



Home Performance with Energy Star Partner Meeting

2016 ACI National Home Performance Conference
April 4th, 2016

Deana Carrillo

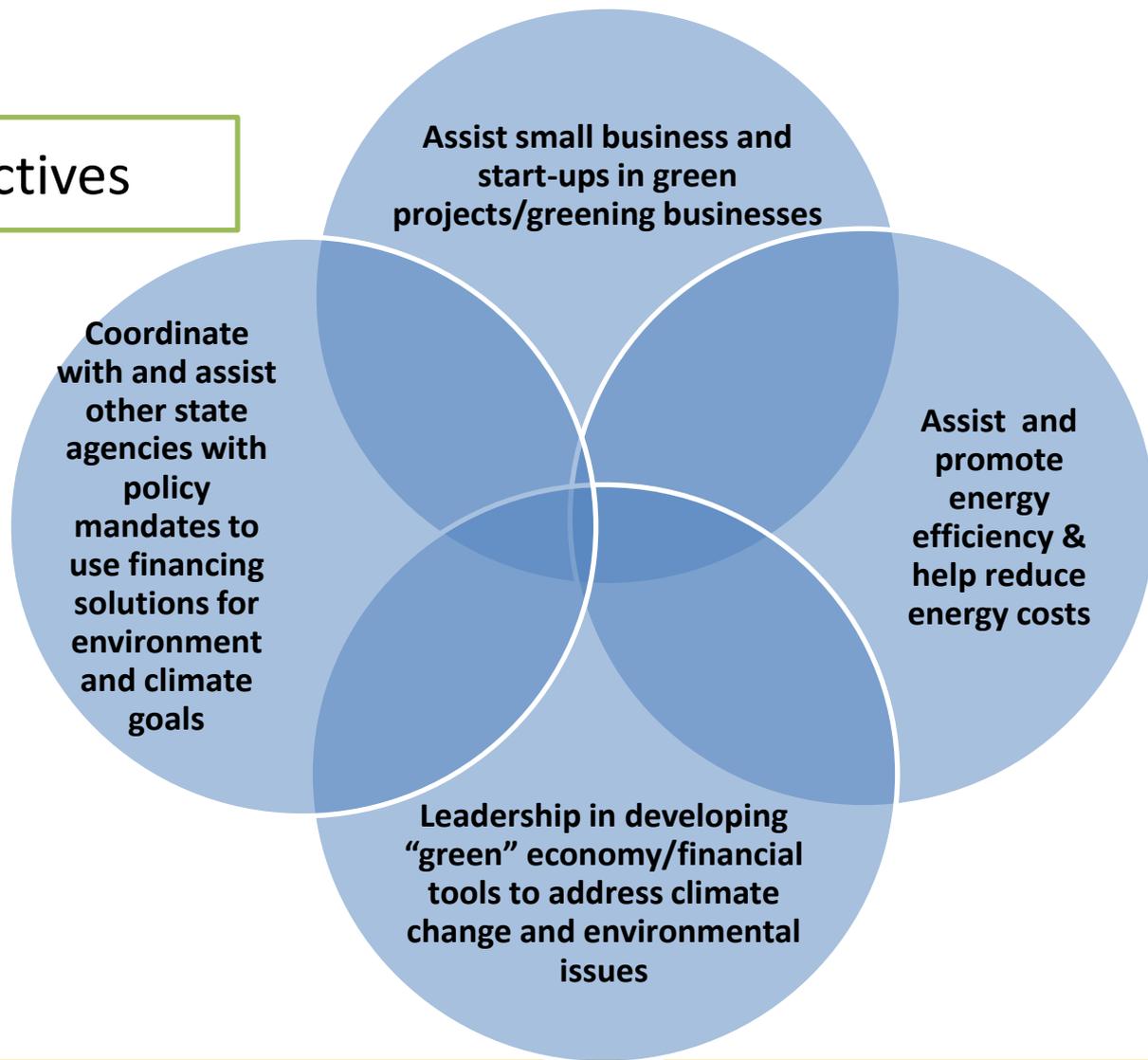
*Executive Director, CA Alternative Energy & Advanced
Transportation Financing Authority*



California Alternative Energy and Advanced Transportation Financing Authority

Green Policy Objectives

- Housed within the State Treasurer's Office
- Uniquely positioned at the intersection of state energy and finance policy since the 1980s.
- Develops market-driven financial assistance programs to support the State's energy and environmental policy goals.



Nexus of Energy Efficiency & Financing

- Overview of Current Public Policy Initiatives & Guidance
- Market Opportunity for Financing
- Glimpse at Two California Initiatives
 - Residential PACE
 - CA Hub for Energy Efficiency Financing
- Lessons Learned



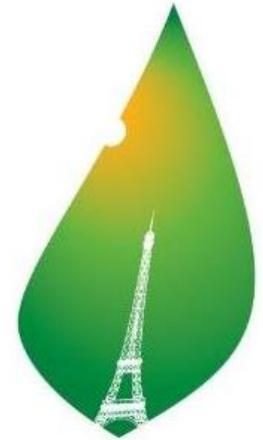
International Policy Goals – COP21

Limit global temperature increase well below 2 degrees Celsius – while aiming for a 1.5 degree limit

Invest \$100 billion a year in support through 2025

Each country must submit a binding action plan for reducing their GHG emissions

Countries report regularly on their missions and progress made



PARIS2015
CONFÉRENCE DES NATIONS UNIES
SUR LES CHANGEMENTS CLIMATIQUES
COP21·CMP11

National Policy Goals

Department of Energy, Office of Energy Efficiency & Renewable Energy
2016-2020 Strategic Plan

Accelerate the development and adoption of sustainable transportation technologies

Increase the generation of electric power from renewable sources

Improve the energy efficiency of our homes, buildings and industries

Stimulate the growth of a thriving domestic clean energy manufacturing industry

Enable the integration of clean energy into a reliable, resilient, and efficient electricity grid

Enable a high-performing, results-driven culture through effective management approaches and processes

Lead efforts to improve federal sustainability and implementation of clean energy solutions



Current Efforts to Finance EE



Building a solid foundation for the future



California's Policy Goals

CALIFORNIA CLIMATE STRATEGY

An Integrated Plan for Addressing Climate Change



VISION

Reducing Greenhouse Gas Emissions to 40% Below 1990 Levels by 2030

GOALS

- 50% reduction in petroleum use in vehicles
- Carbon sequestration in the land base
- Safeguard California
- 50% renewable electricity
- Double energy efficiency savings at existing buildings
- Reduce short-lived climate pollutants

Source: California Air Resources Board



California Policy Goals

Existing Buildings Energy Efficiency Action Plan (AB 758)

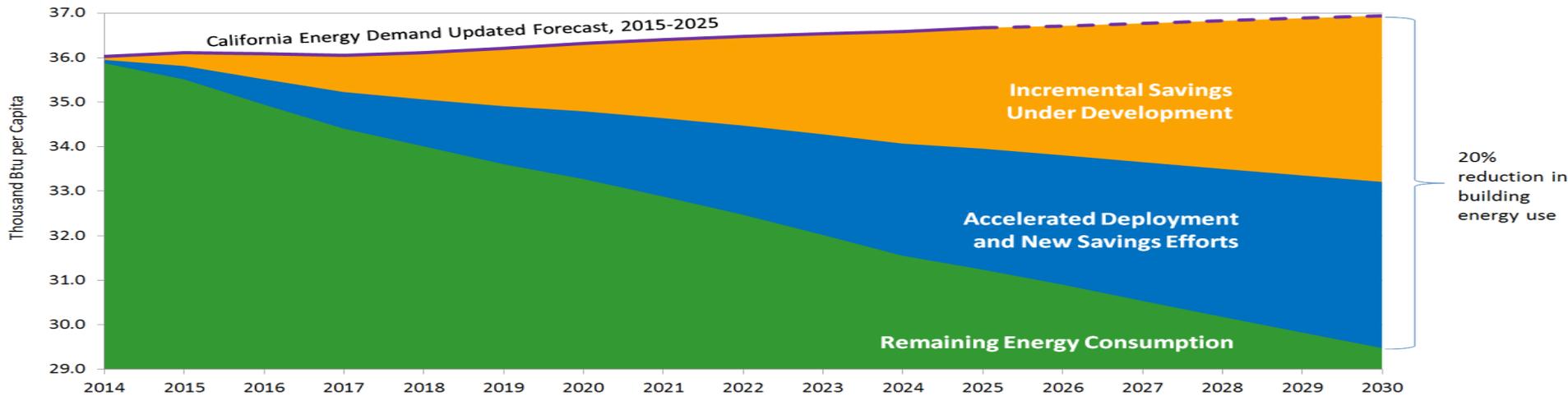
Increased government leadership in EE

Data-driven decision making

Increased building industry innovation and performance

Recognized value of EE upgrades

Affordable and accessible EE solutions



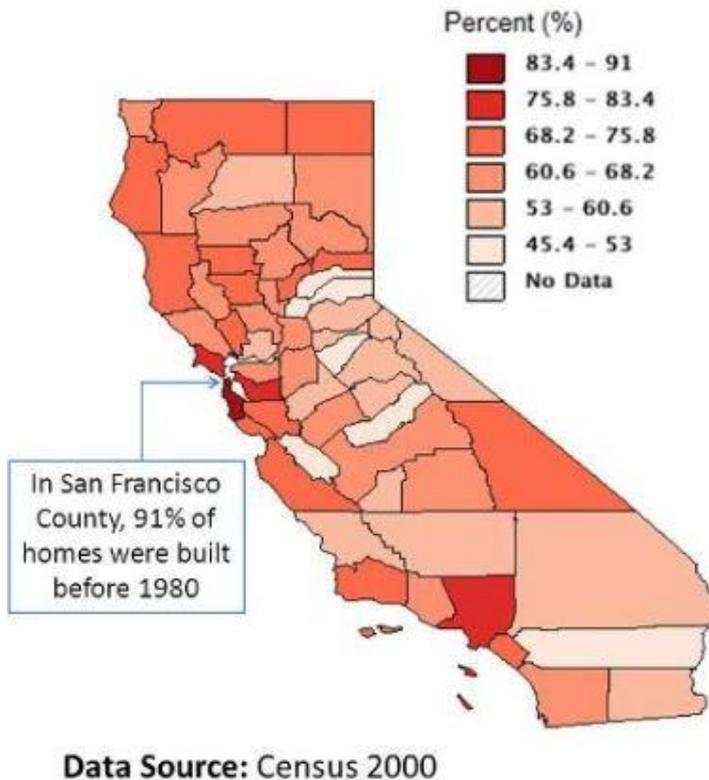
Source: California Energy Commission

Private capital investment will be crucial to meeting energy reduction goals and the market need of over **\$4 billion per year**.



Market Growth Opportunity

Percent of homes built before 1980 in California by County

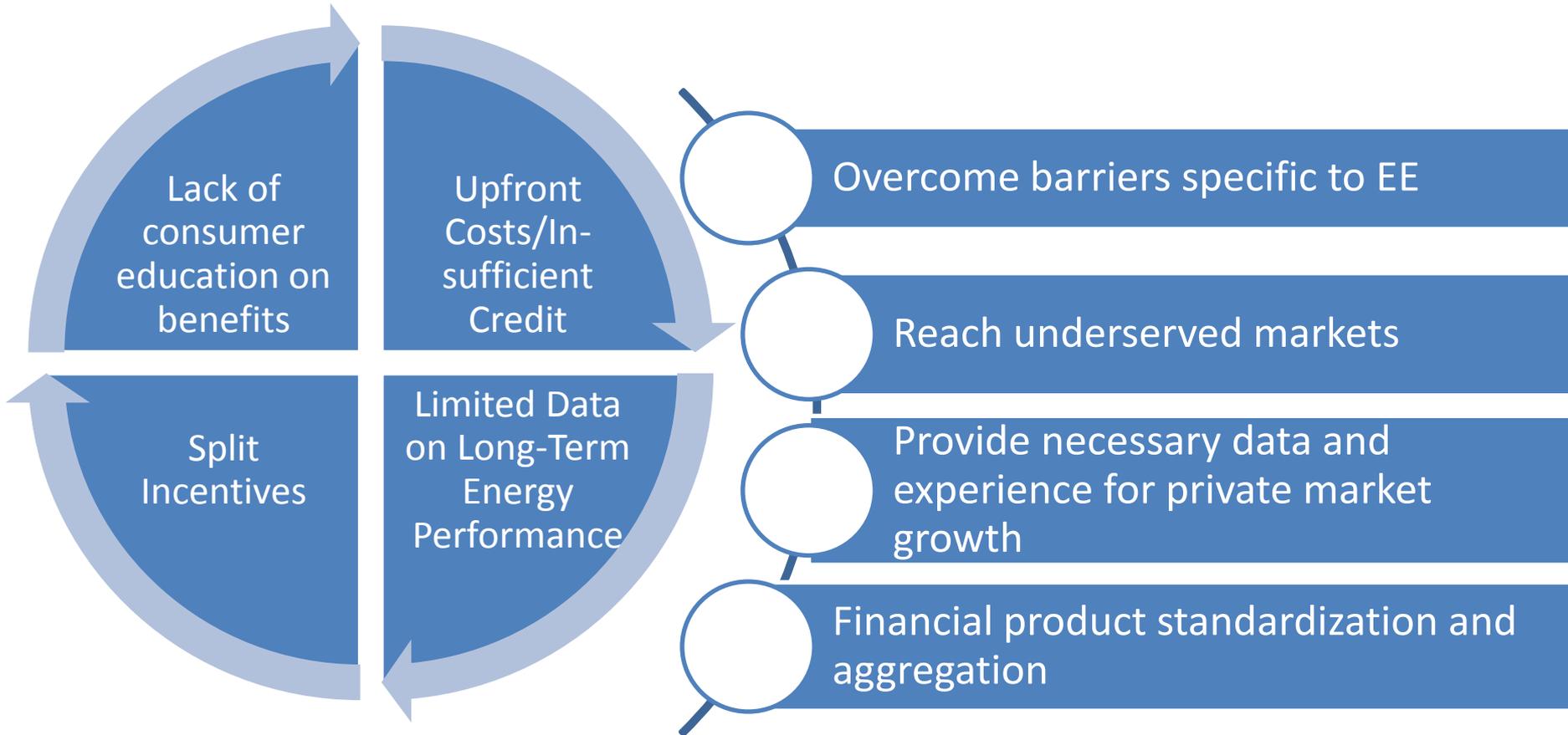


California's Opportunities:

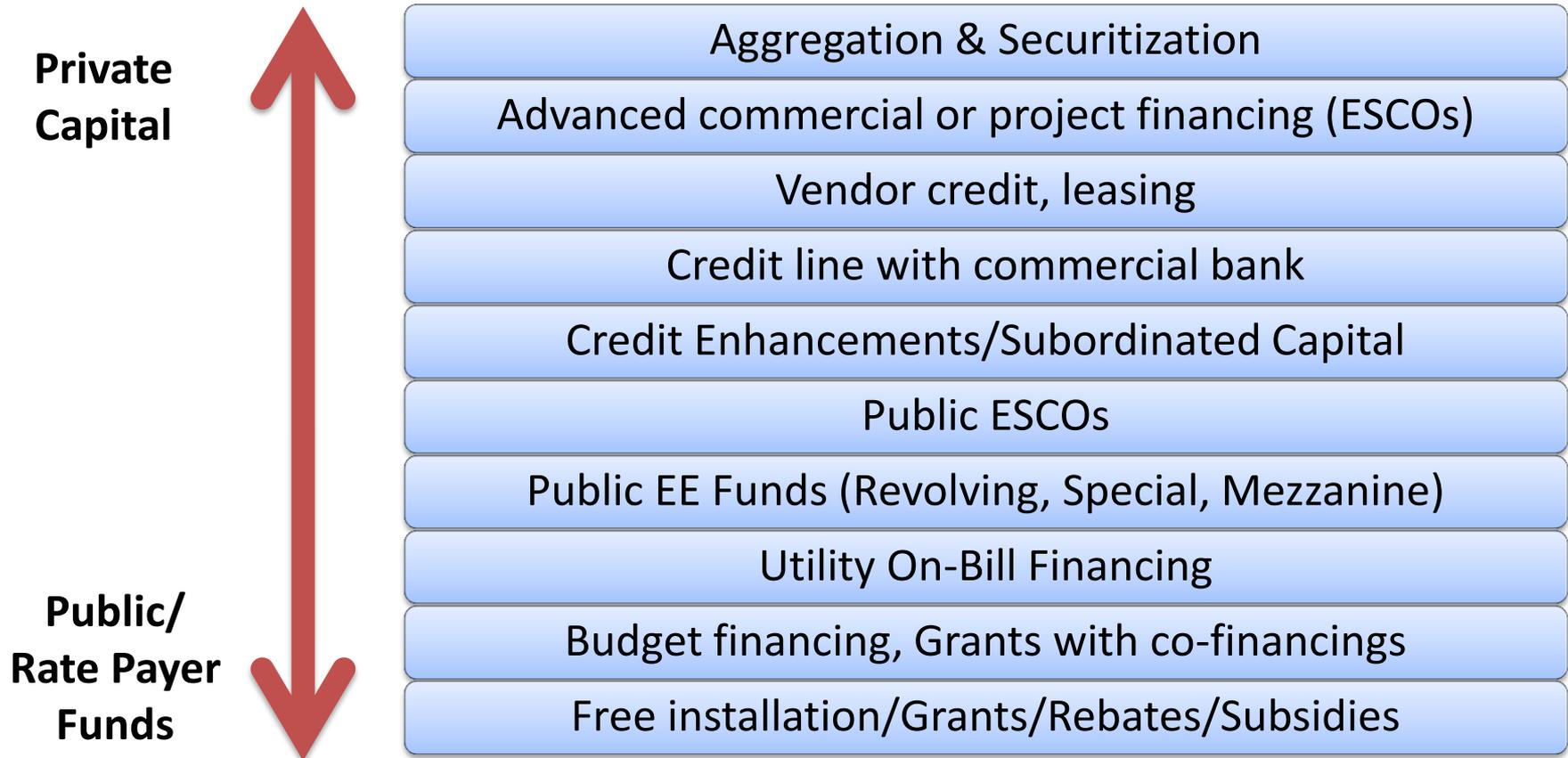
- \$50 billion estimated EE market potential
- \$80 billion with demand response and distributed generation
- Supportive Policy Environment & Programs
- Market Innovation -- Traditional financing mechanisms don't address EE challenges

Source: California Department of Public Health

Market Growth Opportunity



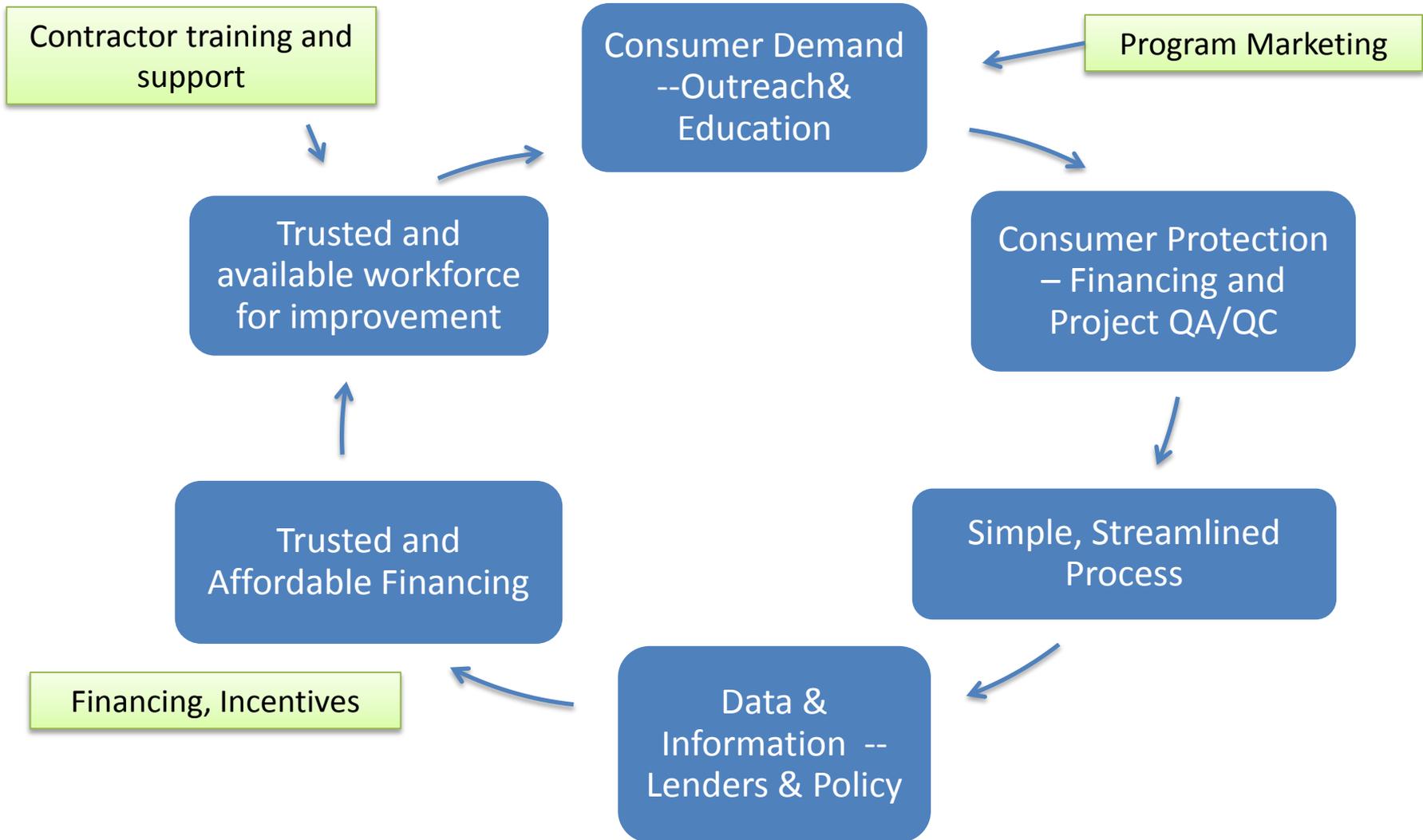
Continuum of EE Financing Products



Source: World Bank (2015)



What do we need for a Healthy Energy Efficiency Finance Ecosystem?



Source: Lawrence Berkeley National Laboratory, "Getting the Biggest Bang for your Buck"



California Partners

- Reaching CA's energy and environmental goals through policies, planning, direct regulations, market approaches, incentives and voluntary efforts.

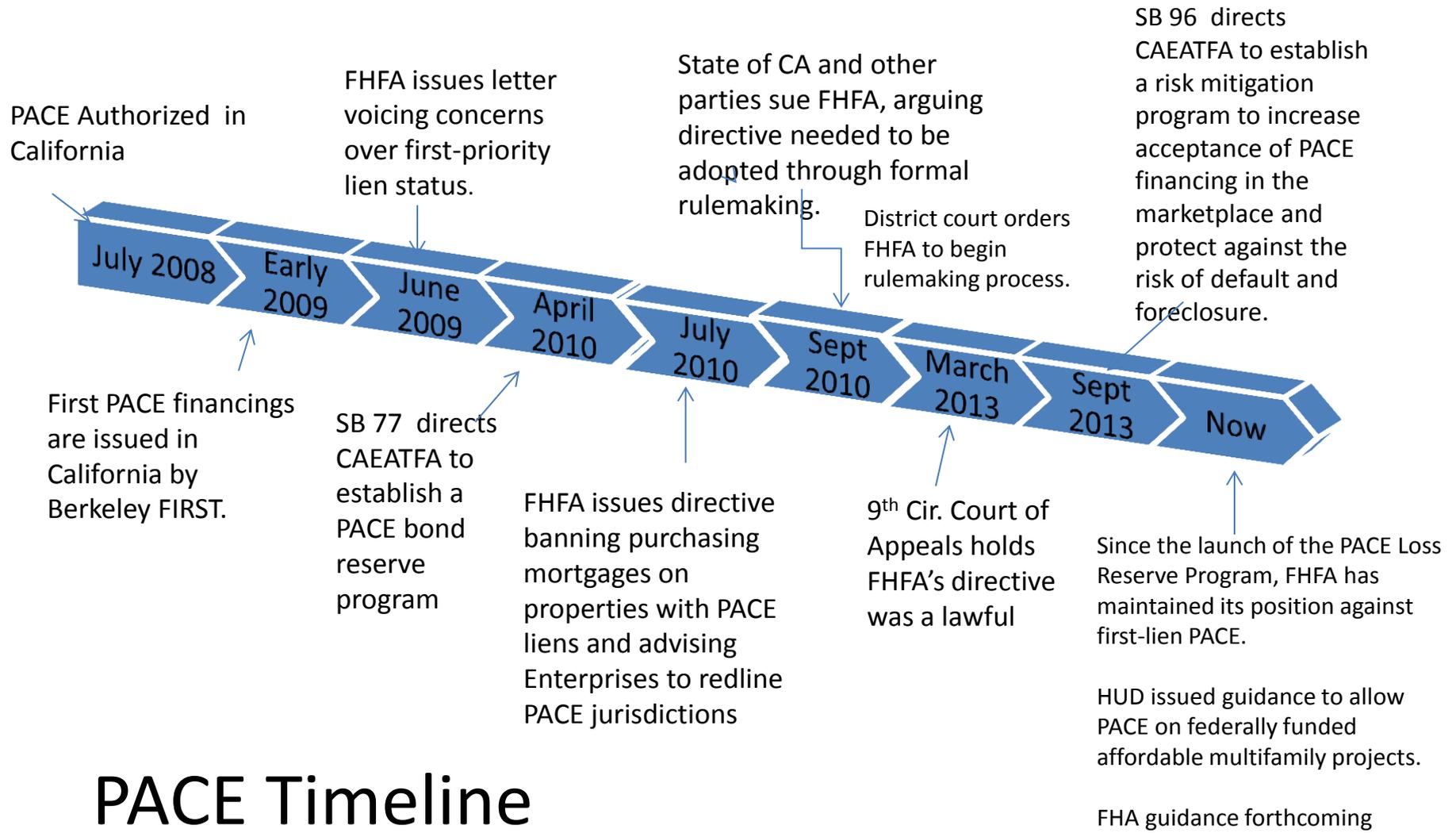


Growth of Residential PACE in California

Property Assessed Clean Energy



CAEATFA's Residential PACE Loss Reserve Program

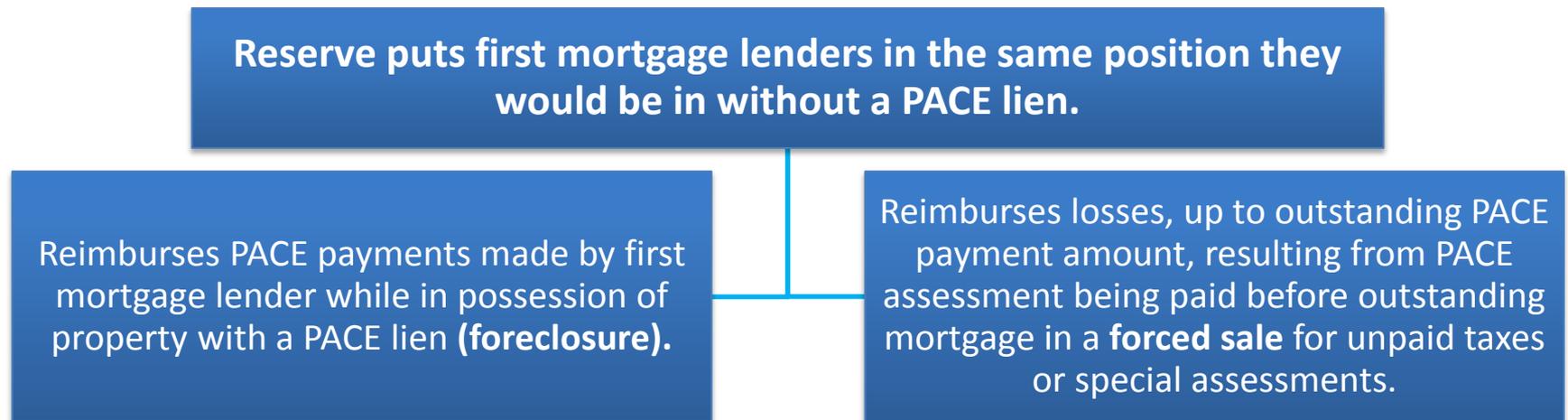


PACE Timeline



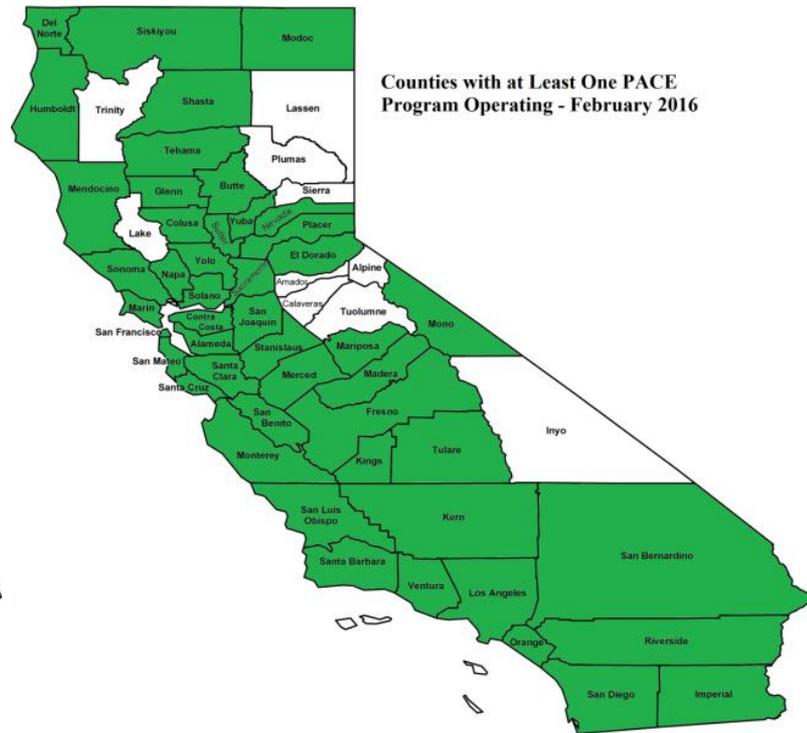
Financing Efforts in California – Residential PACE Loss Reserve Program

- \$10 million for the Loss Reserve.



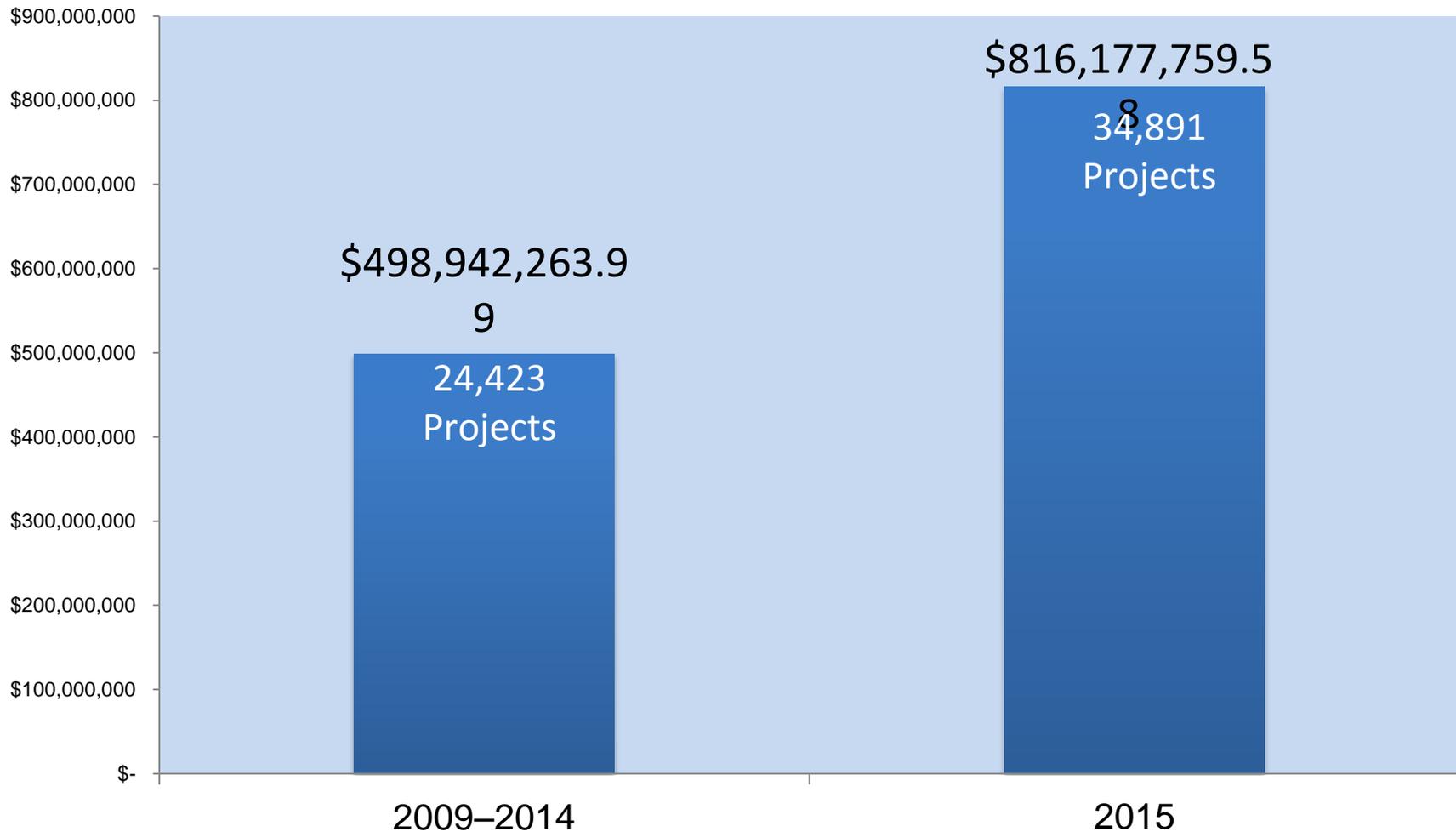
- PACE administrators can participate in the Program by applying to CAEATFA and demonstrating that they meet the Program's minimum underwriting criteria.
- Once a PACE program is enrolled, the Loss Reserve will cover PACE financings issued by that program for their full terms, or until funds are exhausted.

CA Residential PACE Growth



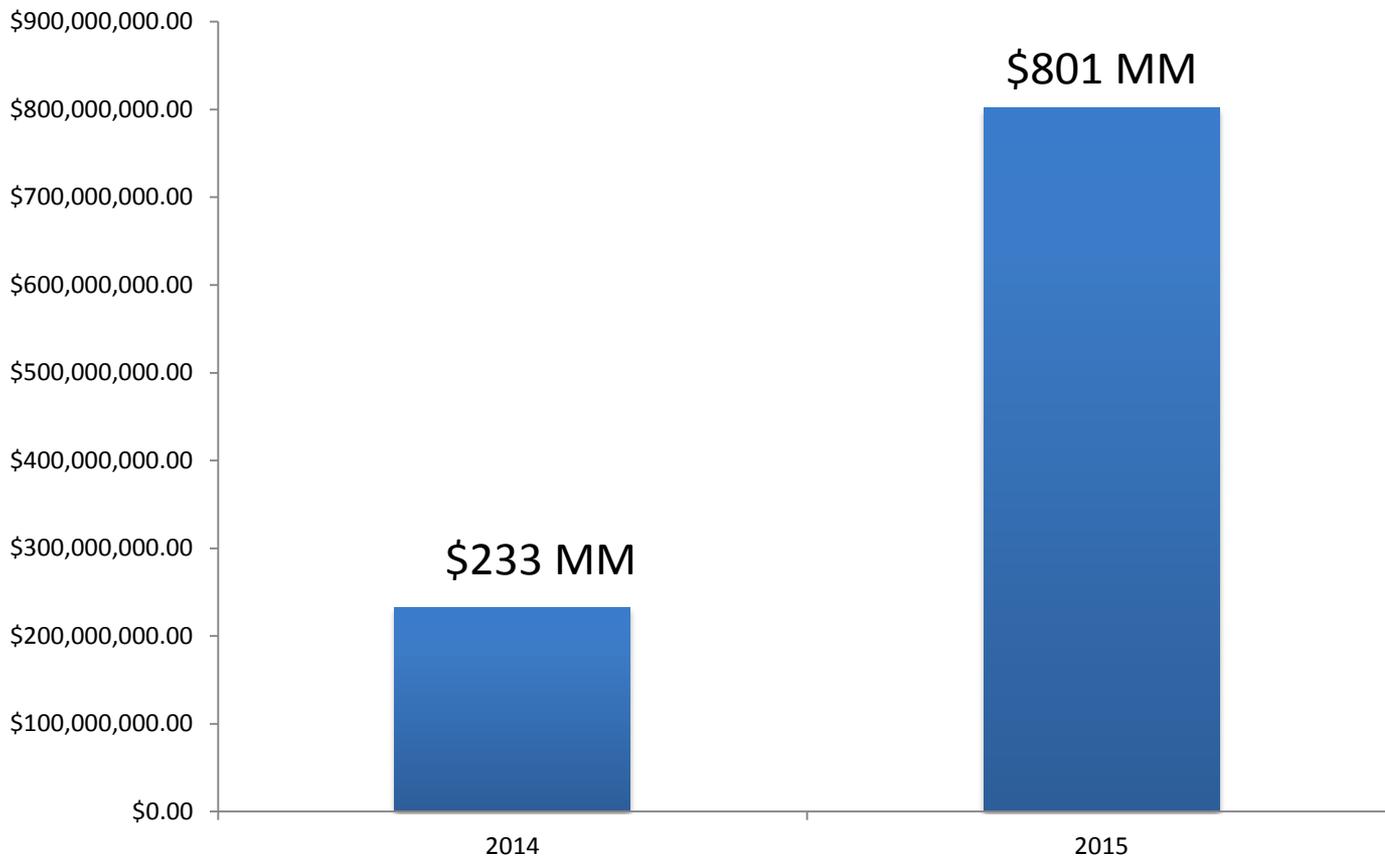
CA Residential PACE Growth

Total Principal Amount of Residential PACE Financings Originated



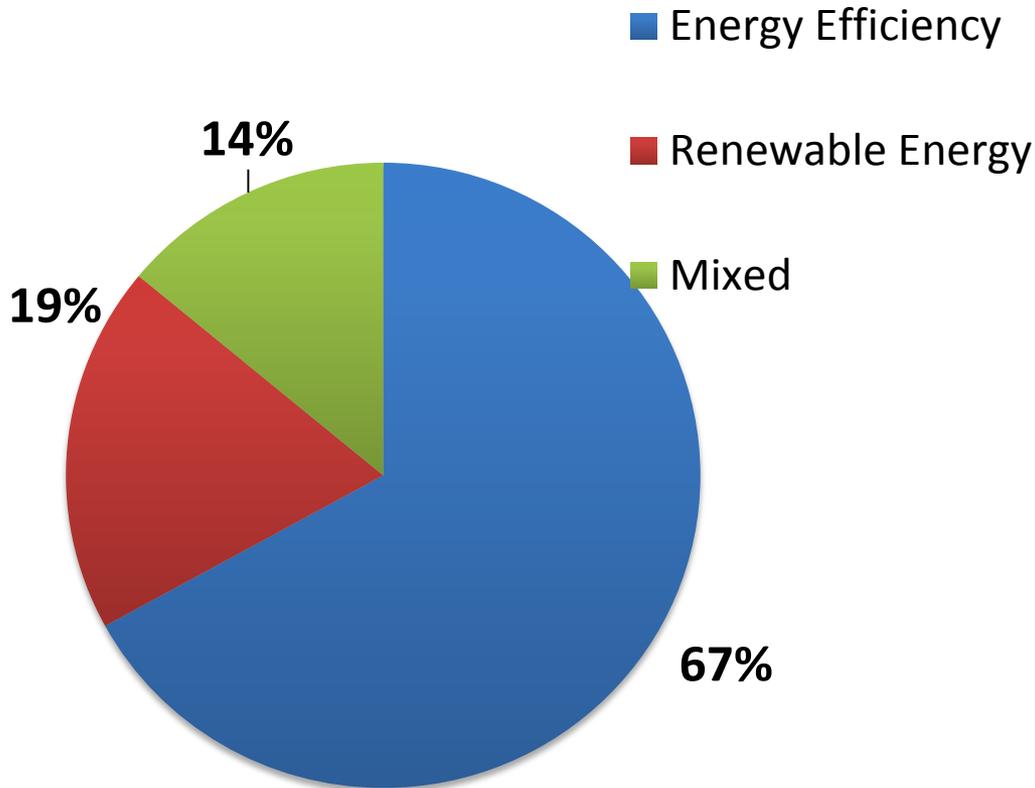
CA Residential PACE Growth

PACE Securitizations



CA Residential PACE Growth

Residential Measures



Source: PACENation

Sonoma County Energy Independence Program	7.0% (10 or 20-year)
CaliforniaFIRST	6.75% (5-year) – 8.39% (25-year)
Ygrene	4.25% (5-year) – 9.5% (20-year)
HERO	5.95% (5-year) – 8.95% (20-year)
mPOWER	6.0% (5–20-year)

*Interest rates are set based on market rates at the time of contract. Please visit the program's website for the most current information.



California PACE

Successes

Strong Contractor
Networks/Training/Sales

Sophisticated IT Tools – Quick
Approval

Strong Marketing Efforts

Flexible List of Eligible Measures

No Up Front Costs for Borrower

Challenges

Decentralized Approach creates
inconsistency

PACE Structure Challenging to
Explain

Contractors member of financing
team

Lack of Data on Energy Savings

Education of Broader Market
(realtors, bankers)



California Hub for Energy Efficiency Financing (CHEEF) Pilot Programs



CALIFORNIA HUB FOR
ENERGY EFFICIENCY
FINANCING



California Public Utilities Commission has authorized 7 EE Financing Pilots

- First open-market, third-party capital, on-bill repayment platform in country
- \$65 MM -- Use of ratepayer funds as a credit enhancement to leverage private capital participation
- Project Flexibility to drive deal flow: 70% of financed proceeds must be for EE measures; 30% may be for other improvements
- \$10 MM in Marketing, Education & Outreach
- Robust data collection
 - Pre and post project energy consumption data
 - Loan/lease performance data
- Evaluation, Measurement & Verification Process (EMV)



CHEEF Pilot Program Goals

- **Incentivize customers** to engage in more energy efficient improvements that conserve energy, reduce pollution, and save money
- Assist lenders in providing **broader access to more attractive financing** for energy efficiency projects by reducing perceived risk
- **Help contractors** offer more comprehensive projects with easy-access to financing
- Establish a **centralized, statewide database** of energy efficiency project and financing data to spur future investments



Key Program Design Elements

- **Credit enhancements (CEs)**: Minimize risk of capital losses for third-party lenders, thereby resulting in increased consumer access to enhanced financing terms. Up to 20% of principal value, reserve available if loan/lease is charged-off
- **On-bill repayment (OBR)**: Test the hypothesis that payment on the utility bill will increase debt service performance across market sectors.
- **Project quality assurance and quality control**: Increase the quality of financed projects by establishing minimum thresholds that support the proper installation of equipment resulting in energy savings (e.g. requirements for eligible contractors, safety testing, post-project inspections)



CHEEF Pilots Residential Program Comparison

	Residential Energy Efficiency Loan Assistance Program	Efficiency Finance Line Item Charge	Master-Metered Affordable Multi-Family
Products	Loans, Retail Installment Contracts	Loans, Retail Installment Contracts, Payment Plans	Loans, Leases, ESAs
Repayment	Off Bill	On-Bill	On-Bill
Credit Enhancement (\$25MM total)	Loan Loss Reserve	Loan Loss Reserve	Debt Service Reserve Fund
Occupancy Requirement	Tenant or Owner	Owner Occupants	Owner
Service Territory	Statewide	PG&E	Statewide

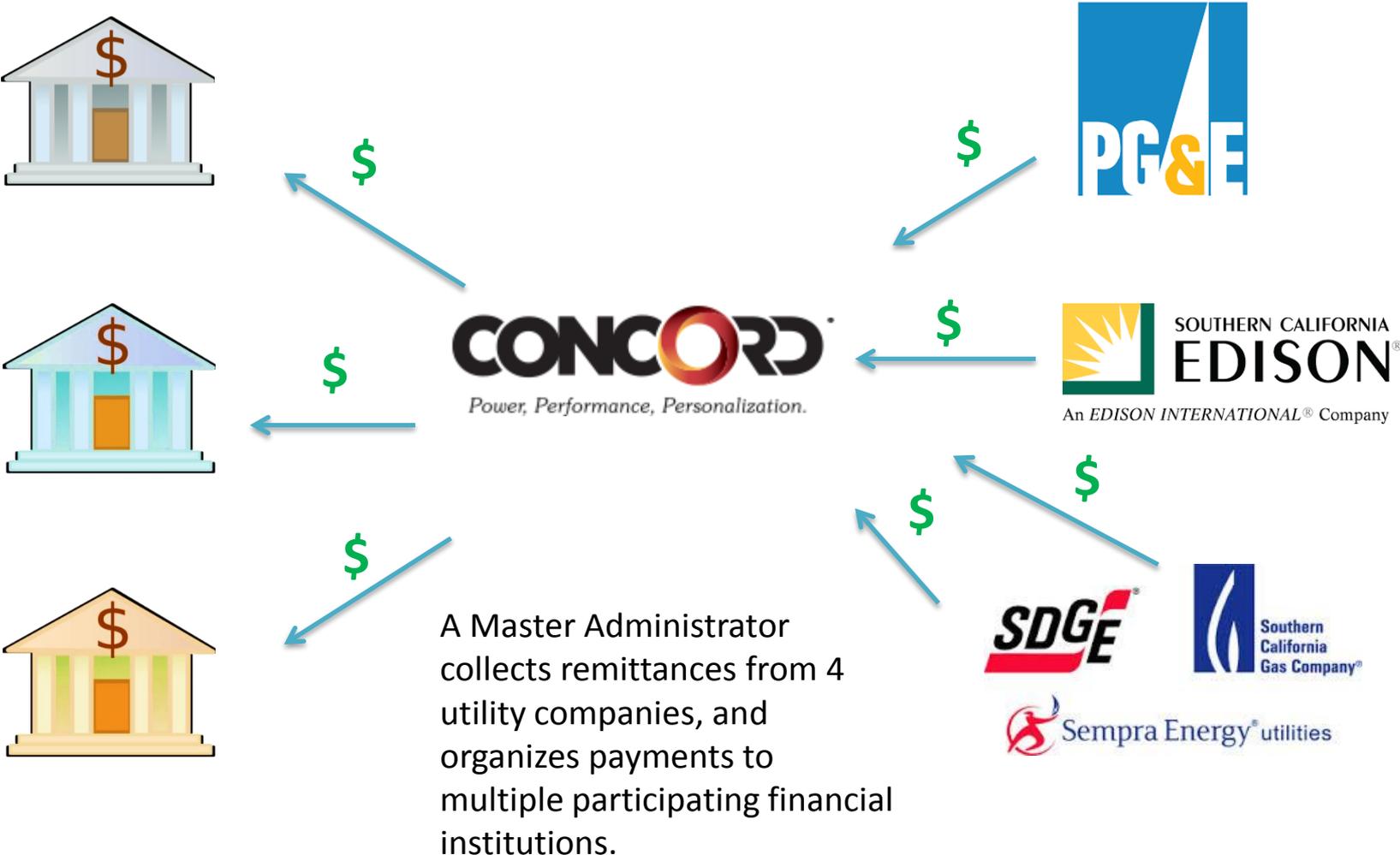


CHEEF Pilots Commercial Program Comparison

	Small Business Lease	Small Business Loan	Commercial OBR
Products	Leases & ESAs	Loans	Loans, Leases, ESAs
Repayment	Off-Bill & On-Bill	On-Bill	On-Bill
Credit Enhancement (\$14MM total)	Loan Loss Reserve	Loan Loss Reserve	None
Occupancy Requirement	Tenant or owner occupants	Tenant or owner occupants	Tenant or owner occupants
Borrowers	Small Businesses and Non-Profits	Small Businesses & Non-Profits	Any size business, government and Non-Profit



Open Market OBR platform provides a single point of contact for Capital Providers



Need for consistency and simplicity is a key issue for stakeholders

Financial Institutions

- Statewide consistency and simplicity
- Sale / Transferability of loans to investors
- Pre-Approval process to confirm loan eligibility prior to funding
- Access to Approved Contractor & Project Standards, QA/QC
- Leverage Statewide Marketing campaign

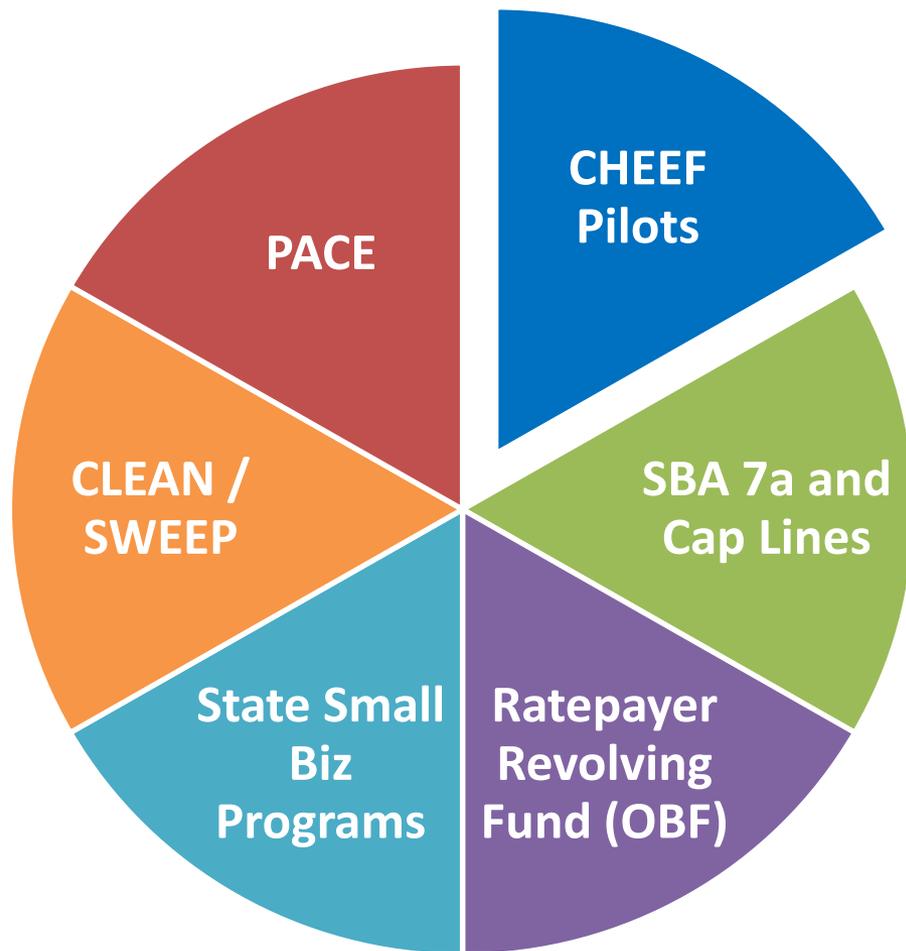
Contractors

- Increase deal flow and project size
- Statewide consistency and simplicity
- Access to approved Lenders and quick approval process
- Collateral marketing and training in financing as a business tool.
- Leverage IOU Rebate & Incentive Process, not required

End Users/ Borrowers

- 100% financing, minimize capital outlays
- Flexibility to combine EE measures with other retrofits
- Simplified application and paperwork process
- Consumer Protection standards for lenders, contractors, projects

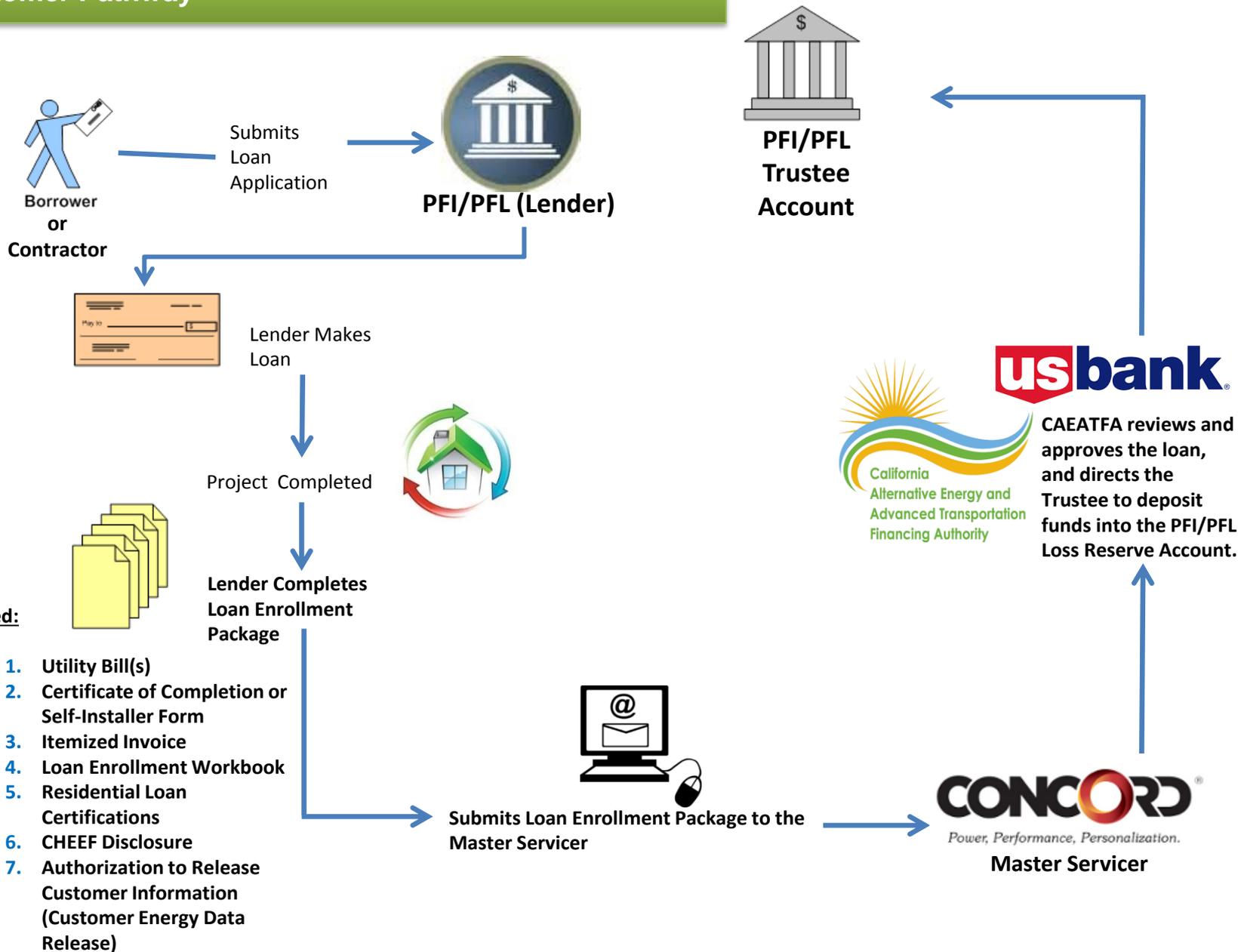
CHEEF pilots complement existing programs that support small business Energy Efficiency



CHEEF Niche:

- Borrower not required to pursue utility rebate or incentive
- Non Profits are eligible borrowers
- No cost for credit enhancement
- No requirement for borrower equity injection
- Supports loans, leases & ESAs
- Lenders control underwriting criteria
- No building equity required

Customer Pathway



Residential Energy Efficiency Loan Assistance Program Today

- 90% Loan Loss Coverage, 11-20% Credit Enhancement based on borrower's income
- 3 Lenders Enrolled today (Credit Unions & Finance lenders)
- Favorable financing terms include:
 - Interest Rates decreased from 7.99-15.95% to 4.99 to 9.99%
 - DTI Maximum of 55%, 580 FICO
 - Maximum Loan Amount of \$50,000
 - Extended loan terms to 15 years
- Contractor Support: Co-op marketing and microgrants, leveraging statewide Energy Upgrade efforts, statewide websites, IOU infrastructure, lender/contractor outreach events.
- Launch – April 2016



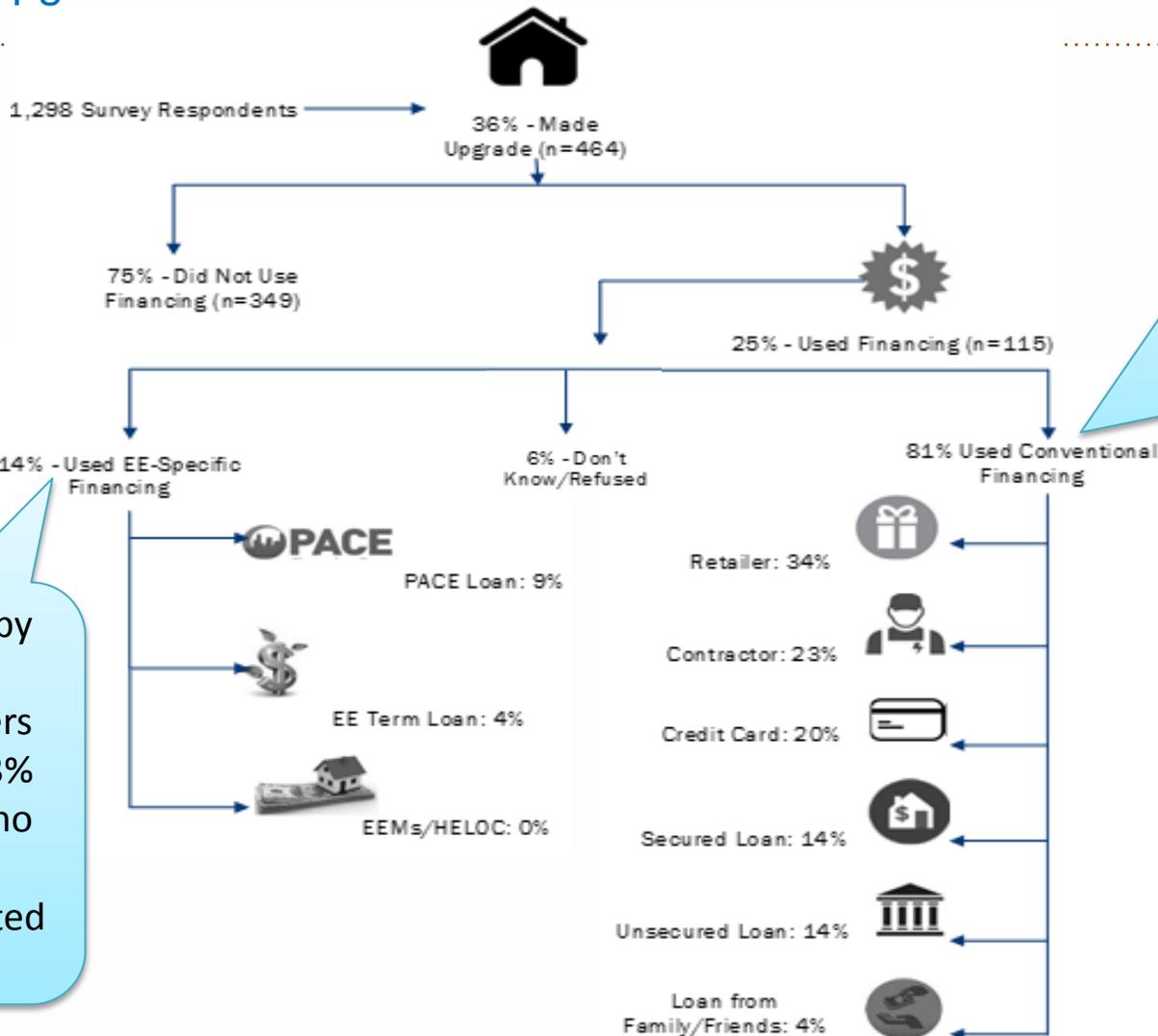
CHEEF Evaluation Measurement & Verification Process

Impact Evaluation: Show me the Savings!

- Gross savings: How much kwh or therms have we saved in total from this program?
- Attribution: How much of the savings would have happened without the program?
- Cost-Effectiveness: What is the program cost-to-benefit ratio of running this program?
- May also measure non-energy outcomes or benefits

Process Evaluation. To determine how well the Pilots are being implemented and provide recommendations for improvement (not concerned about determining energy savings)

Energy Efficiency Financing Products Support Just a Small Fraction Energy-related Upgrades



Vast majority of homeowners used conventional financing for energy upgrades

EEFP used by 1% of homeowners surveyed, 3% of those who made an energy-related upgrade

Residential Market Baseline Study

- Conducted by Opinion Dynamics & Dunsky Energy Consulting
- Baseline data to assess Pilots' impact on residential EE financing market

Three types of Energy Efficient Financing Products

	 Home Equity Loans	 Term Loans	 PACE Financing
WHO: Key Lenders	60 lenders (primarily FHA EE Mortgage)	23 lenders (primarily credit unions)	10 lenders (HERO the largest 80%)
WHAT: Loan Security	Mortgage lien	Secured through equipment or unsecured	Tax Impact – priority lien
HOW: Underwriting Criteria	D/I ratio, property value, FICO score, equity	FICO score/ability to pay	Sufficient equity/ payment history

Energy Efficiency Financing Products tend to support larger projects (higher value)

Project Type	Average Cost for Project
All Energy-Related Upgrades	\$14,220
Non-Financed Energy-Related Upgrades	\$13,816
Financed Energy-Related Upgrades	\$17,873
Using EEFPs	\$25,714
Using Conventional financing	\$16,599

EEFPs used more often for larger energy saving measures

75% of homeowners who used financing noted financing allowed them to undertake measures that would not have been otherwise possible

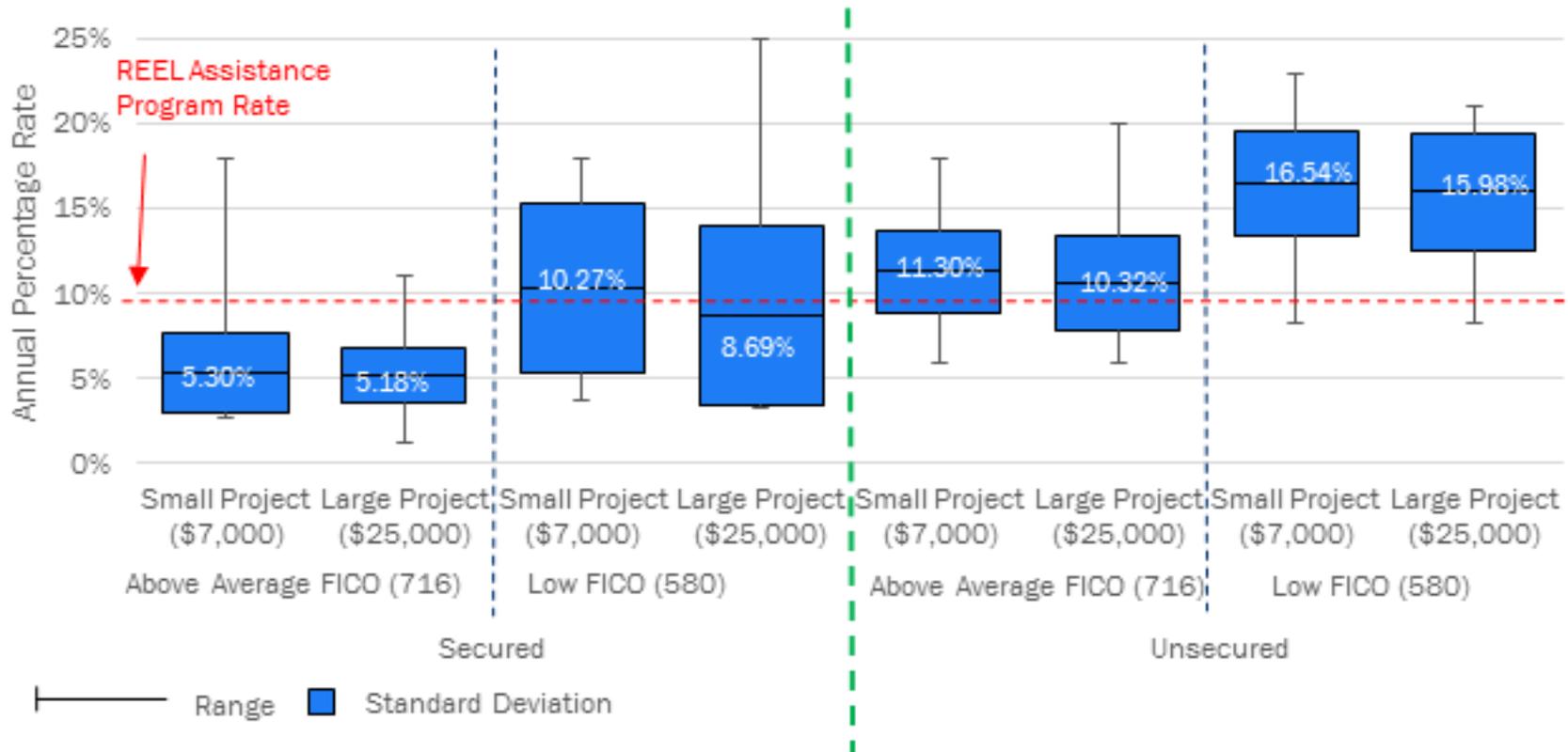
Upgrade Types	EEFP	Conventional
Renewables	47%	27%
Weatherization	47%	35%
Refrigerator/Freezer	47%	41%
Heating System	47%	31%
Central Cooling System	40%	28%
Windows	40%	29%
Water Heater	13%	40%
Washing Machine / Dryer / Dishwasher	7%	59%



Pilot interest rates likely competitive with term loan rates

Affordable EE lending options are needed for LMI and marginally creditworthy borrowers

- 11% of IOU customers have FICO scores that will not qualify for loans
- Low FICO score customers are often rejected from most banks for term loans or they are offered high interest rates
- 19% of survey homeowners reported being turned down for a loan in the past two years



Key Findings from Baseline Study

- Consumers are looking to make EE improvements.
 - 40% likely to make an energy-related upgrades in the next two years
 - 27% of those are at least somewhat likely to use financing
- High up-front costs of EE products is an important barrier to customers
 - 1 in 10 customers who made an energy-related upgrade would have made more upgrades with financing
- Not just Education & Marketing – Financing has a key role
 - Upfront cost (50% reported) seems to be a larger barrier than lacking of information to make a decision (40% reported)
 - High interest rates and difficulty accessing loans were also seen as important barriers



Early Lessons Learned

- Financing is an essential tool to meet our aggressive EE goals and remove barriers for specific markets
- Various financing approaches often lead to a comparison of apples of oranges. Different approaches will work for different borrowers – Fruit Salad
- Simple, streamlined and quick is a challenge to balance with
 - Necessary Consumer Protection Provisions
 - Data & Evaluation Requirements
 - Program Restrictions/Structure
- **Contractors Essential Strategic Partner – What Tools do you need?**





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