

# Quarterly Stakeholder Meeting

December 15, 2021



# Welcome!

**Goal:** Review the goals and structure of TECH Clean California, provide key progress updates, and identify how you can get involved.

## Presentation Guidelines:

- This is a webinar format, so please direct your questions to the Q&A feature. We will do our best to answer questions there during the presentation.
- Today's slides and a recording of the presentation will be accessible on our website.



## Get Involved:

Ask questions on **incentive layering, data sharing, and coordination**

*Please submit your questions to  
[TECH.info@energy-solution.com](mailto:TECH.info@energy-solution.com)*

# Agenda

1 TECH Clean California Overview

---

2 Incentives & Market Engagement

---

3 Pilots & Quick Start Grants

---

4 Data Reporting

---

5 Q & A



# Presenters



**Evan Kamei**  
Energy Solutions



**Rory Cox**  
CPUC



**Peter Florin**  
Energy Solutions



**Rebecca Rothman**  
BDC



**Alison Seel**  
VEIC



**Dylan Sarkisian**  
Energy Solutions

*1*

# Initiative Overview

---



# R.19-01-011 Proceeding To Date

January 2019 –  
Opening Order  
Instituting  
Rulemaking

March 26, 2020 –  
Phase I, Decision  
Authorizing BUILD  
and TECH

November 4, 2021 –  
Phase II, Decision on  
Incentive Layering,  
WNDRR, Data  
Sharing, & Rate  
Adjustments

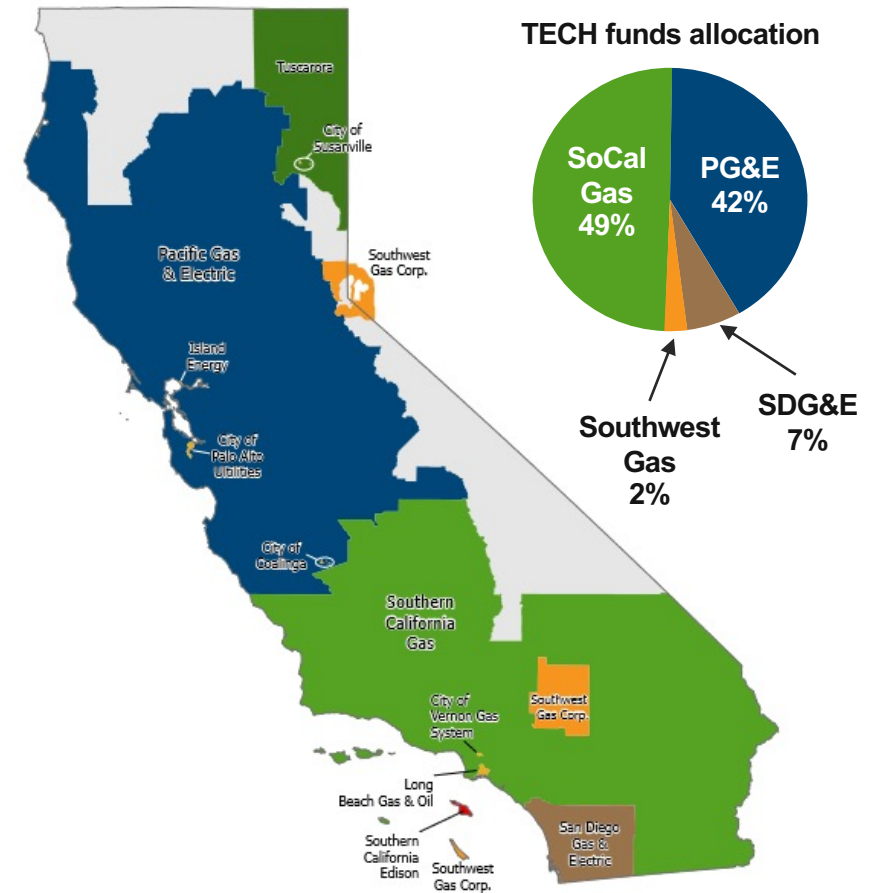
November 16, 2021  
– Scoping Ruling on  
Phase III Issues, Staff  
Proposal on Natural  
Gas Line Rules

# TECH Clean California Overview

## What is TECH Clean California?

- CA's flagship heat pump market transformation initiative for space and water heating, designed to integrate and complement other existing offerings
- Goal is to help put CA on a path to carbon-free homes by 2045 while striving for scale, equity, regulatory simplicity, and market transformation
- Eligible customers: SF and MF residences in gas IOU territory
- Funding allocated proportional to gas-IOU share of Cap-and-Trade allowances

For a more complete overview of TECH Clean California, check out the slides and recording from the first quarterly Stakeholder Meeting at [energy-solution.com/tech/](https://energy-solution.com/tech/)



Map source: <https://cecgis-caenergy.opendata.arcgis.com/pages/pdf-maps>

TECH Team:

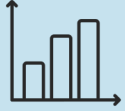


RECURVE



Tre'Laine

# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

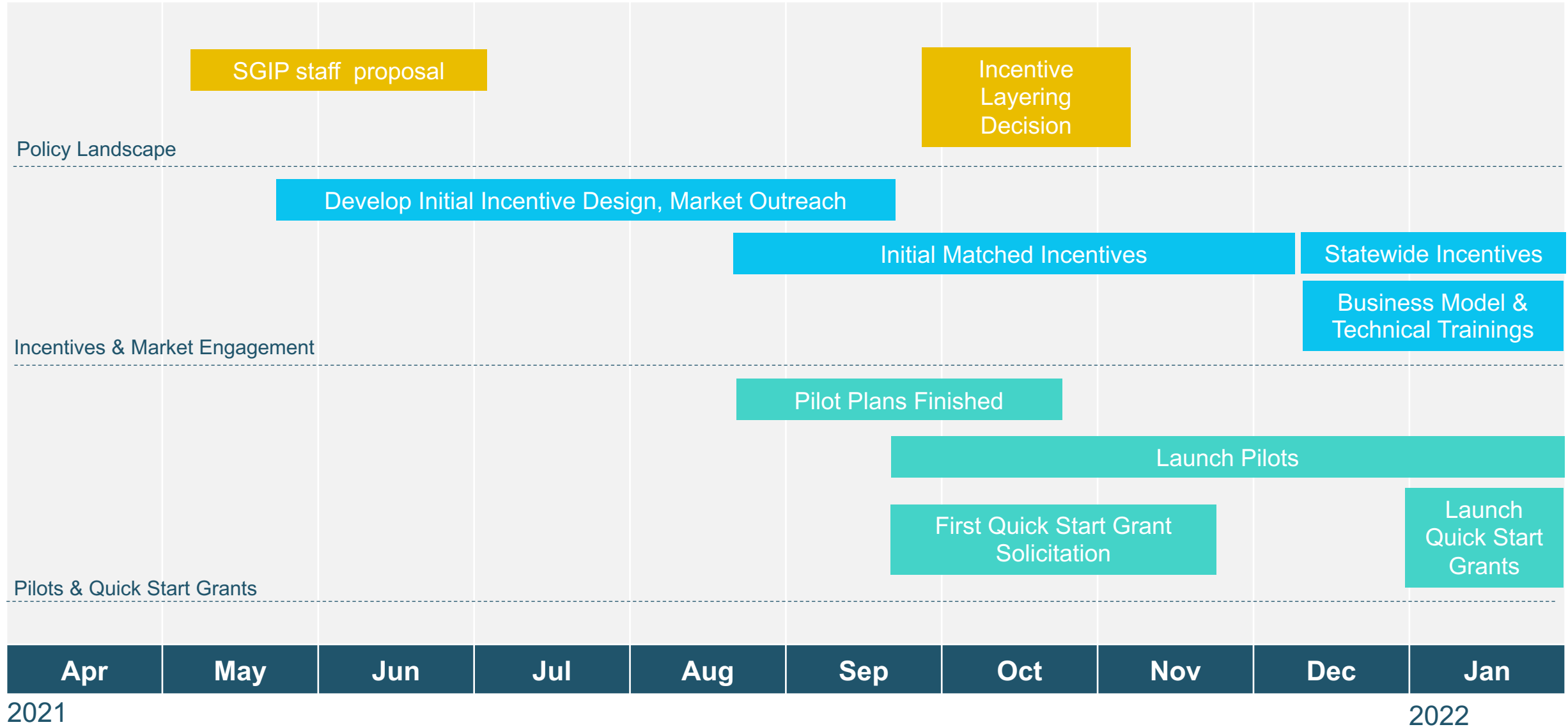
### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

### Inform policy development

- State, regional, and local regulatory policy

# TECH Clean California Timeline

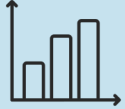


# 2 Incentives and Market Engagement

---

Market incentives and workforce education and training to make it easier and cost-competitive for contractors to sell and install heat pump technology.

# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

### Inform policy development

- State, regional, and local regulatory policy

# Incentives

## Goals:

- Generate widespread market engagement, with enhanced approach to build in areas with existing momentum
- Streamline program participation process by integrating with existing heat pump programs
- Create a dedicated low-income incentive approach setup to best serve those customers

## Where are we now:

- Statewide Single-Family incentives launched on 12/7, with existing program integrations for both HVAC and WH
- Multifamily Reservation form now live, with application system expected early Q1 2022
- Began integration with existing low-income programs

## What's next:

- Refine program participation process to continue push towards simplified participation
- Continue PA outreach push to develop program integrations in Southern California
- Fine tune incentive structure in later years based on participation and meter analysis



**Contractors:**  
Sign up now at  
**[switchison.org/  
sign-up](https://switchison.org/sign-up)**

# Single Family Incentives Overview

*Single Family = Property with 4 or fewer dwelling units*

## Baseline Incentives

- Available everywhere in Gas IOU territory
- Simple and concise measure structure to encourage engagement
- Developed to facilitate future layering with PA incentive programs

## Enhanced Incentives

- Available in regions where TECH has integrated with a partner PA program
- Additional incentives added on top of baseline measures to support quality installations and decrease electricity consumption
- Cost sharing between TECH and partner PA supports collaboration, contractor must enroll in both programs to earn total available incentive

### Utilities/program administrators:

Contact [pflorin@energy-solution.com](mailto:pflorin@energy-solution.com) or [TECH.info@energy-solution.com](mailto:TECH.info@energy-solution.com) to discuss program integrations

# Single Family HVAC Incentives

## Baseline Heat Pump HVAC Incentives

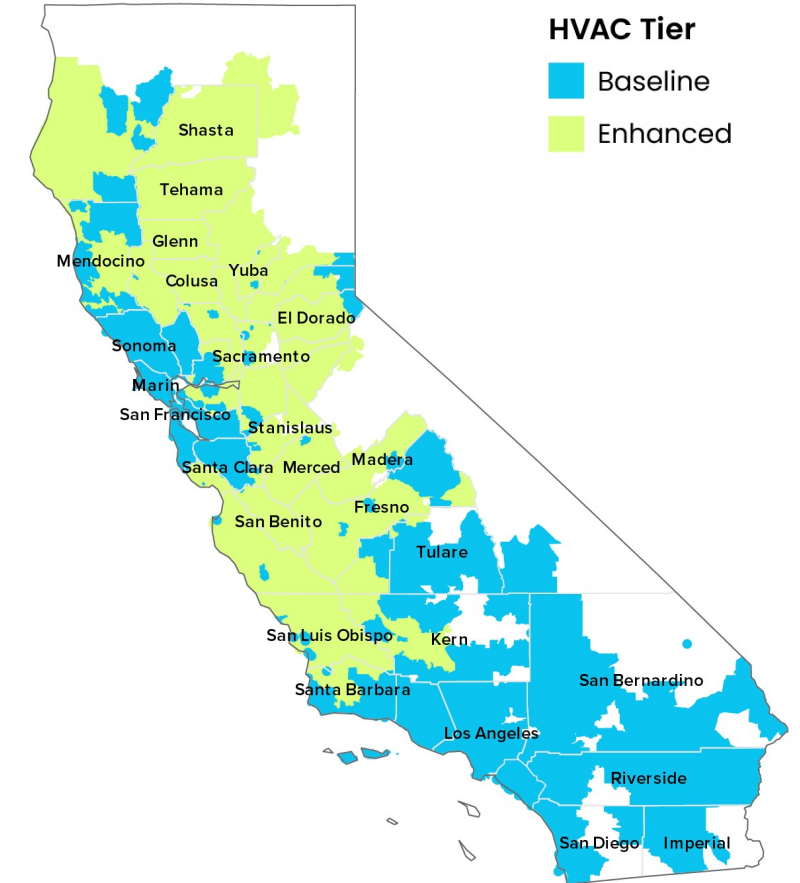
Equipment Type	Minimum Efficiency Requirements	Incentive / Unit
Package, split, mini/multi-split	Title 24 code minimum	\$3,000

## Enhanced Heat Pump HVAC Incentives — Efficiency

Equipment Type	Size Category	Tier	Seasonal/Part-Load Cooling Efficiency	HSPF	Incentive / Unit
Package, split, mini/multi-split	< 5.4 tons	Title 24 code minimum			\$3,000
		1	16.0 SEER	9.0	\$3,900
		2	18.0 SEER	9.7	\$4,800

## Enhanced Heat Pump HVAC Incentives — Quality Installation

Quality Installation Measure	Qualifier	Incentive
Manual J Completed	Provide calculations	\$600
Duct sealing/replacement and testing	5% total leakage or less	\$600
Field Measured Performance (based on ASHRAE 221-2020)	Heating System Performance Ratio (HSP <sub>r</sub> ) and Cooling System Performance Ratio (CSP <sub>r</sub> ) = 80% or better	\$600



# Single Family HPWH Incentives

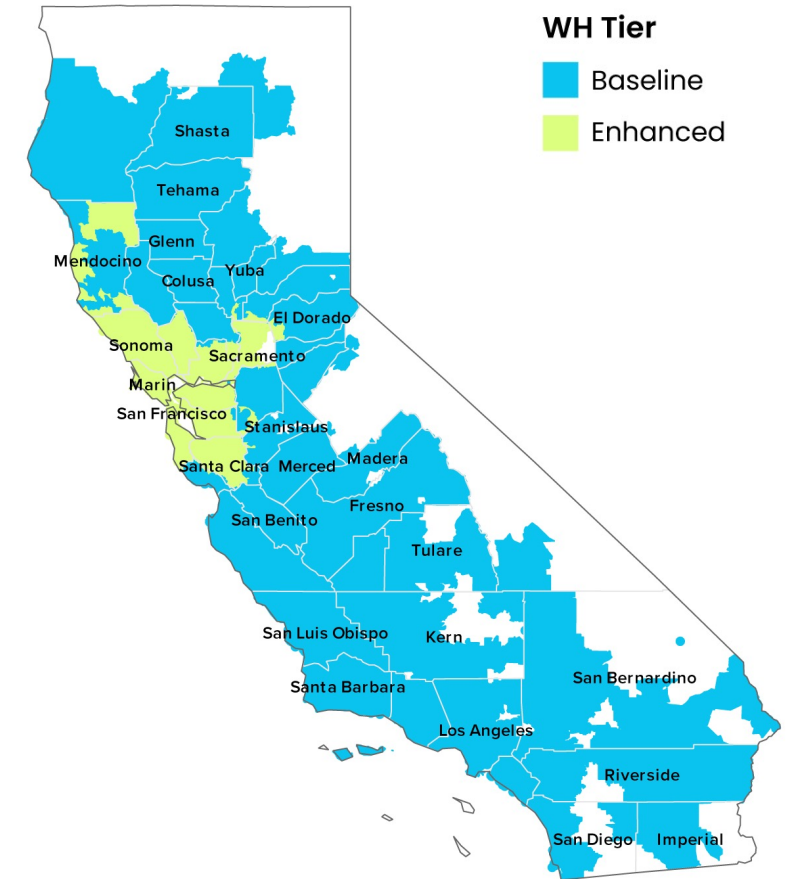
## Baseline Heat Pump Water Heater Incentives

Replacement Scenario	Measure Criteria	Incentive / Unit
Gas/propane to HPWH	All HPWH sizes	\$3,100
Electric resistance to HPWH	All HPWH sizes	\$1,000

## Enhanced Heat Pump Water Heater Incentives

Replacement Scenario	Measure Criteria	Incentive / Unit
Gas/propane to HPWH	HPWH < 55 gallons	\$3,100
	HPWH > 55 gallons	\$3,800
Electric resistance to HPWH	All HPWH sizes	\$1,500
Panel upgrade/load center*	Sizing up to 200 amps	\$2,800

\*Panel upgrade/load center incentive available for any installation that includes a measure that expands the capacity of a home's electrical system (e.g. traditional panel replacement, smart load center, etc.)



# Multifamily Incentives Overview

- Available for any properties with 5 or more dwelling units
- Single incentive structure available throughout Gas IOU territory
- Reservation system in place to ensure incentives will be available at time of project completion
- \$3m incentive cap for any single contractor or property owner



## Multifamily stakeholders:

Go to [energy-solution.com/tech-incentives/multifamily](https://energy-solution.com/tech-incentives/multifamily) to start your incentive reservation

# Multifamily Incentives – HVAC Serving Units

## Incentives for Heat Pump HVAC Systems Serving Individual Apartments

Previous Space Heat Source	System Type		Incentive / Equipment
	Description	AHRI Test Standard	
Non-heat pump systems	Split or rooftop heat pump (ducted or ductless)	210/240	\$2,000
All except PTHPs	PTHP, SPVHP, or unitary through the wall/ceiling heat pump	310/380, 390	\$500 (single or two-stage compressor) \$1,000 (variable capacity/inverter-driven)

## Incentives for Heat Pump HVAC Systems Serving Multiple Apartments

Previous Space Heat Source	System Type	Incentive / Apartment Served
Non-heat pump systems	HP HVAC equipment serving multiple apartments	\$1,000

# Multifamily Incentives – HVAC Serving Common Areas

## Incentives for Heat Pump HVAC Systems Serving Common Areas

Previous Space Heat Source	System Type	Incentive / Equipment
Non-heat pump systems	Split or rooftop heat pump (ducted or ductless)	\$1,800
	PTHP, SPVHP, or unitary through the wall/ceiling heat pump	\$300 (single or two-stage compressor) \$800 (variable capacity/inverter-driven)



# Multifamily Incentives – Unitary and Central HPWH

## Incentives for Unitary Heat Pump Water Heaters

Previous Water Heater Heat Source	HPWH Tank Size	Incentive / Equipment
Gas or propane	< 55 gallons	\$1,400
	≥ 55 gallons	\$2,100
Electric resistance	All	\$700

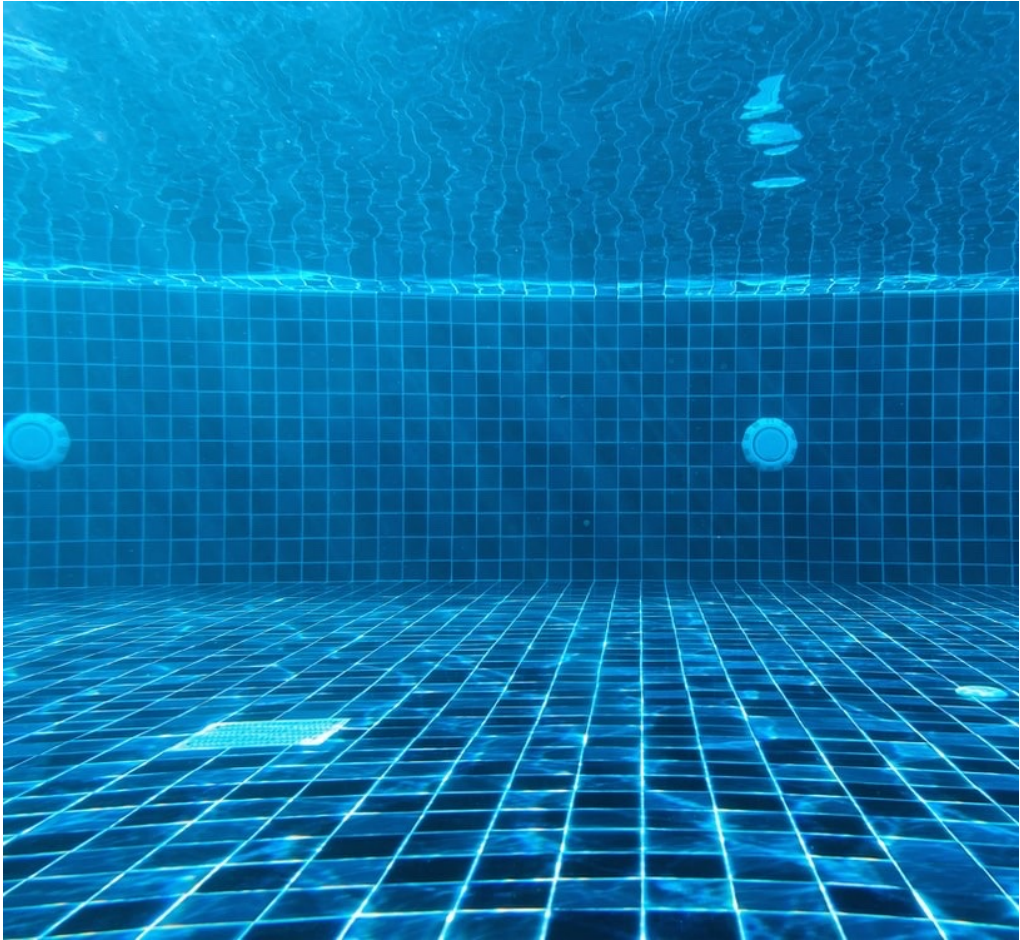
## Incentives for Central Heat Pump Water Heaters Service Two or More Apartments

Previous Water Heater Heat Source	HPWH Storage Volume	Incentive / Apartment Served
Non-heat pump systems	< 15 gallons per bedroom served	\$1,200
	≥ 15 gallons per bedroom served	\$1,800

# Multifamily Incentives – Pool or Spa Heating

## Incentives for Multifamily Heat Pump Pool or Spa Heating

Previous Space Heat Source	System Type	Incentive / Equipment
Non-heat pump systems	Heat pump pool heating	\$2,500



# Multifamily Incentives – Electrical Upgrades

## Incentives for Electrical Panel Upgrades

Previous Equipment	System Type	Incentive / Apartment Receiving Electrical Upgrade
Undersized apartment electrical infrastructure that is upgraded as part of an apartment’s HPWH or HP HAC installation	Apartment panel or sub panel upgrades	\$1,400 Apartment unit must have received a TECH-funded HP HVAC or HPWH and must be all-electric after the upgrade



# Low Income Incentives

- **Approach:** Working with existing low-income programs, which were created to ensure customers receive quality installations without adding financial hurdles
- The five core ways that TECH is considering work with low-income programs to integrate heat pumps for space and water heating:
  - Increasing offering comprehensiveness
  - Widening geographic range
  - Expanding eligibility
  - Conducting additional analysis not covered
  - Reaching more total customers
- First program engaged with is the San Joaquin Valley pilot — estimating 70 projects to be converted to HPs through TECH support
- Additional integrations in progress and will be shared at subsequent stakeholder meetings



# Contractor Engagement



## Goals

- Contractors are key; we need mass engagement across the State for TECH to be successful
- Develop a simple and easy onboarding process that supports both TECH and partner program enrollment
- Engage all arms of HVAC and WH supply chain towards the same goal of contractor enrollment

## What we've done:

- Received 100 contractor enrollment applications
- Conducted kick-off calls with key distributors and manufacturers
- Paid our first set of applications in both the Bay Area and Southern California HPWH programs
- Created an integrated enrollment flow for TECH and the SIO's Clean Energy Connection contractor listing website

## What's next:

- Support enrolled contractors in submitting first projects
- Continue refining onboarding process to facilitate a smooth enrollment flow
- Partner with manufacturers and distributors to continue contractor outreach push

# Contractor Outreach

- Conducted direct outreach to 300+ contractors
- Setup contractor kick off events with HVAC/WH distributors and contractors
- Developed library of marketing materials and PowerPoints that could be leveraged to engage potential participants
- Created lookup functionality in Clean Energy Connection for customers to identify TECH approved contractors

TECH CLEAN CALIFORNIA

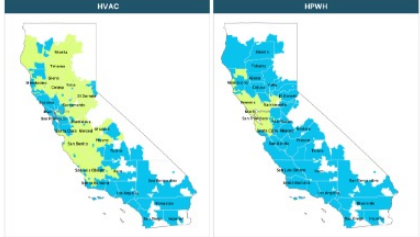
## Single-Family and Multifamily Incentives

TECH Clean California is offering substantial incentives direct to contractors to support the installation of heat pump technologies in existing single-family and multifamily buildings throughout gas IOU territories. Incentives are available only to enrolled contractors. To find out more information or sign up, please go to [energy-solution.com/tech](https://energy-solution.com/tech).

### Single-Family Incentives

TECH Clean California is providing baseline incentives throughout gas IOU territories and enhanced incentives in regions where local utilities are providing heat pump incentives as well. The incentives below are available for any properties with four or fewer dwelling units. The exact incentive amounts offered directly through TECH Clean California will vary by region depending on the availability of local utility incentives. Please refer to the Eligible Zip Code Lists at [energy-solution.com/tech-incentives/](https://energy-solution.com/tech-incentives/) to find the exact incentives available through TECH Clean California for a given region.

**Territory Maps for Baseline and Enhanced Equipment Incentive Tiers**



These maps provide a high-level visual of regions with enhanced versus baseline incentive levels. Please refer to the Eligible Zip Codes lists at [energy-solution.com/tech-incentives/](https://energy-solution.com/tech-incentives/) to confirm the incentive levels available for any particular zip code, city, or county.

TECH Clean California  
[TECH.info@energy-solution.com](mailto:TECH.info@energy-solution.com)  
The TECH Clean California initiative is funded by California gas corporation ratepayers under the auspices of the California Public Utilities Commission. v0.07.2020

TECH CLEAN CALIFORNIA


TECH CLEAN CALIFORNIA

## Get up to \$6,600 per unit for installing heat pumps!

TECH Clean California rewards contractors for recommending and installing heat pumps in California homes. When you install a heat pump water heater or heat pump HVAC system in your eligible customers' homes, you can earn up to \$6,600 in incentives for each unit.

TECH is designed specifically to help contractors keep up with the market and policy shift towards new technologies. With over \$120 million in funding, TECH Clean California can:

- Offset installation costs with incentives paid directly to you
- Offer the chance for bonus incentives and a free heat pump water heater
- Provide you with technical and sales training from manufacturers and world-class instructors



**The Growing Heat Pump Market**

The market is shifting. California is reducing its carbon emissions by investing in heat pump technology for space conditioning and water heating. The industry is shifting toward electrification, and consumers are looking to support cleaner, healthier, and more efficient product choices. As a TECH Clean California participant, you'll get the resources and support your business needs to keep up with market trends.

Actual incentive per region varies. Please refer to the website for details at [energy-solution.com/tech-incentives/](https://energy-solution.com/tech-incentives/).

## Hassler Heating And Air Conditioning Inc.

El Cerrito

[VIEW PROFILE](#)

✓ VERIFIED NOVEMBER 14, 2020

TECH CLEAN CALIFORNIA

- 🏠 Ducted Heat Pump Systems
- 🚰 Heat Pump Water Heaters

**REQUEST QUOTE**

# Contractor Engagement

**Attended market-facing events** to promote TECH Clean California

- Bradford White training event (September, 2021)
- IHACI Trade Show (November, 2021)
- 3C-REN Contractor Outreach Forum (December, 2021)

**Facilitated 5 contractor forums** to receive key feedback to inform program direction (October 2021)

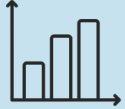
- Organized for contractors across the State
- Attended by 20 contractors

**Engaged with CSLB** on contractor licensing questions

- Currently drafting proposal to CSLB re: vague classification requirements



# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

### Inform policy development

- State, regional, and local regulatory policy

# Holistic Approach to Workforce Education & Training

**Goal:** Drive meaningful and relevant activities that align with the initiative objectives and also support the needs of the industry, the workforce, and the consumer

**Informed by:**

- Industry and other stakeholder insight, perspective, and recommendations
- Research findings on technologies, market characterization, program impacts, and job task analyses
- Preliminary map of current activities

Identified two buckets of activities that can be supported through the TECH Initiative:

## 1. Gap Filling

- Technical and sales training, business model support, and field coaching for contractor firms
- Multi-family & low-income training and business model support to contractor firms

## 2. Market Transformation Opportunities

- TECH initiative leadership
- Collaborations and partnerships

# Workforce Education & Training

## What we've done:

- Launched contractor-facing LMS, with first onboarding trainings hosted
- Finalized TECH-sponsored training curriculum
- Conducted hours of outreach meetings with manufacturers, distributors, utilities, industry groups, and more to ensure alignment towards consistent goal of quality installations and high wages

## What's next:

- Conduct first rounds of trainings
- Continue fostering market transformation relationships, driving towards a sector strategy approach to WE&T



# Workforce Education & Training

## AEA

- **What:** Electrification 101
- **When:** January 2022
- **Where:** Online
- **Register:**  
<https://aea.us.org/tech-learning-plans/>

## Electrify My Home

- **What:** Electrification Training: House as a System, Building Envelope
- **When:** January 5 – 7
- **Where:** Ferguson, Sacramento
- **Register:**  
<https://aea.us.org/tech-learning-plans/>

## National Comfort Institute

- **What:** Airflow Testing & Diagnostics, Refrigerant-Side Performance, Residential System Performance & Electrification
- **When:** Jan. 17 and Jan. 28 (AFD), Feb. 8 and 9 (R-S Performance)
- **Where:** NCI Facility in Los Alamitos
- **Register:**  
[nationalcomfortinstitute.com/TECHCleanCA/training/](https://nationalcomfortinstitute.com/TECHCleanCA/training/)

Reach out to [TECH.training@energy-solution.com](mailto:TECH.training@energy-solution.com) to learn more about these trainings

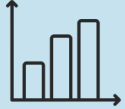
# Workforce Education & Training

## Market Transformation Collaborations Initiated

- **HPWH and HP Manufacturers** for training integration and co-marketing
- **Industry recognized training organizations and associations** to ensure alignment with industry standards and collaborate on development of future WE&T activities
- **Utility and REN WE&T providers** for cross-marketing strategies and increasing access to relevant trainings and resources, along with aligning on data collection and reporting strategies
- **California Community Colleges with HVAC/R/SM and plumbing programs** to build connections with industry partners, inform curriculum through collaborations with manufacturers, outfit labs with technologies for hands on learning
- **Workforce development organizations** to collaborate on activities that support attainment of industry recognized training and stackable credentials, on the job training, career pathways, and job connections.



# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

### Inform policy development

- State, regional, and local regulatory policy




**THE SWITCH IS ON**

# **Marketing and Customer Engagement**




# Switch is On Website Re-launch



THE SWITCH IS ON

AboutContactFAQs



For Contractors

Get ahead with clean energy home installations.

FIND RESOURCES →

“

My partner and I never thought we'd want to say goodbye to our gas range. After 6 months of using the burner, we went for it and switched out our gas range for a new induction stove and couldn't be happier! It heats up fast, cleans up fast, produces super even heat, and I'm never worried about an accidental burn.

LAUREN FURRY

Santa Rosa, CA


”


THE SWITCH IS ON

What is home electrification?

Most homes in California burn natural gas or propane for space heating, water heating, and cooking. These gases—like crude oil or coal—are fossil fuels, which significantly contribute to climate change and local air pollution.


Instead, using efficient electric appliances takes advantage of the increasing solar and wind power in the electrical system. This reduces our dependency on dirty energy sources, all while potentially lowering bills and increasing performance.





THE SWITCH IS ON

How to Participate ▾Contractor Tools ▾AboutContactFAQs



TECH CLEAN CALIFORNIA

See how our program and incentives can help build your business.

DISCOVER →

“

My partner and I never thought we'd want to say goodbye to our gas range. After 6 months of using the burner, we went for it and switched out our gas range for a new induction stove and couldn't be happier! It heats up fast, cleans up fast, produces super even heat, and I'm never worried about an accidental burn.

LAUREN FURRY

Santa Rosa, CA


”

Tech Clean California

Certified Contractors, welcome


Join our group to get support and incentives, and help us electrify California.

SIGN UP →




THE SWITCH IS ON

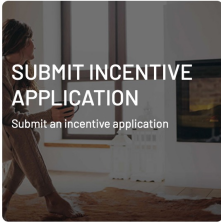
How to Participate ▾Contractor Tools ▾AboutContactFAQs



GOOD FOR YOUR BUSINESS.  
GOOD FOR CALIFORNIA.


Contractor Tools ▾TECH Clean California

Powered By 



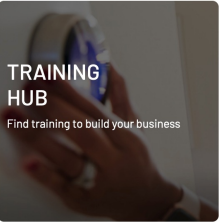
SUBMIT INCENTIVE APPLICATION

Submit an incentive application




MARKETING MATERIALS

Get TECH Clean California marketing templates to help you keep your customers up to date



TRAINING HUB

Find training to build your business



TOOLS

A handy place for articles, policies, codes, calculators and other resources your business needs

# Launch Day Activities

## Earned Media and Content

- Press release published on business wire and shared widely with press
  - Quotes of support from all partners, ambassador, and Saul Griffith included
- 650+ outlets pitched
- Dozens of top-tier outlets given embargoed announcement
- Letter to the Editor pitched to top tier outlet
- Blog post written and posted announcing launch
- Blog post spotlighting electric homeowner for launch
- Internal:
  - Media training
  - Q&A and talking points developed for spokespeople and ambassadors
  - Internal 2022 Integrated Calendar development

## Social Media and Website

- Social media packets with 12+ post options, outlet recommendations and graphics shared with ambassadors and partners
- Email template shared with partners for in-network distribution
- Revamped website unveiled

# Ambassador Program

**Grassroots program** organizes community involvement and builds a movement beyond appliance installation.

- Ambassador categories:
  - Neighborhood
  - Influencer
  - Organization
  - Contractor
- Currently, we are building out the Neighborhood ambassador program
- Will soon commence Influencer and Organization ambassador movements
- Neighborhood ambassadors:
  - More than 75 interested ambassadors from across the state filled out the interest form
  - More than 30 attended the initial ambassador onboarding meeting, with a second round to attend post-launch
- Ambassadors have offered to post and share on social media, write blog posts, attend events, offer home tours, speak with media, and more opportunities to spread the word about electrification.

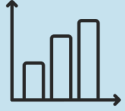
# 3

## Pilots & Quick Start Grants

---

Regional pilots testing scalable solutions to market barriers, and quick-start grants for strategically important installations that will help scale adoption.

# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

### Inform policy development

- State, regional, and local regulatory policy

# 2021 Quick Start Grant Solicitation

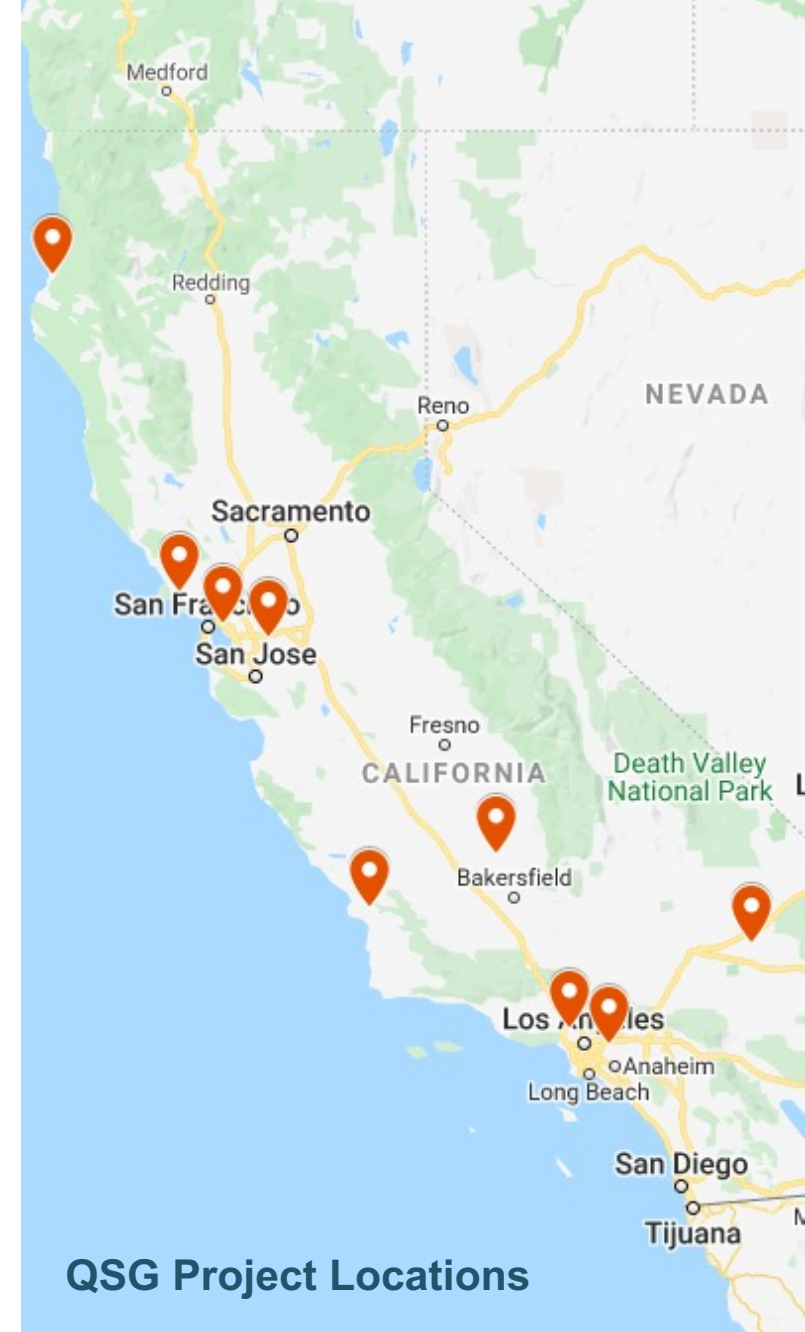
## QSG Overview:

- Solicitation closed Oct. 1
- Selection priority criteria:
  - 1) Clear potential to scale
  - 2) Project installations
  - 3) Focused on low-income households or underserved areas
- 35 applications submitted; Offered 11 awards
- 73% of total funding (8 of 11 projects) will serve low-income households or historically underserved populations

## Next Steps:

- December 2021: Finalizing contract and scope of work negotiations
- Jan./Feb. 2022: Projects launch
- December 2022: Projects reporting results
- Fall 2022: Second QSG Solicitation opens

*To provide suggestions or feedback for upcoming solicitation, email*  
[TECH.pilots@energy-solution.com](mailto:TECH.pilots@energy-solution.com).



**QSG Project Locations**

# Quick Start Grants: Enabling Fast Installation

## Barriers



Installation is slower  
when you fuel switch



Technology is  
too customized



Electrical upgrades  
add time and cost



Not enough  
expert installers

## Solutions

**Barnett Plumbing,  
Loaner Water Heaters  
for Emergency Fuel-  
Switching** (*Livermore,  
CA & surrounding area*)

Loaned gas water heaters  
bridge time to install fuel-  
switching infrastructure

**Small Planet Supply,  
Parkside Apartments  
HPWH** (*Delano, CA*)

Test of pre-designed,  
packaged, central heat  
pump boiler using natural  
refrigerant in farmworker  
multifamily housing

**New Buildings  
Institute, 120V HPWH  
Field Test** (*Statewide*)

Field study of emerging  
120V HPWH designs  
from 4 manufacturers

**Institute of Heating and Air  
Conditioning Industries, Inc.  
(IHACI), Virtual Technician  
Software Platform** (*Statewide*)

Software system provides real-  
time remote installation support  
and equipment monitoring by  
master technicians

# Quick Start Grants: Making Programs More Inclusive

## Barriers



Home repairs  
preclude upgrades



Reaching customers on  
unregulated fuels

## Solutions

### **Franklin Energy and MCE, Augmentation of Income-Qualified Electrification Program**

*(North Bay and East Bay)*

Augmentation of program funds for existing Home Energy Savings program to home repairs that prevent low-income customers from electrifying.

### **Redwood Coast Energy Authority, Air Source Heat Pump Incentives for Unregulated Fuel Customers** *(Eureka area)*

Targeted outreach to remote communities, including tribal lands, that are unconnected to gas system and ineligible for previous incentive programs. Learnings will be shared with Rural and Hard to Reach Working Group

# Quick Start Grants: Reducing Energy Costs

## Barriers



Concern about increasing electricity bills



Lack of research on interactive effects



## Solutions

**The Energy Coalition, Basset Avocado Heights Advanced Energy Community HPWH** (*Bassett/Avocado Heights, CA*)

HPWH added to a CEC EPIC-funded solar + storage pilot in an LMI advanced energy community, analyzing the impact of distributed PV on post-electrification energy bills

**AESC, Interactive Impacts of HPWH in Manufactured and Mobile Homes** (*Statewide*)

Installation of HPWH in manufactured or mobile homes in high poverty regions, to test installed costs, reductions in space conditioning energy consumption and cost, and the impacts on customer health and comfort

# Quick Start Grants: Building Capacity for Lasting Change

## Barriers



Health hazards  
in affordable housing



Lack of familiarity from owners and  
tenants



Lack of diversity  
in workforce



## Solutions

**BlocPower and City of San Luis Obispo, Better Buildings SLO Pilot**  
*(San Luis Obispo)*

Retrofit 10-12 affordable multi-family units with HPWH and air source heat pumps. Establish a Community Advisory Board to empower community members to and devise a communications plan

**Revalue, Green and Healthy Homes** *(Oakland area)*

Eliminate home health hazards and code violations in multifamily affordable housing through electrification. BlocPower provides social impact financing, and Cypress Mandela will train underrepresented groups in the HVAC workforce

**USGBC-LA, Electrification in Green and Affordable Homes Program** *(Los Angeles area)*

Install HPWH and ASHP in naturally-existing affordable housing, leveraging the existing Green Affordable Homes Program to evaluate the impacts on tenants and conduct outreach and education

# Regional Pilot Updates: Overview

Pilot	Objective	Fall 2021 Update
<b>Tariffed On Bill Finance</b>	Launch TOB program with partner utility to expand access to financing	<ul style="list-style-type: none"> <li>Fall 2021: Held series of stakeholder workshops</li> <li>Feb. 2022: Draft program design available for feedback</li> <li>March 2022: Sign MOU with utility partner</li> <li>See <a href="https://energy-solution.com/tech-tob/">https://energy-solution.com/tech-tob/</a></li> </ul>
<b>Low Income Integration</b>	Collaborate with existing LI programs to more fully incorporate heat pumps	<ul style="list-style-type: none"> <li>In cooperation with San Joaquin Valley Pilots, first home remediations enabling heat pump installations</li> </ul>
<b>Customer Targeting</b>	Identify and engage customers who can benefit most from heat pumps	<ul style="list-style-type: none"> <li>Designing targeting approach based on forthcoming utility data</li> </ul>
<b>Multifamily Housing</b>	Provide deep technical support in designing building systems that reduces the perceived risk of electrifying	<ul style="list-style-type: none"> <li>Stakeholder Calls Dec. 16, 9 a.m. and Jan. 26, 9 a.m.</li> <li>See <a href="https://energy-solution.com/tech-incentives/multifamily/">https://energy-solution.com/tech-incentives/multifamily/</a></li> </ul>
<b>HPWH Load Shifting</b>	Target contractors as key market actors to maximize HPWH load shifting	<ul style="list-style-type: none"> <li>Mixing valve incentives now available</li> <li>WatterSaver enrollment incentives available soon</li> </ul>
<b>Streamlining Permitting</b>	Design code-compliant, 1 Day HPWH permit process	<ul style="list-style-type: none"> <li>Stakeholder engagement revealing actionable solutions</li> <li>See <a href="https://energy-solution.com/tech-permitting-pilot/">https://energy-solution.com/tech-permitting-pilot/</a></li> </ul>

# Regional Pilot Updates:

## Launch of Multifamily Initiative

**Pilot Objective:** Provide deep technical support in designing building systems that reduces the perceived risk of electrifying

### Fall 2021 Activities:

- **Offerings for MF properties:**
  - Electrification Roadmaps for full property portfolios
  - Electrification Readiness plans to enable gradual building transformation
  - Monitoring pre- and post-install of central HPWH
- **To learn more or express interest:**
  - Register for the info session ***tomorrow, Dec. 16 at 9 a.m.:***  
[https://us02web.zoom.us/webinar/register/WN\\_R8u7Xg9RielmsxsYLa-Hg](https://us02web.zoom.us/webinar/register/WN_R8u7Xg9RielmsxsYLa-Hg)  
(Repeated January 26 at 9 am).
  - Visit <https://energy-solution.com/tech-incentives/multifamily/>






# Regional Pilot Updates: Launch of HPWH Load Shifting Pilot

**Pilot Objective:** Target contractors as key market actors to enable HPWH load shifting at the time of installation

## Fall 2021 Activities:

- Contractors can earn \$250 in additional incentives with two simple activities that increase customer benefits from HPWHs:
  - \$200 - Thermostatic Mixing Valve (TMV) Incentive
  - \$50 - Customer enrolled in PG&E's  **WaterSaver**
- In 2021, will focus on contractor education on benefits of load shifting and TMVs and best practices for HPWH connectivity

# Regional Pilot Updates: Streamlining Permitting Pilot

**Pilot Objective:** Design a simple, code-compliant, 1-day HPWH permit process adopted widely by building departments

## Fall 2021 Activities:

- Stakeholder engagement uncovering clear, actionable solutions:
  - Integrated plumbing/electrical permit
  - Standardized processes across jurisdictions
  - Clarity on how a plumber can install HPWH requiring electrical upgrades



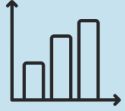
# 4 Data Reporting

---

Leveraging TECH findings to empower stakeholders and inform critical decarbonization policy decisions



# TECH Clean California Activities



## Spur the clean heating market through statewide strategies

### Activate the supply chain

- Contractor incentives
- Streamlined Incentive Clearinghouse
- Technical and sales training

### Drive consumer demand

- Statewide marketing campaign and website



## Create scalable models through regional pilots

### Improve targeting and project finance

- Target customers using meter-based analysis
- Deploy a Tariffed-On Bill Financing Pilot

### Expand benefits to HTR customers

- Support low-income programs
- Multi-family pilots targeting property owners

### Streamline installation

- Streamline permitting and installation costs
- Enable load-shifting

### Innovation through Quick Start Grants



## Inform long-term building decarbonization framework

### Develop public reporting site

- Inform policymakers and market actors on progress and impacts

### Quantify decarbonization impacts

- Avoided costs, grid benefits, and customer bill impacts

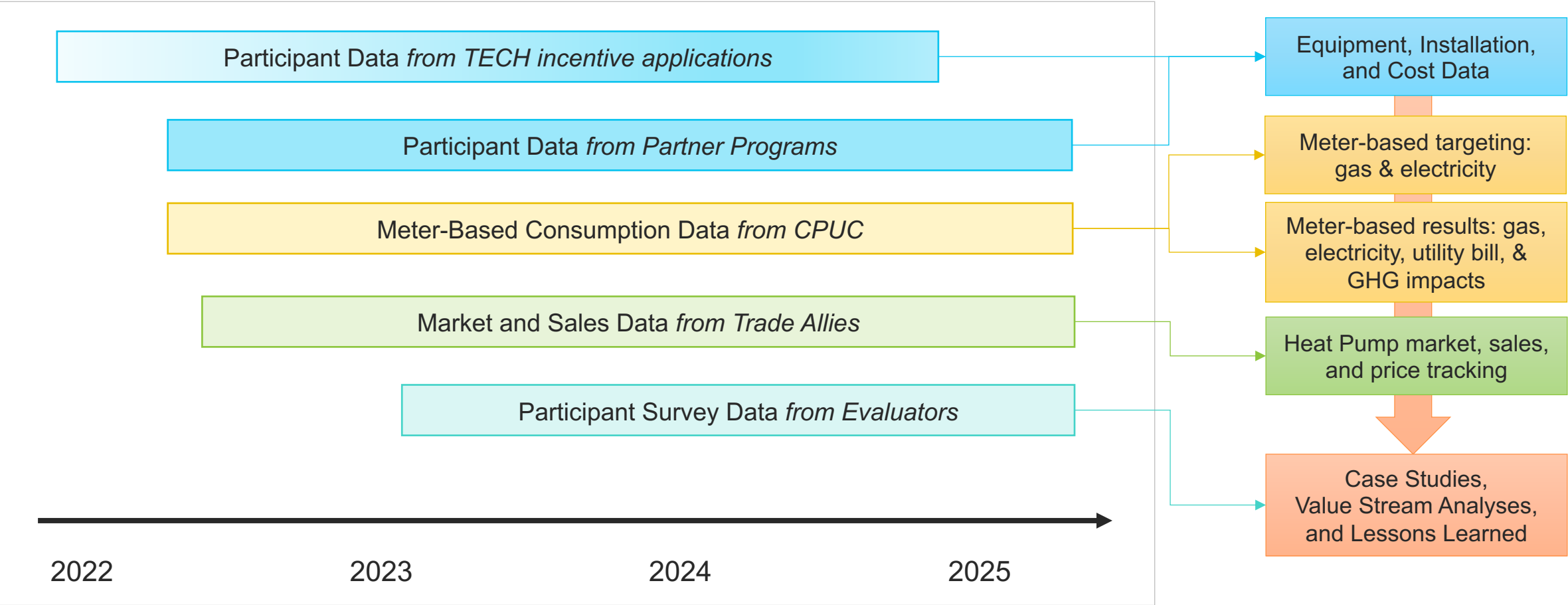
### Inform policy development

- State, regional, and local regulatory policy

# Data Strategy

Layering multiple data sources to generate novel outputs

## Data Acquisition Timeline



# Public Reporting Website

Data, Tools, & Case Studies for Customers, Contractors, & Program Designers

## Site Preview

Full rollout timeline: July 2022

Webpage	Contents*
Home Page	Directory, program overview, FAQ
Download Data	Anonymized downloadable datasets
Find a Contractor	Find recent HPWH installs near you
Data Visuals	Charts and maps showing market trends and highlighting outcomes
Reports	Pilot team findings, Annual Reports

\*We will be following CPUC direction and guidance on publication of any data.

## Get Involved

- **Data Power Users:** Plan to use TECH data
  - Q1 2022: Review the downloadable data Dictionary
  - Q2 2022: Participate in a 30-day **stakeholder website review**
- **Program Implementers:** Collaborate on data sharing and reporting
  - Help the TECH Team track heat pump installations, costs, and financial sources and uses
  - Align your program's data spec with the TECH data spec to facilitate cross-program data stacking

# Downloadable Data

## Proposed anonymized installation data

Category	Data Field name
Site	ZIP Code
Site	Facility Type (Single family / Multifamily/ Mixed use)
Site	If Multifamily Residence - Deed Restricted Affordable Housing?
Site	DAC status
Site	Electric utility provider
Site	Gas IOU territory
Site	Electric utility rate code
Site	Gas utility rate code
Site	Home square footage (only for HVAC projects) [ft^2]
Site	isNEM?
Site	has solar?
Site	Time of Use (TOU) rate? [Y/N]
Site	CARES Rate? [Y/N]
Site	Electrical panel capacity (pre-install) [Amps]
Site	Climate Zone
Contractor	Contractor participation status in HTR/DAC program
Program	Applicable TECH regional pilot program (if any)
Equipment - General	End use (water heating / space heating)
Equipment - General	ENERGY STAR Certified?
Equipment - General	Manufacturer name
Equipment - General	Model name
Equipment - General	Serial number
Equipment - General	Voltage [V]
Equipment - General	Rated Wattage [W]

Category	Data Field name
Installation - General	Installation start date
Installation - General	Installation end date
Installation - General	Permit required and completed?
Installation - General	Permit number
Installation - General	Panel upgrade required?
Installation - General	Other bldg infrastructure updates associated with installation (free-
Installation - General	Total installation cost [\$]
Installation - HVAC	What was done with previous furnace?
Installation - HVAC	Installing technician's business name
Installation - HVAC	Duct replacement required?
Installation - HVAC	Duct sealing required?
Installation - HVAC	Smart thermostat also included?
Installation - WH	Location unit installed in building
Installation - WH	What was done with previous water heater?
Installation - WH	Mixing valve installed?
Installation - WH	Condensate required?
Installation - WH	Grid connected at time of installation?
Installation - WH	What operating mode was the unit commissioned in? (Heat Pump)
Funding	Total TECH incentive provided [\$]
Funding	GoGreen Home loan amount [\$]
	Other incentive programs applied for and the anticipated incentive amount
Savings	Est. change in lifetime gas consumption (deemed) [Therms]
Savings	Est. change in lifetime electricity consumption (deemed) [kWh]
Savings	Est. change in lifetime GHG consumption (deemed) [Mton CO2e]
Savings	Avg daily peak electricity demand change - summer [W]
Savings	Avg daily peak electricity demand change - winter [W]
Savings	Avg daily peak electricity demand change - spring/fall [W]
Savings	Avg change in <b>monthly</b> gas consumption - summer [Therms]
Savings	Avg change in <b>monthly</b> electricity consumption - summer [kWh]
Savings	Avg <b>monthly</b> GHG savings - summer [Mton CO2e]
Savings	Avg change in <b>monthly</b> utility bill - summer[\$]
Savings	Avg change in monthly gas consumption - winter [Therms]

# 5

## Q&A



# Thank You

*For more information or to get involved, contact:*

**TECH.info@energy-solution.com**



Tre'Laine



[www.energy-solution.com/tech](http://www.energy-solution.com/tech)