

# ET Summit 2023

Presented by



# Code Readiness: Supporting Codes and Standards Through Strategic Planning

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Public

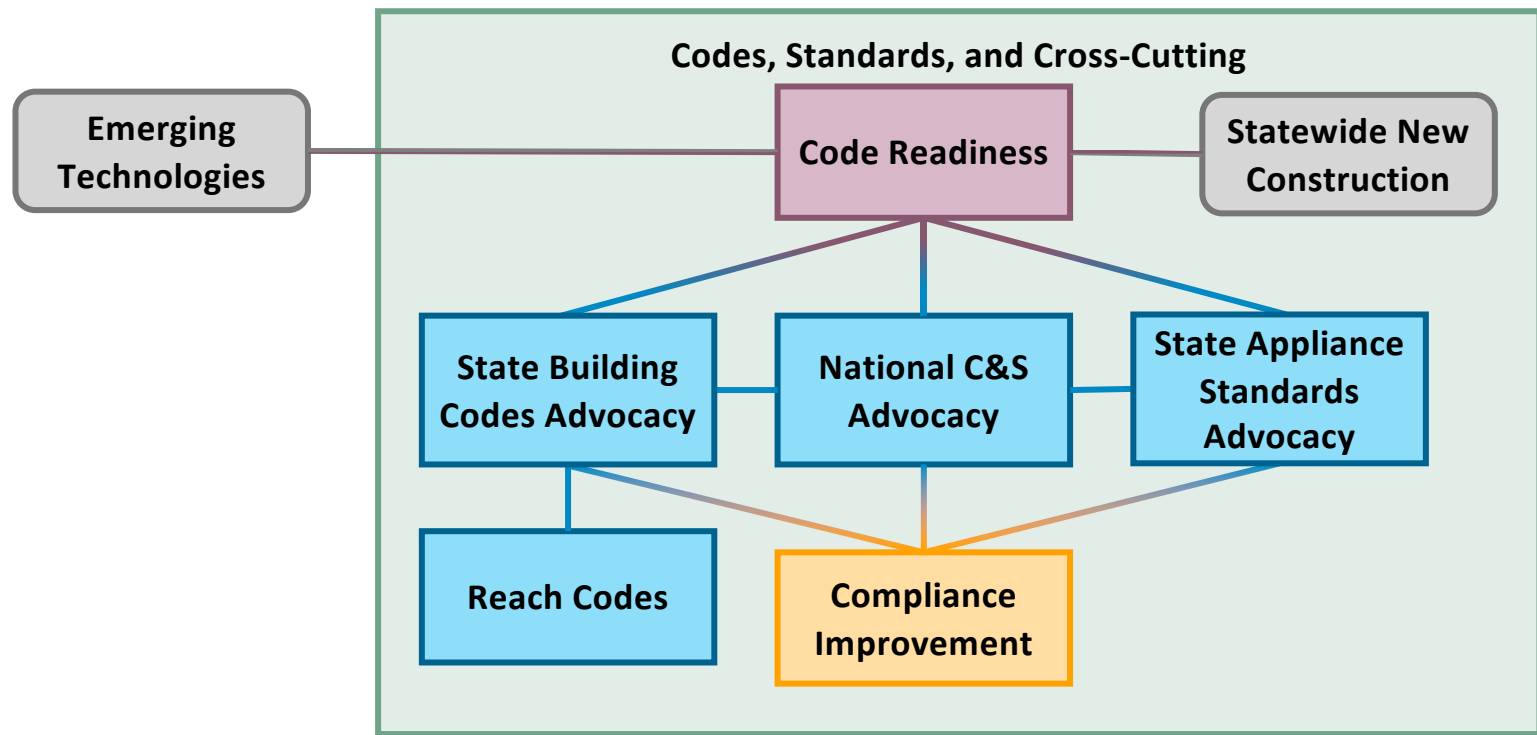
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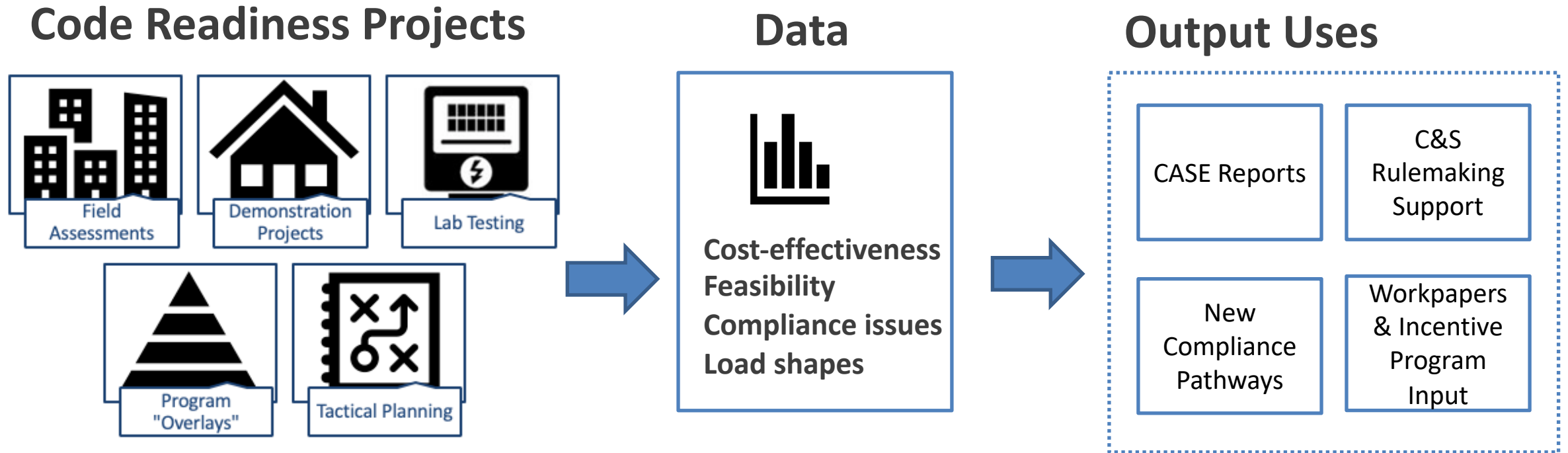
## Program Purpose

- Collect, analyze, and report data that supports the Codes and Standards program
  - State Appliance Codes Advocacy
  - State Building Codes Advocacy
  - National Codes Advocacy
    - ASHRAE 90.1
    - IECC
    - DOE
  - Compliance Improvement

# Structure within the Codes, Standards, and Cross-Cutting Team



# Program Strategy and Project Selection



# Program Strategy and Project Selection

## Short Term

- Coordinate with the advocacy teams to support measures that need additional data for the current rulemaking

## Long Term

- Identify measures 2-3 rulemakings away from being ready that can be accelerated
- Identify which technologies will align with CA climate goals
- Identify barriers that need to be removed for measures to be implemented
  - Data, costs, industry training, equipment availability, etc.

# Current Projects Supporting Decarbonization

## Multifamily Central Heat Pump Water Heater Testing

- Funding by PG&E and SCE
- Testing taking place at PG&E's Applied Technology Services (ATS) in San Ramon
  - Analysis being done by Bruce Wilcox, Ecotope, and Ben Larson
- Tasks
  1. Improve the domestic hot water draw schedule for multifamily buildings
  2. Develop sizing methodology for multifamily standard design
  3. Improve distribution system modeling
  4. Develop installation criteria for MF HPWH
  5. Conduct performance testing for MF HPWH
  6. Enhance the CBECC-Res DHW simulation model to enable MF HPWH compliance



# Multifamily Central Heat Pump Water Heater Testing Photos



# Current Projects Supporting Decarbonization

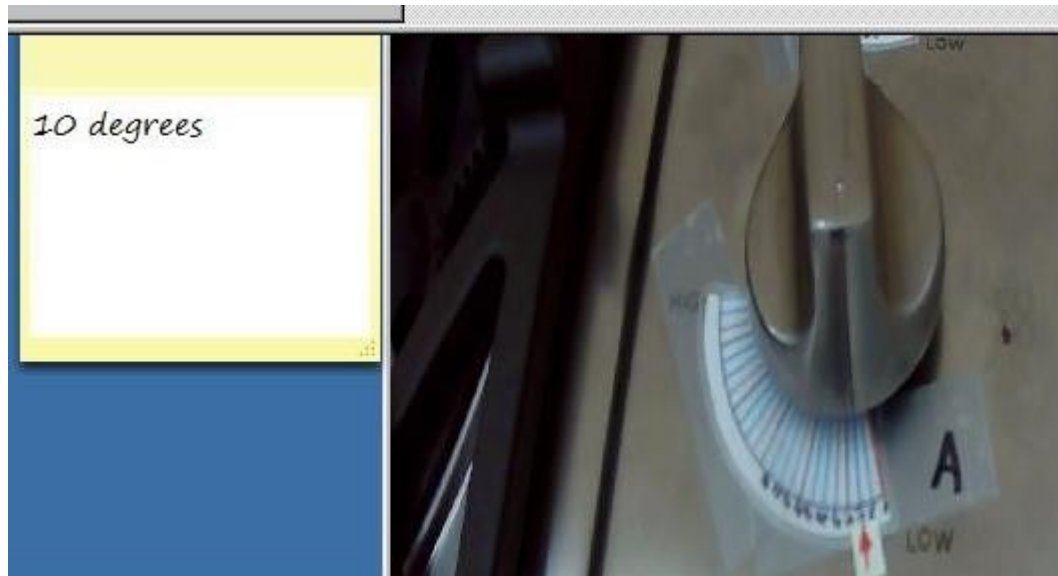
## Induction Cooktop Testing

- Testing taking place at Intertek and CSA Group
  - Analysis being done by Energy Solutions
- Testing Description
  - Conduct repeatability and reproducibility testing using the DOE Appendix I withdrawn cooking top test procedure
  - Test to ensure that gas and electric cooktops are tested in a comparable manner
    - Variations between gas and electric occur due to pan/water load and pan composition

### Testing Objective

- Reestablish a DOE cooking top test procedure that is repeatable, reproducible, and representative
- Ensure that gas and electric cooktops are tested in a manner that allows comparison

# Induction Cooktop Testing Photos



Control dial settings



Induction Stove Top on test bench

# Current Projects Supporting Decarbonization

## Central Valley Research Homes

- Project Team: Frontier Energy, Bruce Wilcox, Energy Docs, Proctor Engineering
- Four single family homes in Stockton CA converted to labs
- Current Testing
  - Evaluate single and variable capacity heat pumps (VCHP) under multiple thermostat schedules to compare peak demand and annual usage
  - Examining the impact of zoning on ducted hydronic fan coil systems
- Upcoming Testing
  - Evaluate coil-only VCHP retrofit products marketed as existing central AC replacements
  - Evaluate VCHP performance with 3<sup>rd</sup> part controls

# Central Valley Research Homes



# Current Projects Supporting Decarbonization

## Electrification of Water Heating in Commercial Foodservice

- Submitted to CalNEXT
- Project Team: 2050 Partners, TRC, and Foodservice Technology Center
- Research Objective
  - Update California Conference of Directors of Environmental Health (CCDEH) guidelines on hot water demand in commercial kitchens
  - Evaluate currently available HPWH products to determine if they meet kitchen demands
  - Identify other opportunities to reduce hot water demand and energy use
  - Conduct HPWH performance testing with kitchen water demand at PG&E's ATS

# Current Projects Supporting Decarbonization

## Non-Residential Space Heating Electrification

- Project Team: 2050 Partners and Red Car Analytics
- Research Objective
  - Better understand performance of Air-to-Water heat pumps and Air-to-Air heat pumps for non-residential buildings
    - Achieved through field site monitoring and data analysis
  - Identify potential concerns such as winter peaking and how to address them

- Reports can be found on the ETCC website
- We are open to collaboration and new project ideas
  - Electrification of Water Heating in Commercial Foodservice
  - Non-Residential Space Heating Electrification

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