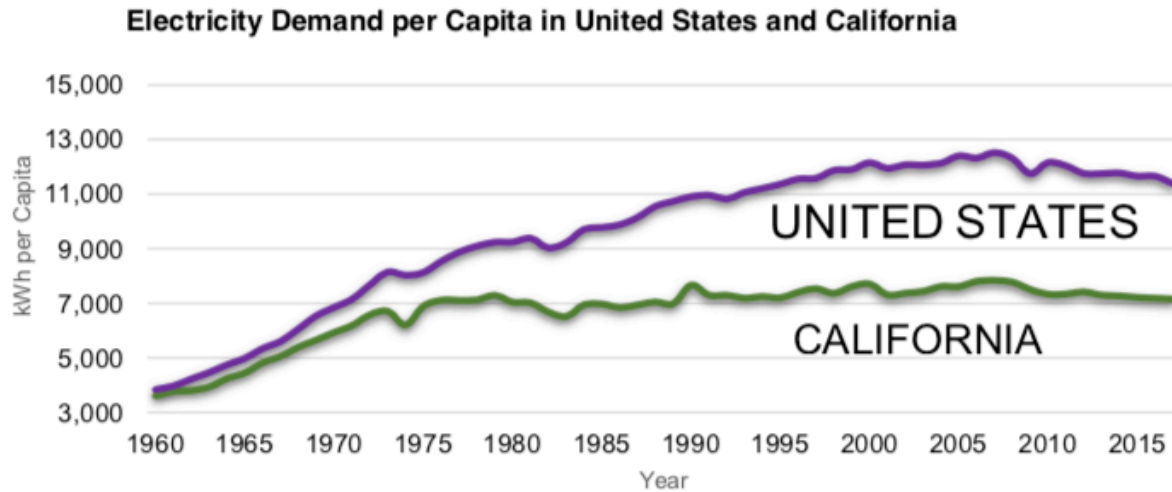


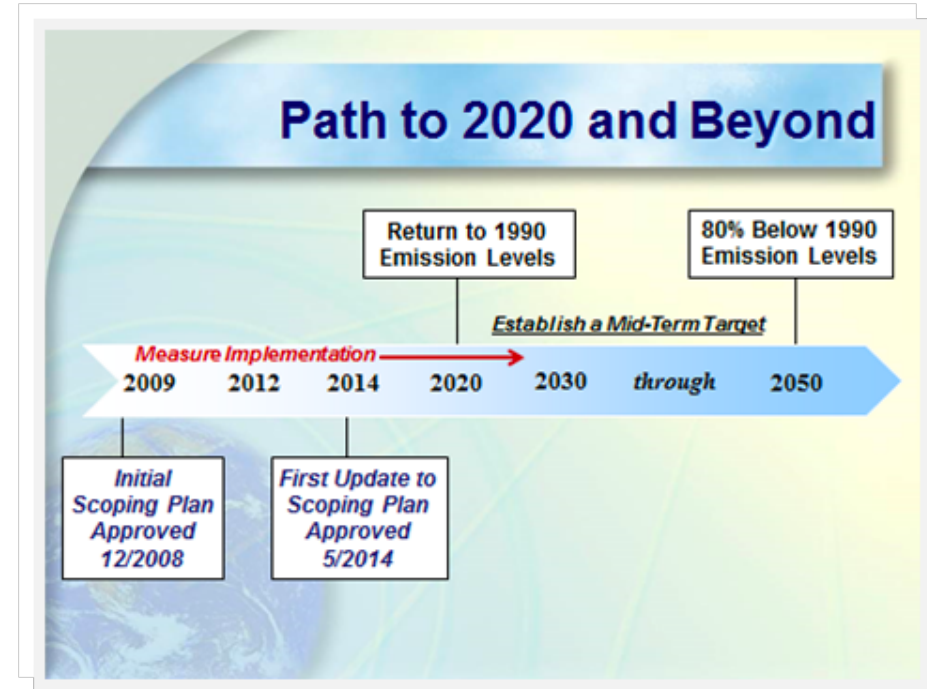
Developing a Policy Framework for an Outcome-Based Energy Code in California

Joshua Dean, C.E.M., LEED AP
Johns Hopkins University
Energy Policy and Climate
Capstone Project - Spring 2020





Source: CEC



Source: <https://ww3.arb.ca.gov/cc/ab32/ab32.htm>

California Energy Policy Leadership

Landmark Policy:

- Assembly Bill 32
- Senate Bill 32
- Executive Order S-3-05
- 2020 and 2030 Zero Net Energy Goals
- Executive Order B-55-18

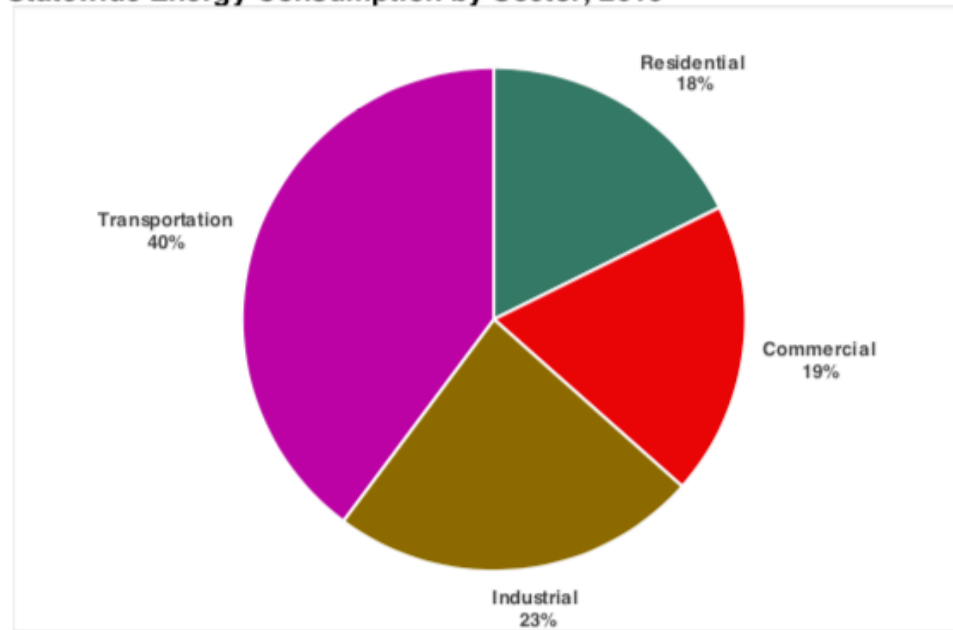


Research Statement

“Developing a policy framework for an outcome-based energy code in California”



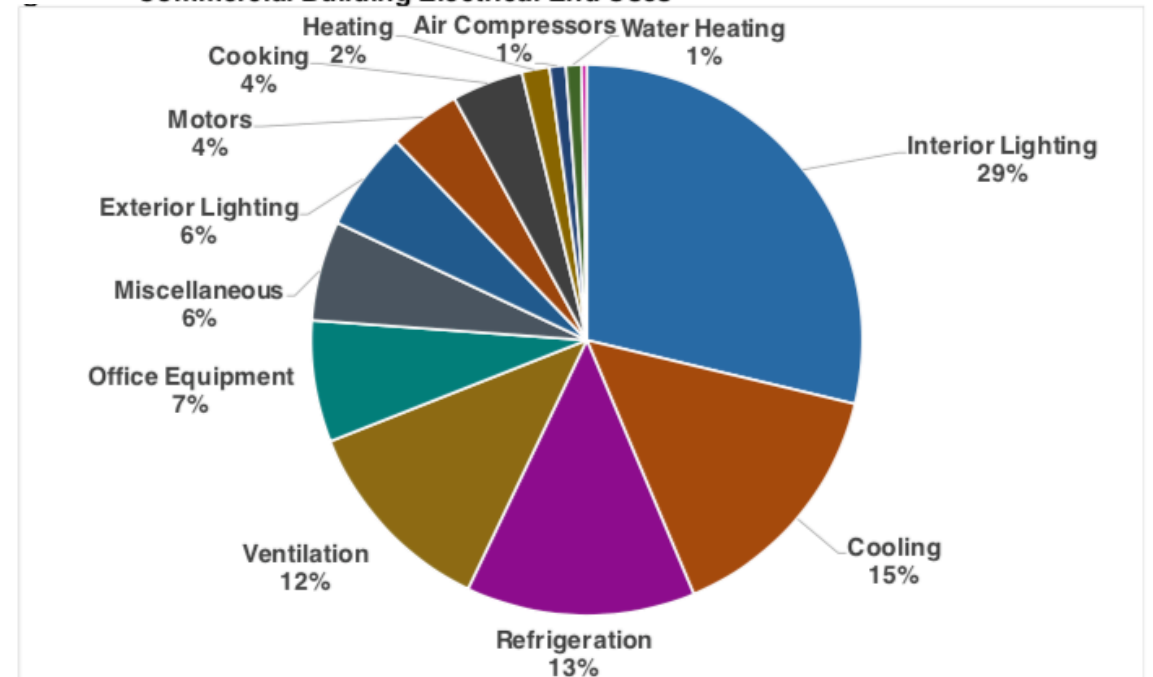
Statewide Energy Consumption by Sector, 2016



Source: EIA 2016

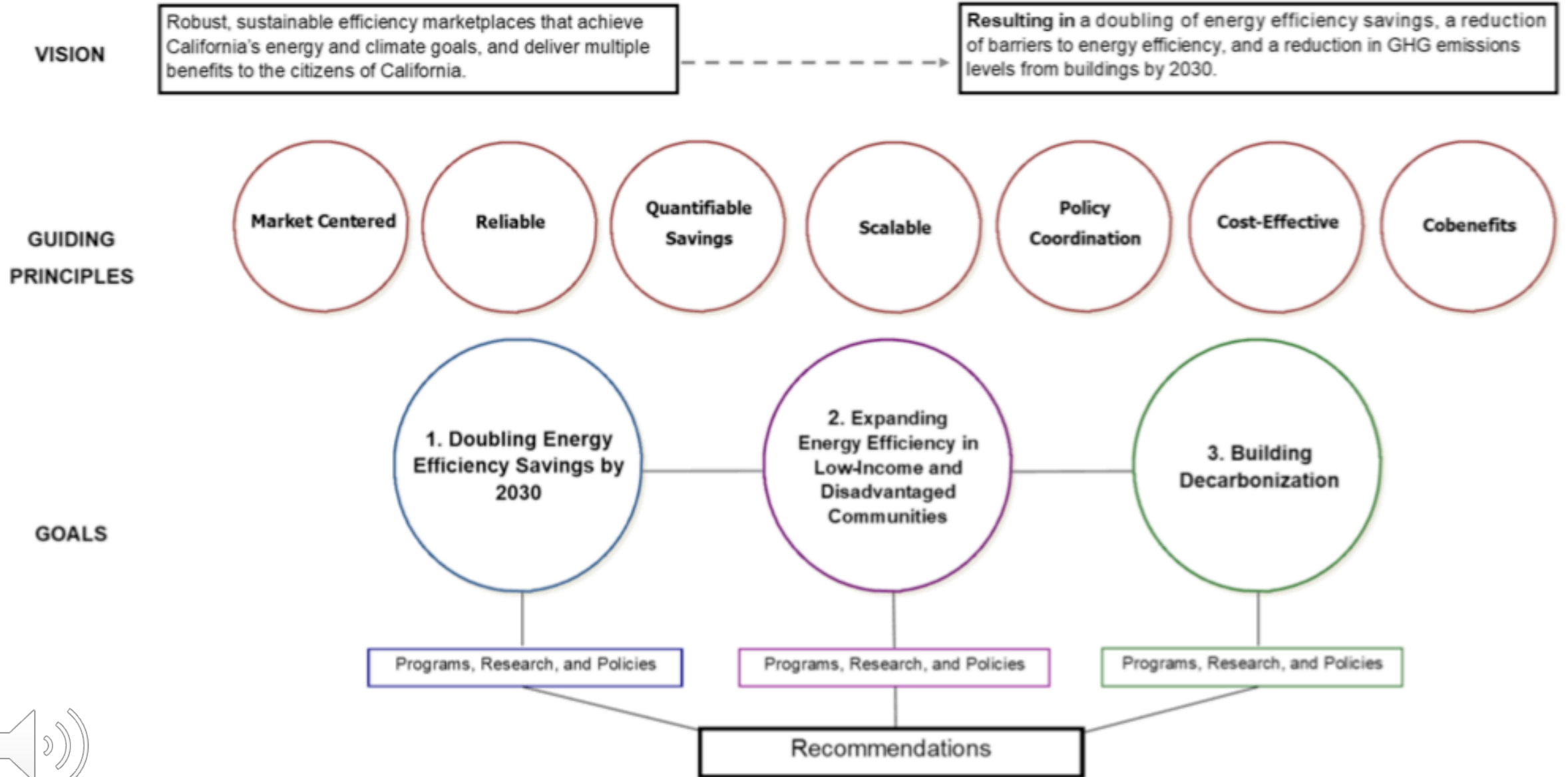


Commercial Building Electrical End Uses



Source: California Commercial End-Use Survey, 2004

Vision and Goals 2019 California Energy Efficiency Action Plan



Methods

- Literature review
 - Reviewed over (40) key documents (e.g. codes, legislation, etc.)
- Identify Energy Policy Pathways in California
 - CA Constitution → Legislature → Local Govt
- Policy Vehicles and Products
 - Legislative and Regulatory Vehicles – Warren Alquist Act; California Code of Regulations: Title 20, Division 2, Chapter 4, Article 9; California Code of Regulations: Title 24, Part 6 and Part 11
 - Policy Products – certificate of occupancy, building energy usage, enforcement, compliance liability
- Stakeholder Interviews and Survey
 - (8) interviews
 - (127) industry stakeholders received the survey ~19% response rate



Results

Potential Policy Levers

Policy

1. Warren-Alquist Act
2. AB 32 / SB 32
3. AB 758
4. SB 350
5. AB 802
6. Title 24, Part 6 & Part 11
7. 2019 CA EE Action Plan
8. San Diego Municipal Code

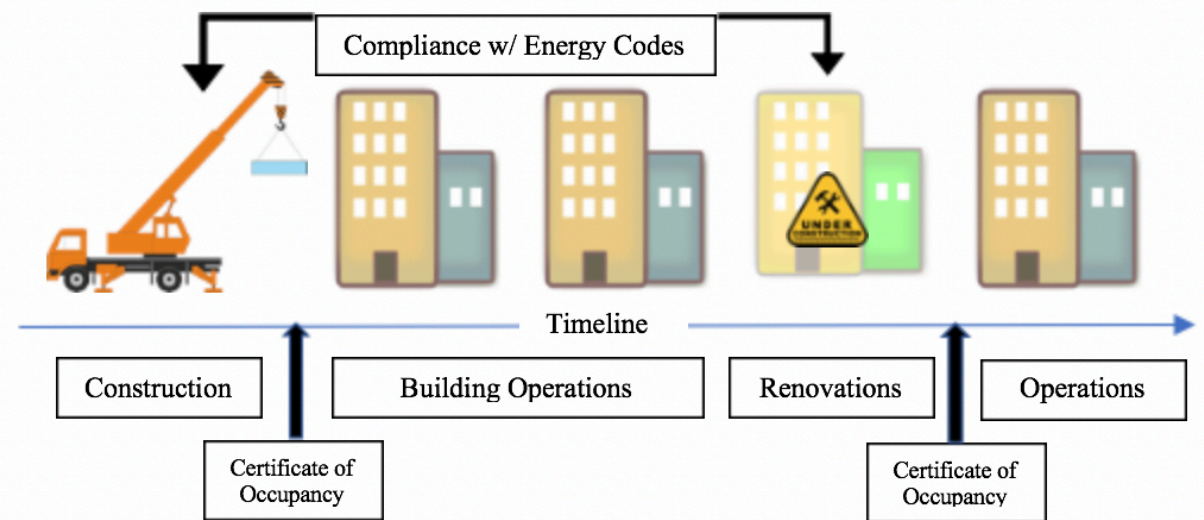
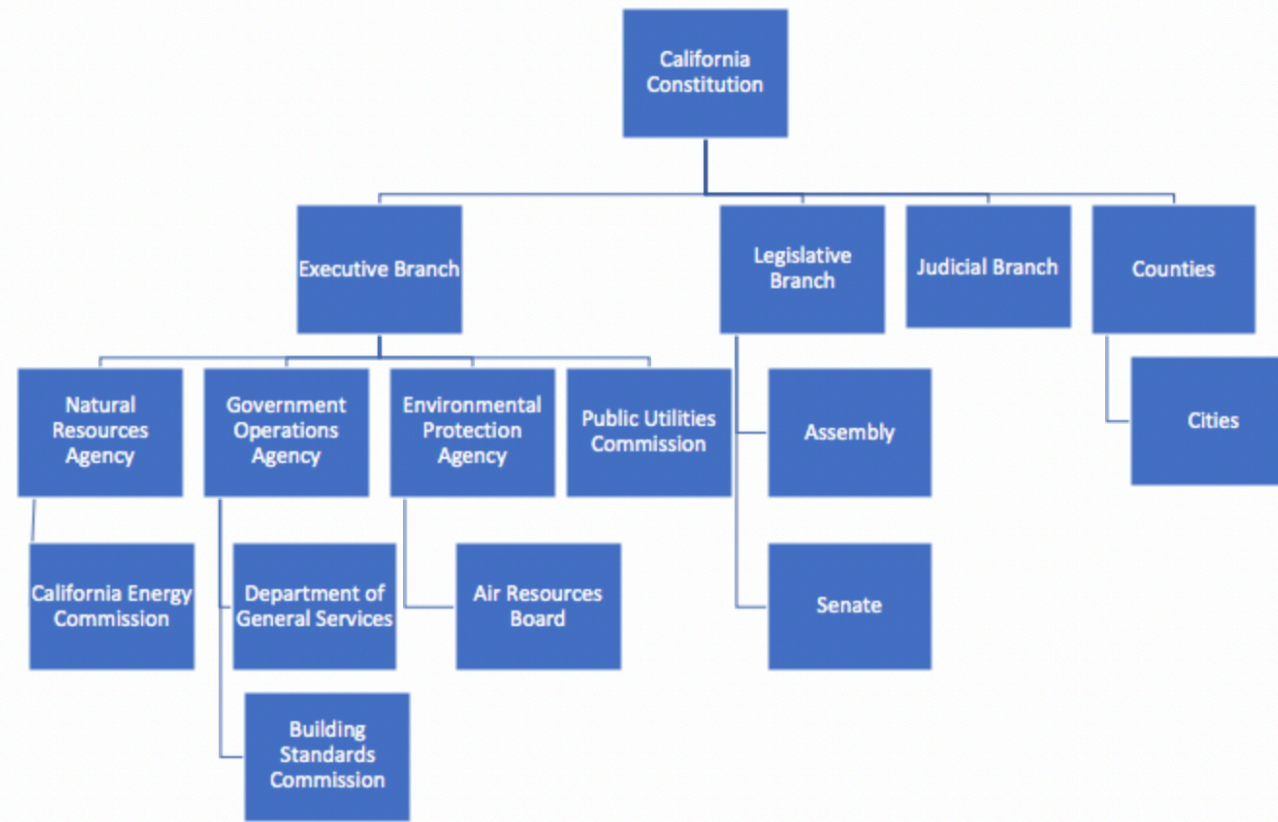
Opportunities for OBC

1. Ch. 5, Sec. 25401(f)
2. Align GHG emissions
3. Comprehensive program
4. Annual EE savings targets
5. Mechanism for reporting
6. Alternative pathway
7. Grid harmonization
8. Compliance after occupancy



Results

Roadmap of Current Energy Policy in CA



Results

Relationship between Policy Vehicles and Outcomes

- Warren-Alquist Act
 - Building Energy Usage

- New Legislation
 - Certificate of Occupancy

- CA Code of Regulations: Title 20, Div. 2, Ch. 4, Article 9
 - Enforcement

- CA Code of Regulations:
 - Title 24, Part 6
 - Title 24, Part 11
 - Compliance Liability

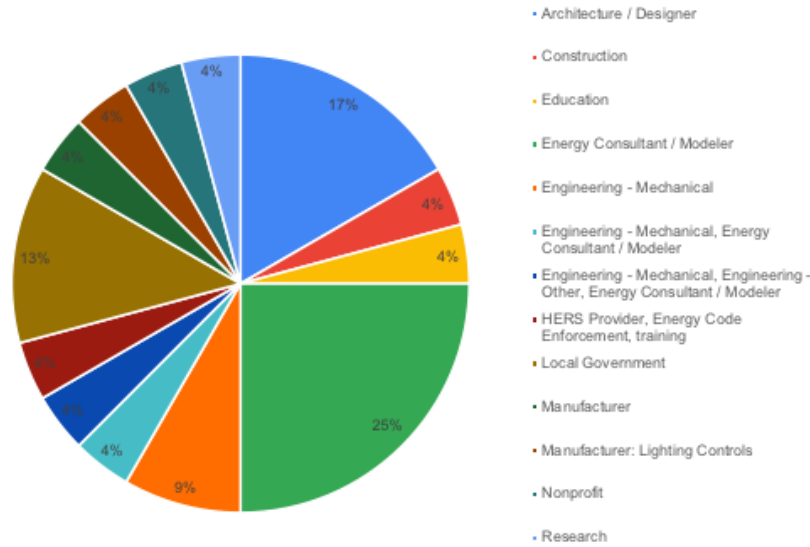


Results

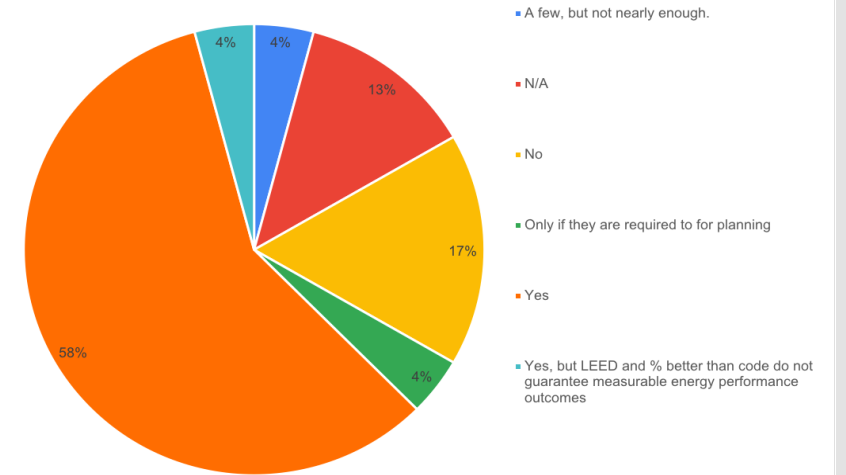
Stakeholder Insights



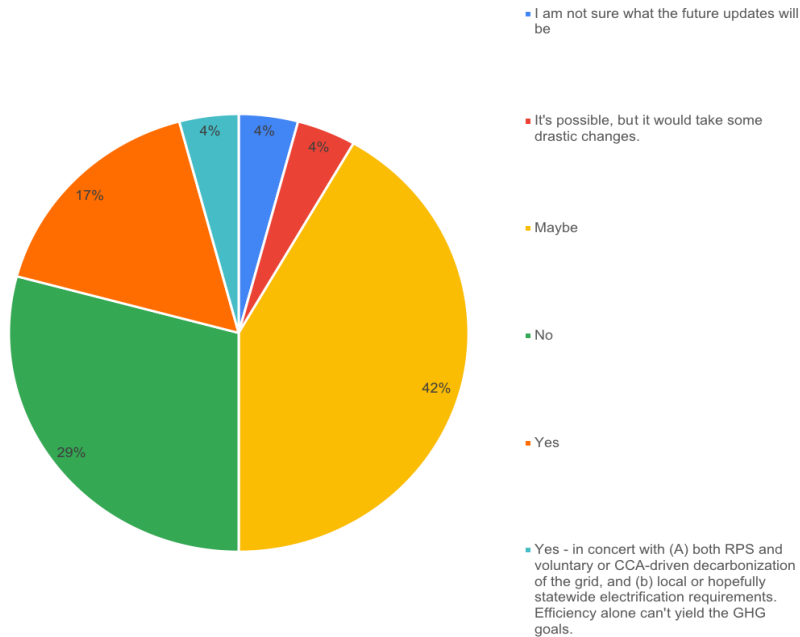
Breakdown by Sector



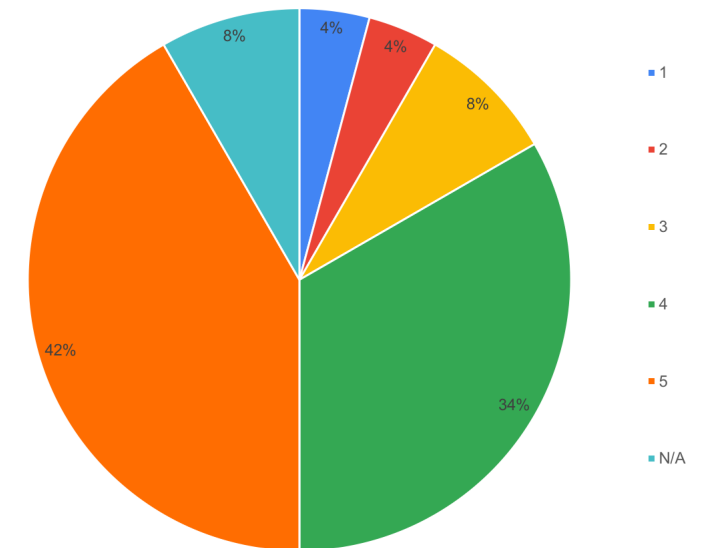
Are clients asking for projects to have measurable energy performance outcomes (e.g. LEED Certification, ZNE, % better than code) beyond the building code?



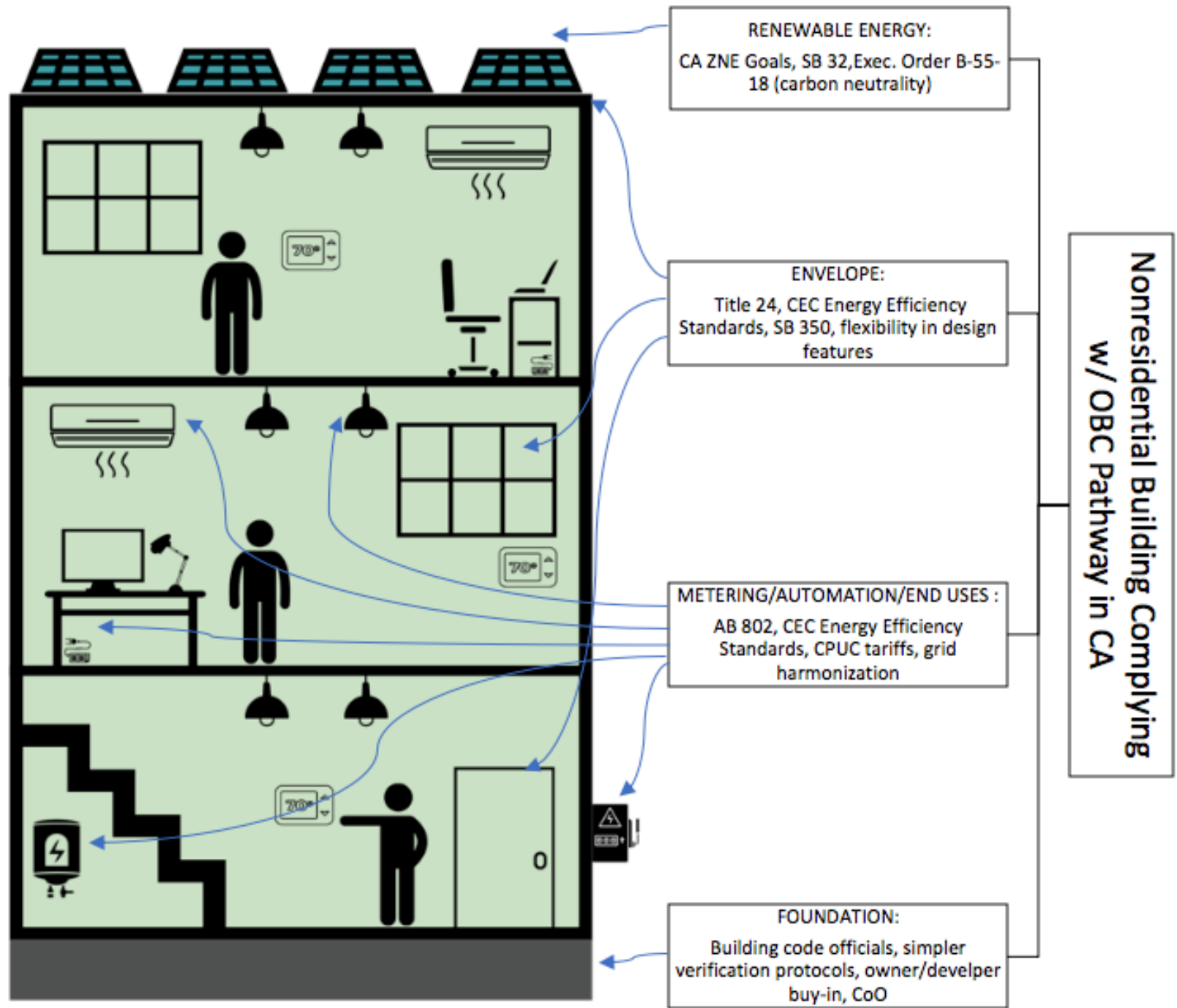
Will Title 24, Part 6 updates help the State meet 2030 goals of GHG emissions reductions?



How would you rate the benefit [Supports building to grid harmonization] of OBC on a scale of 1 - 5, with 1 = not at all important, 2 = somewhat important, 3 = neutral, 4 = moderately important, 5 = most important/essential



Discussion & Findings



OBC Compliance Timeline



Project Team Submit Energy Performance Target to Building Dept.



Building Dept. review against any minimum compliance criteria.



If approved, permit awarded and construction begins.



Construction completed and "temporary" certificate of occupancy awarded.



Building operations for a minimum of 12 months.



Building owner submits measured energy usage to building department.



If energy metrics comply, the certificate of occupancy is granted.



Building owner continues energy benchmarking and reporting if required by local jurisdiction or if they meet the state requirements.





Do nothing – Let the market decide by moving towards energy performance rating systems and desired outcomes due to market demand.



Influence based – Utilizing energy benchmarking disclosures to the State and to general public (AB 802) can incentivize building owners to implement efficiency measures to remain relevant in the market.



Incentive based – Local and State governments can work with land use planning departments to offer greater floor area ratio, expedited permitting, or work with the CPUC to develop favorable energy tariffs for buildings performing at certain efficiency levels. Stakeholders, such as owners, developers, and lenders, should be a part of this process in order to determine which incentives are most promising.



Regulations – This would be a paradigm shift in code compliance. The CEC would create a new pathway for energy code compliance in Title 24, Part 6 to require predicted energy use to be verified after occupancy is in place for a 12-month period. The current “prescriptive pathway” could be simplified and remain in place to provide a backstop for minimal energy performance of simple buildings.

Policy Tools





Ensure compliance –
Add in enforcement
layer before certificate
of occupancy to
recalibrate energy
models after
construction



Focus on existing
buildings and
opportunities of a
“building energy
performance standard”



Work with stakeholders
and legislators to
amend Warren-Alquist
Act to align pre and post
occupancy



Leverage Voluntary
Pathways in Title 24,
Part 11 – CALGreen



Research new energy
metrics that align
energy design,
measured energy, and
GHG emissions



Phase in OBC efforts in
alignment with
benchmarking
disclosure programs



Leverage “green
building incentive
programs” for enforcing
compliance after
occupancy



Research ways to
provide additional
education/training
opportunities to local
building code
departments

Next Steps



The image features a white background with two teal-colored geometric shapes. On the left, there is a large teal trapezoid that tapers towards the right. On the right side, there is a smaller teal triangle that tapers towards the left. The text 'Thank You!' is centered between these two shapes.

Thank You!