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<tr>
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<td>Energy Efficiency and Building Decarbonization</td>
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<td>Advanced Energy Rebuild Program</td>
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<tr>
<td><strong>Description:</strong></td>
<td>Presentation by Nic Dunfee of TRC</td>
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<td><strong>Filer:</strong></td>
<td>Raquel Kravitz</td>
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Advanced Energy Rebuild Program

July 2019
Collaboration between Sonoma Clean Power, Pacific Gas and Electric (PG&E) and the Bay Area Air Quality Management District.

-Launched in May 2018.
The Bay Area Metro Awards were presented on June 6, 2019, at a ceremony in Oakland recognizing 13 people, projects, organizations and local governments advancing solutions to ease the Bay Area’s housing crisis, improve the transportation system or make the nine-county region more resilient.

Collaboration stood out as a key theme for the new awards program since many of the winners were based on effective partnerships: From a team of transit agencies’ heroic efforts during the North Bay fires.

Three public transit operators and a public energy program were recognized for their work to save lives, protect communities and aid in rebuilding in response to the October 2017 North Bay fires.

Program Design

Advice letter approved by the CPUC allows for doubling of current incentives.

Simplified program using two-tier set incentive levels:
- Upfront Enrollment Incentive (50% of total reserved incentives)
- Simplified program using two-tier set incentive levels

Home owner focused:
- Application processing is through single program implementer
- Funding levels determined during plan review and reported to appropriate entity
- TRC created a SCP funded escrow account to deliver enrollment incentives with acceptance package
- Helps the homeowner with construction costs
- Project processing use existing CAHP infrastructure
- Uses the CAHP metric, Delta EDR, to determine PG&E funding levels
- SCP pays varying incentive levels to allow for simple two tier system
- Simple Bonuses Available

PG&E funding based on enhanced CAHP program
Program Pathways

1a. ADVANCED ENERGY HOME: $7,500 OR
1b. ADVANCED ENERGY HOME: $7,500 OR

2a. ALL-ELECTRIC HOME: $12,500
2b. ALL-ELECTRIC HOME: $12,500

3. SOLAR OPTION: $5,000

Flexible Performance PATH

Simple Menu-based PATH
Pathway 1 – Advanced Energy Home ($7,500)

**Advanced Energy Home**

- $7,500

  **Flexible Performance Path**
  - 20% above Title 24 energy code
  - 220V outlet at stove/range, water heater, and clothes dryer
  - Design roof for additional structural loads associated with solar panels, and add conduit for future installation
  - Electric Vehicle Charging Station - Equipment free from Sonoma Clean Power

**$7,500**

  **Simple Menu-Based Path**
  - 2016 Title 24 High Performance Walls or 2016 Title 24 High Performance Attics (note: unvented attic can qualify)
  - 2019 Code windows (Max U-factor 0.30, SHGC 0.23)
  - High efficiency water heater: Heat Pump Water Heater w/ EF of 3.0+ or gas tankless w/ EF of 0.92 and 220V outlet
  - Heating/cooling ducts that are well sealed, insulated (R-8), and located primarily in conditioned space (note: buried ducts as defined by Title 24 can qualify)
  - WaterSense efficient plumbing fixtures
  - Water efficient landscaping
  - Energy Star Appliances
  - 220V outlet at stove/range and clothes dryer
  - Electric Vehicle Charging Station – Equipment free from Sonoma Clean Power
Pathway 2 – All Electric Home ($12,500)

### All Electric Home

**$12,500**

**Flexible Performance Path**

- 20% above Title 24 energy code, all electric end uses
- Design roof for additional structural loads associated with solar panels, and add conduit for future installation
- Electric Vehicle Charging Station - Equipment free from Sonoma Clean Power

### $12,500

**Simple Menu-Based Path**

- 2016 Title 24 High Performance Walls
- 2016 Title 24 High Performance Attics (note: unvented attic can qualify)
- Insulation Inspected by a HERS Rater (QI)
- Building Enclosure Airtightness verified by a HERS Rater (less than 3 ACH50)
- "Cool" Roof
- 2019 Title 24 Windows (Max U-factor 0.30, SHGC 0.23)
- NEEA Tier 3 Heat Pump Water Heater w/ grid-integration controls installed
- High efficiency heat pump for heating/cooling (EER of 12.5+, HSPF of 9.5+)
- Heating/cooling ducts that are well sealed, insulated (R-8), and located primarily in conditioned space (note: buried ducts as defined by Title 24 can qualify)
- Smart Thermostat
- WaterSense efficient plumbing fixtures
- Water efficient landscaping
- Induction Cooking
- Energy Star Appliances for all Refrigerators, Dishwashers, Clothes Washers, and Bathroom Fans
- Heat Pump or Electric Clothes Dryer
- Electric Vehicle Charging Station – Equipment free from Sonoma Clean Power
Unvented Attics – Resilient and Efficient

(Conventional) Ventilated Attic

Unventilated Sealed Attic
Accessory Dwelling Units

AER is offering incentives for accessory dwelling units (not typical for residential new construction programs)

- First dwelling unit that is rebuilt will receive the full incentive, the second will receive 50% of the total eligible incentive
Additional Program Resources

- Education classes at the North Coast Builder’s Exchange
- Certification Courses (and discounts!) for Certified Energy Analysts and HERS Raters
- Induction Cooktop Lending Program
The AER Origin Story

Oct 2017
Both PG&E and SCP were separately working on programs for the affected homes.

Nov/Dec 2017
PG&E and SCP combined efforts.
• Didn’t want to compete with each other or confuse home owners.
• Allows for larger incentives, and more efficient, grid-friendly homes.

Jan/Feb 2018
SCP attained additional funding through BAAQMD.
• Funding for GHG reducing technologies (heat pumps, solar + battery).

May 2018
AER program launches.
<table>
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<tr>
<th>Role</th>
<th>Responsibilities</th>
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<tr>
<td>PG&amp;E</td>
<td>Resource funding for kWh and therm savings</td>
</tr>
<tr>
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<td>Responsible for program administration cost</td>
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<tr>
<td>SCP</td>
<td>Internal funding for GHG reduction</td>
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<td>Marketing, Outreach, and Recruiting</td>
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<tr>
<td>BAAQMD</td>
<td>Funding for specific GHG reducing technologies</td>
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<tr>
<td>TRC</td>
<td>Program implementation, design consulting, and project processing infrastructure</td>
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<td>Stakeholder education (HERS Raters, Energy Consultants, Builders)</td>
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AER: A Different Kind of RNC Program

**Typical Residential Program**

- Developer owns all the land
- Entire developments under one application
- Multiple homes per plan type
- Incentives processed for groups of homes

**AER Program**

- Each individual lot has a different homeowner
- One home per application
- One home per plan type
- Individual incentive processing for each home
Production Builder vs. Home Owner

Production Builder
- Concerned only about the first costs
- Efficiency is not a motivator
- Wants to meet code as cheaply and easily as possible
- Does not have to live in the home

Home Owner
- Life-cycle cost is a factor
- Efficiency/energy savings is a motivator
- Wants best home possible
- Comfort and resilience are major selling points
AER Program Application Statistics

- **Total Applications Submitted**: 105
- **Total Homes**:
  - 104 single family
  - 7 ADUs
  - 96 multifamily
- **All-Electric Applications Submitted**: 33
- **Total Permits Pulled**: 3,246

6% participating in AER
AER Program Enrollment Statistics

- Projects Enrolled: 66
- Total Homes: 161
- All-Electric Projects: 28
- Projects Installing Solar PV + Battery: 12
- Projects Installing Heat Pump Water Heaters: 31
- Projects Installing Heat Pump Space Heating: 40

Projects Enrolled:
65 single family
1 multifamily

Total Homes:
65 single family & ADUs
96 multifamily
AER Program Statistics

9,620 Total Enrolled kWh Savings
(60 kWh / dwelling unit)

62,780 Total Enrolled Therms Savings
(387 therms / dwelling unit)

340 Total Tons of Enrolled GHG Savings
(2.1 tons / dwelling unit)

$985,000 Total Incentives Reserved
($6118 / dwelling unit)

24.0% Average T-24 Above Code Compliance
AER Program Average Incentives

$9,615 /home

Single Family Home Average Incentive

BAAQMD: $1,476 /home
PG&E: $3,188 /home
SCP: $ 4,950 /home

$3,750 /unit

Multifamily Unit Average Incentive

PG&E: $920 /unit
SCP:$2,830 /unit
What are Participating Home Owners Saying?

Thank you so much and thanks for all the work everyone put into this. My family and I are incredibly grateful to be recipients of this program!

...we look forward to living in our new highly energy efficient home, one that you have helped motivate us to build.

It’s exciting, innovative and good for our environment. I learned a lot about energy efficient choices and I’m really glad I went that way.

The Advanced Energy Rebuild helped our family reach our goal of designing and building the most efficient home possible. Funds from this program helped offset upgrades in our HVAC system and water heater that would have been extremely difficult to do to otherwise.
Why did you choose not to participate in the Advanced Energy Rebuild program?

+ Didn’t know if we qualified, didn’t know if we would have the money needed to qualify with certain build features needed, and builder not supportive of the idea.
+ Started but too difficult to work with CEA so stopped.

+ Not flexible enough. Overemphasis on "electric" versus "green"
+ Can't tell what measures will ultimately lead to rebates until you've made most / all architectural and design decisions.
+ Too many requirements when we were already dealing with way too many things.
+ I was already rebuilding, too many changes needed.

+ Too expensive and complicated. Current building code provides sufficient insulation.
+ Felt the extra gains were not worth the incentive
+ Although I would have like to participate the cost of meeting the requirements were much more than the incentive to participate particularly given we were underinsured like most people.
+ Not cost effective