

DOCKETED	
Docket Number:	24-BSTD-05
Project Title:	2025 Energy Code Compliance Initiatives
TN #:	261312
Document Title:	2025 Energy Code Compliance Initiatives Staff Workshop 1 Slides
Description:	2025 Energy Code Compliance Initiatives Staff Workshop 1 Slides
Filer:	Christina C. Ubaldo
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	1/27/2025 4:33:27 PM
Docketed Date:	1/27/2025



Compliance Initiatives: Scoping & Progress Workshop

Standards Compliance Branch

December 18, 2024



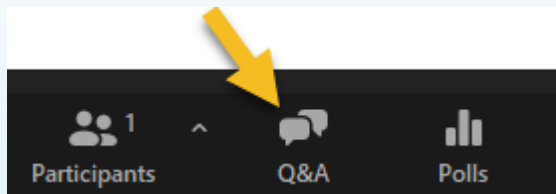
Housekeeping Rules

General Notes

- The workshop will be recorded.
- The slide presentation will be posted on the docket.
- Comments or suggestions can be made through our online docket 24-BSTD-05 visit:
 - <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=24-BSTD-05>

Public Comments

- We will have Chat turned off, but please feel free to use the Zoom Q/A feature



Public Comments

Zoom App/Online

- Click “raise hand”

Telephone

- Press *9 to raise hand
- Press *6 to Mute/Unmute

When called upon

- CEC will open your line
- Unmute on your end
- Spell name and state affiliation, if any
- 2 minutes or less per speaker, 1 speaker per entity
 - (1-2 minutes?)



Agenda

- **Opening Remarks – Commissioner McAllister**
- **Introduction and workshop format – Che (15 min)**
- **Energy Code Compliance (25 min)**
- **Past stakeholder feedback – Danielle (20 min)**
- **5 minute break**
- **Restructuring the Energy Code – Payam (25 min)**
- **Key Updates for 2025 Compliance – Joe (20 min)**
- **Upcoming topical workshops – Che (30 min)**
- **Closing remarks (5 mins)**



Opening Remarks

Commissioner McAllister

December 18, 2024



Opening Remarks



J. Andrew McAllister, Ph.D.
Commissioner



Introduction and workshop format

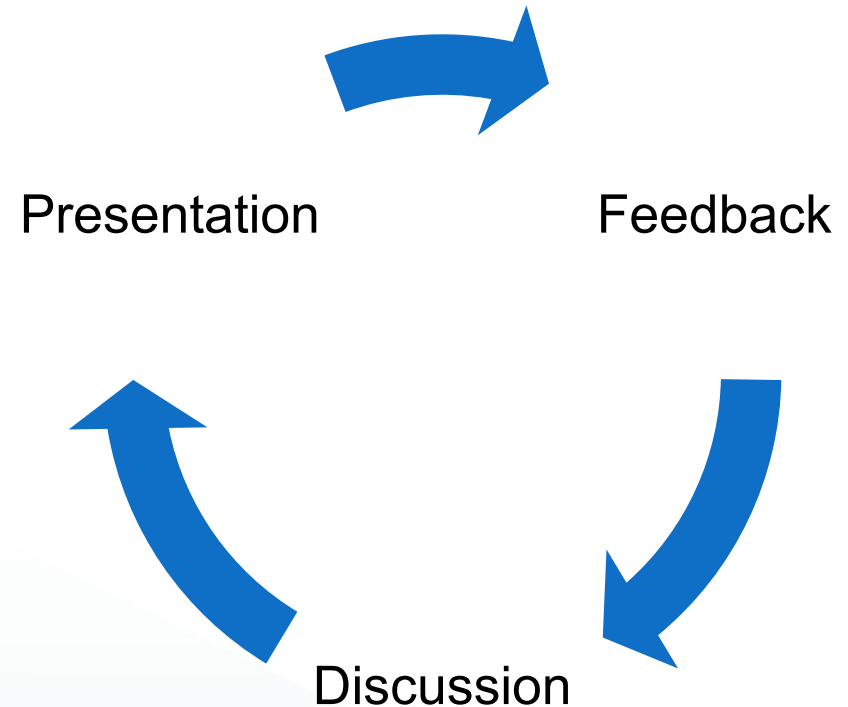
Che Geiser

December 18, 2024



Compliance Workshop Series

- Workshop reformatting
 - Short presentations (5-10 min)
 - Survey tools (2 min)
 - Discussion (10-15 min)
 - Rinse & repeat
 - Shorter, more frequent workshops



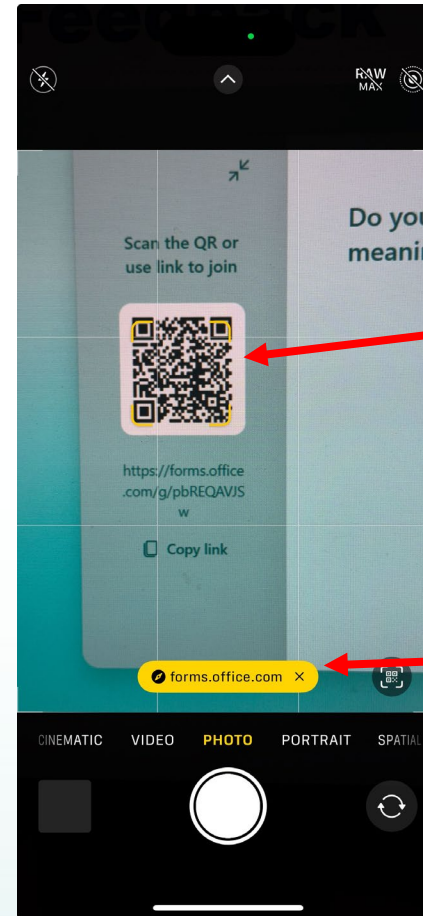


Feedback Tools

Point your smartphones camera at the QR code, hold the camera steady until the app recognizes the QR code.

Then select the link.

Alternatively, on your computer you can copy the link address we will put into the chat and open this in your browser.

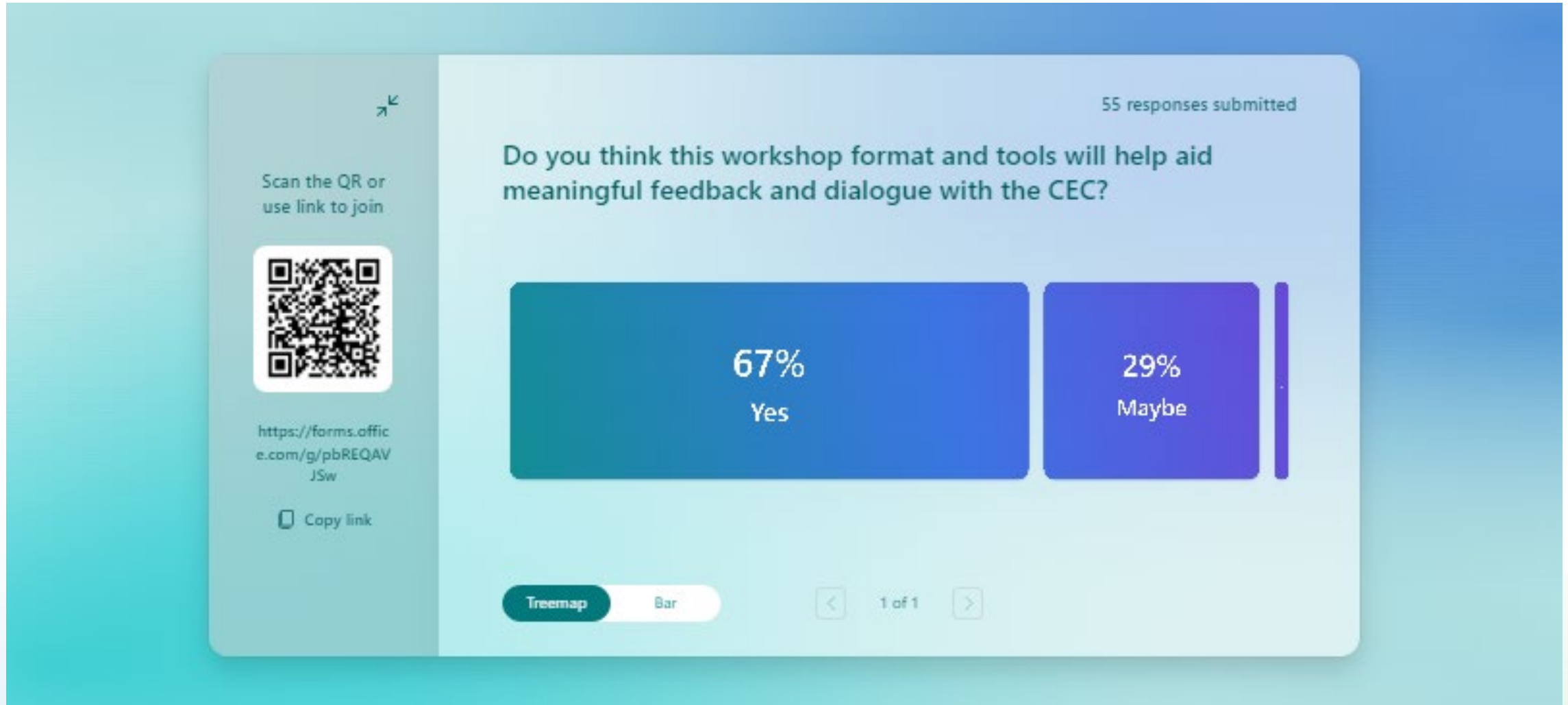


QR Code

Link to select



Feedback



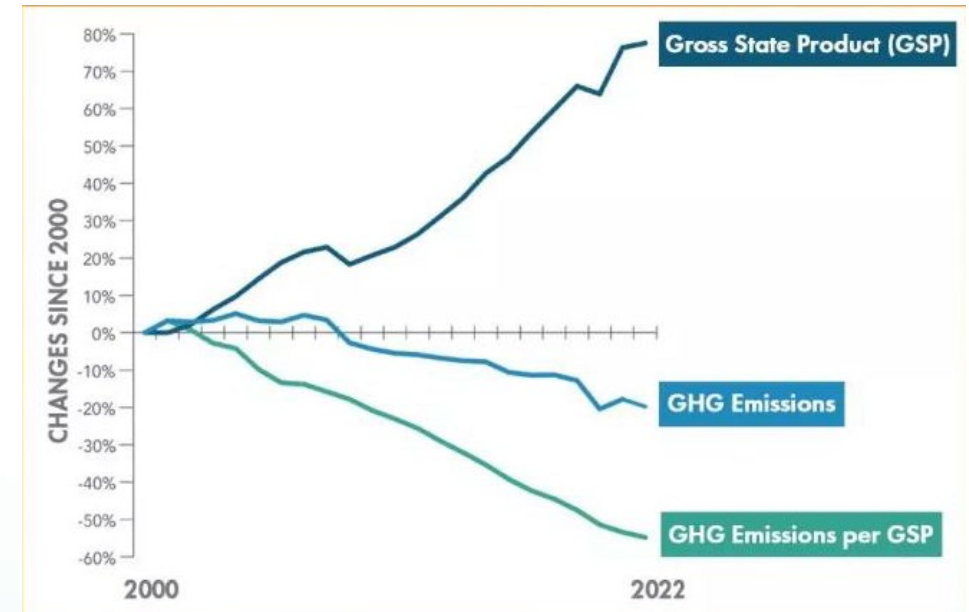
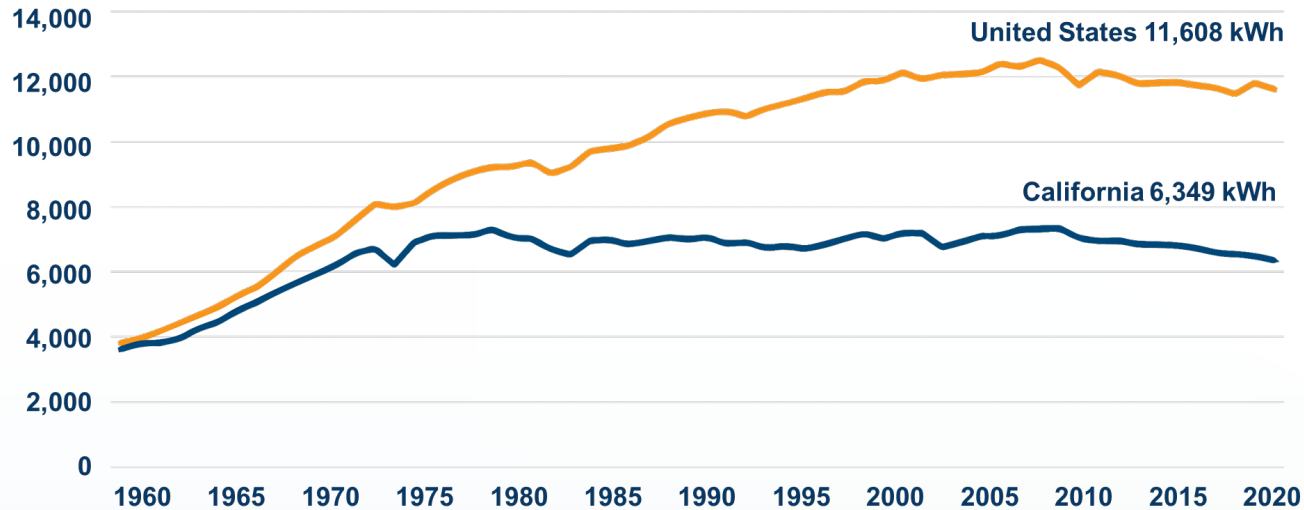


Energy Code Compliance



Energy Code in California

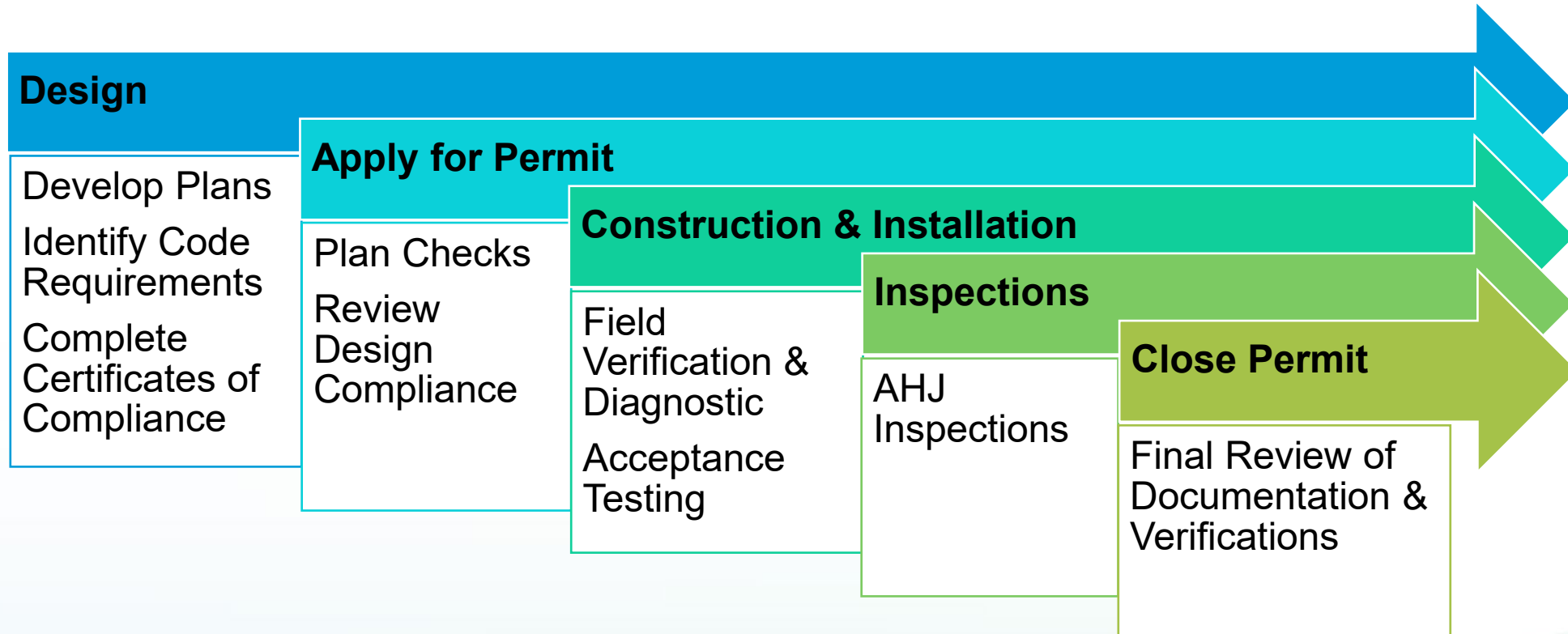
Leadership in Energy Code development has benefits to Californian's



Improved compliance will increase these benefits



Compliance Process





Uncertain – CA Cost of Noncompliance

Building Sector		Site Energy Savings [GWh] ¹	Site Gas Savings [MTherms] ¹	Economic Benefits to CA [LSC\$] ²	Staff Estimated Compliance Rates [%]	Estimated Annual Cost of Noncompliance [LSC\$]*	Estimated 30-Year Cost of Noncompliance [LSC\$]*
Newly Constructed	Single-Family	-48.54	5.27	\$970M	80-90%	\$2M	\$73M
	Multifamily	116.77	3.81	\$1,135M	80-90%	\$3M	\$85M
	Nonresidential	511.04	2.21	\$2,332M	40-80%	\$16M	\$466M
Alterations	Single-Family	91.22	0.81	\$611M	10-30%	\$8M	\$244M
	Multifamily	126.94	0.24	\$891M	10-30%	\$12M	\$357M
	Nonresidential	398.35	0.23	\$1,955M	10-30%	\$26M	\$782M
	Covered Processes	369.36	1.82	\$4,218M	40-80%	\$28M	\$844M
Totals		1,565.14	14.39	\$12,112M		\$95M	\$2,851M

***Noncompliance estimates assumes 50% of savings are not realized due to either poor installation or inadequate documentation or processes.**



Opportunities

- Compliance initiatives underway detailed throughout the remainder of this workshop
- Addressing all these issues will take collaboration between regulators and all involved parties
 - Continuing to grow this public/private partnership is critical
- Enforcement also plays a critical role
 - Creative thinking, collaboration and hard work can find ways to increase enforcement



Discussion

15 Minutes



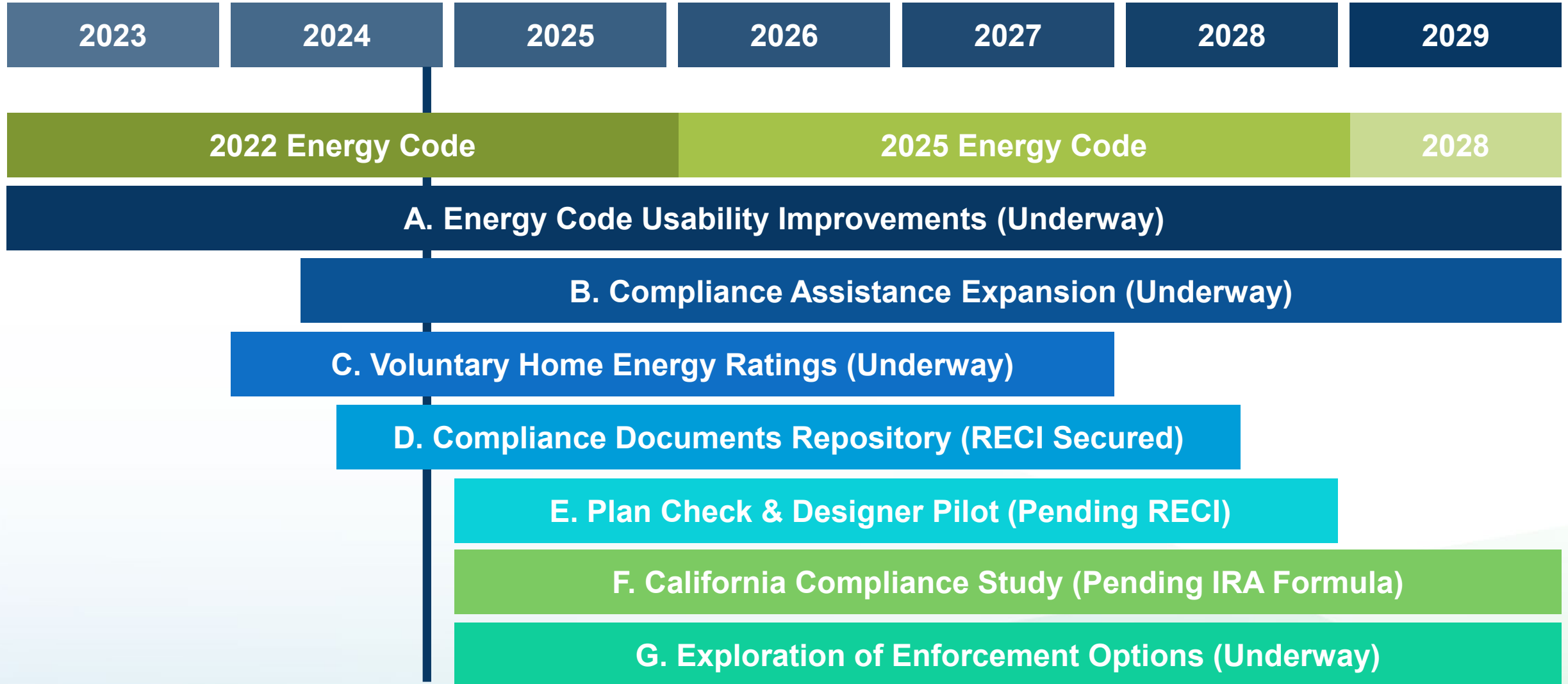
Past Stakeholder Feedback

Danielle Hughes

December 18, 2024



Compliance Initiatives Timeline





Energy Code Usability Improvements

Compliance Challenge	Suggestions for Improvements	What CEC is doing
Energy Code layout and formatting is too complex	Reformat and align with other parts of the Building Code	Restructure 2028 Energy Code



Compliance Documents Tools and Repository

Compliance Challenge	Suggestions for Improvements	What CEC is doing
Compliance documents are onerous	<ul style="list-style-type: none"> • Reduce and simplify • Software tools that streamline compliance documentation 	<ul style="list-style-type: none"> • Reduction of NRCC • Web forms • CCDR (RECI 1)
Incomplete compliance rate understanding	<ul style="list-style-type: none"> • Collect HERS and ATTCP program data and other sources for compliance rates analysis 	<ul style="list-style-type: none"> • CCDR to house HERS (ECC) data • CCDR to include ATTCP data • Compliance rate assessment and improvement strategies

- Funded through DOE RECI 1 - CCDR
 - \$2,250,000
- Funded through SCEP IRA – Compliance Rate Assessment
 - \$13,600,000



Increased Enforcement through Documentation, Compliance Assistance, Plan Check Support

Compliance Challenge	Suggestions for Improvements	What CEC is doing
AHJs lack resources to become experts in the complexities of the Energy Code and have competing priorities	<ul style="list-style-type: none">• Software tools that automate and simplify permitting, compliance, and enforcement• Third party plan reviews/enforcement• Leverage licensed or certified building professionals to ensure energy code compliance	<ul style="list-style-type: none">• CEA/AEA training, code coaching, and third party plan check (RECI 2)

- Funded through DOE RECI 2 - Energy Code Documentation, Certification, and Plan Check Support Program
 - \$4,000,000



Permit Streamlining and Workforce Education

Compliance Challenge	Suggestions for Improvements	What CEC is doing
<p>Energy Code complexities increase costs, time, and energy savings lost</p>	<ul style="list-style-type: none">• Permit streamlining• Workforce training• Permitting incentives	<ul style="list-style-type: none">• RECI 2• SCEP IRA Formula• Home Efficiency Rebates (HOMES) Program• Home Electrification and Appliance Rebates (HEEHRA)• Training for Residential Energy Contractors (CA-TREC)



Compliance Verification and Testing Improvements

Compliance Challenge	Suggestions for Improvements	What CEC is doing
Field Verification & Diagnostic Testing (FV&DT) Program issues	Address issues to improve the program: <ul style="list-style-type: none">• Conflict of interest• rater quality assurance audits and oversight• inconsistent testing methods• Misuse of group sampling procedures	<ul style="list-style-type: none">• 2025 FV&DT Rulemaking



Additional Initiatives

Compliance Challenge	Suggestions for Improvements	What CEC is doing
Existing homes are not incentivized to update for improved efficiency	Whole house raters should be involved in the CF1R/Modeling process	Exploring options for market encouragement through Home Energy Ratings & Labeling



DOE Funded Projects

Project	Funding Source	Federal Funds	Timeline
Digital Infrastructure to Support Energy Code Compliance and Implementation	Resilient and Efficient Codes Implementation 1	\$2.25m	2024 - 2027
California Energy Code Documentation, Certification, and Plan Check Support Program	Resilient and Efficient Codes Implementation 2	\$4m	2025 - 2027
Compliance Rates Evaluation and Streamlining Compliance Assistance Services	Inflation Reduction Act	~\$18m	2025 - 2030




Feedback

55 responses submitted

Please rank the topics you feel are the biggest hindrance to increased compliance of the energy code?

Scan the QR or use link to join



<https://forms.office.com/g/SDbyA4MR5D>

Copy link

Complexity of the Energy Code	Progress bar (approx. 40% filled)
Lack of enforcement	Progress bar (approx. 30% filled)
Complexity of the forms	Progress bar (approx. 25% filled)

Previous question

< 1 of 3 >



Discussion

15 Minutes



Key Updates for 2025 Compliance

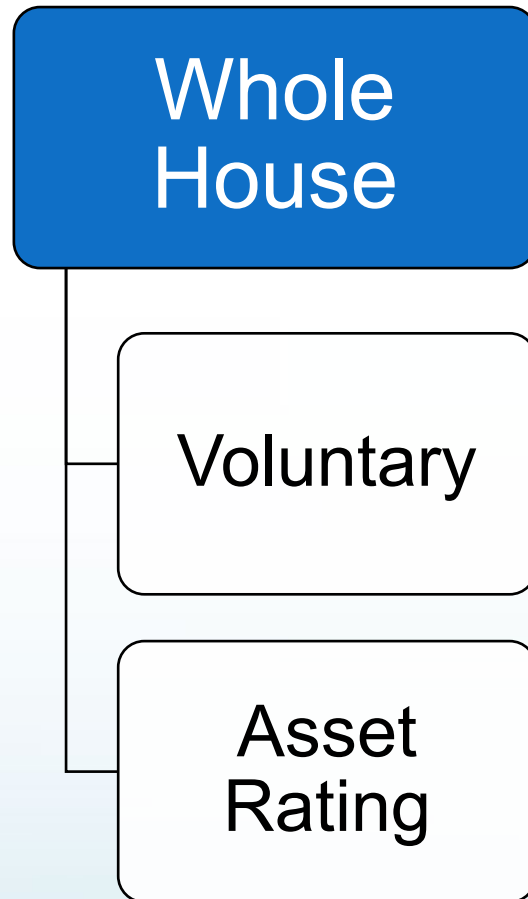
Joe Loyer

December 18, 2024

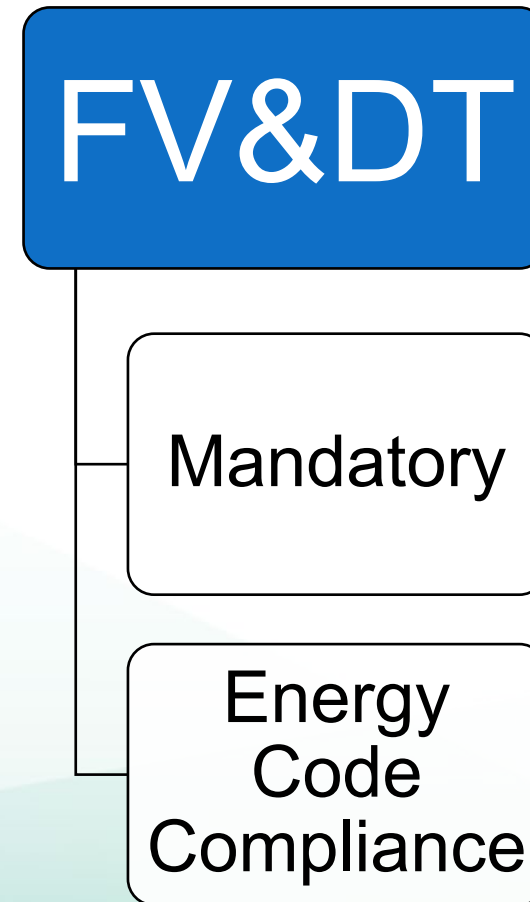


Two Separate Programs

Title 20 - HERS Regulations



Title 24 – Energy Code





Changes to the HERS Regulations

Title 20, Section 1670-1675

- Retain all provisions necessary for the implementation of voluntary Whole House Ratings
- Adopted by the Energy Commission – August 9, 2023
- Effective date coordinated with the 2025 Energy Code
- Overall structure is unchanged
- Remove any provisions relevant to the FV&DT program



Replacing HERS with the Energy Code Compliance Program

- New section in Title 24, Part 1: **Section 10-103.3**
- Program name change:
Energy Code Compliance (ECC)
- Program administrative changes:
 - ECC-Rater Companies are now a regulated entity
 - Significant quality assurance changes
 - Progressive discipline for Raters, Rate-Companies, and Providers
 - Codifying a means for Rater-Companies to maintain Rater independence while also providing other industry services.
- Removal of the special inspector designation for Raters



Changes to Nonresidential Acceptance Testing

- Alteration to ATTCP quality assurance testing
- New or significantly renovated acceptance tests:
 - Mechanical: Cooling Tower Conductivity Controls
 - Covered Process: Lab Exhaust Ventilation System



Discussion

10 Minutes



Introducing the Part 6 2028 Restructured Standards

Payam Bozorgchami, P.E.

December 18, 2024

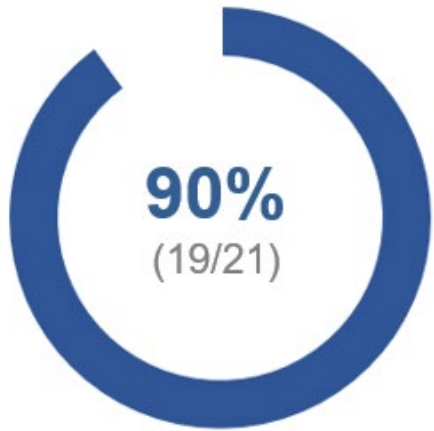
AGENDA

- Background- Why & How?
- Features included in Restructured Standard
 - ✓ Reorganize by building system
 - ✓ Renumber sections
 - ✓ Hyperlinks
 - ✓ Index
 - ✓ Italicize defined terms
- Questions and comments

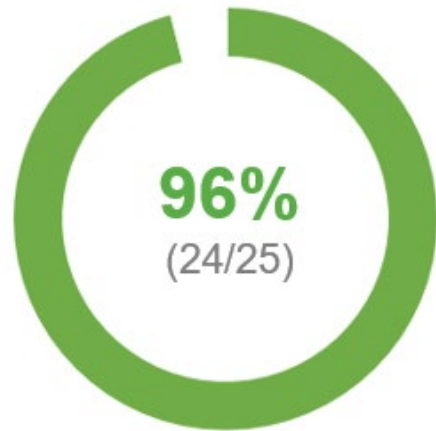


Focus Group Poll Results

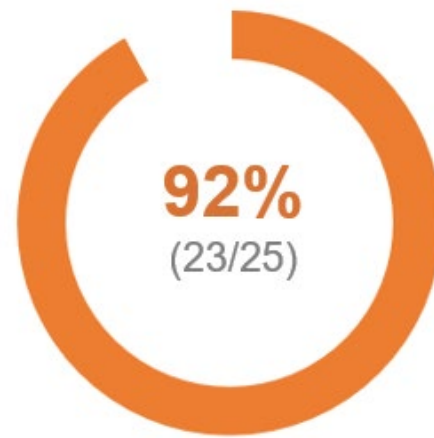
90% support renumbering to follow CBC/CRC



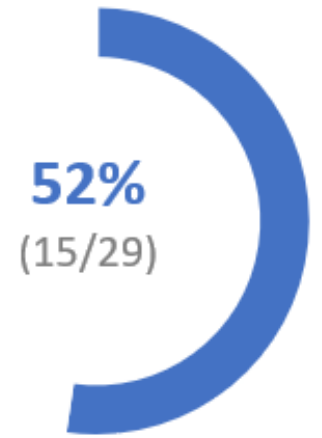
96% support tables after relevant code language



92% want hyperlinks within Standards & Ref. Appendices



52% want requirements to be repeated if they are the same



MS Excel generated based on Fall 2023 focus groups

Rank the options for Standards organization in order of preference (1) being your first choice and (3) being your last choice:

Points Based on Borda Count Ranking

By System Type	63	< 1 st Place overall
By Building Type	50	< 2 nd Place overall
Current Organization	34	< 3 rd Place overall

Ranking is calculated with a points system, also called "Borda Count", where the item ranked first will get 3 points, the item ranked second will get 2 points and the item ranked third gets 1 point.



Current vs. Reorganized Standards

Chapter	Section	Subject.	Title
1	100.0-100.2	(a)(b)(c) 1.2.3. A.B.C. i.ii.iii a.b.c.	General Provisions All building types
2	110.0-110.12		Mandatory All building types
3	120.0-120.10		Mandatory Nonresidential, Covered Process
4	130.0-130.5		Mandatory Lighting & Electrical Nonresidential, Covered Process
5	140.0-140.10		Prescriptive and Performance Nonresidential, Covered Process
6	141.0-141.1		Additions, Alterations and Repairs Nonresidential, Covered Process
7	150.0		Mandatory Single-family
8	150.1		Prescriptive and Performance Single-family
9	150.2		Additions, Alterations and Repairs Single-family
10	160.0-160.9		Mandatory Multifamily
11	170.0-170.2		Prescriptive and Performance Multifamily
12	180.0-180.4		Additions, Alterations and Repairs Multifamily

CURRENT

Chapter	Section	Subject.	Title
1	100-102	1.2.3... 1.2.3... 1.2.3... 1.2.3... 1.2.3...	General Provisions All building types
2	200		Definitions All building types
3	300-303		Envelope All building types, Nonresidential, Single-family, Multifamily
4	400-403		HVAC and Ventilation All building types, Nonresidential, Single-family, Multifamily
5	500-503		Plumbing All building types, Nonresidential, Single-family, Multifamily
6	600-603		Electrical and Lighting All building types, Nonresidential, Single-family, Multifamily
7	700-703		Renewables and Storage All building types, Nonresidential, Single-family, Multifamily
8	800-803		Pool and Spa All building types, Nonresidential, Single-family, Multifamily
9	900-911		Process Systems and Equipment Covered Process
10	1000-10001		Design Review and Commissioning Nonresidential

REORGANIZED



Building System Chapter Structure

Existing 2022 §

Chapter 3 - ENVELOPE

Section 300 – MANDATORY REQUIREMENTS FOR ALL OCCUPANCIES (NEW CONSTRUCTION, ADDITIONS AND ALTERATIONS)

- 110.60 300.1 - Mandatory Requirements for Fenestration Products and Exterior Doors
- 110.70 300.2 - Mandatory Requirements to Limit Air Leakage
- 110.80 300.3 - Mandatory Requirements for Insulation, Roofing Products and Radiant Barriers

Section 301 - NONRESIDENTIAL AND HOTEL/MOTEL OCCUPANCIES

- 120.00 301.1 - General
- 120.70 301.2 - Mandatory (New Construction, Additions, and Alterations)
- 140.30 301.3 - Prescriptive (New Construction)
- 301.4 - Performance (New Construction)
- 141.0(a) & (b) 301.5 - Additions, Alterations, and Repairs to Existing Buildings

Section 302 - SINGLE-FAMILY OCCUPANCIES

- 150.0 302.1 - General
- 150.0 302.2 - Mandatory (New Construction, Additions and Alterations)
- 150.1(c) 302.3 - Prescriptive (New Construction)
- 302.4 - Performance (New Construction)
- 150.2(a) & (b) 302.5 - Additions, Alterations, and Repairs to Existing Buildings

Section 303 - MULTIFAMILY OCCUPANCIES

- 160.0 & 170.0 303.1 -General
- 303.2 - Mandatory (New Construction, Additions and Alterations)
- 160.1 *Reference applicable sections in NR and SF that are duplicative*
- 303.3 - Prescriptive (New Construction)
- 170.2(a) & (b) *Reference applicable sections in NR and SF that are duplicative*
- 303.4 - Performance (New Construction)
- 303.5 - Additions, Alterations, and Repairs to Existing Buildings
- 180.1(a) & (b) & 180.2(a) & (b) *Reference applicable sections in NR and SF that are duplicative*



Include Adopted 2025 Code Section Numbers

SUBCHAPTER 3 – ENVELOPE

SECTION 300— MANDATORY REQUIREMENTS FOR ALL OCCUPANCIES

300.1 **[§110.6]** Mandatory requirements for fenestration products and exterior doors.

300.1.1 **[§110.6(a)] Certification of fenestration products and exterior doors other than field-fabricated.** Any fenestration product and exterior door, other than field-fabricated fenestration products and field-fabricated exterior doors, may be installed only if the manufacturer has certified to the Commission, or if an independent certifying organization approved by the Commission has certified, that the product complies with all of the applicable requirements of this subsection.

300.1.1.1 **[§110.6(a)1] Air leakage.** Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft² of window area, 0.3 cfm/ft² of door area for residential doors, 0.3 cfm/ft² of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft² for nonresidential double doors (swinging), when tested according to NFRC-400 or ASTM E283 at a pressure differential of 75 pascals (or 1.57 pounds/ft²), incorporated herein by reference.

Notes to Section 300.1.1.1 **[§110.6(a)1]:** Pet doors must meet 0.3 cfm/ft² when tested according to ASTM E283 at 75 pascals (or 1.57 pounds per square foot). AAMA/WDMA/CSA 101/I.S.2/A440-2011 specification is equivalent to ASTM E283 at a pressure differential of 75 pascals (or 1.57 pounds per square foot) and satisfies the air leakage certification requirements of this section.

Exception to Section 300.1.1.1 **[§110.6(a)1]:** Field-fabricated fenestration and field-fabricated exterior doors.

300.1.1.2 **[§110.6(a)2] U-factor.** The fenestration product and exterior door's U-factor shall be rated in accordance with NFRC 100, or use the applicable default U-factor set forth in Table 300.1.1-A **[Table 110.6-A]**.



Hyperlinks to Help with Quick Navigation

SUBCHAPTER 3 – ENVELOPE

SECTION 300— MANDATORY REQUIREMENTS FOR ALL OCCUPANCIES

300.1 [§110.6] Mandatory requirements for fenestration products and exterior doors.

300.1.1 [§110.6(a)] Certification of fenestration products and exterior doors other than field-fabricated. Any fenestration product and exterior door, other than field-fabricated fenestration products and field-fabricated exterior doors, may be installed only if the manufacturer has certified to the Commission, or if an independent certifying organization approved by the Commission has certified, that the product complies with all of the applicable requirements of this subsection.

.....

300.1.1.5 [§110.6(a)5] Labeling. Fenestration products and exterior doors shall:

- Have a temporary label for manufactured fenestration products and exterior doors or a label certificate when the Component Modeling Approach (CMA) is used and for site-built fenestration meeting the requirements of [Section 10-111\(a\)1](#). The temporary label shall not be removed before inspection by the enforcement agency; and
- Have a permanent label or label certificate when the Component Modeling Approach (CMA) is used and for site-built fenestration meeting the requirements of [Section 10-111\(a\)2](#) if the product is rated using NFRC procedures.

300.1.1.6 [§110.6(a)6] Fenestration acceptance requirements. Before an occupancy permit is granted site-built fenestration products in other than single-family buildings shall be certified as meeting the Acceptance Requirements for Code Compliance, as specified in the [Reference Nonresidential Appendix NA7](#) to ensure that site-built fenestration meets Standards requirements, including a matching label certificate for product(s) installed and be readily accessible at the project location. A certificate of acceptance certifying that the fenestration product meets the acceptance requirements shall be completed, signed and submitted to the enforcement agency.



Italicize Defined Terms

SUBCHAPTER 3 – ENVELOPE

SECTION 300— MANDATORY REQUIREMENTS FOR ALL OCCUPANCIES

300.1 [§110.6] Mandatory requirements for *fenestration products* and exterior doors.

300.1.1 [§110.6(a)] Certification of *fenestration products* and exterior doors other than *field-fabricated*. Any *fenestration product* and exterior door, other than *field-fabricated fenestration products* and *field-fabricated* exterior doors, may be installed only if the manufacturer has *certified to the Commission*, or if an independent *certifying organization* approved by the Commission has certified, that the product complies with all of the applicable requirements of this subsection.

.....

300.1.1.5 [§110.6(a)5] Labeling. *Fenestration products* and exterior doors shall:

- Have a temporary label for *manufactured fenestration products* and exterior doors or a label certificate when the *Component Modeling Approach (CMA)* is used and for site-built fenestration meeting the requirements of [Section 10-111\(a\)1](#). The temporary label shall not be removed before inspection by the enforcement agency; and
- Have a permanent label or label certificate when the *Component Modeling Approach (CMA)* is used and for site-built fenestration meeting the requirements of [Section 10-111\(a\)2](#) if the product is rated using NFRC procedures.

300.1.1.6 [§110.6(a)6] Fenestration acceptance requirements. Before an occupancy permit is granted site-built fenestration products in other than *single-family buildings* shall be certified as meeting the *Acceptance Requirements for Code Compliance*, as specified in the [Reference Nonresidential Appendix NA7](#) to ensure that site-built fenestration meets Standards requirements, including a matching label certificate for product(s) installed and be readily *accessible* at the project location. A certificate of acceptance certifying that the *fenestration product* meets the acceptance requirements shall be completed, signed and submitted to the *enforcement agency*.



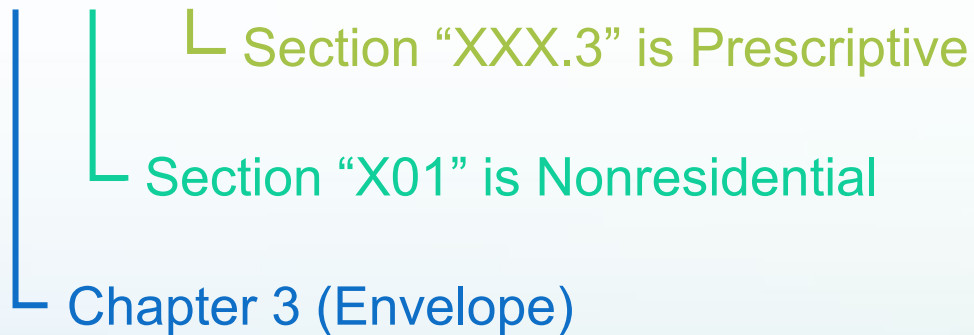
Including the Index

A

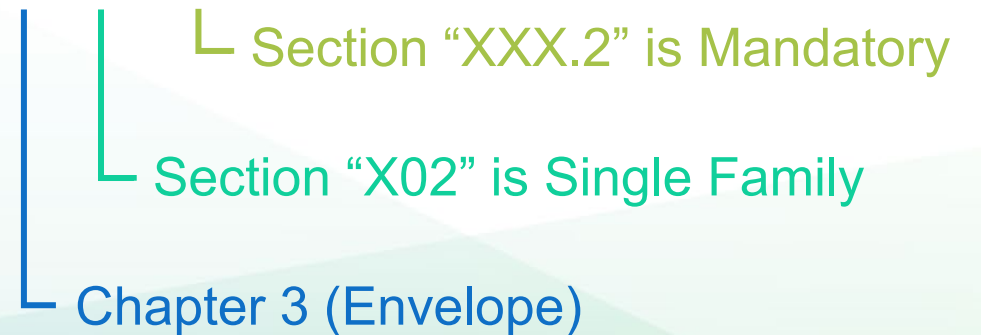
- ABOVE GRADE WALL**301.3.1.9 **[\$140.3(a)9]**, 302.2.3 **[\$150.0(c)]**, 303.2.2 **[\$160.1(b)]**
- ACCENT LUMINAIRE** 200.1 **[\$100.1]**, 601.3.1.3 **[\$140.6(c)2G]**, 603.3.2 **[\$170.2(e)4]**
- ACCENT, DISPLAY AND FEATURE** ...601.3.1.2 **[\$140.6(b)4]**

Language adapted from Title 24, Part 6 Standards Index

3 01 .3.1.9



3 02 .2.3





Restructured Standards developed based on adopted 2025 Standards





Discussion

10 Minutes

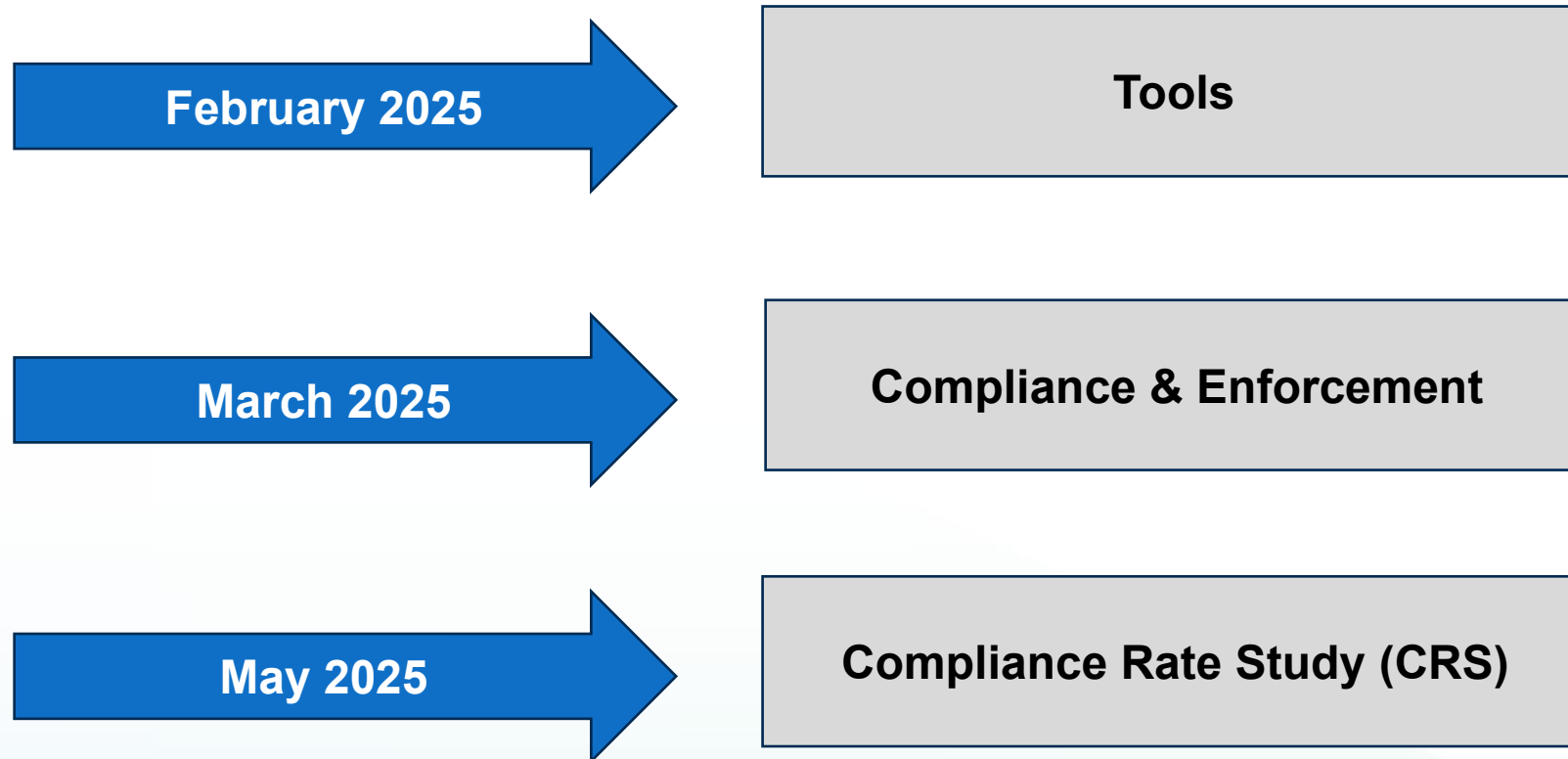


Upcoming Topical Workshops

Che Geiser

December 18, 2024

Tentative 2025 Workshop Schedule





Tools Workshop

Outcomes & Objectives

1. Seek discussion and feedback on the most useful/needed tools
 - Web-based compliance docs – forms digitization
 - Streamlined permitting
 - Compliance case management system
2. Additions from Scoping & Progress Workshop?

Speakers/Panels

- Streamlined permitting: software representatives
- Forms digitization: Virtual Compliance Assistant, Energy Pro, staff?

The image displays four sample forms from the California Energy Commission (CEC) related to residential energy efficiency compliance. From left to right:

- Certificate of Installation (CEC 43-101-01):** A form for recording the installation of energy efficiency measures, including fields for project name, date, and a table for recording specific measures.
- Penetration Acceptance (CEC 43-101-02):** A form for documenting the acceptance of penetrations through the building envelope, including a table for recording details of each penetration.
- Envelope Component Approach (CEC 43-101-03):** A form for documenting the approach to envelope components, including a table for recording details of each component.
- QI - Insulation Installation (CEC 43-101-04):** A form for documenting the installation of insulation, including a table for recording details of each insulation measure.





Compliance & Enforcement Workshop

Outcomes & Objectives

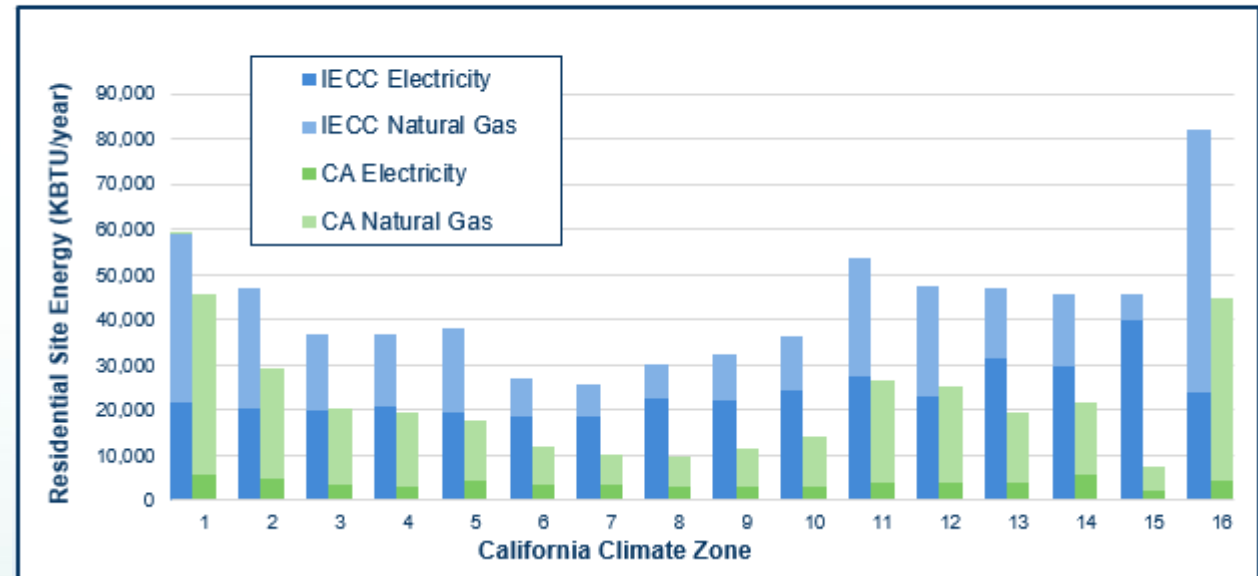
1. Clarify compliance process
2. Importance of enforcement
3. Examine how to improve compliance
4. Identify where targeted enforcement efforts are needed
5. CEC vision and plan

Speakers/Panels

- C&E barriers
 - Contractors, Raters, AHJ's
- Enforcement barriers
 - CSLB, AHJs
- 3rd party plan check
 - CABEC, NORESCO
- Circuit Rider/Code Coach program

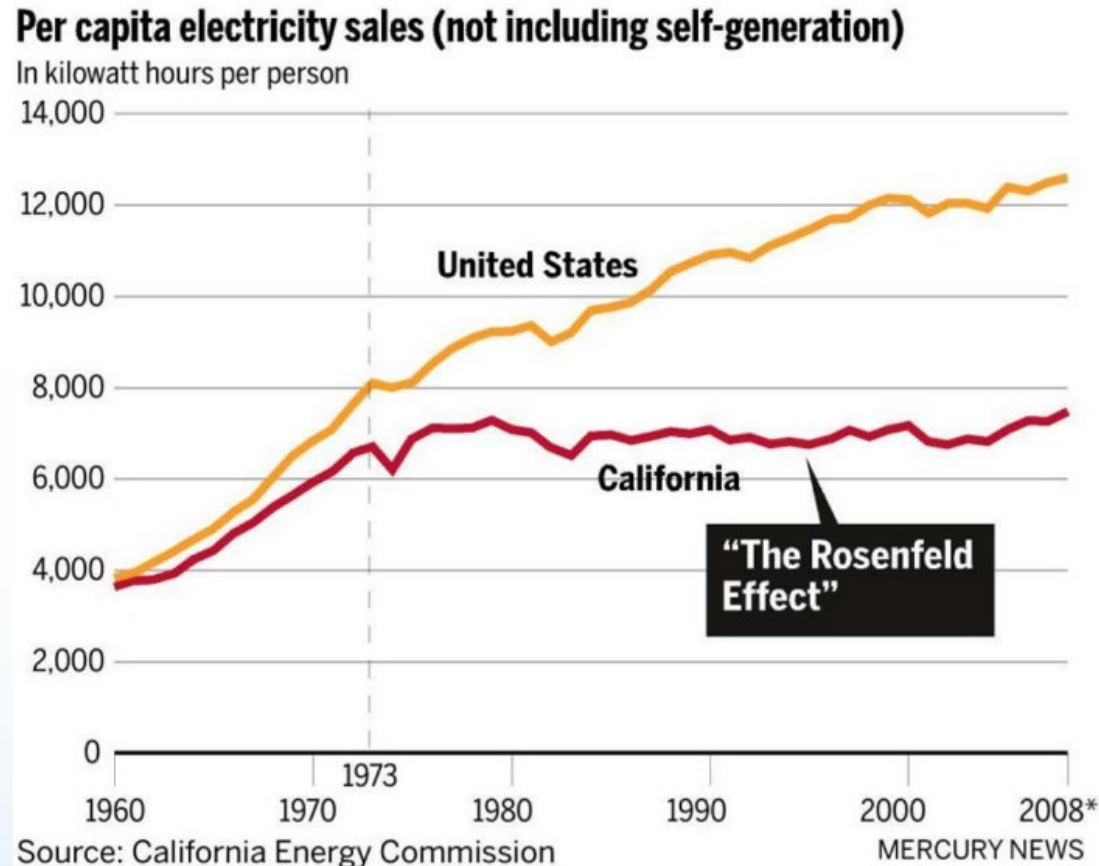


2022 Energy Code Vs. 2021 IECC





Compliance Rate Study Workshop



Outcomes & Objectives

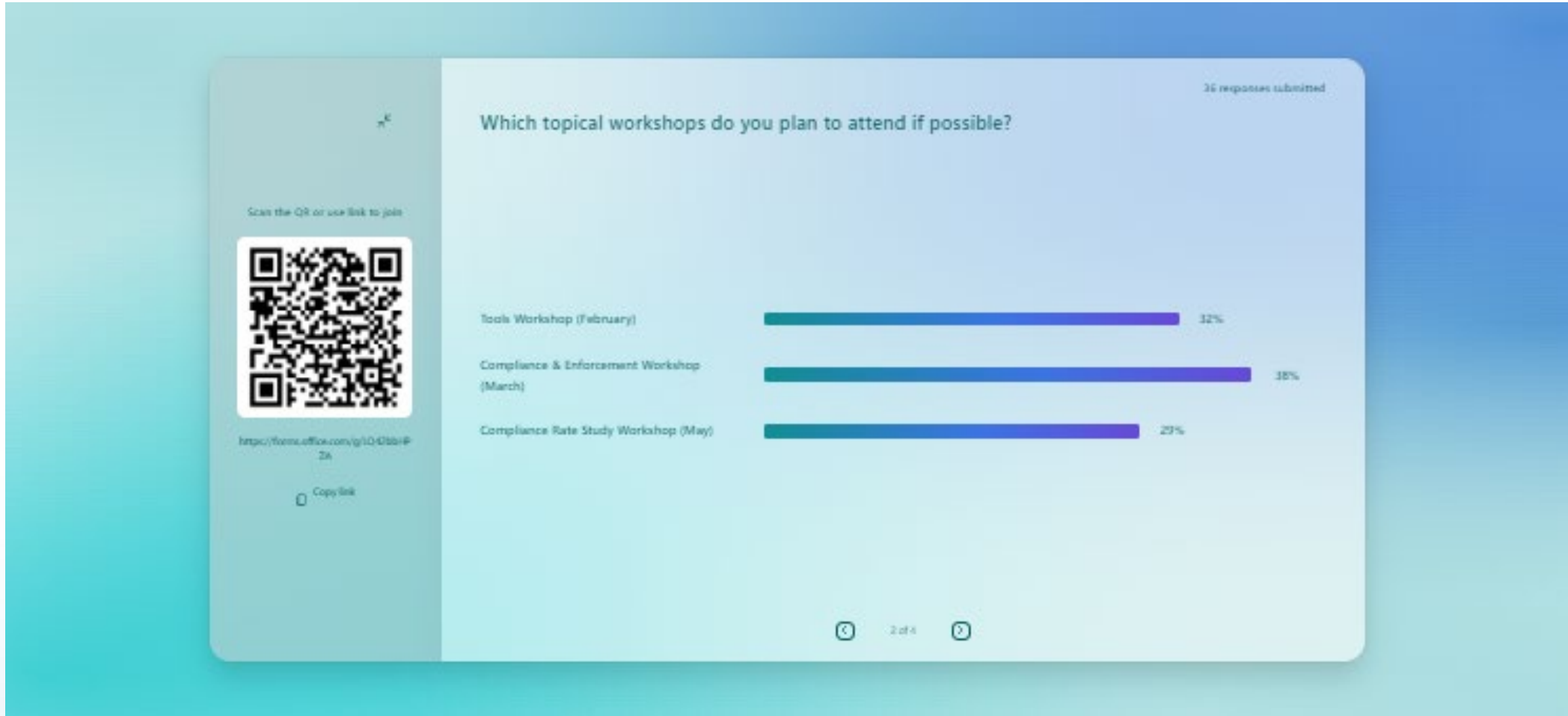
1. Study goals
2. Study methodologies
3. Community engagement
4. Findings?

Speakers

- Staff



Feedback





Discussion

15 Minutes



Closing



Questions and Answers

- Any questions you don't think of now, send to:
 - sco@energy.ca.gov
- Comments or suggestions can be made through our online docket 24-BSTD-05 visit:
 - <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=24-BSTD-05> (links to the comment page for this docket)
 - Comments on this workshop will be accepted for 3 weeks, through January 7, 2025.
- 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.
- Comments can also be submitted physically or by e-mail, here:

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 24-BSTD-05
715 P Street
Sacramento, CA 95814-5504
Docket@energy.ca.gov

The screenshot shows the 'Add Comment' page for docket 24-BSTD-05. The page includes a navigation bar with links for Home, About Us, Analysis & Stats, Efficiency, Funding, Power Plants, Renewables, Research, and Transportation. The form is titled 'Add Comment' and includes the docket number and project title. It contains several input fields: 'Full Name' (required), 'Contact Address', 'Email Address' (required), 'Address 2', 'Role in this Proceeding' (dropdown menu with 'Public' selected), 'City', 'State' (dropdown menu with 'CA' selected), and 'Zip'. There is also a 'Comment' section with a 'Comment Title' field (with an error message 'Invalid characters: /, * <>') and a 'Subject(s)' dropdown menu. A 'Comment Text' field is at the bottom, with a note that it is not required if a document attachment is included. The page also indicates that 128 characters are left out of 128.

Source: California Energy Commission