



Panel #2: Policy innovations to ensure, scale and sustain action

## Strategies California, USA Developed to Support Their Energy and Environmental Goals

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Gina Rodda  
Gabel Energy

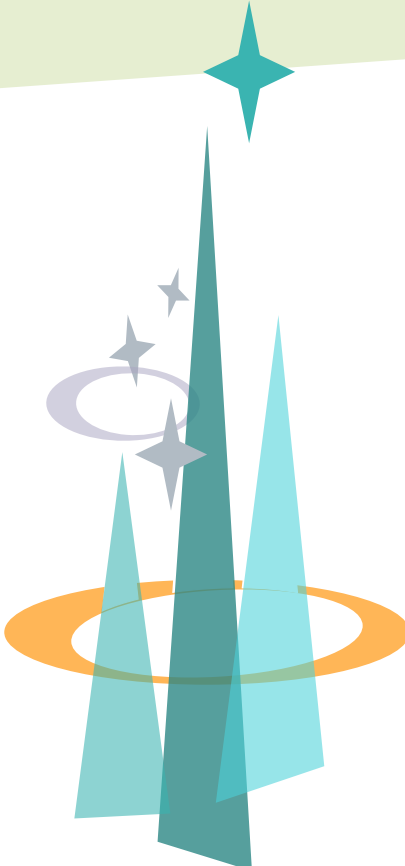
Brian Selby  
Selby Energy, Inc.

# Challenges California Faces



- ✦ California, has one of the most stringent energy codes in the US
  - ✧ Stringency increases every 3 years
  - ✧ Increased stringency while maintaining compliance flexibility creates complexity
- ✦ Meeting building energy and environmental goals largely depend on code compliance and enforcement
  - ✧ Building industry is slow at adapting to new and more stringent regulations
  - ✧ Enforcing energy code is complicated and time consuming
  - ✧ The energy code is only one of many building codes that must be met

# California Strategies to Support Energy and Environmental Goals

- 
- ✦ Adopt legislation supporting California's fast-moving energy and environmental policy goals
  - ✦ Create mechanisms to support market transformation of the Energy Efficiency industry
  - ✦ Develop incremental, cost-effective energy code improvements on a triannual building code cycle
  - ✦ Implement Innovative compliance improvement program built upon collaborative multi-prong tactics to sustaining these goals

# Energy and Environmental Agencies

Commissions established by *Executive branch* in support of California's adopted executive orders on energy and environmental goals:

## **California Public Utilities Commission**

(CPUC) regulates privately owned electric and natural gas (and others not listed) companies appointed by the Governor

**California Energy Commission** (CEC) is the state's primary energy policy and planning agency in meeting energy policy goals

**California Building Standards Commission** (CBSC) to administer building code adoption process

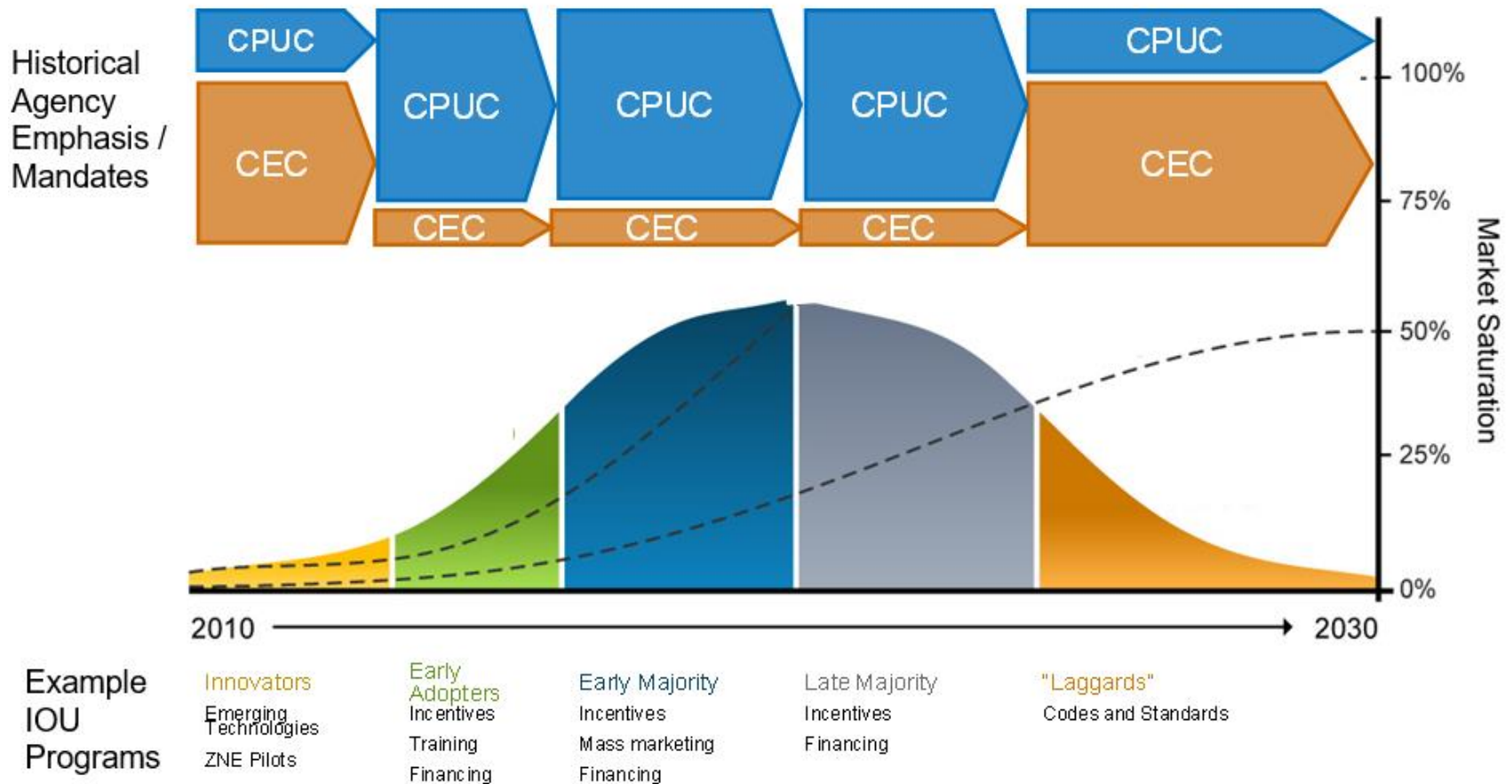
★ **Executive:** Under the leadership of the elected Governor that administers and enforces the laws of California

★ **Legislative:** Composed of the State Assembly and State Senate in which elected members make the laws for the state

★ **Judicial:** The courts make sure the Executive and Legislative branches are not in conflict with state constitution

# CPUC: Policy Focus

## CPUC policy emphasis focused on voluntary market



Source:  
[https://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/Utilities\\_and\\_Industries/Energy/Energy\\_Programs/Demand\\_Side\\_Management/EE\\_and\\_Energy\\_Savings\\_Assist/CPUCEEPrimer\\_.ppt](https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/EE_and_Energy_Savings_Assist/CPUCEEPrimer_.ppt)

# California's Goals



1

1978

- ✦ Title 24, Part 6, California State Building Energy Efficiency Standards established:
  - ✦ Updates every 3 years and required to be more energy stringent each cycle
  - ✦ Energy efficiency requirements must be cost effective

# California's Goals



1978



2020

- ✦ Big Bold Strategies – California's Energy Efficiency Strategic Plan (CEESP) introduced in 2008
  - ✧ State's first integrated framework of goals and strategies for saving energy
  - ✧ Zero Net TDV Energy for new single family and low-rise multifamily buildings
- ✦ AB32 Global Warming Solutions Act (2006):
  - ✧ Reduce carbon emissions to 1990 levels

# California's Goals



1978

2020

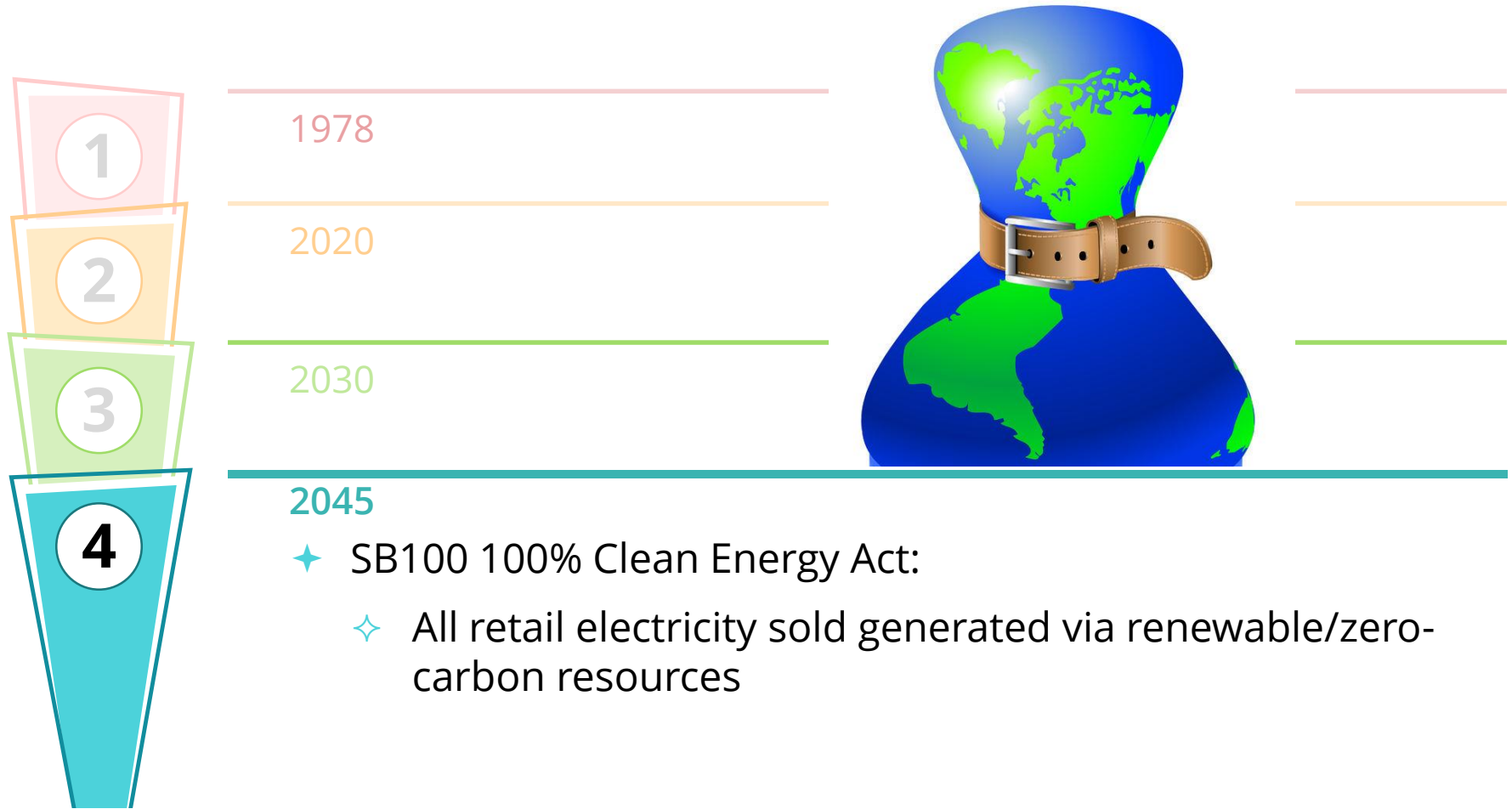
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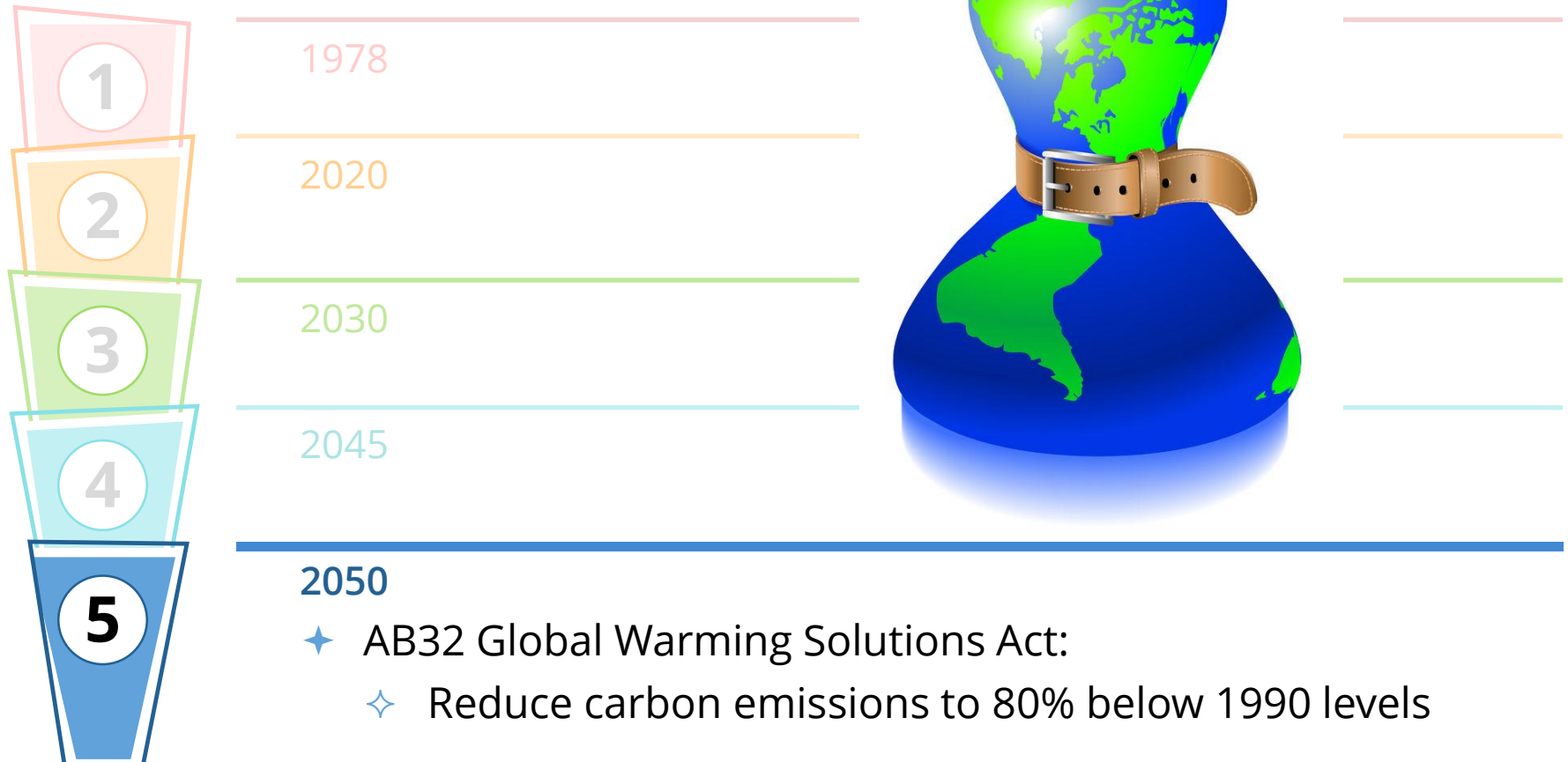
- ★ Big Bold Strategies (CEESP):
  - ✧ Zero Net TDV Energy for nonresidential and high-rise multifamily buildings
- ★ AB32 Global Warming Solutions Act (Governor' executive order):
  - ✧ Reduced carbon emissions to 40% below 1990 levels
- ★ SB100 Clean Energy Act:
  - ✧ At least 60% of California's electricity is renewable



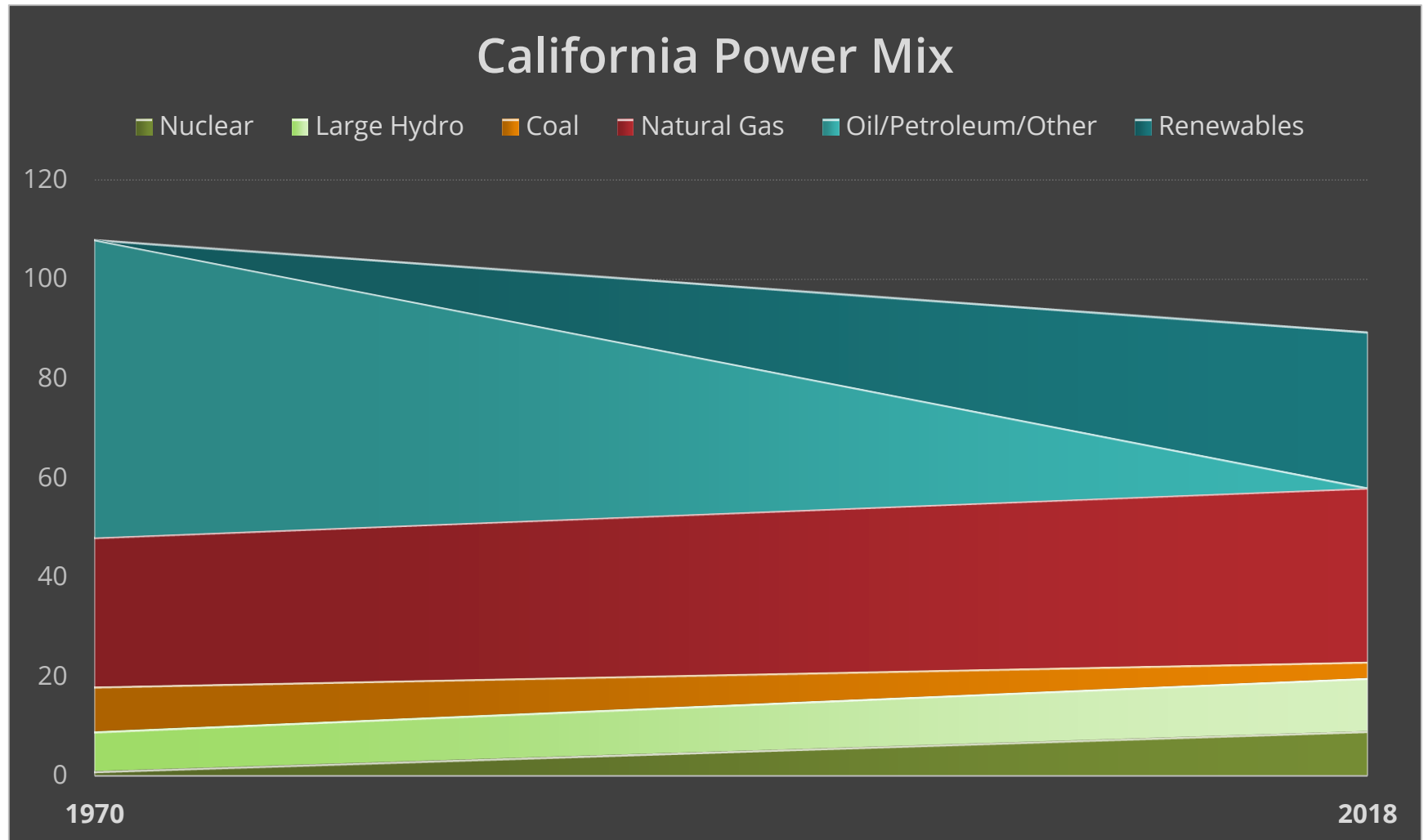
# California's Goals



# California's Goals

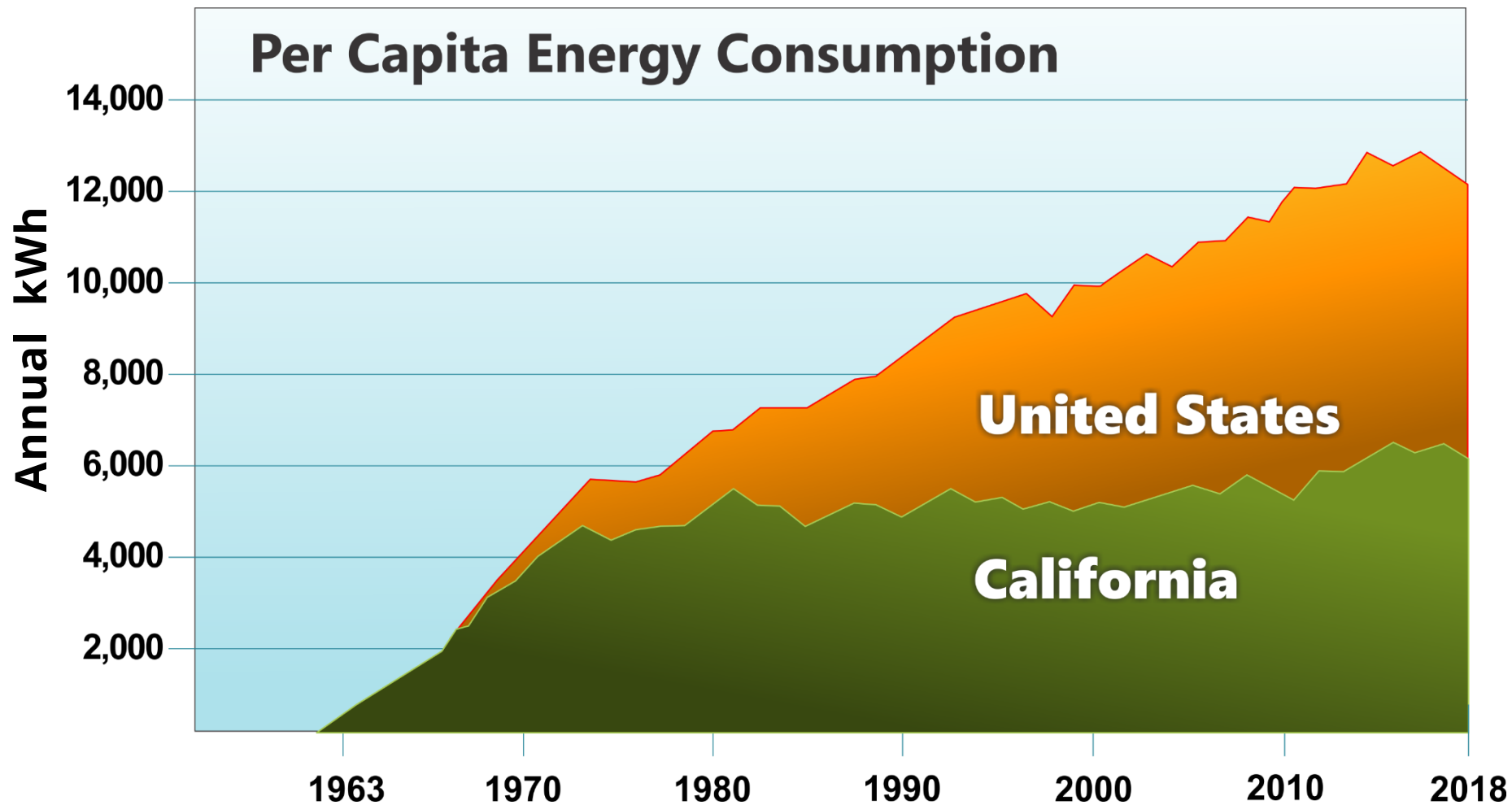


# California's Energy Source Evolution



Sources: <https://youtu.be/z8-1eOb5iDo>; <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation/2018>

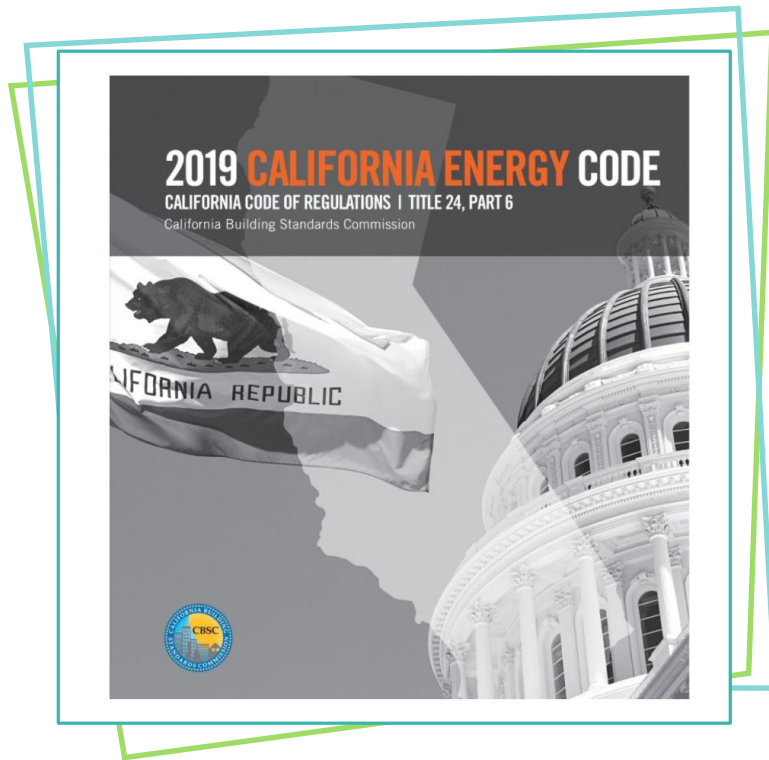
# California's Energy Efficiency Evolution



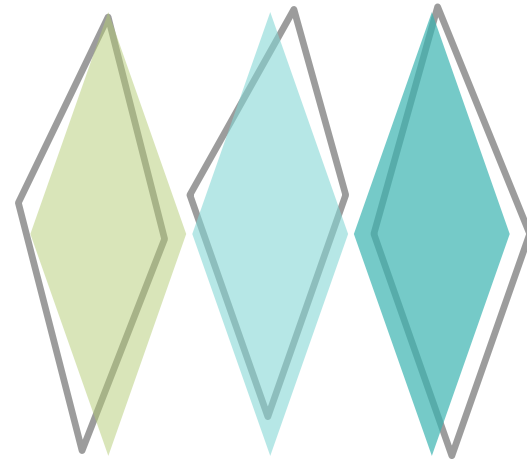
Source: California Energy Commission publication, *Toward A Clean Energy Future, 2018 Integrated Energy Policy Report Update Volume I*, Adopted August 1, 2018; [https://ww2.energy.ca.gov/2018\\_energy\\_policy/](https://ww2.energy.ca.gov/2018_energy_policy/)



# California's Energy Code In Action



## California's Energy Code In Action



## Measuring Energy

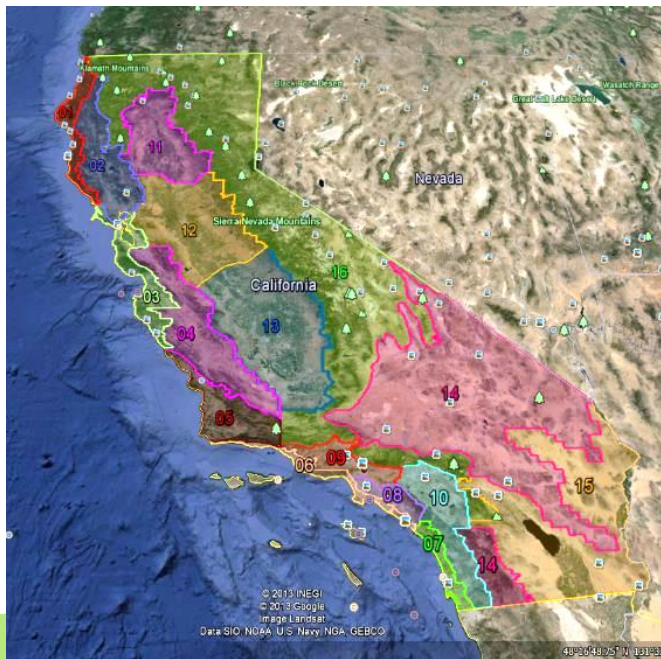


### Time dependent value (TDV)

- ✦ Gives greater weight to energy saved during peak periods – or periods when the generation capacity is at its limit and when the distribution system is near capacity.
  - ✧ Time of day is the energy being used
  - ✧ Where in California is the energy being used (climate zone)
  - ✧ Type of energy is being used



## Climate Zones



What is the difference between the Climate Zones?

- ✦ Climate conditions determine the “zone” a location is assigned to and considers all of the following:
  - ✦ Humidity
  - ✦ Elevation
  - ✦ Temperature
  - ✦ Weather patterns





## Code Hierarchy

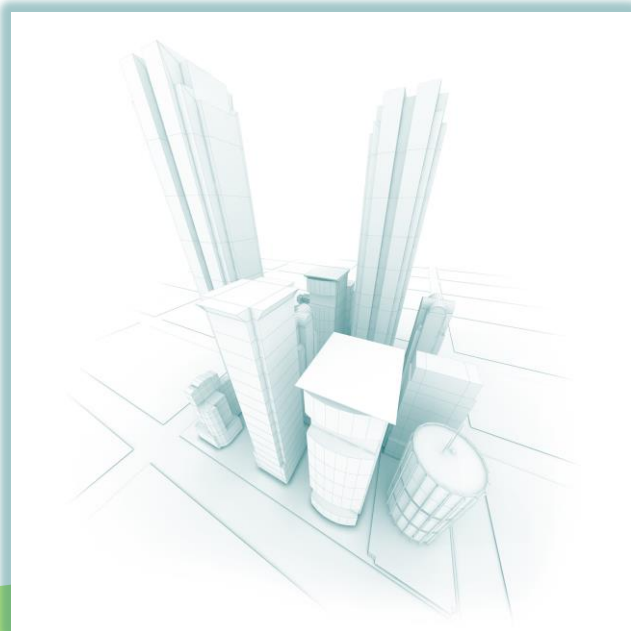


## Code Layers

- ✦ **Mandatory Measure**
  - ✦ Cost effectiveness studies establishes these as the minimum requirement for any scope of work and any climate zone
- ✦ **Prescriptive Measure**
  - ✦ Built on top of Mandatory Measures and may only be cost effective for certain climate zones or scopes of work
- ✦ **New Construction Project**
  - ✦ Least expensive time to integrate efficiency features
- ✦ **Alteration Project**
  - ✦ May not show cost effectiveness due to scope or work limitations

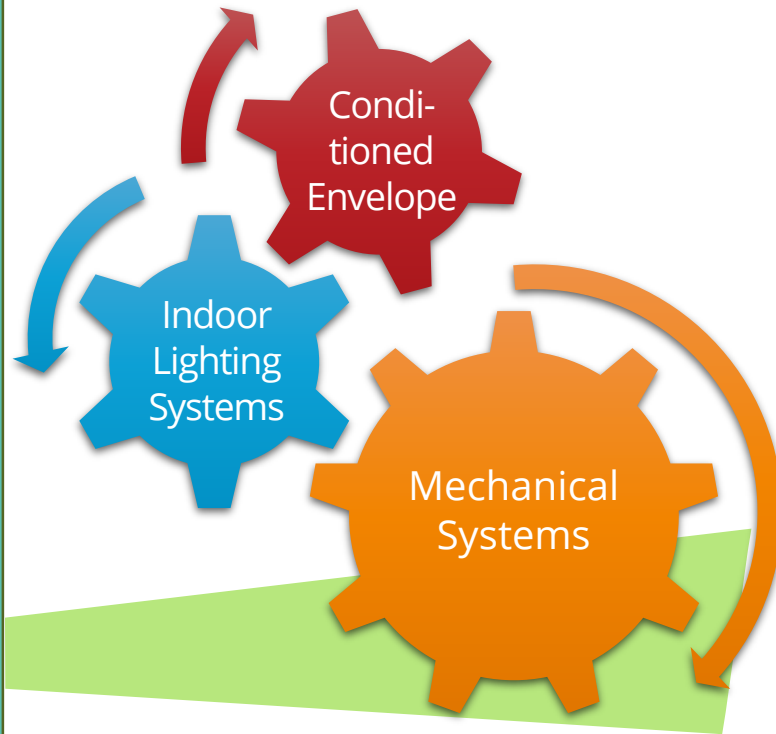


## Application



- ✦ Envelope
- ✦ Heating, ventilation and air conditioning
- ✦ Water heating
- ✦ Lighting
- ✦ Electrical power
- ✦ Pools and Spas
- ✦ Renewables
- ✦ Specific process loads (e.g., refrigerated spaces, parking garages, elevators, computer rooms)

## Flexibility



## Performance Approach

- ✦ Performance Approach used the most because it allows a custom description of building features for many trade-off opportunities
- ✦ Proposed building complies if TDV energy use of Proposed Design  $\leq$  the Standard Design
- ✦ Energy Commission approved Performance software must be used

# Codes & Standards Program: Reach Codes

## 5 PATHS TO REACH BEYOND



### BUILDING EFFICIENCY/ RENEWABLES

Whole Building  
Equipment-Specific



### ELECTRIC READY

Pre-Wiring  
Panel Upgrade  
EV-Readiness  
EV Charging



### ENERGY PLUS WATER

Dual Plumbing  
Onsite Water Reuse  
Water Neutral  
Development



### INFORMATION DISCLOSURE

Audits  
Benchmarking



### PROCESS LOADS

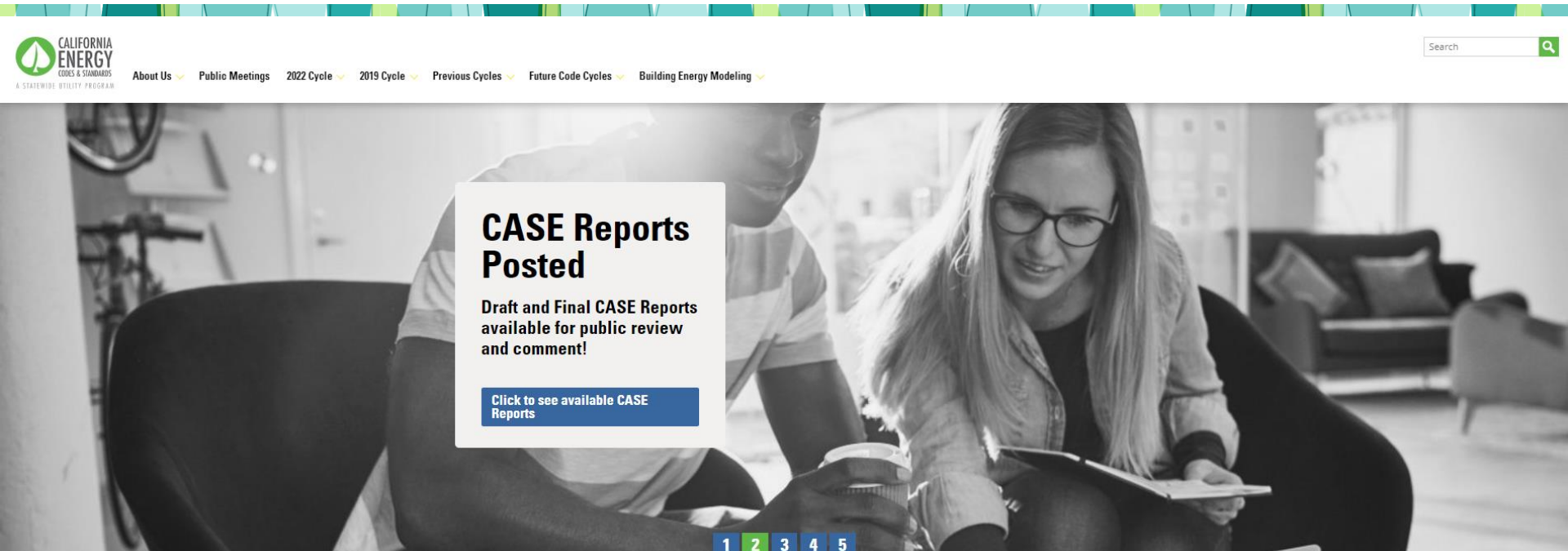
Commercial Kitchens  
Elevators  
Escalators  
Controlled Environment  
Horticulture



- ✦ Helps support local governments adopt ordinances that exceed statewide Energy Code requirements that are shown to be cost effective, and approved through the Energy Commission
- ✦ Local governments can add to these statewide codes, but not make less stringent



# Codes & Standards Program: Advocacy



- ✦ Primary activities include:
  - ✦ Develop code proposals
  - ✦ Participate in public rulemaking process
- ✦ Works with national building codes that impact California building codes
- ✦ Coordinates with rating organizations utilities in code. E.g., National Fenestration Rating Council (NFRC), Cool Roof Rating Council (CRRC)

# Codes & Standards Program: Compliance Improvement



*Your one-stop shop for no-cost tools, training and resources to help you comply with California's [Title 24, Part 6 building energy code](#) and [Title 20 appliance standards](#).  
We're powered by the California Statewide Codes & Standards Program and vetted by the California Energy Commission.*

- ✦ Supporting achievement of compliance to code requirements to capture energy savings for the long-term benefit to California
- ✦ Providing tools, resources and training to market actors throughout the supply chain to preparing a solid foundation for future advocacy efforts



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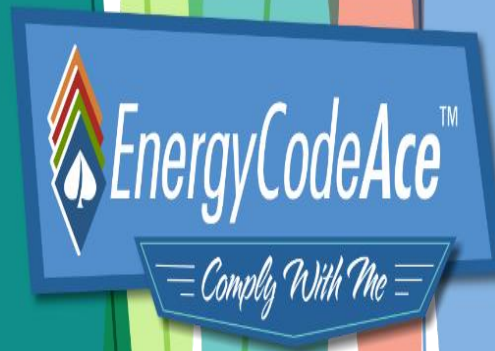


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**Ace** \* **Resources**<sup>TM</sup>

# Join us at

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# Thank you

Please feel free to reach out to us with your questions and comments!

Contact	Role	Email
Gina Rodda	Instructor	decoding.request@energycodeace.com
Brian Selby	Instructor	acetv@energycodeace.com
Jill Marver	Energy Code Ace Program Manager	Jill.Marver@PGE.com
Energy Code Ace	Multiple	<a href="http://energycodeace.com/content/contact">http://energycodeace.com/content/contact</a>

