Welcome! The Webinar will begin shortly.

cityofpaloalto.org/ClimateAction

Sustainability and Climate Action Plan Ad Hoc Committee

February 10, 2022

Acting Now for a Resilient Future
Click on Q&A anytime during the presentation to ask questions
Agenda

• Recap of January 2021 S/CAP Ad Hoc Meeting

• Funding and Financing
  – *Inclusive Financial Solutions for Building Energy Upgrades* – Dr. Holmes Hummel, Founder and Executive Director of Clean Energy Works
  – *Funding and Financing the 2022-2024 S/CAP Work Plan and Full-Scale Transition*; Jonathan Abendschein & Shiva Swaminathan, City of Palo Alto

• Discussion
1/13/22 S/CAP Ad Hoc Committee Meeting

• 110 Participants, plus 7 watching on YouTube Live Stream

• 32 Questions, covering the following themes:
  – How Palo Alto’s urban forest is being considered with relation to wildfire protection programs
  – The relationship between wildfire protection and building electrification
  – Sources of Sea Level Rise, including groundwater impacts
  – Flood zones and FEMA flood zone designations

• 13 Comments, covering the following themes:
  – Air filtration, especially in older homes
  – Social Cost of Carbon
  – Building electrification
Funding and Financing: Introduction

• Asking several questions today:
  – What approaches are available to finance individual electrification projects?
  – What funding sources are available for the FY 2022-2024 work plan? What is the most efficient way to deploy them?
  – What ideas should we explore for funding a community-scale S/CAP effort?

• Though the focus is on residential and non-residential electrification, we touch on all S/CAP climate change areas: Energy (Buildings), EVs, and Mobility

• Two presentations by industry experts

• One staff presentation – represents results of our research to-date and current understanding of the field. Looking for your ideas and insights!
Inclusive Utility Investments

Inclusive Financial Solutions for Building Energy Upgrades
Dr. Holmes Hummel, Founder and Executive
Clean Energy Works
Inclusive Financial Solutions for Building Energy Upgrades

Holmes Hummel, PhD
holmes.hummel@cleanenergyworks.org

February 10, 2022
The most familiar financial solutions for essential building energy upgrades have not been inclusive, fiscally sustainable, or scalable.
Tens of millions of households don’t qualify for either energy assistance or bank loans.

Even among those who can qualify for funding or financing, only a fraction are served.

Funding levels are chronically too low to meet the need.

Anemic response to a debt-based value proposition, even when subsidized.

Policies to finance energy upgrades rely on some tacit assumptions:

Building owners will **volunteer to take on debt** to pay for the building energy upgrades.
Policies to finance energy upgrades rely on some tacit assumptions:

Building owners will volunteer to take on debt to pay for the building energy upgrades.

*And if they don’t...* a government agency will set up special financial programs to make debt for building energy upgrades even more attractive.
Building owners will volunteer to take on debt to pay for the building energy upgrades.

And if they don’t... a government agency will set up special financial programs to make debt for building energy upgrades even more attractive.

For those who can qualify for special programs, examples include:

- Buy-downs to 0% interest rate (Minneapolis et al)
- Higher debt-to-income limits (FHA Energy Efficient Mortgages)
- Credit enhancements (California’s GoGreen; New York’s Good Jobs / Green NY)
- Loans with debt collection by utilities (Energy Trust of Oregon)
- Government-backed loan funds (PA’s Keystone; NY Smart Energy Loan)
- Property Assessed Clean Energy (PACE) loans for residential (CA, FL, MO)
Leading loan programs for residential energy upgrades have reached \textbf{max 0.1\% in any year}.

4 states with 17M households have had leading statewide energy efficiency loan programs. \textbf{Max} peak market penetration in any of the programs in any year studied is \textasciitilde{0.1\%} households . . .

\textbf{Loan Volume for Residential Energy Efficiency Loan Programs}

\textbf{Source: Leventis, G. 2021. SEE Action Loan Performance - Findings. LBNL briefing to ACEEE Finance Forum.}
Leading loan programs for residential energy upgrades have reached bankable people.

90% of the loan volume is accounted for by households with prime credit or higher, a segment well served by the financial services sector.

Descriptive statistics—credit scores

- Average credit score across all programs: 734
- Median credit score across all programs: 745

Field experience with inclusive utility investment is compelling
Where is exploration and opportunity for inclusive utility investment expanding?

Inclusive Utility Investment via Pay As You Save© as of 2022

- Utility Regulatory Commission has approved or been ordered to approved a PAYS Tariff
- State Legislature, Utility Regulatory Commission, or Investor Owned Utility is due diligencing PAYS
- Active Utility PAYS Programs
- Completed Utility PAYS Programs
How does inclusive utility investment work?

A utility can adopt a **tariff** for site-specific investment and cost recovery, regardless of the income, credit score, or renter status of the bill payer.

The tariff enables a utility to capitalize all **cost-effective** energy upgrades at a site and recover those costs with a **site-specific charge** on the utility bill that is **less than the estimated savings** from the upgrades.
A majority of people receiving this offer choose to accept it

- “Energy upgrades that save money are installed in your building and you pay nothing upfront.

- Your utility pays for the installation. The utility recovers its cost with a charge added to your bill that is less than the estimated savings.

- You have no loan, no lien, and no debt with this transaction.

- When the utility recovers its costs, the charges end. And the charges also end if an upgrade fails and is not repaired, or if you move, provided that you have maintained the upgrades.”
Pay As You Save® is the most common system used for inclusive utility investments. All utility customers have the option to access cost effective energy upgrades using a proven model for investment and cost recovery that benefits both the customer and utility.

Pay As You Save® and PAYS® are trademarks of Energy Efficiency Institute, Inc., which does not charge for its use.
Pay As You Save® is the most common system used for inclusive utility investments.

All utility customers have the option to access cost effective energy upgrades using a proven model for investment and cost recovery that benefits both the customer and utility.

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Pay As You Save® is the most common system used for inclusive utility investments

All utility customers have the option to access cost effective energy upgrades using a proven model for investment and cost recovery that benefits both the customer and utility.

Pay As You Save® and PAYS® are trademarks of Energy Efficiency Institute, Inc., which does not charge for its use.
<table>
<thead>
<tr>
<th>Attributes</th>
<th>On-Bill Loan</th>
<th>PAYS® Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No upfront participant cost</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• No credit or income qualification required</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Renters are eligible</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Estimated savings <strong>must exceed</strong> cost recovery charges</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Participant accepts an opt-in utility tariff <strong>tied to the location</strong></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Cost recovery is through a fixed charge on the utility bill</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Participant agrees to disconnection for not paying utility bills</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Payments end if upgrade fails and is not repaired</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>• Cost recovery runs with the location and remains in effect for subsequent customers at that site until cost recovery is complete</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
Example transaction:  

Single story home, upgraded with insulation, air sealing, and heat pump

- **Investment:** $10,000
- **Cost Recovery Period:** 15 years
- **Cost of Capital:** 3%
- **Estimated Savings:** $100 / month
- **Charge:** $70 / month
- **Net Savings to Customer:** $30 / month, ~30% of savings
- **Energy Savings:** 8,000 kWh / year

Source: Briefing by Mountain Association, the program operator for the HowSmartKY program. This sample has conveniently round numbers; residential efficiency upgrades are typically ~$7500.
**Loan and site-specific tariffed investments** have consistently produced different results.

Comparison for Building Energy Upgrades

- **Customer Eligibility**: 50% loans, 2x PAYS®
- **Offer Accepted**: ~10% loans, 5x PAYS®
- **Deal Size**: $3300 loans, 2x PAYS®
- **Default Rate**: 10x loans, 0.1% PAYS®

**Investment acceleration is a product of these multiples.**

- ✔️ No consumer loan, lien, or debt
- ✔️ Reaches renters and low-income
- ✔️ Higher uptake rates
- ✔️ Deeper energy & carbon savings
**Figure 1: Key Differences Between On-bill Loan Model and On-bill Tariff Model**

<table>
<thead>
<tr>
<th></th>
<th>On-bill Loan</th>
<th>On-bill Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is the charge on the</strong></td>
<td>Debt payment</td>
<td>Cost recovery fee</td>
</tr>
<tr>
<td><strong>monthly utility bill?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>What does a successor</strong></td>
<td>Some programs allow voluntary</td>
<td>Cost recovery automatically</td>
</tr>
<tr>
<td><strong>homeowner or occupant pay?</strong></td>
<td>loan transfers but not automatic</td>
<td>applies to successor occupants</td>
</tr>
<tr>
<td><strong>Is utility disconnection</strong></td>
<td>Yes, depending on legislative or</td>
<td>Yes, depending on restrictions</td>
</tr>
<tr>
<td><strong>possible for non-payment?</strong></td>
<td>gubernatorial policy and/or regulatory approval</td>
<td>due to time of year</td>
</tr>
<tr>
<td><strong>Consumer credit underwriting</strong></td>
<td>Necessary for many loan programs</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>criteria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Renters allowed to participate</strong></td>
<td>Yes, but few do(^6)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
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Preliminary Assessment and Program Design
Program Evaluation
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Building Decarbonization Coalition

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- Intro to Site-Specific Investments and Cost Recovery
- General Provisions
- Sourcing Capital and Managing Portfolio Risk
- Other Implementation Topics
- Scalability and Market Potential
- Implementation Metrics
- Conclusions and Recommendations
- Appendix A. Model Tariff Language
Our world is not on a path to reach a goal of 100% clean energy for everyone. There is a viable model – inclusive utility investments – and it’s not yet spreading fast enough to make a difference.

Clean Energy Works accelerates inclusive investments that open the clean energy economy to all.

Inclusive utility investment with a strong consumer protections is proving to be a fiscally sustainable and scalable option - yet more utilities will need to adopt to achieve 100% goals.
Thank You

www.cleanenergyworks.org
@cleanenergywrks
GoGreen Financing: State-Run Private Capital Financing Program

Miriam Joffe-Block, Senior Manager
California Hub for Energy Efficiency Financing (CHEEF)
GoGreen Financing
State-Run Private Capital Financing Programs

Palo Alto Sustainability and Climate Action Plan Ad Hoc Committee
February 10, 2022
The California Hub for Energy Efficiency Financing (CHEEF) supports statewide energy goals

- Facilitates attractive financing options by leveraging private capital
- Supports efficiency measures in existing buildings via behind-the-meter customer investments
  - Residential, small business, and affordable multifamily sectors
- Works to remove the upfront cost barrier preventing customers from making energy efficiency retrofits
- Contributes toward the State’s climate and energy savings goals

![Diagram showing GHG emissions reduction targets and related actions]
# Programs available through GoGreen Financing

<table>
<thead>
<tr>
<th>Customers</th>
<th>GoGreen Home</th>
<th>GoGreen Business</th>
<th>GoGreen Multifamily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owners or renters</strong> of single-family residences (including mobile homes, condos, and multiplexes)</td>
<td><strong>Small businesses and nonprofits</strong> (building owners or tenants)</td>
<td>Affordable multifamily properties where at least 50% of units are restricted to LMI households</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Key Features</strong></th>
<th><strong>Rate Range:</strong> 2.95%–8.12%, compared to national average of 12.3%</th>
<th><strong>On-bill repayment</strong> option will launch in Q1 2022</th>
<th><strong>Interest rate buy-down promotion</strong> launching in Q1 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Loans available up to $50,000 and terms up to 15 years</td>
<td>• <strong>On-bill repayment</strong> option will launch in Q1 2022</td>
<td>• Currently piloting an interest rate buy-down promotion</td>
<td></td>
</tr>
</tbody>
</table>

**All financing options are:**
- Unsecured or equipment secured – no property liens
- Able to be used in combination with utility rebates, incentives, and programs
California State Treasurer’s Office houses CAEATFA and over 15 other financing authorities and commissions

California Alternative Energy & Advanced Transportation Financing Authority (CAEATFA) administers the CHEEF
- Uses a regulatory process with public input to establish Program rules

California Hub for Energy Efficiency Financing (CHEEF)
- GoGreen Home, GoGreen Business, and GoGreen Multifamily

California Public Utilities Commission authorized the CHEEF to bring private capital into the energy efficiency marketplace and asked CAEATFA to be administrator

Public facing platform
CPUC considered financing an important strategy to reach energy reduction goals

- There is not enough utility ratepayer or public funds to pay for needed building investments to reach the State’s ambitious building energy savings and GHG reduction goals
- In 2013, CPUC authorized Investor-Owned Utility (IOU) ratepayer funds for administration and credit enhancements to establish financing pilot programs to address this issue

The pilots are designed to:

- Test if financing can achieve energy savings on par with traditional rebate/incentive programs
- Allow customers to pay for energy investments, as credit enhancement funds can be revolved rather than expensed
- Use a credit enhancement as the vehicle to leverage private capital for energy efficiency upgrades
- Support customer choice via front-end transactions between lender and customer vs. a single originator model
From pilot to program and on to statewide eligibility...

2013
CPUC authorizes the CHEEF, asks CAEATFA to administer pilot financing programs

2016
GoGreen Home launches

2019
GoGreen Business and GoGreen Multifamily launch

2020
CPUC approves transition of GoGreen Home from pilot to full-scale Program

2021
CPUC authorizes continuation of CHEEF Programs through FY 2026 and expansion to non-IOU customers
Credit enhancement leverages private capital for energy efficiency

Program provides finance companies with credit enhancement
Finance companies offer better terms and approve a wider group of customers
Contractors present financing options to their customers
Attractive financing allows more customers to start or complete deeper EE upgrades
Customers reduce energy use; state and local govts. make progress toward goals

<table>
<thead>
<tr>
<th>What Finance Companies Offer in Exchange for the Credit Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market-Rate Product</strong></td>
</tr>
<tr>
<td><strong>Lower rates:</strong></td>
</tr>
<tr>
<td><strong>Longer repayment terms:</strong></td>
</tr>
<tr>
<td><strong>Larger amounts of financing:</strong></td>
</tr>
<tr>
<td><strong>Broader approval criteria:</strong></td>
</tr>
</tbody>
</table>

Lenders receive a loan loss reserve contribution on every loan enrolled, and are able to claim up to 90% of any charged-off amount.
Project eligibility is designed to balance simplicity with likelihood of energy savings

• Prequalified list of eligible energy efficiency measures
  • List is developed through public rulemaking; allows for measures that are predicted to save energy in vast majority of cases
  • Engineering review/audit not required

• GoGreen Business also includes an easy custom pathway

• Any measure that is part of an IOU, REN or CCA energy efficiency program is eligible to be financed

• “To code” measures and projects eligible
  • Flexibility offered here because customers themselves are making the investment

• Legal and practical measures included (e.g. electrical panel upgrades for heat pumps)

• 30% of credit-enhanced financed amount can be spent on non-energy measures, like remodeling or landscaping

• Distributed generation and storage can be included at lenders’ discretion, but isn’t credit-enhanced

GoGreen Home eligible measures list: https://gogreenfinancing.com/residentialcontractors/about#tab-9

GoGreen Business & Multifamily eligible measures list: https://gogreenfinancing.com/smallbusinesscontractors/energy-saving-measures
Where GoGreen Home fits in the landscape of EE financing options

Private Capital Loans via GoGreen Home work for:

• Borrowers who don’t want to place a lien on their property or don’t own their property
• Transactions too small for PACE
• LMI borrowers who have the cash flow to repay their loan
• Borrowers with lower credit scores who may not qualify for traditional financing products at affordable rates
• Borrowers who need an extended term beyond what traditional unsecured loans provide (which helps reduce the monthly payment)
Where GoGreen Business fits in the landscape of EE financing options

Private Capital Financing via GoGreen Business works for:

- **Borrowers who don’t own their property**
- **Borrowers with projects too small** for C-PACE transactions
- **Borrowers seeking access to a variety of financing structures**, including leases, energy service agreements, and savings-based payment agreements
- **Borrowers seeking fast approval** who can’t wait for the lengthy OBF approval process
- **Borrowers who don’t qualify for OBF**, such as newer businesses or projects with measures that don’t meet payback requirements
GoGreen Home Standard Loan Outcomes
Q3 2016 – 2021

- 1,709 loans enrolled
- $28.9MM total amount financed
- 106 months average term length
- $16,891 average loan size

4.6% average interest rate
$6.54 private capital leverage ratio
500+ participating contractors
9 participating finance companies

Top Measures Installed:
- HVAC (Equipment and ductwork)
- Building envelope (Air sealing, insulation, cool roofs, windows)
- Water heating (Water heaters, low-flow fixtures)

Average Cumulative Interest Paid for loans with terms up to and including 60 months:
- With GoGreen Home: $1,393
- Without GoGreen Home: $3,598

Average Monthly Payment Reduction Due to Extended Terms for GoGreen Home loans with terms >60 months:
- GoGreen Home Loan with Extended Term: $204
- Same Lender’s Standard Product: $450
Energy efficiency upgrades are challenging for small businesses

- Small businesses are still feeling the impacts of COVID
- IOU programs – a key driver of demand for financing – transitioned to third-party implementers between 2019-2021, and re-starting them has been slow and difficult
- Forthcoming On-Bill Repayment feature may help facilitate new projects through GoGreen Business

GoGreen Business metrics as of 12/31/21:

| 10 projects enrolled | $1.69MM total amount financed | 5 participating finance companies | 80+ participating contractors |

Bakery Project in Los Angeles County

- $145,000 financed
- Equipment Finance Agreement
- HVAC duct sealing, oven ventilation, and more
- Extensive remodeling included in financing
Pushing the limits of a debt-based program...

- Debt-based financing can work for LMI borrowers, so long as they have the cash flow to repay loans
  - Program offers lenders a higher (20% versus 11%) credit enhancement contribution for credit-challenged and LMI borrowers
  - Open to renters, residents of manufactured homes
- GoGreen Home lenders report approving about 50% of applicants
  - Most denials are due to too high debt-to-income ratio
  - A non-debt solution, like Tariffed On-Bill Financing, is also needed
- Utilities may wish to dedicate subsidy $ to income-qualified customers and make affordable financing available for customers who can take on debt

GoGreen Home metrics as of 12/31/21:

- 56% loans to upgrade properties in LMI census tracts
- 25% loans made to borrowers with <700 credit score

Consumer Protections:
- Lenders have “skin in the game” on every loan
- Maximum 55% debt-to-income ratio
- Minimum 580 credit score
What’s next? Moving toward a simple, statewide program

- **Geographic expansion** will resolve complexity for financing projects in joint IOU/POU territories and allow for easier financing of heat pump technologies
- Partnership with statewide TECH initiative will support financing for electric and decarbonization measures for joint IOU/POU customers
- POUs will be able to join and fund their participation in the Programs under latest CPUC Decision

West Sac: PG&E Service
Heat pumps encouraged!

Sacramento: PG&E/SMUD Service
No heat pumps!
What’s next? Scaling and decarbonization

- **Recruitment of specialty lenders** to give contractors more options and more control over financing process
- **IT investments** to streamline processes for contractors and lenders, reduce overhead costs
- **Increasing private capital leverage ratio**
  - Average credit enhancement contribution is 15% of loan value, but default rate is less than 2%
  - Shifting average contribution to 10% would leverage $10 for every $1 of credit enhancement
- **Comprehensive clean energy projects** that include on-site generation, storage and EV charging
  - CAEATFA currently advocating for CPUC to allow use of credit enhancement (or allow us to incorporate other sources of funding) to support these measures
Opportunity for City of Palo Alto to join CHEEF and the GoGreen Financing Programs

- **Join existing State-administered programs** and leverage infrastructure that has already been built
  - Programs have established lender and contractor network, website, measure list, regulations, and more
- **Offer customers a choice of lender and variety of financing products**
- **Save subsidy dollars for income-qualified customers** and make affordable financing available to those who can take on debt
  - $1 million in credit enhancement investment can leverage ~$6.5 million in private capital or ~400 loans at $16,500 each
  - Credit enhancement dollars are recaptured as loans are paid off and can be redeployed over time
- Participation in GoGreen Financing would also require covering administrative costs related to Palo Alto customers
Thank You

Miriam Joffe-Block
Senior Manager
mjblock@treasurer.ca.gov

For more information, please visit:
• GoGreenFinancing.com
• treasurer.ca.gov/ceatfa/cheef
• treasurer.ca.gov/ceatfa/cheef/cheef-reports-and-additional-materials.asp
GoGreen Home Energy Financing
Lending options for residential energy upgrades

Start today! GoGreenFinancing.com

<table>
<thead>
<tr>
<th>Lending Area</th>
<th>APR (02/29/2021)</th>
<th>Loan Size</th>
<th>Minimum Credit Score</th>
<th>Pre-Approval</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STATEWIDE LENDERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anywhere in California</td>
<td>2.98% - 6.38%</td>
<td>$2,500 - $50,000</td>
<td>600</td>
<td>Instant pre-approval for qualified borrowers (up to $25,000)</td>
<td>(558) 495-1637 CCUC Energy Group Ray, Zak, Bill &amp; Kaya <a href="mailto:rayzakbillkaya@gmail.com">rayzakbillkaya@gmail.com</a></td>
</tr>
<tr>
<td>Anywhere in California</td>
<td>3.4% - 5.49%</td>
<td>$2,500 - $50,000</td>
<td>580</td>
<td>Within one business day</td>
<td>(818) 993-6393, option 4 MCCU Consumer Lending <a href="mailto:energy@mccu.org">energy@mccu.org</a></td>
</tr>
<tr>
<td><strong>REGIONAL LENDERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Wells Valley, Searles Valley, Kern River Valley, Bishop, Barstow, and parts of Kern and Inyo counties</td>
<td>4.0% - 8.0%</td>
<td>$2,500 - $50,000</td>
<td>580</td>
<td>Within one business day</td>
<td>(566) 743-4497 Eric Brien <a href="mailto:rbt3@desertvalleys.org">rbt3@desertvalleys.org</a></td>
</tr>
<tr>
<td>Orange County</td>
<td>3.95% - 7.95%</td>
<td>$2,500 - $50,000</td>
<td>580</td>
<td>Within one business day</td>
<td>(149) 639-7996 Leonardo Soto <a href="mailto:energy@eaglecu.com">energy@eaglecu.com</a></td>
</tr>
<tr>
<td>Sacramento, Placer, Nevada, El Dorado, Amador, Yuba, Yolo, Butte, San Joaquin, Solano, Sierra, and Contra Costa counties</td>
<td>2.95% - 7.44%</td>
<td>$2,500 - $50,000</td>
<td>580</td>
<td>Within one business day</td>
<td>(900) 556-6768 x2009 First US Consumer Lending <a href="mailto:energy@fuscu.org">energy@fuscu.org</a></td>
</tr>
<tr>
<td>Pasadena, Covina, Yorba Linda, and the greater San Gabriel Valley</td>
<td>4.99% - 8.10%</td>
<td>$2,500 - $30,000</td>
<td>600</td>
<td>Within one business day</td>
<td>(966) 351-0651 PSPCU Lending <a href="mailto:lending@pspcu.org">lending@pspcu.org</a></td>
</tr>
<tr>
<td>Alameda, Colusa, Contra Costa, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, and Yolo counties</td>
<td>3.9% - 7.9%</td>
<td>$1,000 - $50,000</td>
<td>600</td>
<td>Instant pre-approval for qualified borrowers</td>
<td>(707) 392-2277 Carla Eaton <a href="mailto:ceaton@traviscu.org">ceaton@traviscu.org</a></td>
</tr>
<tr>
<td>Tulare County and Madera County</td>
<td>5.62% - 8.12%</td>
<td>$1,500 - $50,000</td>
<td>580</td>
<td>Within one business day</td>
<td>(559) 688-9996 x2315 Kency Vaughan <a href="mailto:kvauhan@valleyoak.org">kvauhan@valleyoak.org</a></td>
</tr>
</tbody>
</table>

1 APR = Annual percentage rate. May include .5% auto-pay discount. Rates are subject to change at any time. Check with lender for the most up-to-date rate information. Existing and retired federal employees throughout the State of California are also eligible. 2 Available to homeowners who receive gas and electric service from PG&E. Valley Oak can lend to select employee groups in Kings and Fresno counties. Please see Valley Oak’s website for membership details.
# GoGreen Business Energy Financing

Energy efficiency financing options for commercial retrofits

## Equipment Finance Agreements

<table>
<thead>
<tr>
<th>Equipment finance agreements</th>
<th>Equipment leases, service agreements, and loans</th>
<th>Equipment leases</th>
<th>Efficiency service agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact</strong></td>
<td><strong>Amount available</strong></td>
<td><strong>Term</strong></td>
<td><strong>Features</strong></td>
</tr>
<tr>
<td>James Miller</td>
<td>$10,000 - $2,000,000</td>
<td>12 - 60 months</td>
<td><strong>Contractor prefunding</strong></td>
</tr>
<tr>
<td>(713) 634-4819</td>
<td>Up to 64 months if required for project cash flow</td>
<td>12 - 84 months</td>
<td>• Prefunding up to 95% of financed amount ²</td>
</tr>
<tr>
<td><a href="mailto:jamesmiller@ascendiumcapital.com">jamesmiller@ascendiumcapital.com</a></td>
<td></td>
<td></td>
<td>• Progress payments up to 50%, escrow funding up to 90% ³</td>
</tr>
<tr>
<td>Gilliane Daum</td>
<td>$5,000 - $5,000,000</td>
<td>Up to 120 months if required for project cash flow</td>
<td>• Progress payments up to 50%; 30% prior to delivery and 20% upon delivery</td>
</tr>
<tr>
<td>(267) 637-9924</td>
<td></td>
<td></td>
<td>• Prefunding up to 50%, milestone payments also negotiable</td>
</tr>
<tr>
<td><a href="mailto:gdaum@businessdirect.com">gdaum@businessdirect.com</a></td>
<td></td>
<td></td>
<td><strong>Generation and storage measures financeable</strong></td>
</tr>
<tr>
<td>David Goldstein</td>
<td>$10,000 - $5,000,000</td>
<td>12 - 120 months</td>
<td><strong>Credit approval process</strong></td>
</tr>
<tr>
<td>(714) 450-1026</td>
<td></td>
<td></td>
<td>• Approved within 2 business hours and no financials required (up to $250,000)</td>
</tr>
<tr>
<td><a href="mailto:dgoldstein@alliancefunds.com">dgoldstein@alliancefunds.com</a></td>
<td></td>
<td></td>
<td>• Approval within 24 business hours (up to $250,000) and no financials required (up to $125,000)</td>
</tr>
<tr>
<td>Michael Savage</td>
<td>$250,000 - $5,000,000</td>
<td>60 - 120 months</td>
<td>• Approval within 24 hours and no financials required (up to $300,000)</td>
</tr>
<tr>
<td>(888) 938-6256 x703</td>
<td></td>
<td></td>
<td>• Full underwrite required</td>
</tr>
<tr>
<td><a href="mailto:mssavage@renewep.com">mssavage@renewep.com</a></td>
<td></td>
<td></td>
<td><strong>Other features</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Payments as low as $20/month for the first 3 or 6 months of the term</td>
</tr>
<tr>
<td></td>
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<td>• DLL can bill for and collect regular service and maintenance charges for contractor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Cannabis operations may qualify</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Lease reamortization option after 5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Monthly payment is less than the savings, so project results in positive cash flow from day one</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Ongoing service and maintenance included</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>On-bill repayment (coming soon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>CUSTOMER ELIGIBILITY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Tenant occupants permitted</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 12 months (up to $100,000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Greater amounts require 18+ months in business</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 18 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 12 months (up to $300,000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Greater amounts require 36+ months in business</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 30 months</td>
</tr>
</tbody>
</table>

1 Service agreements require a minimum of $50,000 and at least a 36-month term. ² Contractors must pass credit check. ³ If financing term is less than or equal to time remaining on occupancy lease. ⁴ Limited to measures not affixed to property.

All financing is subject to credit approval and compliance with the program terms. Rates and terms are subject to change. Please contact the finance company representatives above for up-to-date information.

GoGreenFinancing.com 01/07/2023
Appendix: How GoGreen Home Serves Underserved Borrowers

GoGreen Home metrics as of 12/31/21

Percentage of Loans Made to Upgrade Properties by Census Tract Income

- <80% AMI: 18%
- 80-100% AMI: 44%
- 100-120% AMI: 22%
- >120% AMI: 16%

Percentage of Loans Made to Upgrade Properties by CalEnviroScreen Score

- 0-24%: 27%
- 25-49%: 31%
- 50-74%: 16%
- 75-100% (DAC): 26%
Appendix: Marketplace microloans for efficient appliances are reaching underserved borrowers

- Starting in Q3 2021, GoGreen Home finances appliances purchased via online IOU marketplaces
  - Currently available in SoCalGas territory, SoCal Edison to launch in Q2 2022
- Early outcomes show significant interest from property renters and credit-challenged borrowers

<table>
<thead>
<tr>
<th>288 microloans enrolled</th>
<th>$1,372 average microloan size</th>
<th>30% microloans made to property renters</th>
<th>72% microloans made to properties in LMI census tracts</th>
</tr>
</thead>
</table>

**Percentage of Microloans Enrolled by Borrower Credit Score through 12/31/21**

- 54% in 580-640
- 29% in 641-700
- 13% in 701-760
- 5% in 761-820
- 0% in 821+
Short Break
State-Run Financing Opportunities

Funding and Financing the 2022-2024 S/CAP Work Plan & Full-Scale Transition
Jonathan Abendschein & Shiva Swaminathan, City of Palo Alto
Funding and Financing: Overview

- Three topics for today’s presentation
  - 2022-2024 work plan funding sources
  - ideas to explore for funding the entire S/CAP
  - project financing and how it can contribute
- S/CAP community cost - very preliminary, continuing to evaluate
- Preliminary costs, 2022-24 work plan: $56M ($35M in funding identified)
- Most effective way to use funding for electrification: finance up-front costs with private capital, provide repayment assistance using available funding sources
2022-2024 Work Plan: Potential Funding Sources

- Estimated 2022-2024 Work Plan cost = $56M. Immediately available funding sources:

<table>
<thead>
<tr>
<th>Source</th>
<th>Available Thru 2024 (10/21 Forecast)</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Cap&amp;Trade</td>
<td>$5.2M</td>
<td>Must use for GHG-reducing activity benefitting electric ratepayers</td>
</tr>
<tr>
<td>Gas Cap&amp;Trade</td>
<td>$11.4M</td>
<td>Must use for GHG-reducing activity benefitting gas ratepayers</td>
</tr>
<tr>
<td>Low Carbon Fuel Standard</td>
<td>$10.5M</td>
<td>Must be used to promote EVs via incentives, direct investments, bill credits, or marketing and outreach</td>
</tr>
<tr>
<td>Public Benefits</td>
<td>$5.7M</td>
<td>Use for energy efficiency, low-income, R&amp;D, or renewable energy</td>
</tr>
<tr>
<td>Grants</td>
<td>$2.3M</td>
<td>Spend in accordance with grant terms</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$35.1M</td>
<td></td>
</tr>
</tbody>
</table>

- Other funding sources to explore:
  - Electric or gas ratepayer funding
  - PaloAltoGreen voluntary funding
  - Philanthropy

- Project financing enables City to make best use of limited funds
- Other ideas?
Funding Community Scale S/CAP Implementation

- What to fund? Design of program matters:
  - City pays full up front cost of EV charging / electrification improvements
  - OR – City encourages project loans, assists with repayment incentives
  - Could have different designs for low-income programs

- Long-term financing options to explore
  - Tax measure for climate action (carbon tax, parcel tax, other taxes?), leverage the revenue stream to issue bonds to fund up-front costs
  - Obtain private financing for up-front costs, tax to help with repayment. Allows for distribution of cost burden across different sectors.

- Both approaches are novel uses of municipal taxing and bonding authority, need to explore legal issues

- Other ideas?
Funding and Financing: Overview

• Financing avenues available for various elements of the plan:
  – Vehicles – traditional auto financing
  – Mobility measures – traditional municipal revenue and financing applies (e.g. muni bonds), explore new funding sources like parking fees, tax measures to cover repayment of bonds
  – Utility improvements – traditional utility bond issuances
  – Building electrification/EV charging – traditional financing exists, innovation may bring benefits

• Potential benefits, innovative financing of electrification/EV charging:

<table>
<thead>
<tr>
<th>Homeowners</th>
<th>Landlords / Business Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lower interest rates</td>
<td>• Lower interest rates</td>
</tr>
<tr>
<td>• Access to credit for borrowers with less access to traditional avenues</td>
<td>• If repayment can be an operational cost (e.g. if tied to utility meter) it could minimize use of shareholder / investor funds or corporate debt capacity</td>
</tr>
<tr>
<td>• Ability to transfer loan from property owner to property owner</td>
<td>• Ability to deal with landlord / tenant split incentive issues – both residential and non-residential</td>
</tr>
<tr>
<td>• Streamlined project execution</td>
<td></td>
</tr>
</tbody>
</table>
## Financing Model Description

<table>
<thead>
<tr>
<th>Financing Model</th>
<th>Description</th>
</tr>
</thead>
</table>
| Property-Assessed Clean Energy (PACE)        | • Loan based on lien on property, debt repaid through property taxes  
• Currently available in Palo Alto            |
| On-Bill Repayment                            | • Private capital provider makes loan to customer, utility collects payments  
• Repayment cost may exceed energy savings    |
| On-Bill Financing                            | • Utility makes loan to customer to install equipment, may or may not install it  
• Not tied to utility meter, does not transfer from customer to customer |
| Tariffed On-Bill / Inclusive Utility Investment * | • Utility pays for and owns equipment until it recovers its cost with charge  
• Utility responsible for repairs, if needed, until its costs are recovered  
• Estimated energy savings must exceed utility’s cost recovery charge  
• Cost recovery period less than 80% of the useful life of the upgrades  
• Cost recovery tied to utility service at a specific meter, and applies automatically to successor customers at that metered location  
• Open to renters with landlord approval |
| Other Public-Private Financing Models        | • No involvement with utility bill, but utility or agency may partner with financing provider to lower interest rates through loan loss reserve or other features.                                                                                   |
## Financing Model Overview

<table>
<thead>
<tr>
<th>Financing Model</th>
<th>Lower interest or cost of capital</th>
<th>Successor resident may be obligated to pay</th>
<th>Upgrade costs may be passed to renters(A)</th>
<th>Off balance sheet for commercial owners</th>
<th>No credit check</th>
<th>Savings must exceed repayment charge(B)</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property-Assessed Clean Energy (PACE)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>Encumbers the property</td>
</tr>
<tr>
<td>On-Bill Repayment</td>
<td>☑</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-Bill Financing</td>
<td></td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td>May lower default rate</td>
</tr>
<tr>
<td>Tariffed On-Bill / Pay as you Save (PAYS®)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>Up-front processing costs may be higher</td>
</tr>
<tr>
<td>Other Public-Private Financing Models</td>
<td>☑</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td>☑</td>
<td></td>
</tr>
</tbody>
</table>

Note that this slide represents staff’s best understanding from research to date, but more research is needed and feedback is welcome. As program choices are narrowed, legal review will be needed to determine individual program rules and requirements.

* Note A: depends on landlord-tenant contractual relationships, may differ for residential and non-residential tenants

* Note B: where repayment charge exceeds savings risk of default increases, may affect feasibility of programs

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cityofpaloalto.org/ClimateAction
Customer Project Financing Options in the Bay Area

- Number of financing programs for building efficiency and electrification projects are being offered by electric, natural gas, and water utilities to their customers
  - Water Upgrade $ave – tariffed-on-bill (TOB) water program promoted by BayREN/ABAG
  - GoGreen Financing - State administered loan program
  - Technology & Equipment for Clean Heat (TECH) – TOB pilot program, IOU rate-payer funded
  - Sonoma Clean Power (SCP) - On-Bill Financing Program, funded by SCP
  - East Bay Clean Energy (EBCE) - private capital financed efficiency/electrification program
  - Marin Clean Energy (MCE) - third-party loan, using MCE capital, energy storage projects
  - Silicon Valley Clean Energy (SVCE) – exploratory stage
  - Property Assessed Clean Energy (PACE) private capital financed loan program

Could be made available to Palo Alto community

Available to Palo Alto community
## Landscape of Customer Project Financing Programs

<table>
<thead>
<tr>
<th>Program Name (Program Type)</th>
<th>Project Capital Provider</th>
<th>Loan or Capital Investment Processor</th>
<th>Loan Servicer or Charge on bill</th>
<th>Loan Loss Reserve? Provider?</th>
<th>Interest rate or cost of capital</th>
<th>Max Loan Amount per customer</th>
<th>Customer Segment served</th>
<th>Program loans or # of sites upgraded</th>
<th>Capital deployed</th>
<th>Project developer</th>
<th>Program manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU$ave (PAYS/TOB)</td>
<td>ABAG</td>
<td>BayREN</td>
<td>Water utilities/TOB</td>
<td>Not applicable</td>
<td>3% to 5% program fee</td>
<td>Not applicable</td>
<td>SFR, MFR, commercial</td>
<td>Post-pilot: 40</td>
<td>$26k</td>
<td>BAYREN; primary</td>
<td>Sonoma County RCPA</td>
</tr>
<tr>
<td>GoGreen (PCL)</td>
<td>credit unions, other</td>
<td>credit unions, other</td>
<td>credit unions, other</td>
<td>Yes, IOU ratepayers</td>
<td>3 to 8%</td>
<td>$50k Res) $5M(Com)</td>
<td>SFR, MFR, Com; renters</td>
<td>1709 (R) 10 (C )</td>
<td>$29M (R) $1.7M(C)</td>
<td>Approved Contractors</td>
<td>CAEATFA</td>
</tr>
<tr>
<td>TECH (PAYS/TOB)</td>
<td>TBD</td>
<td>TBD</td>
<td>IOU/TOB</td>
<td>Yes, rate-payer funded</td>
<td>TBD</td>
<td>64% of lifecycle bill savings</td>
<td>residential</td>
<td>Yet to launch</td>
<td>Goal is $4M</td>
<td>TBD</td>
<td>CPUC/ Energy solutions</td>
</tr>
<tr>
<td>SCP (OBF)</td>
<td>SCP, $1M pilot</td>
<td>SCP</td>
<td>SCP</td>
<td>None, not applicable</td>
<td>0%</td>
<td>10,000</td>
<td>residential</td>
<td>50 loans in 6 months</td>
<td>~$0.2M, average $5.5k</td>
<td>Contractors, mostly HPWH</td>
<td>SCP/ Frontier Energy</td>
</tr>
<tr>
<td>EBCE (PCL)</td>
<td>BlocPower, Goldman</td>
<td>BlocPower/ Goldman</td>
<td>BlocPower</td>
<td>Depends on lease</td>
<td>none</td>
<td>SFR, MFR in Low Income communities</td>
<td>Early stage</td>
<td>Early stages</td>
<td>BlocPower</td>
<td>BlocPower</td>
<td></td>
</tr>
<tr>
<td>MCE (PCL)</td>
<td>MCE, up to $4M</td>
<td>NEIF</td>
<td>NEIF</td>
<td>None, not applicable</td>
<td>0% (LI), 2.5% and 5.5%</td>
<td>$1.5k (min) $50k (max)</td>
<td>SFR, up to 5 unit MFR; homeowners</td>
<td>Early stages</td>
<td>Early stages</td>
<td>contractors</td>
<td>MCE</td>
</tr>
<tr>
<td>Ithaca (PCL)</td>
<td>BlocPower, Goldman</td>
<td>BlocPower/ Goldman</td>
<td>BlocPower</td>
<td>Depends on lease</td>
<td>none</td>
<td>all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>BlocPower</td>
</tr>
</tbody>
</table>

LMI – low and moderate Income; SFR, MFR – Single/multi-family residence; PCL - private capital loan
Reference Documents

• BAYREN Water Upgrade $ave Program
• GoGreen Business Financing Options Chart
• GoGreen Residential Loan Options Chart
• California Hub for Energy Efficiency Financing (CHEEF) - March 2021 Update
• Technology and Equipment for Clean Heat (TECH) Program: TOB Financing Pilot
• Sonoma Clean Power Home Owner Loan: 0% interest up to $10,000; 5-10 yr repayment
• East Bay Community Energy (EBCE) Loan Agreement with BlocPower Energy Services 3, LLC
• MCE-Zero-Interest-Home-Battery-Loans
• Property Assessed Clean Energy (PACE) Project Loan Programs in California
Palo Alto Funding and Financing Decisions Ahead

• Project financing questions and areas of investigation
  1. Actively promote PACE offered by CaliforniaFIRST?
  2. Type(s) of new Palo Alto program(s)?
     • Offer an inclusive utility investment program based on PAYS® model
     • Offer private capital loan like EBCE or MCE
     • Join an existing loan program like GoGreen?
  3. Understand extent of community interest; interested community segments
  4. Source(s) of capital – City, private, or hybrid?
  5. How to reduce interest rate to customer – loan loss reserve? Additional rate buy-down?
  6. Loan origination and servicing function: out-sourced or in-house?
  7. Other questions to consider?

• Funding the 2022-2024 S/CAP Work Plan
  8. Priority areas for funding? Approach? Additional revenue sources?

• Funding community scale S/CAP implementation
  9. Which funding / financing ideas are a priority to explore?
Questions and Comments from S/CAP Ad Hoc
Upcoming S/CAP Ad Hoc Committee Meetings

March 10, 2022
• Working Session
  – Working Group Teams Work Plans

April 14, 2022
• Carbon Reduction / Capture
  – Carbon Neutrality, low-carbon construction materials, new climate goal for after 80 x 30
Thank You!

Please submit questions or comments to sustainability@cityofpaloalto.org

Acting Now for a Resilient Future