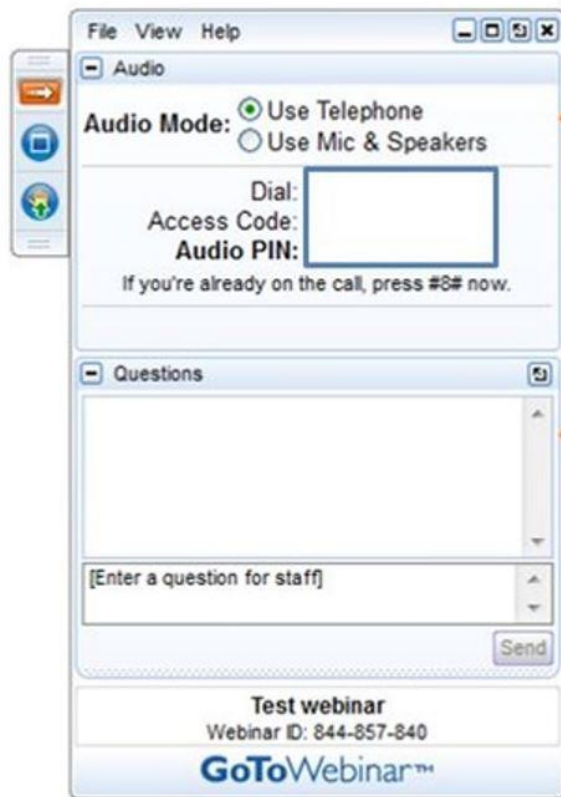


# Low-Income Solar, Part 2: Using the Tools of Low-Income Energy Efficiency Financing

March 30, 2017



# Housekeeping



All participants are in “Listen-Only” mode. Select “Use Mic & Speakers” to avoid toll charges and use your computer’s VOIP capabilities. Or select “Use Telephone” and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

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# CleanEnergy States Alliance



NYSERDA



Department of Commerce  
Innovation is in our nature.



# Sustainable Solar Education Project

- Provides information and educational resources to state and municipal officials on strategies to ensure distributed solar electricity remains consumer friendly and benefits low- and moderate-income households.
- The project is managed by the CESA and is funded through the U.S. Department of Energy SunShot Initiative's Solar Training and Education for Professionals program.
- Sign up for the Sustainable Solar mailing list to receive our free monthly newsletter and announcements of upcoming events

[www.cesa.org/projects/sustainable-solar](http://www.cesa.org/projects/sustainable-solar)



# Panelists

**Greg Leventis**, Senior Research Associate,  
Lawrence Berkeley National Laboratory

**Warren Leon**, Executive Director, Clean  
Energy States Alliance (Moderator)





Energy Technologies Area

Lawrence Berkeley National Laboratory

# Basics of Efficiency Financing for Low-Income Households

Greg Leventis,

Lawrence Berkeley National Laboratory

March 30, 2017

# Clean Energy for Low Income Communities Accelerator (CELICA)

Accelerator Partners collaborate with DOE to demonstrate successful models for expanding the installation of energy efficiency and distributed renewables in low income communities.

## **Accelerator Goals**

- Identify how to overcome market barriers related to clean energy installations in low income communities, particularly by leveraging the distinct advantages of energy efficiency and distributed renewables to create a more complete set of possibilities
- Share solutions, resources, and technologies that help low income communities install energy efficiency and renewable energy
- Demonstrate successful partnership approaches for integrating energy efficiency and distributed renewables delivery across the key clean energy partners in a community, such as community-based organizations, program providers, contractors, financial institutions, and customers
- Increase visibility and replication of best practice approaches and successful models

# Agenda

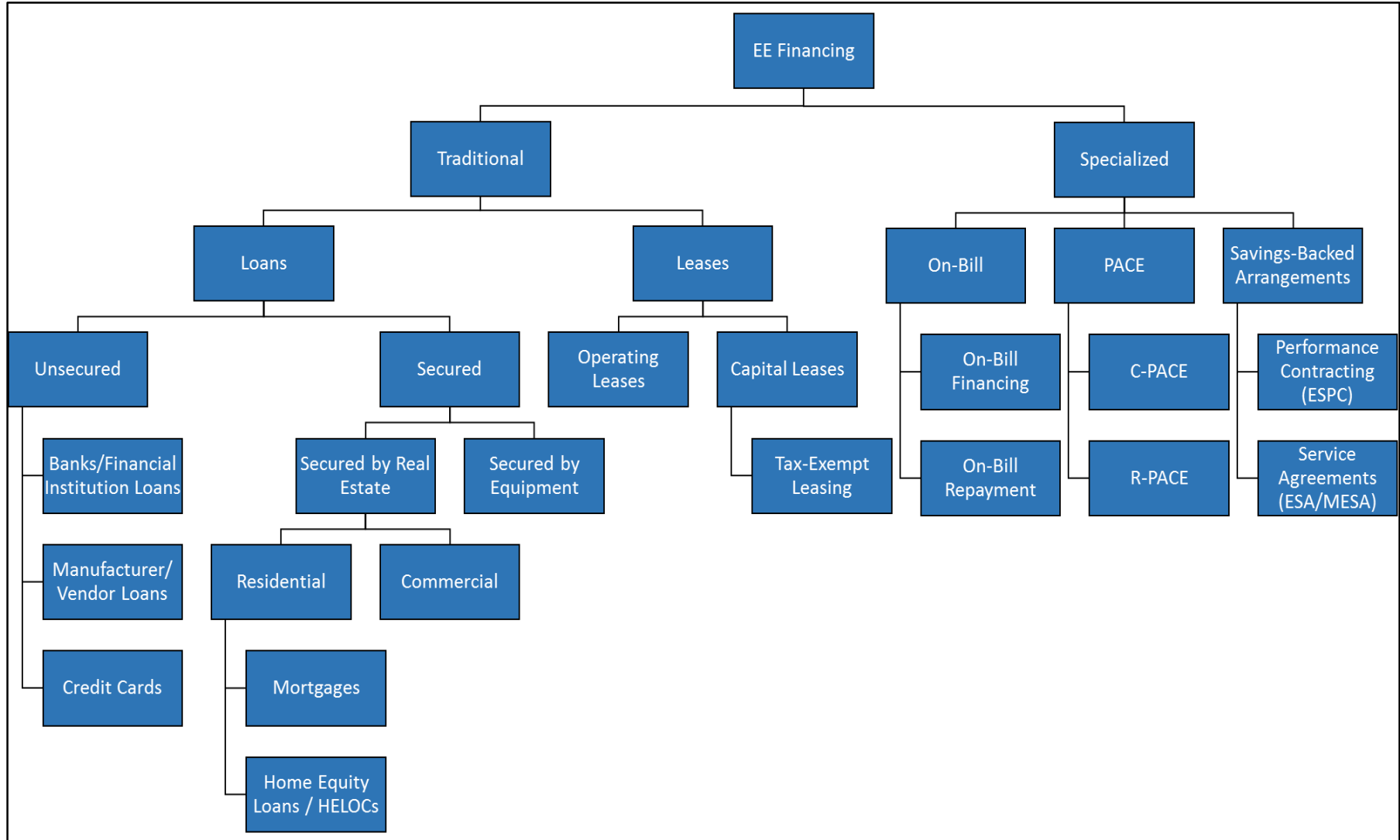
- ◆ Financing product types
  - Traditional
  - Specialized
- ◆ Barriers to efficiency and to financing
- ◆ Barriers, products and market sectors
- ◆ Q&A



# **FINANCING PRODUCT TYPES**

# Typology of financing products

## Typology of financing products used to pay for efficiency



# Typology of financing products

PRODUCT TYPE	2014 ACTIVITY (\$M)
<b>TRADITIONAL</b>	
Unsecured loans	Unknown (likely over \$100)
Secured loans	Unknown
Leases	Unknown (likely large)
<b>SPECIALIZED</b>	
On-bill loans	\$179
PACE loans	\$267
Energy Savings Performance Contracts	\$4,101
Energy Service Agreements	Unknown (likely very small)

# **TRADITIONAL FINANCING PRODUCT TYPES**

# Traditional: Unsecured loans

## ◆ DEFINITION:

- ❑ Loans for which lenders have no recourse to take possession of a borrower's assets in case of nonpayment

## ◆ FEATURES:

- ❑ In the absence of a subsidy, generally carry higher interest rates than comparable secured loans (e.g., mortgages backed by collateral)
- ❑ Quick application processes; no collateral requirement (accessible to more borrowers)

## ◆ EXPERIENCE:

- ❑ Widely used for efficiency financing (especially single-family residential)
- ❑ Often used for reactive measures (e.g., HVAC replacement when equipment breaks down)
- ❑ Used by a range of program administrators—often at subsidized rates—reaching all market segments
- ❑ *Total* EE Market activity for unsecured loans is difficult to estimate but likely very large (e.g., utility programs, banks, and many equipment manufacturers offer unsecured financing that may be used for EE)

# Traditional: Secured loans

## ◆ DEFINITION:

- ❑ Loans for which lenders may take possession of a borrower's assets in case of nonpayment

## ◆ FEATURES:

- ❑ Often offer lower interest rates than equivalent unsecured products since collateral can reduce lender losses
- ❑ Longer to execute with higher transaction costs than some other EE financing products
- ❑ Can offer lower interest rates for residential consumers than other forms of energy efficiency financing
- ❑ Several distinct drawbacks for commercial and industrial customers

## ◆ EXPERIENCE:

- ❑ Several federal government entities have offered secured loan programs (e.g., energy efficient mortgages—EEMs, which add EE project costs to a mortgage) but uptake has been modest

# **SPECIALIZED FINANCING PRODUCT TYPES**

# Specialized: On-bill loans

## ◆ DEFINITION:

- ❑ Loans to utility customers that are repaid on the utility bill

## ◆ FEATURES:

- ❑ Paying on the utility bill is familiar and convenient
- ❑ May allow transfer of loans to subsequent occupants
- ❑ May aim for cash-flow positive projects
- ❑ May use alternative underwriting (expands access)

## ◆ EXPERIENCE:

- ❑ High volume programs have often offered below-market interest rates combined with 1 of 2 approaches:
  - Allowing almost any “energy-related” improvements (with a focus on single measures like high-efficiency equipment, windows); or
  - Coupling on-bill lending with robust financial incentives and rebates
- ❑ Some programs have been running since the 1970s; on-bill programs have done over \$2B in loan volume with default rates ranging from 0% to 3%; In 2014, \$179M in on-bill loans for efficiency were provided\*



# Specialized: PACE financing

## ◆ DEFINITION:

- PACE is a special assessment on a property that is used to pay for clean energy improvements, repaid through the tax bill

## ◆ FEATURES:

- As a special assessment, PACE can offer strong security and allows long terms
- PACE loans are transferable to incoming occupants and programs may aim for cash-flow positive projects; PACE uses alternative underwriting

## ◆ EXPERIENCE:

- Rapid residential growth, but mostly in CA; over 80% of commercial projects are in CA, OH and CT
- Uncertainty in the value of transferability, PACE's ability to encourage deeper or very high efficiency projects, and in R-PACE's regulatory status
- Since 2009, PACE programs have extended over \$3.6B in loans.\* In 2014, PACE generated \$267M in efficiency lending

# Specialized: Savings-backed arrangements

## ◆ DEFINITIONS:

- ❑ **Savings-backed arrangements:** Arrangements in which a service provider takes on performance risk. Two main types used: Energy Savings Performance Contracts (ESPC), and Energy Service Agreements (ESA) and Managed Energy Service Agreements (MESA)—a subset of ESAs:
  1. **ESPCs:** ESCOs directly contract with building owners to perform EE work; ESPCs often guarantee energy savings; financing is obtained separately
  2. **ESAs and MESAs:** ESA provider contracts with a building owner to oversee an ESCO's work and to furnish project financing; often guarantees energy savings

# Specialized: ESA

## ◆ FEATURES:

- ❑ Require no public funds and no up-front costs or O&M responsibility for building owners
- ❑ Can minimize project performance risk and utility bill price risk; could potentially garner off-balance sheet treatment
- ❑ Some ESA providers raise capital by attracting investors to each project, which can add significant transaction costs; projects tend to be large (e.g., \$100K to >\$1M) and targeted at large energy users

## ◆ EXPERIENCE:

- ❑ Complex, relatively new structures; currently not well understood in the marketplace—a major constraint on the growth of this product
- ❑ Market activity for ESAs is unknown; but very modest to date

# **BARRIERS TO EFFICIENCY AND TO FINANCING**

# Improving the EE value proposition: Barriers to Efficiency and Financing

- ◆ **Access to Capital**
- ◆ **Cash Flow (customer focus on short paybacks)**
- ◆ **Customer Debt Limits**
- ◆ **Owner-Renter Split Incentives**
- ◆ **Occupancy Duration**
- ◆ **Application Process**

# Improving EE value proposition

## Barriers and financing solutions to the EE value proposition

BARRIER	FINANCING SOLUTION
Customer focus on Short Payback Periods	Offer Cash-Flow-Positive Financing
Uncertainty of Occupancy Duration	Offer Transferable Financing Products
Owner-Renter Split Incentives	Pass Through or Share Repayments

# **BARRIERS, PRODUCTS, AND MARKET SECTORS**

# Improving EE value proposition

## Key to following slides

MARKET SECTOR	
Barrier not important enough to drive design of an EE program	
Barrier may be relevant but not paramount in this sector	○
Barrier may be especially important in this sector	●
FINANCING PRODUCT	
This product does not address this barrier	
This product may address this barrier or somewhat addresses this barrier	○
This product is likely to be able to overcome this barrier	●



# Improving EE value proposition: Barriers to Efficiency by Market Sector

MARKET BARRIER	SF Low-Mod Income	MF Affordable	C&I Small Bus.	MUSH
Access to capital	●	●	●	
Cash flow	●	●	○	○
Customer debt limit			○	●
Owner-renter split incentives	○	●	●	
Occupancy duration	○	○	○	

# Improving EE value proposition

## Barriers addressed by various financing products

MARKET BARRIER	UN-SECURED	SECURED	ON-BILL	PACE	SAVINGS-BACKED
Access to capital	○	○	●	○	○
Cash flow	○	●	○	●	●
Customer debt limits			○	○	○
Owner-renter split incentives			○	○	
Occupancy duration			●	●	
Application process	●		●		

# Note

## ◆ Coming soon:

The State and Local Energy Efficiency Action Network's (SEE Action Network) report:

*Energy Efficiency Financing for Low- and Moderate-Income Households*

- ◆ For more information on efficiency financing, please visit our website: <http://emp.lbl.gov>
- ◆ Clean Energy for Low Income Communities Accelerator: <https://betterbuildingsolutioncenter.energy.gov/accelerators/clean-energy-low-income-communities>

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# Sources

- ◆ Leventis, Greg, Emily Martin Fadrhonc, Chris Kramer, and Charles A. Goldman. *Current Practices in Efficiency Financing: An Overview for State and Local Governments*. 2016. <https://eta.lbl.gov/sites/all/files/publications/lbnl-1006406.pdf>
- ◆ Deason, Jeff, Greg Leventis, Charles A. Goldman, and Juan Pablo Carvallo. *Energy Efficiency Program Financing: Where it comes from, where it goes, and how it gets there*. 2016. <https://eta.lbl.gov/sites/all/files/publications/lbnl-1005754.pdf>
- ◆ Zimring, Mark, Greg Leventis, Merrian Borgeson, Peter J. Thompson, Ian M. Hoffman, and Charles A. Goldman. *Financing Energy Improvements on Utility Bills: Market Updates and Program Design Considerations for Policymakers and Administrators*. State & Local Energy Efficiency Action Network (SEE Action) Financing Solutions Working Group. 2014. <https://www4.eere.energy.gov/seeaction/publication/financing-energy-improvements-utility-bills-market-updates-and-key-program-design>
- ◆ PACE Nation. “PACE Market Data.” Accessed March 28, 2017. <http://pacenation.us/pace-market-data/>

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# Upcoming Webinars

## **Tools for Building More Resilient Communities with Solar+Storage**

Thursday, April 6, 1-2:30pm ET

## **The Solar Massachusetts Renewable Target (SMART) Program**

Wednesday, April 12, 1-2pm ET

[www.cesa.org/webinars](http://www.cesa.org/webinars)

