

# Clean Energy Finance Workshop

Proceeding 20-08-022

Workshop will start at 9 AM



California Public  
Utilities Commission

# Workshop Logistics

- Panels are 75 minutes – 1 hour presentation, 15-minute panel Q&A
- Public Comment at the end of each day – 15-minute moderator lightning round followed by 45-minute Public Comment
- Workshop will be recorded and be included in the record for R. 20-08-022 – link will be available at <http://www.adminmonitor.com/ca/cpuc/>
- There is a delay between the telephone audio and the Webinar broadcast
- For any technical issues with the Webinar, please call the Technical Support Line at 415-703-5263

## Panel 5 – 9:15 – 10:30

- Moderator: Dan Adler
- Miriam Joffe-Block, CAEATFA
- Meredith Alexander, CalSTART
- Pietro Cambiaso, Inland Empire Utilities Agency
- Chris Cone, BayREN

# Policy considerations for finance from the experience of administering the CHEEF

Clean Energy Financing Workshop, January 2021

*Miriam Joffe-Block, Senior Manager, CA Hub for Energy Efficiency Financing*



# California Hub for Energy Efficiency Financing

CAEATFA, a rulemaking agency in the **State Treasurer's Office**, administers the CHEEF on behalf of the CPUC.

- Authorized to **pilot** energy efficiency financing programs in the **residential, small business, and affordable multifamily** sectors
- Programs utilize a credit enhancement to **leverage private capital** for **customer energy efficiency investments**
- Goals include testing whether financing alone can yield **similar or greater savings** than traditional rebate or incentive programs
- Unsecured or equipment secured loans, leases, or energy service agreements
- **Open-market transactions:** range of lenders and contractors connect with customers on projects; the CHEEF is not involved in the financial transaction

# Residential Program (REEL) snapshot:

**1,059**  
loans

**\$2.6MM**  
leveraged  
**\$17.5 MM** in  
private lending

**7**  
Enrolled  
Lenders

**493**  
Enrolled  
contractors

**5.2%**  
avg rate (Dec)

**\$2,000**  
avg interest \$  
saved\*

## Design elements to reach underserved borrowers:

- **Renters/tenants** and owners eligible, for both REEL and Small Business Programs
- **Manufactured and mobile homes** are eligible
- **Larger loss reserve contribution (20% v 11%)** when lenders make loans for:
  - LMI Borrowers (household income or property census tract)
  - Borrowers with credit scores <640
  - Smaller projects as part of Small Business Program

**580**  
Minimum  
credit score

**55%**  
Max debt to  
income ratio

*\* For borrowers taking 60 month term loans when compared with non-REEL rates offered by the same credit union*

# Financing is distinct from traditional incentive programs

- Rebates or incentives are **expensed**; a tool like a credit enhancement can be **revolved**
- Customers are willing to make upgrades that won't necessarily be paid back through energy savings
  - Non EE motivations: Comfort, health, aesthetics, broken equipment
  - 28% of REEL projects are energy efficient windows
- 88% of projects through REEL did not have a utility rebate
- Access to financing at better terms is not a “subsidy”
  - Terms out to 15 years, interest rate reduction of up to 1,000 basis points, larger amounts
  - Allows customers to make upgrades they otherwise couldn't
  - Customers repay the entire cost of the energy upgrade

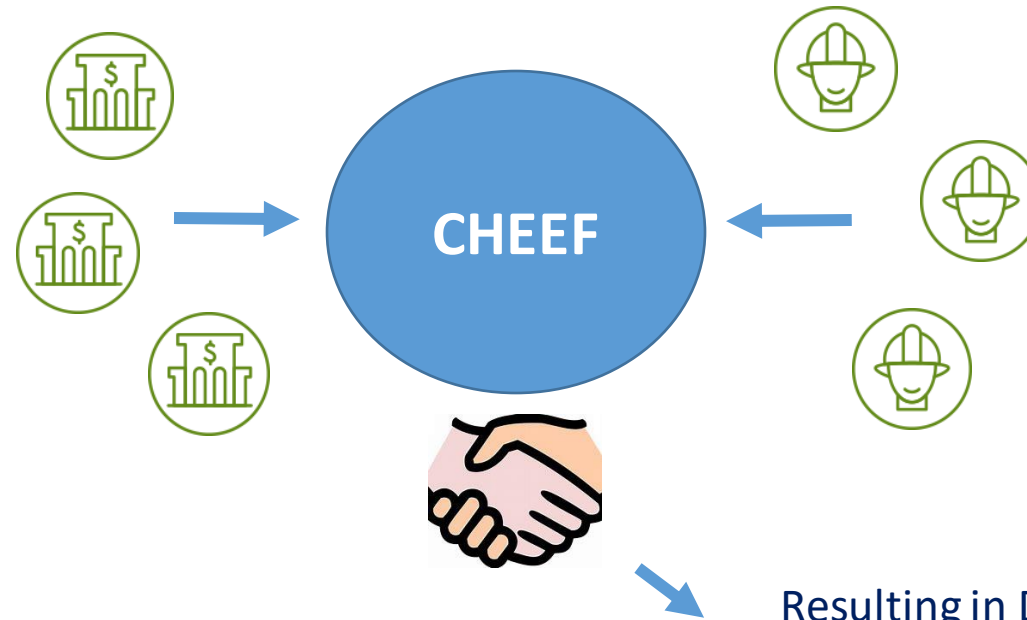
## HVAC, Windows, Insulation, Cool Roofs

Most popular measures



# Theory: If you build it, they will come

- CHEEF was designed as an open-market structure, to support multiple finance companies, engaging in transactions brought to them by multiple contractors.
- CHEEF supports these transactions on the “front end” through offering a credit enhancement.



Resulting in Deals! Projects! Loans! Energy Savings!

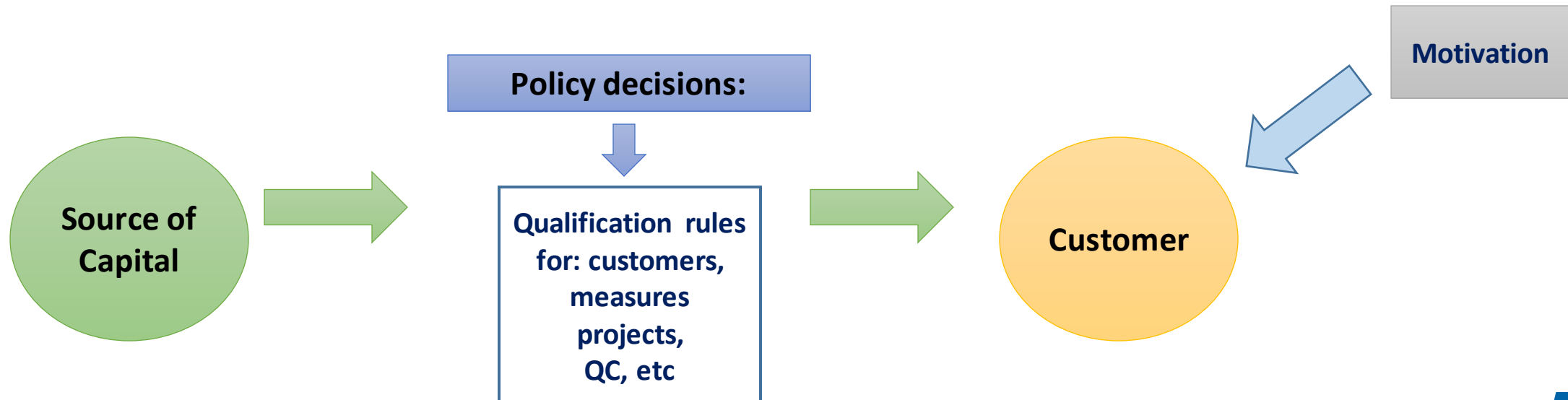
**But...**



# But...attracting capital is not the big challenge

**Financing success requires delivery mechanisms, operations, and good user experiences!**

- Availability of finance alone doesn't create demand; it removes a barrier
- Most lenders/finance companies aren't equipped to evaluate projects and complex eligibility criteria

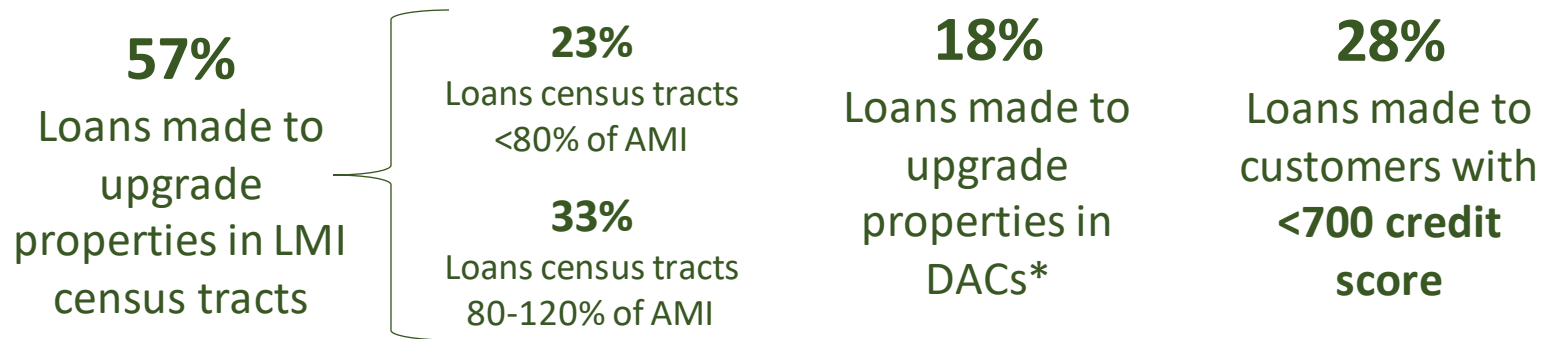


# CPUC guidance on program structure should not be overly prescriptive

- Original Decision authorizing CHEEF was overly involved in program design, requiring CAEATFA to go through several petitions for program modifications
- **Flexibility** in subsequent CPUC guidance allowed CAEATFA to make changes essential for growth
- Private capital and contractors require **simplicity, ease of use, and some certainty**
- Private capital does not see the world through utility jurisdictions
  - CPUC guidance should include direction for incorporating non-ratepayer funding into programs to allow for truly statewide offerings
- CAEATFA, or other administrators, should have the authority to develop easy-to-use programs designed to meet CPUC policy goals and subject to CPUC evaluation

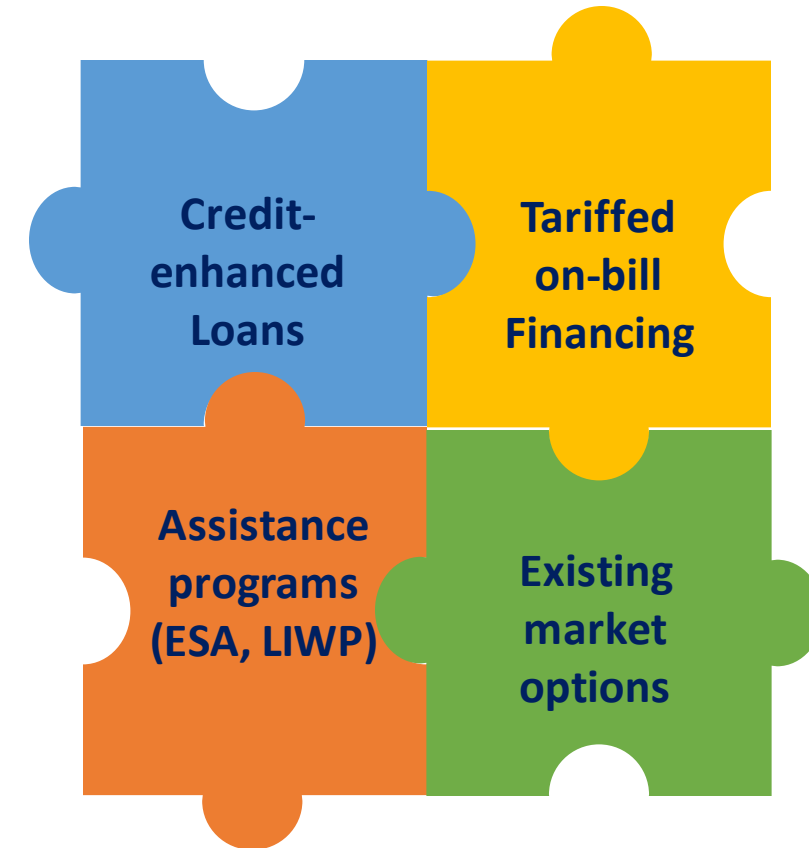
# Debt and non-debt options are complementary solutions

REEL Program is reaching a portion of the underserved market:



○ Lenders are **approving about half** of applications received

- Program requires 580 min credit score, 55% max DTI
- We want REEL to be available for more “credit challenged” customers, but only if the customer has the ability to repay the loan
- Default rate to-date: 1.5% of loans
- Non-debt options also needed



\* As defined by CalEnviroScreen

# A Credit Enhancement has enabled very attractive financing offerings, but:

## A credit enhancement....

- Only mitigates 1 problem: credit risk of the borrower
- Not all finance companies can make use of it
- Doesn't solve lender capacity/operational cost issue for underwriting small deals to small businesses
- Doesn't help mitigate performance risk
- Does not bring down interest rate sufficiently for Affordable Multifamily properties



We should consider a credit enhancement to be one tool in a larger toolbox of options to facilitate financing of clean energy projects along with **subordinate debt, co-investments, interest rate buy-downs, tariffed on-bill financing**

# Miriam Joffe-Block

Senior Manager

California Hub for Energy Efficiency Financing (CHEEF)

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CALIFORNIA HUB FOR  
ENERGY EFFICIENCY  
FINANCING

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FINANCING™



**CALSTART**

# Funding & Financing Zero-Emission Transportation

Meredith Alexander

Policy Director

CALSTART

# Framing the Problem



We must drive a rapid increase in ZEV purchases, Transportation Equity and VMT reduction to meet air quality & climate goals



Market transformation is still nascent

MHD-ZEVs still cost 30-200% more than a gas/ diesel vehicle today



CARB recently adopted the Advanced Clean Trucks rule –requires rapid market transformation, Fleet Rule in Development now



>66% of GGRF revenues continuously appropriated - Clean vehicles+ equity programs receive <15% of total GGRF revenues



Communities now want different mobility options—biking, EV car share—how do we incent this?



Initial purchase price for a ZEV/ ZEV infrastructure is the **# 1 barrier to Fleet ZEV adoption**-Especially for small fleets. HVIP voucher funding has been 2-3 times lower than demand



*CARB Mobile  
Source Strategy  
Update- meeting  
2030 goals*

# Funding Needed

| Category                      | Technology Type | Funding per Vehicle or Piece of Equipment (in 2020) | Incremental Statewide 2025 Population* | Total Funding                          |                               |
|-------------------------------|-----------------|---|--|--|-------------------------------|
| On-Road LDV                   | ZE              | \$2,000 - \$7,000                                   | 1,011,199                              | \$2 Billion - \$7 Billion              |                               |
| On-Road MDV                   | ZE              | \$80,000  | 10,000                                 | \$800M <del>\$0</del>                  |                               |
| On-Road HDV                   | ZE              | \$150,000 - \$300,000                               | 46,905                                 | \$7 Billion - \$14 Billion             |                               |
| Construction Equipment        | Tier 4          | \$60,000 - \$325,000                                | 783                                    | \$47 Million - \$254.5 Million         |                               |
| Transport Refrigeration Units | ZE Truck        | \$50,000  | 7,503                                  | \$375 Million                          |                               |
|                               | ZE Trailer      | \$60,000  | 41,648                                 | \$2.5 Billion                          |                               |
| Commercial Harbor Craft       | Tier 4          | \$1,000,000   | 2,749                                  | \$2.7 Billion                          |                               |
|                               | Plug-in Hybrid  | \$1,000,000   | N/A – Pilot / Demonstration Projects   |  |                               |
|                               | Diesel-Electric | \$3,000,000   | N/A – Pilot / Demonstration Projects   |  |                               |
|                               | ZE              | \$2,500,000 - \$3,000,000                           | N/A – Pilot / Demonstration Projects   |  |                               |
| Cargo Handling Equipment      | ZE              | \$175,000 - \$500,000                               | 315                                    | \$55 Million - \$158 Million           |                               |
| Agricultural Equipment        | Tier 4          | \$70,000 - \$90,000                                 | 6,257                                  | \$440 Million - \$565 Million          |                               |
|                               | ZE              | \$25,000 - \$45,000                                 | N/A – Pilot / Demonstration Projects   |  |                               |
| Ground Support Equipment      | ZE              | \$100,000   | 996                                    | \$100 Million                          |                               |
| Forklifts                     | ZE              | \$15,000 - \$200,000                                | 6,631                                  | \$100 Million - \$1.3 Billion          |                               |
|                               |                 |   | <b>Total</b>                           | \$15.4 Billion - \$29.2 Billion        |                               |
|                               |                 |   |  | <b>Total (Annualized over 5 years)</b> | \$3.1 Billion - \$5.8 Billion |



**CARB 3-year  
Investment Plan  
Funding  
Recommendation for  
M-HDV, Off-Road, Freight,  
Marine, Rail  
\$2.2B – \$3.4B over 3 yrs**

**Current GGRF Budget:  
\$315M over 2 years**

| THREE-YEAR RECOMMENDATIONS FOR LOW CARBON TRANSPORTATION* |  |  |   |
|---|--|--|---|
|   | FY 2021-22   | FY 2022-23   | FY 2023-24  |
| Demos   | \$50-\$90 Million<br>Focus: ZE Longer Range HD Goods Movement, ZE Ag-Construction Equipment, ZE/Hybrid Heavier Cargo Handling Equipment, ZE/Hybrid Marine                          | \$50-\$90 Million<br>Focus: ZE Longer Range HD Goods Movement, ZE Ag-Construction Equipment, ZE Heavier Cargo Handling Equipment, ZE Rail, ZE/Hybrid Marine                  | \$50-\$90 Million<br>Focus: ZE Longer Range HD Goods Movement, ZE Construction Equipment, ZE Heavier Cargo Handling Equipment, ZE/Hybrid Marine                                   |
| Pilots  | \$200-\$325 Million<br>Focus: ZE Drayage and Regional Delivery, Advanced Powertrains, ZE/Hybrid Ag-Construction- Heavier Cargo Handling Equipment, ZE/Hybrid Marine, ZE Facilities | \$200-\$325 Million<br>Focus: ZE Longer Range HD Goods Movement, Advanced Powertrains, ZE Ag-Construction- Heavier Cargo Handling Equipment, ZE/Hybrid Marine, ZE Facilities | \$200-\$325 Million<br>Focus: ZE Longer Range Goods Movement, Advanced Powertrains, ZE Ag-Construction-Heavier Cargo Handling Equipment, ZE Rail, ZE/Hybrid Marine, ZE Facilities |
| Commercial  | \$396-\$475 Million<br>Focus: ZE Drayage and Regional Delivery, ZE Delivery, ZE Transit, ZE Heavier Cargo Handling Equipment, ePTOs  | \$490-\$680 Million<br>Focus: ZE Drayage and Regional Heavy-Duty Delivery, ZE Delivery, ZE Transit, ZE Heavier Cargo Handling Equipment, ZE/Hybrid Marine, ePTOs             | \$605-\$995 Million<br>Focus: ZE Drayage, ZE Regional Heavy-Duty Delivery, ZE Transit, ZE Heavier Cargo Handling Equipment, ZE/Hybrid Marine, ePTOs                               |
| Total Funding   | \$646-\$890 Million*   | \$740-\$1095 Million*  | \$855-\$1410 Million*   |

# Financing Landscape Today for Commercial EVs



Financiers report *high interest* in segment, but *perceived risk* hampers transactions

Commercial banks, finance companies, green banks, green bonds, microlenders, and equity investors see:

- rapid growth, positive economics, value of addressing climate change, and view ZEVs as a natural extension of existing investments

**However**, financiers report significant perceived risk in investing in zero-emission commercial vehicles and therefore,

***transactions are currently scarce.***

# Diverse Financial Products

Despite a lack of executed deals in support of commercial fleet electrification, lenders and investors report a full range of financial products including:

- capital leases, operating leases,
- battery cost financing,
- charging/infrastructure as a service,
- “special purpose acquisition companies” (SPACs)
- “private investment in a public equity” (PIPEs).



# Concerns about Financing Commercial ZEVs— Policy Intervention is Needed

Top concern: residual vehicle value--because we lack data/ market is nascent

Other key barriers identified in our nationwide survey of fleets/ fleet lenders include:

- higher up-front costs,
- fear of rapid obsolescence,
- a lack of cooperation from local utilities
- utility rates that are unsupportive of ZEVC charging requirements
- Vehicles = easy to repossess vs. Infrastructure--not so easy.

What can public agencies do?

- Incentives to cover the incremental cost
- Public backing of private loans
- Public guarantees of residual value (?)
- Guarantee of charging costs through clear rates



# Opportunity: CA LCFS Commercial Fleet ZEV Loan Program

CALSTART, in partnership with NRDC, developed this proposal to address the up-front capital challenge for purchasing ZEVs/ infrastructure by providing loans that leverage the stream of Low Carbon Fuel Standard (LCFS) credits fleets will earn.

- Fleets generally lack a means to monetize the future stream of LCFS value they will generate (up to \$250,000)
- Treasury, through existing Cal-CAP program could create a revolving loan-loss reserve fund for fleets
- Private lenders make loans equivalent to vehicle “lifetime” LCFS credit value (adjusted)
- Borrowers consign credits to private lender. Lender is repaid as credits are sold.
  - The loan-loss funds would be returned to the CalCAP as loans are repaid, thus creating a “revolving” loan fund
  - Proposing 300 loan pilot program for 2021: **Need \$10M in seed funding**





**CALSTART**

# Thank You

Meredith Alexander

Policy Director

CALSTART

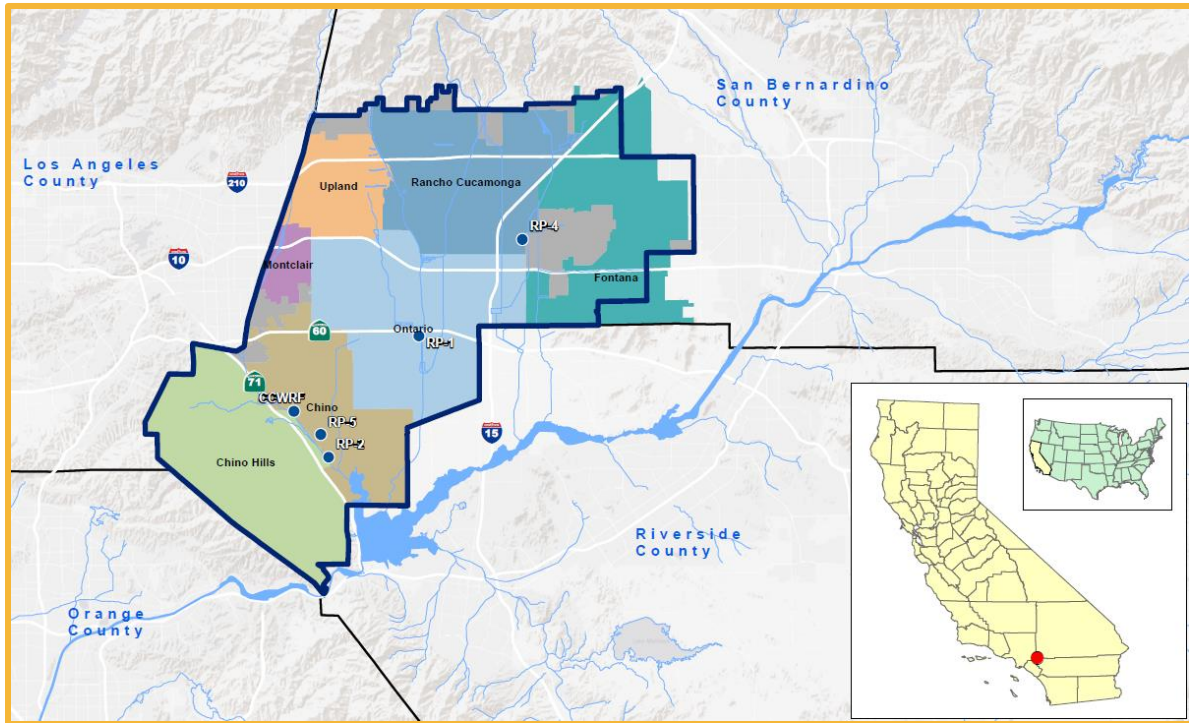
[malexander@calstart.org](mailto:malexander@calstart.org)

# Energy Projects Financing at Inland Empire Utilities Agency



Pietro Cambiaso, P.E.  
Deputy Manager of Strategic Planning and Resources  
January 29, 2021

# About IEUA



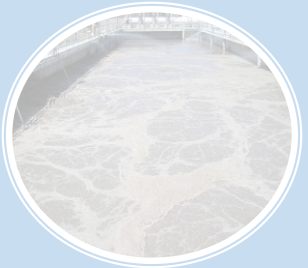
- Located in the southwestern portion of San Bernardino County
- 875,000 residents in our service area
- 242 – square miles
- Contracting and retail agencies:
  - City of Chino
  - City of Chino Hills
  - Cucamonga Valley Water District
  - City of Fontana
  - City of Montclair
  - City of Ontario
  - City of Upland
  - Fontana Water Company
  - Monte Vista Water District



# Major Programs



Composting  
(IERCF)



Wastewater  
Treatment



Water Supply



Renewable  
Energy



Recycled Water  
Supply &  
Distribution



Groundwater  
Recharge



Water-Use  
Efficiency

# Energy Management Drivers

- Fiscal responsibility
  - Cost containment
  - Budgeting
  - Future grant eligibility
- Operational reliability
  - Minimize dependence on utility
- Environmental Stewardship
  - Enhance air quality
  - Support state goals



# Energy Efficiency

- Water Infrastructure System Efficiency Program, WISE™  
The Southern California Regional Energy Network, SoCalREN
  - Provide project management support for energy efficiency assessments, savings verification, and incentive processing at no additional cost
- Southern California Edison
  - Incentives
  - On-Bill Financing Program



# Energy Efficiency Projects

| Completed Projects Since 2015 | Energy Savings (kWh/year) | Cost Savings (\$/year) | Incentive        |
|-------------------------------|---------------------------|------------------------|------------------|
| Pump Rehabilitation           | 3,119,443                 | \$369,168              | \$299,478        |
| Operational Optimization      | 957,459                   | \$119,495              | \$86,707         |
| Lighting Retrofit             | 1,158,635                 | \$126,331              | \$104,677        |
| <b>Total</b>                  | <b>5,235,537</b>          | <b>\$614,994</b>       | <b>\$490,861</b> |

**Cost Savings = 9% IEUA Energy Budget**

# Renewable Energy Portfolio

- **Solar (3.5 MW)**
  - Power Purchase Agreement (PPA) – 20 year
  - California Solar Initiative (CSI)
- **Wind Turbine (1 MW)**
  - Power Purchase Agreement (PPA) – 20 year
  - Self-Generation Incentive Program (SGIP)
- **Internal Combustion Engines (3 MW)**
  - Department of Energy REEP Cooperative Agreements





# Demand Management

- Energy Storage (1.5 MW) and Solar (1.5 MW)
  - Energy Management Service Agreement – 20 year
  - Self-Generation Incentive Program (SGIP)
  - Federal Investment Tax Credit
- Energy Storage (2.5 MW)
  - Energy Management Service Agreement – 10 year
  - Self-Generation Incentive Program (SGIP)



# Financing Strategy

- Public-Private Partnerships
- Long-term
- On-Bill Financing Program
- Incentives
- Grant opportunities on established technologies



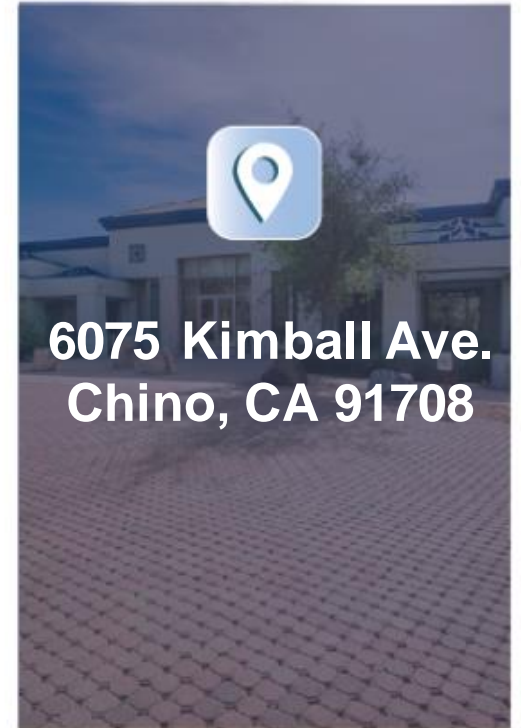
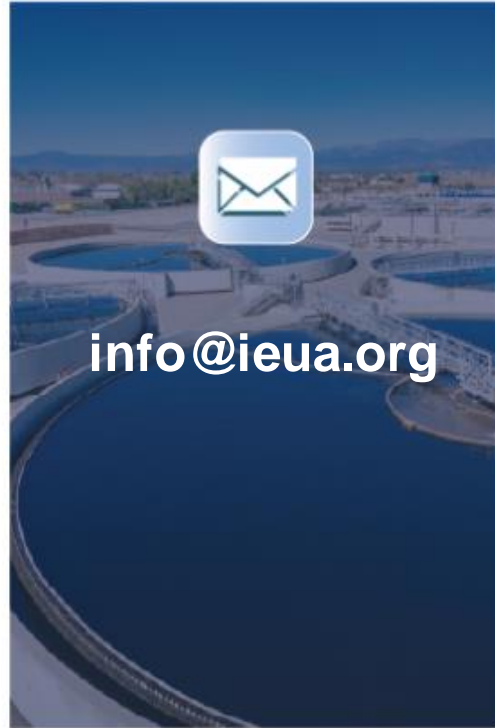
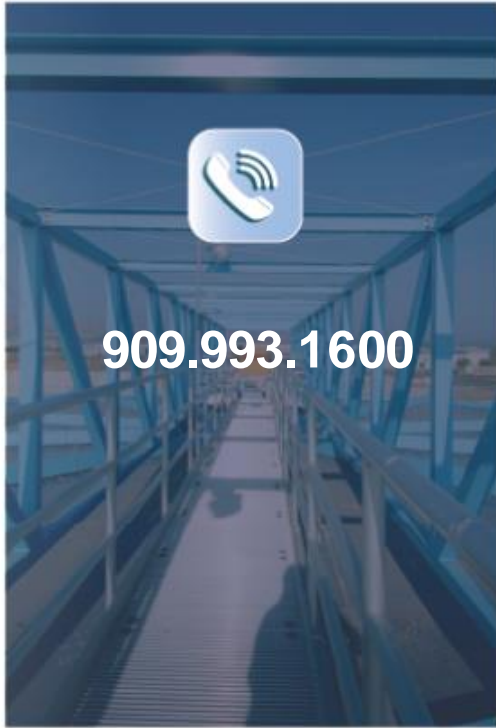
# Other Hurdles

- Regulatory
- Energy market
- Disincentive for exporting excess power to the grid
- Interconnection and permitting process





# Contact Us



@IEUAWater



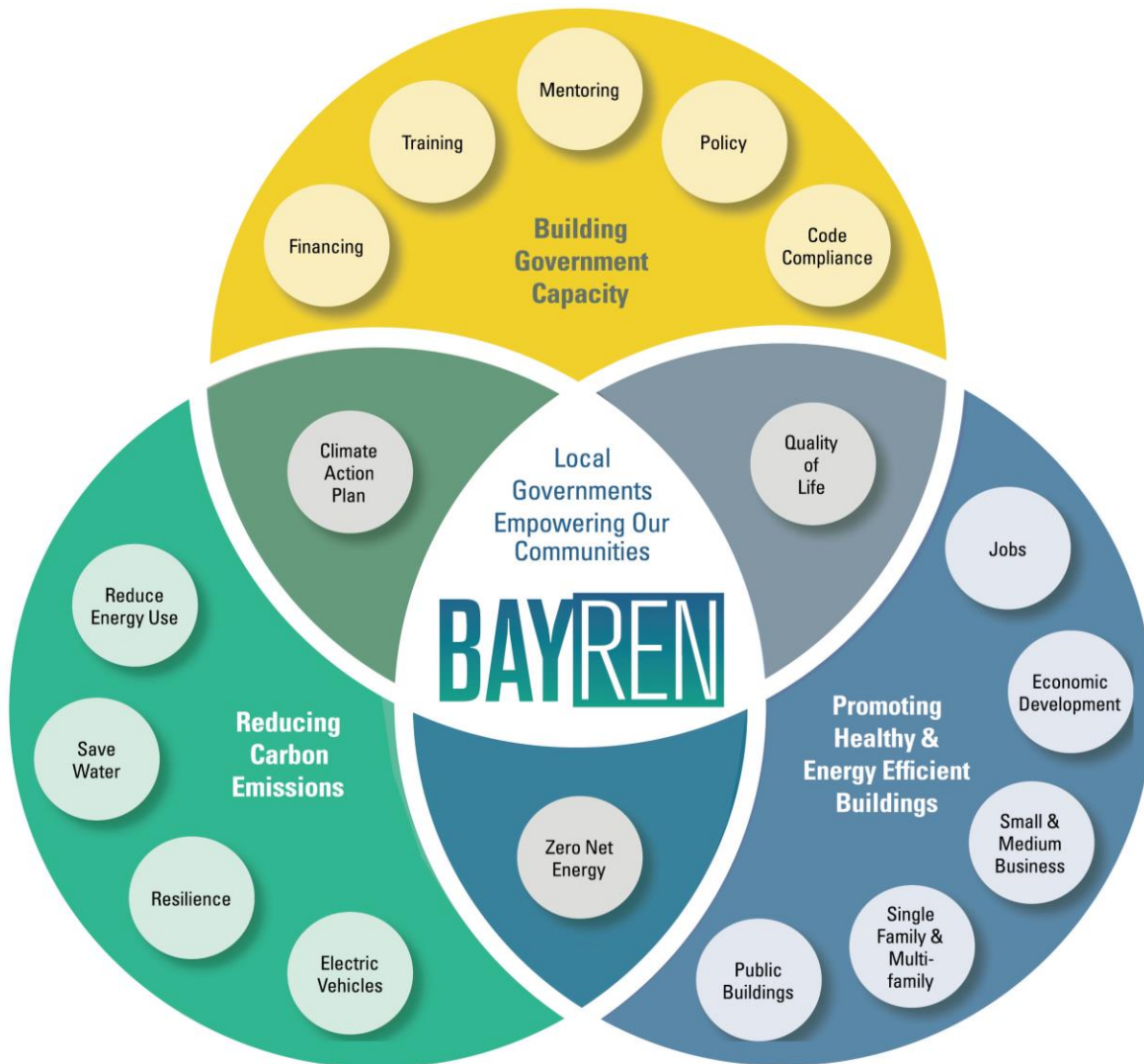
Local Governments Empowering Our Communities

# Water Upgrades \$ave — Tariff On-Bill Financing

Chris Cone, Program Manager  
Sonoma County Regional Climate Protection Authority

January 29, 2021

# Bay Area Regional Energy Network



- A collaboration of the nine Bay Area counties.
- Led by **Association of Bay Area Governments (ABAG)**.
- Provides regional-scale energy efficiency programs, services, and resources.
- Funded by utility ratepayer funds through the CPUC, as well as other sources.
- Draws on the expertise, knowledge, and proven track record of Bay Area local governments.

# Programs

Water Upgrades \$ave

Home+

Bay Area Multifamily  
Building Enhancement

BayREN Business

Green Labeling

Codes & Standards

## Empowering Our Communities

Bridge the gap between resource-constrained local governments and state and local policy.

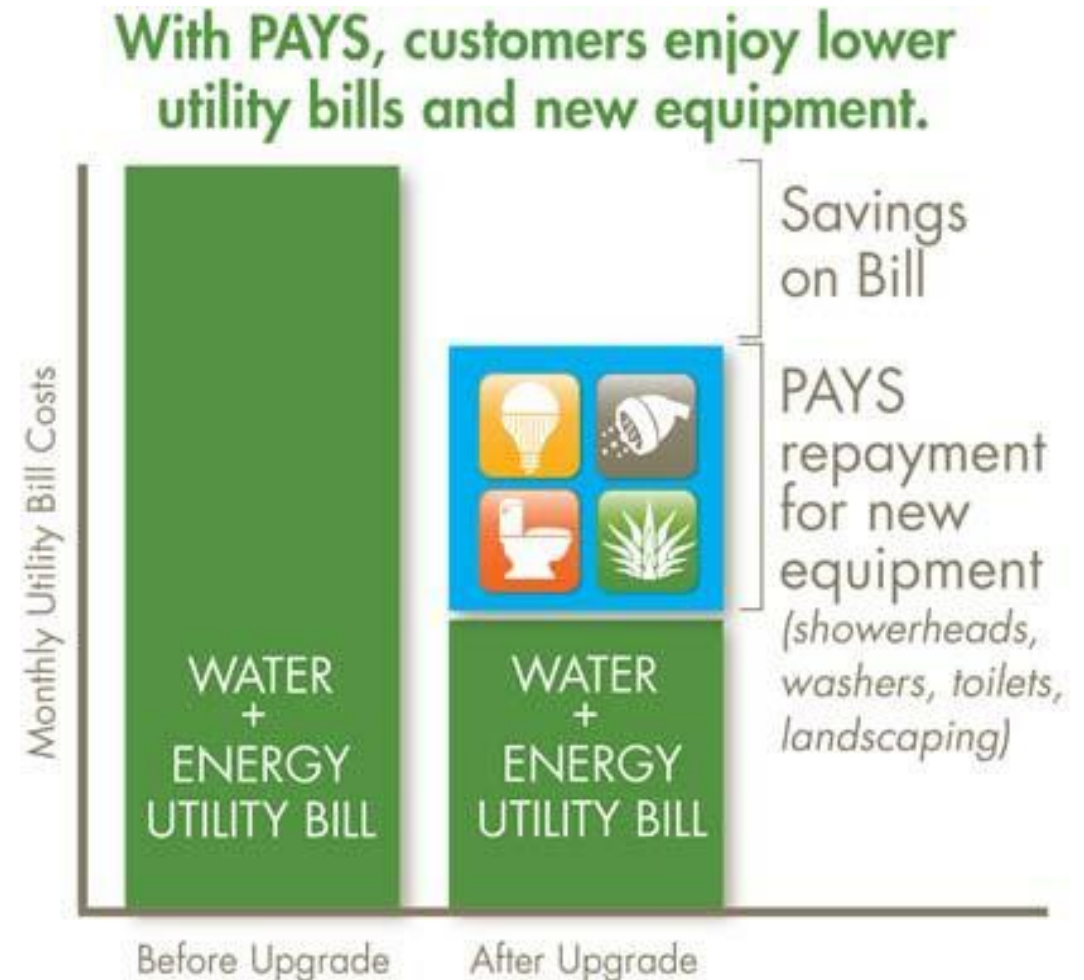
- Build local government capacity
- Support difficult-to-serve customers
- Test innovative, scalable solutions
- Leverage multiple investment funding sources
- Deliver multiple behind-the-meter benefits

# Water Upgrades \$ave

80% Rule

Allows utilities to install eligible improvements on customers' premises with assurances field tested by three BayREN Pay-As-You-Save® (i.e., tariff) on-bill pilots:

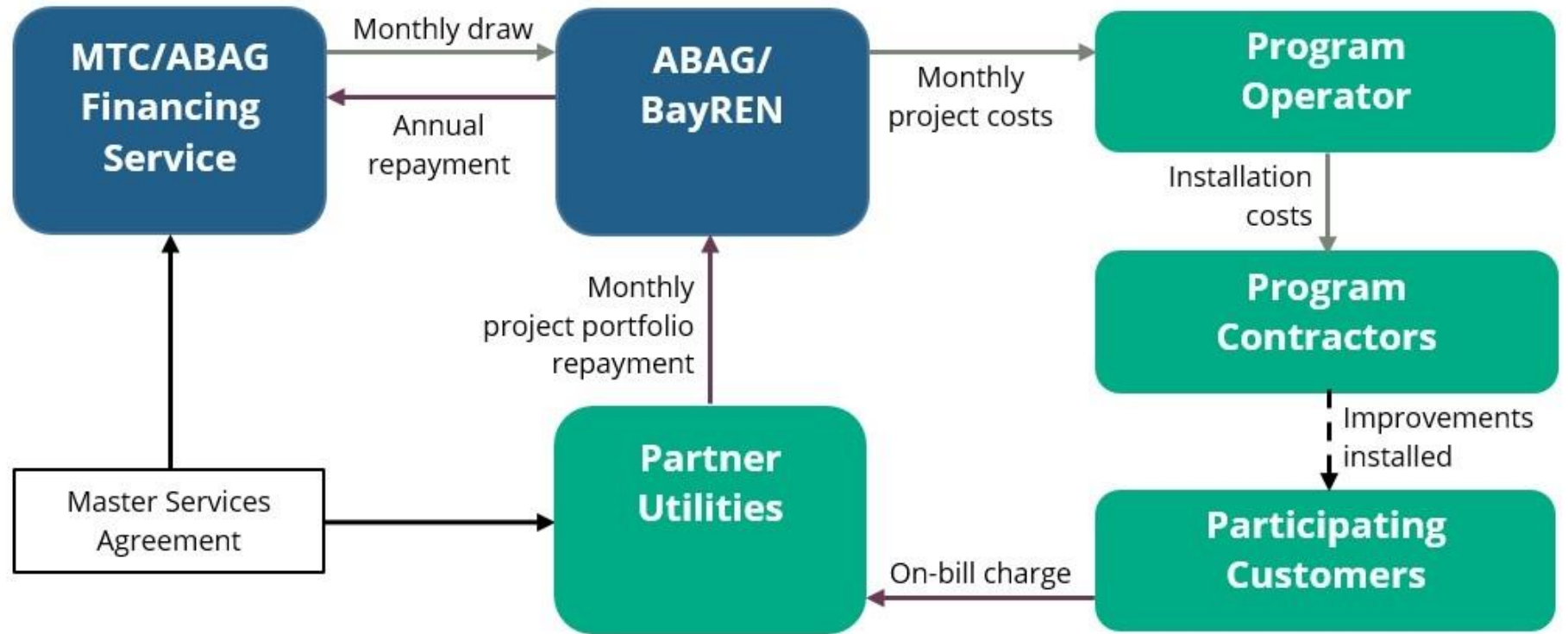
- No up-front payment, no new debt obligation, no credit checks, and no liens.
- Monthly on-bill **charge is significantly lower than estimated savings.**
- Participants pay only while they are a utility customer at the project location.
- A guarantee that failed measures are repaired or the payment obligation is terminated.







# Regional Tariff On-Bill Finance Service



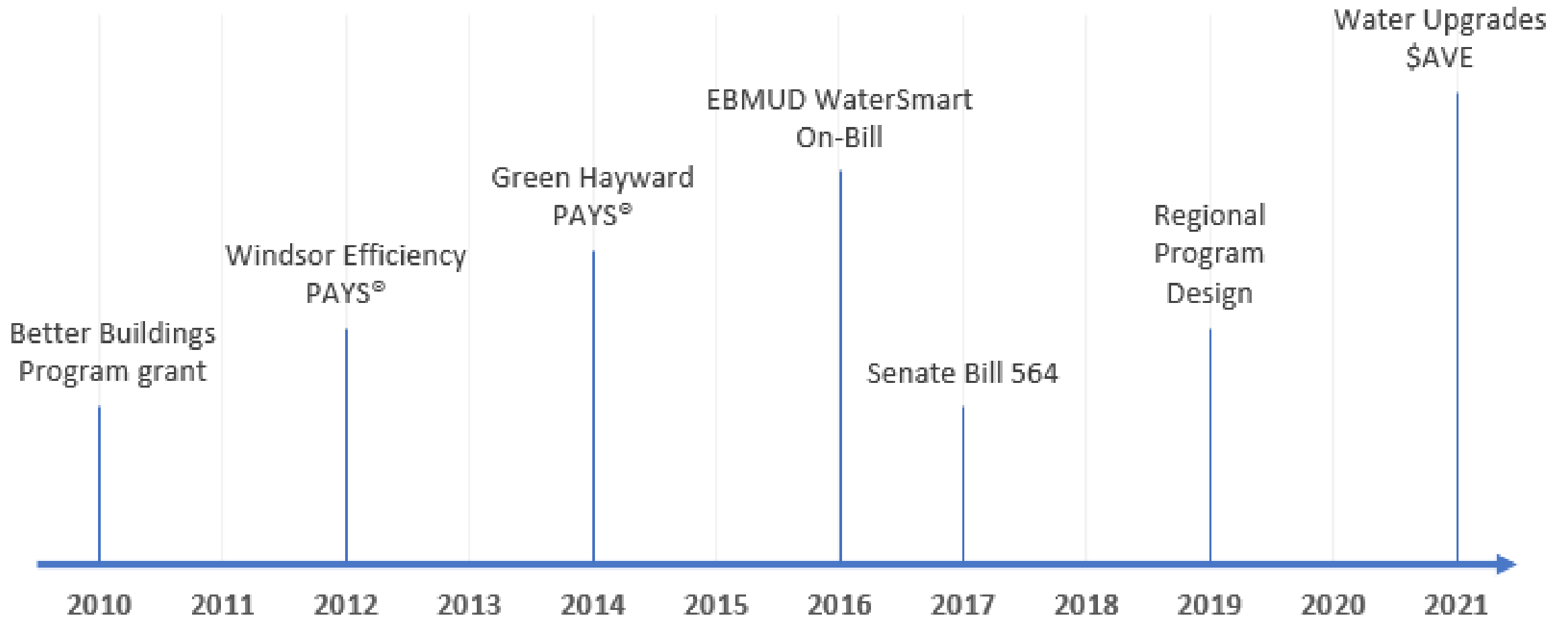
- ❑ Facilitates low-cost capital
- ❑ Centralizes administration
- ❑ Streamlines service delivery
- ❑ Simplifies program operation
- ❑ Provides inclusive financing
- ❑ Serves owners/renters

# Customers and Technologies

| Sector            | Indoor                    | Outdoor         |
|-------------------|---------------------------|-----------------|
| Single Family     | Basic Package             | Customer Choice |
| Multifamily       | Basic Package             | Customer Choice |
| Commercial (2021) | Select equipment upgrades | Customer Choice |

| Indoor Upgrades (Basic Package <sup>1</sup> )   | Outdoor Upgrades   |
|---|--|
| <ul style="list-style-type: none"> <li>• A 1.06-gallon per flush or better toilet<sup>2</sup></li> <li>• A high efficiency (typically 1.5-gpm) showerhead</li> <li>• A 1.0-gpm bathroom faucet aerator</li> <li>• A 1.5-gpm kitchen faucet aerator</li> </ul>   | <ul style="list-style-type: none"> <li>• Turf removal and preparation for drought tolerant landscaping (plantings paid with rebates or co-pays)</li> <li>• Irrigation system installation</li> <li>• Irrigation system repair</li> <li>• Weather-based irrigation controllers</li> </ul> |
| <p>1 - The Basic Package meets or exceeds requirements of the Water Conservation Act of 2009 (SBX7-7) and can help properties comply with the 2017 (single family) and 2019 (multifamily and commercial) time-of-sale requirements created by SB 407.</p> <p>2 - Program toilets must have a Maximum Performance (MAP) rating of 600 grams or more.</p> | <p>State standards for outdoor water conservation will be adopted by June 2022 per SB 606 (Hertzberg) and AB 1668 (Friedman).</p>  |

# Tariff On-Bill in California Water Sector





# Performance Metrics — TOB Pilots

- 584 multifamily units
- 247 single-family units
- No known projects defaulted
- 30% water savings/multifamily
- 20% water savings/single-family
- High levels of participant satisfaction
- 87% would recommend to a friend
- Encouraged savings that otherwise would not have occurred

# Inclusive Financing Benefits

- No cost or credit barrier
- Serves renters
- Serves low-to-moderate income households
- Serves residents of disadvantaged, underserved, or vulnerable communities
- Enables behind-the-meter investment
- Provides entry to deeper projects



# Solution for CPUC Water-Energy Nexus Goal

## Utility Challenges

- Limited access to capital without voter approval
- Supply costs
- Population growth
- Water infrastructure upgrades
- Behind-the-meter investment
- New outdoor targets
- Multi-year drought

## Program Solutions

- Leverage joint power authority of local government agencies
- Increase affordability
- Maximize efficient use of water supply
- Reduce demand on infrastructure
- Exceed current code
- Meet state water efficiency targets
- Support utility investment in distributed water efficiency

# Utility Investment Strategy

## Current:

- Senate Bill 564 — Water Bills Savings Act of 2017
- Utility uses ABAG joint powers authority to access capital
- ABAG scales capital to meet project demand
- Utility investment in BTM projects, not consumer loan
- Measure performance plus stackable utility bill savings yield compelling project opportunities

## Opportunities:

- Energy sector application for entry-level projects
- Stack/leverage multiple project savings streams

## Challenges:

- Navigating prevailing wage exemptions to avoid contractor administrative burden while still enabling living wage

# Financing Dynamics that TOB Can Influence

## **Participation barriers:**

- No-upfront cost offer that produces immediate savings
- Participation based on utility bill savings, not customer finances

## **Financing barriers:**

- Customer savings pay for BTM improvements
- Rebate funds are paid once and are then gone; initial TOB capital investment can be recycled to serve more projects as that capital is repaid



Proven water efficiency program  
that drives customer Savings



### We do the work!



- ✓ Market program
- ✓ Enroll customers
- ✓ Manage installs
- ✓ Finance projects
- ✓ Monitor quality
- ✓ Support customers

### Simple for Utility!

- Sign up
- Set targets
- Align billing
- Guide outreach



### Utility & Customer get the rewards!

- Increase affordability
- Maximize water supply
- Reduce waste
- Exceed current code
- Meet State targets

# Contact Info

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Program Manager

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[waterupgradessave.org](http://waterupgradessave.org)

**We'll return at 10:45**





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## Panel 6 – 10:45 - Noon

- Moderator: Nancee Robles, CA Pollution Control Financing Authority
- Erik Krause, SMUD
- Gwen Yamamoto Lao, Hawaii Green Infrastructure Authority
- Diana Adame, Mission Asset Fund
- Bruce Mast, Ardenna Energy

# Financing Future Projects

January 12, 2021



Powering forward. Together.



# Current vs. Future State

**Goal:** Facilitate adoption of electrification and energy efficiency measures for **small to mid-sized businesses**, and **homes across various income levels**, to help meet SMUD's **carbon reduction goals**.

| Loan Feature        | Current State   | Possible Future State  |
|---------------------|---|--|
| Loan Amount         | Limits depend on secured vs unsecured measures.<br>Residential: up to \$30k<br>Commercial: up to \$10k  | <ul style="list-style-type: none"> <li>• Up to \$100,000 or more (commercial)</li> <li>• Up to \$30,000 for residential</li> <li>• Term up to 15 years</li> </ul>  |
| Eligible Measures   | Eligible measures need to exceed Title 24 and be offered a SMUD rebate. <ul style="list-style-type: none"> <li>• Residential HVAC is the most common measure</li> </ul> | <ul style="list-style-type: none"> <li>• Heat Pump Space Heating</li> <li>• Heat Pump Water Heater</li> <li>• Induction Cooktop</li> <li>• Panel upgrade</li> <li>• Home sealing, insulation and windows</li> <li>• EV charging installation and outlet upgrades</li> <li>• Commercial measures</li> </ul> |
| Interest Rate       | Current interest rates:<br>6.99% (secured), 8.99% (unsecured), and 10.75% (depending on Title 24 and dwelling type).  | <ul style="list-style-type: none"> <li>• Fluctuates with the market</li> <li>• Lock in interest rate</li> <li>• Leverage rebate funds to offer interest rate buy-down and/or loan loss reserve (especially for customers in good standing, not necessarily strictly based on income level)</li> </ul>      |
| Customer Experience | <ul style="list-style-type: none"> <li>• Current application fee is \$100</li> <li>• Limited self-service tools</li> </ul>  | Online portal: <ul style="list-style-type: none"> <li>• Loan application, minimal application fee, if required</li> <li>• Autopay</li> <li>• Payment history</li> </ul>  |

# **Financing Mechanisms Serving Underserved Markets**

**California Public Utilities Commission  
Clean Energy Financing Workshop  
January 29, 2021**

**Hawaii Green Infrastructure Authority**

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# Hawaii Green Infrastructure Authority

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- Constituted in November 2014, Act 211 (SLH 2013) provided a framework to establish a State administered clean energy financing Authority
- Capitalized with the net proceeds of a \$150.0 million Green Energy Market Securitization (“GEMS”) Bond
- Objective: Make clean energy investments accessible and affordable to Hawaii’s underserved ratepayers; stimulate private investments and leverage innovative tools to mitigate risks and reach new markets.



*“Ohana means family.  
Family means nobody gets  
left behind.”*



# Green Energy Money \$aver (GEM\$) On-Bill Program

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Critical program elements necessary to finance underserved ratepayers, including renters:

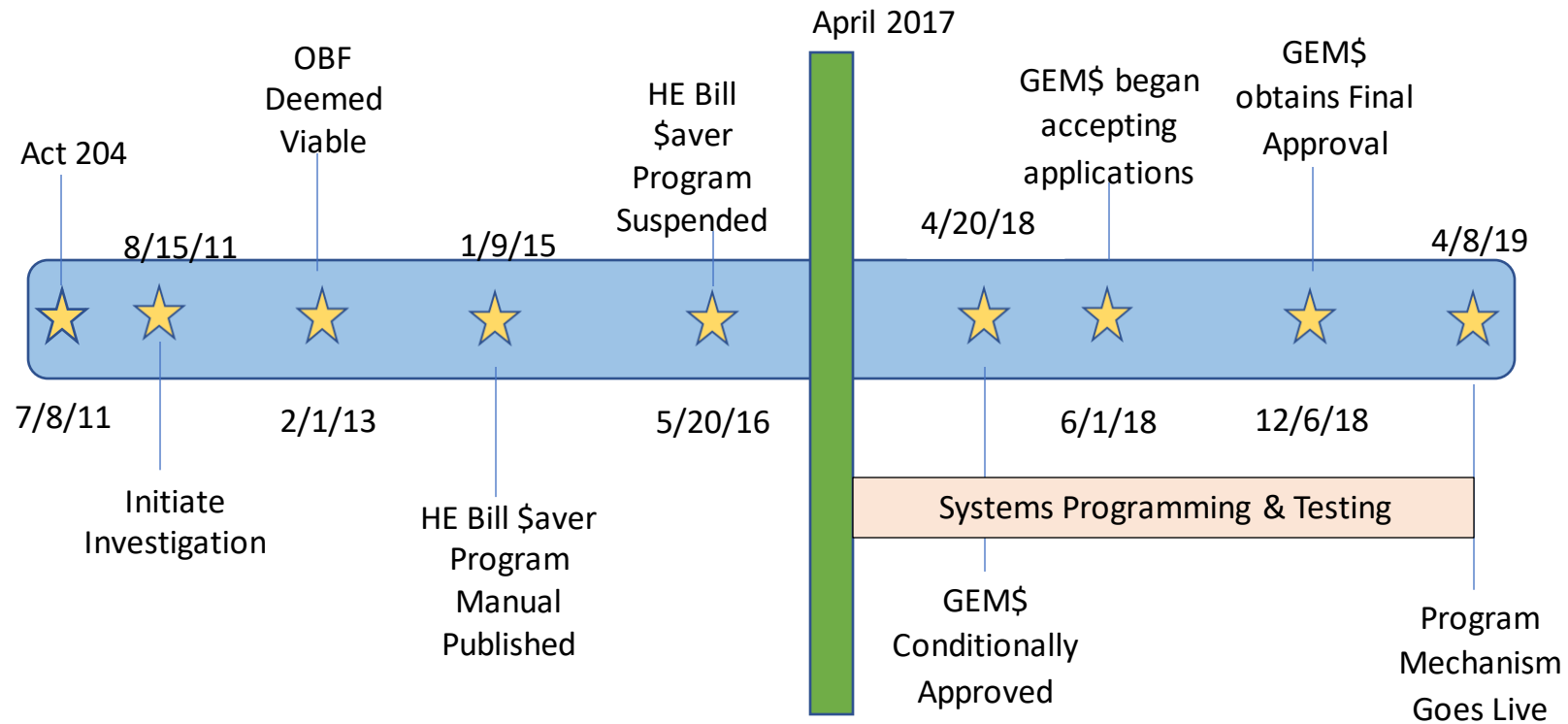
1. GEM\$ Program Charge senior to energy charge;
2. On-Bill Obligation tied to utility meter as a tariff; and
3. GEM\$ Program Charge included as part of the electric utility bill



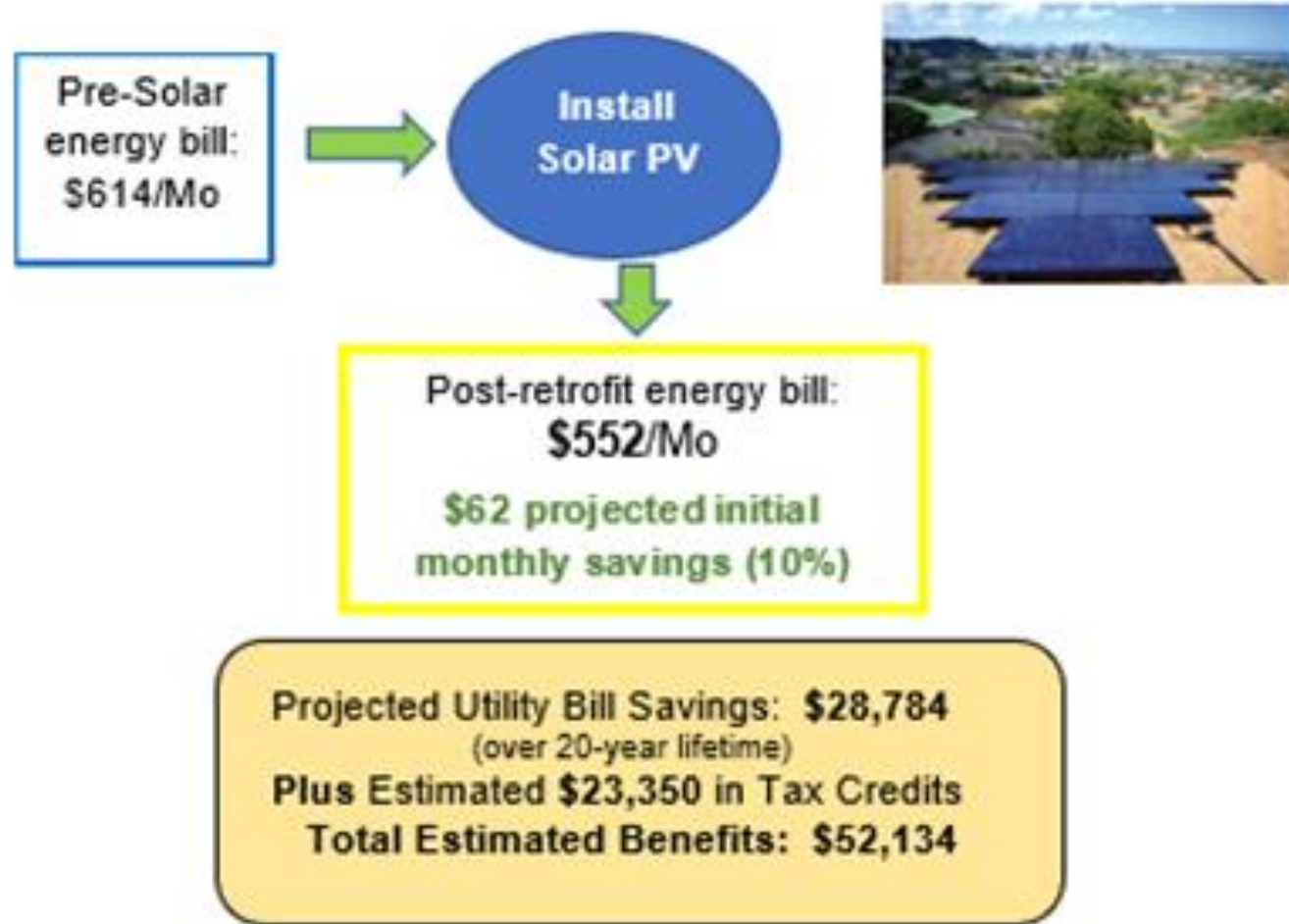
# Timeline of Hawaii's On-Bill Program

## Pre-HGIA

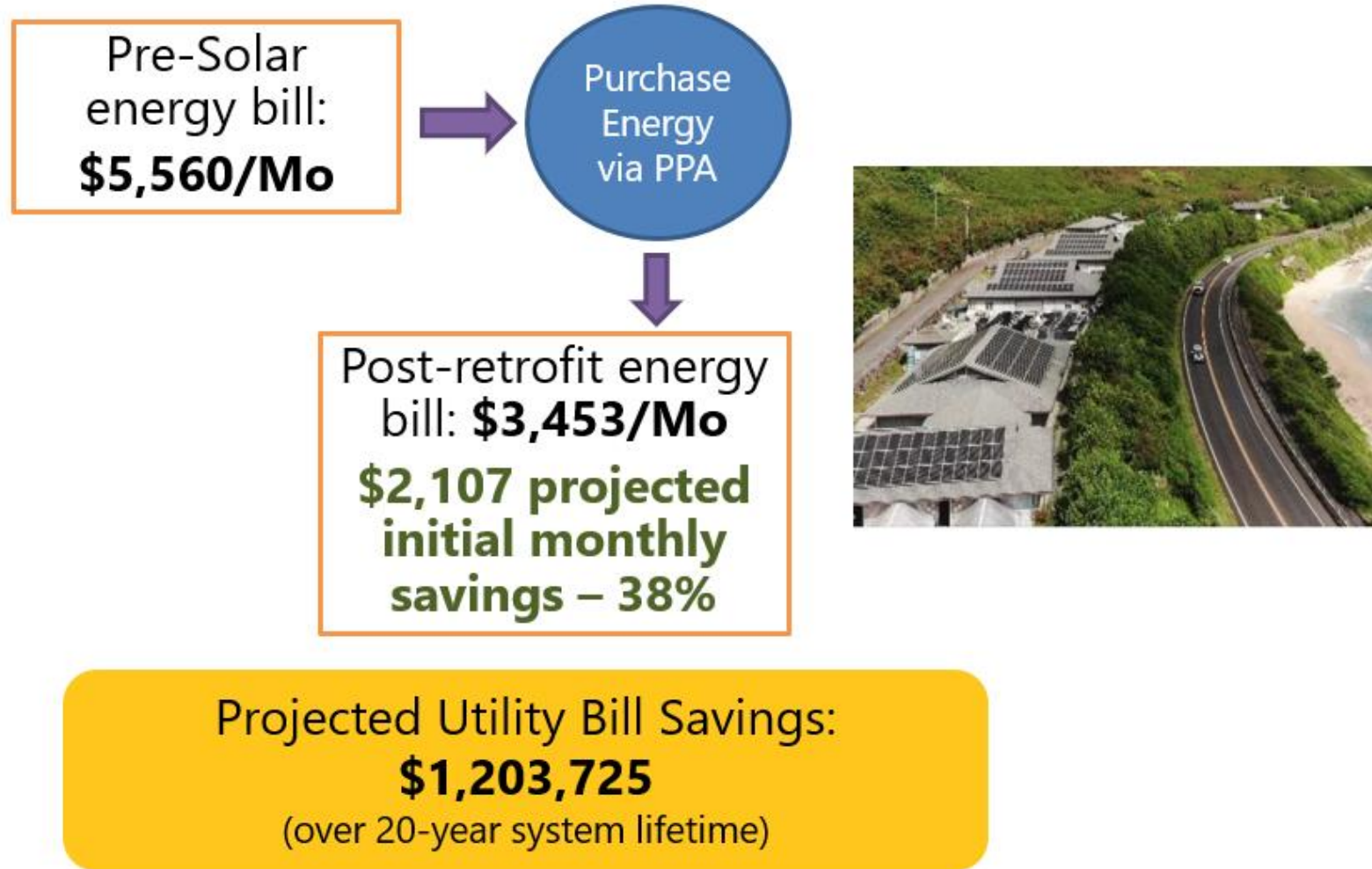
## HGIA



## Utility Bill: Before & After PV + Storage Installation



# Utility bill: Before & after solar installation





# Thank you

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For more information, please contact:

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808-587-3868



## **Kahauiki Village**

153-unit rental project housing previously homeless families  
Micro-grid financing provided by a commercial bank and HGIA







**BayREN  
BUSINESS  
MICROLOAN  
PROGRAM**





# BayREN Business Microloan Program

**0% interest financing**  
on ENERGY STAR certified products

**Tailored for small business owners**  
in the 9 Bay Area counties

**Safe credit-building loans**  
of up to \$2,500, plus free financial education

**Accessible & relevant**  
through electronic payments & technology





# Meet Mike



*Z. Cioccolato* in Little Italy, San Francisco



Mike used his microloan for lighting upgrades (total value of \$3,000)



Program rebates and incentives lowered the total cost to \$1,680



Now Mike has a brighter shop and saves up to \$1,200 per year on PG&E bills



# Reaching Our Community

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## Challenges

- COVID-19 pandemic
- Building trust with small business owners
- Geographical limitations

## Successes

- Outreach partners
- Virtual presentations
- Thoughtful, clear, and bilingual messaging
- Easy-to-navigate website with link to apply

# Bruce Mast, Ardenna Energy, LLC

- Co-author on Building Decarbonization Coalition's accessible financing policy roadmap
- Member of Energy Solutions' TECH team with lead responsibility for financing SOW

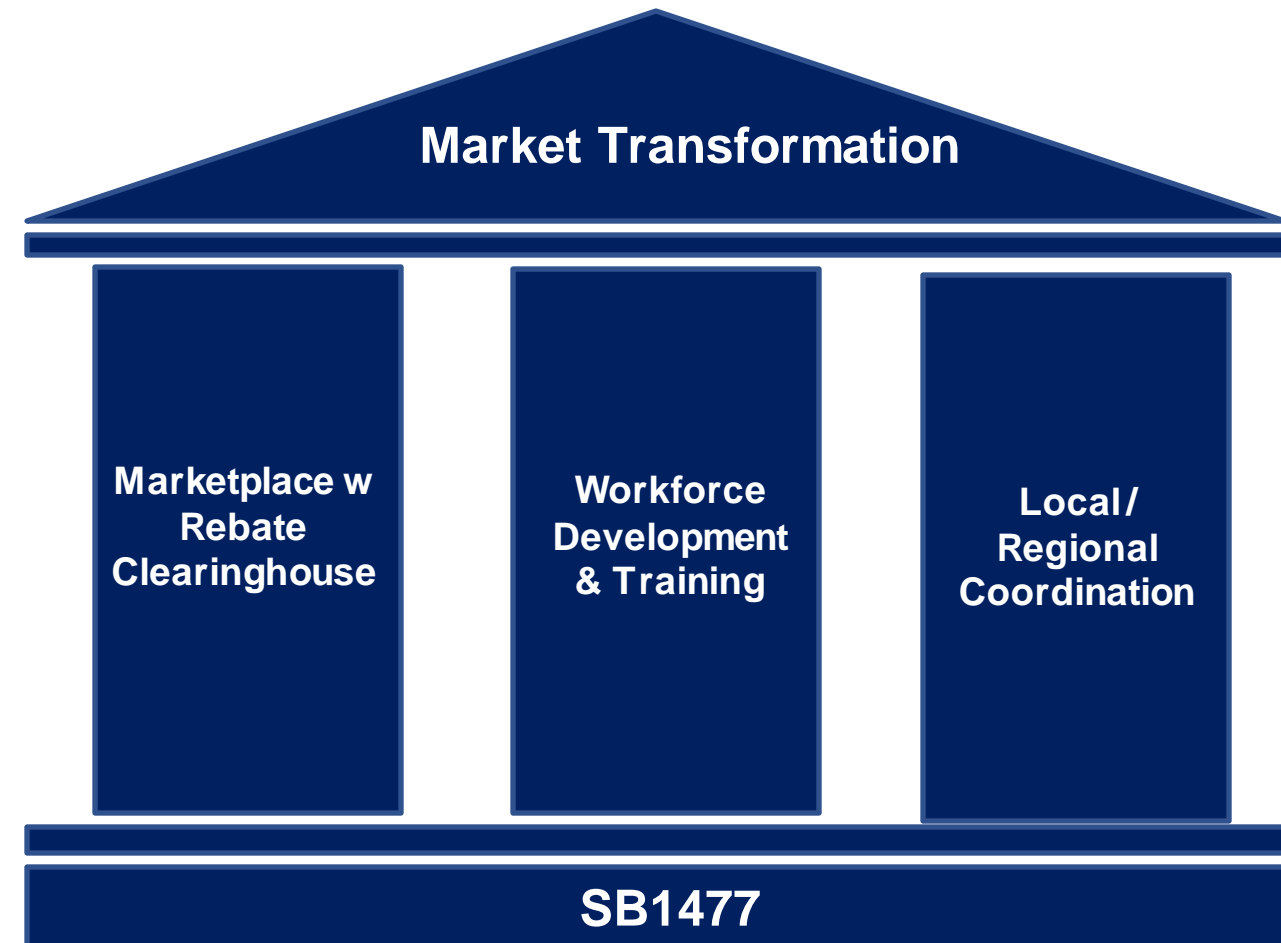


<https://tinyurl.com/BDC-AccessibleFinancing>



# Technology & Equipment for Clean Heat (TECH) Initiative

- Statewide pilot program: \$120 million over 4 years
- Space / water heating retrofits for existing homes
- Guiding Principles:
  - Put CA on a path to carbon-free homes by 2045.
  - Strive for equity, cost-effectiveness, regulatory simplicity, and market transformation
  - Focus on the most promising market segments
  - Consider barriers to low-income, disadvantaged, and HTR customers

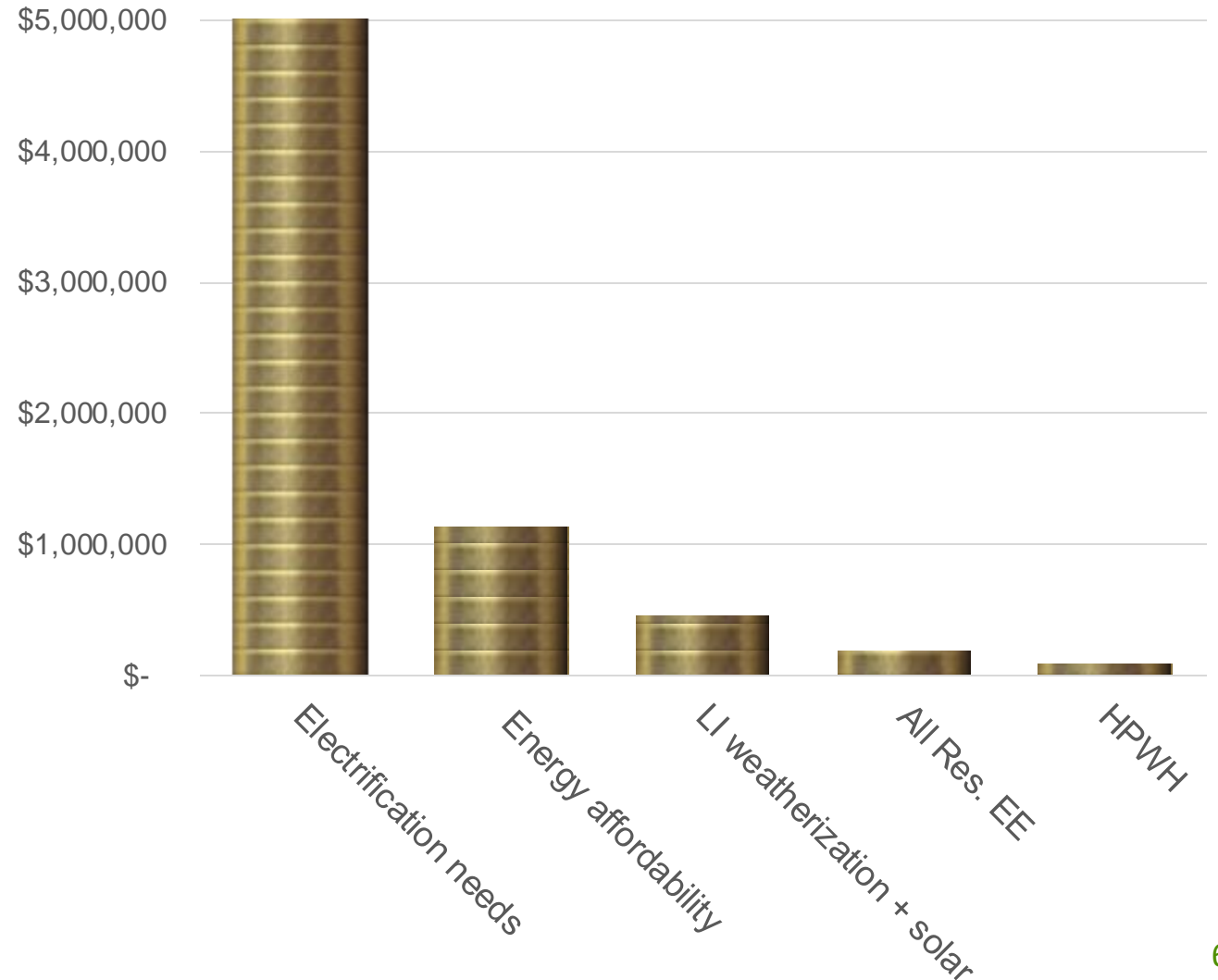




# The challenge: attract private investment in clean energy upgrades

- Public funds are insufficient for the level of investment needed, yet bill savings alone may not justify sufficient private investment.
- Need to scale and accelerate the pace of deployment

Estimated Annual Investment Needs in California for LMI Decarbonization 2020-2050 Compared to Current Expenditures (\$000)





# TECH 2-pronged financing approach

## 1. Expand REEL

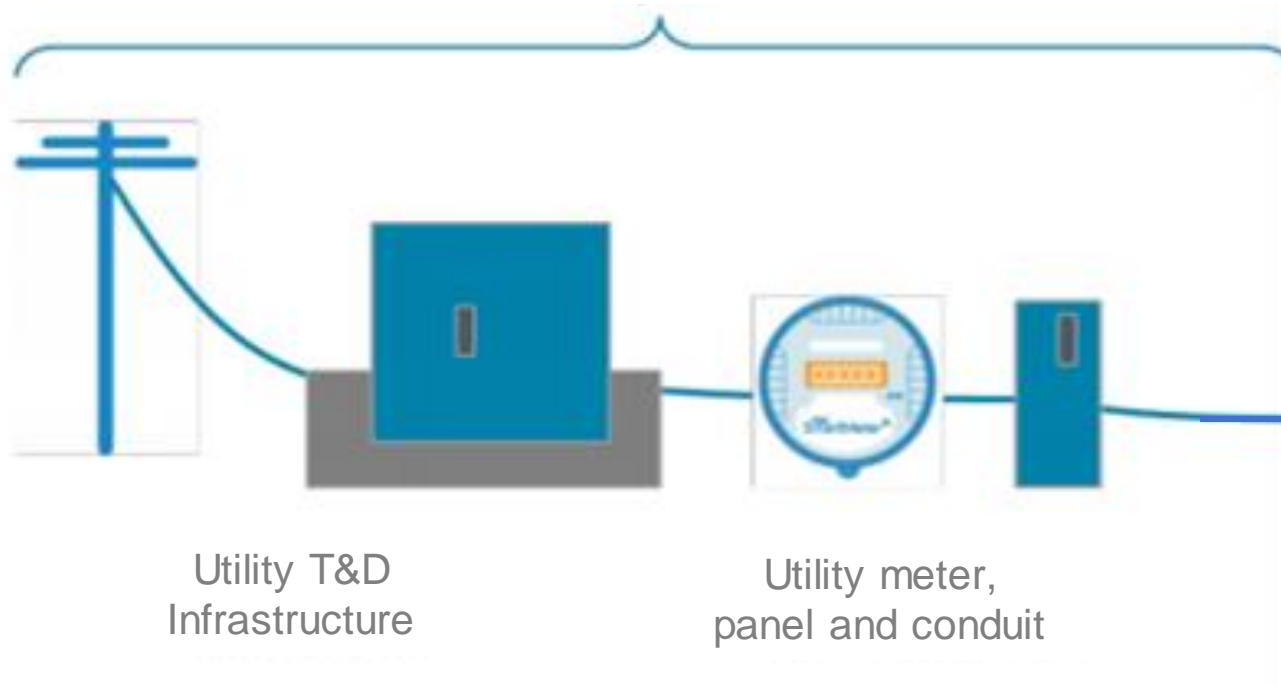
- Expand eligibility to >1.8 million POU customers
- Uniform offer terms for all CA customers
- Quick to market, build on prior investments
- Partial solution to accessibility issue
  - FICO  $\geq$  580
  - Debt-to-income  $\leq$  55%

## 2. Tariffed On-Bill Investment Pilot

- Site-specific utility investment with site-specific cost recovery
- Shared savings, no customer debt, no increased energy burden
- Investment limited by bill savings
- Requires active utility partner

# Site specific investments on tariffed terms with on-bill cost recovery is a solution demonstrated for building efficiency upgrades

Typical utility rate-based investments

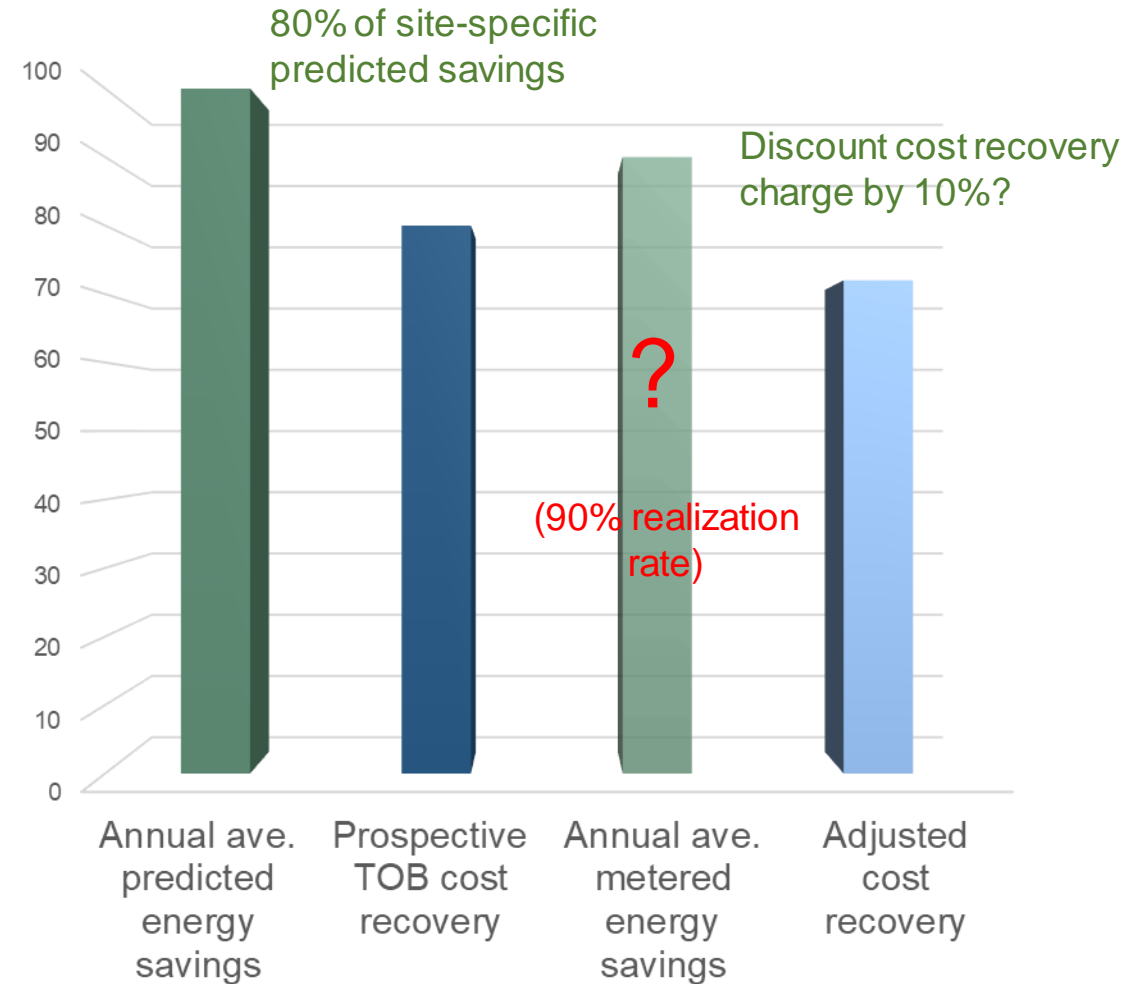
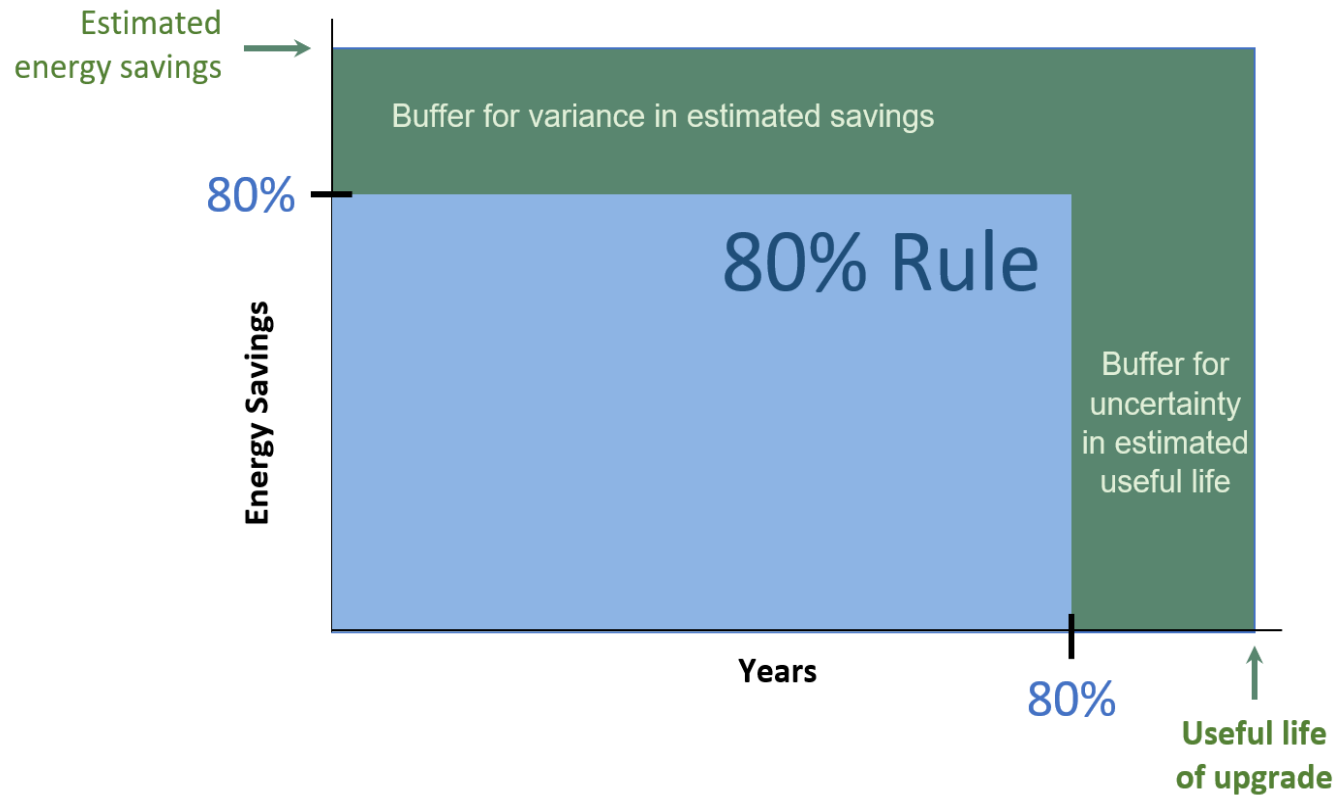


Building Decarbonization Upgrades

Site-specific investments with site-specific cost recovery create an inclusive option for overcoming upfront cost barriers for all



# Prospective & retrospective consumer protections

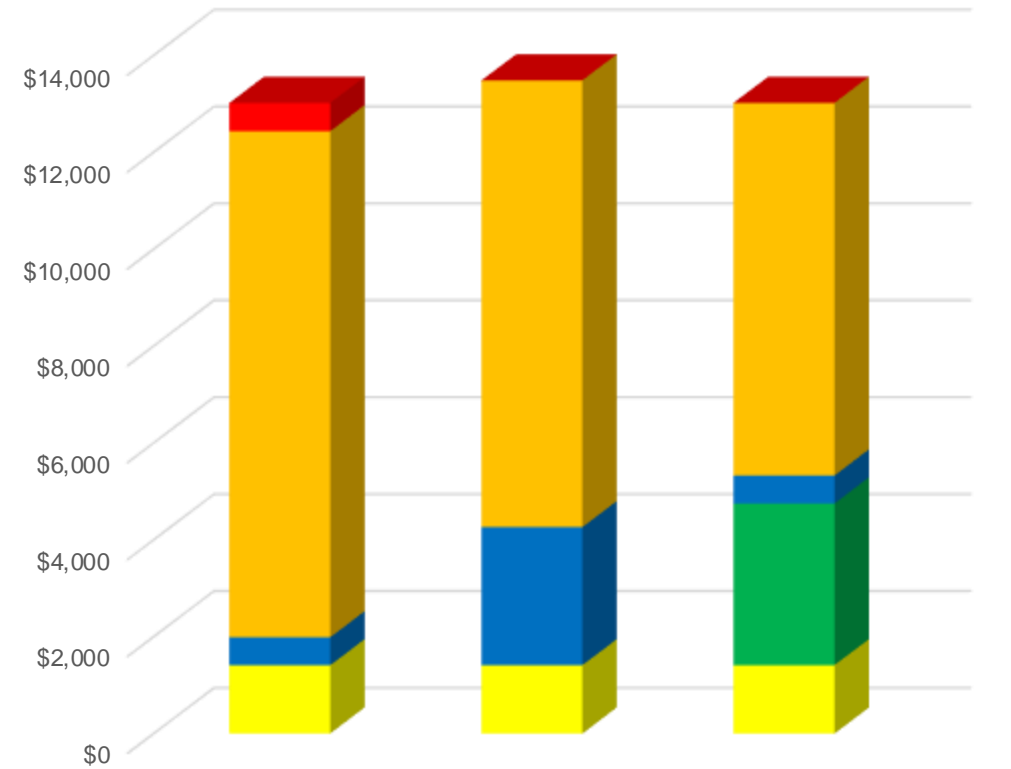


Note: Portfolio-level average savings calculations, site-specific cost-recovery

# Energy prices are important determinants of benefit stream

|   |          |
|---|----------|
| HVAC + DHW electrification installed cost   | \$12,900 |
| Baseline kWh                                | 7,278    |
| Baseline Therms                             | 422      |
| Annual change in kWh                        | 1,973    |
| Annual change in Therms                     | (390)    |
| Annual GHG reductions, Mt CO <sub>2</sub> e | (1.88)   |

| Capital Stack               | IOU electric rate (\$0.24) | POU electric rate (\$0.12) | IOU rate + incentive |
|-----------------------------|----------------------------|----------------------------|----------------------|
| Total investment            | \$13,018                   | \$13,482                   | \$13,018             |
| GHG incentive               | \$1,410                    | \$1,410                    | \$1,410              |
| Utility incentive           |                            |                            | <b>\$3,339</b>       |
| TOB cost recovery           | <b>\$578</b>               | <b>\$2,851</b>             | <b>\$578</b>         |
| Customer copay              | \$10,445                   | \$9,221                    | \$7,691              |
| Additional capital required | \$585                      | \$0                        | \$0                  |



- Additional capital requirement
- Customer copay <= replacement value
- TOB cost recovery @ 80% of utility bill savings, 80% EUL
- Utility incentive @ PV(\$0.17/kWh, 12 yrs)
- Lifecycle avoided GHGs @ \$50 / ton

# Contact Info

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- Principal, Ardenna Energy, LLC
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# Public Comment Period

- For any technical issues with the Webinar, please call the Technical Support Line at 415-703-5263
- If you wish to speak during the public comment period, please unmute your phone, dial 1-800-857-1917, passcode 5180519#, and then press \*1 (star one), and record your name and organization, if applicable, when prompted. Please speak clearly. You will be placed into a queue in the order that you have identified yourself. When it comes time for you to speak, the operator will announce your name and then open your line. You will have **one** minute to speak, after which a chime will sound when your time expires. To withdraw your request please press \*2 (star two).



# Thank you for your Participation!

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