

Technology and Equipment for Clean Heating (TECH)

Quarterly Stakeholder Meeting
August 12, 2021

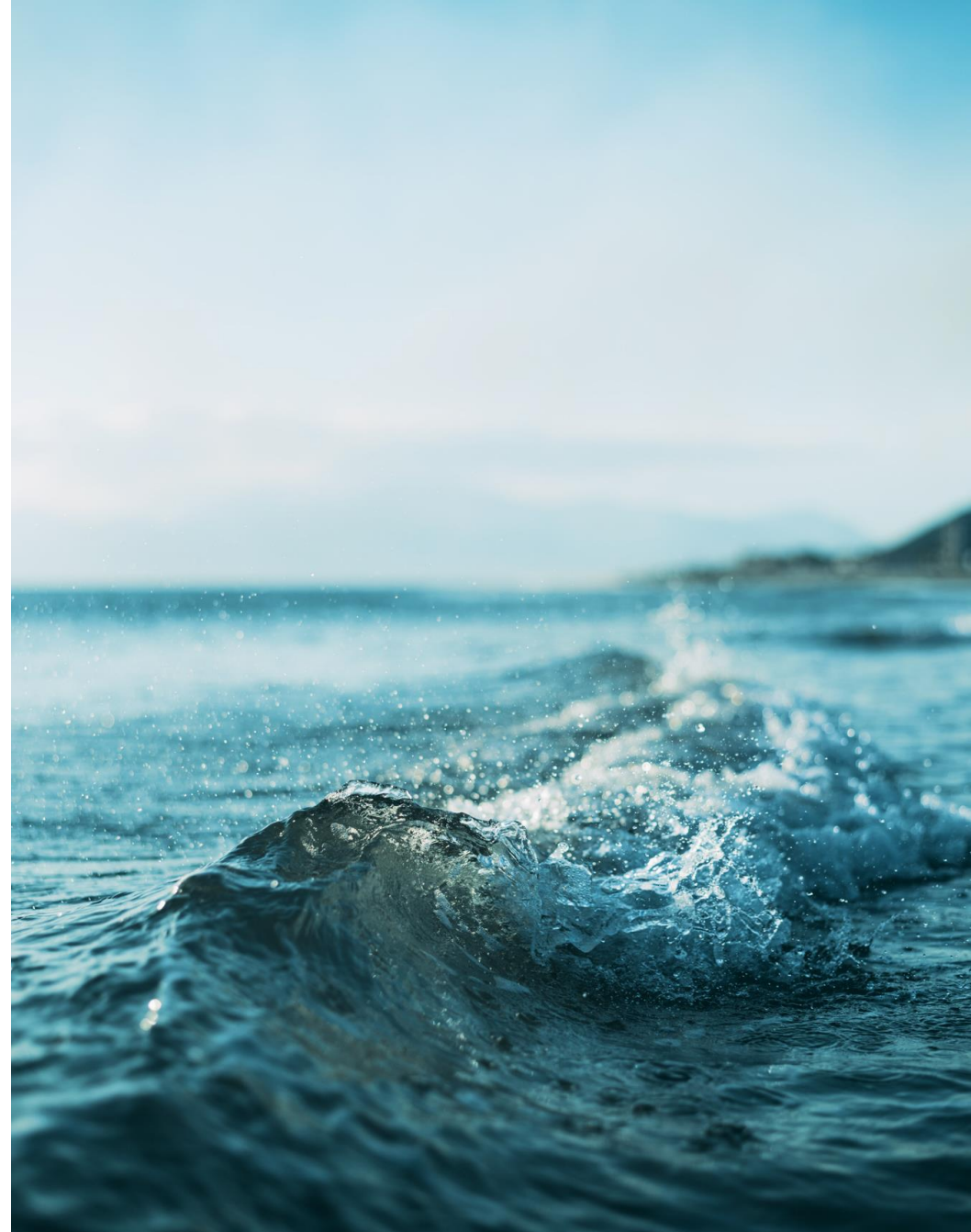


Welcome!

Goal: Introduce the TECH vision, activities and identify how you can get involved

Presentation Guidelines:

- This is a webinar format, so please direct your questions to the Q&A chat. We will do our best to answer questions in the chat during the presentation.
- We will also pause before our intermission and at the end of the presentation to answer questions. If we cannot get to all the questions, we will follow up with an FAQ.
- Please do not hesitate to reach out with any questions after the presentation.



Agenda

1	Welcome and Introductions	5 min
2	TECH Vision and Approach	10 min
3	Incentive Plan	15 min
4	“Switch Is On” Consumer Inspiration Campaign	10 min
5	Workforce Education & Training	10 min
	<i>Intermission</i>	5 min
6	Pilots and Quick Start Grants	25 min
7	Policy and Data Reporting	15 min
8	Wrap-Up and Next Steps	15 min



Presenters



Teddy Kisch
Energy Solutions



Rory Cox
CPUC



Peter Florin
Energy Solutions



Jessica Leader
**Building Decarbonization
Coalition**



Pepper Hunziker
Tre'Laine Associates



Alison Seel
VEIC



Mia Oppelstrup
Recurve



Introducing the **Technology and Equipment for Clean Heating (TECH)** Initiative

SB 1477 (2018) – “...a statewide market development initiative, to ... advance the state’s market for low-emission space and water heating equipment for new and existing residential buildings through upstream market development, consumer education, contractor and vendor training, and the provision of upstream and midstream incentives to install low-emission space and water heating equipment...”



CPUC Decision Authorizing TECH

- Decision 20-03-027 authorized a competitive solicitation for the TECH program implementer, awarded to Energy Solutions
- Describes 5 main market actors
 - Contracting Agent: SCE
 - Implementation Manager: CPUC
 - Implementer: Energy Solutions Team
 - Program Evaluator: Opinion Dynamics Corp
 - Stakeholders
- Decision requires quarterly stakeholder meetings



TECH Program Requirements

Funding Source and Allocation

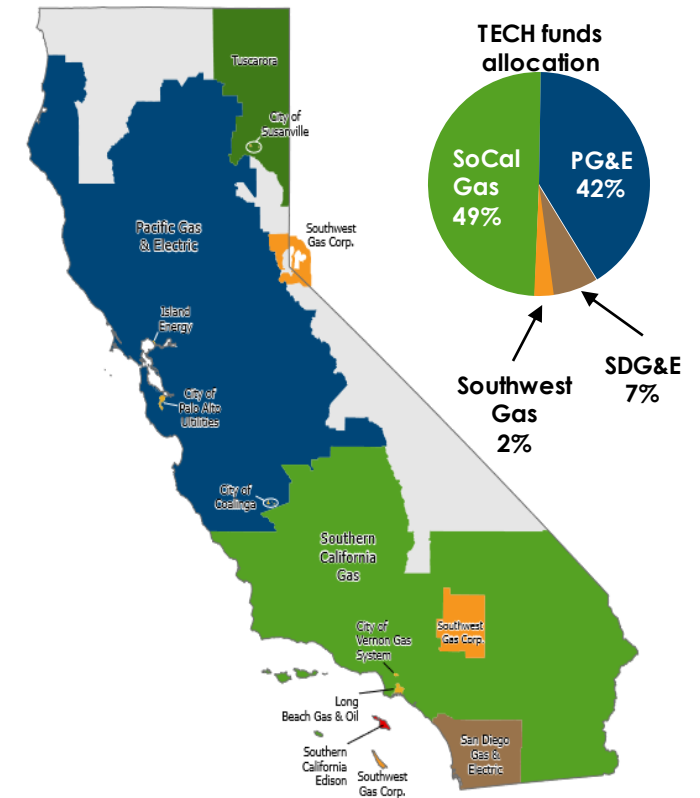
- Source: Gas utility cap and trade allowances (authorized by SB 1477)
- Amount: \$116.5 million for incentives and market transformation activities (HP HVAC and HPWH)

Eligibility

- Eligible customers: SF and MF residences in gas IOU territory
- Midstream incentives (no downstream consumer incentives)
- Funds allocated proportional to gas-IOU share of Cap-and-Trade allowances

Additional Requirements

- Employ outreach strategies that target hard-to-reach customers, and those in low-income and disadvantaged communities
- Consider ways to reduce reliance on Aliso Canyon gas storage facility



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

TECH Vision and Approach



About Energy Solutions



Energy
Efficiency

Mission-driven, employee-owned clean energy implementation firm specializing in **market-driven programs** to deliver large-scale energy, carbon, and water savings



Distributed Energy
Resources

25-year track record pioneering award-winning, end-to-end solutions for utility, government, and institutional clients across North America







Policy &
Ratings

Midstream Incentive programs in 20+ states have represented 200+ manufacturers, paid \$1 billion+ in incentives, and approved 1 million+ applications



Climate Goals

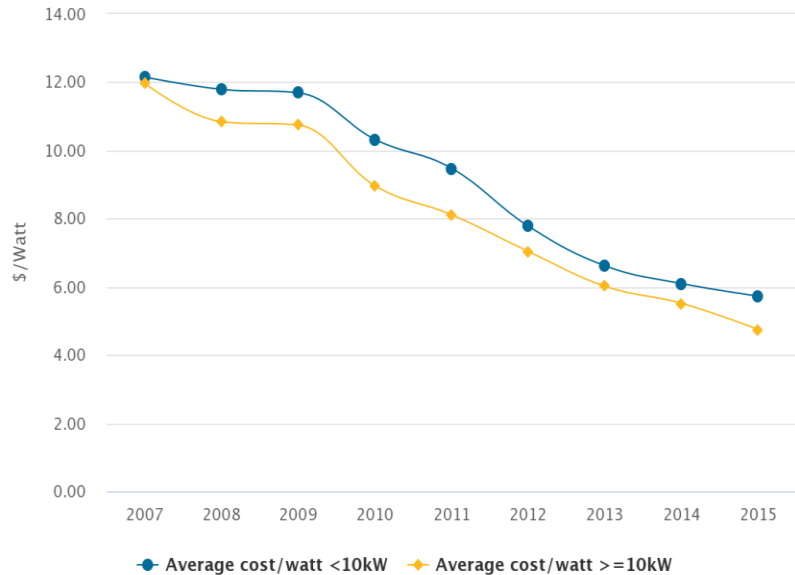
SB 32: 40% GHG reduction below 1990 levels by 2030	SB 100: 100% clean electricity by 2045	Executive Order B-55-18: Economy-wide carbon neutrality by 2045 (In July 2021, Governor Newsom directed CARB to review feasibility of carbon neutrality by 2035)
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	Current	Needed by 2030
Heat pump water heating	 < 2% market share	 > 50% market share
Heat pump HVAC	 < 10% market share	 > 50% market share

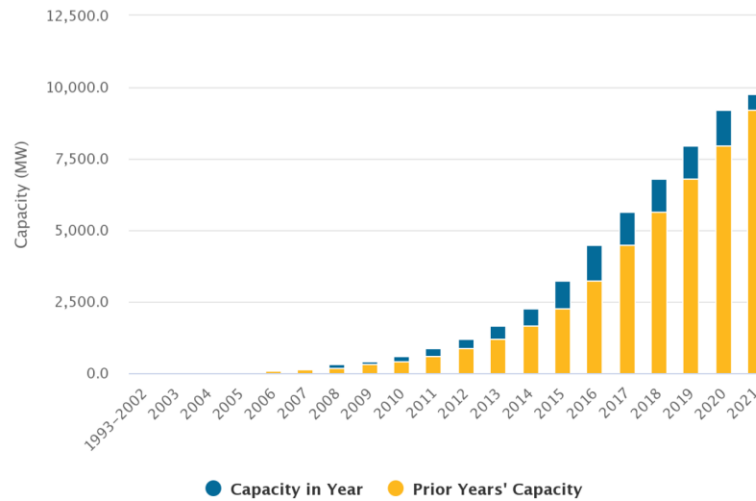
Estimates based on RASS 2019 data: https://webtools.dnv.com/CA_RASS/

California Solar Initiative (CSI)

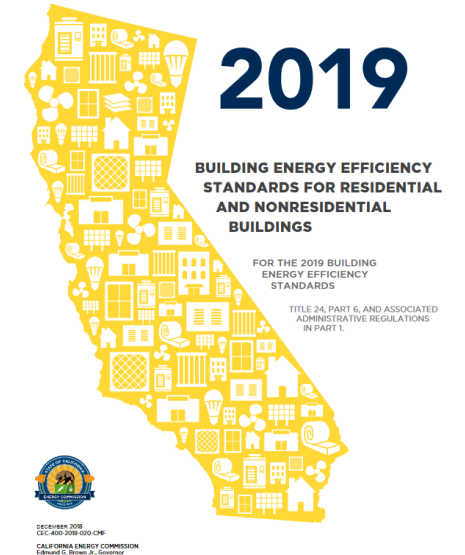
10-year, ~\$2 billion initiative to transform the residential solar market



> 50% reduction in installed cost (2007-2016)



20x increase in total installed capacity (2007-2016)

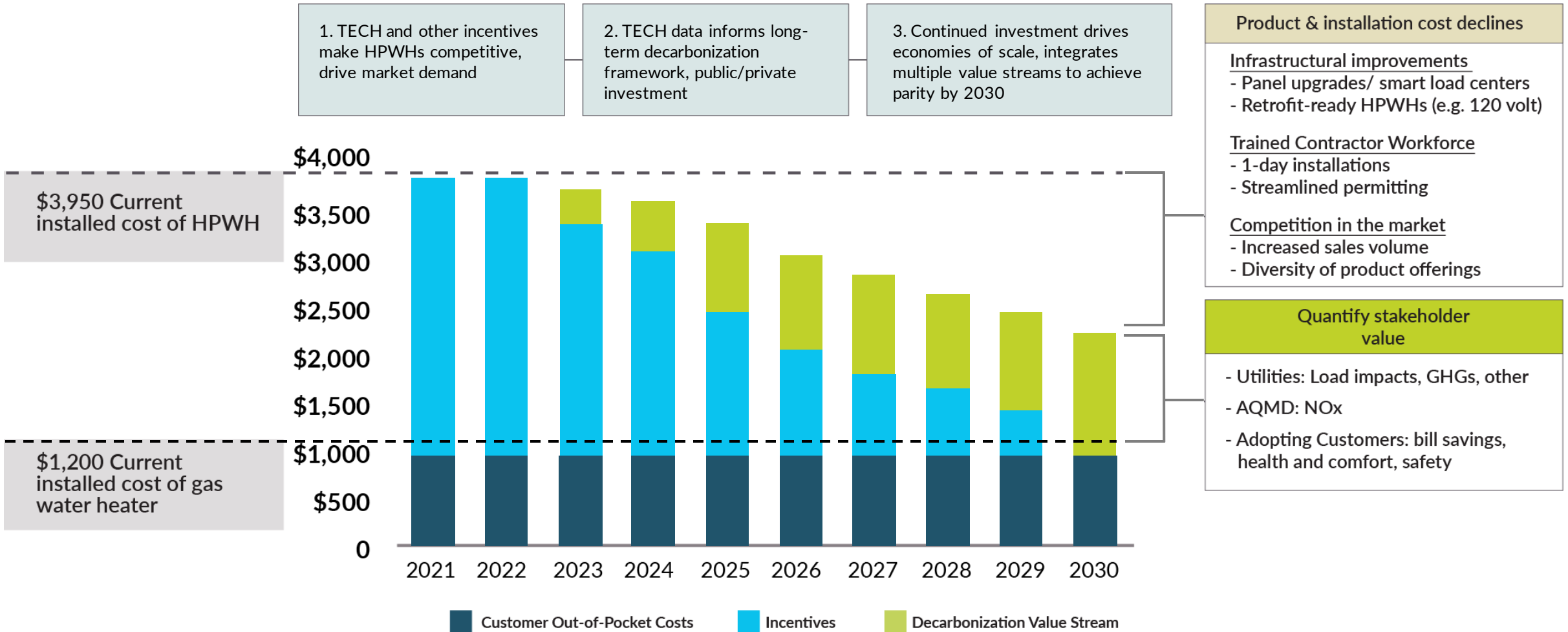


Integrated into Title 24 building code in 2019

CSI Data Source: www.californiadgstats.ca.gov

TECH Vision

Bending the heat pump cost curve



2021 HPWH cost estimates for market-rate gas-to-electric retrofits, based on published SMUD program data. These do not include additional costs for panel upgrades.



The 3 Pillars of TECH

1

Spur the clean heating market and motivating the supply chain by making heat pump installations profitable and easy. Simultaneously, drive consumer demand through a Consumer Inspiration campaign.

2

Demonstrate scalable solutions to key market barriers via regional pilot projects.

3

Inform CA's long-term building decarbonization framework by leveraging sales and meter data from TECH installations and activities.



TECH Team

Incentives & Training

Clearinghouse & Incentives

 Energy Solutions  Energy Outlet

Contractor Management

 FRONTIER
energy

Technical and Sales Training

 ASSOCIATION FOR
ENERGY
AFFORDABILITY

 ELECTRIFY
MY HOME

 NCI
National Comfort Institute, Inc.

Consumer Marketing

 BUILDING
DECARBONIZATION
COALITION

Regional Pilots

Finance, Installation, Load-shifting, and Customer Targeting Pilots

 Energy Solutions

 veic

 FRONTIER
energy

 ARDENNA ENERGY

Low Income & Multi-family Pilots

 ORTIZ
THE ORTIZ GROUP
Driven by data. Led by experience.

 ASSOCIATION FOR
ENERGY
AFFORDABILITY

Quick Start Grants

 veic

Reporting & Policy

Public Reporting Website

 Energy Solutions

Energy Savings Data Analysis

 RECURVE

Informing Statewide Policy

 Energy Solutions

 BUILDING
DECARBONIZATION
COALITION

Tre'Laine

 veic

Finance

 ARDENNA ENERGY

 FRONTIER
energy



Incentive Plan



TECH Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

- Contractor incentives that make heat pumps profitable
- Enable alignment and scale of TECH with other local and statewide PAs
- Incentive clearinghouse for contractors to make participation simple and straightforward



Create scalable solutions through regional pilots



Inform long-term building decarbonization framework



TECH Incentive Design

Incentive Plans: Water Heating

- Engage regional programs to identify opportunities for integration
- Launch initial regional offerings to focus on keeping existing momentum
- Develop Statewide HPWH program, expected launch ~ Q4 2021 (focus is to align and create consistency with SGIP)

Incentive Plans: Space Heating

- Since there isn't a sufficient statewide incentive, will need to focus on layering with local programs
- Engage existing / planned programs to identify integration opportunities
 - Statewide (i.e. HVAC)
 - Regional (IOUs, POU, CCAs, RENs, AQMD, etc.)



TECH Incentive – Phase 1

Phase 1 – Launch Q3

SCE Territory (Unitary HPWH)

launched on **August 12th**

- \$1,000 for E2E conversions
- \$2,000 for gas to electric (55 gallon); \$2,200 for > 55 gallon)
- NEEA Tier 3 and/or Energy Star Certified Unitary HPWHs eligible

BayREN Territory (Unitary HPWH)

expected launch: early September

- \$1,000/HPWH layered on existing BayREN incentives (\$2,000+ total)
- Offered through existing BayREN contractor incentive program system
- NEEA Tier 3 and/or Energy Star Certified Unitary HPWHs eligible

Multifamily Incentives HVAC HPs and HPWHs

open for reservations by late September

- Two layered offerings under development:
 - No. California (market rate)
 - So. California (low-income)
- Program reservations open in late Sept, with applications accepted beginning in Dec at Clearinghouse launch

Contractor Incentive Layered with PG&E Distributor ET Pilot (Unitary HPWH)

expected launch: late September

- \$1,000/HPWH TECH contractor offering paired with PG&E \$1,000/HPWH distributor offering
- Investigates impacts of targeting adoption at multiple midstream levels
- Proposed region: San Joaquin Valley



TECH Incentive – Phase 2

Phase 2 – Launch December 2021

Statewide HPWH Incentive Program

- Structure aligned with forthcoming SGIP rules to create statewide consistency
- Single family/multifamily unitary HPWH, multifamily central HPWH, load center upgrades
- Varying incentive rates based on market rate versus equity customer eligibility

Regional HP HVAC Program

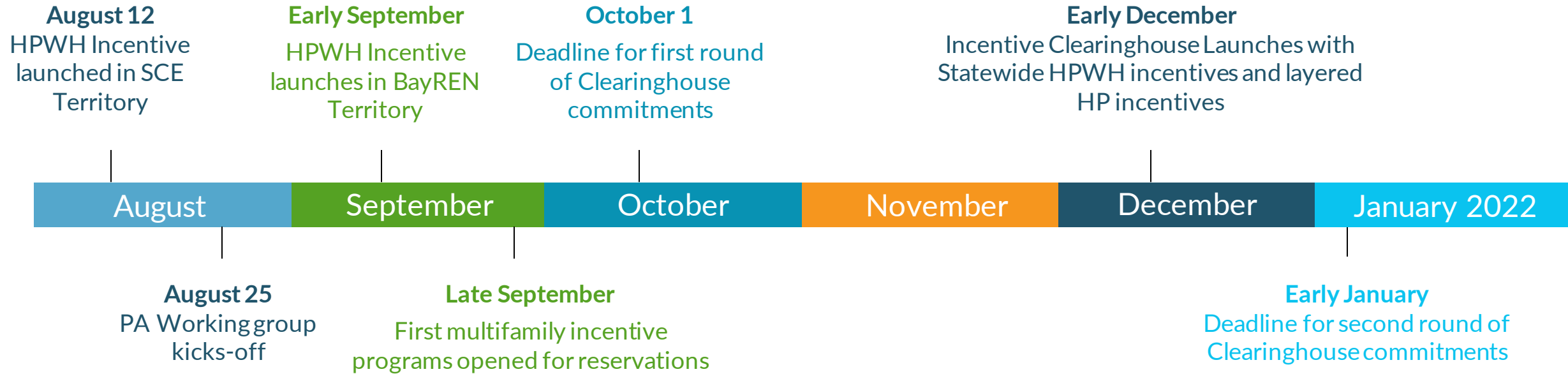
- Layered on existing local HP programs
- TECH proposed design under development – goal is to drive towards more efficient HP HVAC installations (i.e. tiered incentives to support variable capacity HP HVAC, rewarding contractors for downsizing heating capacity)

Low-Income Program

- Single family incentives supported through pilot program
- Multifamily incentive team investigating key low-income multifamily programs to integrate with through standard incentive approach



TECH Incentive Launch Schedule



Want to get involved?

Please reach out to Peter Florin or Mike Beebe to discuss how your HVAC HP program can benefit from a layered incentive and/or how your local program can integrate with the upcoming Statewide HPWH incentive

Peter Florin (pflorin@energy-solution.com)

Mike Beebe (mbeebe@energy-solution.com)



Consumer Inspiration Campaign



THE SWITCH IS ON



TECH Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

- Contractor incentives that make heat pumps profitable
- Enable alignment and scale of TECH with other local and statewide PAs
- Incentive clearinghouse for contractors to make participation simple and straightforward

Drive consumer demand

- Statewide marketing campaign to increase consumer awareness and proactive replacement
- Consumer-facing website with contractor and incentive lookups



Demonstrate scalable solutions through regional pilots

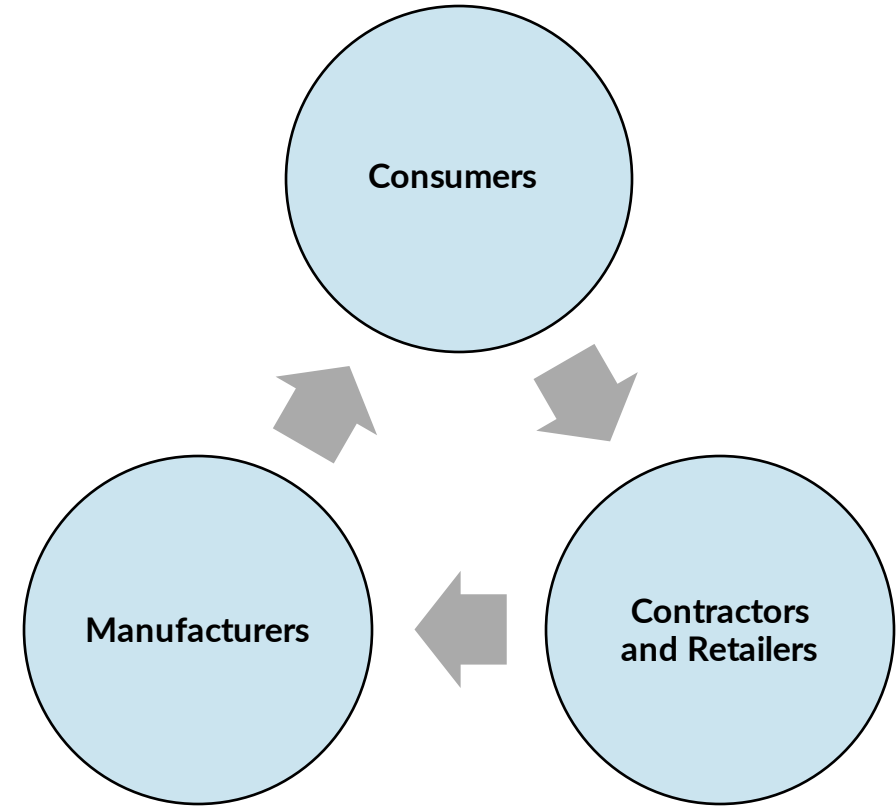


Inform long-term building decarbonization framework

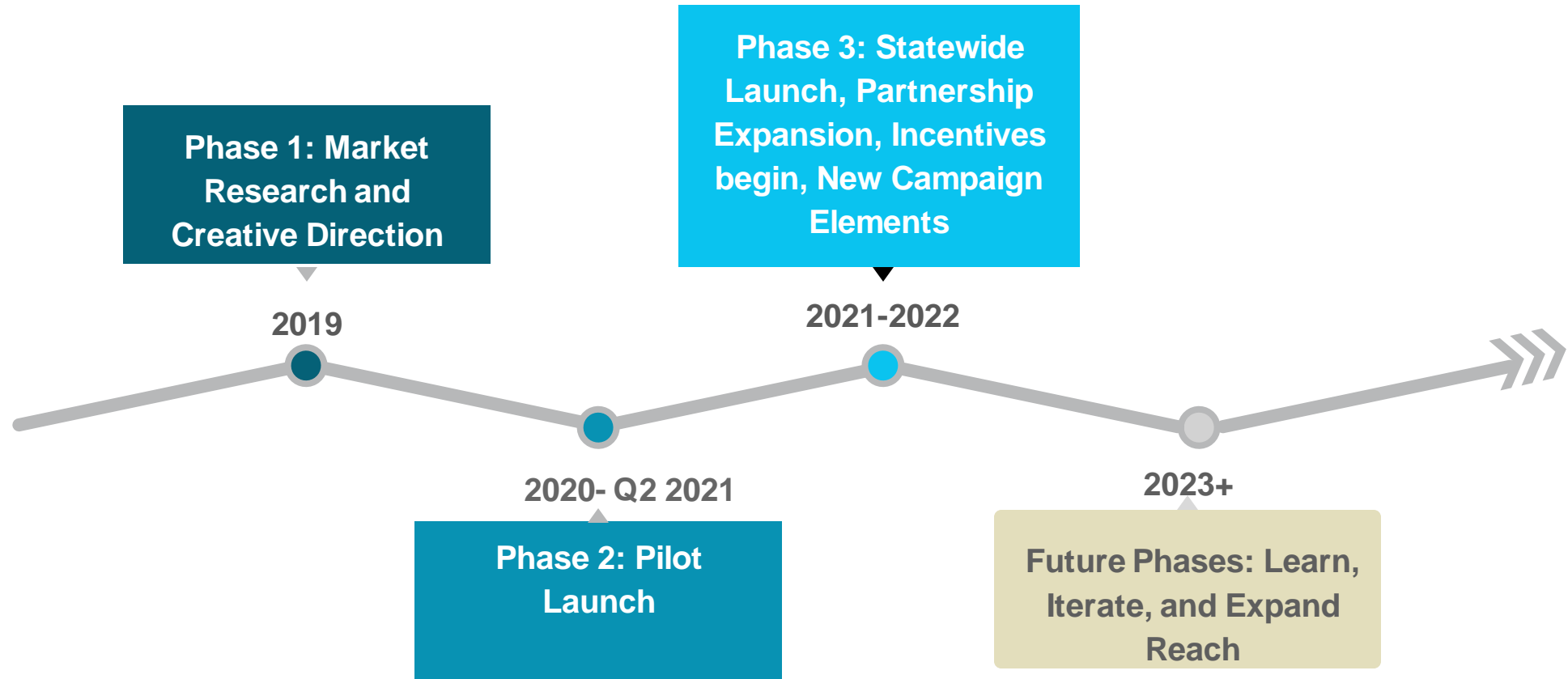


What is The Switch is On?

- The Switch Is On is a California statewide campaign to encourage consumers to swap out their gas-powered appliances for electric appliances.
- The campaign is funded through a combination of the TECH program (focused on HVAC heat pumps and hot water heaters), and individual partners (targeting a broader consumer electrification message).
- This is a multi-year program unlike anything previously implemented in California, other states, or on a national level.



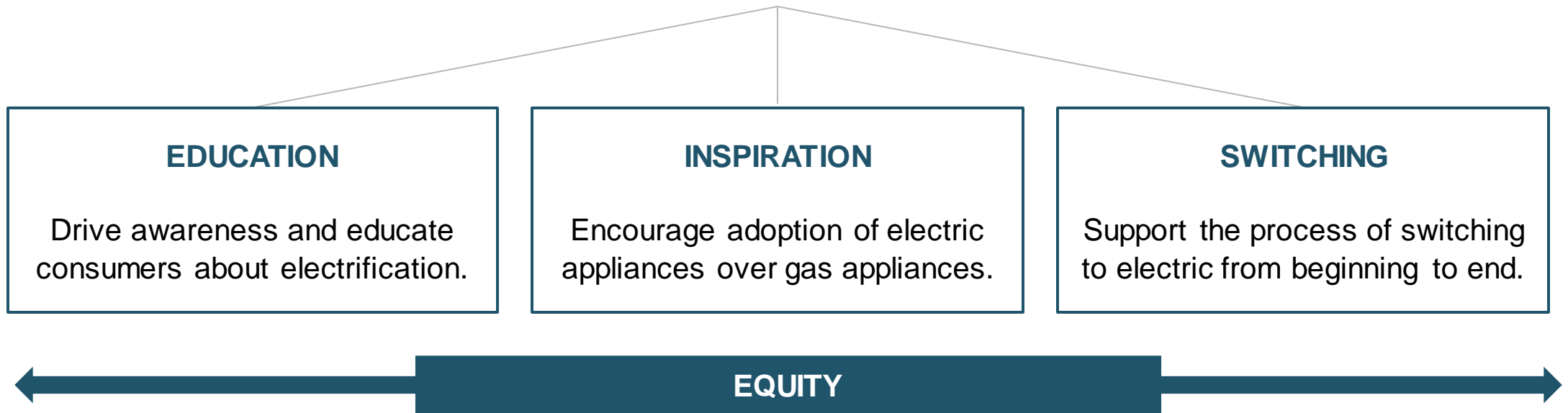
Switch is On Timeline



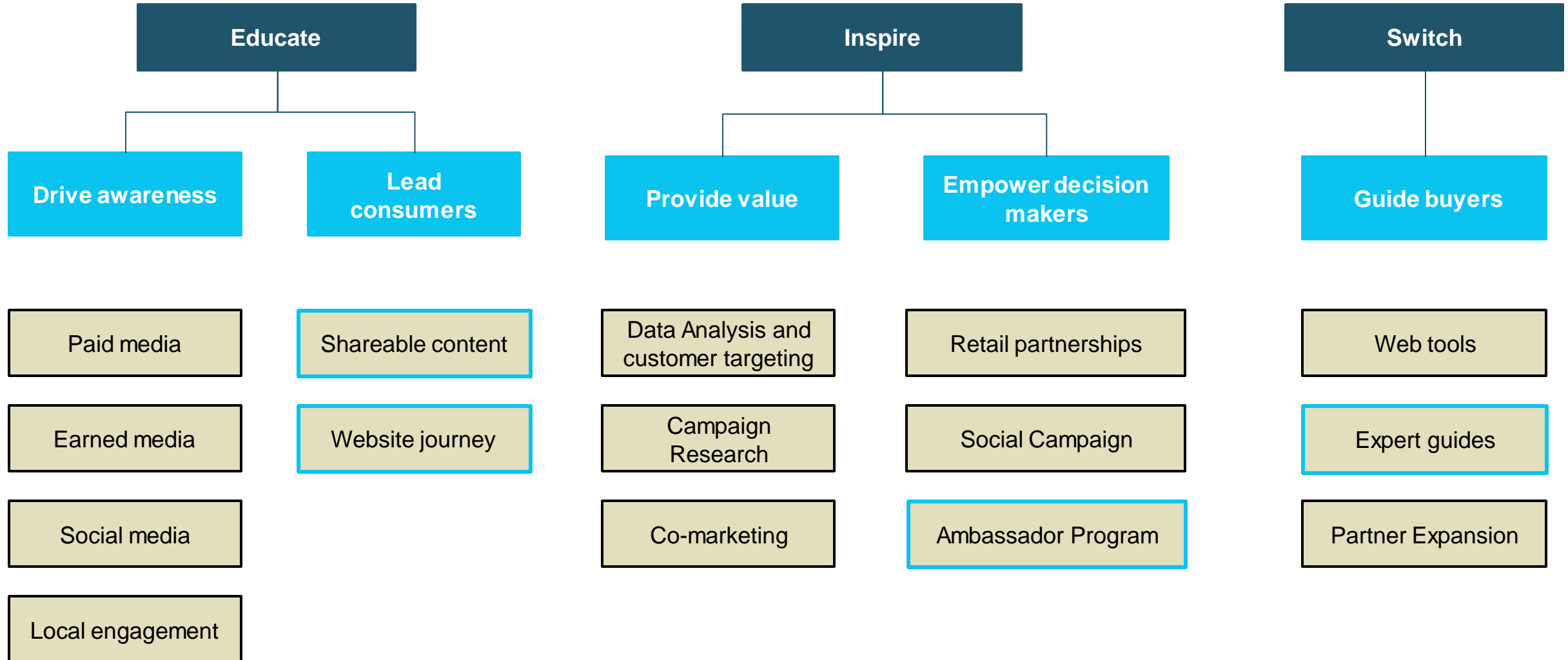
Our Campaign Purpose

To encourage consumers to swap out their gas-powered appliances for electric appliances.

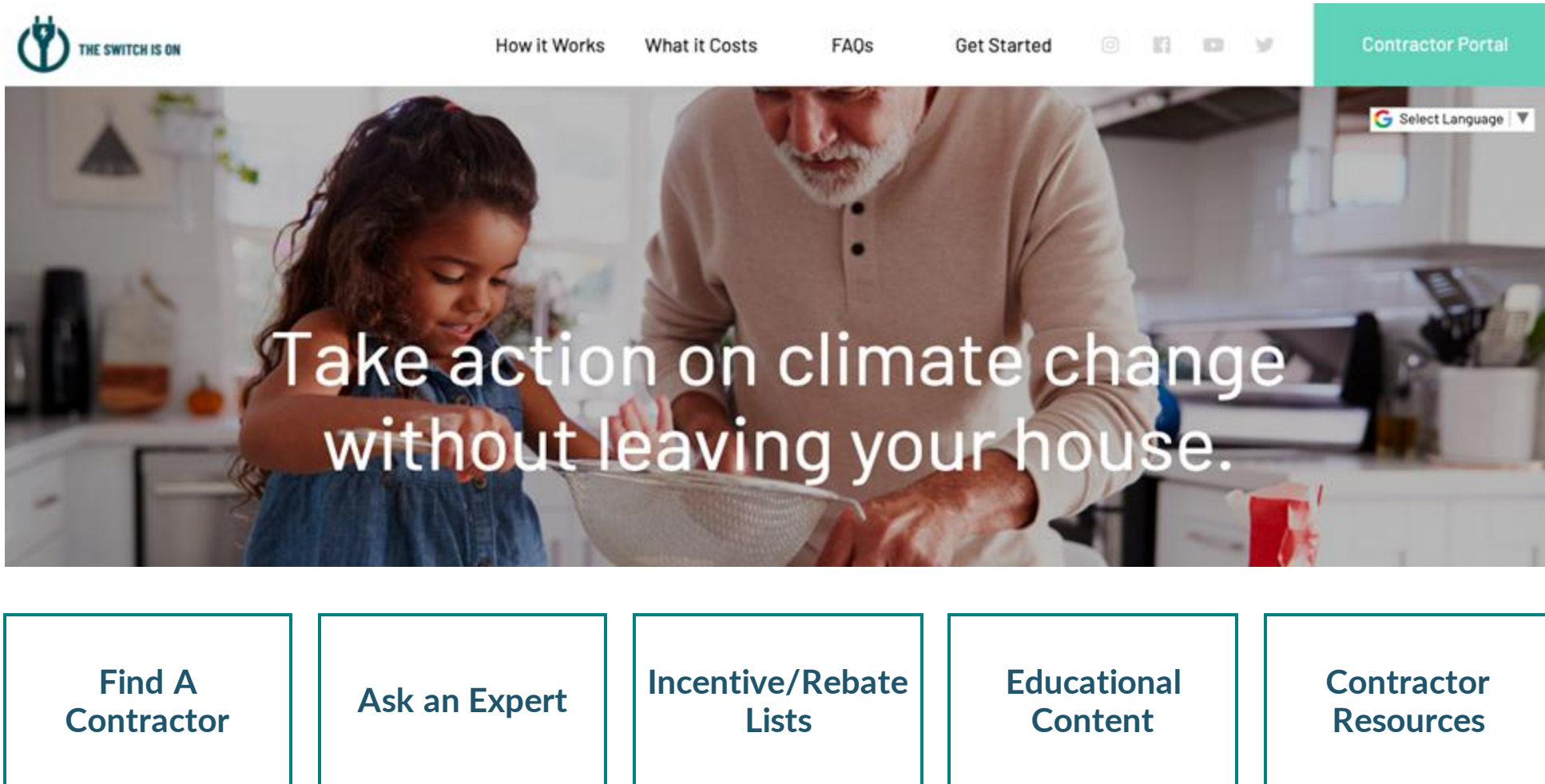
Our Campaign Goals



Campaign Overview



Website Journey



Expert Guidance


Get Started

Sign up to complete your project details and get matched with a local installer.

Get Customized Quotes

Already a member? [Log in here](#)

You authorize Electrum to call you at the number you entered for services. You also consent to receiving appointment and text messages through an automatic telephone dialing system. Text messages may be sent at any time and data rates may apply. By signing up, you agree to our [Terms of Use & Privacy Policy](#).




- 1 Complete Your Home Profile**
Answer a few easy questions about your home to fine-tune your quote.
- 2 Match With a Pro**
You'll be matched with a local pro and receive an installation quote based on your inputs.
- 3 Select & Schedule**
When you're happy with your quote, you can move forward by scheduling a site visit with your installer.


Questions?

We're here to help. Speak with a friendly and dedicated Electrum Energy Advisor.

Schedule Call

Your Energy Advisor



Maria M. 

I'm originally from Phoenix, Arizona. I enjoy being out in nature. I love teaching yoga.

maria@electrum.co
(413) 255-3455



Local Ambassadors

Identification

- **Influencers:** Identify target communities and associated influential figures
- **Neighbors:** Identify customer who have had positive experiences

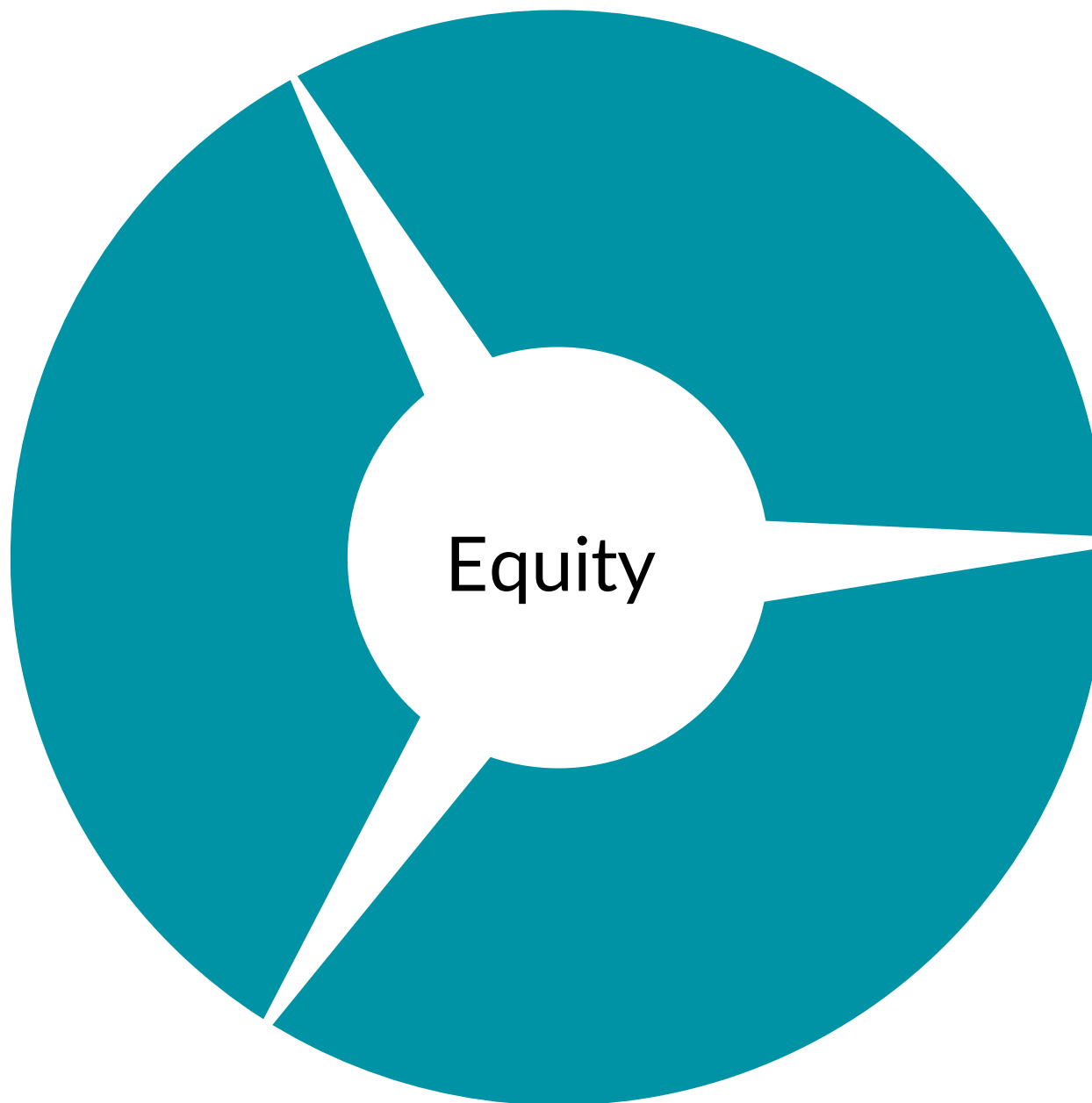
Benefits

- Improve social media traffic
- Cultural alignment
- Increase community reach



CO-MARKETING

- Partner with LMI and disadvantaged community advocates to promote energy equity programs
- Utilizing Website and media avenues



LANDLORD OUTREACH

- Direct messaging that encourages replacing appliances before emergencies strike
- Promoting incentive opportunities

COMMUNITY OUTREACH

- Partner with community-based organizations and local influencers
- Ensure they are receiving value



You Can Get Involved!

Become a Partner

Subscribe and share posts
on social media

The Switch is On is a project of the Building Decarbonization Coalition in partnership with the following agencies, coming together to help you all navigate the transition to 100% clean appliances. Learn more about our partners below.



CITY OF
PALO ALTO
UTILITIES

SAN JOSE
CLEAN ENERGY
A Program of the City of San Jose



SILICON VALLEY
CLEAN ENERGY



Sonoma
Clean Power

BAYREN
Local Governments Empowering Our Communities



PENINSULA
CLEAN ENERGY

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

EAST BAY
COMMUNITY
ENERGY



CLIMATE SMART
SAN JOSE
LIVING BETTER TODAY FOR TOMORROW

On Instagram @switchison
On Facebook @The Switch Is On
On Twitter @switchison

For more information, contact:

Jessica Leader, Director of Strategic Outreach
Building Decarbonization Coalition
Jessica@buildingdecarb.org



Workforce Education & Training



TECH Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

- Contractor incentives that make heat pumps profitable
- Enable alignment and scale of TECH with other local and statewide PAs
- Incentive clearinghouse for contractors to make participation simple and straightforward

Drive consumer demand

- Statewide marketing campaign to increase consumer awareness and proactive replacement
- Consumer-facing website with contractor and incentive lookups

Enhance workforce education and training

- Technical and sales training to help incorporate heat pumps into business model



Demonstrate scalable solutions through regional pilots



Inform long-term building decarbonization framework



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 & 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 & Partnerships



Technical & Sales Training and Business Model Support

Goal: Familiarize contractors and service staff with HVAC HP and HPWH technologies

Equip contractors with knowledge, strategies, and resources to integrate electrification into their business model

TECH Solutions Team Partners: Electrify My Home (EMH), National Comfort Institute (NCI)

TECH Funded Offerings: Trainings provided by Industry Recognized Trainers at no or low cost to participant

Targeted training for technical, sales, and business model support for Contractor Firms and Service Staff

Electrify My Home (EMH):

- Training on Electrification Basics, Home Electrification Sales, House as a System, and Building Envelope
- Business Model Support & Field Coaching Cohort Training over 3-month period
- Business Model Support & Field Coaching

National Comfort Institute (NCI):

- Training on Airflow Testing and Diagnostics, Refrigerant-Side Performance, Residential System Performance and Electrification
- Business Model Support & Field Coaching



Targeted Training & Business Model Support for MF & LI

Goal: Familiarize contractors and service staff with HVAC HP and HPWH technologies
Equip contractors with knowledge, strategies, and resources to integrate electrification into their business model
Additional Support for contractors working on Multi-family and Low-Income projects

TECH Solutions Team Partners: Association for Energy Affordability (AEA) & The Ortiz Group

TECH Funded Offerings: Trainings provided by Industry Recognized Trainers at no or low cost to participant

Targeted training, support, and resources for Multi-family and Low-Income Projects

Association for Energy Affordability: Multi-family

- Customized electrification trainings for multifamily retrofit industry stakeholders including such as, developers, mechanical, electrical, and plumbing contractors, architects, and general contractors serving multifamily
- Online reference library

The Ortiz Group: Low-Income

- Training recruitment efforts with CBOs and provide hands-on support to select ESA and HUBZone contractors to guide them through the licensing and training needed to install electrification measures
- Train the trainer model of training for contractors to have an in-house, on demand “center of excellence” for the on boarding of new employees



Market Transformation Collaborations

Goal: Cultivate meaningful opportunities through partnerships and collaborations across all facets of workforce education & training and workforce economic development

Some activities the TECH Initiative can bring to the table:

- Offer leadership and framework
- Provide coordination across statewide activities
- Co-market and collaborate on trainings for workforce and consumers
- Curriculum co-development
- Build strategic connections for job access and scalable career pathways
- Provide technologies for hands-on learning
- **Up to 3k HPWHs to support contractor firms, WE&T organizations, and other partners**

For Market Transformation – we are looking for partners and collaborators:

- Supply Chain Partners
- Industry Stakeholders
- Trade organizations
- Contractor Associations
- Utilities & CCAs
- Industry Recognized Training Organizations
- Community Colleges & Trade Schools
- Pre-Apprenticeship & Apprenticeship Programs
- Workforce Economic Development Organizations
- Community Based Organizations
- Organizations promoting electrification and job connections

To get involved, please contact: Pepper Hunziker, Principal, Tre' Laine Associates, at phunziker@trln.llc



Q&A



Intermission



Pilots and Quick Start Grants



TECH Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

Drive consumer demand

Enhance workforce education and training



Demonstrate scalable solutions through regional pilots

Increase installations with customer targeting and accessible financing

- Find high-impact customers and encourage 3rd party business models
- Tariffed-on bill financing with partner utility

Expand benefits to historically excluded customers

- Incorporate heat pumps into existing low-income programs
- Assist multi-family housing property owners

Easier and more beneficial HPWH installation

- Streamline permitting processes
- Facilitate widespread load-shifting

Encourage further innovations through quick start grants



Inform long-term building decarbonization framework

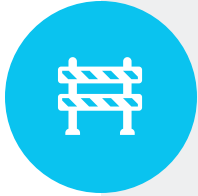


Pilot 1: Tariffed On-Bill Investment

PILOT PARTNERS



PROBLEM



Over 40% of California households cannot access the capital that could make the electrification of their home financially possible -- either because of their credit score, income, or because they rent.

PROPOSED SOLUTION



TECH will partner with a utility to offer a tariffed on-bill financing program to expand low- & moderate-income customers' access to financing. Customers repay the loan on their electric bills and are protected against increased energy burden by a cash positive assurance.

PILOT ACTIVITIES



- Support for pilot design, launch, & implementation
- Access to energy consumption data
- Funding for loan loss reserves
- Monitoring & verification of energy savings

NEXT STEPS FOR FALL 2021



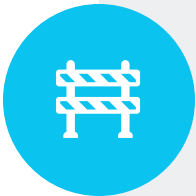
- **Recruiting a utility partner**
- Informational Workshop for potential utility partners on Thursday, Sept. 16.
- Email bruce@ardenna-energy.com to RSVP or for more information



Pilot 2: Supporting Low-Income Programs



PILOT PARTNERS



PROBLEM

Decarbonization has the potential to leave low-income households behind, footing the bill for the gas system and missing out on important benefits, including health and safety. Current low-income programs aren't focused on household electrification and heat pump adoption, and in some cases can't fund fuel-switching.



PROPOSED SOLUTION

Collaborate with existing low-income energy efficiency or home upgrade programs to provide data analysis, incentives and other support to test and identify best practices. These lessons learned will inform future program policy to ensure that residential electrification approaches benefit disadvantaged communities.



PILOT ACTIVITIES

- Reach more customers
- Increase offering comprehensiveness
- Widen geographic range
- Expand eligibility
- Conduct additional data analysis



NEXT STEPS FOR FALL 2021

- Identify and begin coordinating with initial target programs



Pilot 3: Supporting Heat Pump Adoption in Multifamily Housing

PILOT PARTNERS



PROBLEM

Many multi-family property owners and property management companies are apprehensive about converting their properties to heat pumps due to lack of familiarity with the technology, lack of capital, and split incentives.

PROPOSED SOLUTION

Provide deep technical support in designing building systems, as well as measurement and verification after installation, to decrease property owners' perceived risk of electrifying. Through this process, develop industry knowledge on installation best practices that can support widespread scaling.

PILOT ACTIVITIES

1. Provide technical assistance to MF projects receiving TECH incentives
2. Provide pre-install design support and post-install monitoring and technical support of central HPWH systems in MF buildings
3. Develop a roadmap for electrification of MF buildings over time, including considerations for incremental steps to electrification such as pre-wiring

NEXT STEPS FOR FALL 2021

- Intake initial group of interested MF property owners
- Contact AEA for more information:
adryden@aea.us.org

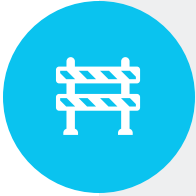


Pilot 4: Heat Pump Water Heater Load Shifting

PILOT PARTNERS



PROBLEM



Heat pump water heaters are often not configured to follow time of use rates upon installation – making them more expensive to operate, potentially exacerbating the Duck Curve, and missing out on greenhouse gas savings.

PROPOSED SOLUTION



Engage contractors and offer additional financial incentives to enable water heater demand response functionality. Gauge if this will result in more HPWHs being programmed to follow time of use rates, and more customers enrolled in demand response programs at the time of installation.

PILOT ACTIVITIES



Working with BayREN contractors, this pilot will evaluate three interventions:

- Contractor spiffs for referral to PG&E's WatterSaver DR program
- Incentives for thermostatic mixing valves
- Educational materials

Data from connected HPWHs will be analyzed to assess the effect of load shifting on unit performance, customer bill and GHG reductions.

NEXT STEPS FOR FALL 2021



- Develop educational materials
- Outreach to initial contractor partners
- Integrate pilot plans with WatterSaver



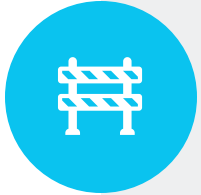
Pilot 5: Streamlining Installation and Permitting



FRONTIER
energy

PILOT PARTNERS

BAYREN



PROBLEM

When a water heater burns out, customers want a replacement ASAP – but replacing a gas water heater with a heat pump requires a complex, multi-day permit process that homeowners and installers alike often find overly burdensome, discouraging even the heat-pump-curious from making the switch.



PROPOSED SOLUTION

A simple, one-day permit process that allows same day or retroactive installation of heat pumps (contingent upon project and site conditions) will increase adoption of heat pump water heaters while also ensuring safe, code-compliant installations.



PILOT ACTIVITIES

- Develop and test a single-day permit process for heat pump conversion projects
- Educate building department staff with HPWHs and permitting best practice
- Develop educational resources to support local market engagement and adoption



NEXT STEPS FOR FALL 2021

- Convene two advisory groups:
 - *Stakeholder Group* including local governments, building professionals, and industry partners
 - *Working Group* of building department staff
- Recruit Bay Area government partner to implement single-day permit process
- Email TECH.Pilots@energy-solution.com if you are interested



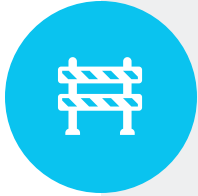
Pilot 6: Customer Targeting

PILOT PARTNERS



RECURVE

PROBLEM



Heat pump program implementers and installers lack data necessary to identify customers for whom the value of heat pumps is most compelling and lack strategies to engage these customers.

PROPOSED SOLUTION



Identify customers for whom heat pumps offer the most compelling value proposition and develop scalable strategies to persuade these customers to make the switch. Happy customers are critical to gaining traction and achieving scale.

PILOT ACTIVITIES



- Data-driven customer targeting to identify who can benefit most from heat pumps
- Targeted outreach for key customer groups
- Technical assistance & tools to help engage customers
- Resources to help businesses move toward electrification

NEXT STEPS FOR FALL 2021



- Identify potential partner organizations
- Finalize targeting strategies



Quick Start Grants

PILOT PARTNERS



OVERVIEW

Quick Start Grants will fund high-impact, transformative strategies to increase the installed base of heat pump technologies and provide funding to innovative approaches to accelerate heat pump deployment.

FOCUS AND TARGET AREAS

Projects that accelerate heat pump space and water heating deployment and could be scaled to statewide approaches, including:

- Demonstrating ways to reduce total installed project costs
- Scalable project finance solutions
- Initiatives serving low-income households, disadvantaged communities (DACs), multifamily buildings, and renters
- Innovative outreach, marketing, service delivery strategies, or business models
- Improving the customer experience
- Influencing purchase or management decisions for large groups

GRANT AMOUNTS

- \$50,000-\$250,000
- ~6-12 grants awarded in Year 1

TIMELINES

September 1	Solicitation opens
October 1	Applications due by 5 p.m. PST
November 1	Program selections announced
December 17	Contracts finalized



Quick Start Grants: Priority Considerations

- Directly result in installations, show a clear pathway to scale
- Demonstrate results in 1 year
- Provide cost sharing, maximize impact relative to budget
- Demonstrate unique need for QSG funding
- Support decarbonization in historically excluded customer groups
- Are submitted by or include diverse business enterprises (DBEs) or community organizations and non-profits

For more information or to apply, visit the Quick Start Grants website:

<https://energy-solution.com/tech-qsg/>



How to Get Involved in the Pilots

Send general inquiries to TECH.Pilots@energy-solution.com

Pilot	Specific Engagement Opportunities
Tariffed On-Bill Financing	<ul style="list-style-type: none">• Seeking a utility partner to offer a tariffed-on bill financing program• An informational workshop will be held Thursday, Sept. 16. To RSVP, email bruce@ardenna-energy.com
Low Income	<ul style="list-style-type: none">• Administrators of a low-income energy efficiency or home retrofit programs are invited to reach out for collaboration
Multifamily	<ul style="list-style-type: none">• Recruiting property owners or contractors interested in Central HPWH systems or MF electrification• Email adryden@aea.us.org
HPWH Load Shifting	<ul style="list-style-type: none">• Recruiting HPWH contractors to participate
Streamlining Permitting & Installation	<ul style="list-style-type: none">• Recruiting a local Bay Area local government partner to develop and implement a single-day permit process• Building department staff (Bay Area), local governments, building professionals, and industry partners are invited to join Working Groups to provide guidance on potential permitting solutions• To participate or for more information, email TECH.Pilots@energy-solution.com
Customer Targeting	<ul style="list-style-type: none">• Administrators of single-family retrofit programs in Southern California are invited to reach out with ideas on collaboration
Quick-start Grants	<ul style="list-style-type: none">• Provide your feedback on the program design in questionnaire circulated to attendees of this meeting



Policy and Data Reporting

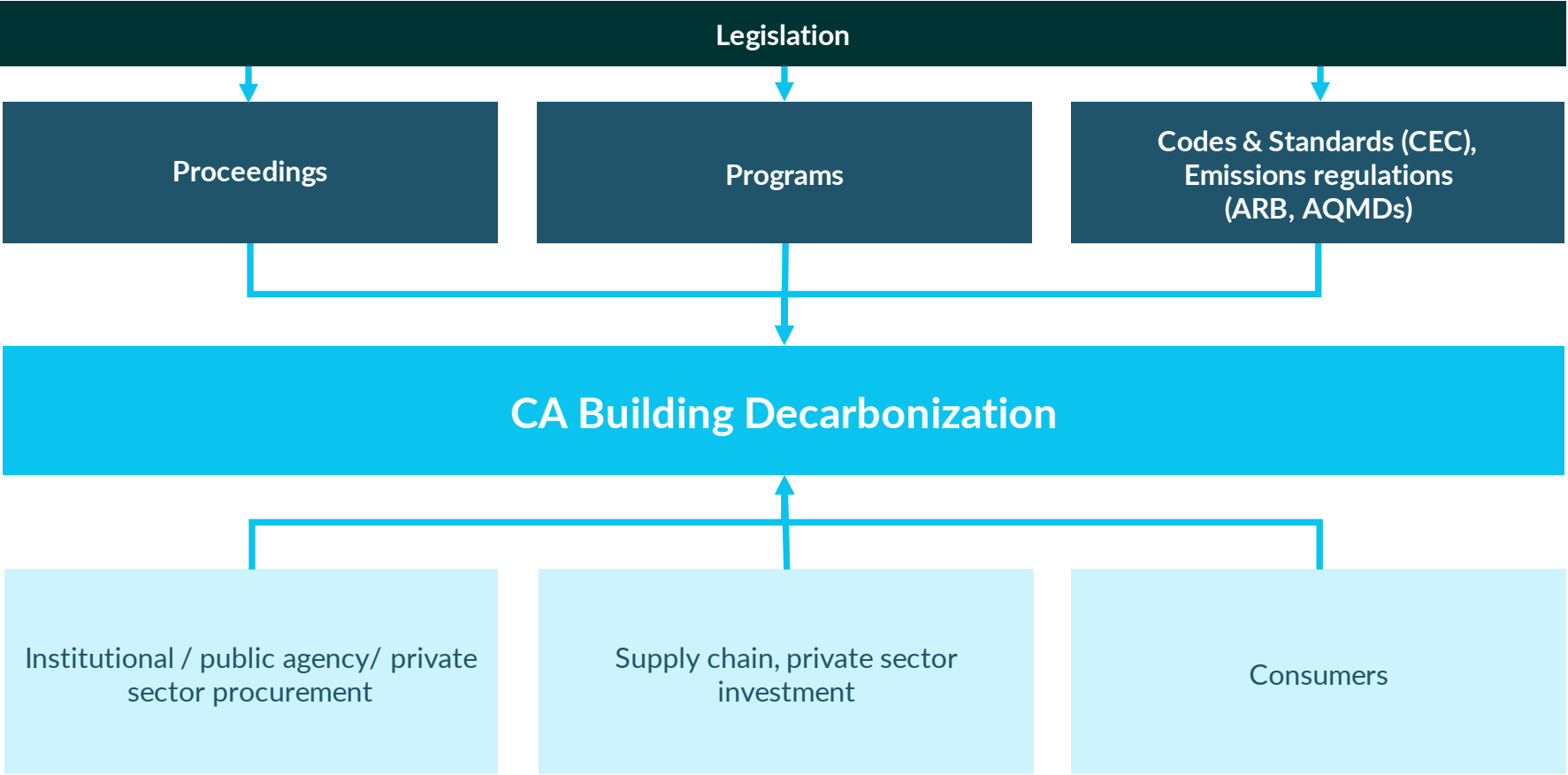
CTR
14.65%
↑ 10.6%

Quality Score
9.38
↓ -0.1%

Cost per conversion
673.27
↑ 0.2%



Decarbonization Policy and Activity Overview



TECH Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

Drive consumer demand

Enhance workforce education and training



Demonstrate scalable solutions through regional pilots

Improve targeting and project finance

Expand benefits to HTR customers

Streamline installation

Encourage deployment innovation through quick start grants



Inform long-term building decarbonization framework

Develop public reporting site

- Graphics depicting price trends, deployment progress, meter-based impacts
- Downloadable, anonymized program datasets to support public research

Quantify decarbonization benefits

- Analysis of meter-based impacts to quantify:
 - Avoided costs (GHGs, NOx, load-shifting, etc.)
 - Impacts of increased electrical load
 - Customer bill impacts

Empower data-driven decisions

- Inform policy/rate proceedings (EE, IEPR, IRP, C&S, low-income, etc.)

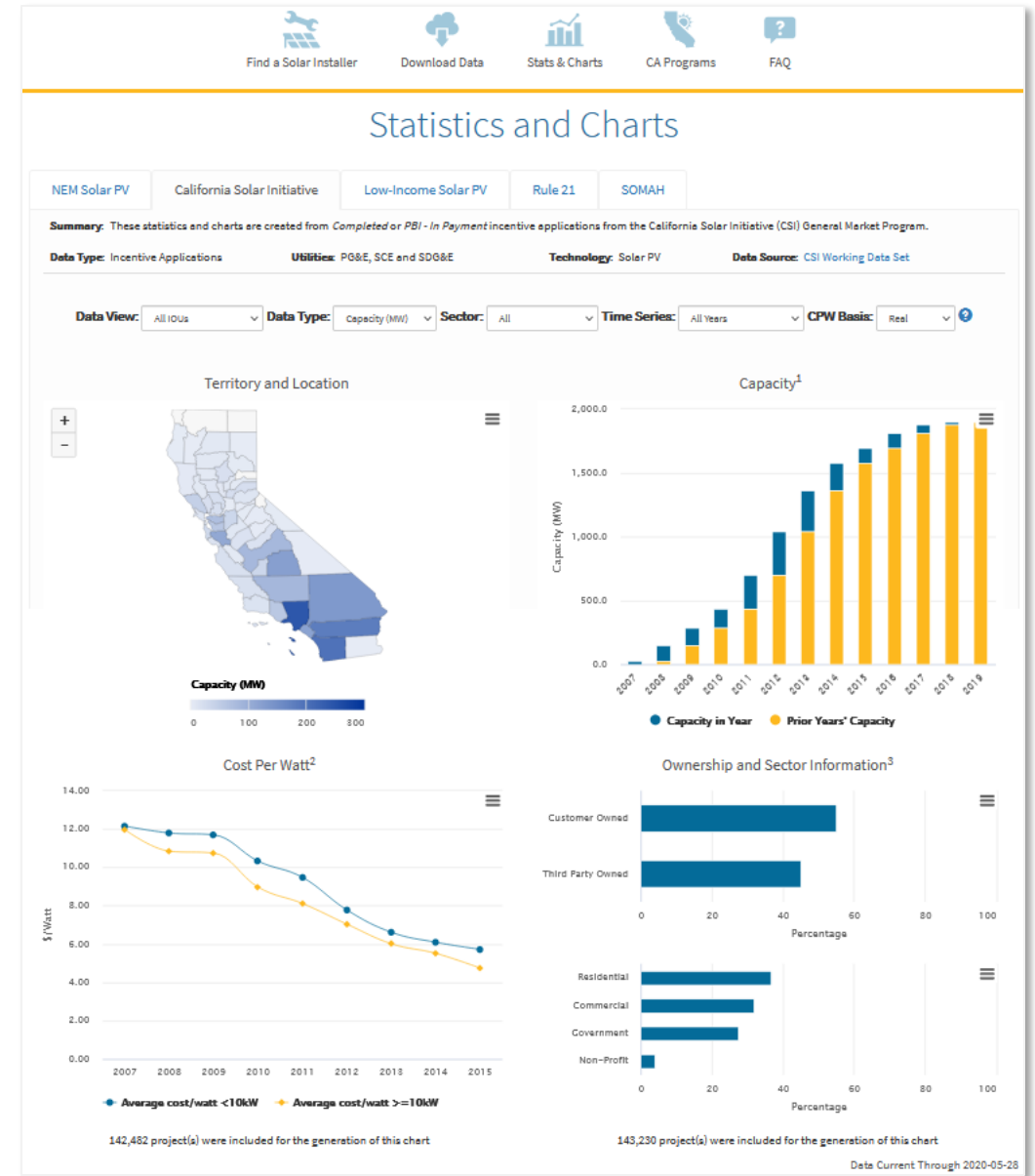


How TECH data can inform California's decarbonization

Goal: Create a robust public dataset that informs CA's long-term building decarbonization framework

Key TECH Activities:

- **Develop public reporting site** to give policymakers, market actors and stakeholders empirical data on equipment and install costs, meter-based impacts, and emissions reductions.
- **Quantify decarbonization benefits** in annual analysis :
 - Avoided costs (GHGs, NOx, load-shifting, etc.)
 - Impacts of increased electrical load
 - Customer bill impacts
- **Empower data-driven decisions:** Work with key stakeholders to define data needs and timing to inform their decisions.



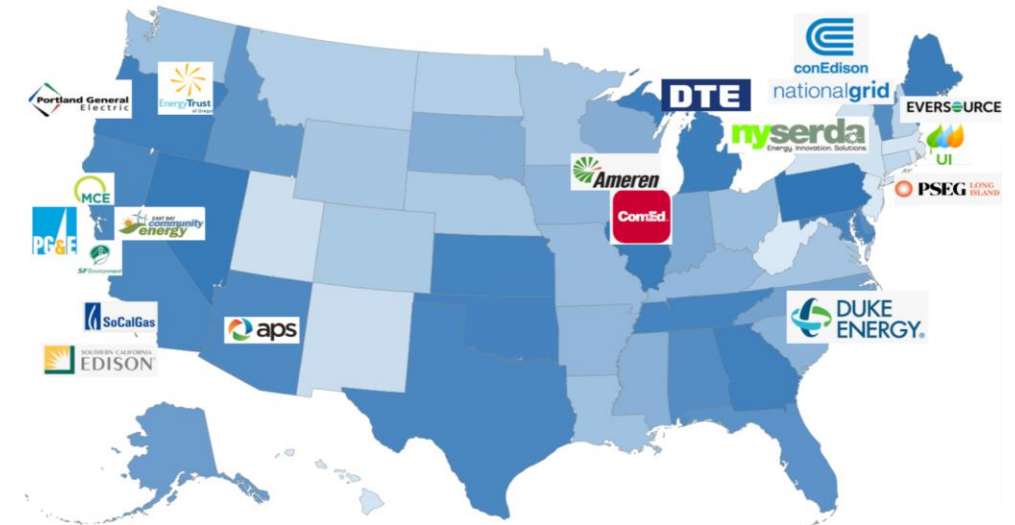
CSI Data Source: www.californiadgstats.ca.gov



Recurve's Roots and Role

Measurement & Optimization

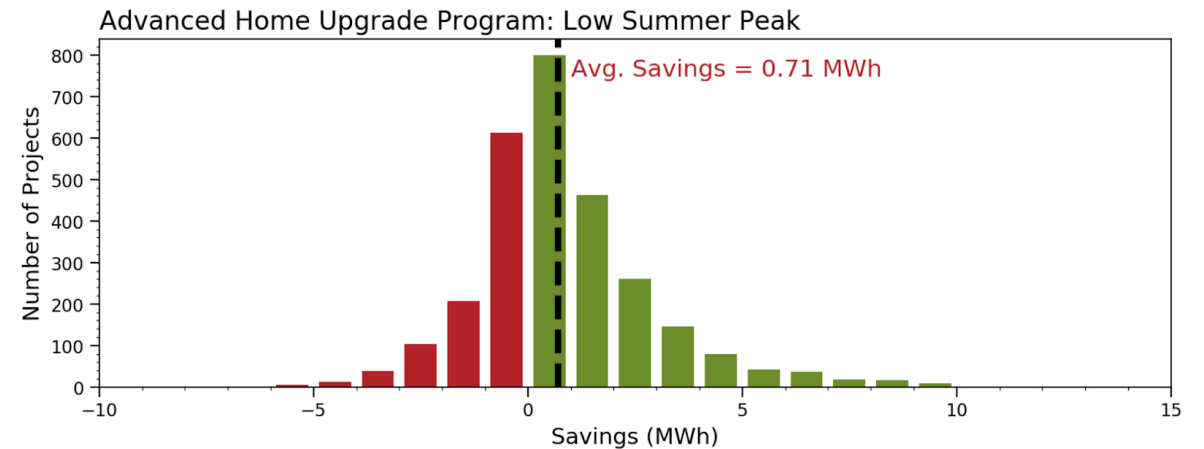
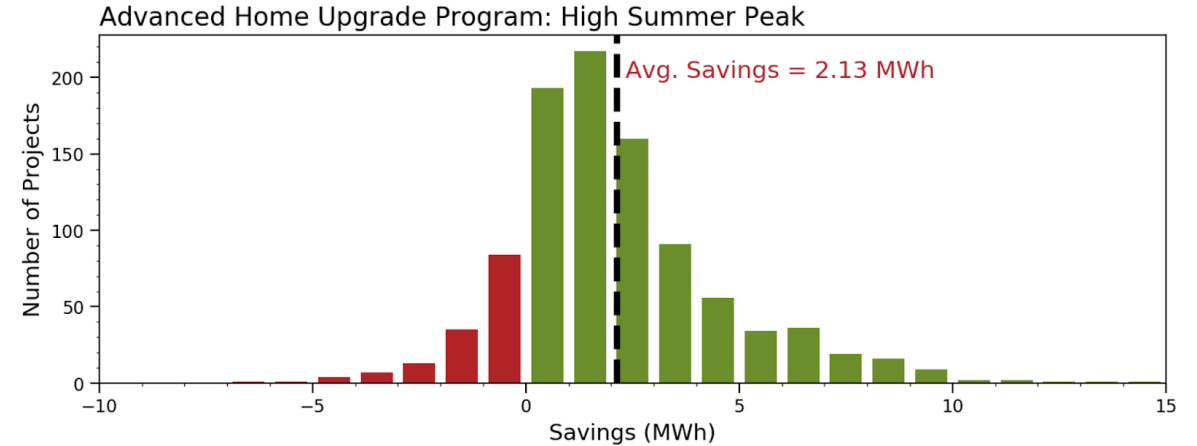
- Founded by an energy efficiency contractor who was frustrated with inconsistencies in energy savings calculations
- Investment-grade quantification of meter-based savings
- Hundreds of millions of meter-based models across >20M unique customers
- Recurve's role is to provide the meter-based analysis backbone of the TECH program



Identifying High-Opportunity Customers

Finding happy early adopters

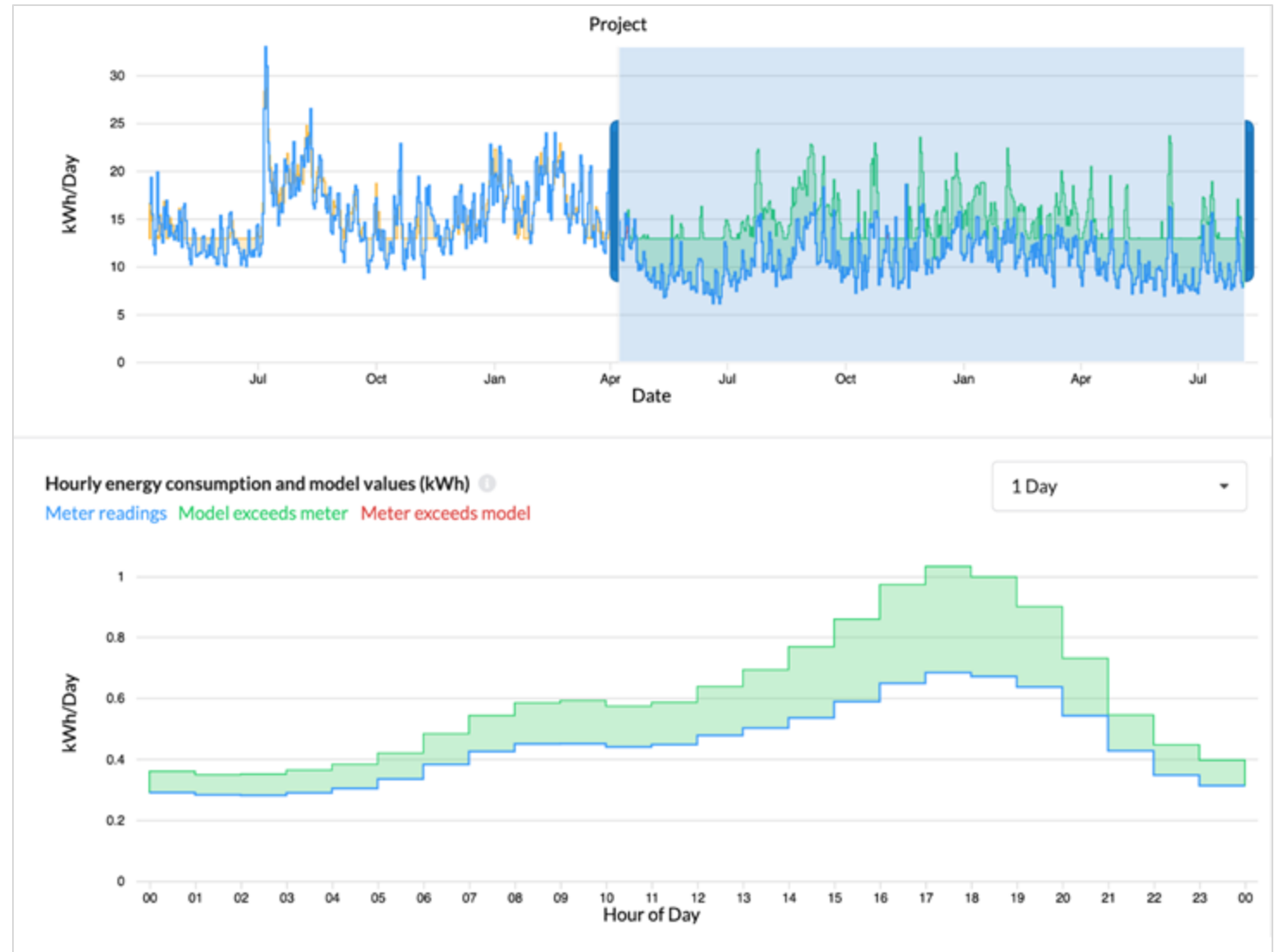
- Shift the distribution
- Recruit higher portion of high positive savers
- Limit negative and neutral savers
- Understand the “ideal electrification” profile to inform future programs



Quantifying Impacts

Project level data rolled up to the state portfolio to track and monitor:

- kWh saved
- Therms saved
- Total, hourly, seasonal impacts
- Peak TOU impacts
- Avoided grid costs
- GHG savings
- Bill impacts



Actionable Data

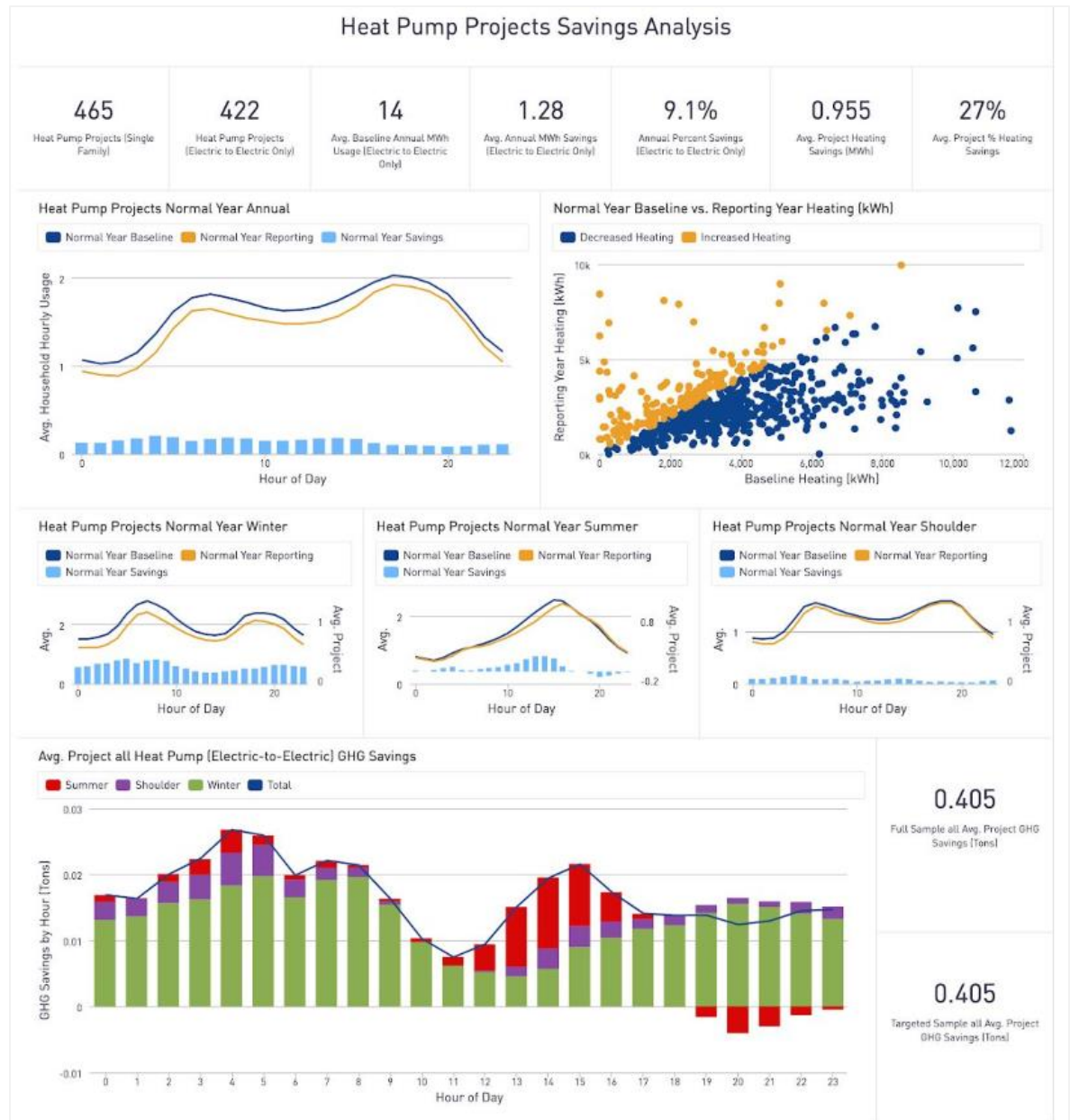
Gain insights

- Select and update targeting parameters
- Ongoing performance insights

Take action

- Share best practices
- Adjust course as needed

Source: www.recurve.com/blog "How SMUD Re-Engineered Itself to Focus on Decarbonization Through Flexibility and Electrification"



TECH Reporting and Policy Timeline



Want to get involved?

Please reach out to Teddy Kisch to if you have any questions or input on how the public reporting site can better inform decarbonization decisions.

Teddy Kisch (tkisch@energy-solution.com)



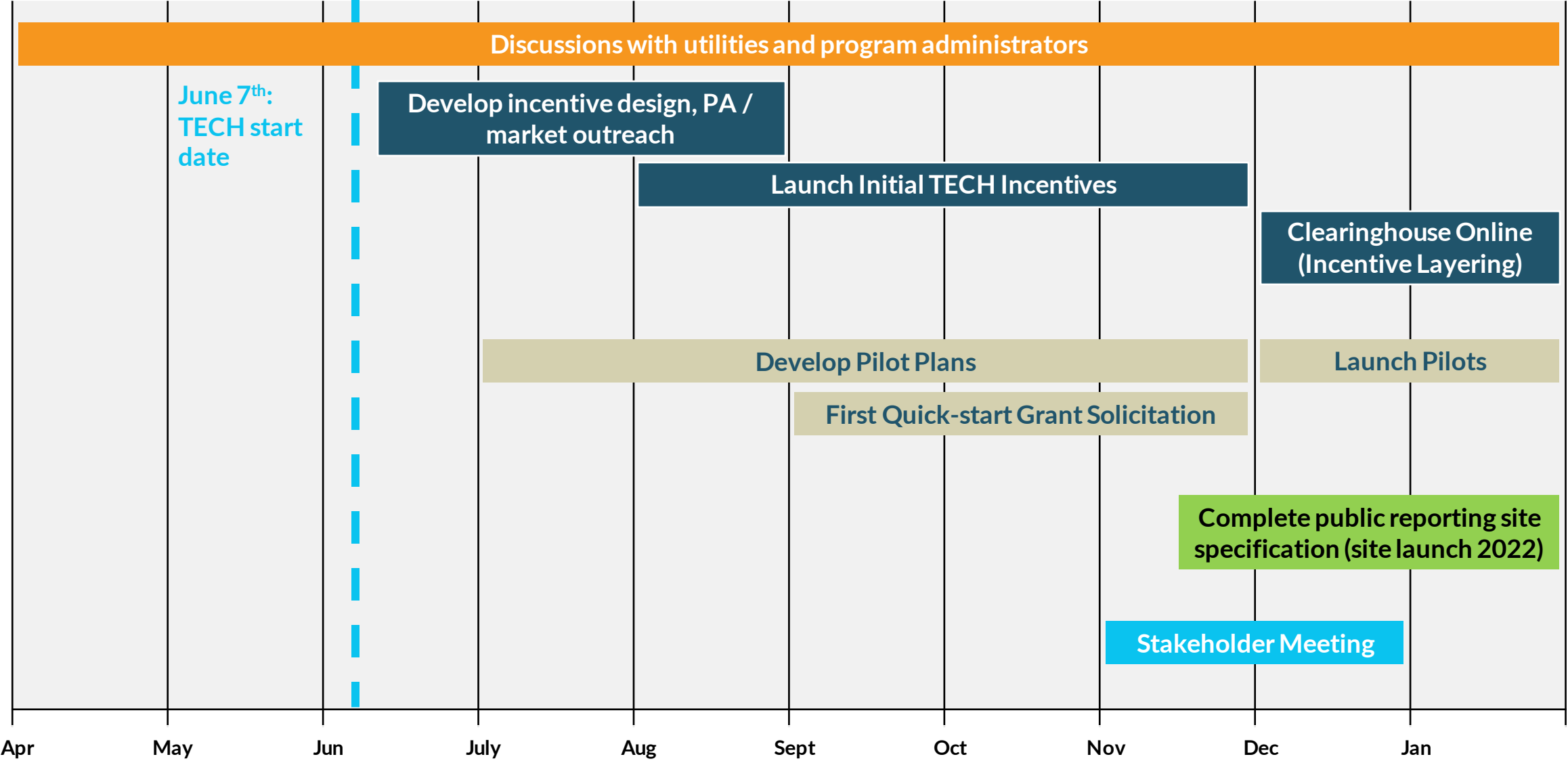
Q&A



Wrap-Up and Next Steps



Program Startup Timeline (2021)



Wrap-Up and Next Steps



Incentive Plan:

Distributors, Contractors, Customers

- HPWH incentives now available in SCE territory for contractors.
- BayREN incentives are also launching soon.
- Contact: pflorin@energy-solution.com or mbeebe@energy-solution.com



Switch Is On:

Contractors, Customers

- Public-facing site will be updated with TECH specific information for contractors and customers.
- Contact: Jessica@buildingdecarb.org



Workforce Education & Training:

Contractors

- Free HPWH available for contractor sales staff and installers.
- Multifamily training and pilots launching soon.
- Contact: phunziker@trln.llc or TECH.Training@energy-solution.com



Wrap-Up and Next Steps

Pilots and Quick Start Grants:

All Stakeholders

- Six pilots will be launching soon.
- Quick Start Grants solicitation will begin in September.
- Contact: TECH.Pilots@energy-solution.com

Data Reporting:

All Stakeholders

- TECH participation data will be shared via upcoming TECH public reporting site.
- Contact: tkisch@energy-solution.com

Please send general inquiries to TECH.Info@energy-solution.com and visit www.energy-solution.com/TECH for general information, sign-up to the mailing list, and for the Quick Start Grant solicitation.





Thank You!

 Energy Solutions



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