

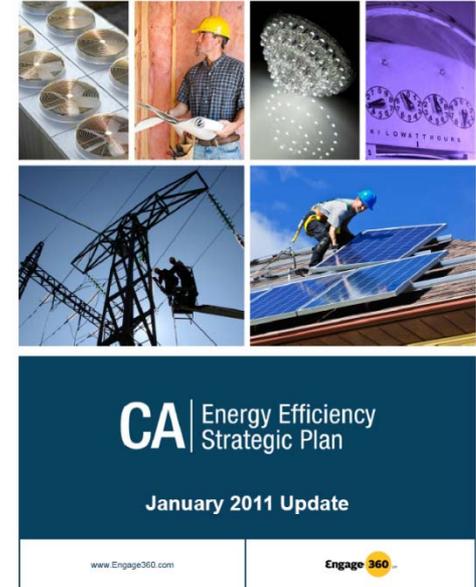


2013 Standards: Moving Toward ZNE

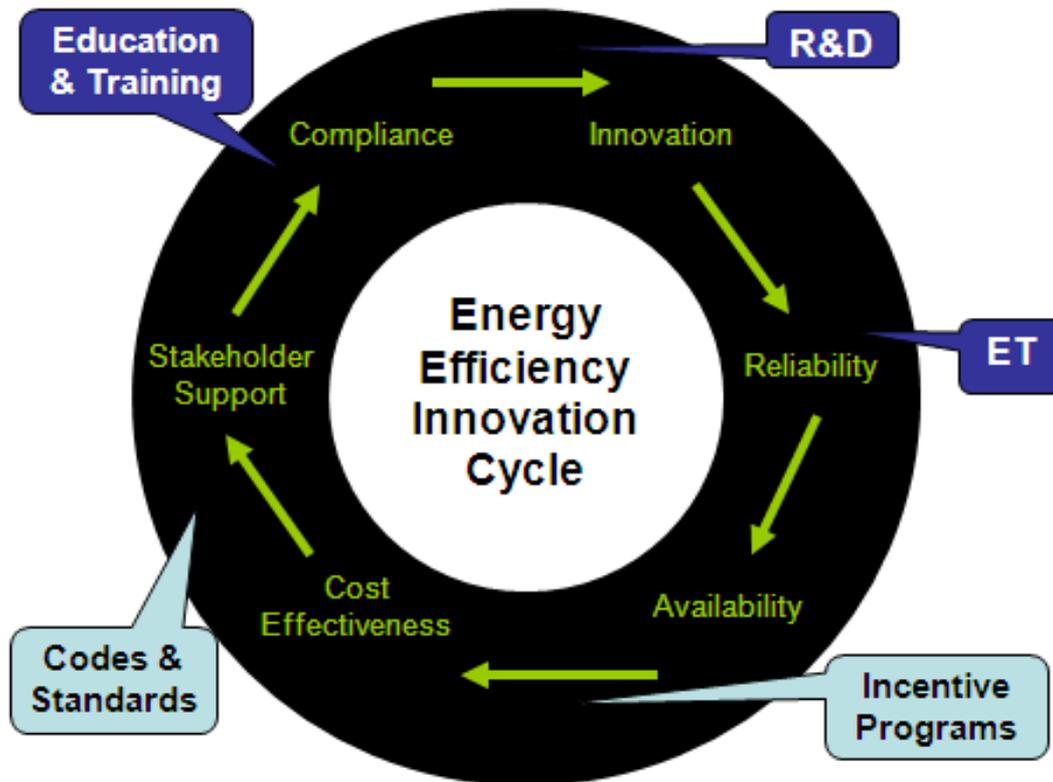
Cathy Chappell
Heschong Mahone Group, Inc
July 20, 2011

CPUC Directive for ZNE

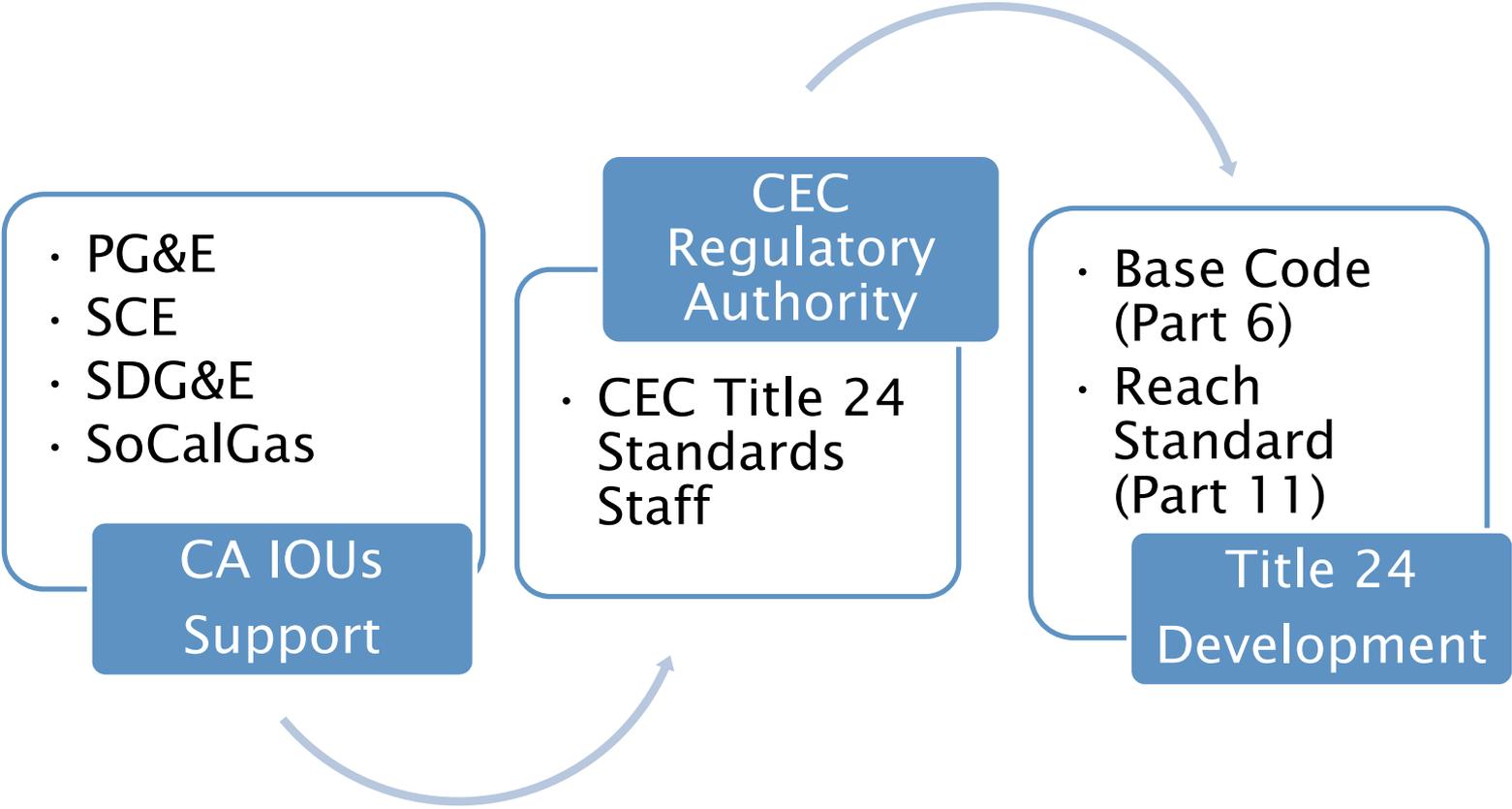
- CPUC California Long-Term Energy Efficiency Strategic Plan
 - supported by IOUs and CEC, among others
 - roadmap to maximize cost-effective energy efficiency
 - Big, Bold Strategies, including ZNE goals
 - One critical cross-cutting element is Codes and Standards
- CPUC (and therefore IOUs) are working toward the same ZNE goal as CEC



Role of Codes in EE Cycle

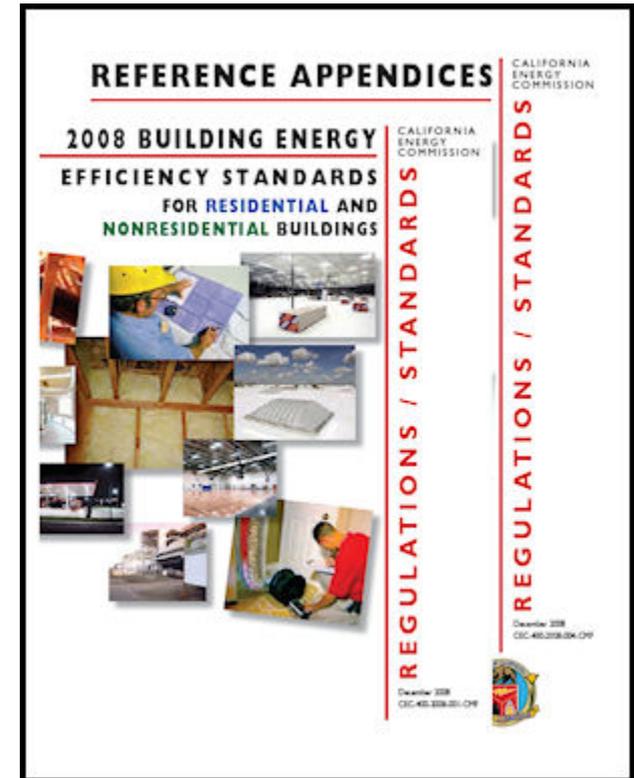


Title 24 Coordinated Effort



Title 24 Coordinated Effort

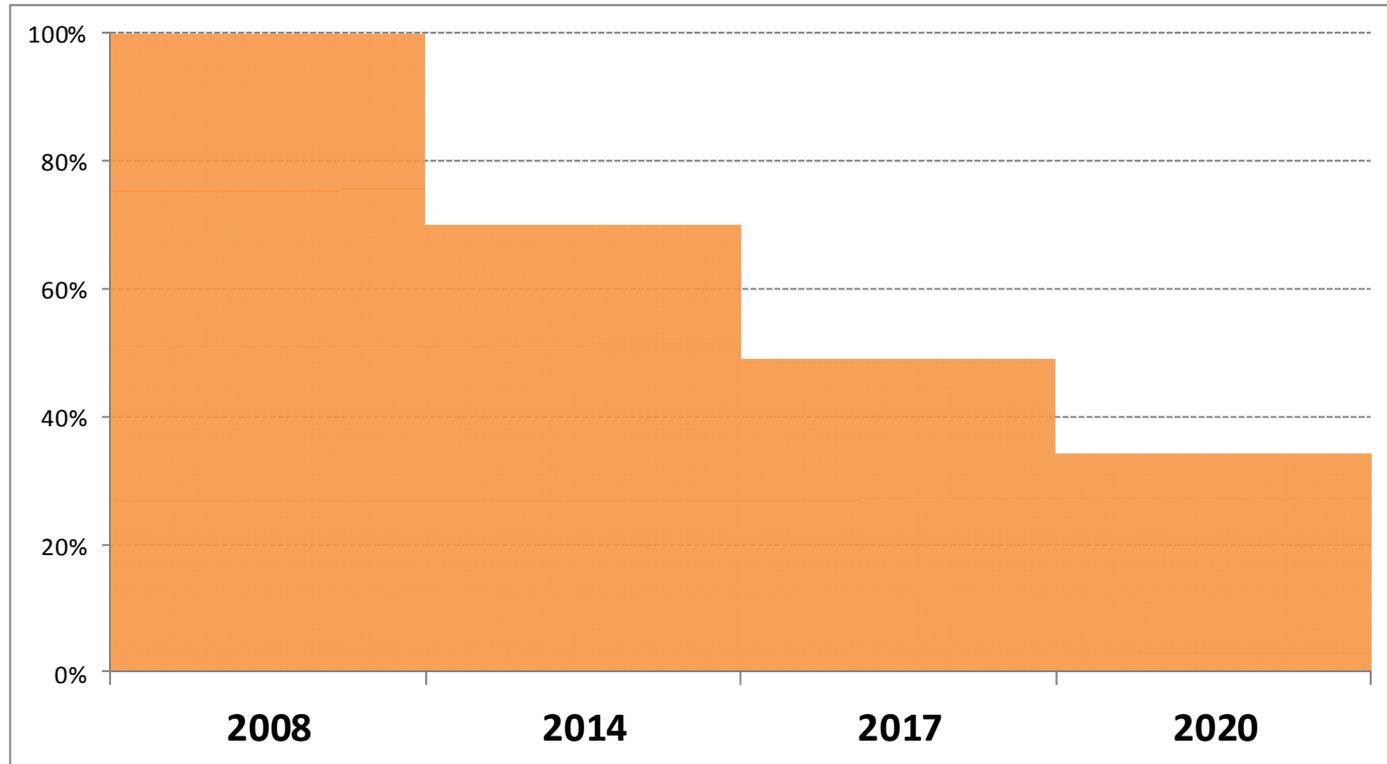
- Achieve significant energy savings through the development of code change proposals for the 2013 update and beyond
 - Reasonable
 - Responsible
 - Cost-effective



Goals for Title 24 Updates relative to ZNE

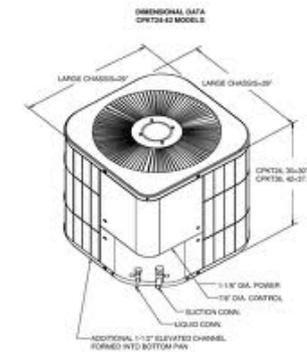
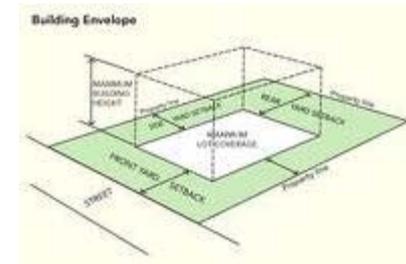
- Title 24 logical and important steps toward ZNE
 - Updates
 - Implementation
 - Enforcement
 - Title 24 updates must progressively raise the bar
 - 50-70% energy efficiency improvement
 - 20-30% energy savings for each update cycle
-

Goals for Title 24



Proposed Title 24 2013 Updates

- Building Envelope
 - Glazing
 - Insulation/cool roofs
 - Infiltration
- System Efficiency
 - HVAC
 - Ducts
 - DHW
- Verification of proper installation
 - QII
 - HERS inspections



Proposed Title 24 2013 Updates

- Equipment/Plug loads
 - Lighting
 - Upgradeable Thermostats
- Renewables
 - Solar (PV) Ready Houses
 - Solar Oriented Developments
- Reach Code



Proposed Title 24 2013 Updates

Package Reqts.	Efficiency Levels Cost-effectively Justified	CEC staff proposal
30 yr TDV Savings	44%	33%
Glazing	U 0.32/ SHGC 0.25	U 0.32/ SHGC 0.25
Wall Insulation	R21+4 24"oc	R15 or R21+4
Ceiling Insulation	R30 or R38, RHT	R30 or R38, Std
Roof Reflectance (Tile Roof)	0.20	0.20
Roof Deck Insulation	R8 or R13	R4 or R8 ⁽¹⁾
Radiant Barrier/ Roof Ventilation	RB/300	RB/300
Duct Insulation	R8	R6 or R8
Duct Ceiling & Testing	Reqd.	Reqd.
Ventilation	WHF	WHF ⁽²⁾
Infiltration & Testing (ACH50)	3 or 4	7.6
QII	Reqd.	Reqd. ⁽³⁾
DHW	Compact design	Compact design

(1) In some CZs; (2) In cooling dominated CZs; (3) Except in mild SoCal CZs

Proposed Title 24 2013 Updates

Alternate Prescriptive Paths	<ul style="list-style-type: none"> - High efficiency AC/Furnace/Water Heater - Other prescriptive packages that allow tradeoffs from the base prescriptive package
Equipment	Upgradeable Thermostats
	Lighting
	<ul style="list-style-type: none"> - High efficacy lighting in kitchens and bathrooms
	<ul style="list-style-type: none"> - Credit for 'higher-efficacy' lighting
	<ul style="list-style-type: none"> - Outdoor lighting controls
	HVAC Compliance Options
Renewables	<ul style="list-style-type: none"> - Night-Ventilation Systems
	Solar Water Heating for single and multi-family bldgs
	Solar Ready (PV) Homes
House Energy Budget	Solar Oriented Developments
	Maximum ACM Budget

Proposed Title 24 2013 Reach & Future Updates

- Reach Code
 - Unvented Attic option
 - Compressorless Comfort Homes
- Future
 - Ventilation & Economizing
 - Improving ventilation energy use while improving IAQ
 - Duct Improvements
 - Duct efficiency and aging – impact of duct materials