



Moderator:

- Scott Bernstein, Center for Neighborhood Technology

Speakers:

- Amy Brusiloff, Bank of America
- Sandy Fazeli, National Association of State Energy Officials
- Dan Seligman, Ceres
- Karen Zelmar, Pacific Gas and Electric Company



Amy Brusiloff, Bank of America

Bank of America's Commitment to the Environment

Our business



- Drive innovative new financial solutions across all our lines of business.
- **\$125 billion** in low-carbon business to be committed **by 2025**. Since 2007, have provided more than \$70 billion to low-carbon and other sustainable business activities.
- From supporting renewable energy and low-carbon vehicles, to a robust Environment, Social, Governance (ESG) investment platform for wealth management clients.

How we operate



- Manage our operations efficiently to benefit the environment.
- Committed to become **carbon neutral** and purchase 100% renewable electricity **by 2020** in Sept. 2016.
- Recommitted and increased operational goals:
 - Reduce energy usage by 40%
 - Reduce location-based GHG emissions by 50%
 - Reduce water use by 45%
 - Reduce waste to landfill by 35%

Working with others



- Engage with partners to increase our impact.
- Partners like the UN's Sustainable Energy for All (SE4All) initiative and Stanford University's Global Climate and Energy Project.
- Committed more than \$21 million in environmental philanthropy in 2016.

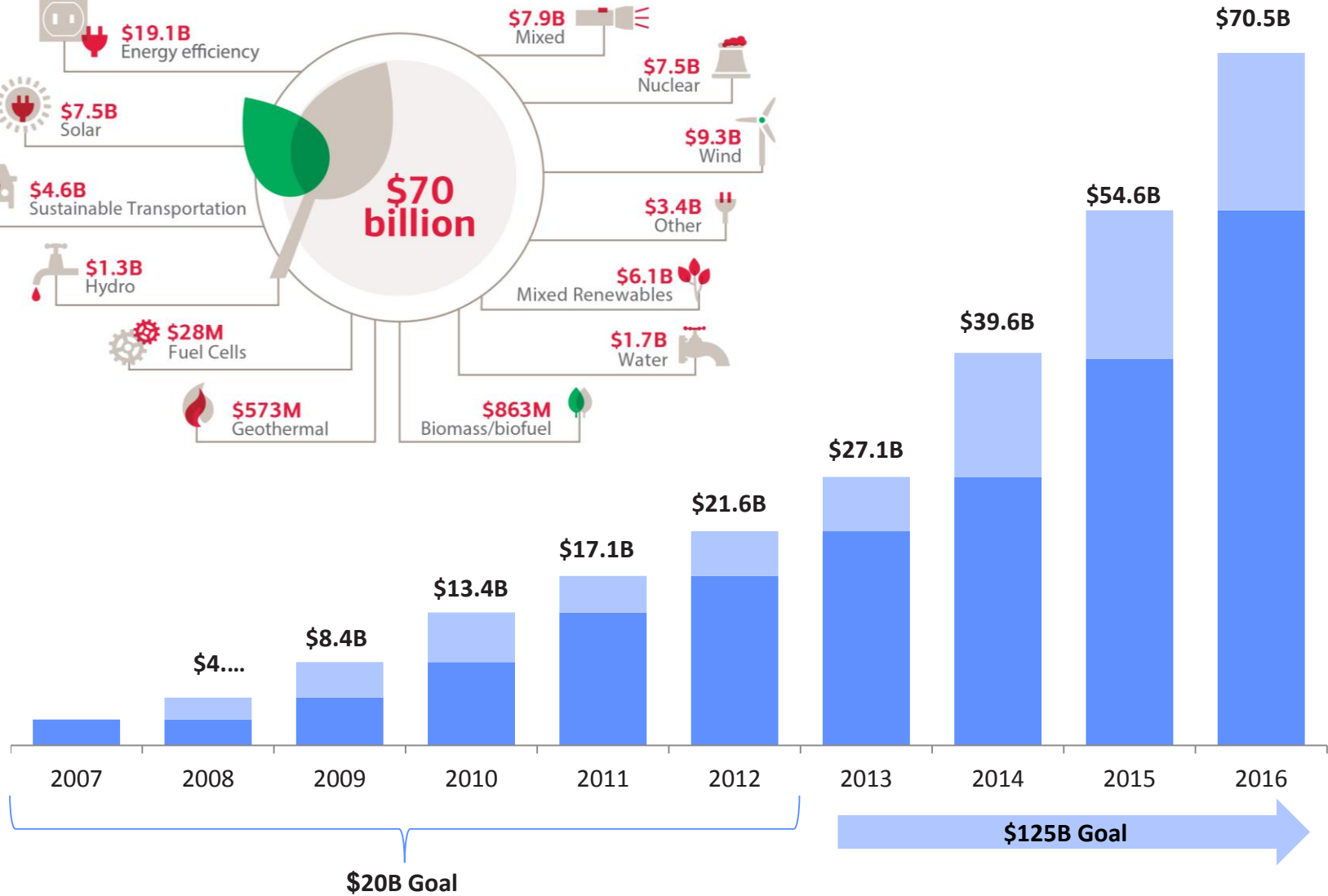
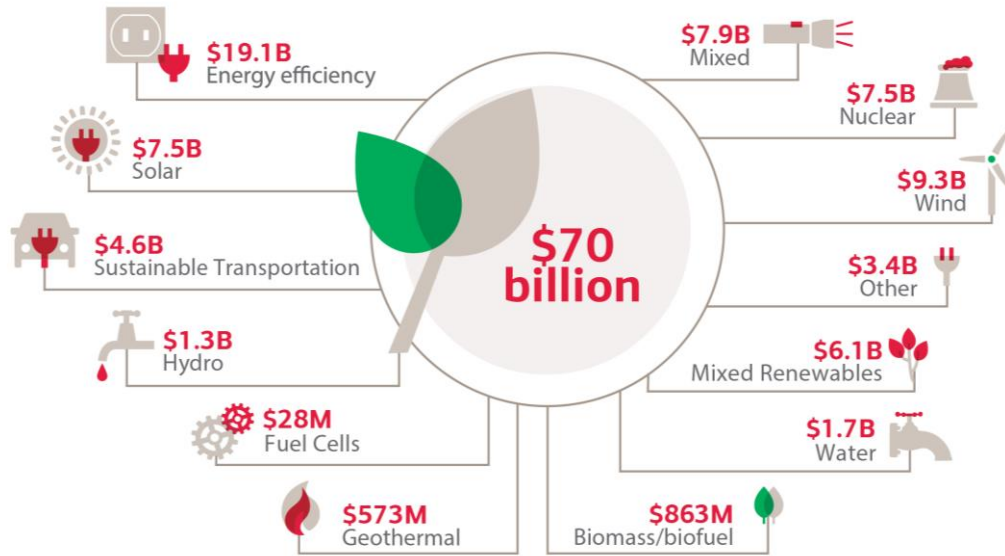
Our people



- Help our employees act as good environmental stewards at work, at home and in the community.
- Approximately 20,000 employees actively participate across the globe from Boston to Hong Kong.
- Provide incentives to encourage new environmental technology adoption at home.

Bank of America's \$125 Billion (by 2025) Environmental Business Commitment

Since 2007, we've provided \$70 billion in low-carbon and sustainable financing



Our business: Transformational finance

<u>LOB</u>	<u>Environmental Engagement</u>	<u>2013-2016 Activity</u>
Global Banking and Markets	Raises equity and debt capital and provides advisory services to support our clients' low-carbon business	\$22.9 billion
Leasing	Provides equipment and tax equity financing for energy efficiency projects and renewable energy projects	\$9.6 billion
Public Finance	Delivers debt for municipal sustainability projects	\$8.7 billion
Commercial Real Estate & Community Development Banking	Finances projects with LEED, ENERGY STAR and other environmental certifications, as well as brownfield redevelopment	\$5.5 billion
Global Commercial Banking	Extends lending and credit to lower-carbon companies and for lower carbon deals	\$738 million
Consumer Vehicle Lending	Provides loans for hybrid/electric vehicle purchases	\$1 billion
Global Wealth and Investment Management	ESG investment solutions for GWIM clients	\$270 million
CDFI Lending	Supports environmental nonprofits and CDFIs	\$77 million



How we operate

Creating a more sustainable world extends to how we manage our own operations.



2016 – 2020 Operational Goals

	Goal Area	Goal	Status
Greenhouse Gases/Energy	Achieve carbon neutrality	100%	In progress
	Purchase electricity from renewable sources	100%	In progress
	Reduce energy use	40%	In progress
	Reduce location-based GHG emissions	50%	In progress
Green Building	Maintain LEED certification in company's occupied space	20%	In progress
Water	Reduce water use	45%	In progress
Waste	Reduce waste to landfill	35%	In progress
	Dispose of e-waste using certified responsible vendors	100%	In progress
Paper	Maintain average recycled content in paper	10%	In progress
	Purchase paper from certified sources	100%	In progress
Vendor Engagement	Maintain response rate to CDP Supply Chain requests	90%	In progress
	Ensure CDP Supply Chain responding vendors disclose GHG emissions	90%	In progress



Xeriscaping in Southern California

Transitioned financial centers to drought-tolerant landscaping, saving 5M gallons of water annually.



100 LEED-certified financial centers

Bank of America integrated LEED into its retail construction processes in 2007, and now has more than 100 LEED-certified financial centers.

Bank of America Energy Efficiency Finance Program

This program, launched in 2011 and completed in 2015, provided catalytic resources to CDFIs working on innovative financing programs for energy efficient retrofits in low- and moderate-income communities.

Grants

\$5 million in total. Grants of \$500,000 per program participant, paid over two years (2011 and 2012).

Loans

\$55 million in total. Loans to program participants ranged from \$5 million to \$8 million.

Loans at 1% interest rate and for terms as long as ten years.

Data

CDFIs worked with BrightPower to collect utility data and monitor post-retrofit energy and water consumption against pre-retrofit performance.

Results

- ACEEE published the program findings on July 28, 2016. <http://aceee.org/research-report/f1601>
- 27% Electricity Savings, 17% Gas Savings, 15% Water Savings
- Lessons learned: Borrower education necessary to understand the savings, and technical assistance is important.
- Many projects include non-energy savings measures (better building approach versus pure energy efficiency loan)

Program Participants

Boston Community Loan Fund

Community Investment Corporation

CRAFT3

Enterprise Community Loan Fund

National Development Council/Grow America Fund

IFF

Low Income Investment Fund

Opportunity Finance Network (to relend to other CDFIs)

Self-Help

The Reinvestment Fund

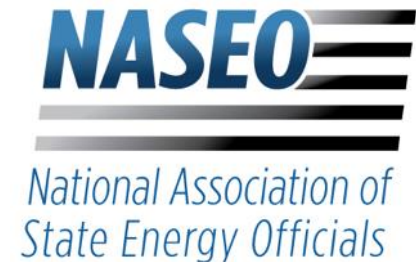


Sandy Fazeli, National Association of State Energy Officials

STATE FINANCING AND INVESTMENTS IN ENERGY EFFICIENCY



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



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

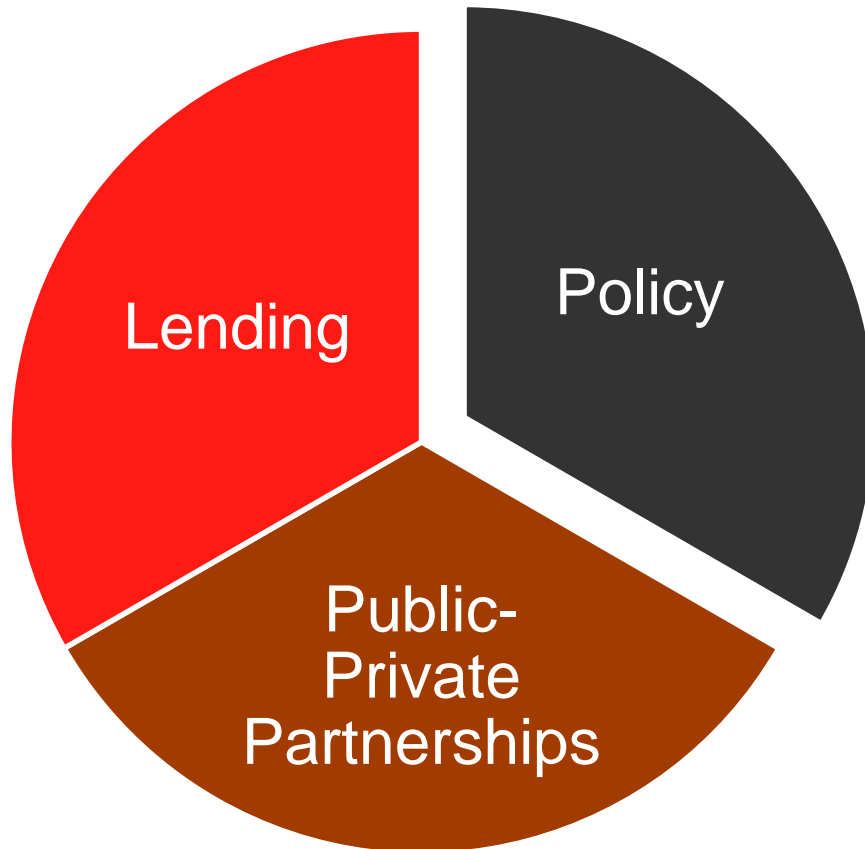


C/o the Alaska Energy Authority



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

DRIVERS OF STATE ENERGY FINANCING



- Fill gaps in the marketplace
- Reduce reliance on public subsidy to maximize impact
- Share risk to animate private investment
- Achieve public policy goals even in the face of budget or personnel constraints



LOAN PROGRAMS



Clean Energy Fund

Dollar and Energy Savings

LoanSTAR

ALABAMA SAVES™

>\$100m

\$41-\$99m

\$11-\$40m

\$1-\$10m

<\$1m

Known capitalization of State Energy Office-operated or –supported revolving loan funds. Source: NASEO Financing Database, <http://naseo.org/state-energy-financing-programs>. Last updated July 2016.



POLICY AND PROGRAM FRAMEWORKS

- Property Assessed Clean Energy
- On-Bill Financing or Repayment
- Green Banks

KEY CONSIDERATIONS

- Real estate community
- Underserved markets, access, and equity
- Consumer and borrower protections
- Contractor engagement and quality control



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.”



THANK YOU!

Sandy Fazeli
NASEO Managing Director

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Dan Seligman, Ceres



Ceres

Sustainability is the bottom line.

Increasing Corporate Energy Efficiency

Daniel A. Seligman
ACEEE/EE Finance Forum
Chicago, Illinois
May 22, 2017

Ceres' Theory of Change

1. Start with ESG-Minded
Investors
(\$17 trillion AUM)

2. Engage
Companies

3. Drive New
Sustainability
Commitments



Energy-Efficiency School of Hard Knocks

- Green Supers Program/NYC (2009-2010)
 - 10-20% savings from good O&M
 - But training isn't enough
- Jump Start Chicago (2011-2012)
 - First cost might be the biggest barrier
 - But finance is no silver bullet
- EE “On Ramp”/Maryland (2013-2015)
 - Analytics can unlock savings from O&M
 - But it introduces new “barriers”
- Ceres (2016-2017)
 - Investors care a lot about efficient assets
 - ESG depends on transparency & goals
 - But investors don't know what to ask for



To Set EE Goals, Investors Ask Companies to Benchmark Against “Best Practice”

Set Public EE Goals

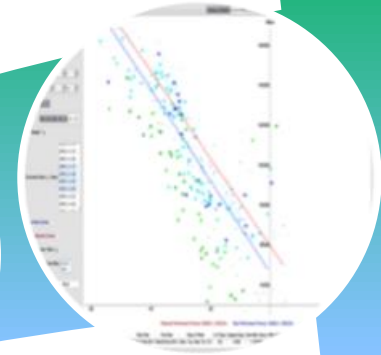
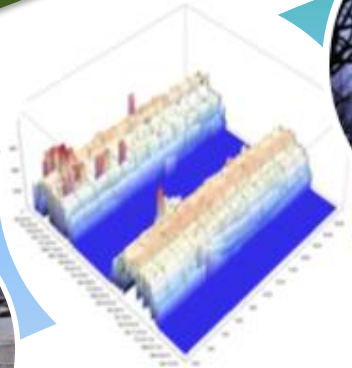
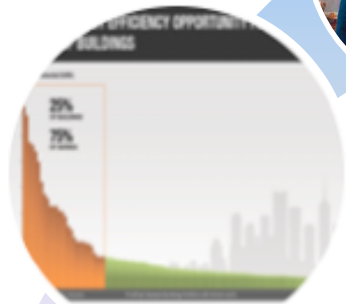
1. Prioritize Opportunities

2. Energy Management Systems (EMS)

3. Analytics-Driven O&M & RCx (EMIS)

4. Capital Upgrades (Lighting, HVAC, etc.)

5. EM&V & Reporting





Ceres

Sustainability is the bottom line.

For more information:



www.ceres.org



[@CeresNews](https://twitter.com/CeresNews)

seligman@ceres.org



Karen Zelmar, Pacific Gas and Electric Company

PG&E Energy Efficiency Financing

Karen Zelmar

Director, Energy Efficiency Portfolio Management

May 22, 2017



Together, Building
a Better California



Today: Pacific Gas & Electric

Service Area

70,000 SQUARE MILES



Service Area Population

16 million CALIFORNIANS
(that's 1 in 20 Americans!)



Natural Gas Pipeline

50,000 MILES



Clean Energy

60% GHG FREE



Electric Circuit

160,000 MILES



5.3 million electric customers

4.4 million gas distribution customers

49 counties
243 cities served in California

\$60 billion in assets

185 # of languages spoken to customers

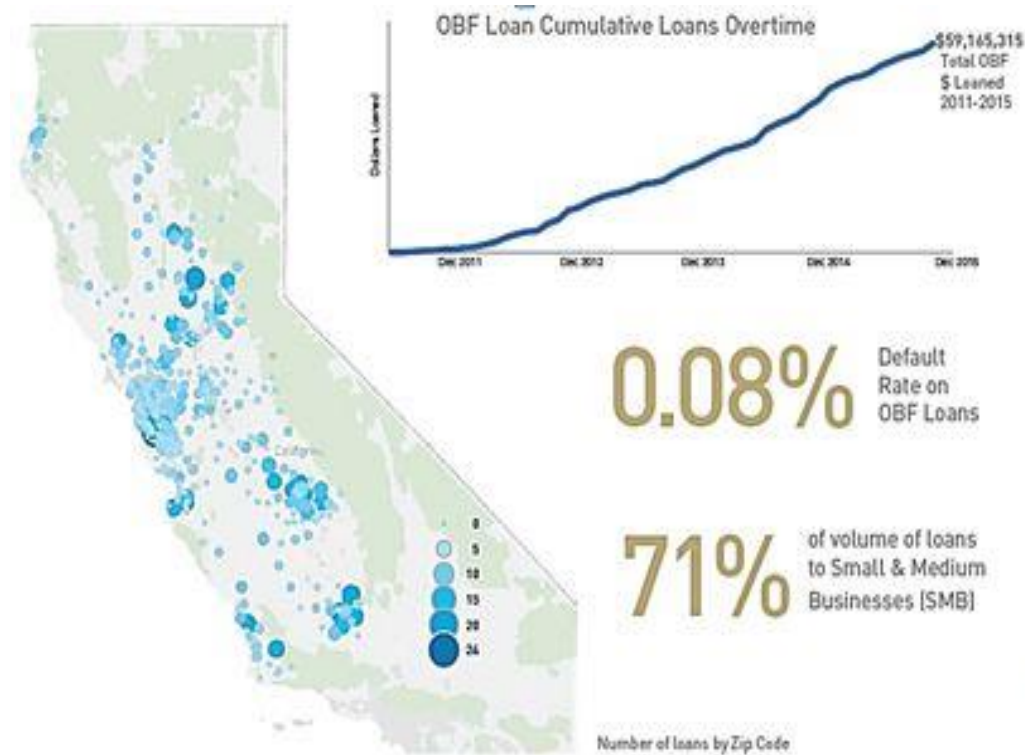


On-Bill Financing

- Interest-free loans
- Energy savings determined two ways:
 - Measure (technology)
 - Meter

New Financing Pilots

- Credit enhancement/ On-Bill Repayment
- Support of state administered financing programs



Average loan size: \$44,219 All Participants \$26,378 SMB \$132,906 Government



Tomorrow: California Policy Impacts

SECTIONS SEARCH

Los Angeles Times

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SUNDAY OCT. 30, 2016

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37°



Gov. Brown signs climate change legislation renewable energy, efficiency



SFGATE NEWS SPORTS BUSINESS ENTERTAINMENT FOOD LIVING TRAVEL REAL ESTATE

End of an atomic era: PG&E to close Diablo Canyon nuclear plant

By David R. Baker Updated 8:40 pm, Tuesday, June 21, 2016
... year, signed new climate legislation in a Los Angeles park on Thursday. (Luis

...avier Panzar · Contact Reporters

... 2015, 11:22 PM | REPORTING FROM LOS ANGELES



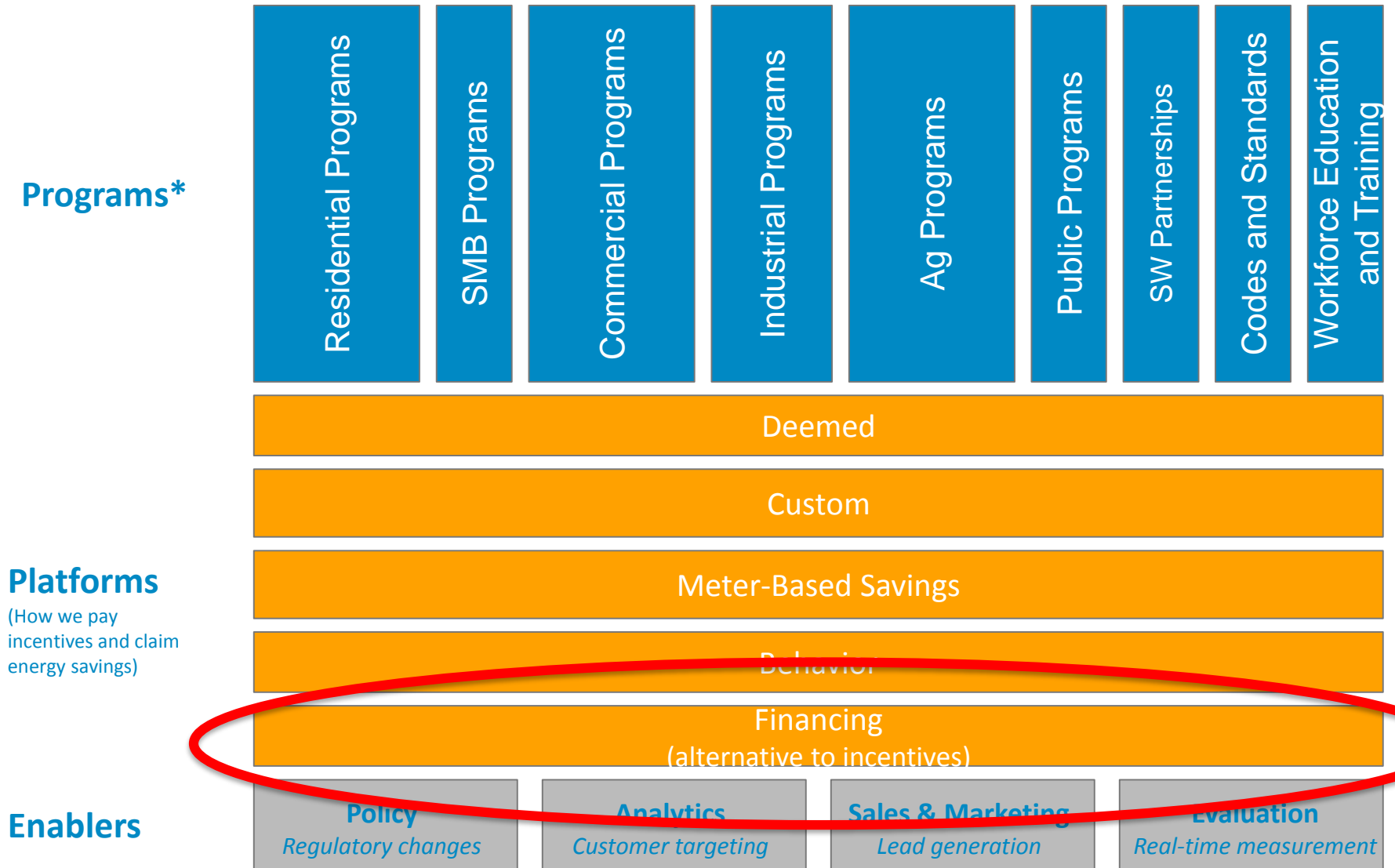
Tomorrow: Energy Efficiency

PG&E 10-Year Energy Efficiency Business Plan

- Filed with California Public Utilities Commission
January 2017
- 9 Chapters – Residential, Commercial, Agricultural, Industrial, Public, Codes & Standards, Emerging Technologies, Workforce Education & Training, and Financing
- Financing Business Plan Goals:
 - Overcome Transaction Barriers to Investment
 - Increase the Supply and Access to Affordable Capital



Proposed EE Portfolio Structure



Thank you!

Karen.Zelmar@pge.com



**Together, Building
a Better California**