Agenda

Welcome, Introductions, and Objectives  9:00 – 9:15

2019 Standards and State of the State  9:15 – 9:45

2019 Initial Analysis Status and Results  9:45 – 10:45

BREAK  10:45 – 11:00

Putting It All Together (Discussion)  11:00 – 12:15
- Reach Code Process
- Options for 2019 and What’s Right for Your Jurisdiction

Wrap-Up  12:15 – 12:30
Workshop Objectives

- **Discuss**: technical and resource priorities.
- **Identify**: best practices; and
- **Review**: adoption process;
- **Share**: experiences and lessons learned;
- **Discuss**: reach code options and opportunities;
- **Share**: new standards information and draft analysis;
Green Building Ordinances & Reach Codes
California Building Standards Code (Title 24)

Title 24 is Composed of 12 "Parts," Described Below:

- Part 1 - California Building Standards Administrative Code
- Part 2 - California Building Code - Vol. I & II
- Part 3 - California Electrical Code
- Part 4 - California Mechanical Code
- Part 5 - California Plumbing Code
- Part 6 - California Energy Code
- Part 7 - No longer published in Title 24; see Title 8 CCR
- Part 8 - California Historical Building Code
- Part 9 - California Fire Code
- Part 10 - California Existing Building Code
- Part 11 - California Green Building Standards Code
- Part 12 - California Reference Standards Code
Legal Requirements for Reach Codes

- Compliance with local requirements for ordinances
- Compliant with all state laws
- Updated for each new Building Code cycle
- Filed with the State
- Accessible to the public
- More stringent than state requirements
- Cost effective
- May not preempt federal regulations

(effectively, may not specifically require high efficiency HVAC and DHW equipment or any other appliances for which there is a federal standard)
EXECUTIVE ORDER B-30-15

• April 29, 2015 “Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America”

• greenhouse gas reduction target of 40 percent below 1990 levels by 2030

  • aligns California with leading international governments

  • California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)

  • Makes it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050.
SB 350 codifies the Governor's aggressive clean energy goals

- signed into law on October 7, 2015

- SB 350 increases California's renewable electricity procurement goal from **33 percent by 2020** to **50 percent by 2030**.
  - Increases the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others.

- SB 350 requires the state to **double statewide energy efficiency savings in electricity and natural gas end uses** by 2030.
Directs state agencies to undertake various studies to identify and assess the following:

Barriers to, and opportunities for, solar photovoltaic energy generation as well as barriers to, and opportunities for, access to other renewable energy by low-income customers; and barriers to contracting opportunities for local small businesses in disadvantaged communities. Barriers for low-income customers to energy efficiency and weatherization investments, including those in disadvantaged communities, as well as recommendations on how to increase access to energy efficiency and weatherization investments to low-income customers

This study was conducted by the Energy Commission and was adopted December 14, 2016. “Low-Income Barriers Study”
Legislative Mandates
Supporting Legislation – **Assembly Bill 802**

- Signed into law on October 8, 2015 **authorizing the Energy Commission to create a building energy-use benchmarking and disclosure program**
- Existing law requires **electric and gas utilities to maintain records of the energy consumption data of all nonresidential buildings, in a format compatible for uploading to the United States Environmental Protection Agency’s ENERGY STAR Portfolio Manager**
- Existing law requires the Energy Commission to develop and implement a comprehensive program to **achieve greater energy savings in existing residential and nonresidential building stock.**
AB 802 directed the Energy Commission to create a statewide building energy use benchmarking and public disclosure program for buildings larger than 50,000 square feet.

- require building owners to report building characteristic information and energy use data to the Commission by June 1 annually, beginning in 2018 for buildings with no residential utility accounts, and in 2019 for buildings with 17 or more residential utility accounts.

- effective January 1, 2017, also requires that energy utilities provide building-level energy use data to building owners, owners' agents, and operators upon request for buildings with no residential utility accounts and for buildings with five or more utility accounts.
• The Energy Commission will publicly disclose some of the reported information beginning in 2019 for buildings with no residential utility accounts, and 2020 for buildings with residential utility accounts.

• The cities of San Francisco, Berkeley, and Los Angeles have local benchmarking and public disclosure programs whose requirements exceed those of the state program.
Under existing law, the California Renewables Portfolio Standard Program requires that the total kilowatt-hours of products sold to retail end-use customers achieve 25% of retail sales by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030.

This bill revises the above-described legislative findings and declarations to state that the goal of the program is to achieve that 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030.
This bill states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% of electricity procured to serve all state agencies by December 31, 2045.

The bill would require the PUC and the Energy Commission, in consultation with the state board, to take steps to ensure that a transition to a zero-carbon electric system for the State of California does not cause or contribute to greenhouse gas emissions increases elsewhere in the western grid.
The **Warren-Alquist Act** is the legislation that created and gives statutory authority to the California Energy Commission

§ 25402. **Reduction of wasteful, uneconomic, inefficient or unnecessary consumption of energy**

- Prescribe, by regulation, lighting, insulation climate control system, and other building design and construction standards that increase the efficiency in the use of energy and water for new residential and new nonresidential buildings.

- Prescribe, by regulation, energy and water conservation design standards for new residential and new nonresidential buildings. The standards shall be **performance standards** and shall be promulgated in terms of energy consumption per gross square foot of floorspace, but may also include devices, systems, and techniques required to conserve energy and water. The commission shall periodically review the standards and adopt any revision that, in its judgment, it deems necessary.
The Warren-Alquist Act is the legislation that created and gives statutory authority to the California Energy Commission

§ 25402.1. Duties of commission; public domain computer program; certification process; manual, sample calculations, and model designs; pilot project of field testing; technical assistance program; enforcement and resolutions

§ 25402.2. Building standards

§ 25402.3. Regional training centers for local building officials and enforcement personnel; locations; sessions; workshops for rural areas

§ 25402.4. Nonresidential building standards; option using passive or semi passive thermal systems; construction techniques

§ 25402.5. Lighting device; lighting subject to § 25402; declaration of existing law; adoption of efficiency standards for outdoor lighting

§ 25402.5.4. General purpose lights; standards; adoption; purchase of lights meeting or exceeding standards

§ 25402.6. Decrease of wasteful peak-load energy consumption in existing residential and nonresidential buildings; development and implementation of plan

§ 25402.7. Support for specified building standards and other regulations by electric and gas utilities

§ 25402.8. Indoor air pollution; assessment of new building standards
California Building Standards Code
Title 24 of the California Code of Regulations

PART 1 - CALIFORNIA ADMINISTRATIVE CODE
PART 2 - CALIFORNIA BUILDING CODE
PART 2.5 - CALIFORNIA RESIDENTIAL CODE
PART 3 - CALIFORNIA ELECTRICAL CODE
PART 4 - CALIFORNIA MECHANICAL CODE
PART 5 - CALIFORNIA PLUMBING CODE
PART 6 - CALIFORNIA ENERGY CODE
PART 7 - Vacant
PART 8 - CALIFORNIA HISTORICAL BUILDING CODE
PART 9 - CALIFORNIA FIRE CODE
PART 10 - CALIFORNIA EXISTING BUILDING CODE
PART 11 - CALIFORNIA GREEN BUILDING STANDARDS CODE
PART 12 - CALIFORNIA REFERENCED STANDARDS CODE
Subchapter 1 describes the scope of the standards and includes the definitions and rules of construction that apply to Part 6.

Subchapter 2 contains mandatory requirements for all buildings.

Subchapter 3 contains additional mandatory requirements for new nonresidential, high-rise residential, and hotel/motel buildings.

Subchapter 4 contains still more mandatory requirements for new nonresidential, high-rise residential, and hotel/motel buildings.

Subchapter 5 sets the performance (energy budget) and prescriptive (package of measures) compliance approaches for new nonresidential, high-rise residential, and hotel/motel buildings.

Subchapter 6 establishes the requirements for additions, alterations, and repairs to existing nonresidential, high-rise residential, and hotel/motel buildings.
Subchapter 7 contains the mandatory requirements for new low-rise residential buildings.

Subchapter 8 sets for the performance (energy budget) and prescriptive (package of measures) compliance approaches for new residential buildings.

Subchapter 9 establishes the requirements for additions and alterations to existing low-rise residential buildings.

Part 6 also includes a set of appendices that are adopted along with and are a part of the standards. Due to their volume and complexity, they are not codified, but are incorporated by reference.
Three key areas:

1. proposing new requirements for installation of solar photovoltaics for newly constructed low-rise residential buildings

2. updating current ventilation and Indoor Air Quality (IAQ) requirements, including references to ASHRAE 62.1 and 62.2

3. extending Title 24 Part 6 to apply to healthcare facilities
For solar:

- Adding new prescriptive requirements for installing solar photovoltaic systems in newly constructed residential buildings, including exceptions to address conditions where meeting the solar photovoltaic systems requirements are not feasible or cost effective.
- Specifying use of an Energy Design Rating in the performance approach to compliance to support solar photovoltaic requirements.
- Adding Joint Appendix 11 and 12 to support solar photovoltaic and battery storage systems installed to comply with Part 6.
- Adding a performance standards exception allowing community shared solar electric generation or battery storage systems to serve as a full or partial option for the onsite solar photovoltaic systems requirements, and adding an administrative process in Part 1 for Commission approval of compliance options for community shared systems that provide equal or greater energy saving benefits to buildings that would otherwise have onsite solar PV systems, in a manner that is both valid and enforceable.
For ventilation:

- References to ASHRAE 62.2 have been updated to incorporate the current version by reference.
  - Amendments to the current version of ASHRAE 62.2 are proposed as found to be appropriate to ensure efficiency and indoor air quality.
- Increasing air filter filtration requirements to a Minimum Efficiency Reporting Value (MERV) of 13, necessary for filtering out the smallest category of potentially harmful particulates.
- Extending air filtration requirements to apply to supply-only ventilation systems and the supply side of balanced ventilation systems.
- Changes to multifamily ventilation include specifying that dwelling units may either use balanced ventilation or verify leakage rates with a blower door test.
- Updating HERS procedures specified in the Residential Appendix where needed to support the changes in Part 6.
For **attics**, increasing the prescriptive R-value for below roof deck insulation from R-13 to R19.

For **walls**:
- Increasing prescriptive R-value requirements from R19 fill and R5 continuous insulation to R21fill with R5 continuous insulation, reflecting an overall decrease in the performance U-factor for the assembly from 0.051 to 0.048
- Adding QII to the prescriptive requirements for newly constructed buildings.

For **fenestration**:
- Updating the definitions of “door” and “glazed door” to match National Fenestration Rating Council (NFRC) definitions. This lowers the threshold for a door to be considered a glazed door from 50% glazing to 25% glazing.
- Updating the prescriptive U-factor for windows from 0.32 to 0.30, and updated the prescriptive Solar Heat Gain Coefficient (SHGC) required in Climate Zones 2 and 5 - 15 from 0.25 to 0.23.
For **lighting**, revising JA8 to align testing requirements with current federal, state and ENERGY STAR test procedures, and to allow use of the NEMA 77 test standard for flicker.

For **water heating**:  
- The specifications for compact distribution have been revised  
- New specifications for Drain Water Heat Recovery have been added.  
- Adding an option for prescriptive compliance using a heat pump water heater.

For **furnaces**:  
- Updating minimum fan efficacy requirements to 45 cfm per watt.  
- Adding options for prescriptive compliance using one or more heat pumps.

For **HVAC**  
- Adding airflow requirements specific to Small Duct High Velocity (SHDV) systems. This resolves an issue of flow rates for standard ducting being applied to SHDV systems.

Adding addition and alteration requirements that are specific to creating Accessory Dwelling Units.
Extending the Scope of Part 6 to healthcare facilities, and incorporating several Exceptions to ensure appropriate application of efficiency standards.

For ventilation:
- Incorporate the Natural Ventilation and Exhaust Ventilation Procedures of the 2016 ASHRAE 62.1.
- Updating the ventilation rate table to list the ventilation rate for more spaces.
- New requirements for ventilation air that can be used for recirculation and transfer air.
- Updating filtration requirements to a minimum MERV 13, necessary for filtering out the smallest category of potentially harmful particulates.
For **lighting**:

- Updating prescriptive indoor and outdoor lighting power allowance values to assume the use of LED lighting, and added new Power Adjustment Factors for several daylighting devices.
- Reducing wattage thresholds for Exceptions to outdoor lighting controls to account for lower wattage LED fixtures.
- Updating the procedure for determining installed lighting power to allow the efficiency of installed lamps to be considered, and to create a more comprehensive framework for evaluating modular lighting (including track lighting).
- Adding **occupancy sensing requirements for restrooms**.
- Merging and standardizing the prescriptive alteration requirements for lighting controls, and limiting the projects that can proceed without determining the square footage of the affected spaces.
Adding requirements for laboratory fume hoods to use efficient fans and incorporate automatic sash closure.

For HVAC:
- Updating requirements in several areas to maintain alignment with ASHRAE 90.1:
  - Fan system power requirements
  - Equipment efficiency requirements
  - Transfer air for exhaust air makeup
  - Demand control ventilation requirements for classrooms
  - Occupant sensor ventilation control requirements (with amended setpoints)
- Waterside economizer requirements (with amended minimum efficiency requirements)
- Expanded the Economizer Fault Detection and Diagnostics requirement to all systems over 4.5 tons of cooling that are equipped with an air economizer.
- Amended the sizing calculations and equipment selection criteria to make it applicable to healthcare facilities.
Expanded the water economizer requirement to also be applicable to system that do not utilize a fan.

New requirements for water economizer operation and design to limit the impact of pumps.

New prescriptive efficiency requirements for cooling towers

New condenser efficiency and system control requirements for adiabatic condensers serving refrigerated warehouses and supermarkets

**Acceptance Tests**

- Nonresidential Appendix 2 – New procedures where added for high-rise residential dwelling unit ventilation and dwelling unit envelope leakage.
- Nonresidential Appendix 7 – New Acceptance Test were added for occupancy zone control, adiabatic condensers, laboratory and factory exhaust, and automatic closing fume hood sashes.
Title 24 PART 11 “CALGreen”
CALIFORNIA GREEN BUILDING STANDARDS CODE

CHAPTER 1 - ADMINISTRATION
CHAPTER 2 - DEFINITIONS
CHAPTER 3 - GREEN BUILDING (Scope)
CHAPTER 4 - RESIDENTIAL MANDATORY MEASURES
CHAPTER 5 - NONRESIDENTIAL MANDATORY MEASURES
CHAPTER 6 - REFERENCED ORGANIZATIONS AND STANDARDS
CHAPTER 7 - INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS
CHAPTER 8 - COMPLIANCE FORMS, WORKSHEETS AND REFERENCE MATERIAL
APPENDIX A4 - RESIDENTIAL VOLUNTARY MEASURES
APPENDIX A5 - NONRESIDENTIAL VOLUNTARY MEASURES
APPENDIX A6.1 - VOLUNTARY STANDARDS FOR HEALTH FACILITIES [OSHPD 1, 2 & 4]
Appendix A4
Residential Voluntary Measures

• Section A4.203.1.1.1
  Performance Approach for Newly Constructed
  – based on target EDR scores
    (no longer “Percent better than” mandatory Part 6)
Appendix A4

Residential Voluntary Measures

Required Prerequisites:

• A4.203.1.1.2 Quality Insulation Installation (QII)

AND Choose ONE of the Prerequisites below:

• A4.203.1.2.1 Roof deck insulation, or ducts in conditioned space
• A4.203.1.2.2 High Performance Walls (HPW)
• A4.203.1.2.3 HERS-Verified Compact Hot Water Distribution System (CHWDS-H)
• A4.203.1.2.4 HERS-Verified Drain Water Heat Recovery (DWHR-H)
Appendix A4

Residential Voluntary Measures

• A4.203.1.3.1 Tier 1.

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• A4.203.1.3.2 Tier 2.

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• Section A4.204 Performance Approach for Additions has been struck
Appendix A5
Nonresidential Voluntary Measures

Choose **ONE** of the following Prerequisites for **Tier 1** and **TWO** for **Tier 2**:

- A5.203.1.1.1 Outdoor lighting
- A5.203.1.1.2 Service water heating in restaurants
- A5.203.1.1.3 Warehouse Dock Seal Doors
- A5.203.1.1.4 Daylight Design
  Power Adjustments Factors (PAFs)
- A5.203.1.1.5 Exhaust Air Heat Recovery
Appendix A5

**Nonresidential** Voluntary Measures

Section A5.203, Performance Approach

- Retain the “Percent better than” mandatory language

- Target Percentages continue to vary depending on whether lighting and/or mechanical systems are included for nonresidential building projects
  - **Tier 1**: 5% or 10%
  - **Tier 2**: 10% or 15%

- For **high-rise residential and hotel/motel projects the target percentages were adjusted** to reflect that there is no additional credit available for lighting improvements
  - **Tier 1**: 5%
  - **Tier 2**: 10%
Questions?

Building Energy Efficiency Program 2019 Update

http://www.energy.ca.gov/title24/2019standards/rulemaking/

Contact Information

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916-651-1461
2019 Standards
Initial (DRAFT) Analysis Results and Opportunities
2019 Standards Analysis: First, Some Important Terms and Definitions

- Performance and Prescriptive Methods
- CEC Compliance Software (CBECC-Res, CBECC-Com)
- Time Dependent Valuation (TDV)
- Climate Zones
  - CZ 3 - San Francisco, Oakland, Richmond...
  - CZ 12 – Walnut Creek, Modesto, Sacramento...
- High-rise residential (Part 6): Four or more habitable stories
Avoiding Preemption: High Efficiency Appliances and Equipment

- State and local governments may not “preempt” federal appliance standards (includes HVAC and water heaters).
- State and local building codes must meet seven conditions to avoid preemption (US Code 42, Section 6297).
- If the code includes one or more options to meet the objective:
  - for every option which includes a high-efficiency appliance or equipment, at least one option shall include the same equipment which is ≤ 5% more efficient than the minimum.
  - At least one option which meets but does not exceed the minimum requirement.
DRAFT Analysis:
2019 Cost-effectiveness Studies

- Identify cost-effective, non-preempted measure packages
- New construction only (additions and alterations later)
- Mixed-fuel and all-electric designs and baselines
- Low-rise residential (single family and low-rise multifamily)
  - CALGreen Tier 1
- Nonresidential (office, high-rise residential)
  - PV only
Low-rise Residential New Construction: Climate Zone 3 DRAFT Results

Energy Efficiency (EE) Package
- Mix1 - EE: PV size ≤ annual usage (2.6 kW)
- Elec1 - EE: PV size < Standard Design (2.7 kW)

EE + PV / EE + PV + Battery
- Mix2 - EE+PV+Batt: PV size = annual usage (2.8 kW); 7.5 kWh battery
- Elec2 - EE+PV: PV size = annual usage (4.2 kW)
Low-rise Residential New Construction: Climate Zone 12 DRAFT Results

Energy Efficiency (EE) Package
- Mix1 - EE: PV size ≤ annual usage (2.6 kW)
- Elec1 - EE: PV size < Standard Design (2.5 kW)

EE + PV / EE + PV + Battery
- Mix2 - EE+PV+Batt: PV size = annual usage (2.6 kW); 7.5 kWh battery
- Elec2 - EE+PV: PV size = annual usage (4.7 kW)
Low-rise Residential New Construction: **DRAFT GHG Savings**

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Low-Rise Residential: Additional Measures and Options Requested To-Date

Measures that require cost-effectiveness analysis
- CALGreen Tiers 1 and 2
- Storage
  - Including EV load
- Multifamily

Measures that do not require cost-effectiveness analysis
- Electric-ready measures: CBSC
  - Electrical Panel, Water Heating, Clothes Drying, Cooking
- EV-Ready (SF, MF)
Nonresidential and High-Rise Residential New Construction

- Compliance Plus PV scenarios only now
- PV System Sizing:
  - 80% of estimated load
  - 15W/sqft of solar zone (> 15% of roof area)
- Nonresidential Next Steps:
  - Analyze CALGreen Tiers
- High-Rise Residential
  - Continue work with CEC to develop new, more representative prototypes
## Nonresidential and High-Rise Multi-Family: Climate Zone 3 DRAFT Results

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<th>PV Sizing Method</th>
<th>PV Size (kW)</th>
<th>Lifecycle Costs ($)</th>
<th>Lifecycle Bill Savings ($)</th>
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## Nonresidential and High-Rise Multi-Family: Climate Zone 12 DRAFT Results

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<td>406,503</td>
<td>310,031</td>
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<td>80% Elec. Load</td>
<td>252</td>
<td>621,621</td>
<td>3,173,529</td>
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<td>15W/sf solar zone</td>
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<td>47,297</td>
<td>382,937</td>
<td>335,640</td>
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Nonresidential Occupancies: Additional Measures and Options Requested To-Date

- CALGreen Tiers 1 and 2
- Efficiency plus PV packages
- Mid- and high-rise residential
- PV on Parking Garages
- Electric-Ready Construction (electrical code)
  - 240V for space heater, water heater, clothes dryer, cooktop, panel upgrade
  - Increased EV requirements in Parking Garages (electrical code)
    - EV-capable and EV-ready
Energy Plus Water Nexus

Some potential measures include:

- Preplumb for graywater
  - New construction and retrofits that affect relevant plumbing
- Drain water heat recovery
- Alternate / Dual plumbing for indoor use
- On-demand recirculation pump, thermostatic shutoff valve
- Controls for multifamily central water heating system retrofits
- Recycled water in nonresidential, common areas of multifamily or landscaping controlled by a Homeowner Association (HOA)
  - If available, or if planned within 5-10 years.
Summary of Initial DRAFT Analyses

**Residential New Construction**
- Can likely achieve 10-15% reduction in EDR with efficiency-only package
- Tier 1 requires additional efficiency plus:
  - PV to offset load in All-Electric design
  - PV to offset load plus Battery in Mixed-Fuel Design

**Nonresidential New Construction**
- PV appears cost-effective across range of occupancies, building and system sizes
- Tier 1 analysis next

**Energy Plus Water**
- No cost-effectiveness study required for most measures.
- Supporting analysis available
Break
Local Reach Code Process

- Acquire Cost-Effectiveness Study
- Conduct Outreach and Refine Scope
- Prepare Staff Report and Supporting Documents
- Introduce Ordinance: First Reading
- Adopt Ordinance: Second Reading
- Obtain CEC Approval
- File with CBSC and Prepare to Implement
<table>
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<tr>
<th>Task</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>Develop idea for draft ordinance</td>
<td>Sep</td>
<td>Oct</td>
<td>Nov</td>
</tr>
<tr>
<td>Compliance software completed</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Develop cost-effectiveness study</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Work with stakeholders</td>
<td></td>
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<tr>
<td>Develop &amp; draft ordinance</td>
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<tr>
<td>Review by local committees</td>
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<tr>
<td>Public process &amp; revisions</td>
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<tr>
<td>First reading of ordinance (introduction)</td>
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<tr>
<td>Second reading of ordinance (adoption)</td>
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<td>Application to CEC (submit by 9/30)</td>
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<td>Reach code takes effect (1/1/20)</td>
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Reach Code Process: Hearing from the Experts (you!)

- What has worked well?
- What has not worked well?
- What do you wish you had known?
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<th>Scope / Measure</th>
<th>C/E Study Required</th>
<th>New</th>
<th>Existing</th>
<th>Single Family</th>
<th>Multifamily</th>
<th>Non-Residential</th>
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<td></td>
<td>Low-Rise</td>
<td>Mid-Rise</td>
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<td>Efficiency and/or Renewables</td>
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Reach Code Options: Interests and Priorities

- What is your jurisdiction interested in exploring?
- What are your jurisdiction's priorities?
Three Ways to Start Reach Code Work

- Begin Internal Research
  - Existing policy documents
  - Construction Types and Volumes
- Develop Initial Ordinance Scope
- Begin Informal Outreach
  - Within Jurisdiction
  - Within Community
  - Neighboring Jurisdictions
Wrapping Up

**Takeaways**

- Start now to have a reach code in effect January 1, 2020
- Options to consider

**Next Steps**

- Provide all information from today to you electronically
- Complete cost-effectiveness studies
- Best Practices Guide: Early 2019
- Re-Convene First Quarter, 2019
Thank you!

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