CHEEF Pilot Program Update

Board Meeting, July 18, 2017

CALIFORNIA HUB FOR
ENERGY EFFICIENCY
FINANCING

Why financing pilots?

California Legislature has set ambitious climate change mitigation goals:

- AB 32 (2006) required state to **reduce its GHG emissions** to 1990 levels by 2020.
- AB 758 (2009) recognized the need for California to address climate change through **reduced energy consumption in existing buildings** (residential, commercial, and public).
- AB 802 (2015) authorized energy efficiency programs to **bring existing buildings up to current code** and creates a building energy-use benchmarking and disclosure.
- SB 350 (2015) required doubling of the state's **energy efficiency savings by 2030.**
- SB 32 (2016) required the state to **reduce GHG emissions 40% below 1990 levels by 2030.**

$50 Billion | **Needed to retrofit CA's existing buildings***

Ratepayer and taxpayer $ are insufficient

California will only achieve its building energy reduction goals through leveraging private capital

**Harcourt Brown and Carey, "Energy Efficiency Financing in California Needs and Gaps Preliminary Assessment and Recommendations." July 8, 2011.*

CPUC Decision 13.09.044 outlines two main sets of goals for financing pilots

*"developing **scalable** and **leveraged** financing products to stimulate **deeper EE projects** than previously achieved through traditional program approaches (e.g., audits, rebates, and information)"*

- Deeper projects
- More projects
- Scalable products
- Expanded access to financing
- Leveraged financing products

*"test whether transitional ratepayer support for Credit Enhancements can lead to **self-supporting EE finance programs** in the future"*

- Attractive financing without credit enhancement support

CHEEF Pilot Program Comparison

	REEL (Residential)	Affordable Multi-Family	Small Business	Large Commercial
Products	Loans, RICs Up to $50,000	Loans, leases & ESAs any size*	Loans, leases & ESAs Up to $2.5MM*	Loans, leases, ESAs Up to $5MM
Repayment and disconnection	Off-Bill	On or Off-Bill No disconnection	On or Off-Bill Possible disconnection	On-Bill Possible disconnection
Credit Enhancement initial authorization	Loan Loss Reserve Up to $25MM	Loan Loss Reserve Up to $2.9MM	Loan Loss Reserve Up to $14MM	None
Project requirements	70% EE or DR	70% EE, or Solar Hot Water	70% EE or DR	70% EE, DR, or DG
Borrowers	Homeowners or renters, 1-4 units	For-profit or non-profit owners of properties with at least 50% income restricted units	SBA size small businesses and non-profits	Any size business or non-profit; government and public entities

* Only first $1MM in financing will receive a credit enhancement

EE = Energy Efficiency   DR=Demand Response   DG =Distributed Generation

March, 2017 CPUC Decision provided CAEATFA with some authority to modify aspects of pilot design

Key CPUC Regulatory Actions regarding pilots:

- D.13.09.044 (Sept, 2013) “Financing Decision”: Calls for CAEATFA to set up the CHEEF, Authorizes the pilots through December, 2015 with $65.9MM for the pilots and $9.3MM in reserves.
- D. 15.06.008 (June, 2015) : Approves some of CAEATFA’s requested modifications; allows all pilots to run for a full two year period.
- D. 15.12.002: (Dec, 2015) Approves some of CAEATFA’s requested modifications; allows inclusion of energy service agreements (ESAs)
- November 22, 2016 AC and ALJ Ruling: Releases $8.36MM in reserve funding to CAEATFA to continue CHEEF operations through FY 19-20
- D. 17.03.026 (March, 2017) : Provides CAEATFA with clarified authority to modify pilot program design, commits Commission to long term funding support of the pilot programs including loan servicing for the life of enrolled loans

CHEEF CALIFORNIA HUB FOR ENERGY EFFICIENCY FINANCING

California Alternative Energy and Advanced Transportation Financing Authority

California Public Utilities Commission

Technical Consultants

Harcourt Brown & Carey Energy & Finance

Energy Futures Group

Master Servicer

Concord — Power, Performance, Personalization.

Contractor Manager

Investor Owned Utilities

PG&E

SDG&E

Southern California Gas Company

Sempra Energy utilities

Southern California Edison — An Edison International Company

Trustee Bank

usbank

Marketing Implementor

Center for Sustainable Energy

Energy Retrofit Contractors

CECS California Energy Consultant Service

Phoenix Energy Solutions

American Vision Windows

VCD Corp

GreenLeaf Heating And Cooling

Private Capital Providers

Matadors Community Credit Union

Valley Oak Credit Union — "Rooted in Your Growth"

California Coast Credit Union

Desert Valleys Federal Credit Union

CHEEF infrastructure development and major milestones

Q3, 2014	CAEATFA receives initial legislative budget authority for the CHEEF CAEATFA and CPUC sign MOA
Q4, 2014	CAEATFA and IOUs sign implementation agreement
Q2, 2015	Trustee Bank and Master Servicer contracts effective
Q3, 2015	Legislature grants budget authority through FY 16-17
Q1, 2016	On-bill repayment (OBR) Data exchange protocol completed
Q3, 2016	3 IOUs complete OBR testing
Q4, 2016	CPUC approves pilot reserve funds for CHEEF operations through FY 19-20
Q1, 2017	CPUC grants CAEATFA flexibility in modifying pilots Commercial TA Provider RFO Complete
Q3, 2017	Legislature grants budget authority through FY 17-18

Considerable challenges have pushed out pilot development

Narrow impact to the market

- Financing removes a hurdle, but doesn't create demand for efficiency
- Strict eligibility requirements mean small scope of projects qualify
- Low margins for finance entities; heavy lift for short term program
- Segregated loss reserve accounts by IOU territory diminish value of credit enhancement

Highly prescriptive CPUC Decision means operational hurdles

- Significant paperwork burden for participants
- Complex and costly eligibility checks for participants and for CAEATFA
- 4 separate lists of eligible measures based on IOU jurisdiction while lenders operate statewide

Resource and capacity issues

- Insufficient staffing levels, LT staff and turnover, and classifications not high enough for program complexity
- CAEATFA required to become expert on areas outside of financing such as energy efficiency measures across industries, IOU billing systems and operations, data transfer and exchanges, energy savings determinations
- Lack of budget for IT solutions to operational challenges

Complex partner and stakeholder coordination

- IOUs are highly regulated entities with significant legal constraints
- Financial entities have regulatory and resource constraints
- CAEATFA and CPUC operate through separate administrative procedures on separate timelines
- 4 different IOU billing systems and delinquency timelines

CAEATFA has responded to these challenges by working to

Broaden relevance to the market

- Advocated to CPUC to decouple measure eligibility from requirements of IOU rebate and incentive programs, for financing to code projects, for inclusion of energy service agreements, for inclusion of distributed generation projects (without credit enhancement) to provide broader market relevance
- Advocated to CPUC for ability to create statewide loss reserve accounts for lenders
- Consolidated small business pilots to draw from a single credit enhancement pool

Reduce and remove operational hurdles

- Exploring options for sharing of energy savings data that does not involve burdensome forms
- Exploring technology, deployed through marketing or contractor manager firm to facilitate contractor promotion of REEL and remove some of paperwork hurdles
- Consolidated forms and exploring removing as many data requirements as we can
- Advocated for a meter-based energy savings measurement of pilots to reduce upfront data burden

Procure resources and increase capacity

- Developed staff expertise on energy efficiency measures, IOU billing systems, data exchanges, etc
- Sought and received authority for additional staff and upgraded classifications
- Brought on technical consultants and coordinated with IOUs to receive continued TA from HB&C

Accommodate stakeholder and partner legal processes and concerns

- Coordinated with Energy Division staff to secure CPUC authorization on budget and program modifications
- Devised Operational Reserve Fund and exploring mechanisms for secure flow of funds to lenders for on-bill programs

REEL provides access to financing terms that customers would otherwise not obtain

- Unsecured loans
- No lien on property; home equity not necessary
- Up to 15 year terms mean low monthly payments
- Better rates than other unsecured products

A CalCoast borrower with a 600 FICO score taking out a $10,000 5-year loan would save **$3,668** in interest.

Comparison of lender's REEL product vs. their standard, unsecured loan

	Matadors Community Credit Union	Valley Oak Credit Union	California Coast Credit Union	Desert Valleys Federal Credit Union
Credit expansion	FICO min reduced from 660 to 640	FICO min = REEL min of 580	FICO min remained at 600	FICO min = REEL min of 580
Rate reduction	640 bp (for FICO of 640)	668 bp (for FICO of 580)	1200 bp (for FICO of 600)	1050 bp (For FICO of 580)
Term extension (means lower monthly payments)	Increased from 1 year to up to 15	Increased from 5 years to up to 15	Increased from 5 years to up to 15	Increased from 5 years to up to 15
Max amount available to borrow	Increased from $10k to $50k	Increased from $20k to $50k	Increased from $20k to $50k	Increased from $15k to $50k

REEL timeline and current metrics

March, 2015	June, 2015	Jan, 2016	April, 2016	July, 2016	Jan, 2017	April, 2017	Aug, 2017	Oct, 2017
E-regs effective	1st lender enrolled	CAEATFA ability to enroll a loan	Regular Rulemaking complete 1st contractor enrolled 1st statewide lender operational	1st loan enrolled	Consumer facing webpage launched	1st major program modifications & consumer-facing marketing efforts	CPUC Midpoint review	Contractor Manager on board

Participants:

- 4 active lenders
- 131 contractors

Loan activity:

- 30 enrolled loans
- $546k funded
- 11 rebated projects
- 10 year average term

Benefits to Borrowers:*

- 6.86% - average rate
- $19,752 – total interest saved**
- $13,075 – reduced payments each month†
- $422 - Average monthly payment reduction

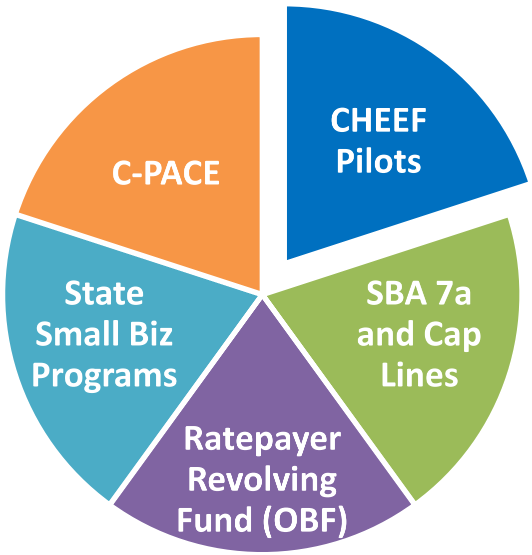
*Compared to credit union's conventional product **Total of interest saved over life of loan for 11 loans with terms of 5 years or less † All 30 loans reduced monthly payments compared to conventional product

CHEEF small business programs will also fill a financing gap

- Most lenders participating in guarantee programs require owner equity injection
  - business owners don't want to expend scarce capital on energy efficiency
- Utility financing (OBF) requires 5 year payback and has other restrictions
- C-PACE is not practical for smaller transactions or tenant occupants

We expect to see CHEEF projects where:

- 100% financing is needed
- Project costs more than $100,000 (OBF limit)
- Customer wants a service agreement
- Borrower is non-profit (less access to loan guarantee programs)
- Project is "custom" per IOU rules and borrower wants to realize savings now rather than wait for IOU approval
- Customers are replacing broken equipment (small ticket)
- Project has a long payback period; won't be bill-neutral in a 5 year period



CHEEF team and consultants currently working on small business program research and design

Program design under development covers:

Contractor requirements	Project eligibility	Measure eligibility	QA and QC	Data	Enrollment processes
Operations and data transmission	Finance entity eligibility	Credit enhancement structure	Financial product eligibility	Borrower eligibility	Underwriting guidelines

Commercial Program Development timeline:

- Q4 2016 / Q4 2016 — Program design Workshops
- Q3 2017 — E-reg Workshops
- Q4, 2017 — E-reg adoption
- Q1, 2018 — Program Launch (off-bill)

CHEEF will establish a model for non-mortgage based financing for affordable Multi-Family properties

Multi-family properties have special challenges in completing energy efficiency upgrades

- complex ownership structures
- multiple sources of capital mean its difficult to take on new debt
- tenant-owner split incentive

Key Program Design elements:

Single lender (under consideration)	Credit enhancement in form of loss reserve for first $1MM in project costs	Technical assistance to facilitate borrower decision-making
Loans, leases, service agreements	Leverage IOU rebates and incentives to lower project cost	On and off bill repayment options

Affordable Multi-family program to launch in late 2018

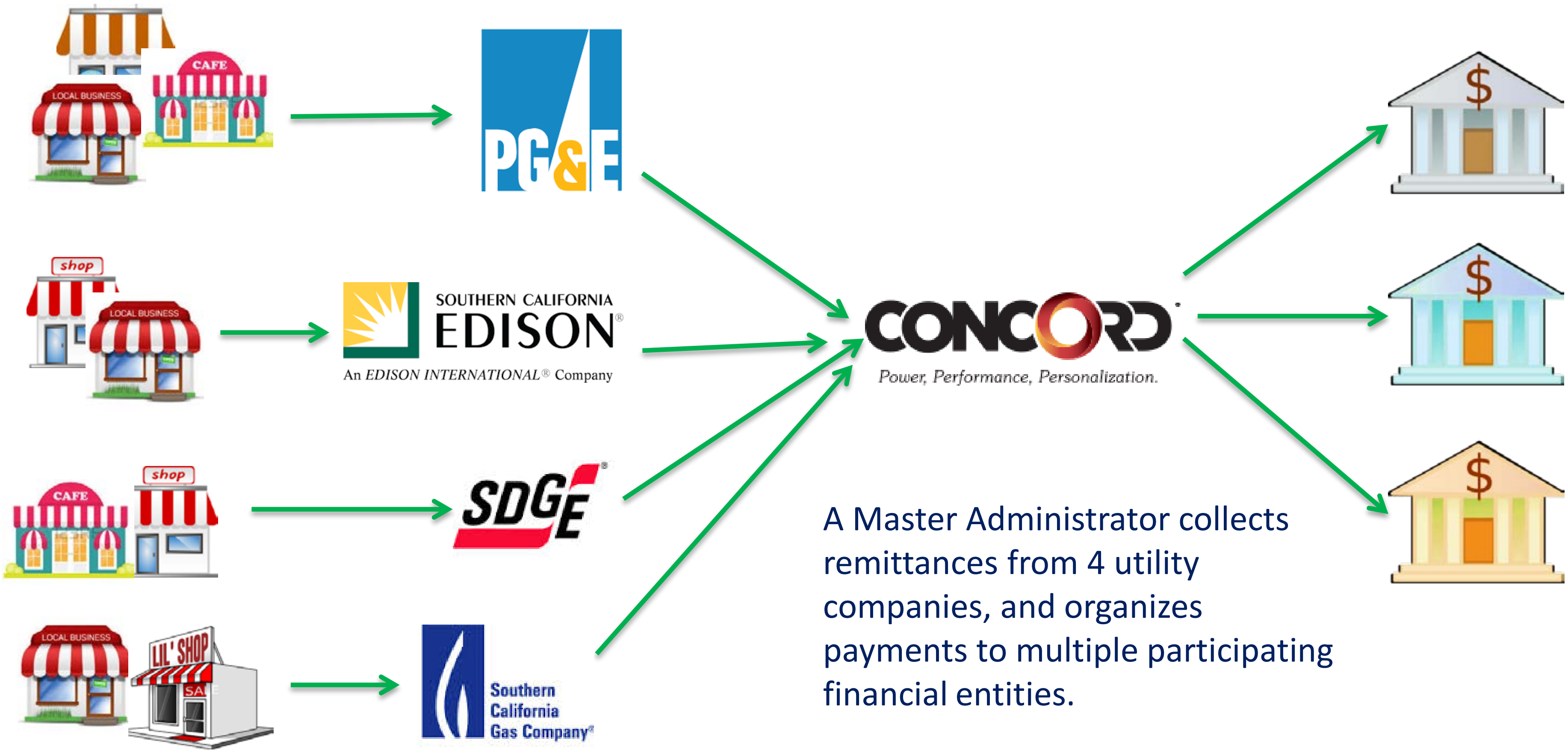
CHEEF financing will fill a need for:

- LIHTC properties that are outside the tax equity investor ownership period
- Properties that are mid-cycle in mortgage financing
  - Properties at end of cycle are more likely to be able to use a first mortgage refinance to fund energy efficiency improvements
- High energy consumption properties

Stakeholder meetings	Regulations or RFP Development		Program launch
Q4 2017	Q1 2018	Q2, 2018	Q3, 2018

CHEEF seeks to offer first Open Market OBR platform in country

A variety of finance entities, offering variety of products can enter into transactions with customers, and then allow those customers to repay their loans on the bill



A Master Administrator collects remittances from 4 utility companies, and organizes payments to multiple participating financial entities.

Why on-bill repayment?

- Convenience for borrowers
- Low default rates for finance entities
- Possibility of disconnection for non-payment of financing charges
  - Commercial only, not for residential or critical buildings
- Potentially attractive mechanism by which public buildings can undertake energy upgrades given budget constraints
- Utility on-bill financing has had some success; CPUC desire to test feasibility of private capital, on-bill repayment

Challenges with on-bill program design:

- Utility legal issues with collecting and processing payments
- Securing flow of funds from utility to any potential participating finance entity
- Four unique utility billing systems and payment timelines versus finance entity need for statewide consistency
- First program in country to attempt a front-end, open-market on bill program
  - Existing programs have one lender or sell loans on the back end

CHEEF staffing to implement programs

CHEEF Manager II
Overall Project & Program Manager

Development & Implementation

- **Manager I**
- **SSM I Specialist**
- **SSM I Specialist**
- **Analyst**
- **Analyst**
- (LT → FY18/19) **Office Tech**
- (LT → FY18/19) **Office Tech**

Compliance, Contracts & Audits

- **Manager I (Specialist)**
- **Analyst**

Marketing & Outreach, External Liaisons, Data

- (LT → FY19/20) **Manager I (Specialist)**
- (LT → FY19/20) **Analyst**

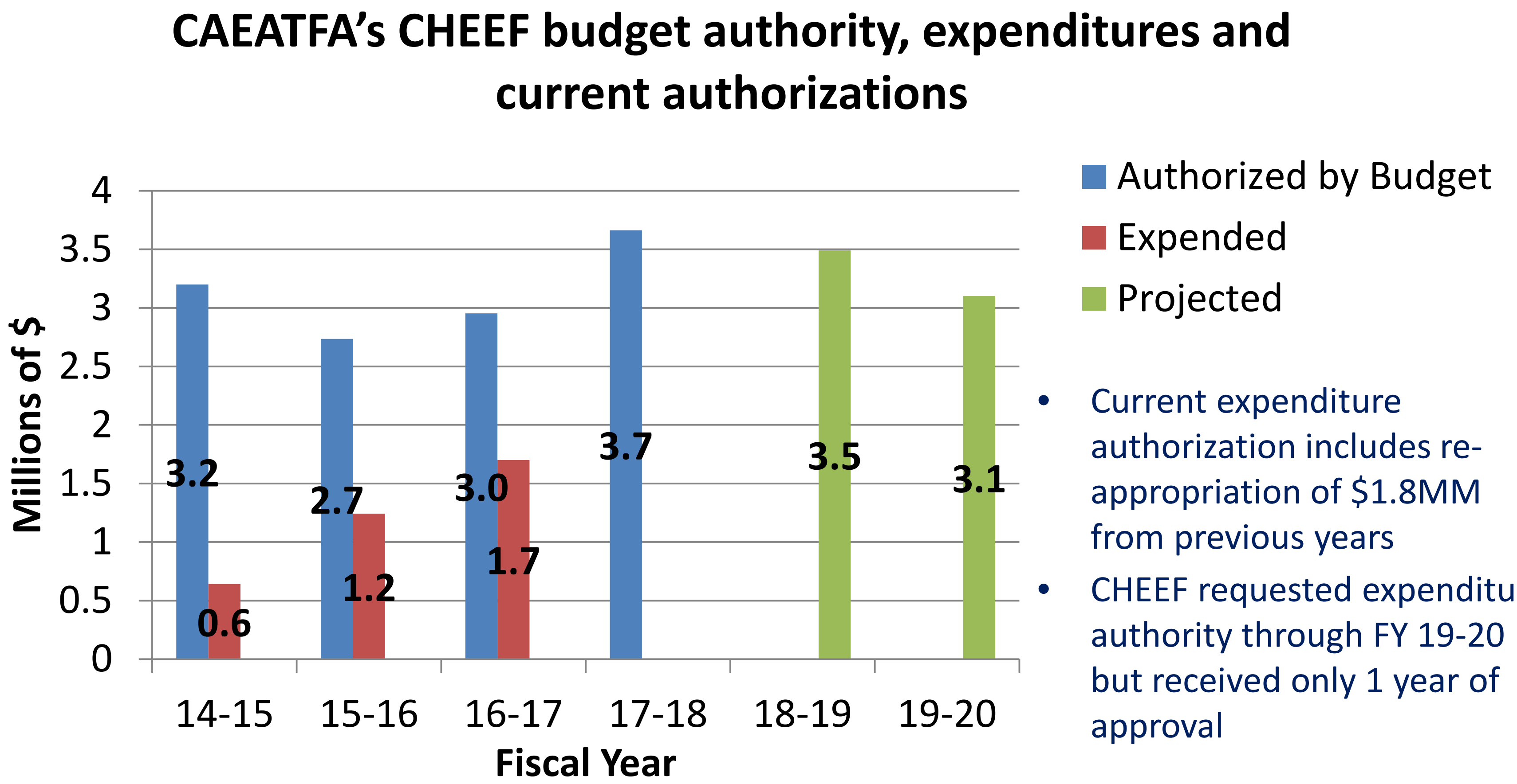
Key:

- **Existing position**
- **New position**
- **Upgraded classification**
- **Currently posting as permanent**

CHEEF funding level and expenditures through March 31, 2017

Item	Allocated	Expended/ Encumbered	Balance
CHEEF Administration	$ **13,360,000**	**$ 2,740,334**	**$ 10,619,666**
Start-up, administrative, direct implementation, contracting costs	$ 5,000,000	$ 2,740,334	$ 2,259,666
Release of funds approved by CPUC Rulemaking 13-11-005	$ 8,360,000	$ -	$ 8,360,000
Marketing, Education, Outreach (MEO)	**$ 10,000,000**	**$ 320,979**	**$ 9,679,021**
Statewide MEO plan	$ 8,000,000	(TBD)	$ 8,000,000
CAEATFA outreach & training to financial institutions and contractors	$ 2,000,000	$ 320,979	$ 1,679,021
Residential Pilots	**$ 28,900,000**	**$ 19,112**	**$ 28,880,888**
Small Business Pilots	**$ 14,000,000**	**$ -**	**$ 14,000,000**
Information Technology (IT) Funding to IOUs	**$ 8,000,000**	***(TBD)***	***$ 8,000,000***
CHEEF Pilot Reserve Remaining	**$ 984,931**	**$ -**	**$ 984,931**
TOTAL	**$ 75,244,931**	**$ 3,080,425**	**$ 72,164,506**

Expenditures will rise as pilots are launched and implemented



- Current expenditure authorization includes re-appropriation of $1.8MM from previous years
- CHEEF requested expenditure authority through FY 19-20 but received only 1 year of approval

We see significant opportunities for the CHEEF pilots over the next year

We have been looking for consumer-friendly energy loans for 5-6 years now… so when we heard about the REEL program, we got on board because it is a great fit for us. We are always excited to bring new products that bring value to our members.

REEL Participating Lender

REEL has no fees and the interest rates are better than Cal First or HERO. I would like to get away from using these other financing products because I can save my customers $1,500 to $2,000 in fees!

REEL Participating Contractor

$50 Billion in retrofits needed for CA's buildings

Streamlining operations and eligibility requirements

Testing a "finance-only" path

Financing to code

Contact Information

Miriam Joffe-Block
Program Manager
Mjblock@treasurer.ca.gov
916-653-3032

CHEEF Office:

Tel: (916) 651-8157

Email: cheef@treasurer.ca.gov

Sign up for our listserv at:

www.treasurer.ca.gov/caeatfa/cheef

Stakeholder website:
www.thecheef.com

APPENDIX

Electric and Gas Utility Service Territories