Amending the Energy Code

Opportunities for Reach Codes in 2022
BayREN Forum
November 18, 2021
Preparing for 2022 Reach Codes

- Technical teams completing preliminary work
- Focus on opportunities for all-electric designs
- Similar measure package types (efficiency, electrification, renewables)
- Draft results for public review in March/April 2022
- Final reports June/July 2022
New Construction

- Single “mixed fuel” baseline includes heat pumps for most occupancies.
  - Single Family and ADUs: Either HVAC or HPWH
  - Multifamily: HVAC serving dwelling units
  - Nonresidential: HVAC (some occupancies)

- Compliance credit for all-electric designs
The Importance of Efficiency

Effects of electrification with the most efficient technology versus standard technology

- **Consumer Savings**: Reduce Electricity Generation Needed by 19% (2.2 Billion Reduction in Annual Utility Bill Costs)
- **Electricity Generation Needed**: 47.6 TWh Needed (Most Efficient Technologies) vs. 38.6 TWh Needed (Standard Technologies)

Note: "Standard Technologies" and "Most Efficient Technologies" represent a comparison of the "aggressive electrification" and "efficient aggressive electrification" scenarios examined by CEC staff.

Source: CEC staff

Rider: Energy Efficiency is Critical for a Decarbonized Future
Single Family New Construction

- Focus on all-electric designs
  - Packages include efficiency, electrification, PV, and storage measures
  - Individually and combined
- Replacing gas equipment in base case with heat pump (HVAC or HPWH) results in compliance credit for both EDR1 (hourly source energy) and EDR2 (efficiency)
- Consider EDR 2 requirement to realize all savings
Multifamily and Nonresidential New Construction

Packages include efficiency, electrification, PV, and storage, demand flexibility measures

**Multifamily**
Two prototype designs: three and five-story
Focus on electric water heating systems

**Nonresidential**
Four occupancy types: office, retail, small hotel, and restaurant
Focus on electrification and measures to optimize PV and storage
Existing Single-Family Homes

HVAC and water heating electrification at time of equipment replacement:

- On-Bill: Cost-effective in SMUD territory only
- 2019 TDV: Not cost-effective in any climate zone
- 2022 TDV:
  - HVAC – Cost-effective in CZ 1-4, 11-13
  - HPWH – Cost-effective in all EXCEPT 1 and 16

Optional Structures:

- Require specific cost-effective measures
- Flexible approach (allows additional measure options weighted by site energy savings).
  - Electrification measures yield favorable scores.

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Thank You!

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Misti Bruceri
mistib@mbaenergy.com

Kelly Cunningham
Kelly.Cunningham@pge.com

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