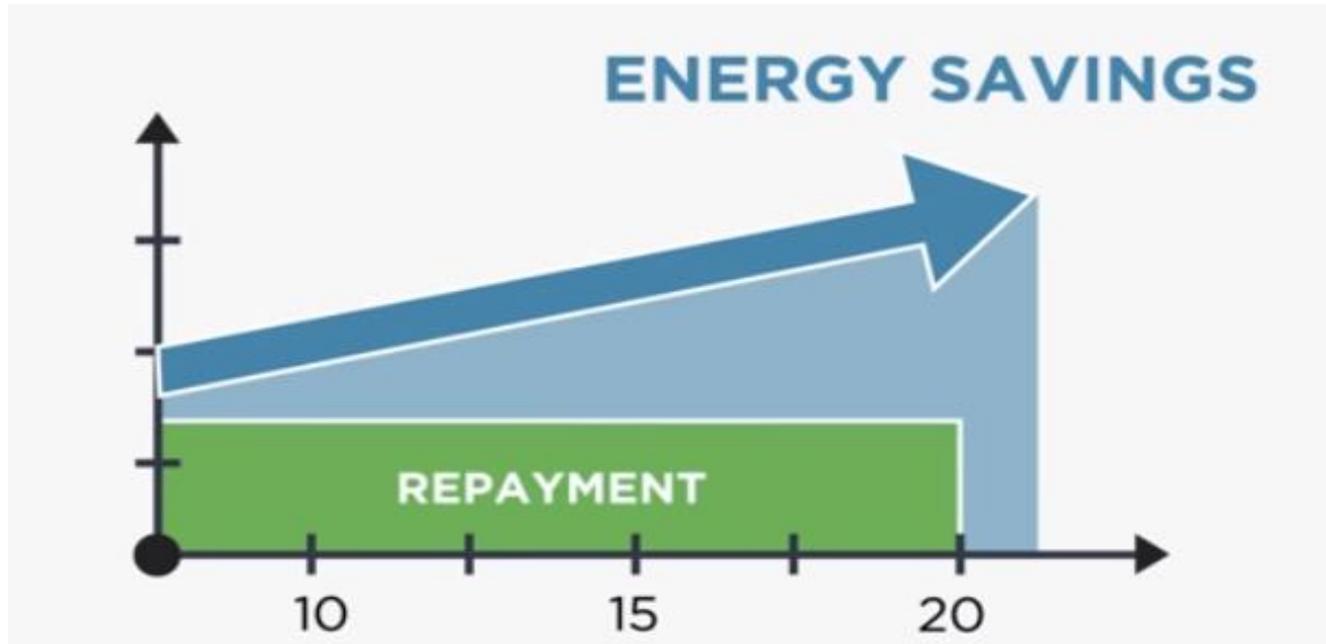
Why Building Owners Love PACE

No \$ out of pocket - Hard and Soft Costs



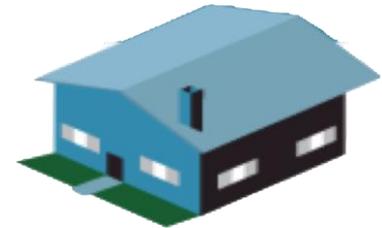
Long-Term Payback

Makes Projects Cash-Flow Positive



Why PACE?

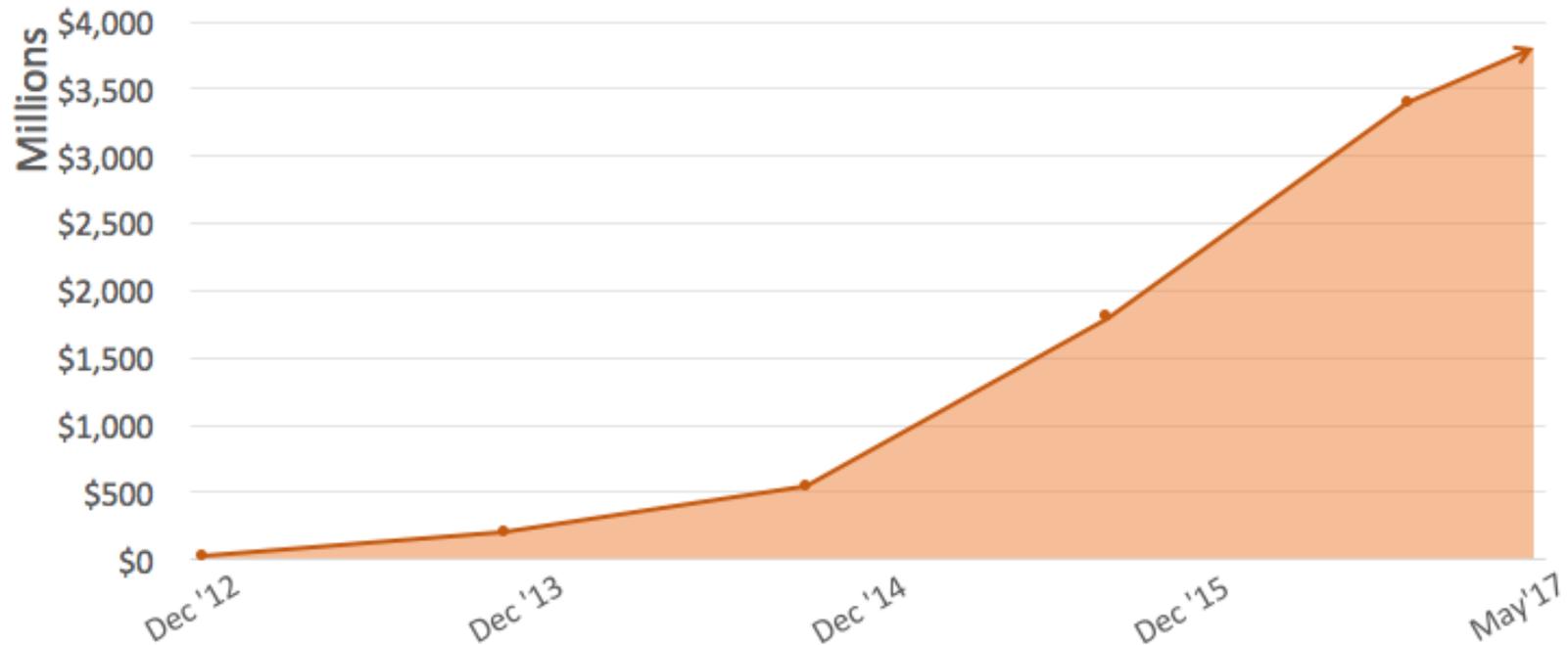
Assessment may Transfer on Sale





PACE is Working

Cumulative Residential PACE Financing



R-PACE Projects

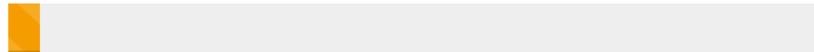
Energy Efficiency (58%)



Renewable energy (37%)



Water (4%)



PACE's Impact

- **150,000** homes improved with PACE
- **44,000** jobs created
- **\$5.8 billion** energy costs saved
- **\$7 billion** total economic impact
- **20 billion** kWh saved
 - Equivalent to over 1.7 million homes' annual energy consumption
- **5.5 million** metric tons carbon reduced
 - Equivalent to taking 1.1 million cars off the road for a year
- **12.8 billion** gallons water saved
 - Enough to fill 19,000 Olympic swimming pools

PACE Loans: Does Sale Value Reflect Improvements?

Journal of Structured Finance, Winter 2016

- PACE homes increased in value \$199 - \$8,883
- PACE homes saw nearly a \$7,000 premium when purchased from foreclosure
- PACE home energy renovations recover more than 100% of cost ... compared to 58% to 66% recovery for bath and kitchen remodels



PACE and Property Sales

RENOVATE
AMERICA

MLS - HERO Home Sales vs. All Home Sales



Date
1/1/2016 12:00:00 AM to 12/31/
and Null values

Unit
All

Type	# of Sales	Avg. Sale Price	Avg. DOM	Sale Date	Avg. Sale Price To List Price
Hero	1,078	\$348,291	52.5		99.45%
Market	42,626	\$352,058	65.7		98.38%

***ONLY includes Riverside and San Bernardino MLS data

Date Range
 Monthly
 Quarterly

Average Home Sale Price



Average Days On Market (DOM)



Average Sale Price To List Price Ratio



PACENation CPP V2.0 Key Enhancements

- **Provide Comprehensive Disclosures** which include 3-day right to cancel and modeled on the federal **Know-Before-You-Owe disclosure form**;
- **Conduct 100% confirmation of financing terms by phone** in a live, recorded call;
- **Set standards on contractor marketing practices** and workmanship issues, including **processes to resolve and remediate homeowner complaints** and requirements around **contractor participation and termination**;
- **Develop a forbearance program** for homeowners who unexpectedly suffer financial hardship, including extra protections for U.S. military service members; and
- **Begin collecting monthly household income and debt obligations** to help develop income-based financing criteria that PACENation will use to amend underwriting standards.



Residential PACE

R-PACE Takes

Huge Potential

- ✓ R-PACE works for Homeowners & Govt Sponsors
 - Helps owners finance projects they want and need
 - Achieves state and local goals
- ✓ PACENation Consumer Protection Policies V 2.0
- ✓ HUD / FHA now support PACE
- ✓ Results Count

Why PACE?

Lots of reasons you should support PACE

- ✓ Meets a real market need
- ✓ Helps building owners finance projects they want and need
- ✓ 100% Voluntary
- ✓ Increases building value – collateral value
- ✓ Private market – open market



Our Vision?

PACE financing will be available to every property owner in the United States

Become a member to be listed in the **Member Network** of active PACE market participants and gain access to exclusive resources and tools for the PACE community.

www.pacenation.us/join



David Gabrielson, Executive Director - David@PACENation.org

How PACE Works

Michael Yaki, Renovate America

RENOVATE AMERICA™

How PACE Works

The Challenge

When it comes to improving home energy performance

- The status quo isn't working.
- Every year, 1 in 6 homeowners update a system in their homes that affects energy consumption.
- The vast majority of the time they choose a less-efficient option.

Why?

- Don't have access to cost-effective credit
- Don't know how long they'll stay in their home
- Don't know which products to choose
- Don't have the time or ability to go through lengthy processes



PACE as a Solution

PACE is helping solve the marketplace failure

- **Access to financing**
 - Overcomes cost barriers by offering 100% financing
 - Payments spread out over life of product, lowering annual payment amount
 - Lower utility bills may offset assessment payments
 - Interest may be tax deductible
- **Transferability**
 - May be able to transfer remaining balance
- **Informed efficiency choices**
 - PACE only finances Energy Star rated products
 - Available for unplanned, urgent system replacements
 - Consumer friendly platform

The Power of PACE

A Lawrence Berkley National Laboratory (LBNL) report released in 2016 titled, *Energy Efficiency Program Financing: Where it comes from, where it goes, and how it gets there*, found that PACE financing is leading the way in residential energy efficiency loan volume noting:

“a handful of programs drive a very large fraction of total residential energy efficiency loan volume. The two largest programs – the California HERO PACE program and the Mass Save HEAT Loan program (zero percent financing) – account for 46% of the total capital loaned.”

- The LBNL report was based on 2014 data. From 2011 to 2014, the HERO program originated \$400 million in financing. Since then, the HERO program has originated an **additional \$1.7 billion**.
- PACE, because it doesn't rely on public dollars, has the ability to scale to meet demand in a way that is unparalleled by publicly or rate-payer financed efficiency loan programs.

How Does Residential PACE Work?

1. State legislation grants authority to local governments to establish PACE programs

2. Local governments either create a Residential PACE program or join a statewide or other district. Third-party PACE Administrator may be designated.

3. Through the PACE Administrator, homeowners apply for, and if qualified, receive Residential PACE financing to install eligible improvements to their home

4. Property owners repay Residential PACE financing through their property tax bill

PACE Administration Partners

Issuer

Selects PACE Administrator(s) and provides program oversight

Creates standards for PACE administrators, contractors, and underwriting

Receives quarterly program reports

Audits participating financing companies on compliance

PACE Administrator

Works with local governments to adopt programs

Develops network of contractors

Oversees underwriting process

Pays contractor after project completion

Works with tax collectors on PACE assessment collection

Municipality

Adopts PACE program by local resolution

Treasurer/Tax Collector

Collects PACE assessments

Contractor

Works with homeowner and PACE Administrator to select and install eligible products

Homeowner

Enters into contract with Issuer for financing

Enters into contract with issuer for financing

Repays issuer financing through PACE assessment imposed and collected on property tax bill

PACE Consumer Protections

Issuer

Adopts consumer protection requirements, e.g. PACENation Standards

Receives quarterly reports on program results

Audits administrators on consumer protections, underwriting, contractor requirements, product eligibility, and other standards

Based on audit, takes enforcement action as necessary

PACE Administrator

Implements underwriting requirements

Oversees pricing review and confirms terms of financing through live call with property owner

Property owner must also receive disclosure form modeled on "Know Before You Owe" and a 3 day right to cancel form

Additional protections for seniors

Provide dispute resolution, selling and refinance support for homeowner

Ensures contractors satisfy program requirements, e.g. licensing, eligible products, and required permitting

Contractor

Installs products that are certified as energy efficient

Must be licensed, bonded, and insured

Must abide by business practice and marketing guidelines

Homeowner

Signs a Completion Certificate before the contractor is paid

Benefits to Government Partners

Private Capital Funds Public Policy Objectives

- Voluntary for counties and municipalities
- Participation costs covered by the program
- No taxpayer/ratepayer money
- Boosts municipal revenues
- Meet local economic or environmental goals
- Real-time impact reporting
- Dedicated support
- Consumer protection standards



CONSUMERS AS STAKEHOLDERS: CREATING SAFEGUARDS FOR A NEW FORM OF FINANCING

		HELOC	UNSECURED CREDIT
Single Purpose Financing			
Fixed Rate and Fully Amortizing			
Pricing Review			
100% Confirmation of Terms Via Live Phone Call			
Enhanced Disclosure			
Right to Void HERO Financing			
Funding Provided Only Upon Completion of Project and Homeowner Certification			
Contractor Requirements			
No Prepayment Penalty			
Pre- and Post-Funding Customer Support			
Senior Care			

 Yes  Sometimes  No

CONSUMERS AS STAKEHOLDERS: EVOLVING NEW SAFEGUARDS FOR A NEW FORM OF FINANCING

Additional safeguards being considered:

Income-based underwriting / ability to pay

PACE + LTV < 97%

Stricter definitions of eligible products

Forbearance



REPORTING: The County of Los Angeles

ECONOMIC IMPACT

Homes Improved	16.9K
Jobs Created	3,940
Amount Funded	464M
Economic Stimulus	804M

ENVIRONMENTAL IMPACT¹

Energy Saved (kWh-e)	2.23B
Emissions Reduced (ton)	566K
Water Saved (gal)	1.78B

¹ Impacts are projections based on lifetime of installed products



- PACE is an important policy tool for helping the County achieve the goals of their Community Climate Action Plan (CCAP)
- The CCAP holds the County accountable to delivering on California's mandate to achieve 1990 GHG emissions levels by 2020
- Contributes to a growing and healthy local economy by creating new jobs that can't be outsourced

PACE National Landscape

Multiple counties, cities, and towns across the state have joined the New York Energy Improvement Corporation's Commercial PACE program. The opportunity for economic development is even greater for residential PACE. As of Q3 2016, there are nearly 160 times more Residential PACE projects than Commercial PACE projects nationally.

Residential PACE (R-PACE)	Commercial PACE (C-PACE)
<ul style="list-style-type: none">- \$2.9 Billion in Funded Projects- 130,000 Projects- 25,000 Jobs Created	<ul style="list-style-type: none">- \$311 Million in Funded Projects- 820 Projects- 3,730 Jobs Created

Source: PACENation as of Q3, 2016

Tracking Residential PACE Program Impacts

Jeff Deason, LBNL

Tracking Residential PACE Program Impacts

Jeff Deason

Better Buildings Summit

May 16, 2017



My purposes today

- ◆ Describe state of knowledge about PACE program impacts
- ◆ Identify additional data and analysis needed beyond what current programs are providing
- ◆ Specify how programs can help with data collection and provision

Why evaluate energy programs?

- ◆ Provide oversight of the use of public or utility customer funds
- ◆ Demonstrate progress toward energy savings goals, targets, or requirements

How do these apply to PACE?

Who should evaluate PACE? Who funds evaluation?

R-PACE impacts to consider tracking

- ◆ Investment volumes
- ◆ Energy (and water) savings
- ◆ Measure deployment
- ◆ Cost-effectiveness
- ◆ Home value
- ◆ Mortgage market
- ◆ Consumer satisfaction
- ◆ Jobs

Investment volumes: well tracked and notable

\$3,700 148,000

Millions

Home upgrades

Source: <http://pacenation.us/pace-market-data/>

R-PACE investment volumes in context

Table 1. Programmatic Efficiency Lending Volumes in 2014

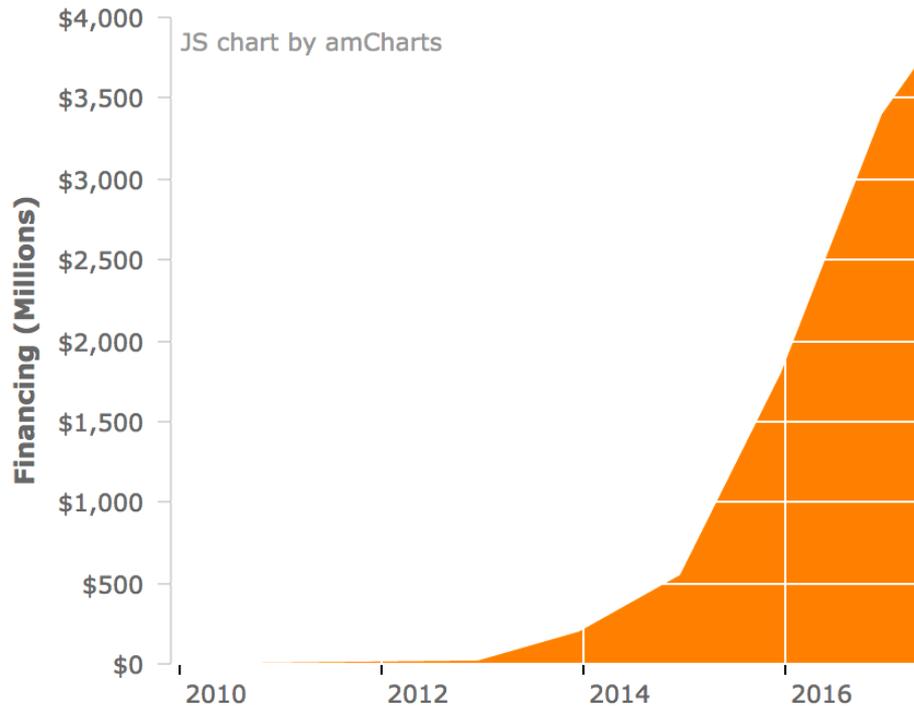
Program Type	Total Loan Volume (\$M)	Residential Sector (\$M)	Number of Residential Loans	Commercial / Industrial Sector (\$M)	Public / Institutional Sector (\$M)	Number of Non-Residential Loans
On-bill	\$179	\$76	9,486	\$89	\$14	11,468
Utility loan (not on-bill)	\$202	\$196	16,607	\$6	\$0.1	231
PACE	\$267	\$248	12,061	\$18	\$0.8	27
State Energy Office RLF	\$74	\$17	1,595	\$12	\$45	92
ESPC	\$4,101	-	-	\$171	\$3,929	-*
Total	\$4,823M	\$537M	39,749	\$296M	\$3.989M	11,818

Source: Berkeley Lab, “Energy Efficiency Program Financing: Where it comes from, where it goes, and how it gets there.” <https://emp.lbl.gov/publications/energy-efficiency-program-financing>

R-PACE investment volumes in context

Cumulative R-PACE Financing

2010-2016



Source:
<http://pacenation.us/pace-market-data/>

Reported energy and water savings

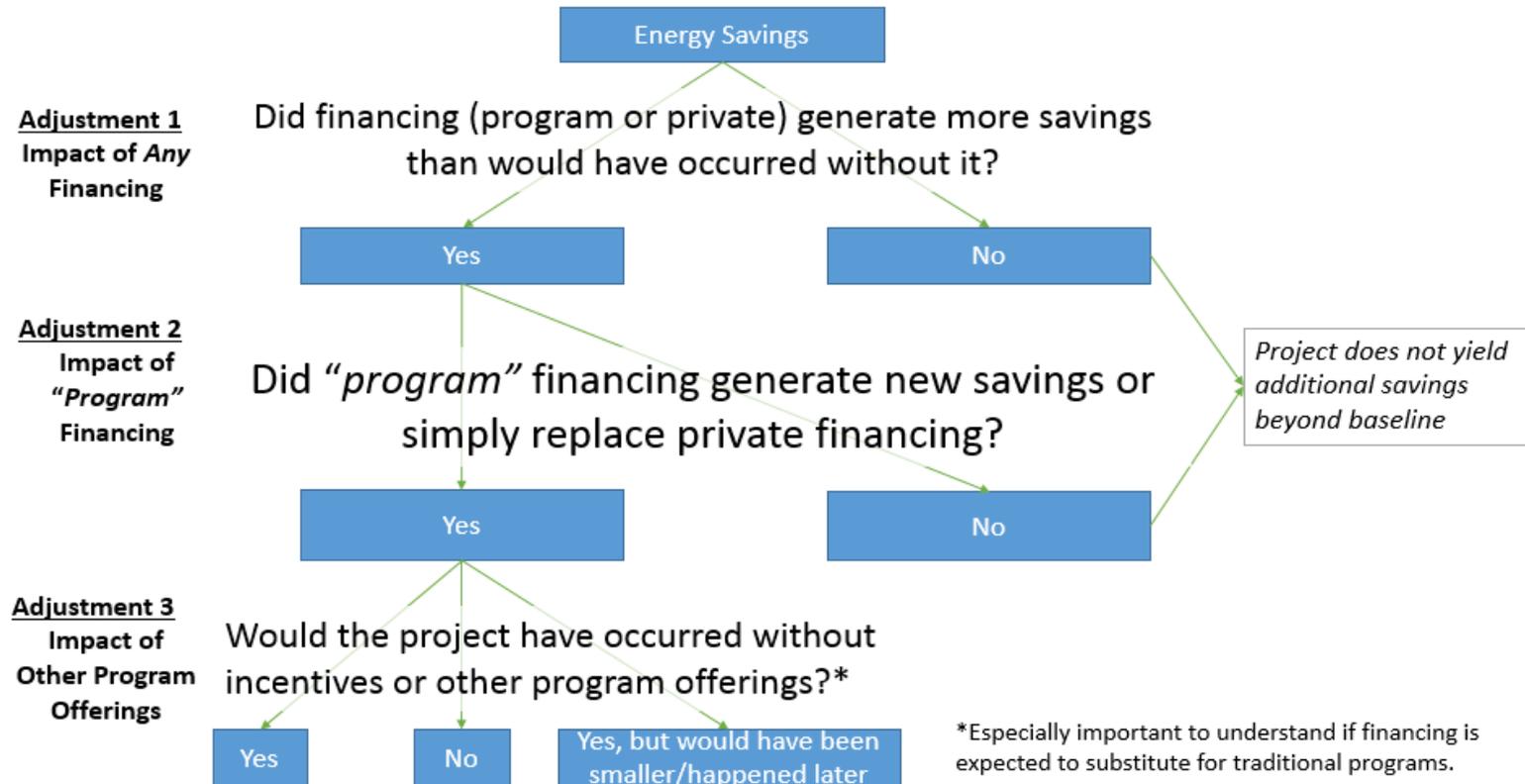
Berkeley FIRST	54,408 kWh annually
Sonoma County Energy Independence Program	10,928,827 kWh over lifetime 58,964.85 MTCO ₂ over lifetime 94,593 Therms over lifetime
CaliforniaFIRST	18,933,880 kWh generated annually 7,894,463 kWh saved annually 575,332 Therms annually 11,425,764 gal annually
WRCOG HERO Program	120,925,639 kWh annually 24,555,058 gal annually
SANBAG HERO Program	60,882,289 kWh annually 13,456,125 gal annually
California HERO Program	89,361,397 kWh annually 45,173,529 gal annually
AllianceNRG Program	23,126 kWh annually
LA HERO Program	6,102,724 kWh annually 8,608,965 gal annually
CaliforniaFIRST in Los Angeles County	4,458,851 kWh generated annually 2,241,737 saved annually 163,373 Therms annually 5,108,368 gal annually

Source: CAEATFA loss reserve data, <http://www.treasurer.ca.gov/caeatfa/pace/activity.asp>

Improving savings estimates

- ◆ Existing PACE savings estimates are self-reported; independent evaluation is general best practice
 - Who requires – and funds – independent evaluation?
- ◆ Existing estimates are based on “deemed savings” values that predict savings, not on realized savings
 - Access to both program participation and utility data is a barrier for realized savings evaluations
 - Programs can help by proactively ensuring that utility data can be collected and analyzed. Specifics vary by state and customer consent may be required, which is most easily obtained up front.
- ◆ With DOE funding support, Berkeley Lab is working with California utilities and PACE providers to conduct an independent analysis of realized savings using utility bills

Savings attribution to financing



Source: Berkeley Lab, "Making it Count: Understanding the Value of Energy Efficiency Financing Programs Funded by Utility Customers." <https://emp.lbl.gov/publications/making-it-count-understanding-value>

Moving toward attributable savings

- ◆ Best practice: Randomize access to PACE program. But this is unlikely:
 - Multiple providers in many settings
 - Asking private providers to turn down business
- ◆ More feasible option: Compare PACE savings to savings achieved by PACE applicants that aren't approved
 - Programs can help by making data on such applicants available
- ◆ Another option: Surveys

Cadmus survey on HERO attribution

Each of the three methods Cadmus tested indicated that, on average, HERO financing had a greater impact on the participant's decision to make high efficiency improvements than rebates. Table 2 presents the results of each test.

Table 2. Allocation Results

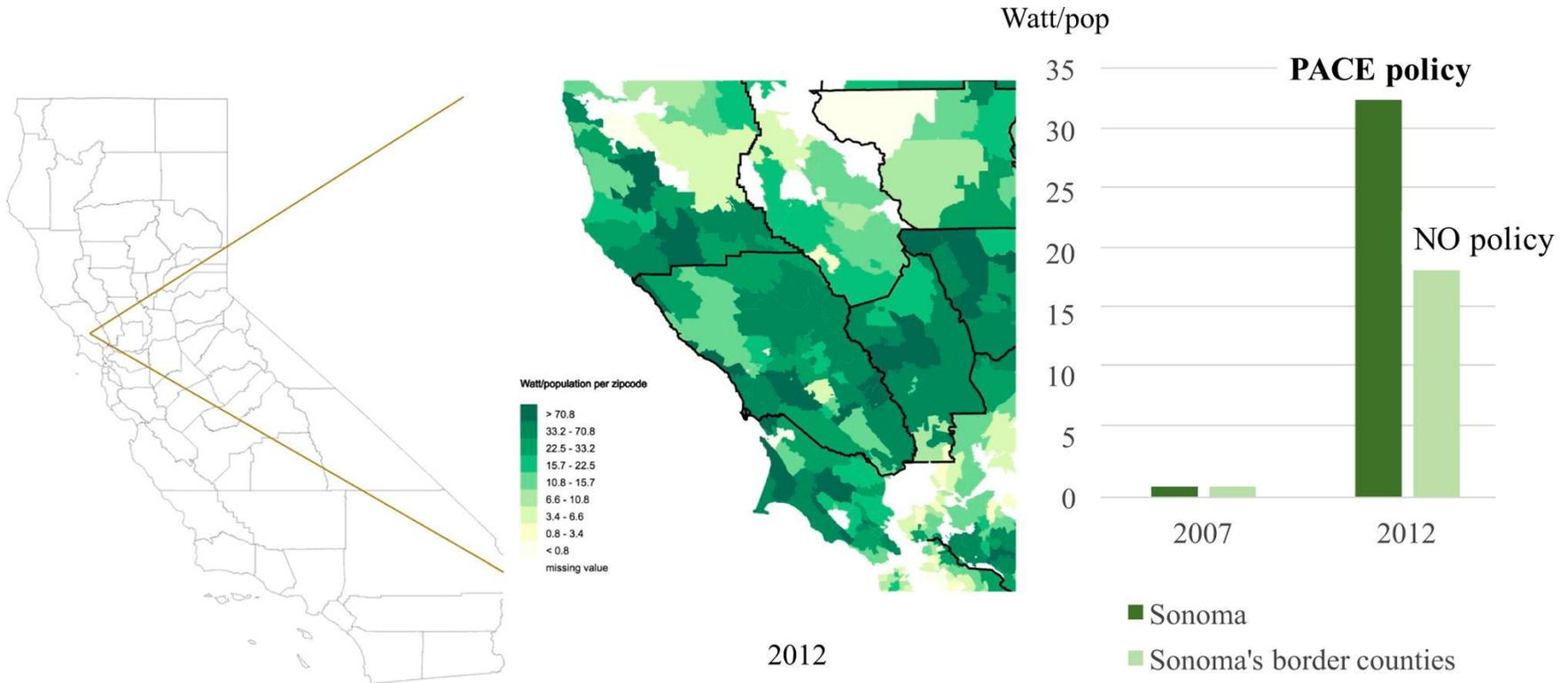
	Self-Report	Expanded Self-Report	DCM
Financing	67.0%	64.7%	54.5%
Rebates	33.0%	35.3%	45.0%
Total	100.0%	100.0%	100.0%

Source: HERO Program Savings Allocation Methodology Study,
http://www.calmac.org/publications/HERO_Allocation_Method_Study_Final_ReportES.pdf

PACE impacts on measure deployment

- ◆ Two independent studies demonstrate that early CA R-PACE programs approximately doubled residential solar PV installed capacity
- ◆ Berkeley Lab in process of running similar analysis on more recent data
- ◆ Efficiency? Anecdotal reports (from contractors) of surges in volume of efficient measures sold, but no similarly rigorous results

PV deployment impacts – Ameli et al.



Nadia Ameli, Mauro Pisu, Daniel M. Kammen

Can the US keep the PACE? A natural experiment in accelerating the growth of solar electricity

Applied Energy, Volume 191, 2017, 163–169

<http://dx.doi.org/10.1016/j.apenergy.2017.01.037>

PACE and cost-effectiveness

- ◆ Cost-effectiveness tests run on utility programs don't easily transfer to PACE
 - No direct use of taxpayer or utility customer funds
 - Administrative costs are funded by fees collected from program participants
 - What's the "cost" of special assessment district usage?
- ◆ May want to understand how customers' bill savings compare to assessment costs
 - But PACE programs not required to be bill-neutral, and have rationales other than reducing customer bills
- ◆ No studies of PACE cost-effectiveness that I'm aware of

PACE home value impacts

Methodology	PACE Premium
Methodology 1 Comparison to Home Price Indices	
Corelogic Monthly Zip	\$199
FHFA Quarterly State	\$1,667
FHFA Monthly Division	\$8,882
Methodology 2 Comparison to Random Sample of Similar Non-PACE Homes	\$5,010
Methodology 3 Comparison with Multivariate Regression	
All Sales	\$4,042
Homes Purchased Out of Foreclosure	\$6,824

Source: Goodman and Zhu, “PACE Loans: Does Sale Value Reflect Improvements?”

PACE mortgage market impacts

- ◆ No research on this that I am aware of
- ◆ Berkeley Lab scoped a study that would estimate the impact of household-level PACE participation on mortgage repayment
 - Data history is just now becoming sufficient to study this effectively
- ◆ Also needed: modeling of the impact of PACE on mortgage markets in various scenarios

PACE customer satisfaction

- ◆ Consumer protection issues have motivated:
 - Legislation (CA and federal)
 - Class action lawsuits against PACE providers
- ◆ Need for a serious empirical look at the frequency of PACE complaints relative to other comparable consumer financial products
 - Is PACE particularly problematic, or just new and noteworthy?
 - Programs can help by keeping records of customer interactions and making those records available to evaluators
- ◆ Programs may also want to track *positive* customer experiences more formally, e.g., through systematic surveys

PACE job creation

36,500

Jobs created

Total residential market estimate from PACENation
Source: <http://pacenation.us/pace-market-data/>

HERO PACE: \$2.03 billion in PACE commitments have created over 17,000 jobs

Ygrene Works: PACE activity of almost \$600 million has created over 8,600 jobs

Renew Financial: CaliforniaFIRST program has created over 8,000 jobs.

Source: <http://pacenation.us/pace-creates-jobs-energizes-local-economies/>

How programs can help with data collection

- ◆ Establish requirements and funding sources for PACE evaluation
- ◆ Work to ensure there is a mechanism for programs and evaluators to access customer usage data from utilities
- ◆ Maintain information about program applicants that are not accepted
- ◆ Keep more systematic records about customer experience – both complaints and success stories

Jeff Deason
jadeason@lbl.gov
(510) 486-6891

Visit our website at: <http://emp.lbl.gov/>

Click [here](#) to join the LBNL Electricity Markets and Policy Group mailing list and stay up to date on our publications, webinars and other events. Follow the Electricity Markets & Policy Group on Twitter @BerkeleyLabEMP

Q&A

- Q&A
- Session presenters, DOE staff available during networking break

Residential PACE Session: Part 2

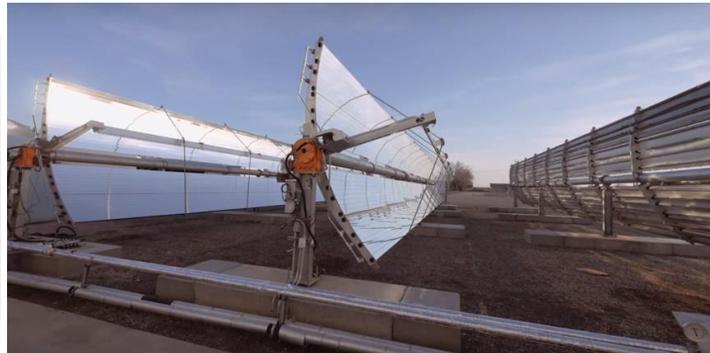
Residential PACE Best Practices: Part 2

- Welcome back
- Agenda for Session Part 2
 - **Residential PACE Policy and Program D**, Sandy Fazeli, NASEO
 - **Small group breakout discussions (select one):**
 - Program design strategies and considerations, *David Gabrielson, Sandy Fazeli*
 - Stakeholder mapping, *Steve Dunn, Michael Yaki*
 - Measuring impacts and communicating results, *Jeff Deason, Alison Berry*
 - **Report-outs from each breakout group**
 - **Workshop summary**
 - **Adjourn**

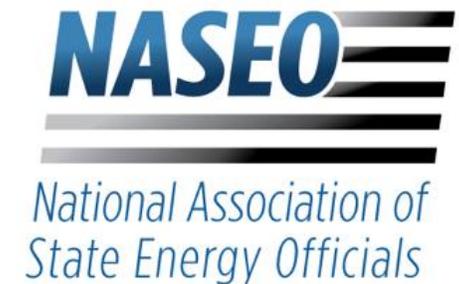
Residential PACE Policy and Program Design Considerations

Sandy Fazeli, NASEO

RESIDENTIAL PACE POLICY AND PROGRAM DESIGN CONSIDERATIONS



Sandy Fazeli, NASEO Managing Director
May 16, 2017
U.S. Department of Energy Better Buildings Summit





PLAN

- About NASEO and the State Energy Officials
- Why States care about PACE
- Compare and contrast: C-PACE versus R-PACE
- Elements and considerations for R-PACE program design
 - Policy
 - Market Organization/Administration
 - Protections
 - Federal agency involvement

ABOUT NASEO

- Membership includes the 56 Energy Officials from the states, territories, and the District of Columbia, as well as private-sector Affiliate partners
- Serves as a resource for and about the Energy Offices on a number of topics, including building energy efficiency, clean energy financing, fuels and grid integration, government affairs, transportation, energy policy planning, and climate
- Works through topical committees and by regions to facilitate peer learning across states to improve the effectiveness of energy policies and programs
- Visit www.naseo.org for more information

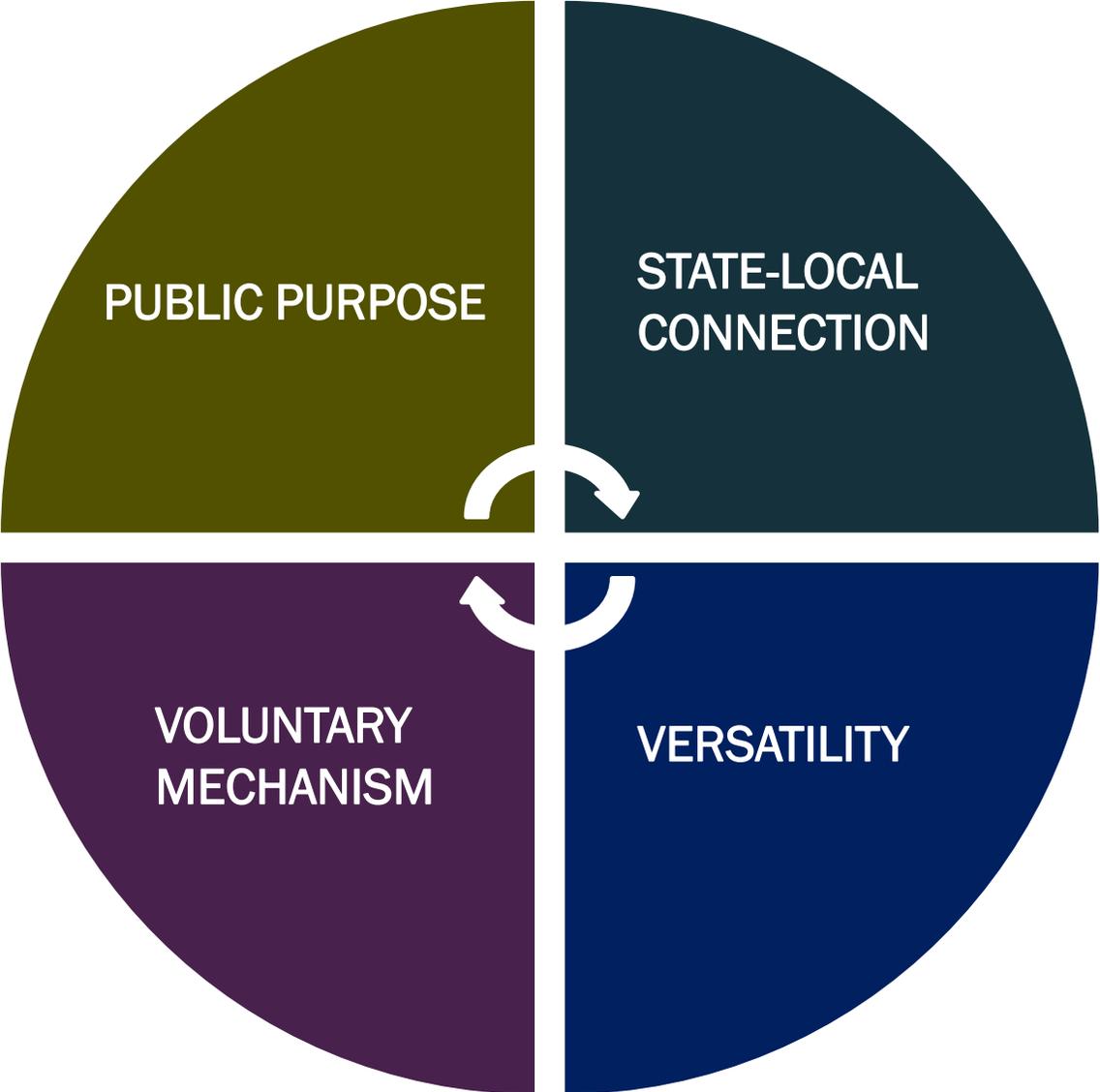


C/o the Alaska Energy Authority



C/o the Kentucky Dept. for Energy Development and Independence

WHY IS PACE IMPORTANT TO SEOS?





C-PACE VS. R-PACE

Commercial PACE

- Requires action from state and local government
 - Voluntary financing mechanism
- Programs typically take the form of public-private partnerships with defined geographic boundaries
 - Both are large markets with significant untapped energy and water opportunities
- Borrowers are businesses
- Work performed by contractors with experience in commercial improvements
- Many states and localities have launched C-PACE, about \$380 million in total projects

Residential PACE

- Borrowers are homeowners who may need additional disclosures and protections
- Work performed by home improvement or residential energy contractors
- A few states and localities have launched R-PACE, about \$3.7 billion in total projects



Policy Considerations

State Level

- (Core) PACE-enabling statute
 - Public purpose
 - Residential, commercial, or both
 - Lien priority
 - Eligible measures
 - Sources of capital
- Additional policy considerations
 - Program administration
 - Underwriting or borrower eligibility criteria
 - Investor Protections
 - PACE Loss Reserves
 - Consumer Protections

Local Level

- Ordinance interprets criteria established in state's enabling statute
- Rules regarding available capital sources and administrative options
- Opt-in to existing program (ie, a statewide or interlocal program)

Policy and Program Balance

- Enough flexibility to allow markets to thrive
- BUT, enough security for all stakeholders to buy in

Options to Organize the Marketplace

■ Administration

- Individual, decentralized programs (government- or privately-run), with individual local jurisdiction as a boundary
- Statewide programs, with local jurisdictions “opting in” (Connecticut or Colorado C-PACE programs)
- Hybrid models (statewide-available programs that may be government-run, government-supported, or entirely privately-run and financed)

■ Voluntary Standards

- Program administration may be decentralized, but statewide entities can support the adoption of consistent best practices across individual programs

■ More common (thus far) in C-PACE than in R-PACE



ACCELERATING THE COMMERCIAL PACE MARKET
STATEWIDE PROGRAMS AND STATE ENERGY OFFICE PARTICIPATION IN
PROPERTY ASSESSED CLEAN ENERGY (PACE) FINANCING



Available at <http://naseo.org/publications>. With support from the U.S. Department of Energy.



Protections in R-PACE Programs

- Mortgage Lender Protections
 - Protect in case of PACE borrower default (see California PACE Loss Reserve)
- Consumer Protections
 - Related to the Financing of the Project
 - Disclosures
 - Underwriting
 - Related to the Quality of the Project
 - Contractor training and oversight
 - Borrower recourse options



Sensitivity Analysis of Installation Faults on Heat Pump Performance (2014)

“There is a growing recognition that merely increasing equipment’s laboratory-measured efficiency without ensuring that the equipment is installed and operated correctly in the field is ineffective. A key component for maximizing field equipment performance is to ensure that such equipment is sized, selected, and installed following industry recognized procedures.”



Federal Involvement

- May 2010 – DOE’s “Guidelines for PACE Finance Programs”
- July 2010 – FHFA “Statement on Certain Energy Retrofit Loan Programs”
- Nov. 2010 – FHFA letter to Efficiency Maine re: subordinate-lien program
- Mar. 2014 – PACE Loss Reserve launched
- Aug. 2015 – FHA announces intent to release guidelines for use of FHA financing on homes with PACE liens
- Jul. 2016 – FHA and VA issue guidance on ability of homes with PACE assessments to use mortgage products
- Sept. 2016 – California’s AB 2693 signed into law
- Nov. 2016 – DOE releases Best Practice Guidelines for Residential PACE Financing
- Apr. 2017 – Protecting Americans from Credit Entanglements Act proposed in House and Senate



THANK YOU!

Sandy Fazeli

NASEO Managing Director

sfazeli@naseo.org

703-299-8800 x 117

www.naseo.org

Breakout Sessions



- Divide into small groups to discuss the following topics (select one):
 - **Program design strategies and considerations**
 - PACE legislation and ordinances, consumer protection, contractor management)
 - **Facilitators: David Gabrielson and Sandy Fazeli**
 - **Stakeholder mapping**
 - Identify PACE stakeholders, key issues and strategies for engaging and communicating with stakeholders
 - **Facilitators: Michael Yaki and Alison Berry**
 - **Quantifying PACE Program Impacts**
 - Measuring and verifying the energy and economic impacts of PACE improvements; data collection requirements; communicating results
 - **Facilitators: Jeff Deason and Steve Dunn**

Break-Out Groups

Identify key issues, recommendations and next steps

✓ Record on flip-charts

Reconvene as a group

✓ provide brief report-outs from each breakout group

Summary and Next Steps

- **Session presentations will be available for download from Summit App and Website**
- **Connect** with Speakers and Summit participants via the Summit App
- **Websites** for more information:
 - DOE PACE Guidelines: energy.gov/eere/slsc/property-assessed-clean-energy-programs
 - Presenter websites
 - LBNL, Electricity Markets and Policy Group: emp.lbl.gov/
 - NASEO: www.naseo.org
 - PACE Nation: www.pacenation.us
 - Renovate America: www.renovateamerica.com

DOE Contacts

- *Share your comments, questions or suggestions*
 - Steve Dunn steve.dunn@ee.doe.gov
 - Eleni Pelican eleni.pelican@ee.doe.gov

Thank You

Provide feedback on this session in the new Summit App!

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