

DOCKETED

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Building Decarbonization & the CPUC

Integrated Energy Resource Plan Workshop

Energy Division – Abhilasha Wadhwa

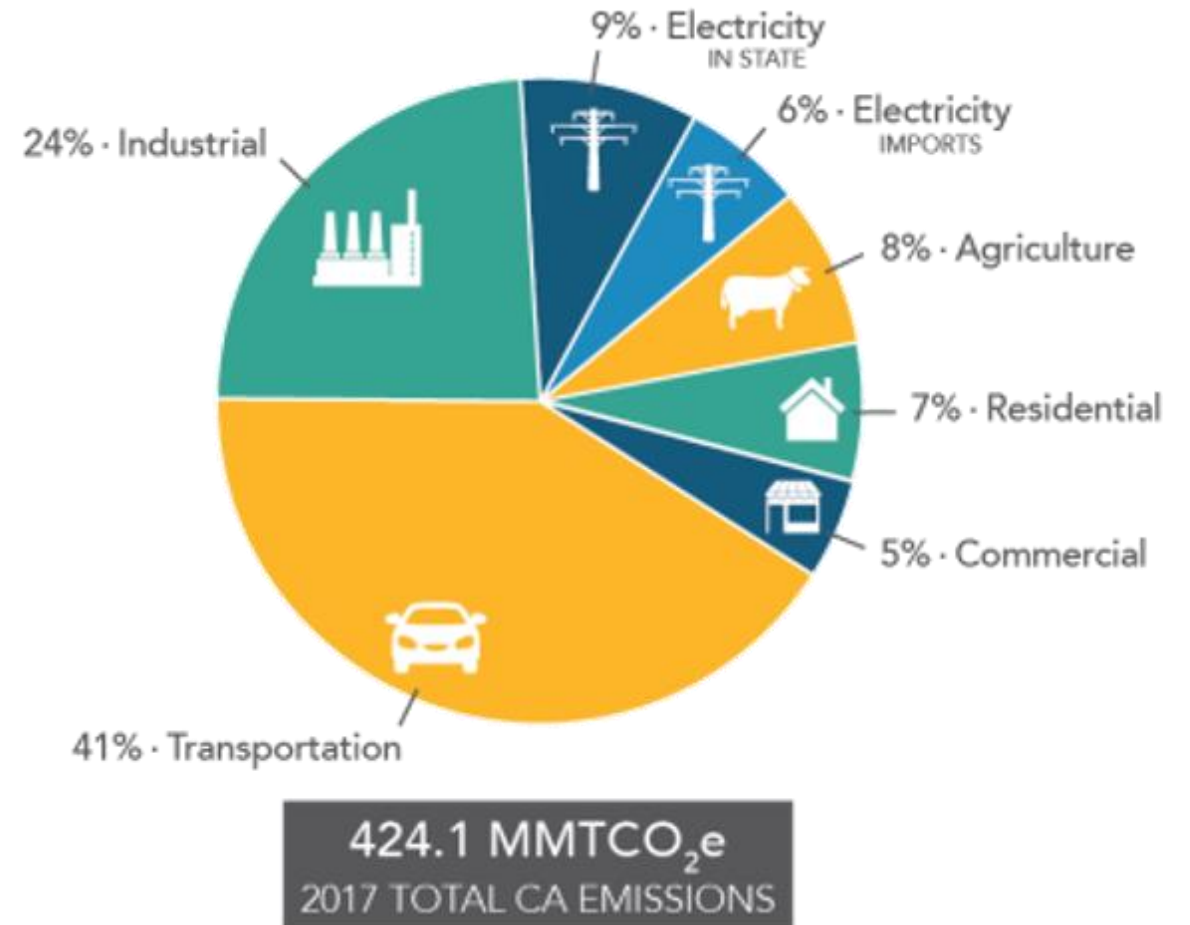
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California Public
Utilities Commission

Buildings account for 12% of California's GHG emissions

- 85% of building emissions come from space and water heating
- Heat pumps are critical to decarbonize residential space and water heating, but have <5% market share in California



Building Decarbonization – Cost Challenges and Barriers

- Rates: Due in large part to recent wildfires and the need to mitigate wildfire risks, electric rates are rising faster than natural gas rates
- Retrofits: Converting natural gas appliances to electric heat pumps can be expensive, especially if a panel upgrade is necessary



Implementing SB 1477 (Stern, 2018)

- In March 2020, the CPUC adopted D.20-03-027 allocating \$200 million in funding approved pursuant to SB 1477.
- **BUILD – Building Initiative for Low Emissions Development Program**
 - \$78 million
 - Focus on new construction, mostly low-income
 - CEC is administrator
- **TECH – Technology and Equipment for Clean Heating Initiative**
 - \$117 million
 - Focus on market development, upstream and midstream activities
 - Energy Solution is implementer
- **Program Evaluation for both BUILD Program and TECH Initiative**
 - \$5 million
 - Opinion Dynamics is evaluator



Phase 2 – Incentive Layering, Wildfires, and Baselines

Ruling with Staff Proposal issued August 2020:

- **Incentive Layering** – With EE, SGIP, building decarbonization, and low-income programs all incentivizing heat pumps, how should we distribute incentives, address attribution, and avoid market confusion?
- **Wildfire and Natural Disaster Resiliency Rebuild (WNDRR)** – Would incentivize rebuilding homes to all-electric and beyond Title 24 code. Proposed to be funded using gas IOU cap-and-trade proceeds.
- **Electric Water Heating Baseline** – Directs IOUs to introduce a special baseline rate for customers who install heat pump water heaters in order to avoid incremental bill increases.
- Proposed Decision anticipated to be issued in **2021**.

TECH Initiative Activities



Spur the clean heating market through statewide strategies

Motivate the supply chain

- Contractor incentives that make heat pumps profitable
- Incentive clearinghouse for contractors to make participation simple and straightforward
- Technical and sales training to help incorporate heat pumps into business model

Drive consumer demand

- Statewide marketing campaign to increase consumer awareness and proactive replacement
- Consumer-facing website with contractor and incentive lookups
- Statewide low-interest financing offering leveraging REEL¹

¹ REEL = Residential Energy Efficiency Loan Program



Create scalable models through regional pilots

Improve targeting and project finance

- Improve targeting and encourage 3rd party business models
- Tariffed-on bill pilot with partner utility

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

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.)

Building Decarb Beyond R.19-01-011 (1 of 3)

~\$335 million in additional funding to support building electrification

- **Self-Generation Incentive Program (SGIP)**

- 2020: \$44.6 million in funding for utilizing heat pump water heater (HPWH) technologies as thermal energy storage (*i.e.*, load shifting)
- Current status: [SGIP HPWH staff proposal](#) released April 16, 2021. Opening Comments due June 3, 2021.

- **PG&E's Watter Saver Program & SCE's Smart Heat Pump Water Heater Pilot Program:**

- Proposed program would install smart controls and communications on existing heat pump water heaters and electric resistance water heaters to enable load shifting.
- Would also provide incentives to replace propane water heaters with load shifting heat pump water heaters.
- PG&E program faces legal challenge (see Resolution E-5073)
- SCE program awaiting CPUC action

Building Decarb Beyond R.19-01-011 (2 of 3)

~\$335 million in additional funding to support building electrification

- **San Joaquin Valley (SJV) Pilots**

- SJV Pilots approved in December 2018 with \$56 million in funding
- 1,676 homes are eligible for the pilot
- Installations currently forecast to be completed in Q3 2022
- As of the end of April, there have been 614 applications submitted, and a total of 86 homes have been retrofitted (65 natural gas line extension/21 electrified homes).

- **Mobilehome Park (MHP) Electrification Standard**

- Phase 2 will review electrical service size to support future electrification of existing and new manufactured homes.
- Will determine if it is appropriate to adopt this service size as a standard for all future MHP utility conversions.

Building Decarb Beyond R.19-01-011 (3 of 3)

Fuel Substitution within Energy Efficiency Portfolio

- D.19-08-009 modified the energy efficiency “three-prong test” and creates a new “fuel substitution” test that requires the measure:
 - Not increase source energy
 - Not harm the environment measured in CO₂
- Oct 2019 Fuel Substitution Technical Guidance Document issued
- Oct 2019 Fuel Substitution Calculator released
- Aug 2020 Workpapers for Natural Gas-to-HPWH substitution approved

High Opportunity Areas/ “Low Hanging Fruit”

- **New Construction**
 - Align new gas infrastructure investments with climate goals and rate equity principles
- **Update Electric Resistance Equipment**
 - Up to 30% of multifamily units; ~ 5% single family homes
 - Immediate bill savings
- **Electrify Homes with Solar**
 - About 7% of CA homes
 - Most with upgraded electrical panels
- **Homes with High AC Loads**
 - Inland, central valley, hot climate homes
- **Rural Areas**
 - Areas not currently served by a natural gas utility that rely on propane and wood burning

Future of Gas

- **Integrate Renewable Gas & Hydrogen Into the System**

- R.13-02-008 Biomethane Pipeline Injection Standards, Biomethane Procurement, and Hydrogen Blending
- R.17-06-015 – Dairy Biomethane Pilots
- A.19-02-015 – Sempra Voluntary RNG Tariff
- A.20-11-004 – Joint IOU Hydrogen Testing

- **Long-term Gas Planning**

- Track 1A: System Reliability Standards
- Track 1B: Market Structure and Regulations
- Track 2: Long-term policy and planning



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Discussion/ Q&As

