CALIFORNIA ENERGY COMMISSION

2013 Building Energy Efficiency Standards Staff Workshop

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California Energy Commission

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Policy Goals

- The following policy documents establish the goal for new building standards to achieve "net zero energy" levels by 2020 for residences and by 2030 for nonresidential buildings
  - 2008 CPUC/CEC Energy Action Plan
  - 2008 CARB Climate Change Scoping Plan
  - 2008 CPUC California Long Term Energy Efficiency Strategic Plan
  - 2007 CEC Integrated Energy Policy Report (IEPR)
- A 2005 Governor's Executive Order established GHG reduction goals for California for 2020 and 2050. 2006 AB 32 codified the 2020 GHG emission reduction target into law.

Policy Goals

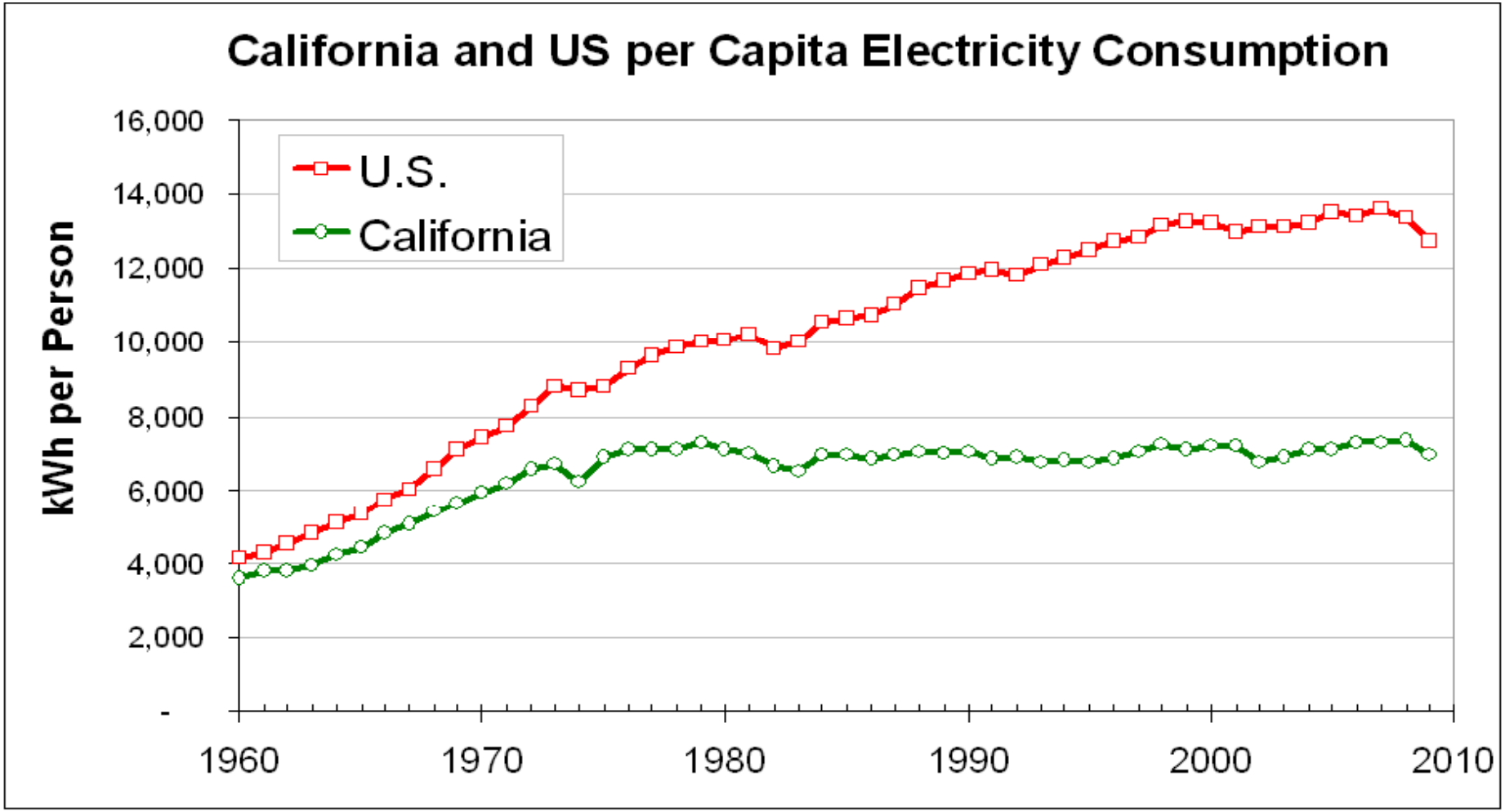
- The Green Building Standards Code published in July 2008 and updated for publication in 2010, codifies voluntary "reach" standards for energy efficiency, as compared with the base Standards

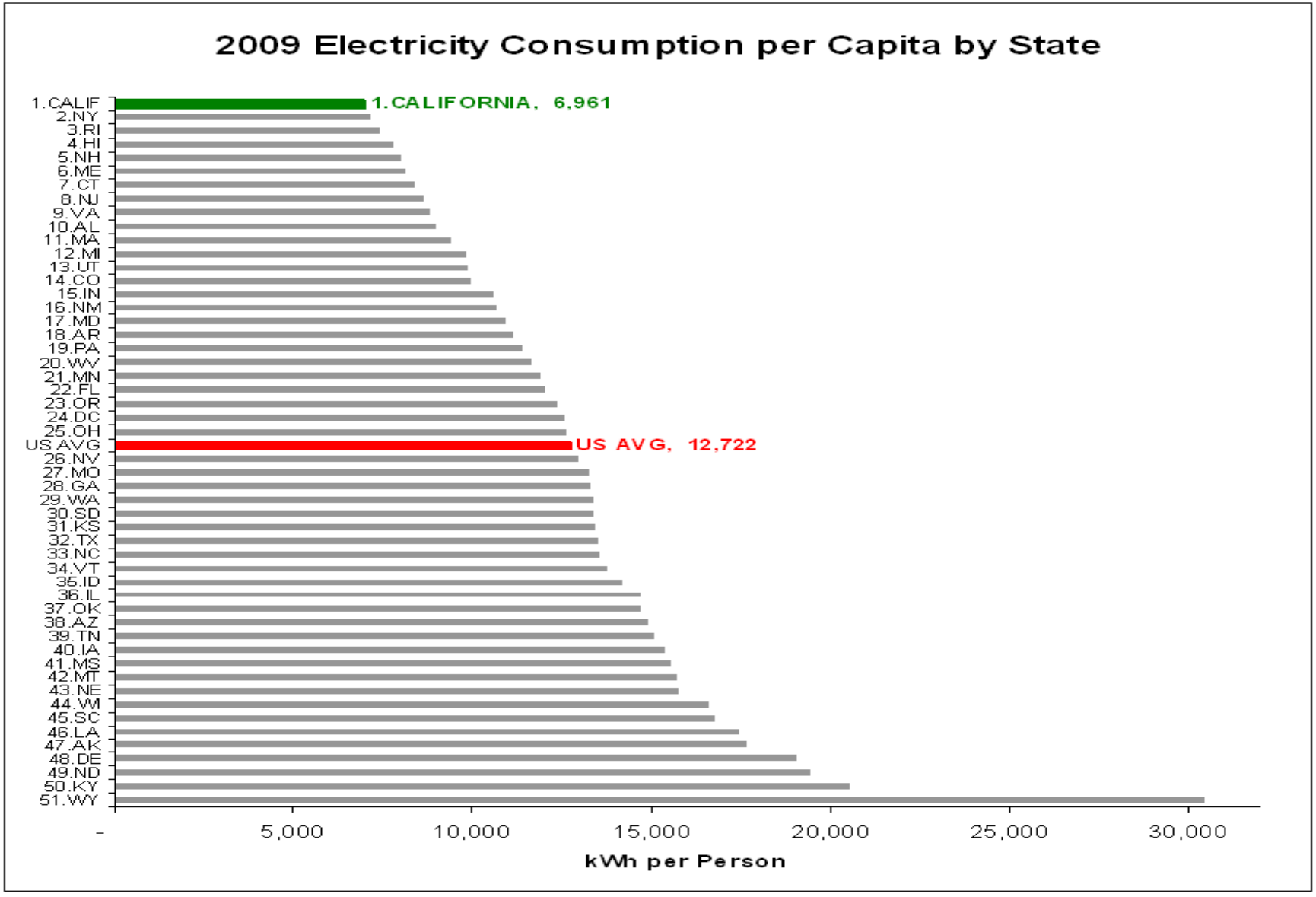
- Governor Jerry Brown's “Clean Energy Jobs Plan” vision the zero net energy goals
  - http://www.jerrybrown.org/sites/default/files/6-15%20Clean_Energy%20Plan.pdf

Major Collaborators

- PGC-funded Codes and Standards
  - CASE Initiatives by PG&E, SCE, SDG&E, and SCG.
- PIER Focused Research
  - Views Standards as a primary delivery mechanism
  - Substantial Research for 2013 Standards
- Public process with active stakeholder input

Building and Appliance Standards have contributed to relatively flat per capita electricity consumption in California since 1974. Source: US Energy Information Administration (EIA)




2009 Electricity Consumption per Capita by State
1.CALIF
2.NY
3.RI
4.HI
5.NH
6.ME
7.CT
8.NJ
9.VA
10.AL
11.MA
12.MI
13.UT
14.CO
15.IN
16.NM
17.MD
18.AR
19.PA
20.WV
21.MN
22.FL
23.OR
24.DC
25.OH
US AVG
26.NV
27.MO
28.GA
29.WA
30.SD
31.KS
32.TX
33.NC
34.VT
35.ID
36.IL
37.OK
38.AZ
39.TN
40.IA
41.MS
42.MT
43.NE
44.WI
45.SC
46.LA
47.AK
48.DE
49.ND
50.KY
51.WY
1.CALIFORNIA, 6,961
US AVG, 12,722
-
5,000
10,000
15,000
20,000
25,000
30,000
kWh per Person

2013 Title 24 (Part 6) Update:
Policy Objectives

- Achieve big step towards Zero Net Energy codes in 2020 (res) & 2030 (nonres) - 15-25% improvement in Standards
- Include CEC Approved Reach Standards - propose for Energy Chapter of Title 24, Part 11 (GBSC)
- Align with CBSC triennial code update

2013 Title 24 (Part 6) Update:

- Address compliance & enforcement issues
  - ✓ Simplify Standards
    - Migrate some prescriptive measures to mandatory, such as duct sealing, refrigerant charge, airflow measurement
    - Review & reduce exceptions
    - User-friendly compliance forms; create online interactive forms
    - Simplify performance software interface for alterations projects
  - ✓ Improve / increase third party field verification & acceptance requirements
- Improved electronic record keeping, CEC central document repository for residential and nonres buildings
- Consider measures that integrate efficiency with demand response (e.g., controllable ballasts)

2013 Title 24 (Part 6)Priorites

- Include non-energy related GHG costs/benefits in cost effectiveness analysis
  - ✓ Equivalent GHG emission reduction impacts of cool roof materials (benefits of reflecting short wave radiation, which avoids atmospheric capture)
  - ✓ Direct GHG emissions from refrigerant leakage in large refrigeration systems
- Water saving measures & water costs for power production
- Consider roof deck insulation in residential buildings
- Encourage proper building orientation
- Consider how PV systems should be included – Report to Legislature required by SB1

CALIFORNIA ENERGY COMMISSION

2013 Title 24 (Part 6) Update Schedule

Solicitation/Procurement Complete RFQ & contract procurement for 2011 Standards Technical Support; develop measure templates for 2011 Standards to document the benefits and the impacts of the proposed measures	Nov 2008 - Feb 2010
Pre-Rulemaking Activities: Phase 1 **Phase 1A -** Begin CASE Studies: Prioritize topic areas that contribute most to project goals and complete initial measure analysis **Phase 1B –** Foundational work (TDV, LCC, Weather) and initial software development **Phase 1C -** 2008 Standards Cleanup – Identify Standards and reference document sections that need clarification or revision and prepare initial mark-ups	Nov 2009 - Oct 2010
Pre-Rulemaking Activities: Phase 2 - CASE Studies Phase 2 1. First staff workshop - present info on weather data, TDV and cost effectiveness methodology 2. Stakeholder meetings – conduct as necessary to obtain comment on specific topic areas of proposed changes	Oct 2010 - Dec 2010
Pre-Rulemaking Activities: **Phase 3A - Draft Standards and Rulemaking Documents** Reconcile comments in preparation for draft regulation workshops, including analysis rework and markup of the Standards documents; **Phase 3B -** Conduct workshops for presentation of proposed draft revisions to Standards documents, incorporate the comments from the workshops into the proposed **first draft Standards** documents; **Phase 3C –** Prepare the second draft language; draft rulemaking documents; close pre-rulemaking Docket.	Feb - Apr 2011 Apr - Jul 2011 Jul - Sep 2011
Rulemaking Activities: Phase 4 – Adopt Standards and Associated Documents Open Rulemaking Docket; file Rulemaking documents with CBSC; develop **45-Day and 15-Day Language Standards documents**; develop and complete Administrative Procedures Act process requirements for rulemaking proceeding; complete and file Fiscal and Economic Impact Analysis and Environmental Analysis documents with required agencies	Sep 2011 - Mar 2012
Adoption - CEC adoption of 45-Day or 15-Day Standards and associated regulations; close Rulemaking Docket	**March 1, 2012**
Post adoption Activities Prepare and develop Final Statement of Reasons and other rulemaking documentation for CBSC approval	Feb 2012 - May 2012
Compliance Manuals and Software Development Develop and finalize the Compliance manuals review and finalize performance approach software	Mar 2012 - Dec 2012 Jun 2011 - Dec 2012
CBSC Publication Process – All T24 Parts Publication preparation 180 day statutory waiting period	Feb 2013 - **July 2013** July 2013 - Jan 2014
Effective Date	**January 2014**

How Standards are Updated

- Life cycle costing (LCC) for adopted measures based on; LCC reports presented in the November 16, 2010 staff Workshop:
  - Updated weather files
  - Updated Time Dependent Valuation (TDV) values for Base and Reach Standards
  - Updated LCC methodology
- Before the 2013 Cycle – Staff held public 15-20 days of public workshops and received input from the stakeholders; all the vetting happened at the workshops

2013 Standards Update

IOUs Support and the Stakeholder Meetings

- The 2013 Standards process is different
- The Statewide IOUs (PG&E, SCE, SDG&E, and SCG) have been holding stakeholder meetings throughout the state since Spring of 2010 in support of the 2013 Standards update. <u>This will result in the first 2013 Draft Standards</u>
- Staff will hold 10 or 11 days of workshops in Spring of 2011 to present the draft Standards at the conclusion of the IOUs' stakeholder meeting process.

2013 Standards Update
Staff Workshops

- April 4, 2011 - Res and Nonres Lighting
- April 11, 2011 – Nonres ventilation; boilers and data centers
- April 18, 2011 – Nonres Acceptance testing; design phase commissioning; refrigerated warehouses; super market refrigeration; solar ready buildings; and solar water heating
- April 27, 2011 – Nonres HVAC, cooling towers; VAV systems; EMCS; reheat systems; and air compressors
- May 24, 2011 – Nonres water and space heating; radiant cooling; nonres envelope measures including roofs, walls, and fenestration topics; res DHW
- **May 31, 2011** - Res infiltration and testing; windows and overhangs; mandatory airflow; return duct sizing; duct sealing; night ventilation; nonres radiant cooling and evap cooling

2013 Standards Update
Staff Workshops

- **June 9, 2011** – Res; upgradable setback thermostats; DHW distribution and showerheads; DWH standby loss and WH ready measure; nonres fenestration update.
- **June 10, 2011** – Res cool roofs and roof deck insulation; nonres envelope air leakage; wall insulation and mass; aged reflectance formula; cool roofs and insulation; roofs for unconditioned buildings
- **June 21, 2011**– Res and nonres ACM Manual updates
- **July 15 2011** - Res alternative component packages; zone air conditioning; higher mandatory measures for ceilings, walls, and roofs; advanced envelope assemblies; Nonres hotel guest room controls.
- **July 21-22, 2011**– Canceled, reach standards workshop
- **Mid August 2011** – Last staff workshop for the "Hollywood" house, production model home (four orientations), glazing and PV tradeoff, refrigerant charge and verification, Administrative changes (10-103 thru 114), and a discussion about the reach standards approach.

Software Development Objectives

- Collaborative development – use of Program Advisory Committee to build consensus, make joint recommendations to CEC
  - Open source software license agreements
  - QA procedures for software development, testing, documentation
  - Software and data available on “the cloud”
- Get compliance software completed as close to the March 2012 adoption date as possible

Software Development Schedule

RFQ Pre-bid Conference	March 24, 2011
RFQ Proposals Due	April 18, 2011
RFQ NOPAs	May 6, 2011
Contract(s) Start Date	July 1, 2011
Software Requirements	November 2011
Compliance Software – test version	March 2012
Simplified Compliance Tool – test version	August 2012
Compliance Software – for distribution	December 2012
Simplified Compliance Tool – for distribution	December 2012

2013 Standards Update

Send lighting related comments by August 12, 2011 to:

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