

Reaching for the Sun: Lessons Learned from California

2024 National Energy Codes Conference

May 7, 2024

Meet the Panelists



Jill Marver

Principal Program
Manager, Pacific Gas
& Electric Company



Jordan Garbayo

Co-Director, Tri-County
Regional Energy
Network (3C-REN)

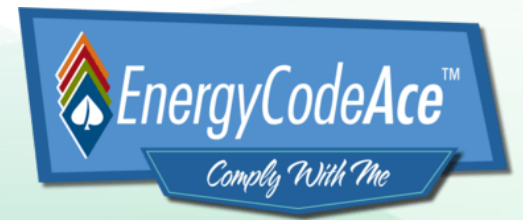


Misti Bruceri

Principal, Misti Bruceri
& Associates, LLC



Codes & Standards Network





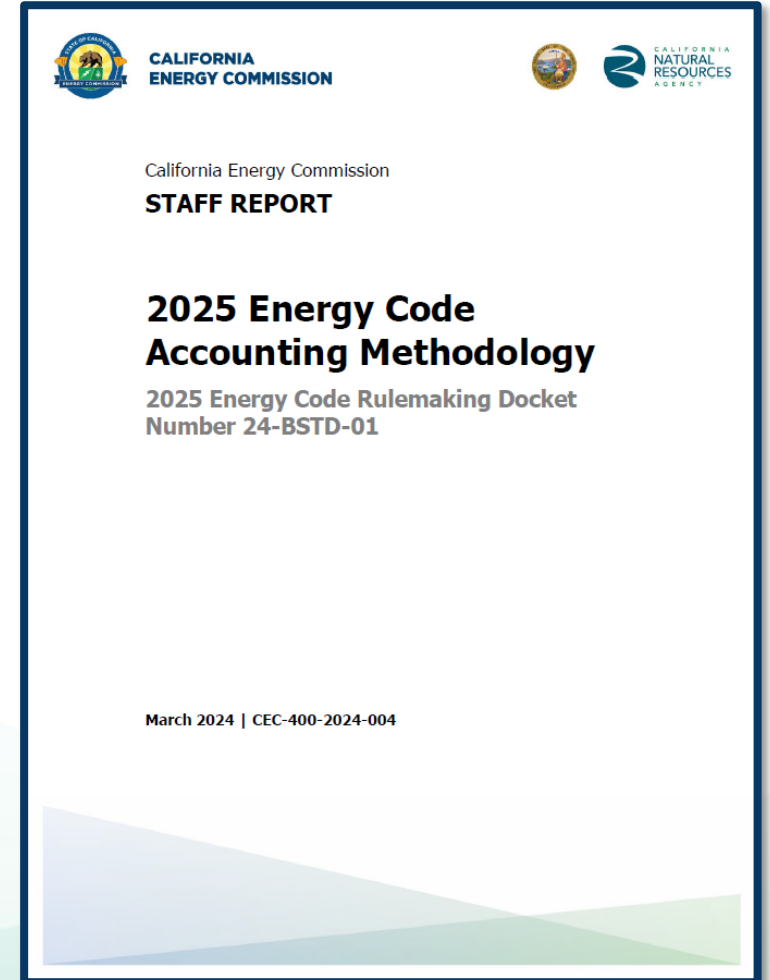
Statute & Accounting

Public Resources Code § 25402(b)(3)

The standards... shall be **cost-effective when taken in their entirety and when amortized over the economic life of the structure compared with historic practice.**

Energy Code Accounting Report

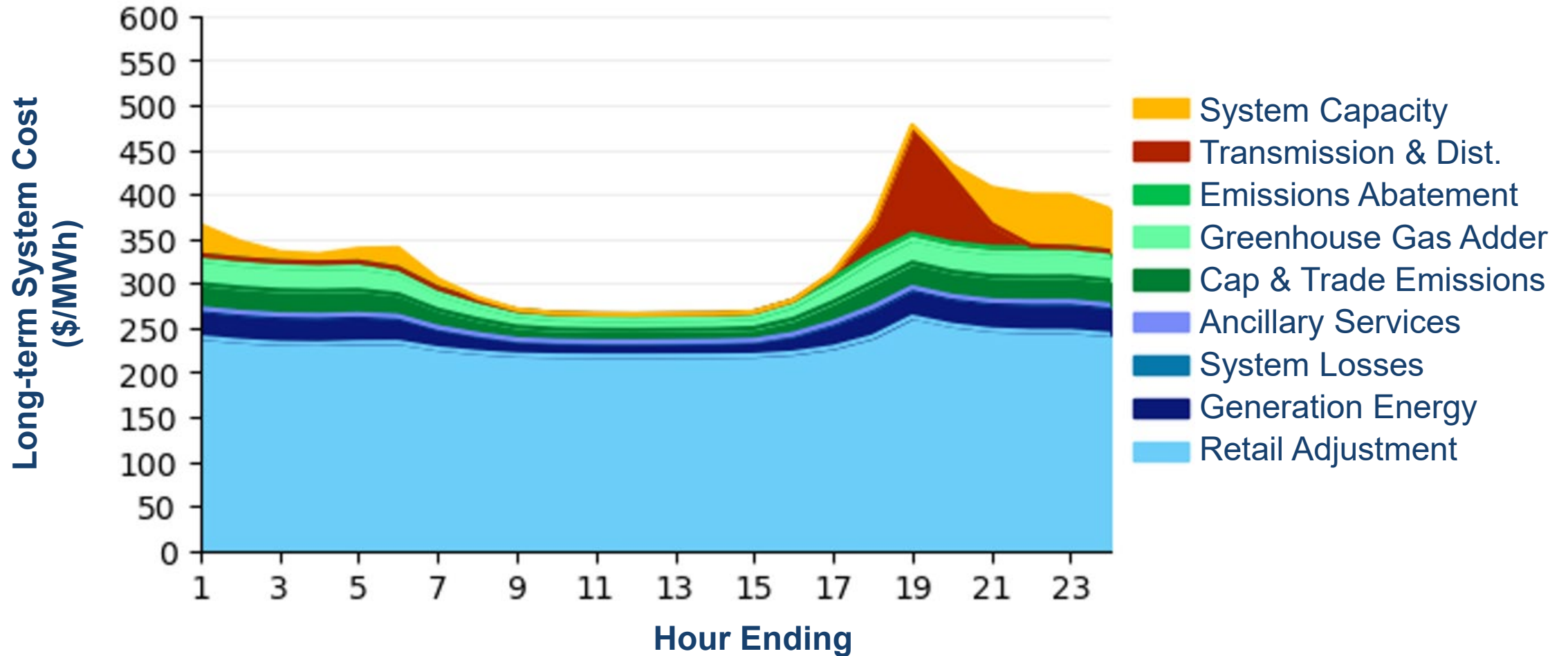
- Overall cost-effectiveness methodology
- Climate Data & CA Climate Zones
- Building Energy Model Prototypes
- Hourly Metrics: Long-term System Cost & Source Energy
- Construction Forecast Data





Benefits Components

Example: Statewide Electricity Avoided Costs, Average Day, Climate Zone 12 (Sacramento)





Benefit-Cost Ratio Example

<u>California Climate Zone (% of State)</u>	Total Life-cycle Benefits (PV\$)	Total Life-cycle Costs (PV\$)*	Benefit-Cost Ratio
1-North Coast (0.5%)	\$18,807	\$2,423	7.8
2-North Coast Valley (3%)	\$11,307	\$84	134.9
3-San Francisco Bay (11%)	\$6,079	\$1,572	3.9
4-Central Valley Coast (6%)	\$5,954	\$1,572	3.8
5-Central Coast (1%)	\$4,844	\$84	57.8
6-Los Angeles Coast (7%)	\$2,293	\$84	27.3
7-San Diego Coast (5%)	\$2,108	\$84	25.1
8-Orange County Coast (10%)	\$1,769	-\$557	> 1
9-Los Angeles (14%)	\$2,691	-\$557	> 1
10-South Inland (12%)	\$2,555	-\$557	> 1
11-North Central Valley (4%)	\$10,054	\$84	119.9
12-Sacramento (15%)	\$10,574	-\$557	> 1
13-Central Valley (7%)	\$6,400	\$1,572	4.1
14-High Desert (3%)	\$5,601	\$1,572	3.6
15-Low Desert (2%)	\$1,232	\$495	2.5
16-Mountains (1%)	\$14,804	\$4,714	3.1

*Costs include first costs, replacement costs, and maintenance costs

Asset Ratings

Energistyrelsen

ENERGIMÆRKNINGSRAPPORT
ENERGIMÆRKE OG FORSLAG TIL ENERGIFORBEDRINGER

Fredericiavej 40
7100 Vejle

DIN BYGNING HAR ENERGIMÆRKE E

Du betaler hvert år 29.900 kr. mere, end du behøver i energiugifter*

ENERGIKONSULENTENS BEDSTE ANBEFALINGER

- 1** Montage af nye solceller

Årlig besparelse: 4.500 kr.
Investering: 52.500 kr.
- 2** Isolering af skunkrum med 300 mm isolering

Årlig besparelse: 2.800 kr.
Investering: 19.300 kr.
- 3** Isolering af hule ydervægge af tegl med granulat, udvendig med 100 mm isolering

Årlig besparelse: 13.100 kr.
Investering: 218.000 kr.

BYGNINGENS ENERGIFORBRUG*

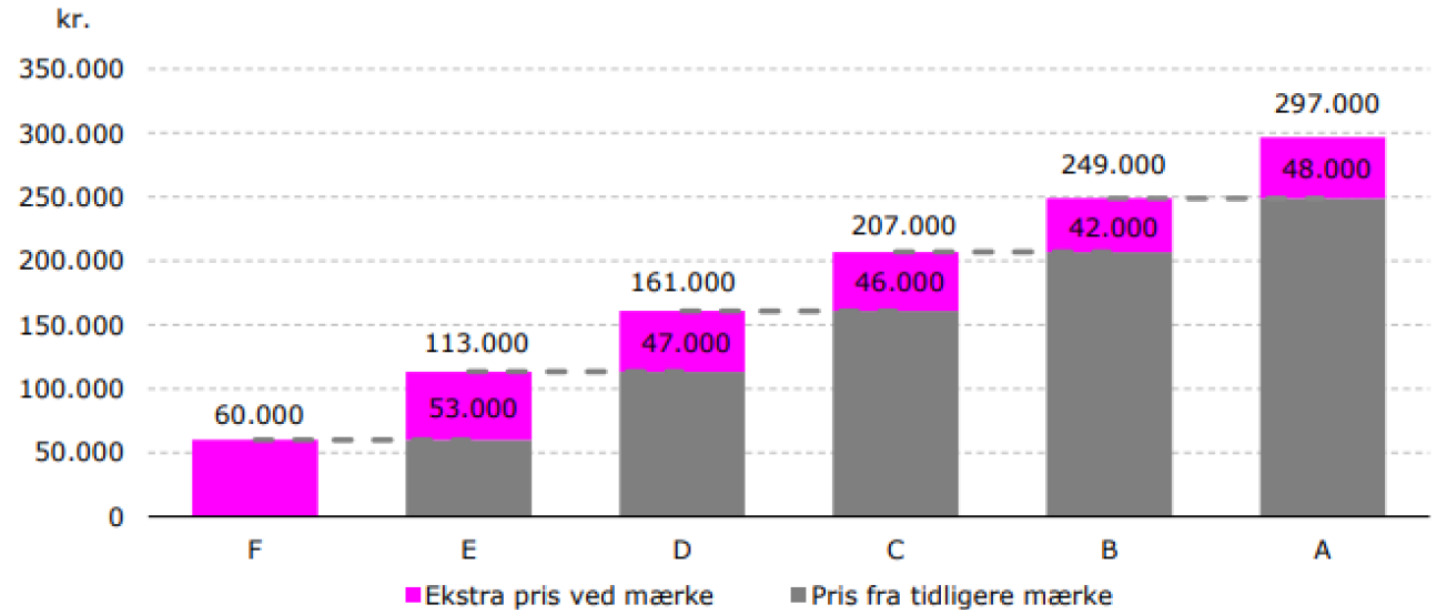
	IDAG	EFTER RENTABLE TILTAG	DU SPARER ÅRLIGT
Fjernvarme	40.500 kr.	17.100 kr.	23.400 kr.
El til andet	32.700 kr.	25.500 kr.	7.200 kr.
El fra solceller	0 kr.	700 kr.	-700 kr.
Samlet energiugift	73.200 kr.	43.300 kr.	29.900 kr.
Samlet CO ₂ -udledning	5,94 ton	2,62 ton	3,32 ton

FORBEDRING AF ENERGIMÆRKET VED GENNEMFØRSEL AF ALLE RENTABLE FORSLAG:

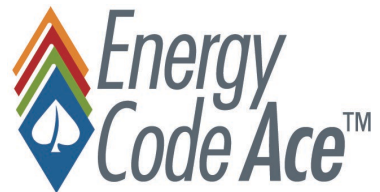
A A A B C D E F G

* Tallene er baseret på en standardiseret brug af bygningen. Se siden: FORMÅLET MED ENERGIMÆRKNINGEN.

Figur 1 Sammenhæng mellem boligpris og energimærker



Lessons Learned While Improving Compliance



Energy Code Ace – Performance-based Approach



- The Codes and Standards Compliance Improvement Subprogram administered by SCE, SDG&E and PG&E

★ *We exist to...*

- **Make it faster and easier** for each market actor in the compliance chain **to comply** with Title 24, Part 6 and Title 20

★ *Our Approach...*

- Understand each actor's workflow and what's in their way
 - Lack of knowledge/skill = **Training**
 - Lack of time/resources = **Tools & Resources**
 - Lack of awareness = **Outreach**
- Develop minimal viable products and iterate with 'users'
- Vet with the CEC
- Deliver solutions statewide through Energy Code Ace using an undaunting, friendly, trustworthy approach

Create a Data Stream

- ✦ Establish electronic compliance forms
- ✦ Build in code ruleset and validate inputs
- ✦ Link permitted forms with installation forms
- ✦ Monitor trends



Create a Data Stream



Which of the following occupancy types are included in your project? (Select all that apply) [?]

Choose all that apply

Which of the following describes your project's scope? [?]

Select one

Is the building electric only? [?]

Select one

Select which fuel is available at site: [?]

Select one

What is the total conditioned floor area of the project in scope? [?]

| ft²

What is the total unconditioned floor area of the project in scope? [?]

| ft²

How many stories above grade are included in your projects scope? [?]

0

Please select all mechanical systems and equipment that are included in your scope of work. [?]

§140.4, §160.3, §141.0(b)2, §180.2(b)

Choose all that apply

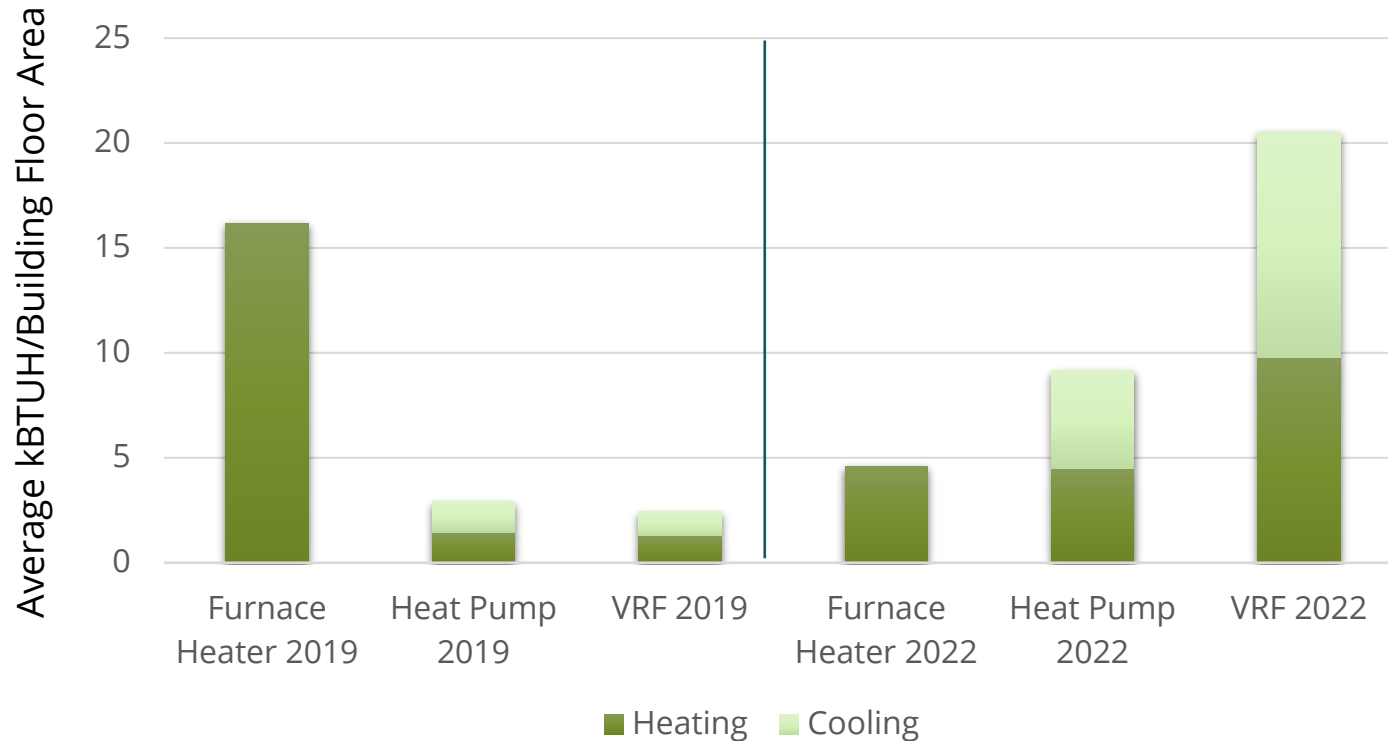
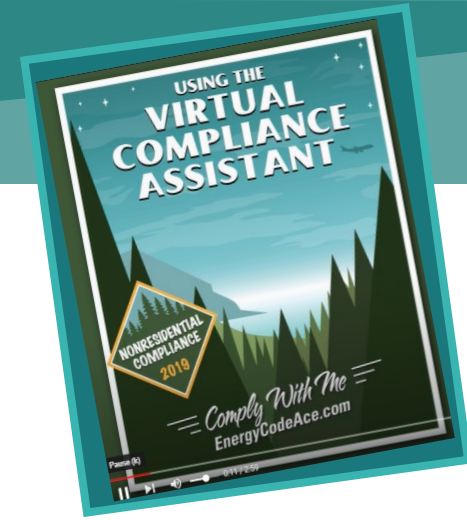
Drop-down menus and data fields use schemas to limit selections and inputs to compliant options

Questions asked are tailored to project scope

Friendly, non-technical prompts ask questions that are easily understood

Create a Data Stream

Mechanical data suggests the 2022 code cycle is shifting heating equipment type from gas to electric heating sources



Monitor User's Needs and Respond

- ✦ Establish a help desk
- ✦ Perform needs assessments regularly



The image shows a promotional graphic for a survey. At the top, the Ace Resources logo is displayed. Below it, a call to action asks users to help improve Energy Code Resources by taking a short survey. The survey is described as a 10-minute questionnaire that provides feedback on current resource usage and offers suggestions for future improvements. A button labeled 'Take the Survey' is positioned at the bottom left. On the right side, there is an illustration of a clipboard with a survey form attached, which includes various sections and tables for data collection.

Ace Resources™

Help us improve our Energy Code Resources.
Take this short survey to share your insights on our current resource offerings!

Energy Code Ace is already preparing for California's 2025 Building Energy Efficiency Standards (Title 24, Part 6 or the Energy Code). As always, we will be developing new resources to help you easily comply with the new standards, but we need your help! This 10-minute survey asks for feedback on how you currently use our resources and will help us understand how we can improve them in the future. We appreciate your response and look forward to hearing your insights!

Take the Survey

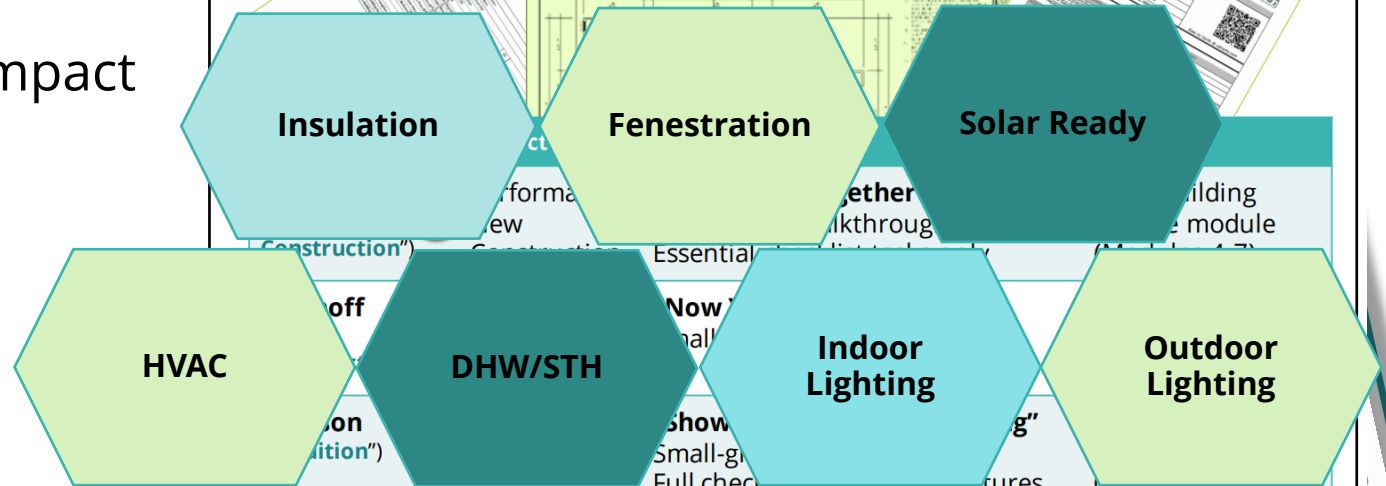


Training Lessons Learned

- ✦ Provide “role-based” training with practice opportunities
- ✦ Incorporate job aides
- ✦ Focus on high-impact measures

Hands-On Practice with “Case Studies”

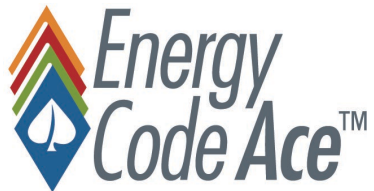
3 Case Studies Woven Throughout This Course
These building features typically have the greatest impact on compliance



Our Strategy: Use available review time to **target these 7 key areas**



Jill.Marver@PGE.com





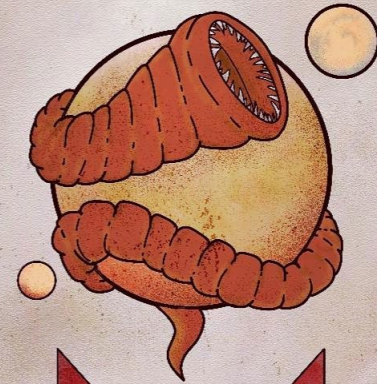
ENERGY
CODE
CONNECT

Jordan Garbayo
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Co-Director for 3C-REN

3C-REN/County of San Luis Obispo

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**JOIN DUKE LETO'S
DESERT POWER**



**HOUSE ATREIDES
WANTS YOU**

ON ARRAKIS, IT'S DESERT POWER.

What is a Regional Energy Network (REN) Anyway???

- **RENs are new administrators** – as opposed to Investor-Owned Utilities (IOU) – of energy efficiency programs authorized by the CPUC to draw on the capacity and innovative ideas of local governments
- RENs receive “rate payer” funding to administer programs in specified territories
- RENs are recognized by the CPUC and others for their unique ability to:
 - Understand regional needs and fill gaps
 - Serve “Hard to Reach” communities
 - Provide holistic solutions for customers

A Brief REN History?

2013

- Bay Area Regional Energy Network (BayREN)
- Southern California Regional Energy Network (SoCalREN)

2017

- Tri-County Regional Energy Network (3C-REN)

2021

- Inland Regional Energy Network (IREN)

2024

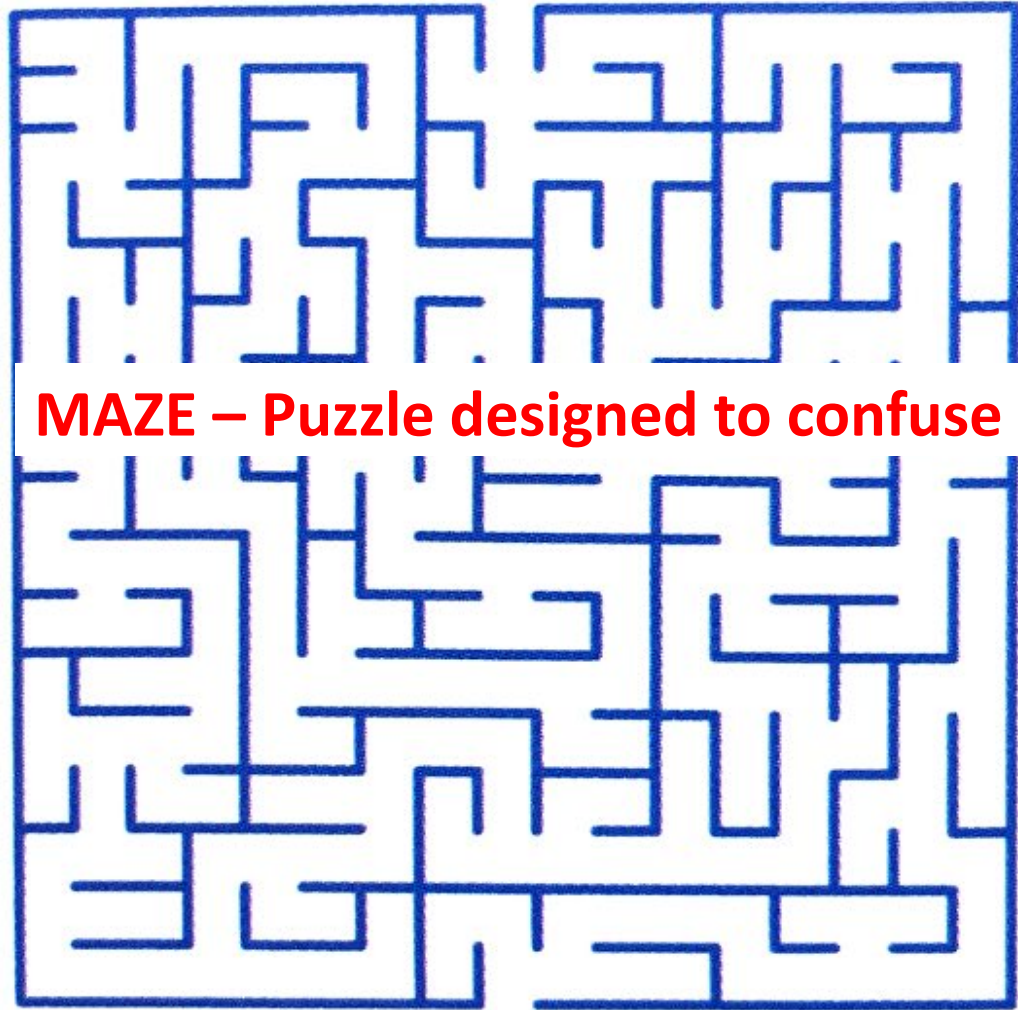
- Rural Regional Energy Network (Rural REN) (Pending Approval by CPUC)



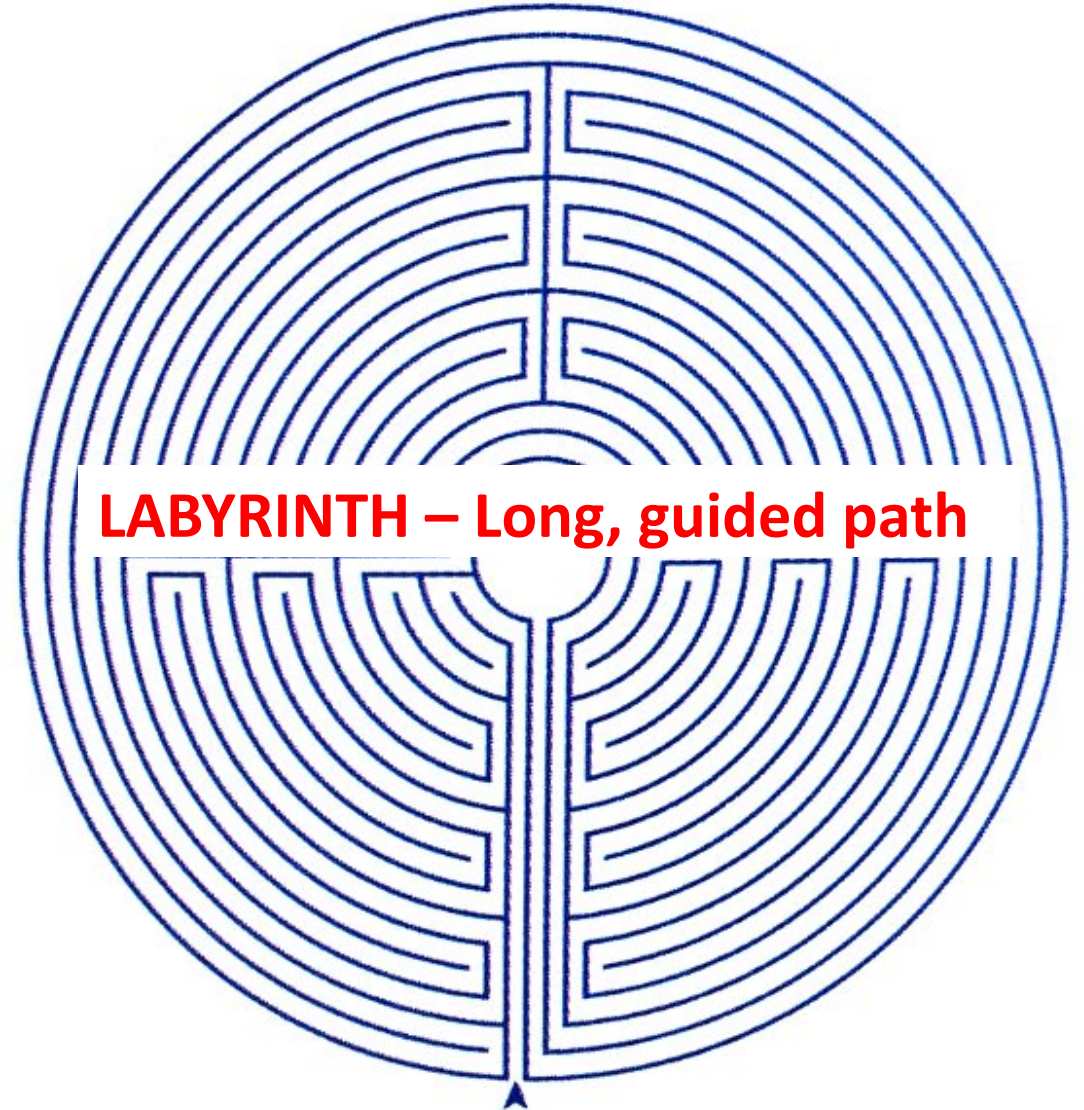
So... How does this relate to Energy Codes?



Are we in a Labyrinth or a Maze?



MAZE – Puzzle designed to confuse



LABYRINTH – Long, guided path

Jordan's Hot Take for the Day!





Successes and Stumbles



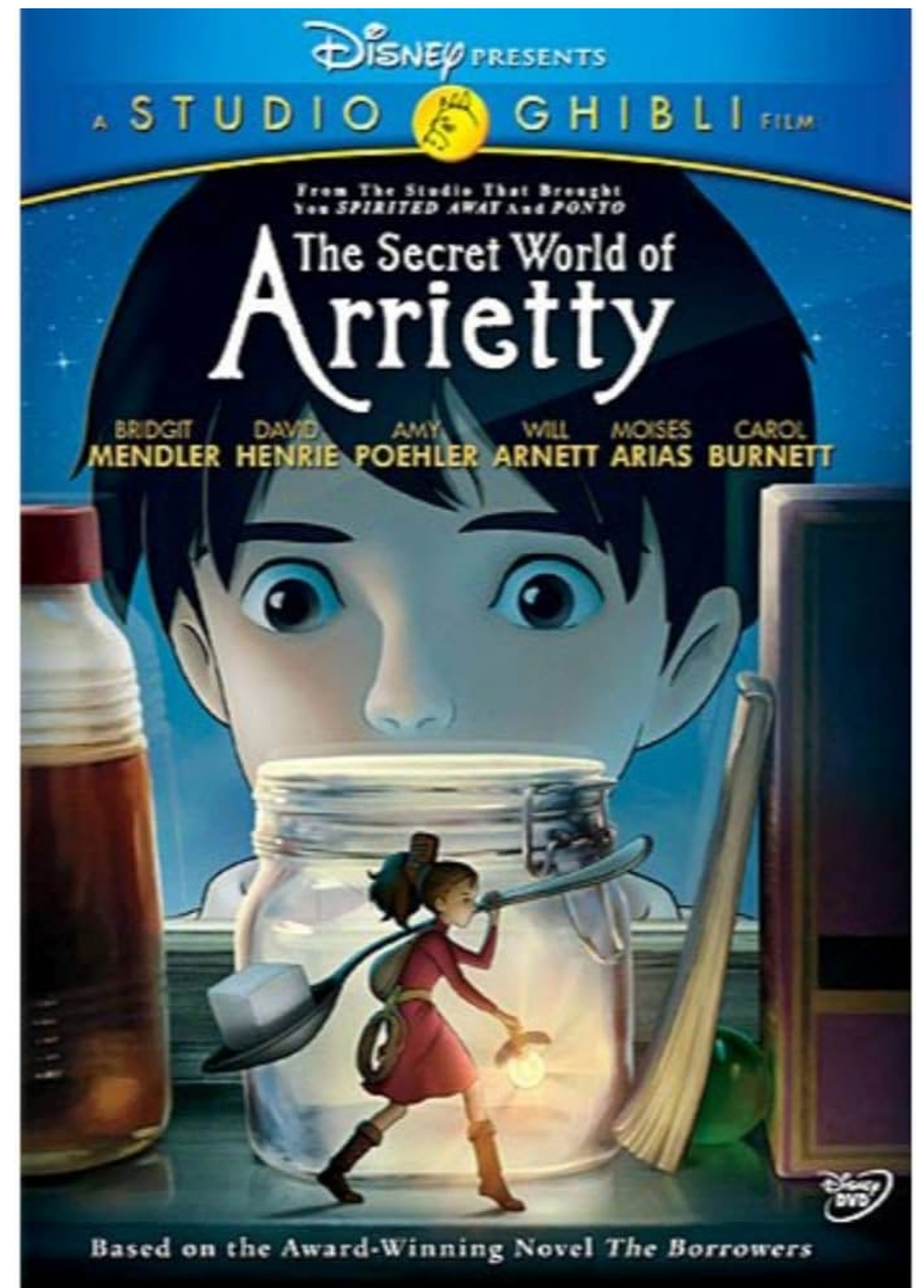


Every AHJ is a Snowflake

- Each jurisdiction and organization thinks they are different!
- Meeting people where they are at...
- **Finding ways to be nimble!!!**

The Great Unifier... Partnerships and Stealing (Borrowing)!

- CEC and HERS Registries
- California Association of Building Energy Consultants (CABEC)
- Energy Code Ace and Investor-Owned Utilities (IOUs)
- North American Passive House Network (NAPHN)
- Other Cities/Counties
- And of course, all the other RENs



Contractors, Contractors, Contractors!!!



“Energy Code is only as effective as its workforce!”

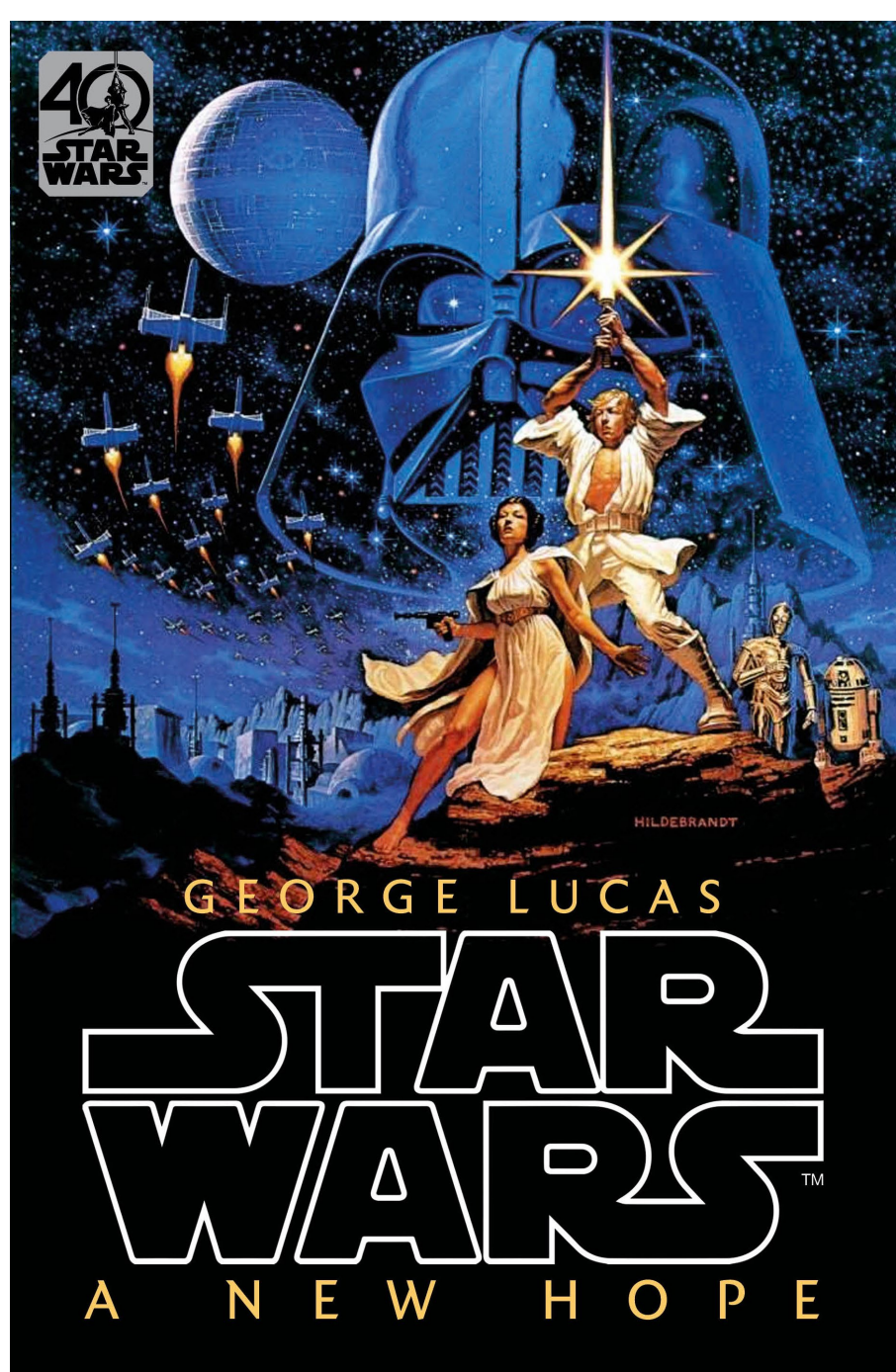
– Jordan Garbayo 5/7/2024

- Find your champions early
- Educate your workforce on both sides of the aisle – meaning public and private sector. **THEY CAN BOTH BE WRONG!**
- **Seek out local trusted consultants!**

Flipping the Snowflake Idea on its Head

- Reach Code Development
- Collaboration Between 4 Local Government Agencies
- Develop a Consistent Regional Reach Code Framework
- Not So Different After All!





Energy Code Connect Programs/Offerings

[ENERGY CODE COACH](#)

[RESOURCE LIBRARY](#)

TRAININGS [LIVE](#) and [ON DEMAND](#)

[REGIONAL FORUMS](#)

[REACH CODE SUPPORT](#)

Statewide Codes and Standards

Reaching for the Sun: Lessons
Learned from California -
Reach Codes

May 7, 2024



Developing the Scope



**Guiding/
Enabling
Documents**



**Community
Features**



**Financial
Support/
Resources**



Partners



**Tracking and
Reporting**





Finding the Right Levers

Intervention Points

- Building permits
- Zoning, Health and Safety Codes
- Time of Sale
- Business License Renewals
- Date Certain
- Specific Plans / Project Negotiations

Some Recurring Themes

- There's always common ground
- Don't reinvent the wheel
- Take every win
- Regional consistency is helpful, but not necessary
- Expect the unexpected!



Thank You!



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Contact info@localenergycodes.com
for no-charge assistance

localenergycodes.com

