



TITLE 24, PART 6

2028 CODE CYCLE

2028 Title 24 Energy Code Update

Nonresidential Topics

California Statewide Utility Codes & Standards Enhancement (CASE)
Team

January 8th 2025

The webinar will begin shortly.

Agenda

Objectives and Meeting Guidelines

Welcome from the CEC and PG&E

2028 Title 24 Website Resources and
Current Measures

Nonresidential Measures

Conclusion and Questions



Objectives

- Build involvement in the California Energy Code update process
- Introduce the CASE Team early measure ideas & offer opportunity for participation and clarifying questions
- Connect early in the cycle



Public involvement is an important part of California Energy Commission proceedings. The Commission promotes an open process that enables those who are interested to have an opportunity to stay informed, have a voice, and influence the outcome of proceedings.”

–CEC

Stakeholder Questions

- We want to hear from you! If questions can't be answered today, CASE Authors will follow up with stakeholders separately **within 5 business days**
- Please limit to quick, clarifying questions; more in-depth questions or discussions will be directed to be answered offline

How to submit a question (2 ways):

- Add to 'Question' box.
- Email info@title24stakeholders.com

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- Chat



- Questions

- Handouts

- Polls

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- Audio:

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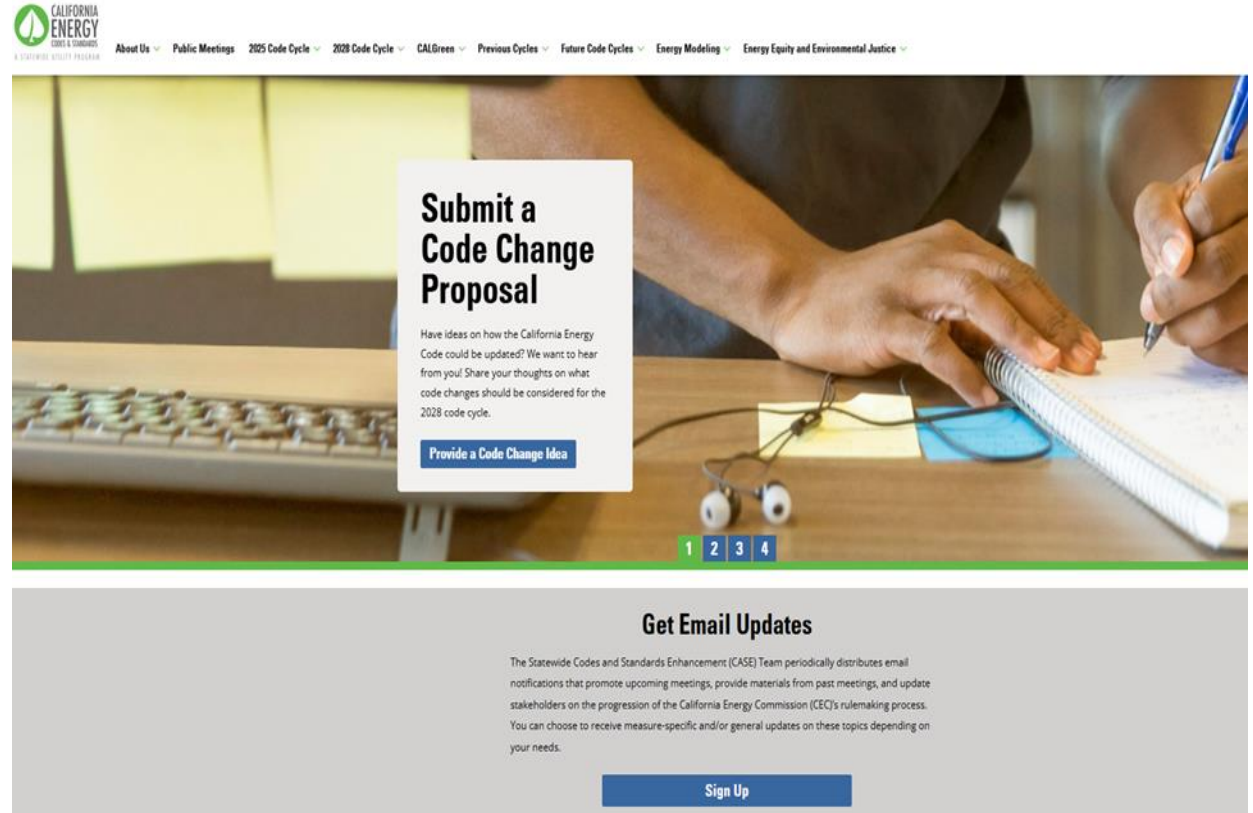


Participate In the Process

Stakeholder engagement is encouraged throughout the code cycle:

- ✓ Submit a code change proposal before March 31, 2025
- ✓ Share knowledge and data
- ✓ Attend our utility-sponsored stakeholder meetings
- ✓ Participate in CASE surveys
- ✓ Review CASE Reports
- ✓ Submit comments

info@title24stakeholders.com



The screenshot shows the California Energy Code & Standards website. At the top, there is a navigation menu with links: About Us, Public Meetings, 2025 Code Cycle, 2028 Code Cycle, CALGreen, Previous Cycles, Future Code Cycles, Energy Modeling, and Energy Equity and Environmental Justice. The main content area features a large image of a person writing in a notebook. Overlaid on this image is a white box with the heading 'Submit a Code Change Proposal'. Below the heading, it says: 'Have ideas on how the California Energy Code could be updated? We want to hear from you! Share your thoughts on what code changes should be considered for the 2028 code cycle.' There is a blue button labeled 'Provide a Code Change Idea'. Below the image is a progress indicator with four numbered steps (1, 2, 3, 4), where step 1 is highlighted. Below the image is a section titled 'Get Email Updates'. It contains text: 'The Statewide Codes and Standards Enhancement (CASE) Team periodically distributes email notifications that promote upcoming meetings, provide materials from past meetings, and update stakeholders on the progression of the California Energy Commission (CEC)'s rulemaking process. You can choose to receive measure-specific and/or general updates on these topics depending on your needs.' There is a blue button labeled 'Sign Up'.

Sign up for our listserv at [Title24stakeholders.com](https://www.title24stakeholders.com)

**COMING SOON to
title24stakeholders.com**

**Easy access to what
measure ideas have
already been submitted**

New Measure Ideas

The following are energy saving measure ideas under consideration for the 2028 Energy Code cycle proposed by the Statewide CASE Team and other stakeholders. We welcome your new measure ideas. Submit your new measure ideas through our [online form](#). Check back to follow the progress of these proposals.

Proposals are listed by Building Type (Nonresidential (NR), Multifamily (MF), Single Family (SF)), System Type, and Measure Description. Click on the column heading **Building Type(s)** to sort the list by building type. Contact info@Title24Stakeholders.com if you have any questions.

Code Proposal under consideration	Building Type(s) ▼	System Type(s)	Measure Description
Blower Door Test & Reduced Infiltration	SF	Envelope	Introduce airtightness requirements for single family new construction. Mandatory or prescriptive blower door testing with 3 ACH50 target.
Heat Pump Water Heater (HPWH) Location/Limit Resistance Water Heating	SF	Domestic hot water	Prescriptively allow for HPWHs located outside or in external closets for small units or units without an attached garage. Remove or restrict the current exception that allows electric resistance point of use systems for homes 500 sqft or less.
Heat recovery ventilators (HREVs) or energy recovery ventilators (ERVs)	SF	HVAC	HERVs in single-family homes within the prescriptive path in climate zones where cost effective.
ECM Circulator Pump with Controls	NR, MF	Domestic hot water	This measure would prescriptively require circulator pumps to utilize internal or external controls to reduce energy use at the pump and/or water heater. Requirements could vary based on building size, application, water heating plant types, and distribution system designs.
Elevators	NR, MF	Other	2025 cycle measure for regenerative drive for traction elevators with distances at and above 3 landings. Consider measures from other jurisdictions such as lightweighting elevator cabs and counterweights and requiring elevator electronics to go into deep standby when not in use.
Escalators and Moving Walkways	NR, MF	Other	Add to existing escalator and moving walkway requirements to have VFD start and stop operation. Add a regenerative drive option

Poll

Where are you attending from?

CEC Introduction

- Authority and Process
- Drivers and Themes
- Contacts

Payam Bozorgchami

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California Energy Commission's Authority & Process

Public Resources Code

(PRC 25402): Reduction of wasteful, uneconomic, inefficient, or unnecessary consumption of energy

- Warren Alquist Act Signed into law in 1974
- Mandates updates Building Efficiency Standards and requires the building departments to enforce them through the permit process

WARREN-ALQUIST ACT

Warren-Alquist
State Energy Resources
Conservation and
Development Act

Public Resources Code
Section 25000 et seq.



CALIFORNIA
ENERGY COMMISSION
Gavin Newsom, Governor

2022 EDITION
JANUARY 2022
CEC-140-2022-001

2028 Energy Code Drivers and Themes

State Goals

- Contribute to the state's GHG reduction goals
- Increase building energy efficiency cost-effectively

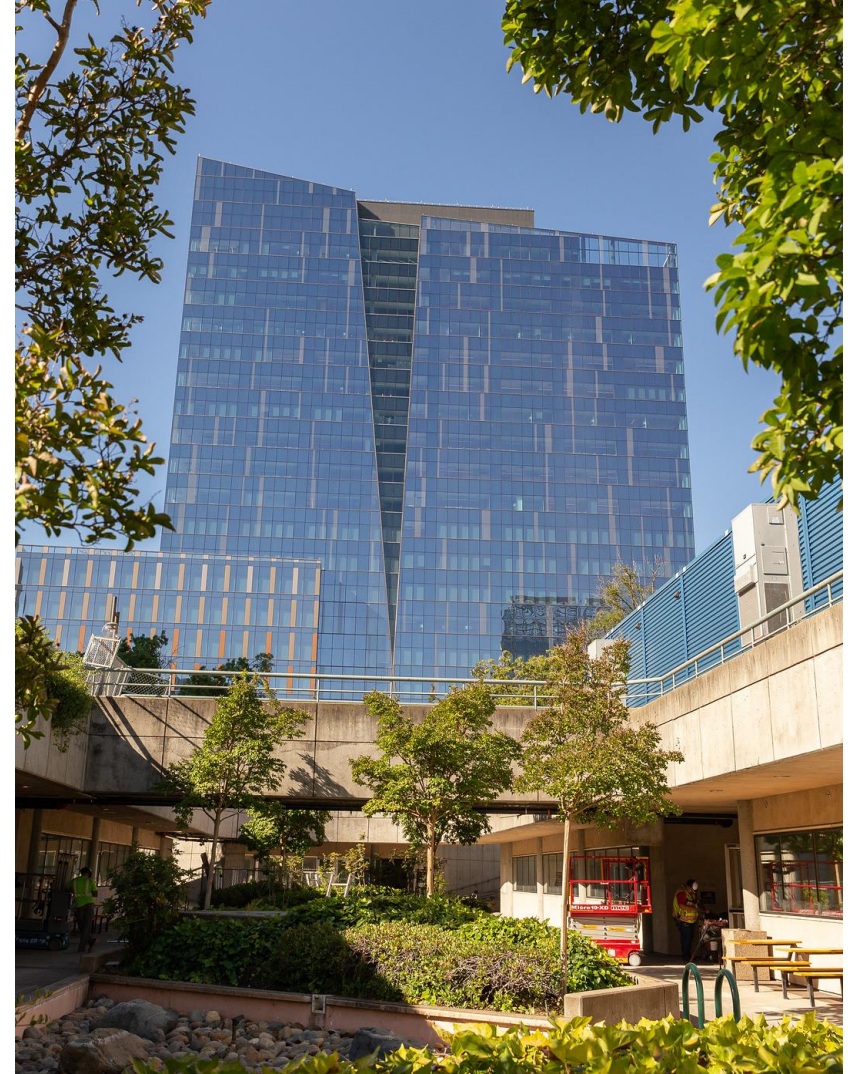
2028 Energy Code Areas of Interest

- Continue to encourage efficient building decarbonization where possible
- Promote demand flexibility
- Covered process loads
- Additions, alterations, and smaller homes (e.g., ADUs)
- Interagency coordination
- Equity



2028 Energy Code Senior Staff Contacts

- **Javier Perez** – Project Manager
- **Payam Bozorgchami** – Technical Lead, Envelope, Additions and Alterations, ADUs
- **Haile Bucaneg** – Covered Process, Demand Response, Nonresidential and Residential ACM
- **Muhammad Saeed** – Solar Photovoltaic and Energy Storage Systems
- **Sara Sultan** – Residential Envelope
- **Michael Shewmaker** - Supervisor, Standards Development Unit
- **Gypsy Achong** – Branch Manager, Building Standards
- **Email Convention at the Energy Commission:**
firstname.lastname@energy.ca.gov



PG&E Introduction

- Statewide Utility Codes and Standards Team
- Project Schedule & Milestones

Kelly Cunningham

PG&E

Kelly.Cunningham@pge.com



Statewide Utility Codes and Standards Team

Actively supports the California Energy Commission in developing proposed changes to the Energy Code (Title 24, Part 6) to achieve significant statewide energy use reductions through the development of code change proposals for the 2028 cycle that are:

Feasible | **Cost effective** | **Enforceable**



How Utility Team Supports the 2028 Code Cycle

General priorities:

- Support CEC in achieving statewide policy goals
- Cost-effective energy savings (kWh, kW, Therms)
- GHG emissions reductions

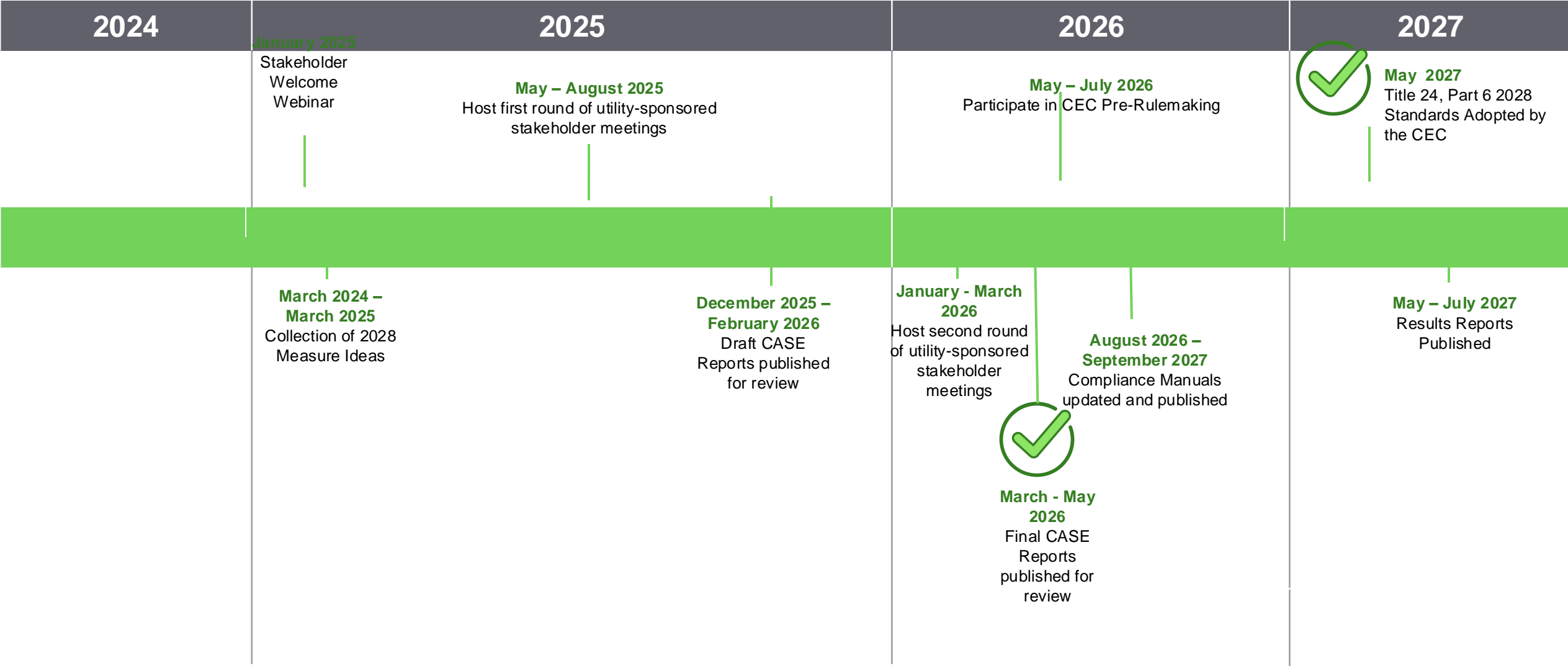
Options for utility team support:

- Develop Code Change Proposals (CASE Reports)
- Provide data for proposals CEC develops
- Collaborate with other stakeholders who are developing proposals
- Support software development

Maximize number of cost-effective code changes for each cycle that will allow the state to achieve long-term policy goals

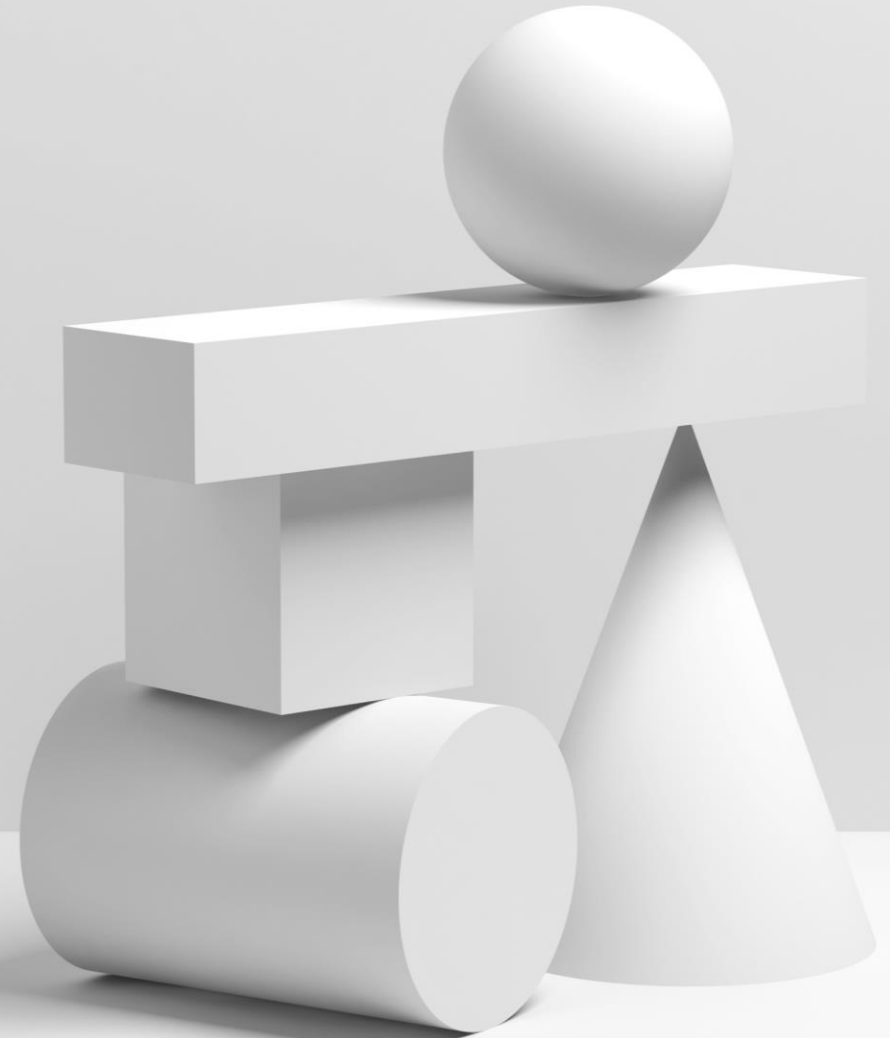
2028 Cycle – Tentative Project Schedule & Milestones

Statewide CASE Team Milestones



Items to Balance

- **Energy savings** and **GHG emissions**
- Load management to support **grid reliability**
- Distribution of proposals across **building types** and **system types**
- Impacts on those who work to **comply** with the code
- Enabling savings to **persist** over time
- Energy **equity**
- Interaction with CALGreen and local reach codes
- Support statewide policies to improve energy performance of the **entire building sector**





2028 T24 Measure History & Background

- Proposal Identification
- Current Measures

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Poll

Choose all that apply

Which benefits or impacts would you like to see most reflected in this code cycle?

Environmental and Social Justice (ESJ)

Approach

- Integrate equity as a key consideration throughout code development process
- Ensure accountability and transparency in our processes, objectives, and outcomes
- Develop trusting and sustainable partnerships with Community Based Organizations (CBOs) to inform this work
 - *Procedural Equity*
- Analyze how code change proposals could affect disproportionately impacted populations
 - *Distributional Equity*

Resources

- [2025 T24 ESJ Action Plan](#)
- [2025 T24 ESJ Summary Report](#)
- [2028 T24 ESJ Action Plan \(Coming Soon\)](#)

Codes and Standards Enhancement (CASE) Initiative

2025 California Energy Code

Environmental and Social Justice Engagement Action Plan





Nonresidential Measures

- Proposed Measure Descriptions
- Data Needs

Bryan Boyce

NR HVAC Program Lead, Energy Solutions

bboyce@energy-solution.com

Proposed Measure(s): Nonresidential and Multifamily HVAC

Measure Name	Description
Variable Refrigerant Flow (VRF) Indoor Fan Control	VRF fan coils typically have variable speed fans, but the fan speed is manually selected by the installer. Some VRF fan coils have controls that automatically modulate fan speed based on the cooling load. Requiring all VRF fan coils to automatically vary fan speed based on load will have huge fan energy savings.

Data Needs:

1. Understanding the current breakout between VRF indoor fans that are appropriately modulating speed vs. those that are set on a specific setting (e.g., high or auto)
2. Potential compliance costs for the relevant stakeholders (manufacturers, designers, installers)

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Heat Pump Roof Top Unit (RTU) Alterations	Prescriptively require all packaged HVAC <20 tons to be heat pumps upon replacement, or gas pack + efficiency measures, expanding beyond the current threshold of 5 tons.

Data Needs:

- 1. Cost for mid-sized Heat Pump RTUs especially for alterations including labor and other cost related to the measure
- 2. Feedback from CA distributors and installers on potential issues in complying with the proposed requirements
- 3. Input from AHJs to understand their requirement to enhance the enforcement process and successful meeting the compliance

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Thermal Energy Storage for Waste Heat Recovery	This measure would prescriptively require a thermal energy storage system in very large buildings. This measure would be based on a 2025 proposal that was not advanced by CEC due to market readiness and software modeling limitations for the technology that are in the process of being addressed via EnergyPlus enhancements.

Data Needs:

- 1. Feedback on market familiarity and ability to comply

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Occupied Standby - DOAS requirement	If a Dedicated Outdoor Air System (DOAS) system capacity includes conditioned thermal zone ventilation requirements, DOAS occupied standby controls for thermal zones should be explicitly documented and verified. This measure will add clarity to Section 120.2(e) which references ventilation and space conditioning systems but not DOAS. The intent is for DOAS systems to comply with appropriate occupied standby requirements.

Data Needs:

1. Need to identify the impacted areas, and zones based on current practices.
2. Contact manufacturers, control contractors and MEP professionals to understand the current standby control features and implementation
3. Research on non-compliance rates and building types.
4. ASHRAE Guideline 36 includes detailed sequences of control for occupied standby controls of zone air terminal units. Further research is needed to explore this document and its impact on the current proposal
5. Need to coordinate with HCAI for healthcare facilities

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Variable Speed Dedicated Outdoor Air System (VS DOAS)	<ol style="list-style-type: none">1. Change the 3-speed fan requirement to a Variable Frequency Drive (VFD) fan requirement in section 140.4(p)32. Add requirements for DOAS systems to be capable of some amount of airside economizing, i.e., upsize the peak airflow capacity relative to the minimum ventilation airflow needs for the space.3. Change supply air setpoint from 60°F in 140.4(p)4 in alignment with ASHRAE TC 1.4's ongoing DOAS research RP-1865.

Data Needs:

1. Proposal details from ASHRAE 90.1 Technical Committee 1.4 to inform revisions to the analysis so that they are specific to CA climate zones
2. Input from design practitioners

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Expand Mechanical Heat Recovery (HR) Requirements	This measure would require mechanical heat recovery (i.e., HVAC equipment that usefully leverages both the cooling and heating effect of the vapor compression cycle) equipment in a wider array of buildings than what was required in Title 24 2025. In 2025 the measure focused on buildings with process loads. This measure will focus on the opportunity to use an appropriately sized HR chiller to handle simultaneous loads such as reheat occurring during cooling hours.

Data Needs:

- 1. Research on existing and potential use cases and building types
- 2. Input from design practitioners
- 3. Performance curves from manufacturers
- 4. Research on compliance and enforcement

Contact Info:

Bryan Boyce (bboyce@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
ASHRAE Guideline 36	Expand the ASHRAE Guideline 36 requirement and improve compliance by: <ol style="list-style-type: none"><li data-bbox="708 339 2423 439">1. Certifying libraries based on a defined method of test (in development) rather than the 2025 self-certification<li data-bbox="708 501 2423 711">2. Covering additional sequences and system types. Expand to cover multi-zone and single-zone factory-mounted controllers that are configurable. Cover additional equipment, including single zone Variable Air Volume (VAV) Air Handling Units (AHUs), exhaust fans, and fan coils.

Data Needs: None at this time

Contact Info:

Rupam Singla (rsingla@trccompanies.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Description
Minimum Water Temperature Delta-T for Hydronic Cooling Coils in Variable Air Volume (VAV) HVAC Systems	<ol style="list-style-type: none">1. Require a 15°F minimum difference for the entering and leaving water temperatures (delta-T) for hydronic cooling coils in variable air volume HVAC systems.2. A minimum of 57°F leaving water temperature at design conditions will ensure energy is not wasted by using excessively low chiller water leaving temperatures.
Reducing Air Handler Maximum Airflow During Deadband Operation for VAV HVAC Systems	<ol style="list-style-type: none">1. Require air handlers and DX equipment be able to reduce airflow to match the reduction required at the zone level in section 140.4(d)(2)(A)(ii).2. If more than the minimum is required for cooling during economizer operation, it will be permitted.3. This measure only applies to additions where the addition is served by a new DX or hydronic unit, and to alterations where a new DX or hydronic unit is installed.

Data Needs:

1. Minimum Water Temp Delta-T: More accurate data on construction first cost savings.

Contact Info:

John Bade (johnbade@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential HVAC

Measure Name	Measure Description
Cooling and Heating Thermostat Setpoint Requirements for Hotels and Motels	<ol style="list-style-type: none">1. Require separate setpoints for heating and cooling, each individually adjustable.2. Establish a minimum deadband of 1 or 2°F between heating and cooling.
Packaged Terminal Air Conditioner and Heat Pump Efficiency Improvement	<ol style="list-style-type: none">1. Require newly installed packaged terminal equipment be capable of operating in heat pump mode down to 17°F. These products are expected to be on the market in 2025.2. Prohibit using packaged terminal air conditioner (PTAC) and packaged terminal heat pump (PTHP) to bring in ventilation air.3. Require PTHP and PTAC to be operated by a separate thermostat.

Data Needs:

1. PTHP Efficiency: Cost data on PTHP operating down to 17°F.

Contact Info:

John Bade (johnbade@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Multifamily and Nonresidential - Covered Process

Measure Name	Description
Elevators	2025 cycle measure of regenerative drive for traction elevators with distances at and above 3 landings. Consider measures from other jurisdictions such as lightweighting elevator cabs and counterweights and requiring elevator electronics to go into deep standby when not in use.

Data Needs:

1. Elevators: Latest incremental costs and operational characteristics of the elevators (seeking data from 2024)
2. Cost, performance and implementation info on use of variable frequency drives to modulate hydraulic pumps
3. Discussion of age and type of elevator equipment on repair and modernization options

Contact Info:

Sean Steffensen (ssteffensen@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Multifamily and Nonresidential - Covered Process

Measure Name	Description
Escalators and Moving Walkways	Add Variable Frequency Drive (VFD) start and stop operation to existing escalator and moving walkway requirements. Add a regenerative drive option for downward travelling escalators to capture energy of descending riders.

Data Needs:

1. Escalators + Moving Walkways: Data on incremental costs and operational energy use

Contact Info:

Sean Steffensen (ssteffensen@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential, Multifamily, Single Family - Other

Measure Name	Description
Solar Pool Heating for Existing Buildings	Propose code change similar to the CALGreen solar pool and spa heating proposal for the 2025 code cycle that will require solar pool heating, a heat pump pool heater, or renewable energy and recovered heat to raise the baseline efficiency of pool heating process.
Energy Recovery for Indoor Pool Systems	Require dehumidification energy recovery or exhaust air energy recovery in indoor pool systems over 400 square feet.

Data Needs:

1. Energy Recovery for Indoor Pools: Percentage of indoor pools using dehumidifiers; information on how frequently setbacks are used when the pool space is scheduled to be unoccupied.

Contact Info:

Sean Steffensen (ssteffensen@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure(s): Nonresidential Lighting

Measure Name	Description
Lighting Power Density	Update the lighting power density requirements for indoor spaces to reflect the advancements in LED technologies so the stringency of Title 24 LPD requirements remains in line with, or better than, the national standards (2025 ASHRAE 90.1) and other model codes (2024 IECC). Revisit product selection with an emphasis on luminaire efficacy and lamp lumen depreciation.

Data Needs:

- 1. Updated luminaire efficacy data
- 2. LLD (lamp lumen depreciation) factors applied to different applications, spaces, or luminaire types in common practice.

Contact Info:

Yao-Jung Wen (ywen@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure: Nonresidential Lighting

Measure Name	Measure Description
Indoor Lighting Controls	Revision to mandatory control requirements: <ol style="list-style-type: none">1. Require adaptation compensation controls in the parking garage daylight adaptation zone2. Require occupant sensing controls in more space types3. Reduce occupant sensing control time delay to 15 minutes

Data Needs:

1. Survey of common use of 15-minute vs. 20-minute occupant sensing time delay

Contact Info:

Yao-Jung Wen (ywen@energy-solution.com, cc info@title24stakeholders.com)

Proposed Measure: Nonresidential Lighting

Measure Name	Measure Description
Indoor Lighting Controls	Indoor controls code language cleanup: <ol style="list-style-type: none">1. Require continuous dimming for daylight responsive controls2. Retain the alternative partial daylight test as the only method for daylight responsive controls acceptance testing3. Require daylight responsive control manual override to be timed or reset at the next on cycle

Data Needs:

1. Survey of ATTs' choice/use of partial daylighting test method.

Contact Info:

Yao-Jung Wen (ywen@energy-solution.com, cc info@title24stakeholders.com)

Other Proposals Under Consideration: Nonresidential

System Type: Measure Name	Measure Description
Multiple: Energy Efficiency Credits	Create a menu of options for achieving a set number of EE points in the prescriptive path to increase level of stringency for entire code. A similar increase in stringency would be applied to the performance path in terms of the percentage better than the reference case that would need to be achieved.
Multiple: Healthcare	Rework Part 11 CALGreen proposals for healthcare to be part of Part 6. Remove exceptions for healthcare buildings with a carve out for operating rooms. Create a performance pathway (or credit) for healthcare buildings.
Envelope: Hotel / Motel Guest Rooms	Eliminate hotel/motel guest rooms as separate occupancy type for consideration of envelope requirements; incorporate all hotel/motel guest room requirements under NR requirements.
Envelope: Existing Buildings Window Alterations	Update prescriptive U-factors and RSHGC in Table 141.0-A for alterations in line with the new construction recommendations and Performance Section. The proposed U-factors and RSHGC are the same as Title 24 2025 Section 140.

Other Proposals Under Consideration: Nonresidential

System Type: Measure Name	Measure Description
HVAC: Chilled Water & Hot Water Reset	Reduce the capacity threshold from 500k to 300k in Section 140.(k)4, change "or" to "and", reference Guideline 36, and eliminate exceptions that exclude variable speed systems and healthcare facilities.
HVAC: Boiler Plant Turndown	Add 140.4(k)9 to require boiler plant staging / modulation down to a low value such as 5% of peak heating capacity.
HVAC: Update AWHP Requirements	Introduce a new set of requirements for AWHP in Section 140.4 including sizing and load factor calculation requirements, a new efficiency metric for heat-recovery AWHP addressing part load, a minimum efficiency requirement under heat recovery mode, and buffer tank for supply temperature stability.
HVAC: Separate Hotel & Motel HVAC Baselines	Separate larger hotels that are more likely to install efficient central systems over a single-phase single-zone system with constant volume fan, no economizer, direct expansion cooling, and gas furnace heating.
HVAC: Performance Requirements	Add requirements to ensure energy efficiency opportunities are being leveraged to the maximum extent possible.

Other Proposals Under Consideration: Nonresidential

System Type: Measure Name	Measure Description
Covered Process: Commercial Kitchens, Demand Control Kitchen Ventilation	Move 140.9(b)2B(ii) prescriptive measure to mandatory and lower the exhaust airflow rate requirement to 3,000 cfm. Eliminate remaining options in 140.9(b)2B.
Covered Process: Commercial Kitchens, Heat Recovery Dish Machines	Prescriptively specify exhaust air or drain water heat recovery pumped rinse dish machines (rack and flight conveyor type) for all applicable commercial foodservice facilities.

Other Proposals Under Consideration: Nonresidential

System Type: Measure Name	Measure Description
Lighting: Luminaire Classification & Power Exception for Alterations & Retrofits	Add an exception for alterations and retrofits to Section 130.0(c)1A Luminaire Classification and Power to address rewiring/retrofit of existing fixtures (align with the approach ASHRAE 90.1 is currently considering).
Lighting: Outdoor Lighting Requirements Revision	Revise hardscape lighting power requirements in Tables 140.7-A and 140.7-B and BUG ratings requirements in 130.2(b) to ensure alignment with most recent ANSI/IES Standards.
Lighting: Outdoor Motion Sensor Requirements	<ol style="list-style-type: none">1) Revise/remove the outdoor motion sensor exception wattage threshold.2) Add minimum performance requirements for outdoor motion sensors (i.e., coverage pattern, sensitivity, signal latency) to Section 110.9(b)6 and/or AT procedure.

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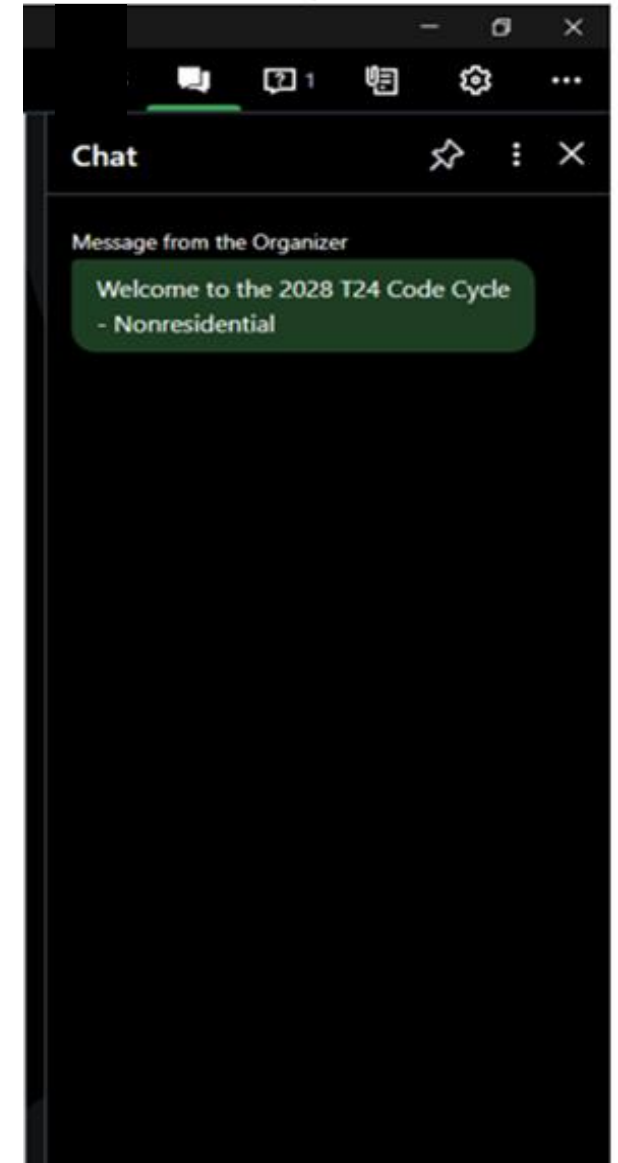
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Industrial and CEH Measures

- Proposed Measure Descriptions
- Data Needs

Amy Droitcour

Covered Process Co-Lead, 2050 Partners

amydroitcour@2050partners.com

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Process Boiler Non-Condensing Stack Economizer Requirement	Boiler stack economizers required on new, non-replacement boilers >5MMBTU/hr with stack temperature above 350°F at lowest firing rate.

Data Needs:

- 1. Facility information regarding operations and maintenance impacts of non-condensing stack economizers
- 2. Market prevalence of stack economizers

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Process Boiler Conductivity-Based Blowdown	Require acceptance testing on newly installed boilers to ensure that automatic blowdown is programmed to be controlled by conductivity in newly installed (including replacement) boilers larger than 5 MMBTU/hr.

Data Needs:

- 1. Market prevalence of conductivity-based blowdown
- 2. Lifetimes of conductivity-based blowdown equipment

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Process Boiler Submetering and Monitoring	Require newly installed boilers larger than 5MMBTU/hr to automatically monitor and log a suite of parameters and display parameters in a central location. Require process boilers to submeter natural gas.

Data Needs:

- 1. Field data on process boiler monitoring and maintenance schedules
- 2. Prevalence of use of SCADA or equivalent control system for boiler plant

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Process Steam: Flash Steam Recovery	For newly constructed steam systems with design boiler operating pressures ≥ 100 psig, require at least 50% of flash steam to be recovered.
Process Steam: Condensate Return	Require condensate return for new construction where the steam is not in contact with a process.

Data Needs:

- 1. Flash Steam: Steam facility operating profiles and current system designs
- 2. Condensate Return: Data on current practices of condensate return

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Covered Process Refrigeration - Expand Scope to Process Cooling	Remove broad exemptions for process loads in refrigerated warehouse section, and evaluate process loads for targeted exemptions.
Covered Process Refrigeration - Monitoring	Require a suite of monitoring with data reported as actionable intelligence to an operator console for refrigerated spaces & processes.

Data Needs:

- 1. Information on industry-specific scenarios that require exemptions from scope expansion
- 2. Field data on current practices regarding monitoring data and use of data by on-site and external personnel
- 3. Information about efficiency and prevalence of advanced refrigeration control systems and strategies (e.g., floating head pressure, ambient following fan-operation reducing, process-specific strategies)

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, Industrial

Measure Name	Measure Description
Compressed Air Systems Air Drying	<ol style="list-style-type: none">1. Require dew point controls for desiccant air dryers.2. Require demand-based regeneration for desiccant air dryers.3. Require demand-based refrigeration for refrigerated air dryers.4. Require desiccant dryers be heated for dewpoints > -100°F.

Data Needs:

1. Prevalence of different types of air dryers; typical sizing and set point/target dewpoint
2. Process-specific needs for certain air dryer types
3. Operations and maintenance considerations for various air dryer types

Contact Info:

Lily Baldewicz (lilybaldewicz@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, CEH

Measure Name	Measure Description
Controlled Environment Horticulture (CEH) HVAC and Dehumidification Design Review	Require third party design review of CEH HVAC/D system and development of a commissioning plan.
CEH HVAC/D Prescriptive and Performance Approaches	Establish prescriptive HVAC/D requirements in CEH spaces. Allow compliance using performance approach.

Data Needs:

- 1. Field data on energy usage for decoupled dehumidifiers and HVAC, integrated HVAC/D equipment, and chillers with series heat recovery
- 2. Data on sequences of control of decoupled and integrated systems
- 3. Cost and sizing data for decoupled vs. integrated systems

Contact Info:

Garth Torvestad (garthtorvestad@2050partners.com, cc info@title24stakeholders.com)

Proposed Measure(s): Covered Process, CEH

Measure Name	Measure Description
CEH Lighting Photosynthetic Photon Efficacy Requirement	Update PPE requirement from 2.3 to 2.5 micromoles per joule.
CEH Lighting Daily Light Integral or PPFD Sensor and Lighting Controls	Require daylight integral controls or PPFD sensors and controls to adjust lighting In horticultural lighting for greenhouses.

Data Needs:

1. Information on current industry practice related to lighting controls in order to inform performance baseline

Contact Info: Sean Steffensen (ssteffensen@energy-solution.com, cc info@title24stakeholders.com)



Summary

Poll

Choose all that apply.

Which System Type(s) are you most interested in collaborating with us on?

- A. Covered Processes
- B. Domestic Hot Water / HVAC
- C. Envelope
- D. Lighting
- E. None of the above

NR Subject Matter Leads Contact Information

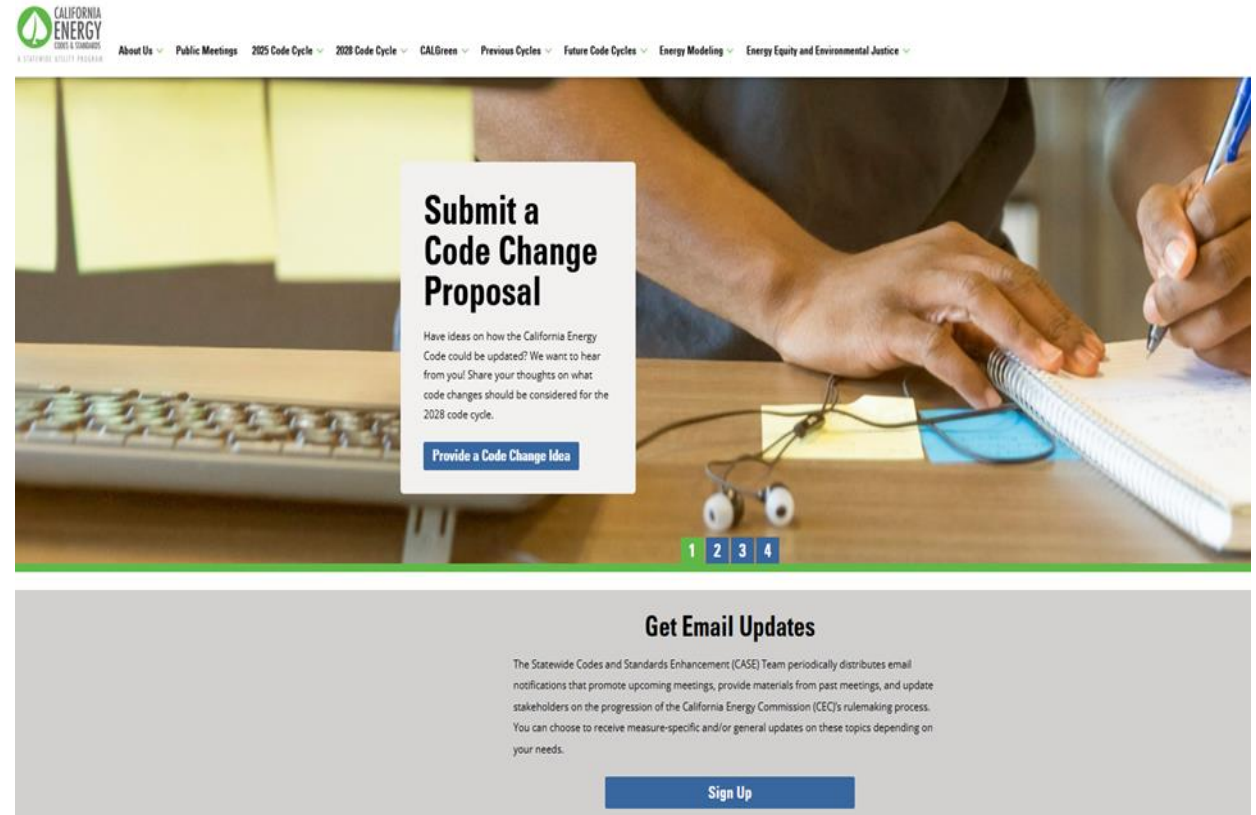
Topic Areas	Name	Contact Information
Covered Process – Kitchens	Kiri Coakley	kcoakley@energy-solution.com
Covered Process – Pools, Elevators	Sean Steffensen	ssteffensen@energy-solution.com
Covered Process – Industrial	Lily Baldewicz	lilybaldewicz@2050partners.com
Covered Process – CEH	Garth Torvestad	garthtorvestad@2050partners.com
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Healthcare	DJ Joh	djoh@energy-solution.com
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Envelope	Maureen Guttman	mguttman@energy-solution.com
Lighting	Yao-Jung Wen	ywen@energy-solution.com

Participate In the Process

Stakeholder engagement is encouraged throughout the code cycle:

- ✓ Submit a code change proposal
- ✓ Share knowledge and data
- ✓ Attend our utility-sponsored stakeholder meetings
- ✓ Participate in CASE surveys
- ✓ Review CASE Reports
- ✓ Submit comments

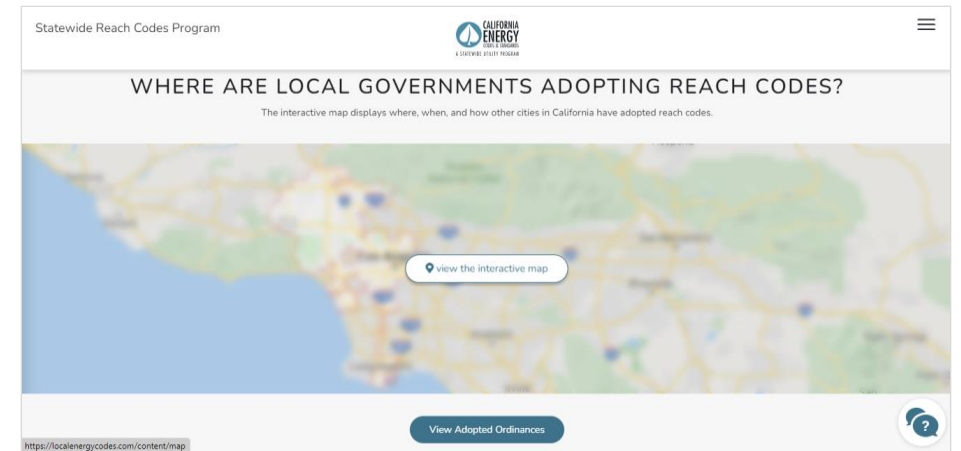
info@title24stakeholders.com



Sign up for our listserv at [Title24stakeholders.com](https://www.title24stakeholders.com)

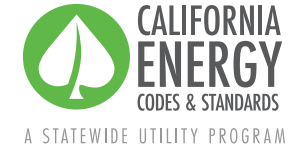
Get in Touch

1. Visit [Title24stakeholders.com](https://title24stakeholders.com) to sign up for our listserv, or contact info@title24stakeholders.com
2. Follow 'Title 24 Stakeholders' on [LinkedIn](#)
3. Visit [Energy Code Ace](#) for compliance support and the [Local Energy Codes](#) program for information on statewide reach code activity
4. Contact the CEC [Building Energy Efficiency Standards - Title 24](#)



Thank You

Questions?



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