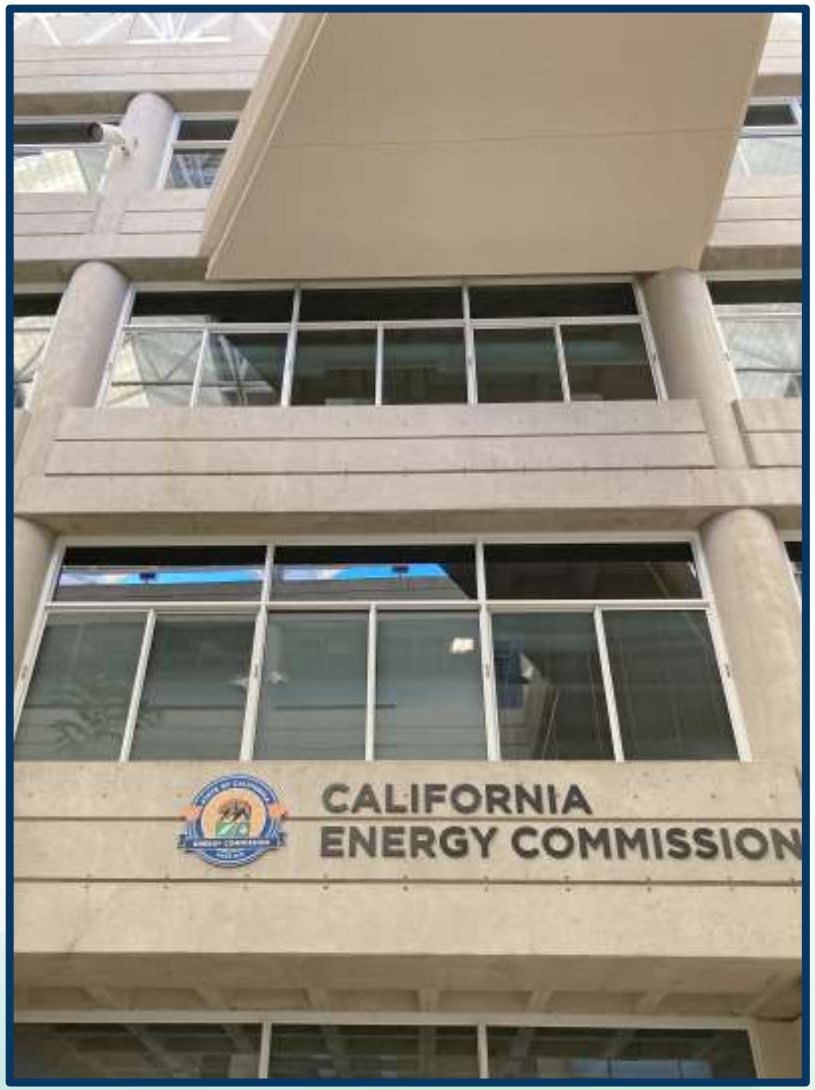
California Energy Commission

- Authority and Process
- Energy Code
- 2025 Energy Code
- California Benchmarking Program
- Research on Performance Rating Method
- Q&A Session

Warren-Alquist Act

Warren-Alquist Act

- Established CEC in 1974 to reduce wasteful, uneconomic, inefficient, or unnecessary consumption of energy
- Authorizes CEC to update building energy efficiency standards on a regular basis and local jurisdictions to enforce
- CA uses 31% less energy than US
- Must be cost-effective and feasible
- Least-cost means to achieve CA's climate actions goals



Building Energy Efficiency Standards

- **California Building Standards Commission (CBSC)**
  - ✓Oversees development, adoption, approval, publication and implementation of California Building Standards Code (CA Code of Regulations, Title 24)
  - ✓Updated on a 3-year cycle
- **California Energy Commission (CEC)**
  - ✓Proposing and adopting agency for CA Building Energy Efficiency Standards
    - Energy Code (Title 24, Part 6): energy efficiency requirements for newly constructed buildings, additions & alterations
    - CALGreen (Title 24, Part 11): voluntary energy efficiency measures for newly constructed buildings, additions & alterations
    - Become CA Code when adopted by CEC and approved by CBSC

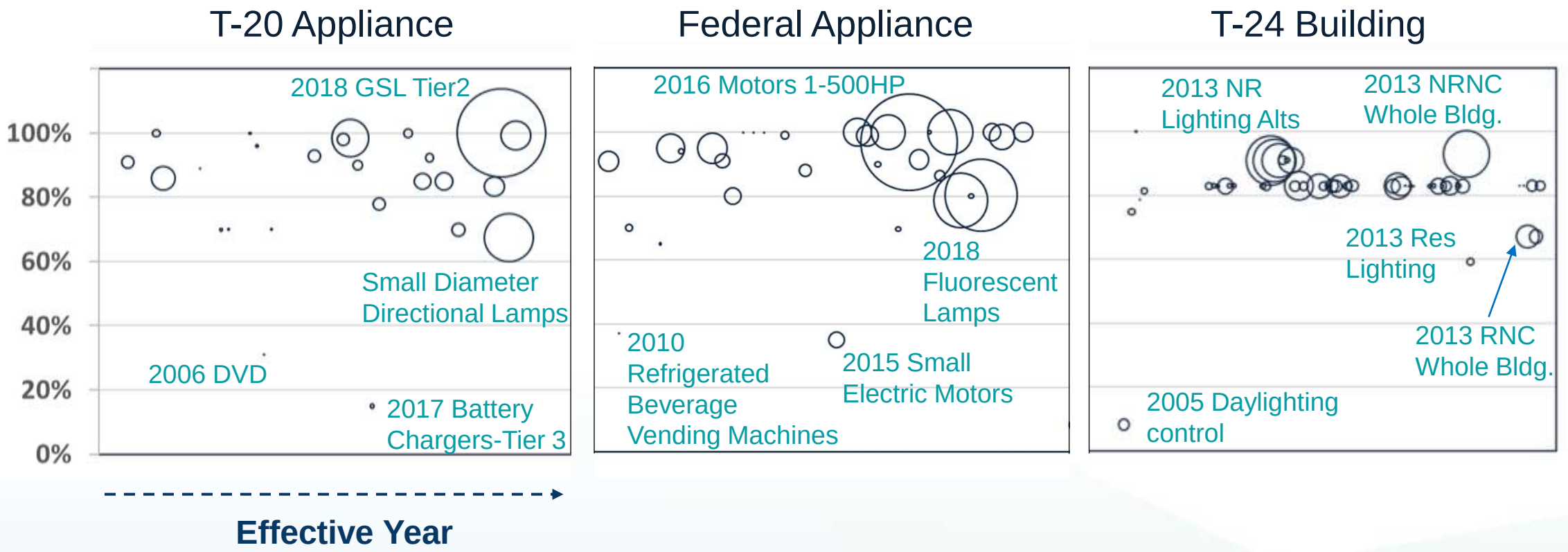
Energy Code

Energy Code Benefits

- Saves money on utility bills
- Improves consumer protection
- Supports climate action at least-cost
- Enables load flexibility and a cleaner grid
- Provides compliance flexibility

Range of Compliance Rate

Bubble Size = GWh Savings

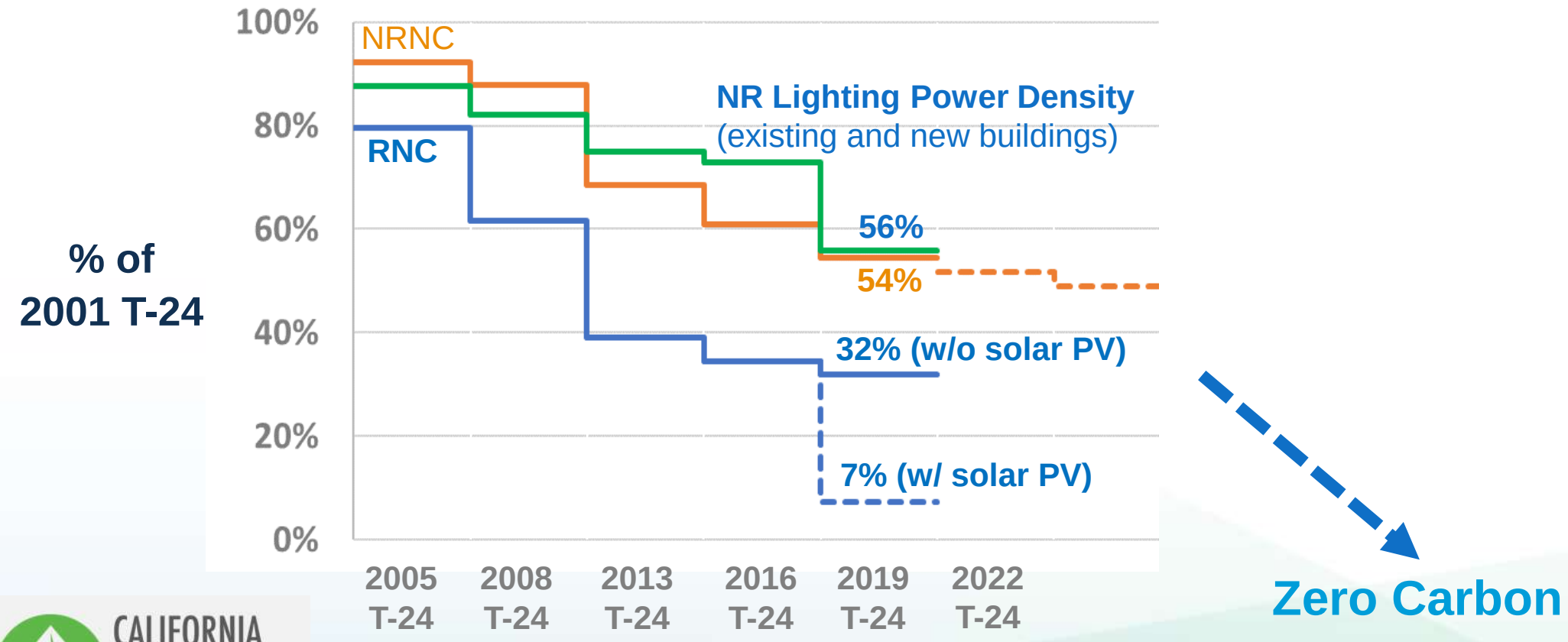


CALIFORNIA ENERGY CODES & STANDARDS
A STATEWIDE UTILITY PROGRAM

Compliance rates of old standards have not been updated to represent current market status.

C&S Improvement Trend

- Drive market changes through new standards development



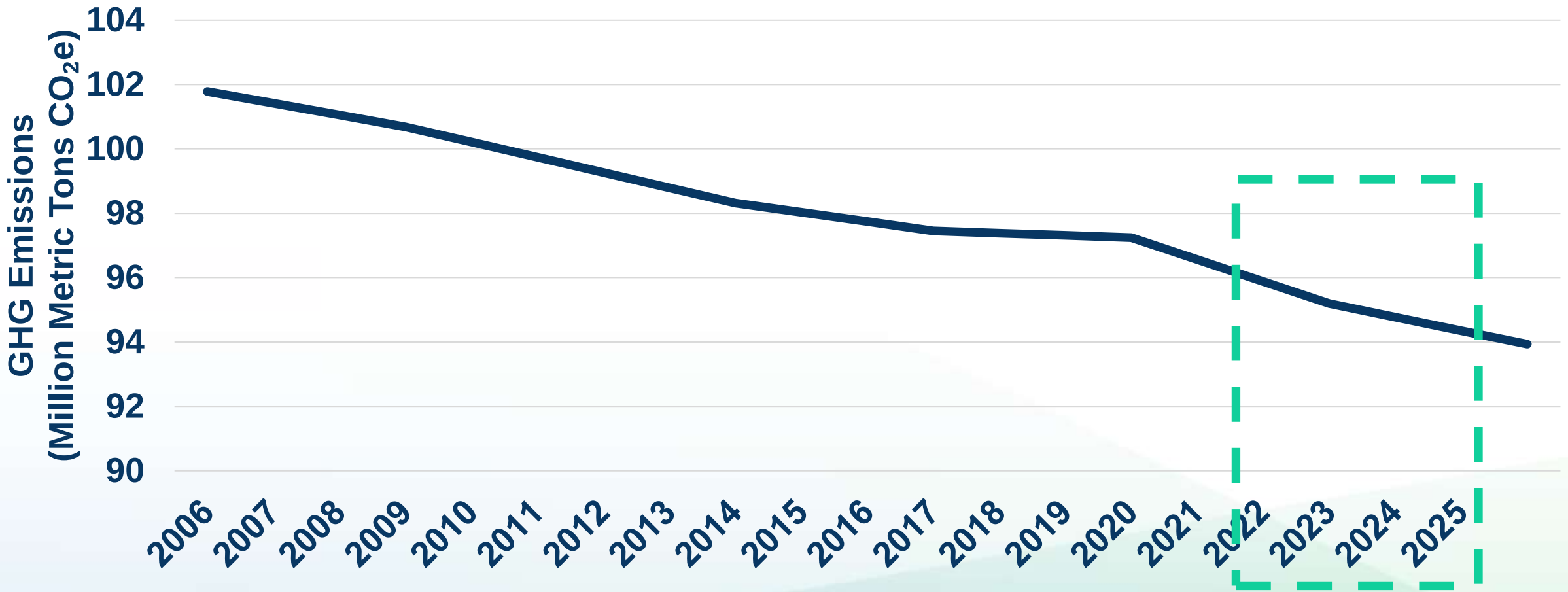
CALIFORNIA ENERGY CODES & STANDARDS
A STATEWIDE UTILITY PROGRAM

2022 Energy Code Highlights

- Heat pump baselines
- Solar + storage baselines
- Electric-ready requirements
- Lighting
- Multifamily restructuring
- Ventilation requirements

Energy Code Environmental Benefit

Reduced Statewide Emissions



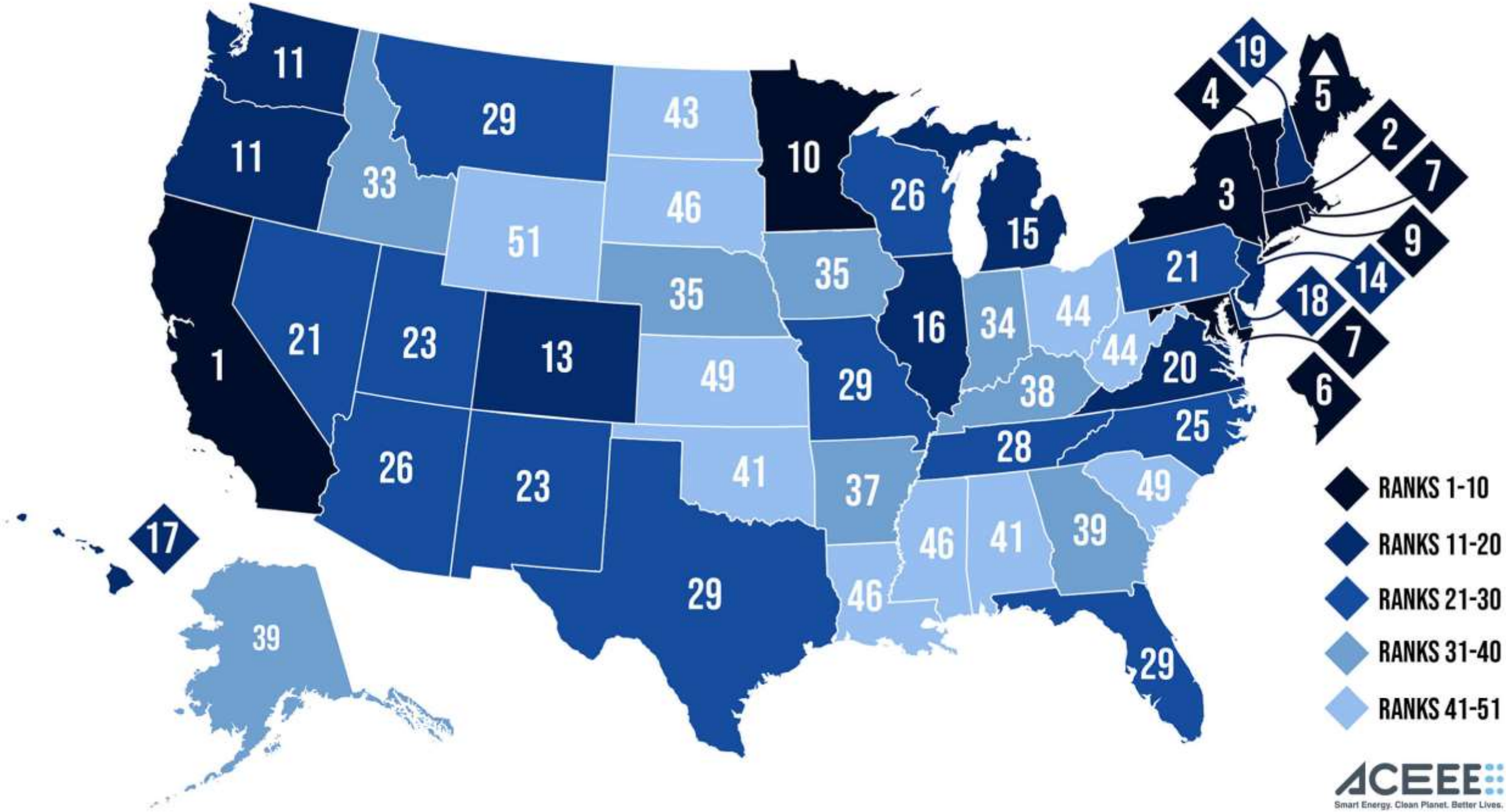
Source: CEC Impact Analysis 2005, 2008, 2013, 2016, 2019, 2022

30-Year Environmental Benefit

2022 Measure Categories	% Total	Emissions Savings (MTCO2e)	Emissions Benefit ($)
Single Family Heat Pump Standard	5.38%	729,698	$115,564,424
Multifamily Heat Pump Standard	0.49%	71,639	$11,345,665
Nonresidential Heat Pump Standard	1.50%	214,917	$34,036,994
Multifamily PV + Battery	2.32%	202,702	$32,102,422
Nonresidential PV + Battery	10.04%	876,231	$138,771,230
Multifamily Energy Efficiency	0.82%	89,215	$14,129,309
Nonresidential Energy Efficiency	8.03%	768,793	$121,755,977
Nonresidential Alterations	34.65%	3,435,740	$544,127,893
Single Family Alterations	10.86%	977,604	$154,825,984
Covered Processes	25.92%	2,480,724	$392,879,357
TOTALS	**100%**	**9,847,264**	**$1,559,539,255**

2025 Energy Code

- The CEC is leading the state to a 100% clean energy future.
- This includes upholding and advancing the most impactful building energy efficiency standards in the nation.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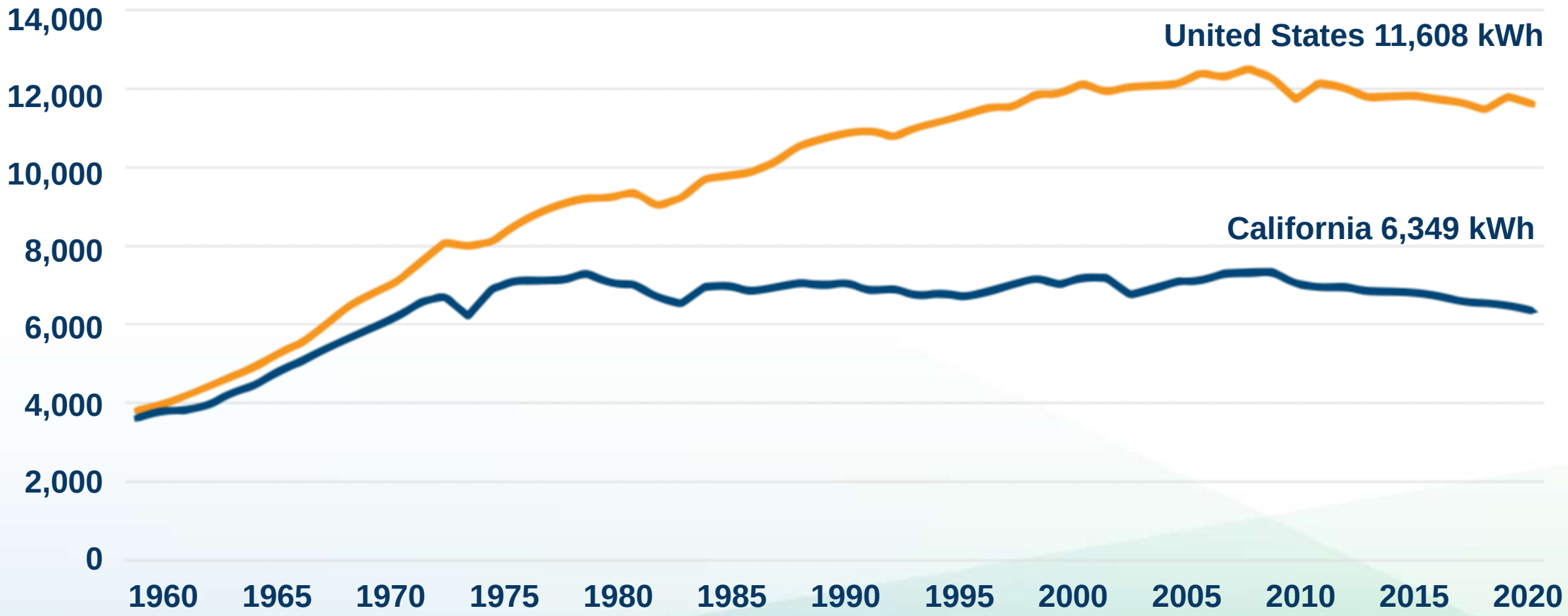
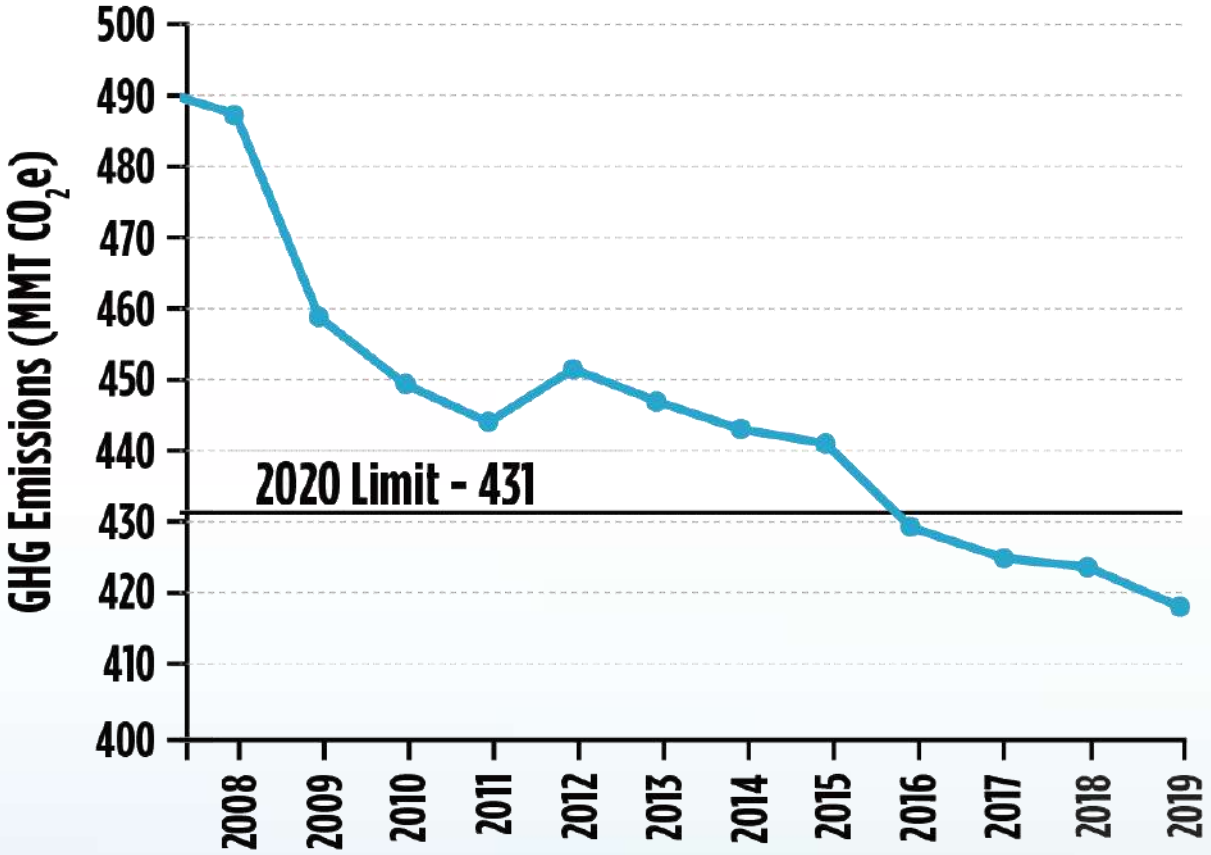
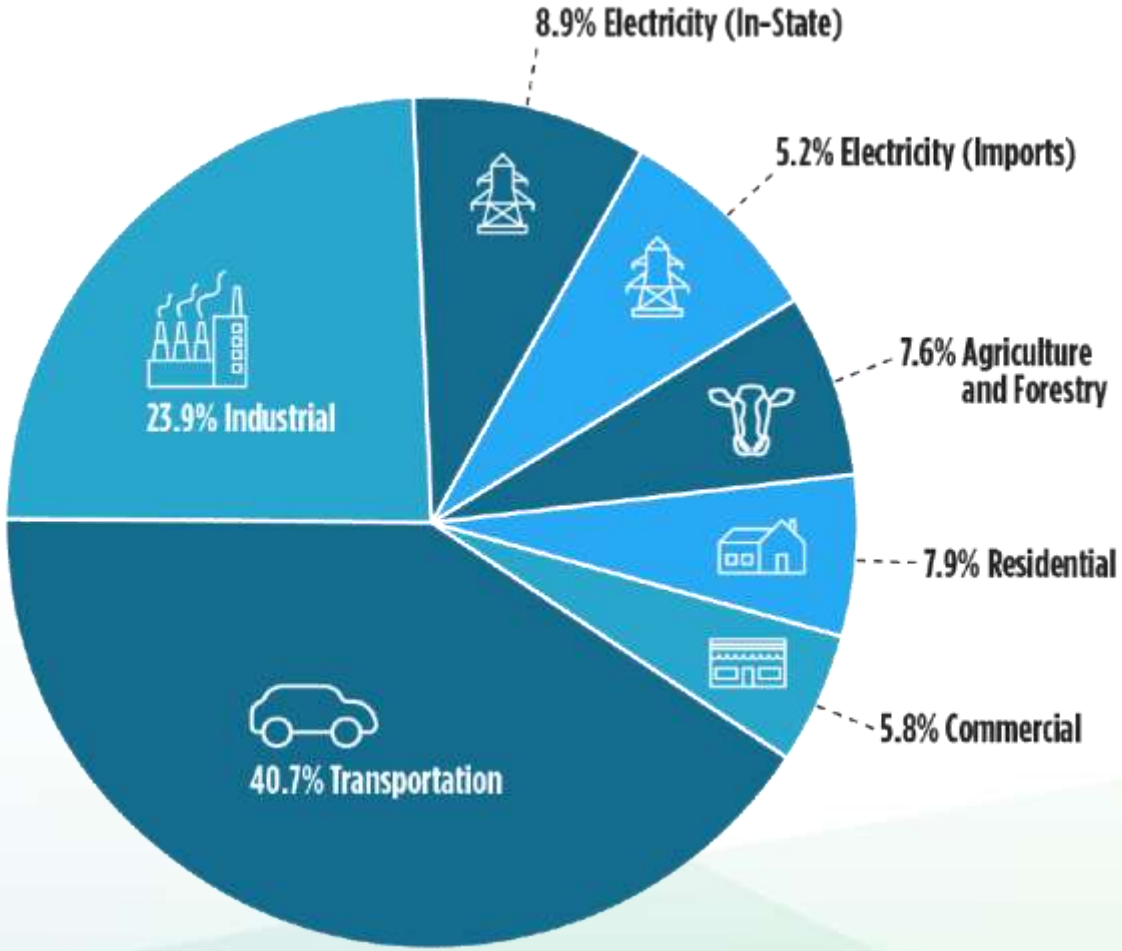
RANKS 31-40
RANKS 41-51
ACEEE
Smart Energy. Clean Planet. Better Lives.

Annual Consumption Per Capita



California Greenhouse Gas Emissions





2025 Energy Code Drivers and Themes

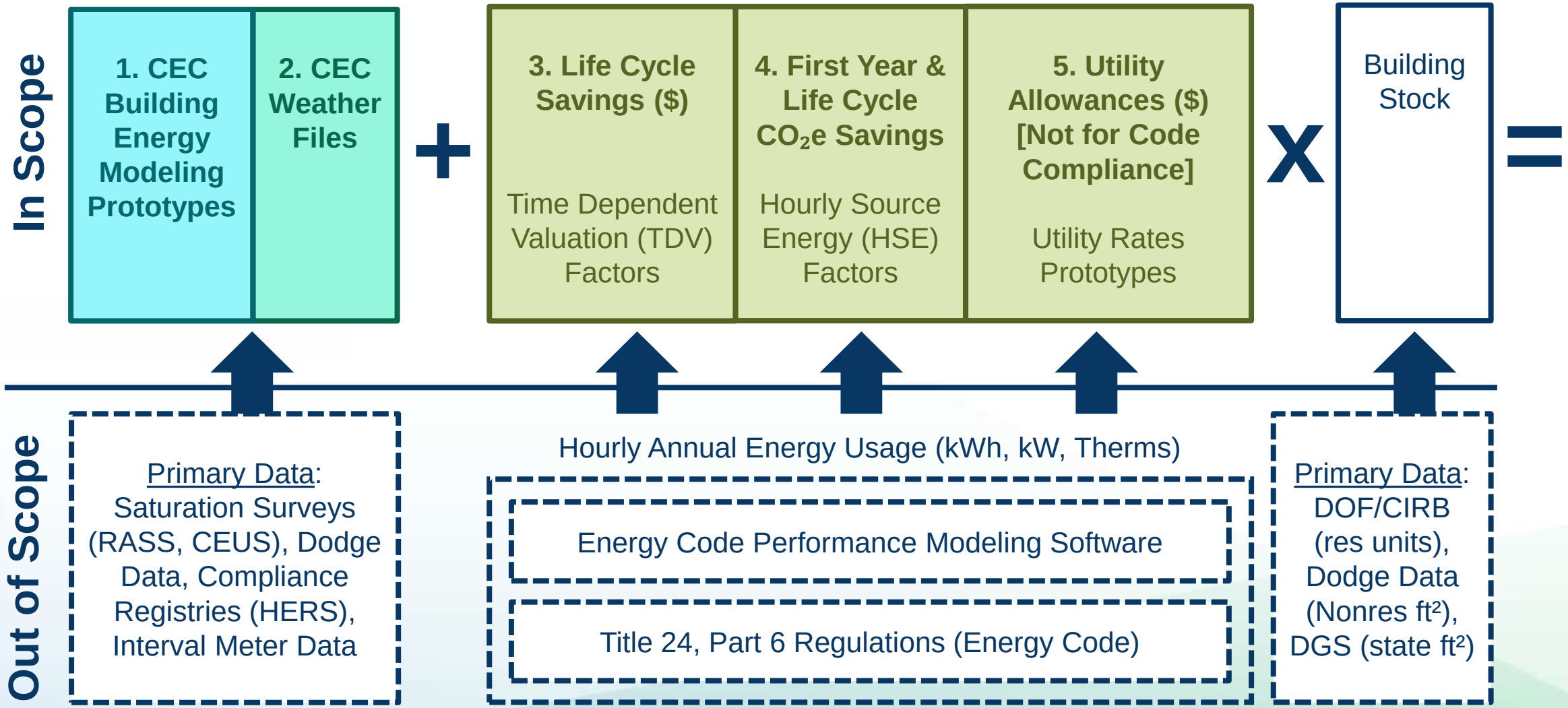
State Goals

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

2025 Energy Code Strategies

- Heat pump baselines
- Promote demand flexibility, Solar PV generation and energy storage
- Covered process loads
- Equity & affordable new housing program integration
- Additions, alterations, and smaller homes (e.g., ADUs)
- Electric vehicle readiness support
- Interagency coordination

Energy Code Accounting



Benchmarking Program & Future Research

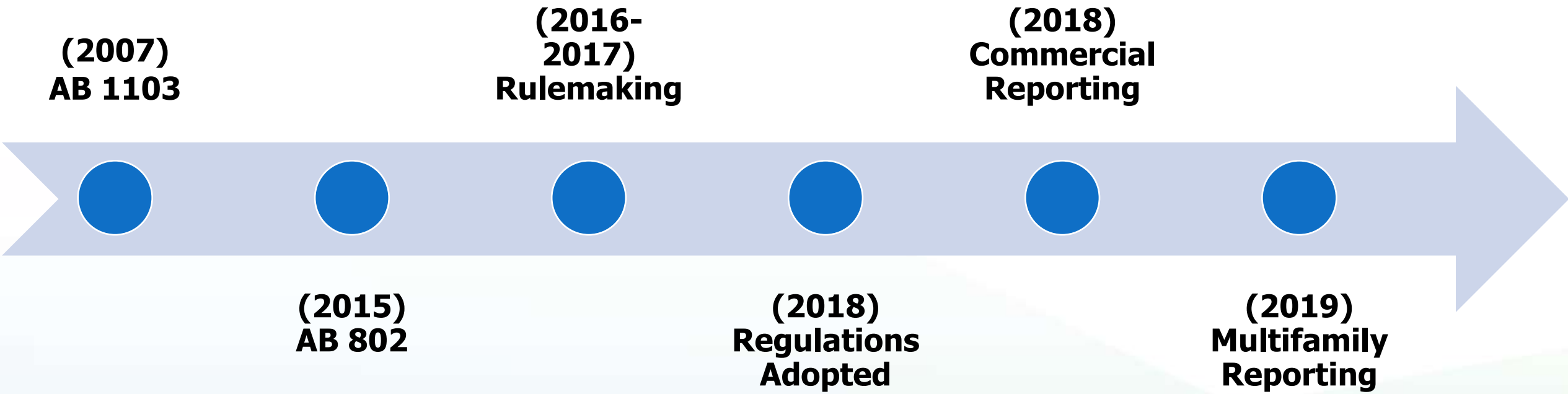
Building Energy Benchmarking Program

What is building energy benchmarking?

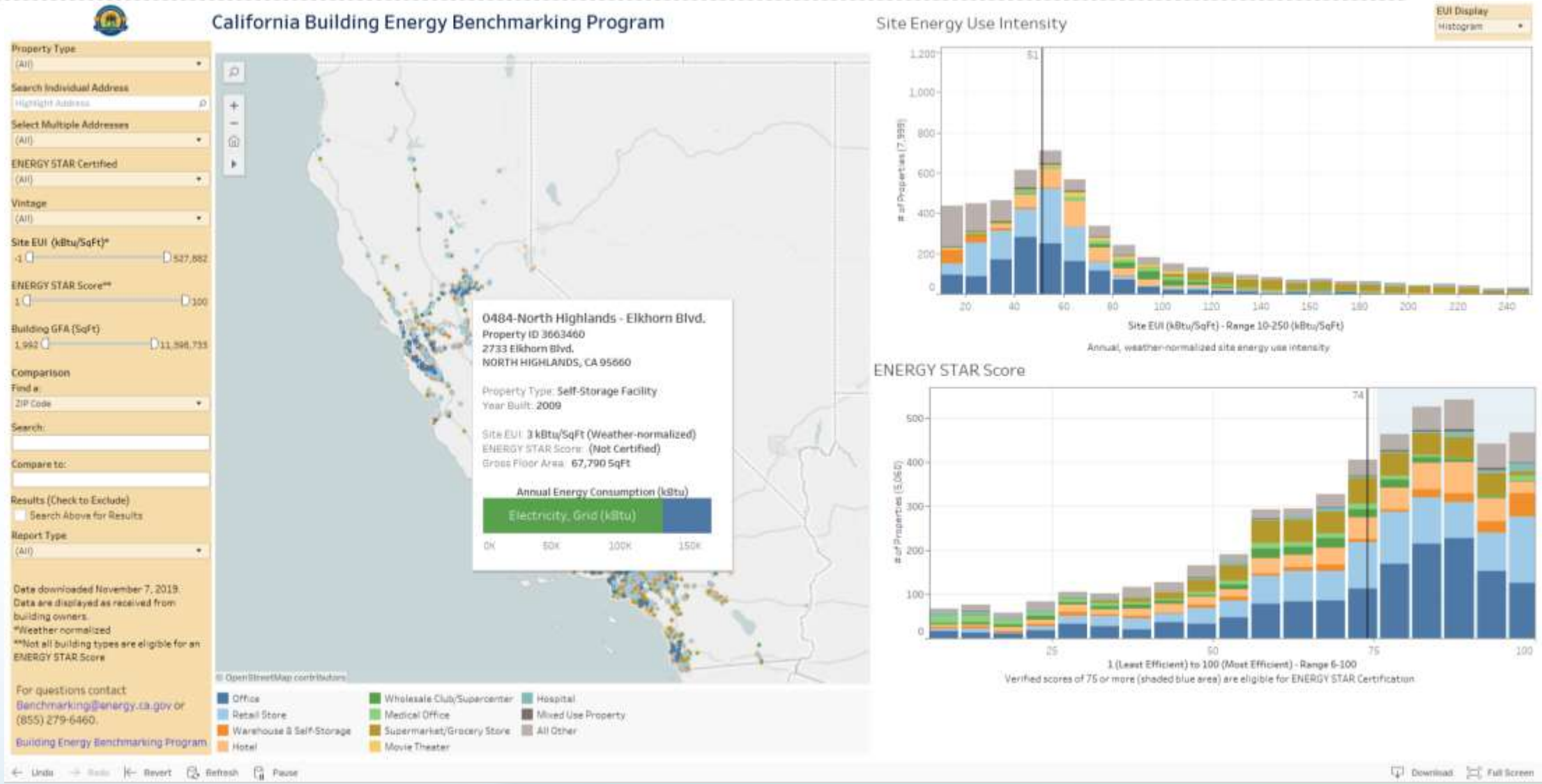
Obtaining information on the *energy used* in an *entire building* for a specific period to enable that usage to be tracked and compared against other buildings.

- Energy Use Intensity (kBtu/ft^2)

Program Background

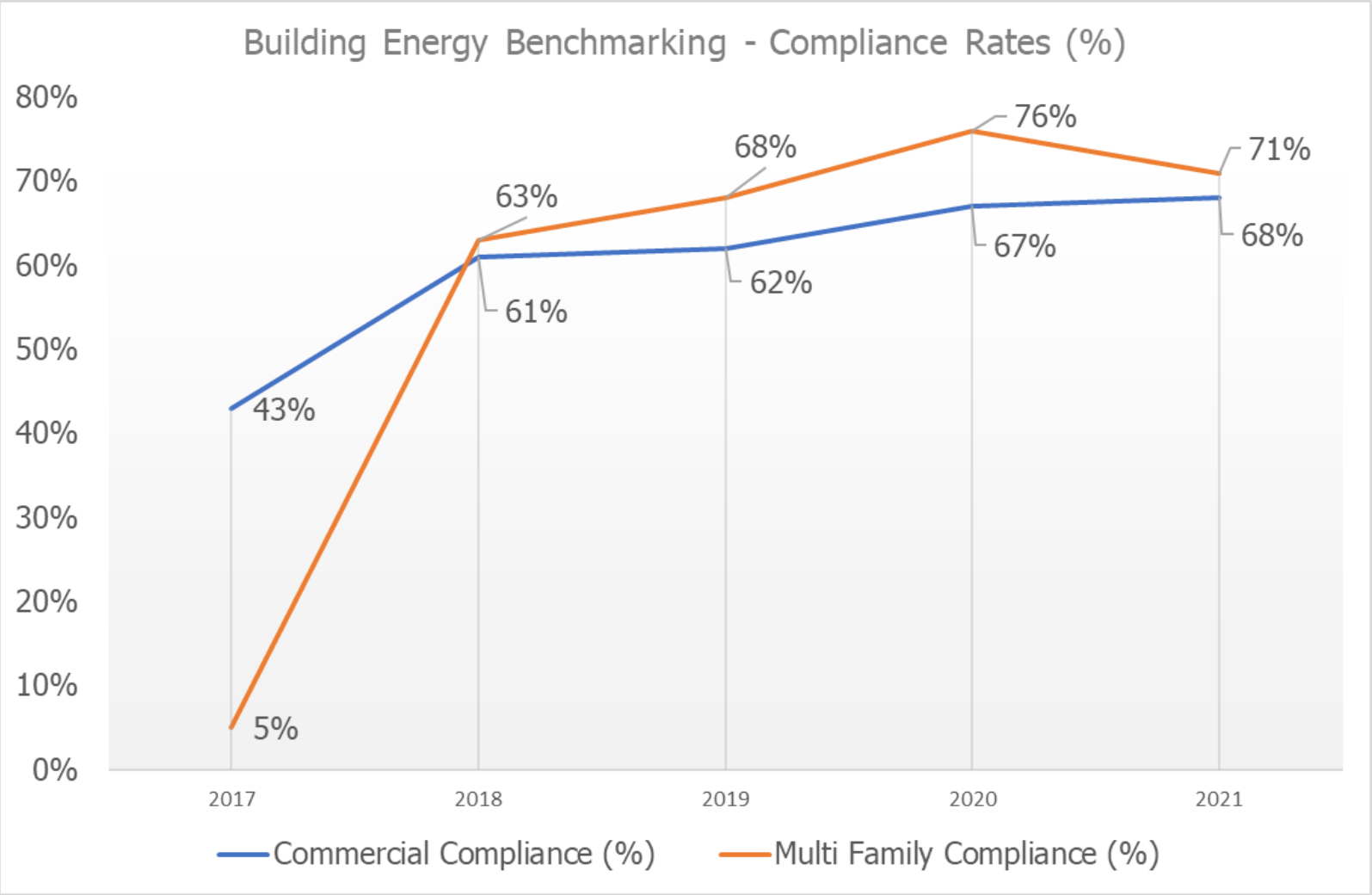


Benchmarking Dashboard



Public Dashboard

Benchmarking Compliance Rates



Benchmarking - Building Owner Energy Efficiency Resources

The Building Energy Benchmarking program requires owners of large buildings to report energy use to the California Energy Commission (CEC). These resources will help building owners and managers achive higher building energy efficiency. View ENERGY STAR® no- and low-cost energy tips or select a building type for specific solutions.

ENERGY STAR Low-Cost Energy Tips

Low- and no-cost energy efficiency tips based on best practices from ENERGY STAR.

Building Energy Efficiency Resources for Commercial Buildings

Energy efficiency solutions specific to commercial buildings.

BUILDING ENERGY BENCHMARKING PROGRAM

Benchmarking - Building Owner Energy Efficiency Resources

Building Energy Benchmarking Program Frequently Asked Questions

Exempted Local Benchmarking Ordinances

Report Benchmarking Data for Previous Years

CONTACT

Benchmarking Hotline

855-279-6460

RELATED LINKS

Building Energy Benchmarking Program

SUBSCRIBE

Benchmarking

First Name *

First Name

CURRENT TITLE 24

Part 6 Structure

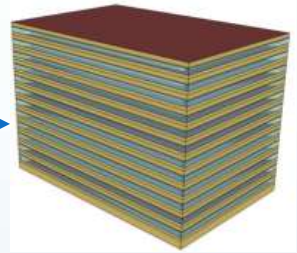
Proposed Design

Mandatory

Plus

Prescriptive Or **Performance**

ACM Rules



Standard Design

A proposed design complies if…

- All the mandatory requirements are met, and

TDV (or other metric) Proposed Design

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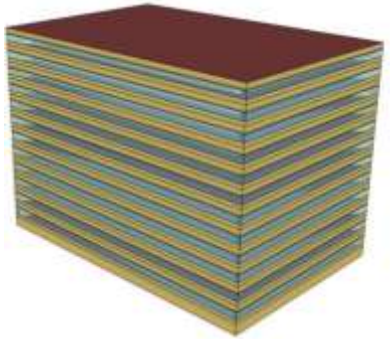
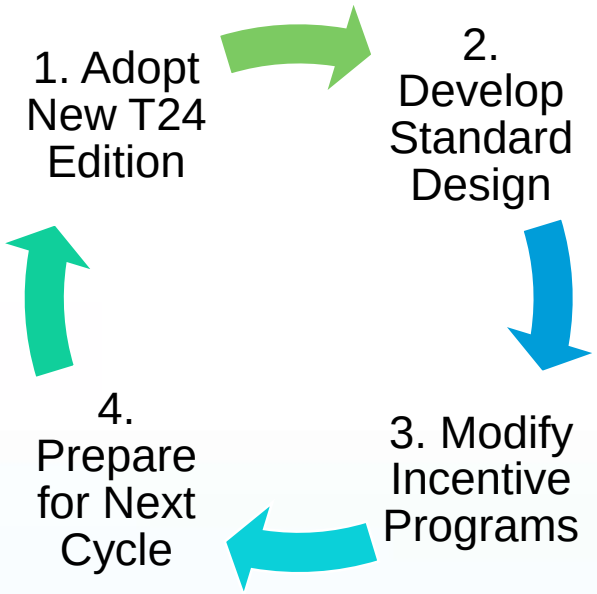


TDV (or other metric) Standard Design

PERFORMANCE APPROACH IMPACTS VARIOUS MARKET ACTORS



Users (designers, architects, engineers)

- Must build multiple models for various purposes
- Cannot compare performance across code vintages and across different codes

Software Developers

- Playing catchup with each new code edition
- Adding new features is difficult
- Difficult to eliminate bugs

Utility Incentive Program Implementers

- Must update baseline models to reflect new code edition
- Implementers may need to recalibrate previous savings targets

Policymakers

- Difficult to set performance targets
- Creating a divided market—not able to leverage various investments

HOW DOES THE PRM FIT INTO TITLE 24?

Develop Performance Targets

- Targets could be set using all-electric systems, which, combined with the new metric, can enable the push towards electrification

Adopt New Standard

- Performance targets will be specified in Title 24, Part 6 by building type and California climate zones

Update ACM

- Modify ACM to adopt the 90.1 Appendix G rules

Update CBECC-Com

- Compliance based on standard design generated using 90.1 Appendix G rules (adopted into the ACM)
- Compliance output will report performance against the target as opposed to reporting compliance margins
- Output reporting tailored to assist modelers and code officials

NEXT STEPS

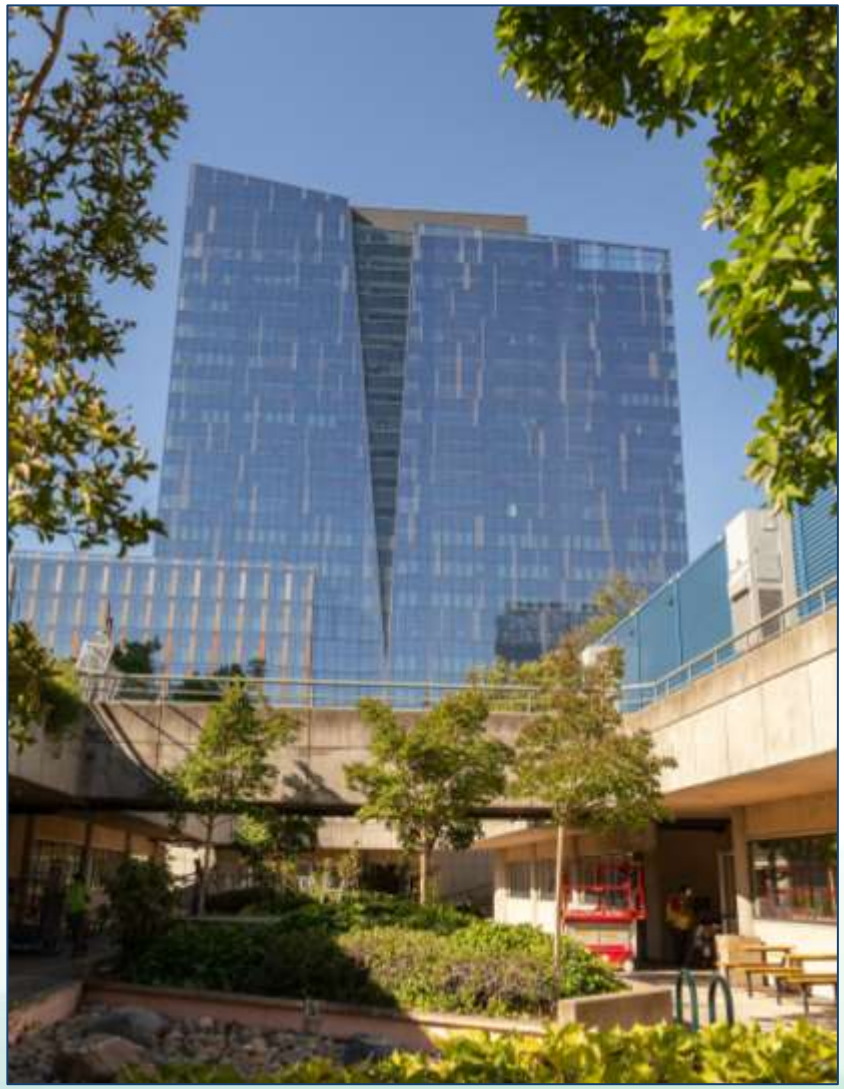
- Use CALBEM to gather feedback and consensus on overall approach and building features for developing California specific BPFs
- Study a selection BPFs for all building types in all California climate zones
- Analyze draft language for adopting Standard 90.1 Appendix G into the ACM
- Review Draft language and BPFs for adoption into Title 24, Part 6
- Utility IOU Program to develop a CBECC Research Version with PRM Ruleset

Web Resources

- Energy Commission – 2025 Building Energy Efficiency Standards Webpage
- Energy Commission – 2022 Building Energy Efficiency Standards Webpage
- Energy Commission – Docket for 2022 Energy Code Update Rulemaking
- Energy Commission – Docket for 2022 Environmental Impact Report
- Energy Commission – Docket for 2022 Parts 11 (CALGreen) + 2-5 Rulemaking
- Energy Commission – Online Resource Center
- Title 24 Stakeholders – Get involved in the code change process and see past measure proposals.
- Energy Code Ace – One-stop shop for no-cost tools, training and resources to help you comply with the state's Energy Code and appliance standards.
- Local Energy Codes – Where cities, counties and stakeholders collaborate to drive reach code development and adoption for long-term climate and energy efficiency benefits.
- CalBEM – Statewide industry collective and annual event on building energy modeling (BEM), with goals to streamline & simplify processes, educate users, and improve capabilities & accuracy.

2025 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
- **Bach Tsan** – HVAC Systems, Refrigeration
- **Email Convention at the Energy Commission:** firstname.lastname@energy.ca.gov



Comments and Suggestions

- Any questions you don't think of now, send to:

  Bach Tsan
  Bach.Tsan@energy.ca.gov

- Comments or suggestions for changes to Measure Proposal Template can be made through our online docket visit:

  https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=22-BSTD-01 (links to the comment page for this docket)

- Comments may be included in the "Comment Text" box or attached in a downloadable, searchable Microsoft® Word (.doc, .docx) or Adobe® Acrobat® (.pdf) file
  - Maximum file size is 10 MB.

Source: California Energy Commission