U.S. Department of Energy
Building Energy Codes Program

2024 National Energy Codes Conference
May 8, 2024
Sacramento, CA

Diversifying Your (EE) Portfolio: Utility Code Support Programs

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Course Description

As energy codes continue to evolve, utility incentive programs are faced with the need to adapt while meeting cost-effectiveness requirements. Learn from presenters about opportunities and challenges in planning and implementing above-code and energy code support programs. Speakers will include utilities and utility program implementers from across the country who offer varying types of energy code-related programs.

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Learning Objectives

Understand what code support programs are and how they relate to utility energy efficiency portfolios.

Learn how code support programs can complement other resources and add value in various utility and code situations.

Understand the elements of a comprehensive utility code support program and current best practices.

Learn how utility code support programs can be strategically aligned with new construction programs.

Diversifying Your (EE) Portfolio: Utility Code Support Programs

Kevin Rose

Northwest Energy Efficiency Alliance (NEEA)

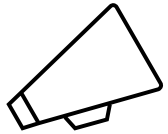
May 8, 2024

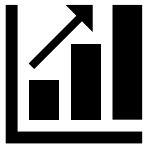
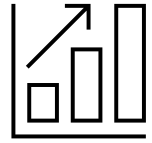
Agenda

- Introduction
  - Kevin Rose, Northwest Energy Efficiency Alliance
- Building Energy Program Partnerships to Support Energy Codes
  - Nick Minderman, Xcel Energy
- California Utility Codes, Standards, & Crosscutting Programs
  - Kelly Cunningham, Pacific Gas & Electric
- Aligning Code Support with New Construction Programs
  - Greg Lasher, TRC (on behalf of Energy Trust of Oregon)
- Q&A / Panel Discussion

Who's in the Room?

- Code Officials
- State & Local Government
- Architects & Engineers
- EE Advocate/NGO
- Utilities/Program Administrators
- EE Program Implementer/Contractor
- Others?



The Utility Role in EE and Energy Codes (2 min or less)

- **Utility investment in EE varies** due to economic, regulatory, and other factors.
- **Utilities build portfolios of programs** targeting segments/sectors/products.
- **Energy code updates challenge program opportunity** and cost-effectiveness since portfolios are typically measured against codes & standards minimums.
- **Utilities can bolster their portfolios with energy code support programs**.
  - improve compliance
  - increase stringency / accelerate adoption

Kevin Rose

Lead Engineer, Codes & Standards

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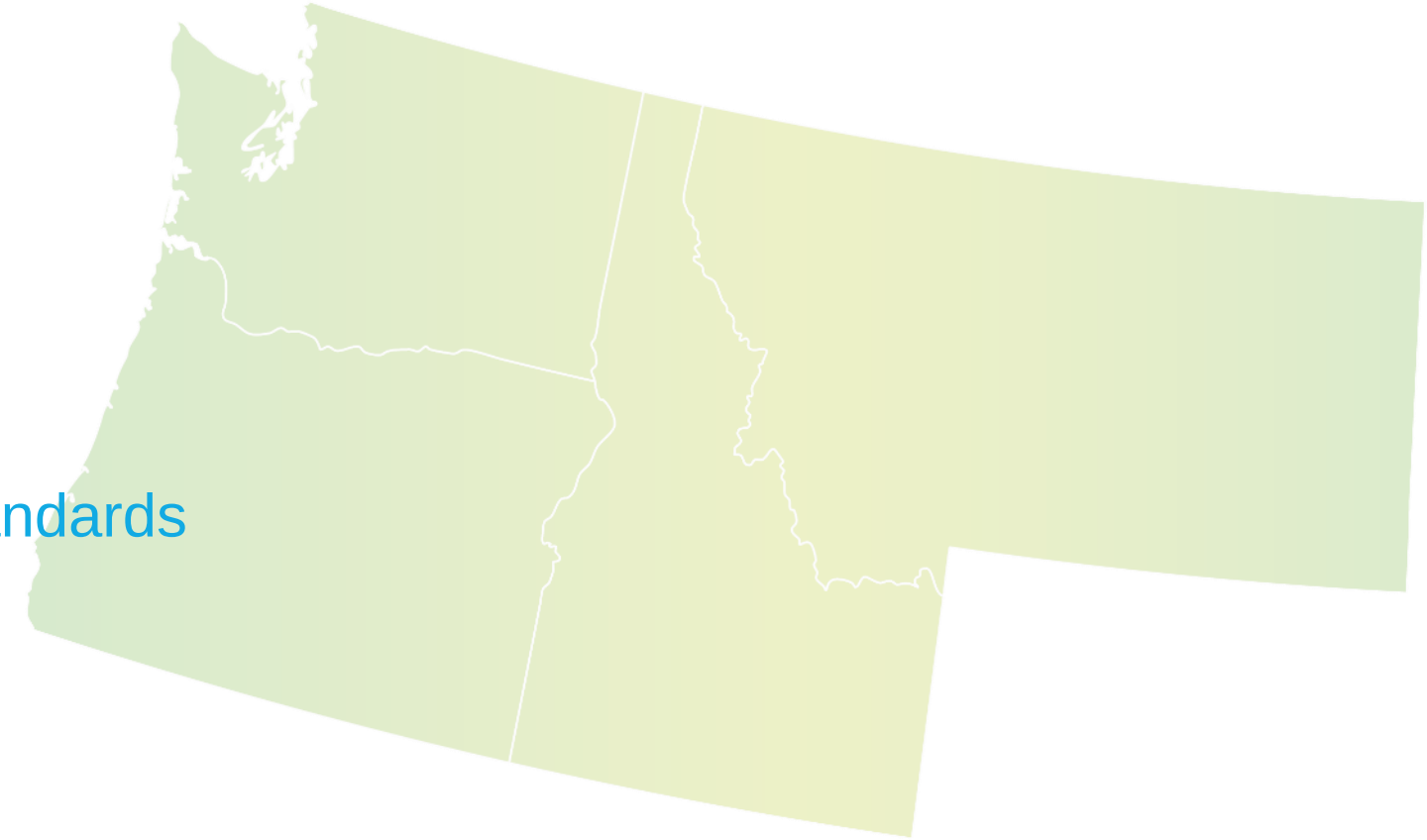
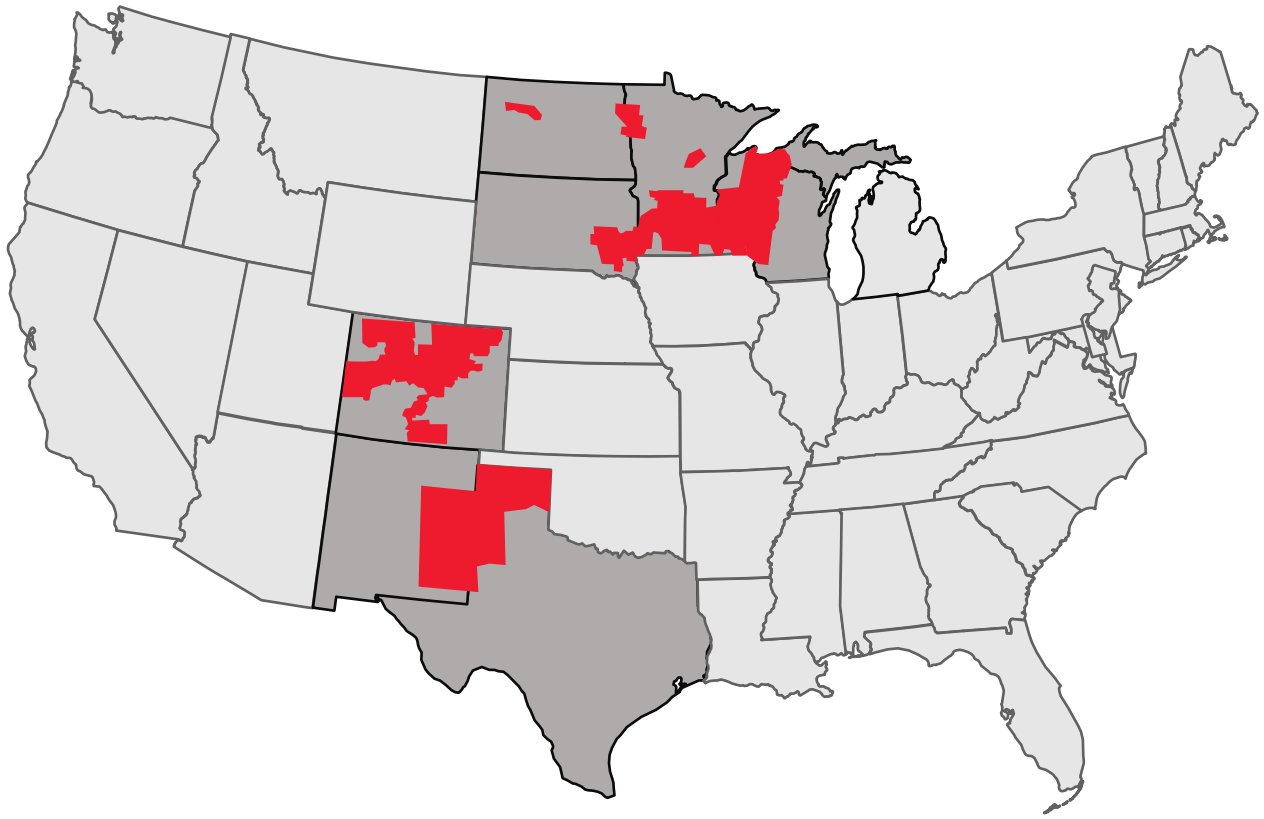


Better Together: Building Energy Program Partnerships to Support Energy Codes

Nick Minderman | National Energy Codes Conference, May 8, 2024

Where Xcel Energy Operates



Serving eight states

3.7 million electricity customers

2.1 million natural gas customers

Administering programs for:

- Energy efficiency
- Renewable energy
- Clean transportation
- Demand management
- Beneficial electrification

Different States, Different Needs

Three key recommendations for when looking to leverage utility/public benefit funds for energy code support:

- Consider How Success is Measured
- Engage Funders and Potential Supportive Partners
- Be prepared to talk about boundaries

Example - New Mexico

The dynamics of rural energy code support

Context:

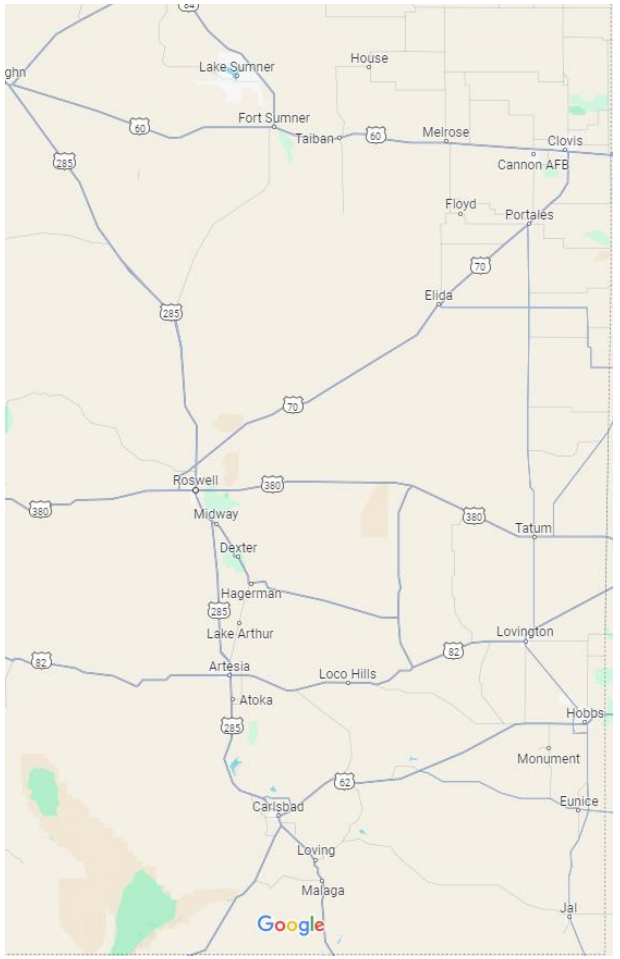
Mostly rural territory, no dominant metropolitan area

Statewide code

Long gap prior to last update

Building activity influenced by oil & gas “boom & bust” cycles

Electric-only service



Map captured from Google Maps. 2024.

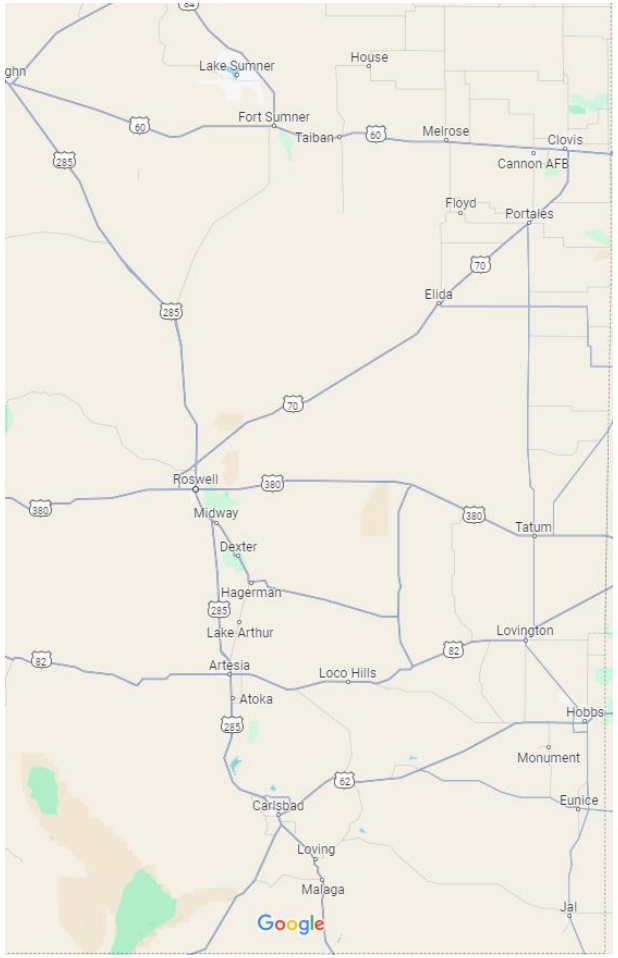
Example - New Mexico

The dynamics of rural energy code support

Success is measured by:

Improving access to efficiency

Maximizing cost effective savings in the portfolio



Map captured from Google Maps. 2024.

Example - New Mexico

The dynamics of rural energy code support

A coalition approach:

New program model aligns with goal to increase savings

Tight-knit community of highly receptive building officials

Improving access to efficiency

Maximizing cost effective savings in the portfolio

Map captured from Google Maps. 2024.

Example - New Mexico

The dynamics of rural energy code support

Managing boundaries:

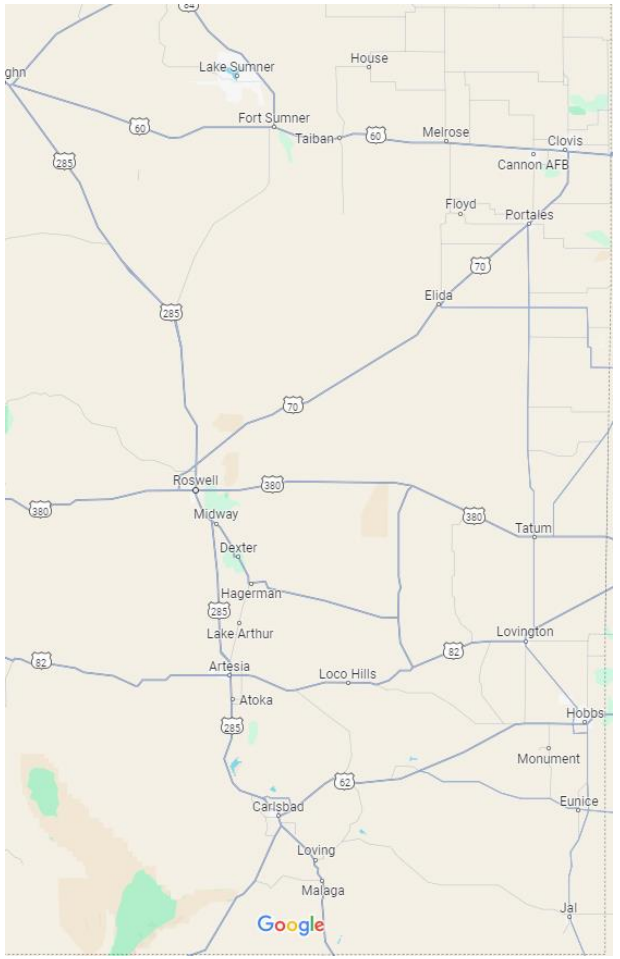
Intentional duplication is ok

New program models demonstrates commitment

Tight-knit community of highly receptive building officials

Improving access to efficiency

Maximizing cost effective savings in the portfolio



Map captured from Google Maps. 2024.

Example - Colorado

Aligning with an aggressive decarbonization trajectory

Context:

Historically a strong home rule state

Multiple iterations of a “backstop” in the last five years

Very active community of code practitioners at state and national levels

Electric and gas service

Flag image from Colorado State archives State Flag | Archives (colorado.gov)

Example - Colorado

Aligning with an aggressive decarbonization trajectory

Success is measured by:

Utility Clean Heat (decarbonization) standard

Flag image from Colorado State archives State Flag | Archives (colorado.gov)

Example - Colorado

Aligning with an aggressive decarbonization trajectory

A coalition approach:

Code support by multiple entities (Colorado Energy Office, SWEEP, Xcel Energy)

Build on stakeholder encouragement in prior plans

Utility Clean Heat (decarbonization) standard

Flag image from Colorado State archives State Flag | Archives (colorado.gov)

Example - Colorado

Aligning with an aggressive decarbonization trajectory

Managing boundaries:

Collaboration with other parties to minimize overlap based on
-topic/content
-geographic area
-model code edition

Code support by multiple entities (Colorado Energy Office, SWEEP, Xcel Energy)

Build on stakeholder encouragement in prior plans

Utility Clean Heat (decarbonization) standard

Flag image from Colorado State archives State Flag | Archives (colorado.gov)

Can This Happen in (___)?

Is a code support program a good fit
for public benefit programs everywhere?

Can This Happen in (___)?

Is a code support program a good fit for public benefit programs everywhere?

If there is a need there can be support!

California Utility Codes, Standards, & Crosscutting Programs:

Cost Effective for Customers and Society

May 2024

Together, Building a Better California

C&S Benefits for People, Planet, and Prosperity

Codes & Standards Program 2024 Annual Impacts

Impacts are based on energy savings occurring in 2024 (i.e., 2024 statewide annual cumulative net-program savings). Utility bill savings were calculated using data from the CEC on utility bill rates for each utility. Avoided power plants were calculated by dividing annual electricity savings by 3,000 GWh per power plant, per the definition of the metric of electricity savings called a “Rosenfeld.” Job-years were calculated using the conversion factor for energy efficiency from the paper “Putting renewables and energy efficiency to work: How many jobs can the clean energy industry generate in the US?”

Cost Effective for Customers and Society

- The **CEC** and **DOE** ensure **each building code or appliance standard** is **cost effective**.*
- The utilities help the CEC and DOE identify and pursue cost-effective opportunities.

*The CEC uses a modified participant cost test for Title 24. The annual average $/kWh and $/therm are anchored to retail rates, but the hourly shape is more reflective of societal costs of supplying energy.

- The **CPUC's** cost-effectiveness framework assesses the **CA IOU C&S Program**, including program administration costs.
- Using the CPUC's Total Resource Cost (TRC) framework, the estimated **benefit-to-cost ratio** of the C&S Program for 2024 is **2.4**.**

**Based on the lifetime TRC benefits/TRC costs for new installations in 2024 affected by the C&S Program. TRC benefits are avoided societal costs of supplying energy. TRC costs include incremental compliance costs and the much smaller costs of the C&S Program.

CS&C Milestones

1998-2005	C&S Advocacy program formally established in 1998 with a primary focus on developing proposals for state appliance standards and building codes
2006	Increased focus on federal advocacy
2009	The CPUC formally established four subprograms: Building Codes, Appliance Standards, Compliance Improvement, and Reach Codes
2012	Planning & Coordination subprogram formally established
2016	Code Readiness subprogram formally established
2018	National Codes and Standards subprogram formally established
2023	New Construction subprograms integrated with C&S portfolio
2023	Decarbonization Subprogram formally established

“Codes, Standards, and Crosscutting”

Resource Acquisition

Codes & Standards

Codes, Standards…

Equity

Market Support

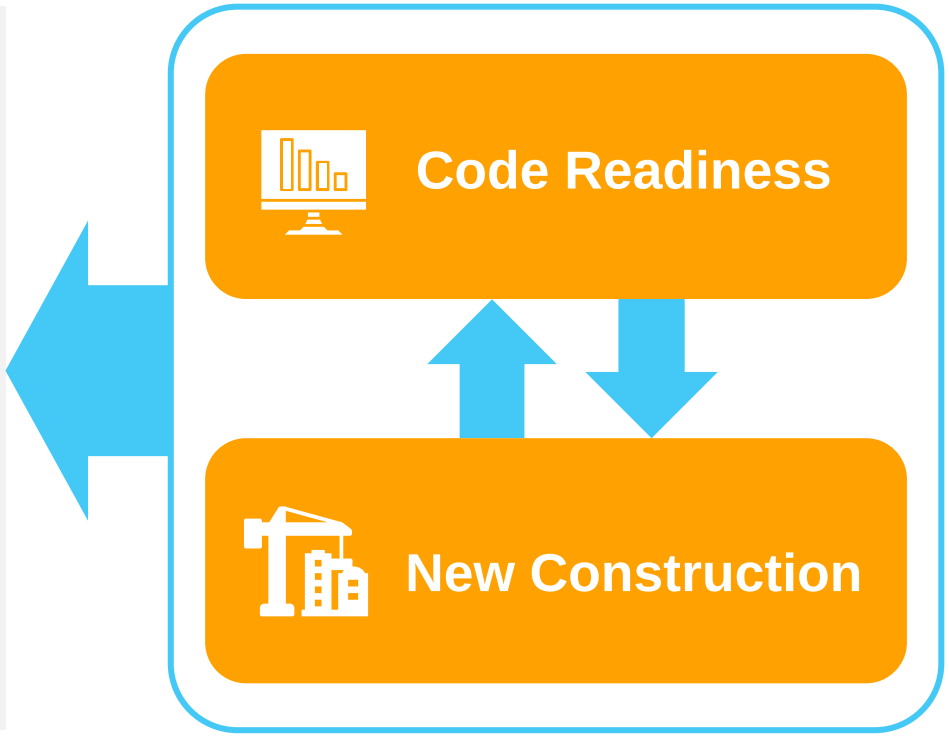
… and Crosscutting
(New Construction programs)

PG&E EE Portfolio Segments

Benefits of Integrating New Construction with C&S

Integration strengthens natural synergies between New Construction and Code Readiness

- Advanced **measures** in New Construction are **aligned** with C&S priorities
- New Construction financial inducements yield more participants and minimize the recruitment burden on Code Readiness, enabling **more rigorous, representative, and cost-effective C&S research.**
- **Rapid feedback** from C&S data collection enables New Construction program to inform program recommendations and enhance program impacts.



CS&C Subprograms

IOU Statewide Programs:
SCE
SDG&E
SoCalGas

Advocacy Subprograms

- State Building Codes
- National Codes & Standards
- State Appliance Standards
- Decarbonization Support

Supporting Subprograms

- Compliance Improvement
- New Construction
- Code Readiness
- Planning & Coordination
- Reach Codes

State Appliance Standards

Objective: Maximize energy savings and other benefits through state appliance standards (Title 20) for product categories under the CEC's jurisdiction (i.e., not covered by the U.S. DOE)

Pre-rulemaking Support & Advocacy

- Identify measures and recommend priorities to the CEC
- Coordinate and negotiate with industry and advocates
- Develop code enhancement proposals (CASE Reports)

Rulemaking Support & Advocacy

- Advocate throughout the CEC's public rulemaking process
- Engage stakeholders

Testing & Test Procedure Development

- Conduct appliance performance and energy testing
- Develop test methods and ratings for appliances

CEC also adopts "flexible demand" appliance standards (FDAS) through Title 20. Unlike efficiency standards, FDAS can apply to product categories covered by U.S. DOE.

National Codes & Standards

Objective: Maximize energy savings and other benefits from national appliance standards (DOE, EPA ENERGY STAR®) and national model building energy codes (IECC, ASHRAE 90.1)

Stakeholder Engagement & Advocacy

- Participate in DOE and other federal agency meetings
- Participate in IECC, ASHRAE 90.1, and other building code updates
- Coordinate and negotiate with industry and advocates

Technology, Market, & Legal Analysis

- Develop high-quality market, usage, and performance data
- Prepare public testimony and written comments on appliance standards
- Develop technical proposals for national code updates

Testing & Test Procedure Development

- Conduct appliance performance and energy testing
- Develop test methods and ratings for appliances

Over 300 letters have been docketed with DOE and EPA in the past five years.

State Building Codes

Objective: Maximize energy savings and other benefits from California's building energy code (Title 24, Part 6) and green building code (CALGreen, Title 24, Part 11)

Pre-rulemaking Support & Advocacy

- Identify measures and recommend priorities to the CEC
- Collect stakeholder input
- Develop code enhancement proposals (CASE Reports)

Rulemaking Support & Advocacy

- Advocate throughout the CEC's public rulemaking process
- Engage stakeholders and conduct public workshops

Compliance Software Support

- Develop compliance software, reporting forms, and manuals
- Support implementation of compliance infrastructure

In the most recent building energy code cycle, the Utility Team sponsored 19 stakeholder meetings with 1,759 attendees.

Reach Codes

Objective: Facilitate the adoption of local energy codes that exceed the statewide building code (Title 24, Part 6 and Part 11) and serve as pilots for future updates

Research & Analysis

- Prepare cost-effectiveness studies to support specific reach code measures in local climate zones

Ordinance Assistance

- Develop and update model ordinance language
- Educate and engage stakeholders to support local adoption
- Develop compliance checklists and tools

Statewide Coordination & Resources

- Track reach codes and ordinances via interactive map
- Coordinate through events, newsletters, and meetings with cities, counties, and state agencies

LocalEnergyCodes.com has an interactive map with reach codes adopted by municipalities and includes downloadable resources that simplify adoption of popular measures like electrification.

Compliance Improvement

Objective: Empower market actors in the compliance supply chain to quickly and effectively comply with building codes and appliance standards

EnergyCodeAce.com

- Position EnergyCodeAce.com as a "one stop shop" for market actors to access tools, trainings, and resources designed to support specific market actor roles and needs

Outreach

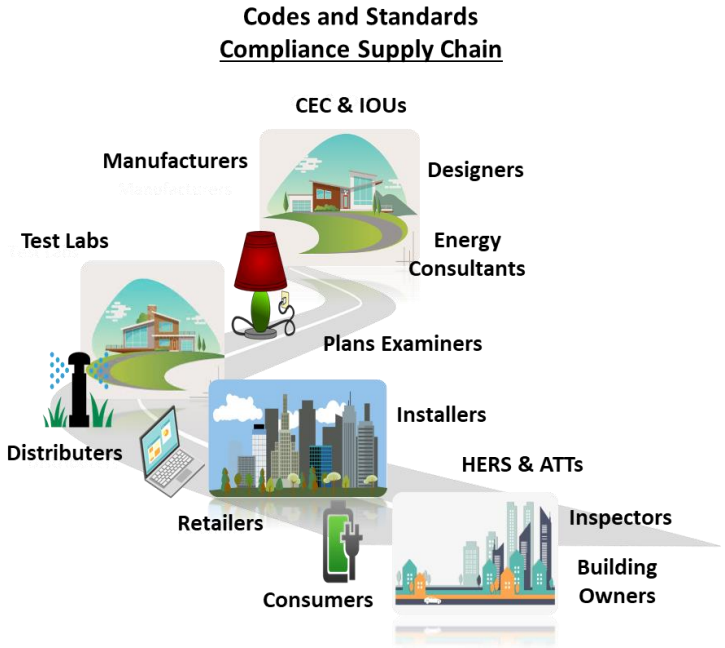
- Conduct outreach campaigns and develop supporting materials
- Attend and represent at industry events

Training

- Deliver role-based training based on adult learning theory provided in live, virtual, and in-person classrooms as well as on-demand
- Integrate relevant tools and resources to optimize learning

Tools & Resources

- Develop a suite of interactive tools, including compliance forms
- Develop downloadable factsheets, guides, and checklists



In 2023, the Compliance Improvement program expects to deliver 200 classes to 6,000 students with 97% satisfaction.

Code Readiness

Objective: Collect data and support market development to maximize success of high-impact future codes and standards advocacy

Demonstration and Data Collection

- Gather field and lab data and other information to support future building codes and appliance standards rulemakings
- Respond to near-term data needs of C&S proceedings

Long-term Tactical Planning (LTTP)

- Identify promising measures and technologies in coordination with CalNEXT, CalMTA, and the C&S Advocacy Team
- Select intervention opportunities based on C&S Program objectives

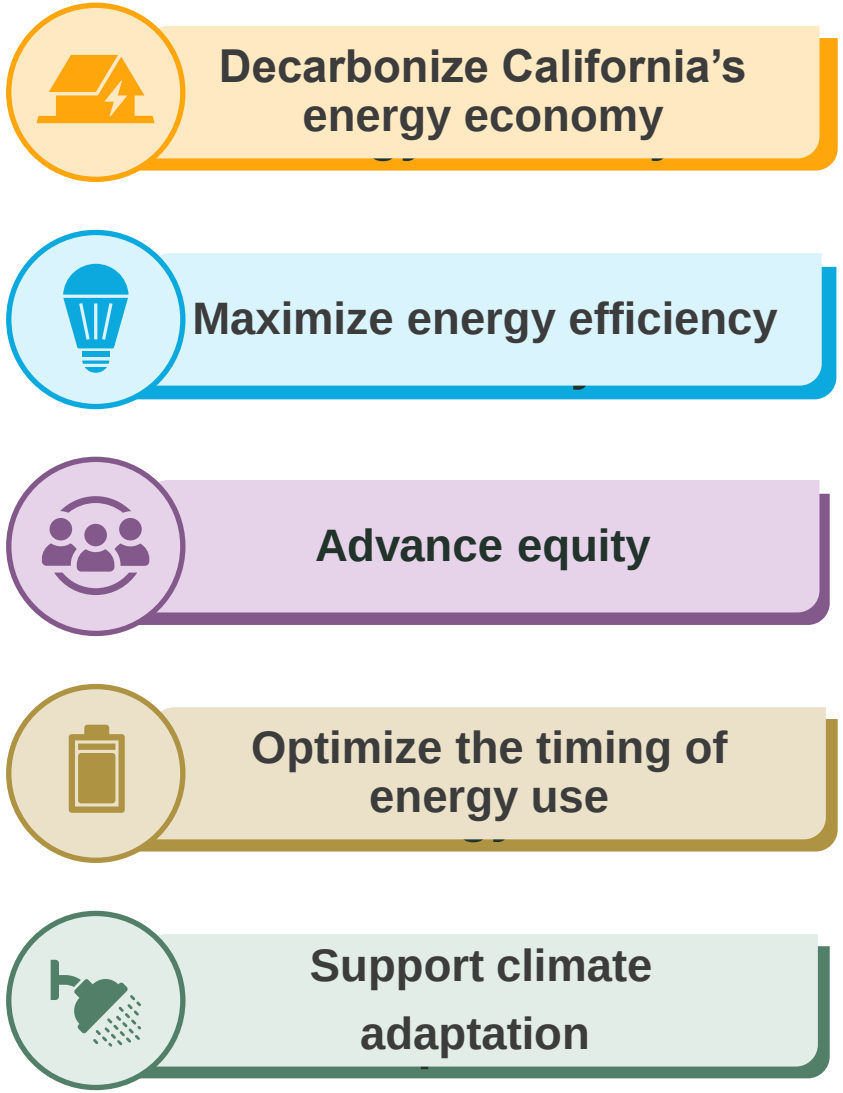
New Construction Data Collection

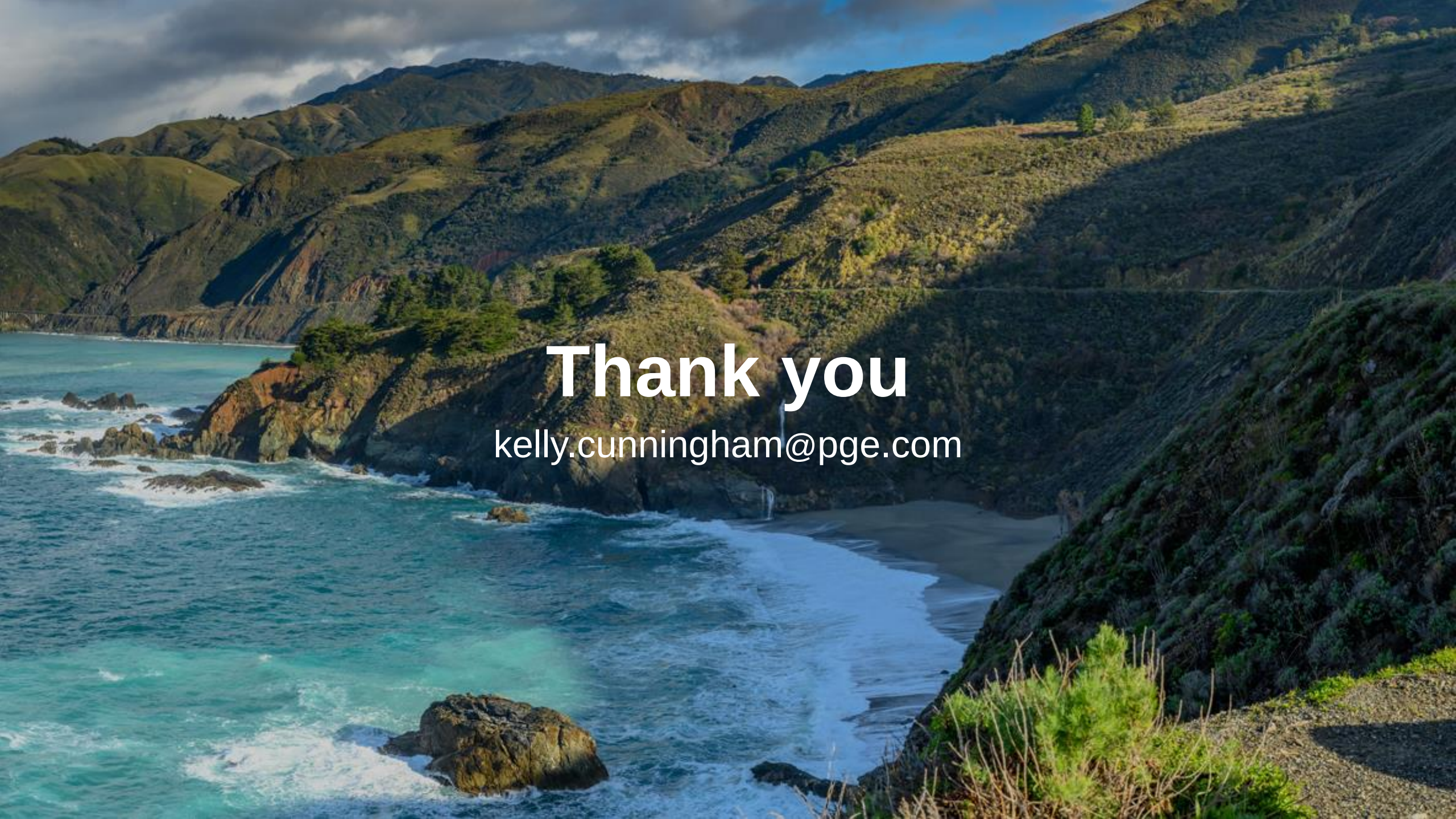
- Coordinate with New Construction programs to incorporate high-potential measures into program offerings
- Develop and maintain infrastructure to collect, store, manage, and analyze the data collected

PG&E uses its Applied Technology Services lab (shown above) to collect robust data on product performance and energy use.

Summary

- The C&S program is a long-standing, highly cost-effective, and a significant contributor to the energy efficiency programs portfolio.
- C&S employs a multi-faceted approach to advancing energy codes including measure research, participation in code development processes, stakeholder outreach, compliance support, and more.
- C&S has a wide scope, supporting building codes and appliance standards at the state and national levels, as well as local stretch codes.





Thank you

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Aligning Code Support with Incentive Programs

May 8, 2024

Energy Trust of Oregon

EPS New Construction

- Encourages building beyond code with EPS™ requirements
- Works with builders, contractors, architects and third-party verifiers
- Offers EPS support, technical assistance, marketing materials and cash incentives

Average EPS home is over 22% more efficient than typical newly built home

Market Transformation is the goal

- Play the Carrot and the Stick game
- Incentives prepare builders for the next code cycle
- Code studies show the effect of the EPS incentive offering on non-participating builders

Getting builders to listen: Mention Code

80 People and 20 Trades

Create markets and grow the trades

Embracing the whole market makes it easier to incorporate non-energy goals

Recap

- Energy Trust of Oregon maintains a robust above-code offering while also supporting at-code building
- Market transformation is not just about proving above code is good for business—executing code requirements accurately is also important
- The best way to attract builders to save energy is to meet them where they are, and that is usually meeting code effectively
- It’s a small but important additional step in above code programs to also support workforce and diversity, equity, and inclusion

Thank you

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EPS New Construction Insider website

Questions?