

CA Energy Code and the Grid Navigating the Political Landscape

Bay Area Metro Center | San Francisco, CA
October 24, 2017

BAY Regional
AREA Energy
Network

Presentation Overview

What does the electrical grid do for us?

How is California's grid changing?

When and where can we impact that change?

Why do we care about the changing grid?

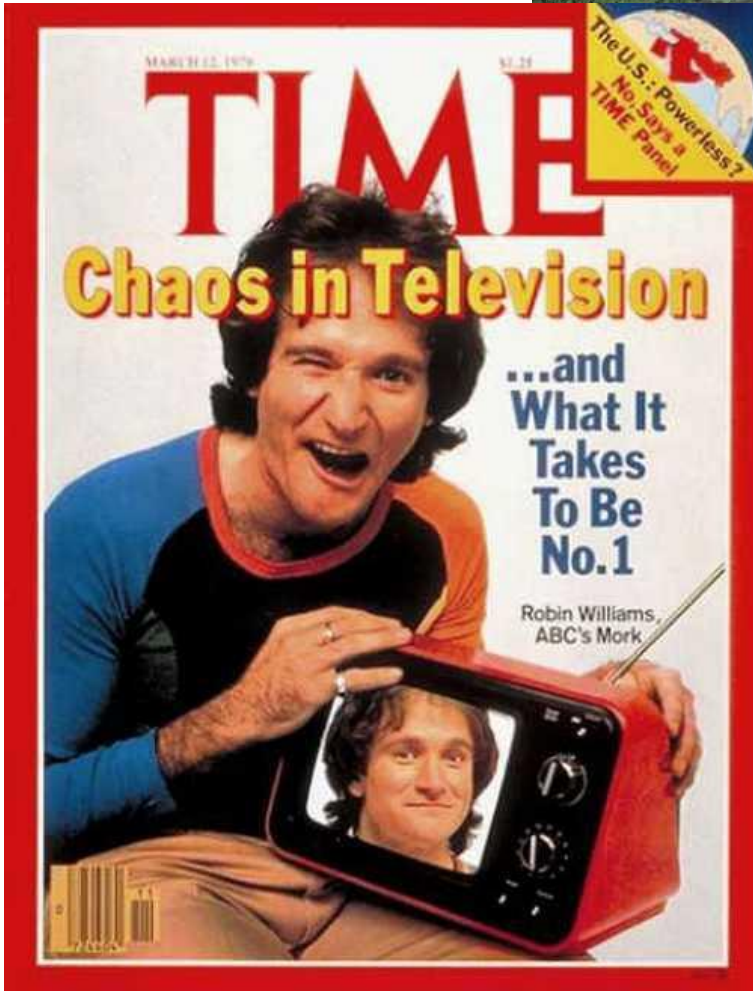
This presentation draws from:

- BayREN Codes & Standards Program Implementation Activities
- CPUC/CEC En Banc Hearing on Consumer Retail Choice (5/19/2017)
- CEC 2019 T24 Part 6 Pre-rulemaking

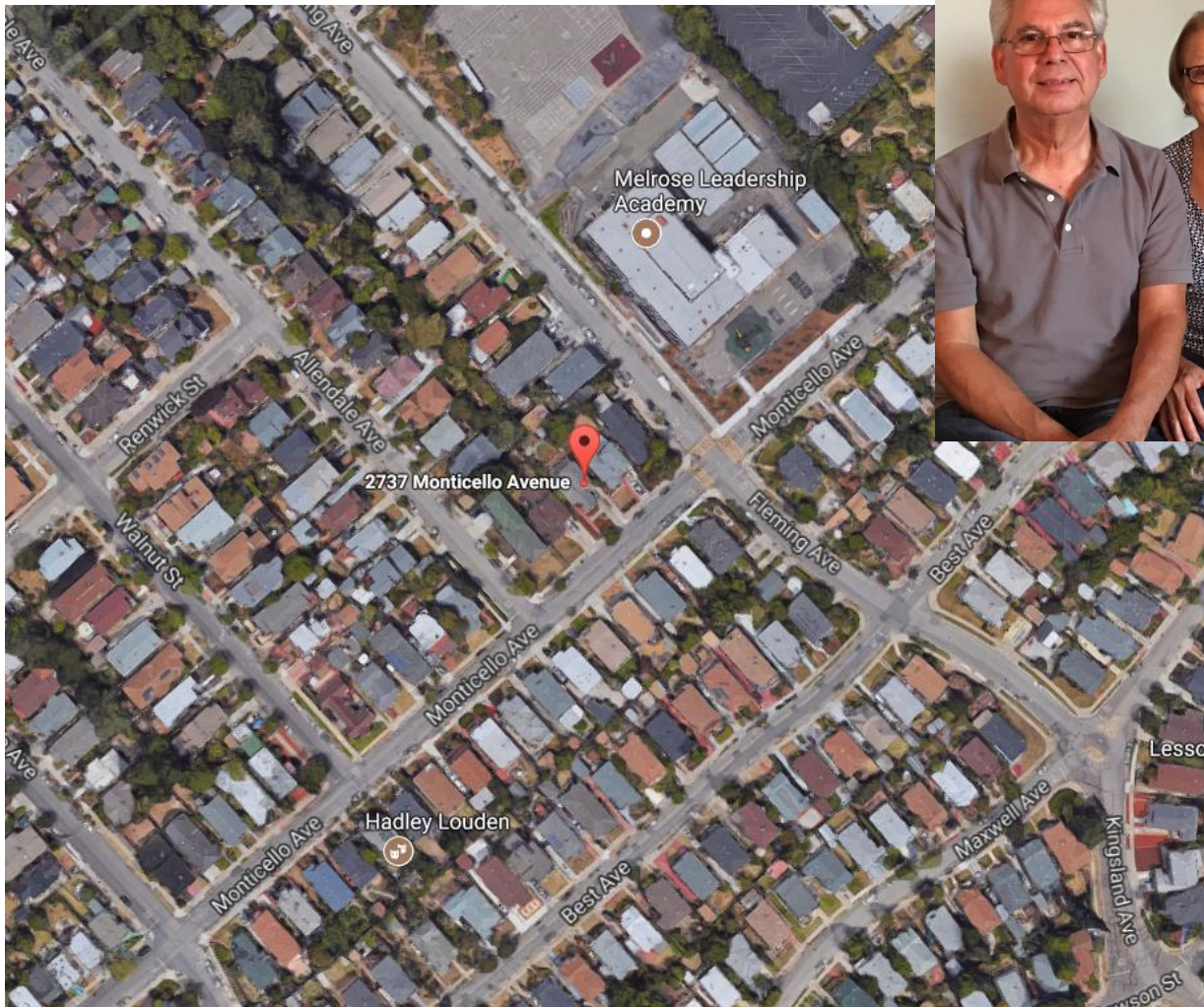
This is my
story



Acworth NH is very different



Compared to Oakland CA



**What does
the Grid do
for you?**

When we pay for electricity, we're paying for...

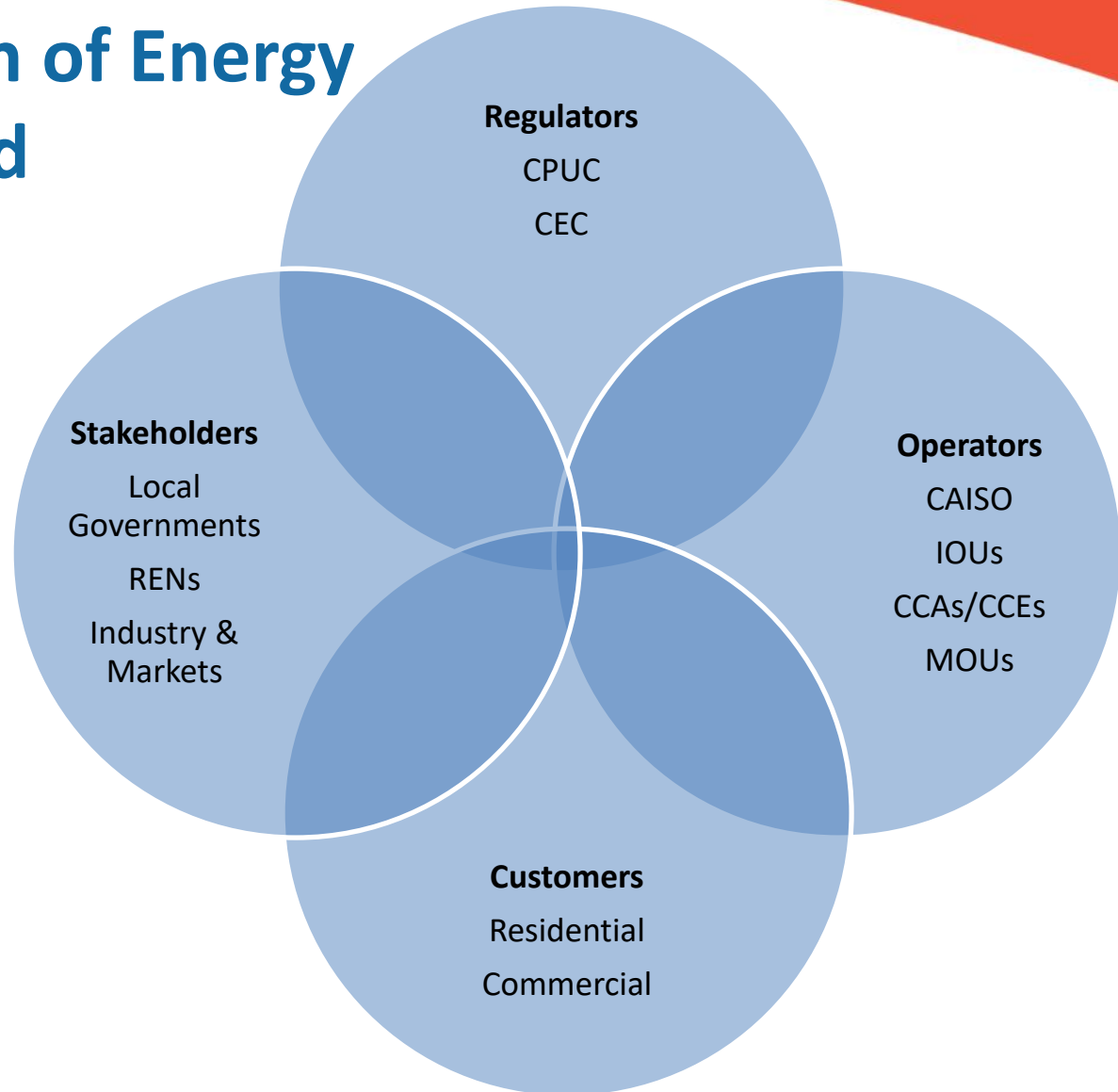
A network of connected infrastructure and services:

- Distribution & Transmission
- Generation & Energy Efficiency
- Reliable and equitable electric service to all customers

We want our grid to be resilient

- Climate change
- Disasters (natural and man made)
- New markets and technology innovation

Intersection of Energy Code & Grid



Change is ... here

- Solar PV and Energy Storage
- Electric vehicles
- Internet of Things and Device Connectivity
- Community Choice Energy

and is complicated.

“California may well be on the path towards a competitive market for consumer electric services, but is moving in that direction without a coherent plan to deal with all the associated challenges that competition poses.”

CPUC Staff White Paper “Consumer and Retail Choice, the Role of the Utility, and an Evolving Regulatory Framework”

CPUC/CEC Consumer Choice En Banc

21 Ratesetting proceedings

[A1608006](#) - PG&E Diablo Canyon Proposal

[A1609001](#) - SoCal Edison General Rates

[R1206013](#) - Residential Rates

[R0310003](#) - Assembly Bill 117 Rulemaking

[R1408013](#) - Distribution Resources Plans

[R1410003](#) - Integrated Distributed Energy Resources

[R1512012](#) - Time of Use

[A1509001](#) - PG&E General Rate Case

[A1701012](#), ...18, ...19 - IOU 2018-2022 Demand Response Portfolios

[R1309011](#) - Demand Response

[R1407002](#) - Net Energy Metering

[R1410010](#) - Resource Adequacy Rulemaking

[R1602007](#) - Integrated Resource Planning

[R1211005](#) - California Solar Initiative/Self-Generation Incentive Program Rulemaking

[R1502020](#) - Renewables Portfolio Standard

[A1704018](#) - Portfolio Allocation Methodology

[A1701013](#), .14, .15, .16, .17 - IOU/CCA EE Business Plans

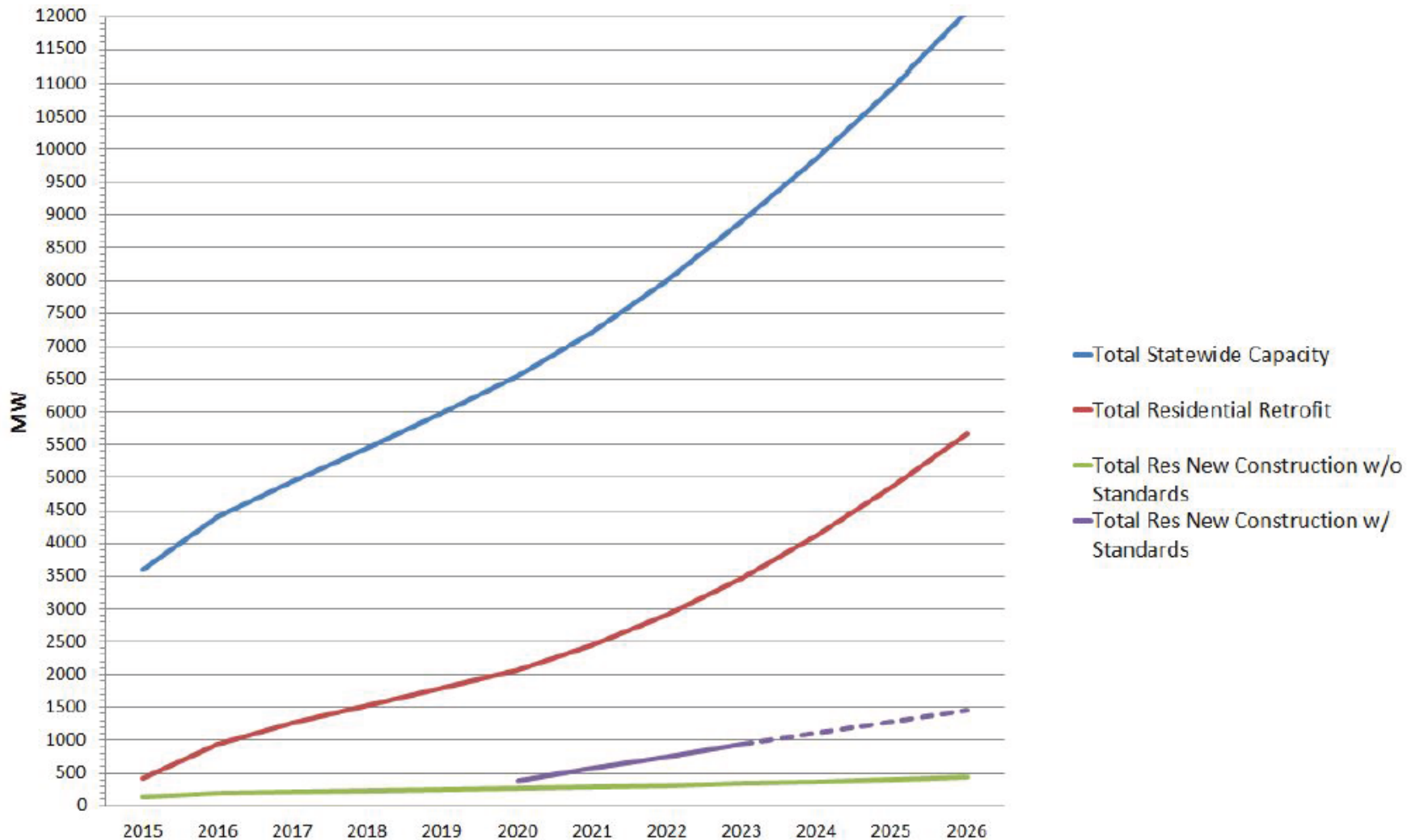
[A1701020](#), .21, .22 - IOU Transportation Electrification

[R1311005](#) - Energy Efficiency

[R1503011](#) - Energy Storage

[R1311007](#) - Zero Emission Vehicles

Limited Impact of Standards PV Requirements Compared to Other Forecasted PV Development



CEC Title 24 Part 6 2019 Update

Can all new residential construction be ZNE?

- ZNE was the goal but was not mandated by law
- Mixed fuel vs. all-electric
- Cost-effectiveness vs. grid realities & market readiness
- Site-specific vs. community solar & storage systems

Pre-rulemaking currently in progress

2019 T24 Part 6 Draft Express Terms

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2019 Building Energy Efficiency Standards

SUBCHAPTER 8 LOW-RISE RESIDENTIAL BUILDINGS - PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

SECTION 150.1 – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR LOW-RISE RESIDENTIAL BUILDINGS

- (b) **Performance Standards.** A building complies with the performance standards if the energy consumption budget calculated for the Proposed Design Building ~~under Subsection 2~~ is no greater than the energy budget calculated for the Standard Design Building ~~under Subsection 1~~ using Commission-certified compliance software as specified by the Alternative Calculation Methods Approval Manual.
1. Newly Constructed Buildings. The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Rating, which is based on TDV energy. The Energy Design Rating has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating shall be subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. The Proposed Building shall separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.



Target EDR Examples by Climate Zone

Here are examples of how Target EDRs might look for different scenarios in different CZs for the 2,700 sf **Mixed Fuel Homes**:

Note: At this time these numbers are examples only and may change as our tools evolve

NEM = Net Energy Metering; GH = Grid Harmonization; Dumb PV = No Battery Storage

1	2	3	4	5	6	7	8	9	10	11
CZ	Efficiency EDR without PV, based on 2019 Efficiency Measures	Target Design Rating Score for Displacing kWh Elect with PV from Col 4	PV Sized to Displace Annual kWh Electric – Cool with NEM, not so Cool with GH	Dumb PV Sized to Zero EDR – Violates NEM, Not Cool with GH	PV Size for Zero EDR with Basic Battery Controls – May Violate NEM, OK with GH	PV Size for Zero EDR with Optimum Battery Controls – Cool with NEM and GH	Similar to Col 7 But With 95 Furn, 0.95 WH – Real Cool with NEM and GH	Col 6 to 4 Ratio	Col 7 to 4 Ratio	Col 8 to 4 Ratio
1	48.0	26.5	3.4	7.7	6.9	4.6	4.1	2.0	1.4	1.2
2	41.2	18.0	2.9	6.1	5.5	3.1	2.8	1.9	1.1	1.0
3	46.9	22.7	2.8	5.8	5.3	3.2	2.9	1.9	1.1	1.0
6	48.0	20.9	2.9	5.3	4.5	2.9	2.8	1.6	1.0	1.0
7	48.0	14.9	2.7	4.6	3.9	2.4	2.3	1.4	0.9	0.9
8	43.0	14.6	2.9	5.3	4.3	2.7	2.6	1.5	0.9	0.9
11	43.3	23.4	3.8	8.5	6.5	4.4	4.2	1.7	1.2	1.1
12	43.1	24.5	3.1	7.0	5.8	3.8	3.5	1.9	1.2	1.1
13	44.8	22.1	4.0	9.0	6.2	4.9	4.6	1.6	1.2	1.2
14	44.6	21.3	3.4	7.4	5.4	4.4	4.1	1.6	1.3	1.2
15	48.0	17.9	5.7	10.5	8.1	6.9	6.8	1.4	1.2	1.2
16	46.3	27.5	3.0	7.6	6.5	4.8	4.3	2.2	1.6	1.4

2019 T24 Part 6 Draft Express Terms

2019 Building Energy Efficiency Standards

ADMINISTRATIVE REGULATIONS

CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 1

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2019 Building Energy Efficiency Standards

**10-115 – COMMUNITY SHARED SOLAR ELECTRIC GENERATION
SYSTEM OR COMMUNITY SHARED BATTERY STORAGE SYSTEM
OFFSET OF ONSITE SOLAR ELECTRIC GENERATION OR BATTERY
STORAGE REQUIREMENTS**

Why must we care?

The California Energy Crisis

Climate Change

Next generation economic drivers are here – we need to lead

Resources

BayREN Codes & Standards: <https://www.bayrencodes.org/>

Tools for Local Ordinances: <http://localenergycodes.com/>

Title 24 Part 6: <http://www.energy.ca.gov/title24/2019standards/>

CA EE Coordination Committee: <https://www.caeecc.org/>

CPUC Proceedings

[R1408013](#) - Distribution Resources Plans

[R1410003](#) - Integrated Distributed Energy Resources

[R1512012](#) - Time of Use

[R1407002](#) - Net Energy Metering

[R1602007](#) - Integrated Resource Planning

EBEW Paper on EE Programs: <http://www.ebew.org/news>

Thank you

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