

The background of the slide features a soft-focus image of green leaves, likely from a tree, with a light green and yellowish tint. The leaves are scattered across the frame, with some in sharp focus and others blurred.

**Southern  
California  
Regional  
Energy Network  
(SoCalREN)**

***Demystifying Energy  
Benchmarking in the Age  
of AB 802***

**SEEC Forum Session  
Wednesday, June 14, 2017**

# Session Agenda

**I. Welcome & Introductions**

**II. Benchmarking 101 - *Marc Costa, SoCalREN***

**III. AB 802 Overview and Updates - *Erik Jensen, CEC***

**IV. Panel Discussion**

**A. Topical Expertises Represented**

- 1. City of LA Benchmarking Ordinance Development**
- 2. Energy Benchmarking and Strategic Planning for Local Government Partnerships**
- 3. Benchmarking Policy Rollout Strategies for Stakeholder Groups**

# What is SoCalREN?

**The Southern California Regional Energy Network (SoCalREN) was created to harness the collective power of residents, businesses and the public sector to achieve an unprecedented level of energy savings across Southern California**



**The program is administered by the County of Los Angeles and funded by California utility ratepayers under the auspices of the CPUC**

# Panel Moderator



## **Marc Costa**

*Program Manager, The Energy Coalition  
representing SoCalREN's Public Agency  
Program*



# Panelists

**Erik Jensen**

Energy Specialist  
California Energy Commission



**Ravi Bajaj**

Project Manager  
Healthy Buildings



**Jake Anderson**

Project Manager for North Orange  
County Cities Energy Partnership, The  
Energy Coalition



# ***Benchmarking 101***

**Marc Costa**  
Program Manager  
*SoCalREN*

# Your Energy Bills



## Details of your new charges

Your rate: DOMESTIC

Billing period: Feb 17 '17 to Mar 21 '17

### Delivery charges

Basic charges

Energy

\$0.77

\$25.45

\$12.97

\$2.11

### **Your Delivery charges include:**

- \$6.17 transmission charges
- \$32.11 distribution charges
- -\$9.04 conservation incentive adjustment
- \$5.85 public purpose programs charge
- \$3.91 new system generation charge

\$22.95

\$5.76

### **Your Generation charges include:**

- -\$0.13 competition transition charge

\$70.01

\$0.11

### **Your overall energy charges include:**

- \$0.64 franchise fees

**\$70.12**

### **Additional information:**

- Service voltage: 240 volts
- Your winter baseline allowance: 307.0 kWh
- High Usage Charge applies at: 1,229.0 kWh
- High Usage Charge applies to all usage above 400% of baseline allowance.

**How much was  
your last energy  
bill?**

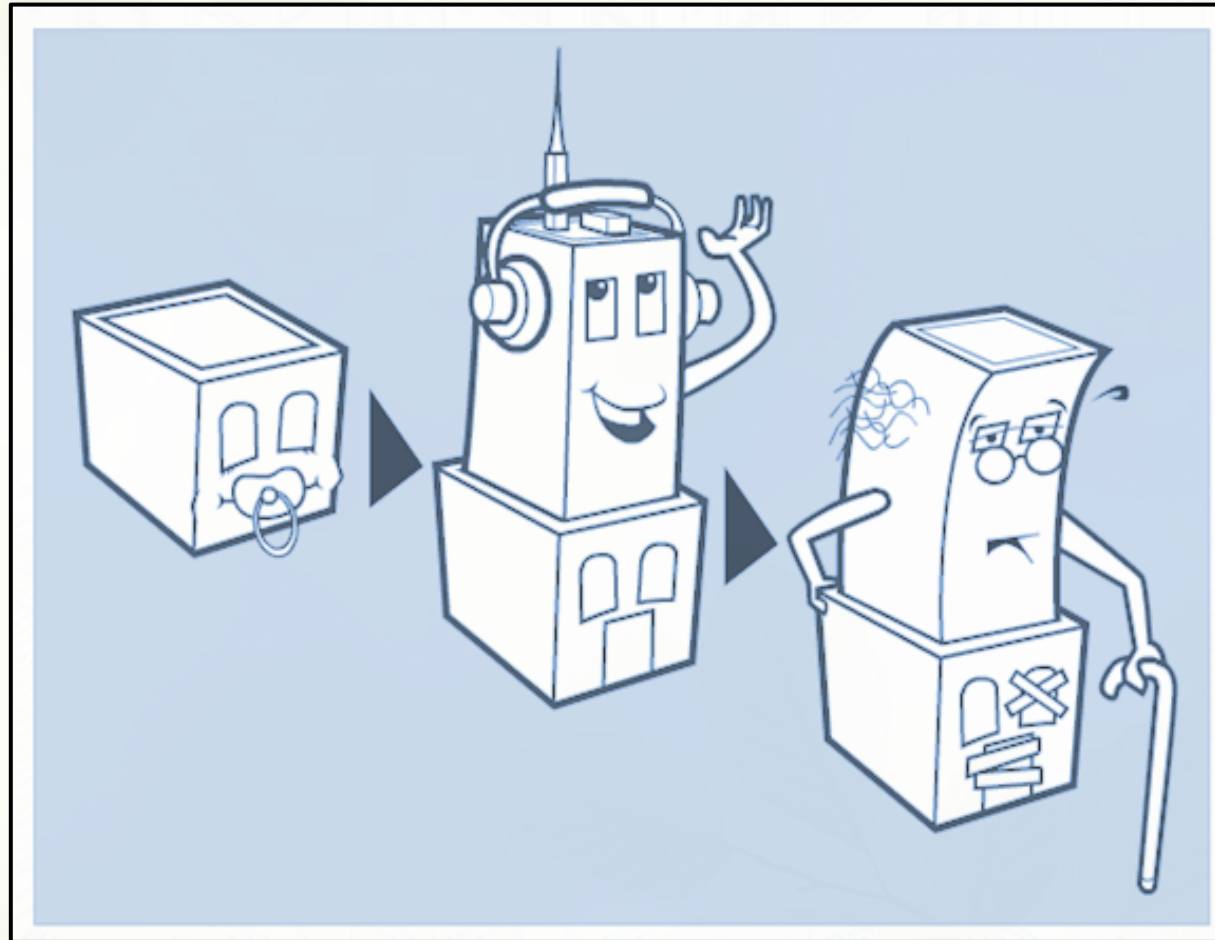
# Benchmarking 101: Getting To Know Buildings

Like people:

- Buildings age
- Not all the same
- Need care

Therefore:

- Parts breakdown
- Unique needs
- Need upgrades



\*PNNL Building Retuning Training

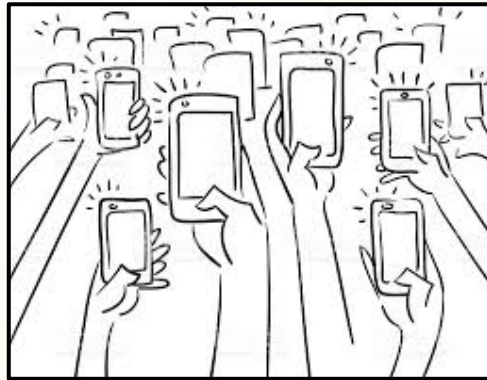


# How to Think About Benchmarking

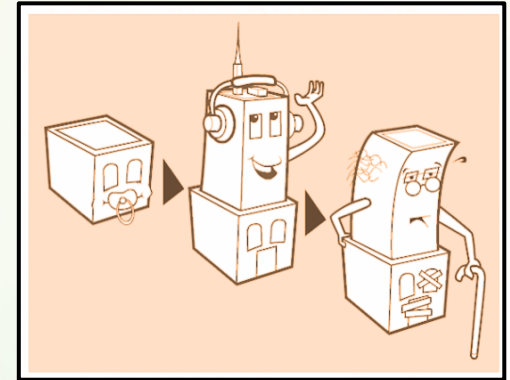
It's all about Comparisons



**Self**



**Peers**



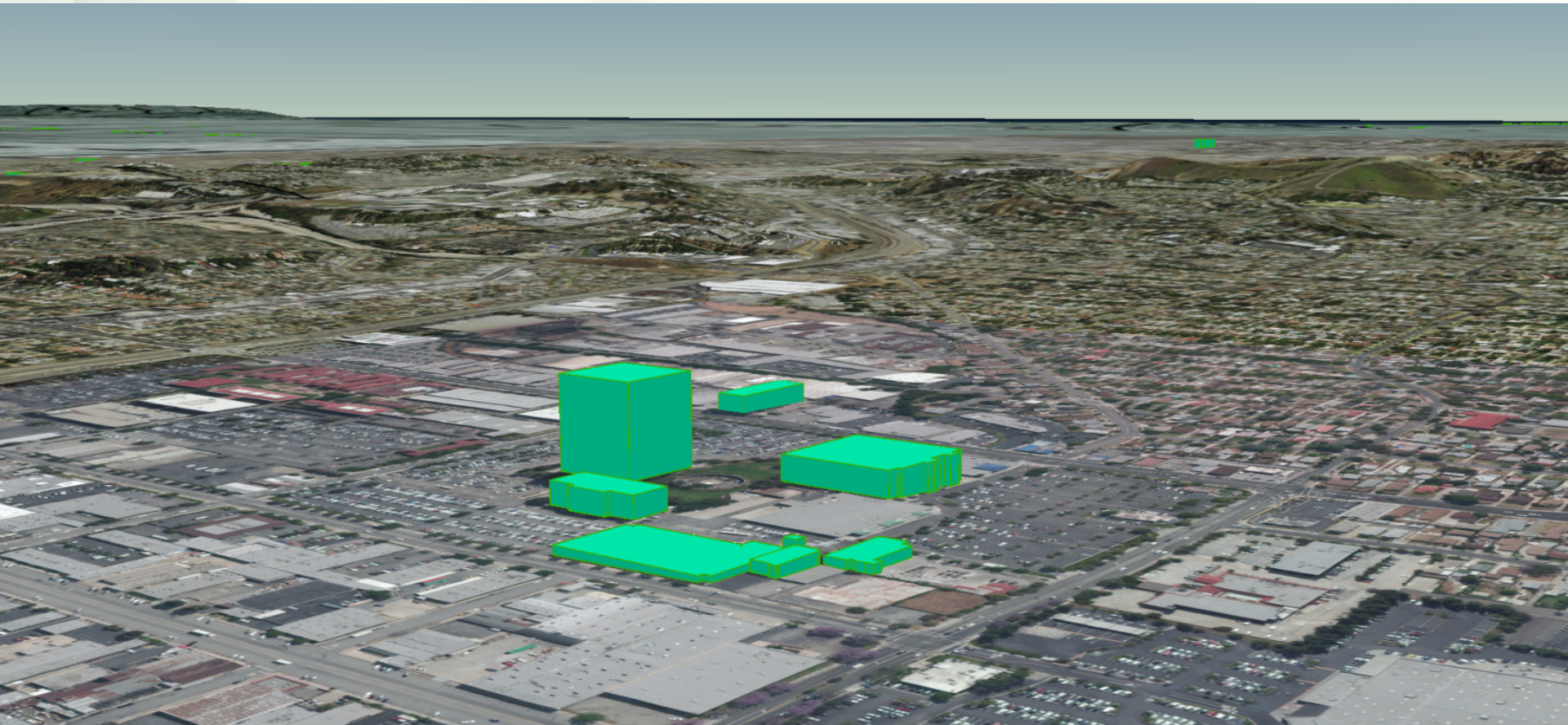
**Scenarios**

*These help identify opportunities to save and helps document those savings*



# Example Thought Process

I have a collection of buildings in my city's 'portfolio'



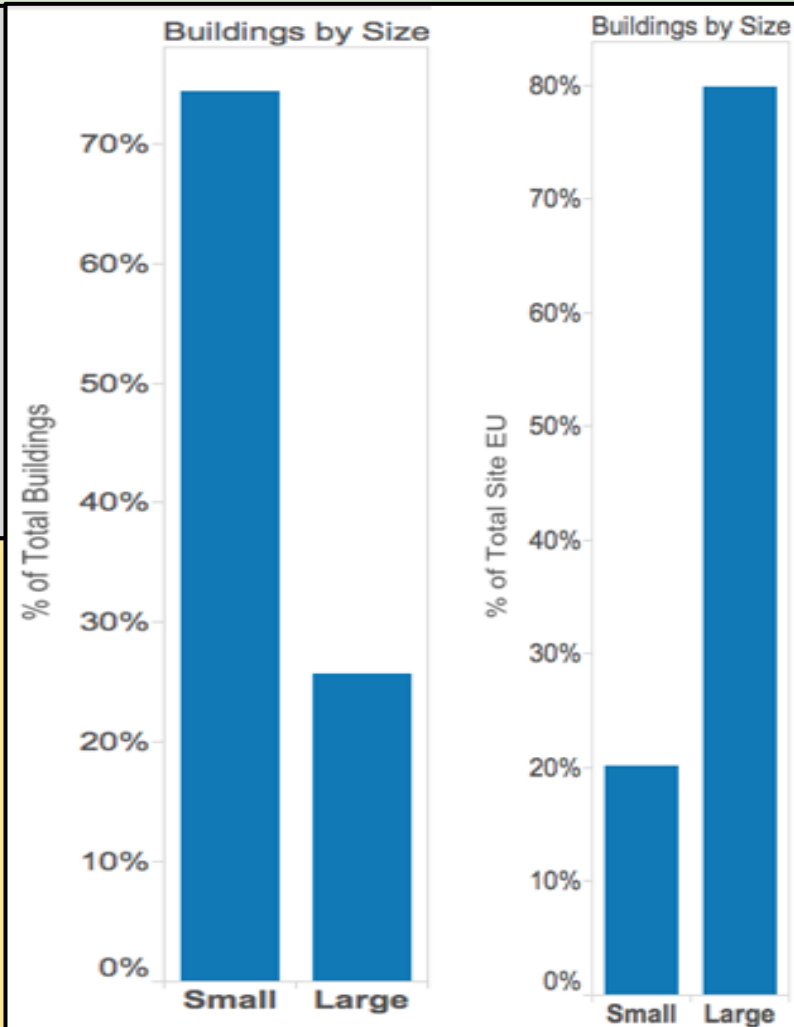
# What to Look For

## Size

- What are my buildings like?
- Large? Small?
- What type?

## But where is the energy going?

- Most buildings are small
- Yet, the energy in my portfolio is dominated by few large buildings



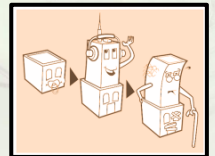
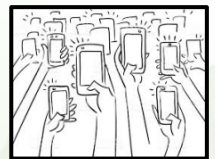
# Drilling Down: Building Type Comparisons

**Remember: It's about energy and cost**

- **Most energy is used by a few large buildings**
- **Investigate these buildings**

**But also remember...**

- **Just like people, not all buildings are the same**
- **Drill down by investigating by building types**
- **Do some benchmarking - self, peers, scenarios**







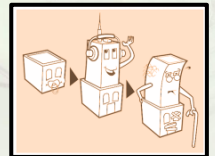
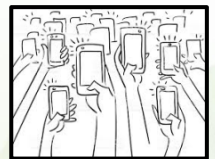
# Drilling Down: Benchmarking Metrics

**Remember: It's about energy and cost**

- **Energy Use Intensity (EUI) = Energy/square foot**
- **Energy Cost Intensity (ECI) = Cost/square foot**

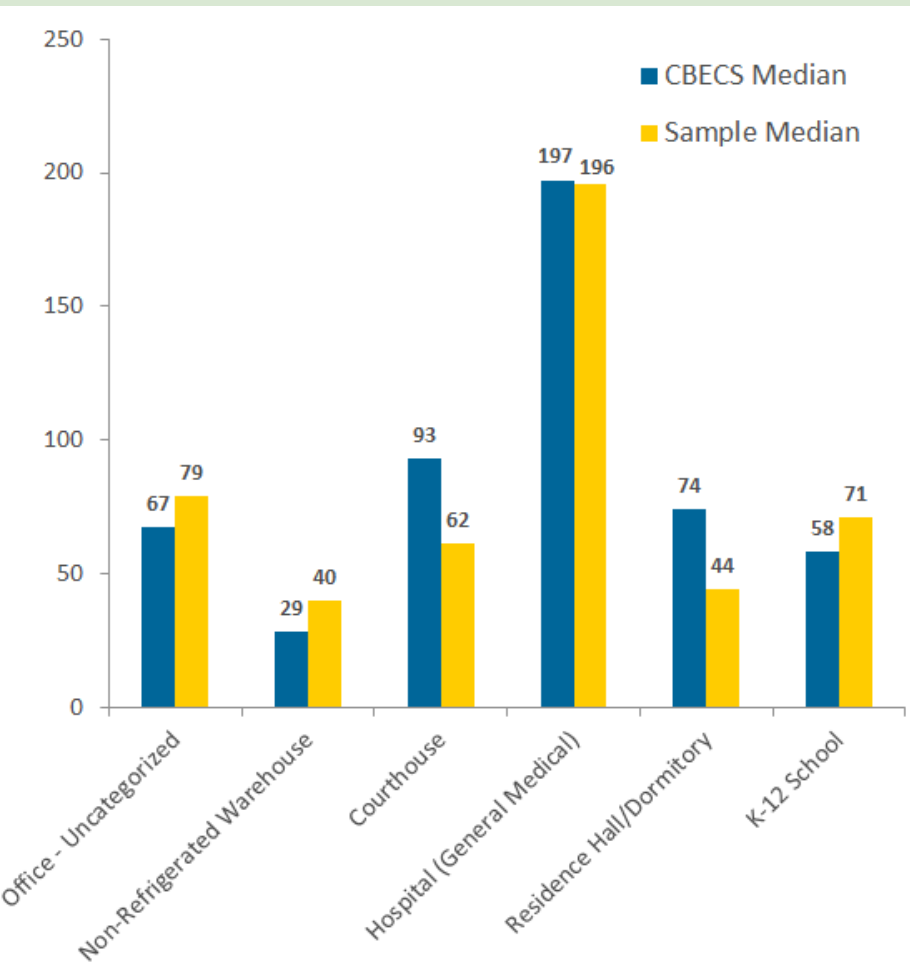
**But also remember...**

- **Just like people, not all buildings are the same**
- **Compare apples to apples**
- **Do some benchmarking - self, peers, scenarios**





# Drilling Down: Benchmarking Metrics



## Energy Use Intensity (EUI)

Very different across buildings

Also different by building age

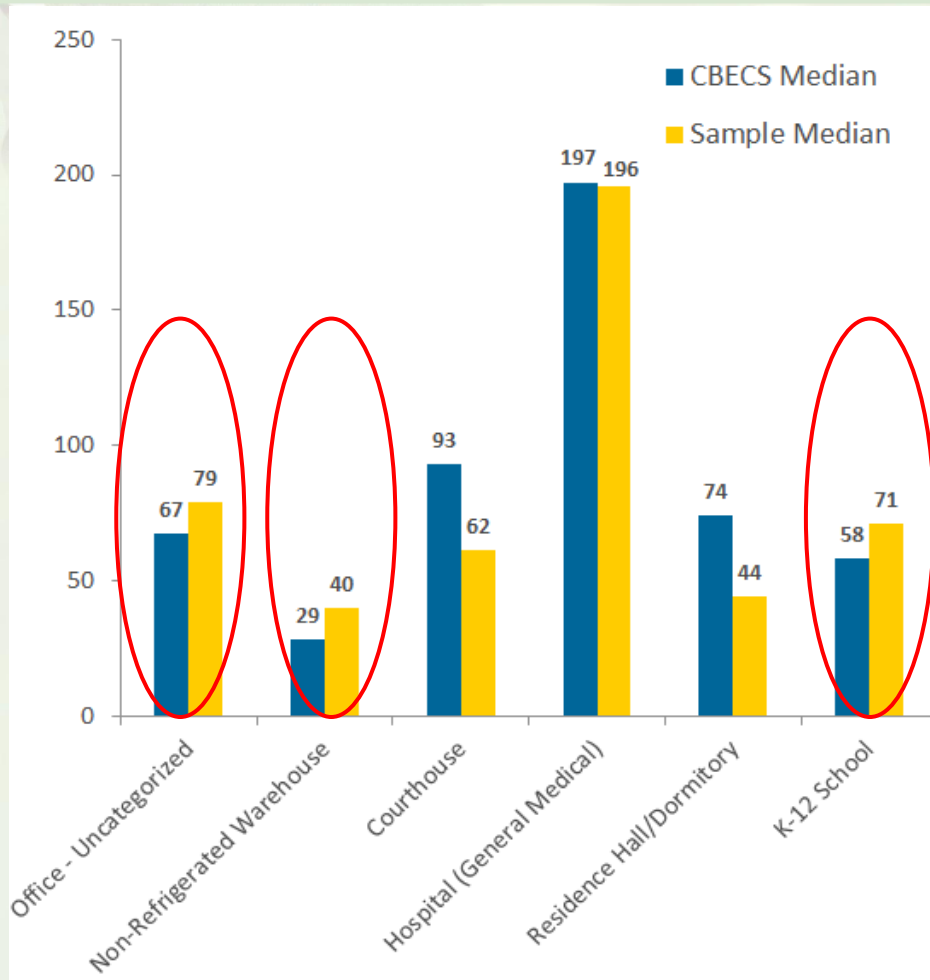
Other factors affect EUI (ex: weather)

e.g. Hospitals in this portfolio have 2x more EUI than office

*SO, it is unfair to compare hospitals to offices*

Shankar, E., LBNL. "Benchmarking Energy Data Analysis" Sept 2016

# Drilling Down: Benchmarking Metrics



Shankar, E., LBNL. "Benchmarking Energy Data Analysis" Sept 2016

## Observations

- Yellow = actual buildings
- Blue = national average
- These offices, warehouses and K-12 schools use more energy than national averages
- The other buildings use just as much or less than national averages

# From Benchmarking to Action

## Two Approaches

- Savings by Opportunity
- Savings by Targets and Master Plans



# From Benchmarking to Action - by Opportunity

## Benchmark Plus Report

### Owner

Year Built 1970

Square Footage 16,704

Analysis Period 1/1/2016 - 12/31/2016

Primary Function Social/Meeting Hall

Region ASHRAE 3B-West (Hot - Dry)

Number of Owner Meters 1

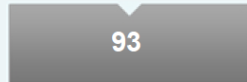
Number of Tenant Meters 0



### Your Property's Score



### Average Portfolio Score

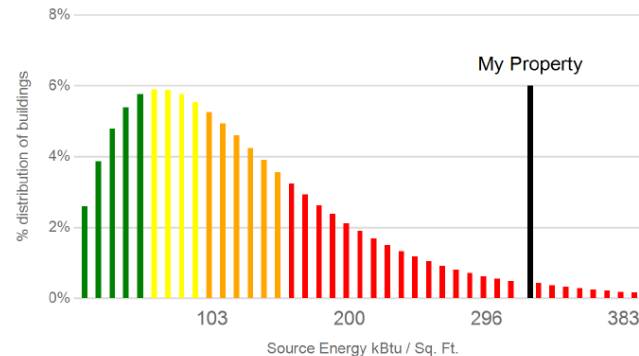


### Total GHG Emissions

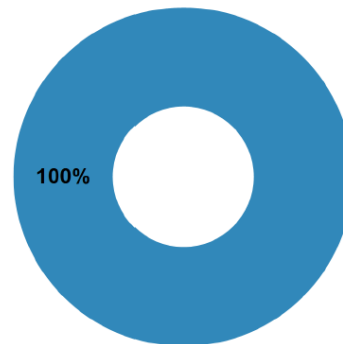


Report Date: April 10, 2017

## Comparison How My Property Compares to Similar Properties

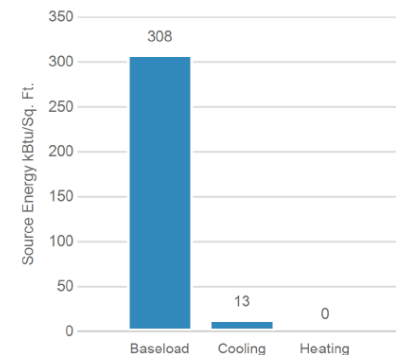


## Who Pays Energy Use by Who Pays and Fuel Type



Electricity - Owner  
(321.9 kBTu/Sq.Ft.)

## Focus Energy Use by Fuel and End Use



## Opportunity Potential Savings

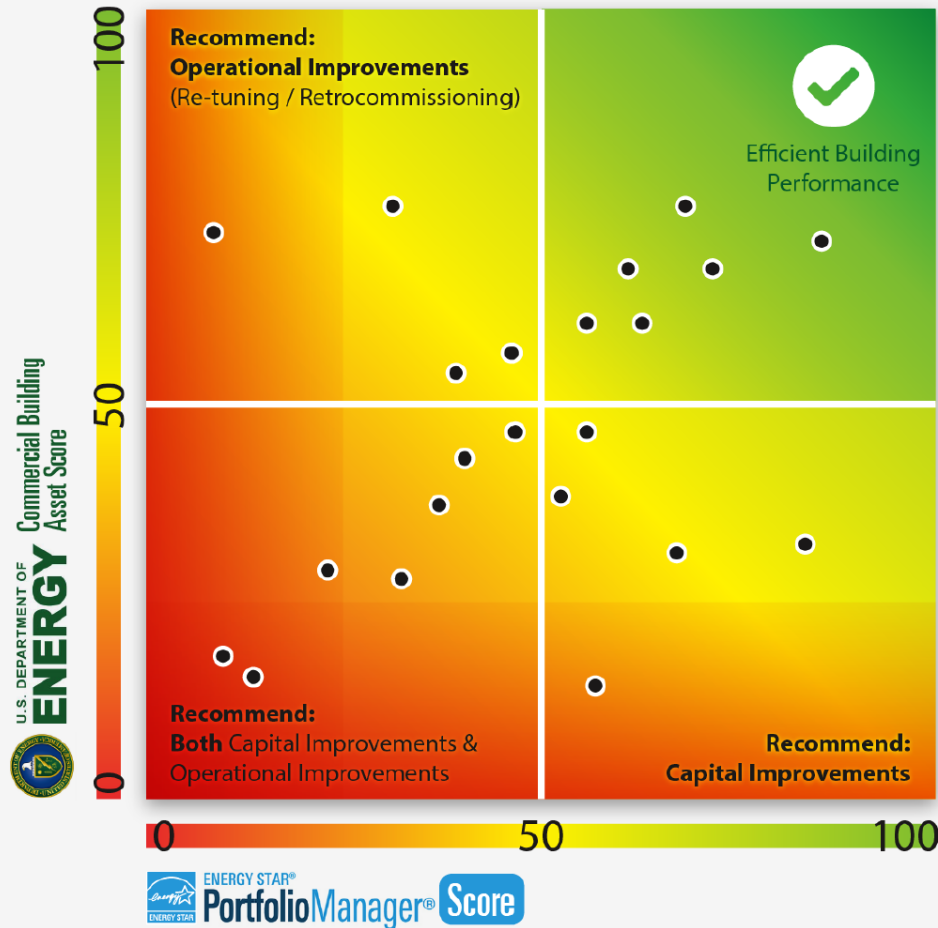
	Annual Usage (Source kBTu/Sq. Ft.)	Delta	% Delta
My Property	321.9		
Average	97.2	224.7	70%
Top Quartile	63.3	258.6	80%

Energy Type	Annual Cost	\$/Sq. Ft.
Electricity	\$80,502	\$4.82
Total	\$80,502	\$4.82

# From Benchmarking to Action - by Opportunity

## Using the Scoring Matrix for Portfolio Assessment





# From Benchmarking to Action - by Targets

## Savings by Targets and Master Plans

- By percent energy? Percent GHG? 20%, 50% or 100%?
- By building, by portfolio?
- How do you get there?

### Here Are Our Recommendations:

#### Scenario A

- If you do these measures, you will get these benefits...
- GHG Reduction = X1
- Cost Reduction = Y1
- Energy Reduction = Z1

#### Scenario B

- If you do these measures, you will get these benefits...
- GHG Reduction = X2
- Cost Reduction = Y2
- Energy Reduction = Z2

#### Scenario C

- If you do these measures, you will get these benefits...
- GHG Reduction = X3
- Cost Reduction = Y3
- Energy Reduction = Z3

**IT STARTS WITH BENCHMARKING!**

# Facility Energy Benchmarking

*Audience Questions?*



# Overview and Updates: Whole-Building Data Access, Benchmarking, and Public Disclosure (AB 802)

Erik Jensen  
Energy Specialist  
California Energy Commission



## AB 802 Requires:

- Utilities to provide energy use data to a building owner, owner's agent, or operator on request.
- Energy Commission to create a program to benchmark and publicly disclose energy performance information for certain buildings.





# Tentative Program Timeline

**Jan. 1, 2016**

► **Utilities required to maintain records**

*June 1, 2018\**

► *Commercial reporting to CEC begins*

*Sep. 1, 2020\**

► *2<sup>nd</sup>-year multi-family data publicly disclosed*

► *2017\**

*Regulations in effect*

**Jan. 1, 2017**

► **Utilities required to provide data upon request**

*Sep. 1, 2019\**

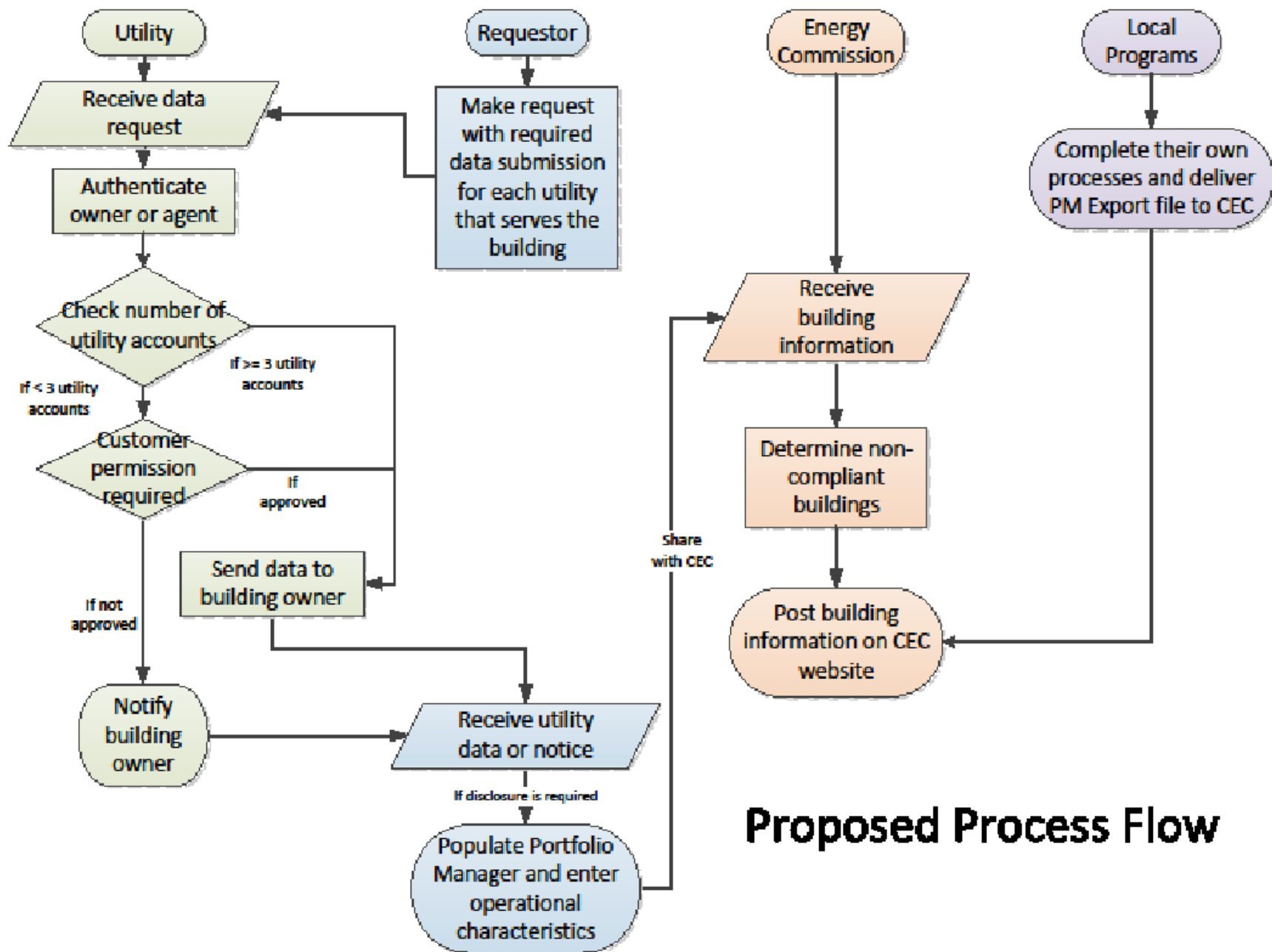
► *2<sup>nd</sup>-year commercial data publicly disclosed*

*June 1, 2019\**

► *Multi-family reporting to CEC begins, 2<sup>nd</sup> year of commercial reporting*

**Bold: Statutory requirements**

*\* Tentative projections*





# Overview of Draft Regulations

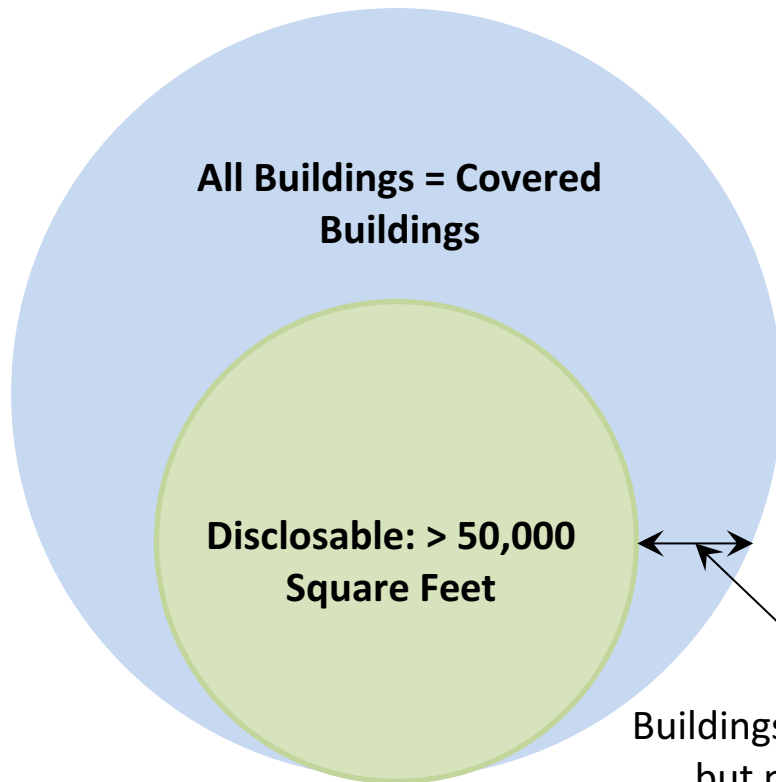
## Key Definitions

- Building Identification Number
- Covered Building
- Disclosable Building
- Utility Account

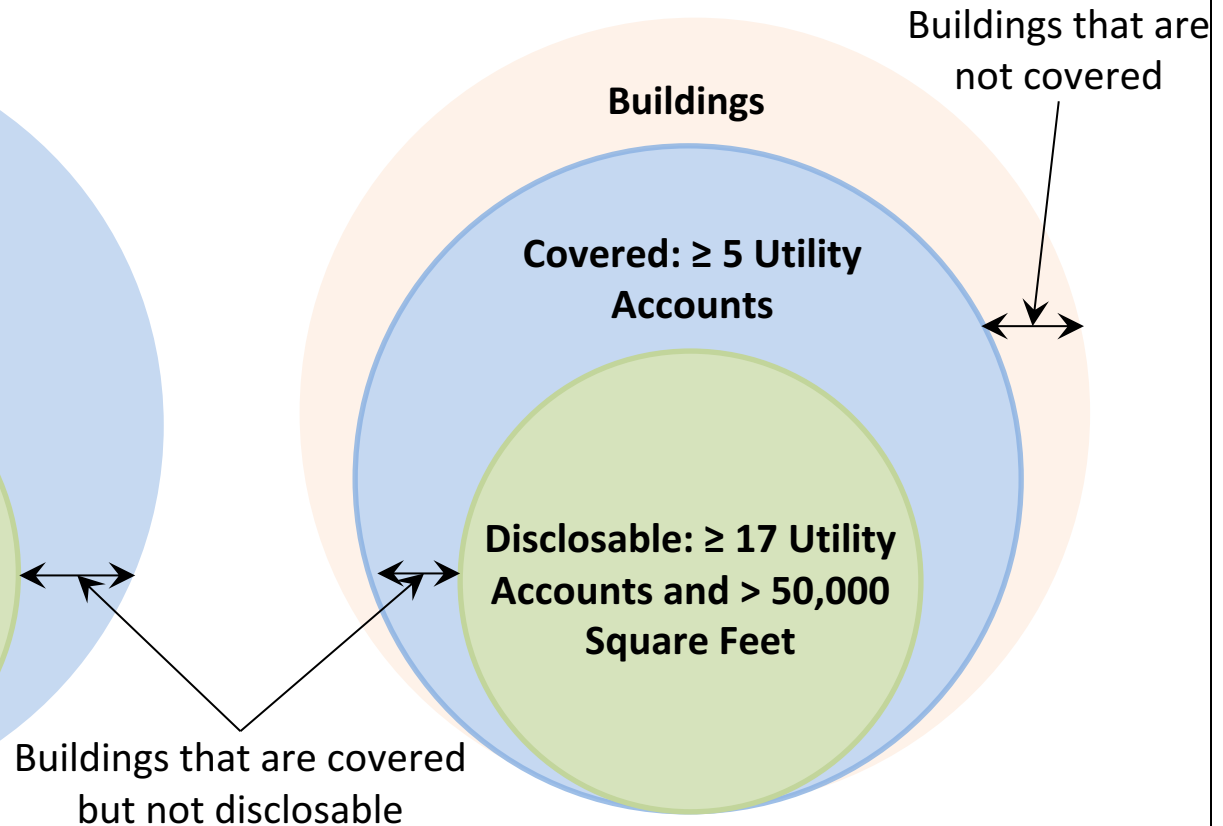


# Covered and Disclosable Buildings

## Buildings With No Residential Utility Accounts



## Buildings With One or More Residential Utility Accounts







# Overview of Draft Regulations

## Data Access

- Data Request
- Utility Requirements



# Approximate Covered Buildings, California

## Commercial

Buildings	382,274
Covered Buildings	382,274

CoStar, July 20, 2016

## Multi-Family

Properties with $\geq 5$ units	117,259
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CoStar, July 21, 2016



# Overview of Draft Regulations

## Benchmarking and Disclosure

- Schedule
- Benchmarking and Reporting

## Disclosable Buildings

- Public Disclosure



# Approximate Building and Property Counts, California

## Commercial

Disclosable Buildings	18,504
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CoStar, July 20, 2016

## Multi-Family

Properties with 17+ units and > 50,000 sf	20,810
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CoStar, July 20, 2016





# Overview of Draft Regulations

## Exemptions

- Exemptions for Buildings Owners
- Local Benchmarking Program Exemption Process
- Public Disclosure

# ***AB 802 Overview***

***Audience Questions?***

# ***Panel Discussion***

# Panel Discussion Questions

- What barriers exist for local governments (LGs) to get started benchmarking buildings and how can they overcome those barriers?
- What are the next steps to benchmarking after determining which facilities need to comply with AB 802?
- How do you apply benchmarking to streetlights?
- What key considerations and steps should a LG take in developing a benchmarking policy and ordinance?
- How can LGs help move their community stakeholder groups toward benchmarking their buildings and understanding the benefits?
- What strategic planning resources are available to LGs to get started benchmarking?
- How can local ordinances work in tandem with AB 802 compliance?
- Are there penalties if my building is not performing well after disclosing to the CEC?
- If a City is small and doesn't have buildings that fall in AB 802's parameters, why should they care about benchmarking?
- When data is input into Energy Star Portfolio Manager, where does the average/regional data come from?



# Audience Discussion



***Questions?***

***What is your  
experience?***

# Demystifying Energy Benchmarking in the Age of AB 802

***Thank you!***

**Questions?**

**Contact: Marc Costa, Program Manager**  
**[mcosta@energycoalition.org](mailto:mcosta@energycoalition.org)**