



# Worst Practices in Energy Benchmarking

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# Today's Presenters



**Eric Weber, PE**

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Senior Vice President  
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**Barry Abramson, PE**

Principal  
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# Worst Practices In Benchmarking

Eric Weber, PE, EBCP, CEM, LEED AP BD+C

Energent Solutions



# ENERGENT SOLUTIONS

ENERGY, SUSTAINABILITY, AND CONSULTING WITH OVER A DECADE OF BEST-IN-CLASS RESULTS FOR OUR CLIENTS.



ENERGY ANALYSIS



ENERGY SAVINGS



SUSTAINABILITY



CONSULTING





# Not Using Portfolio Manager

- ▶ Free
- ▶ No Strings Attached
- ▶ Industry Standard
- ▶ Established





# Use Detail (Mis)Information

- ▶ Using defaults
- ▶ Outdated Information
- ▶ “Playing Games”

Name	Property Use Type	Gross Floor Area	Action	
▼ Building Use	Hospital (General Medical & Surgical)	105,387 ft²	I want to... ▼	
	Value	Current As Of	Temporary Value?	
★ Gross Floor Area	105387 ft²	01/01/2011	No	
Gross Floor Area Used for Food Preparation	0 ft² (default value)	01/01/2011	No	
Licensed Bed Capacity	25	01/01/2011	No	
★ Number of Staffed Beds	20	01/01/2011	No	
★ Number of Full Time Equivalent (FTE) Workers	142	01/01/2011	No	
Number of Workers on Main Shift	139.11 (default value)	01/01/2011	No	
★ Number of MRI Machines	1	01/01/2011	No	





# Check Your Units

- ▶ Kcf vs. MCF
- ▶ Bill units vs. Profile units

kcf	Thousand cubic feet
Mcf	Million cubic feet
klbs	Thousand pounds
Mlbs	Million pounds
kWh	Thousand Watt hours
MWh	Million Watt hours
kBtu	Thousand Btu
MBtu	Million Btu





# Know How Your Meters Work

- ▶ Delivered Utilities Assume 0
- ▶ Terminating meters at the correct time
- ▶ Switching Providers







# Having Too Many Permissions

- ▶ Limit how many users can make changes
  - ▶ Spreadsheet Uploads and Data “pushes”
  - ▶ Demographic Information can be erroneously changed

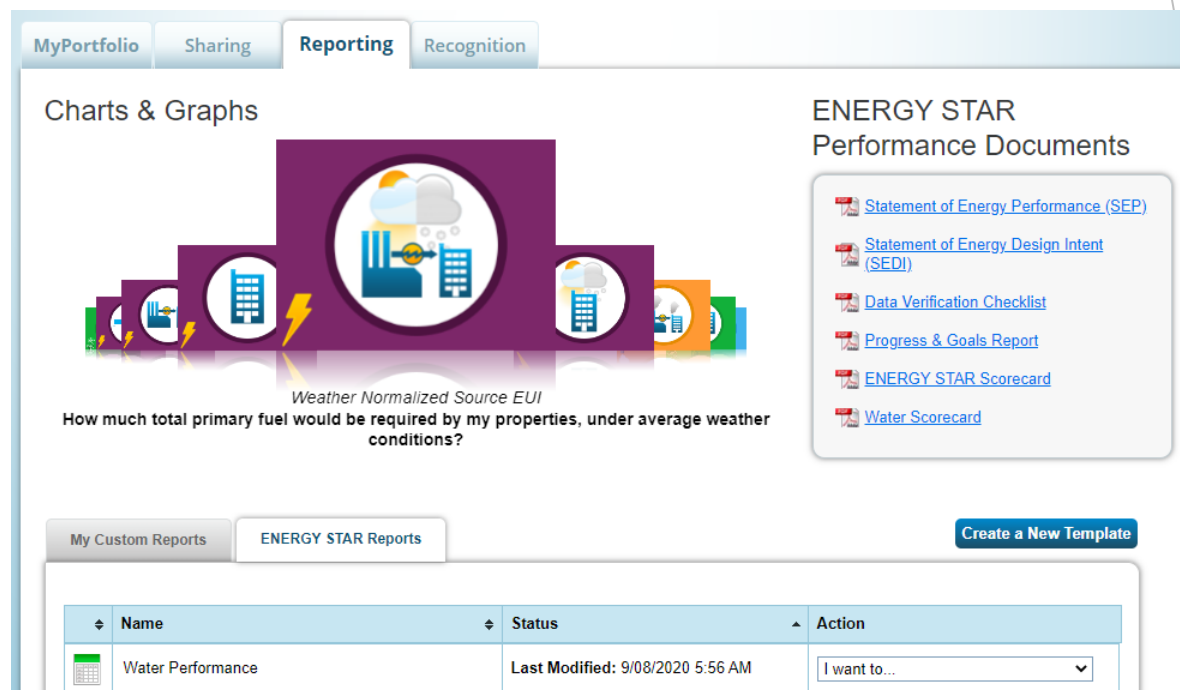
**Share (or Edit Access to)  
a Property**

“Read Only” is your Friend!



# Only Looking at ENERGY STAR Score

- ▶ Utilize Reports
- ▶ Look at usage history
- ▶ Use Goals



The screenshot shows the 'Reporting' tab of the ENERGY STAR interface. It features a 'Charts & Graphs' section with a large graphic titled 'Weather Normalized Source EUI' and a question: 'How much total primary fuel would be required by my properties, under average weather conditions?'. To the right, under 'ENERGY STAR Performance Documents', there is a list of links: 'Statement of Energy Performance (SEP)', 'Statement of Energy Design Intent (SEDI)', 'Data Verification Checklist', 'Progress & Goals Report', 'ENERGY STAR Scorecard', and 'Water Scorecard'. Below this, there are tabs for 'My Custom Reports' and 'ENERGY STAR Reports', with a 'Create a New Template' button. At the bottom, a table displays report information.

Name	Status	Action
Water Performance	Last Modified: 9/08/2020 5:56 AM	I want to...



# Not Performing Periodic QA

- ▶ Many service providers will push a partial month then correct it
- ▶ “Pushes” and Spreadsheet Uploads



Thank You

Eric Weber

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# WORST PRACTICES IN ENERGY BENCHMARKING

Presented by Nick Kassanis



**Sustainable Investment Group**

National LEED Solutions - Consulting | Engineering | Training

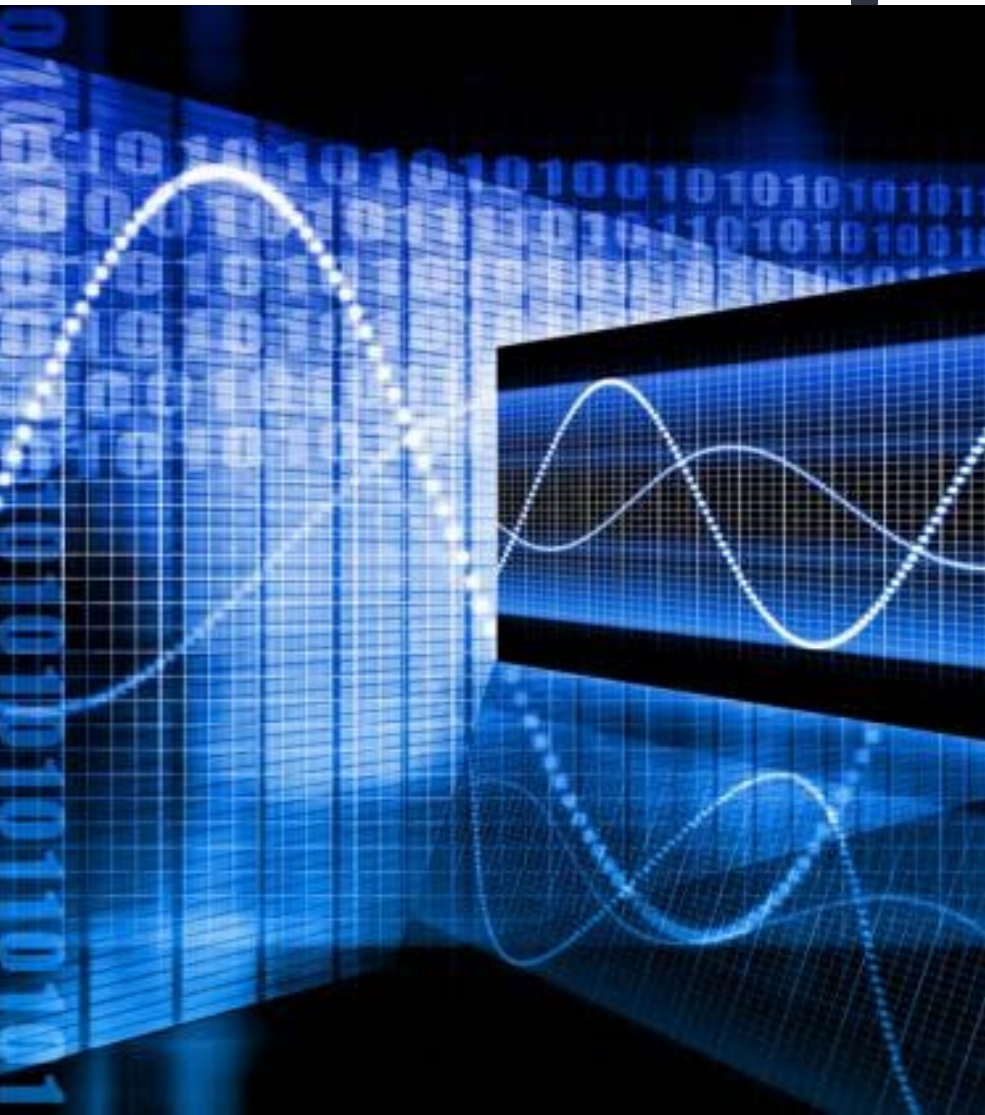
# ENERGY STAR PORTFOLIO MANAGER – WORST PRACTICES

D e t a i l s , D e t a i l s , D e t a i l s

- Rentable Square Feet (RSF) vs Gross Square Feet (GSF)
- Unique Space Types (restaurant, retail, etc)
- Too much detail vs not enough detail
- Unverified Data (hours, people, etc)
- Sporadic profile updates are not sufficient
- When is it appropriate to exclude spaces?







## UTILITY DATA – WORST PRACTICES

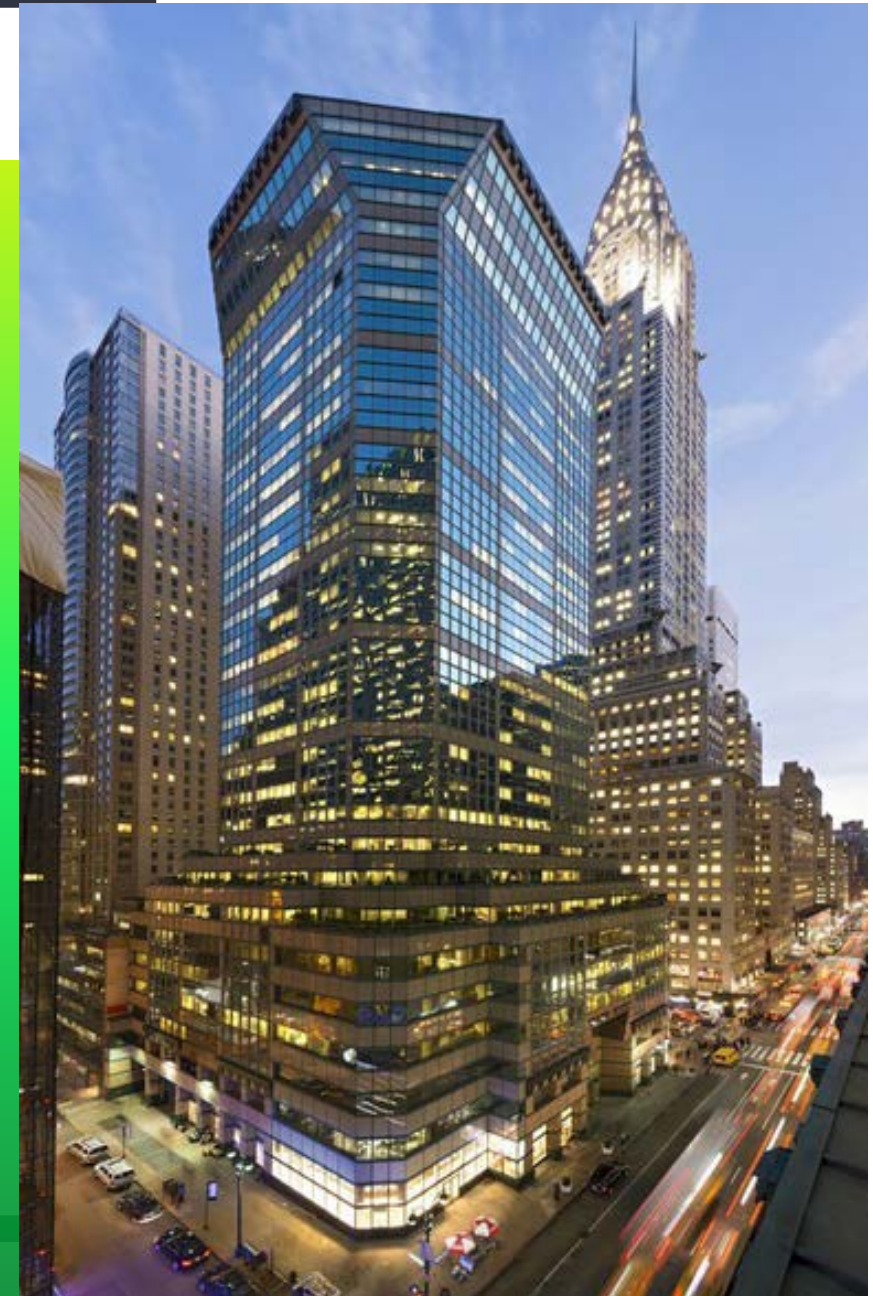
V e r i f i c a t i o n   i s   K e y

- Billing periods are not consistent across buildings
- Utility data not updated regularly
- Assuming utility information is readily available
- How many meters serve your building?

# DATA VERIFICATION – BEST PRACTICES

## EXAMPLE 1 – Utility Aggregate Data Verification

- **Entire Portfolio in NYC** – SIG reviewed automatic aggregate energy consumption updates from a utility company (ConEd) in ENERGY STAR Portfolio Manager for Local Law 84 (energy benchmarking) verification.
- Several inconsistencies with the metering assignments were found that prompted a follow up review of every single meter at each site to accurately verify active/inactive meters and any tenant direct meters to track Scope 3 emissions.
- Best Practice – Regularly review utility company automatic updates to ensure accuracy.







## DATA VERIFICATION – BEST PRACTICES

### EXAMPLE 2 – Automatic Software Update Review

- **1M+ SF Office building in NYC** – SIG identified a spike in steam consumption for a single month that led to a follow up investigation.
- It was determined that the software assigned the January energy consumption to December due to the bill date ranges for “January” bypassing the software programming that sorted utility bills.
- Best Practice – Regularly update and verify energy consumption data in ENERGY STAR Portfolio Manager. Understand how your preferred software automatically pushes/updates data in Portfolio Manager.



# ON-SITE VERIFICATION – WORST PRACTICES

2020 is the exception, not the rule

- Second-hand information to confirm building operations/data
- Assuming knowledge of the current metering setup and utility bill breakdown is accurate
- Stacking plan vs reality



# THANK YOU

**Nick Kassanis, PE, CBCP, LEED AP BD+C**

Senior Vice President

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**Sustainable Investment Group**

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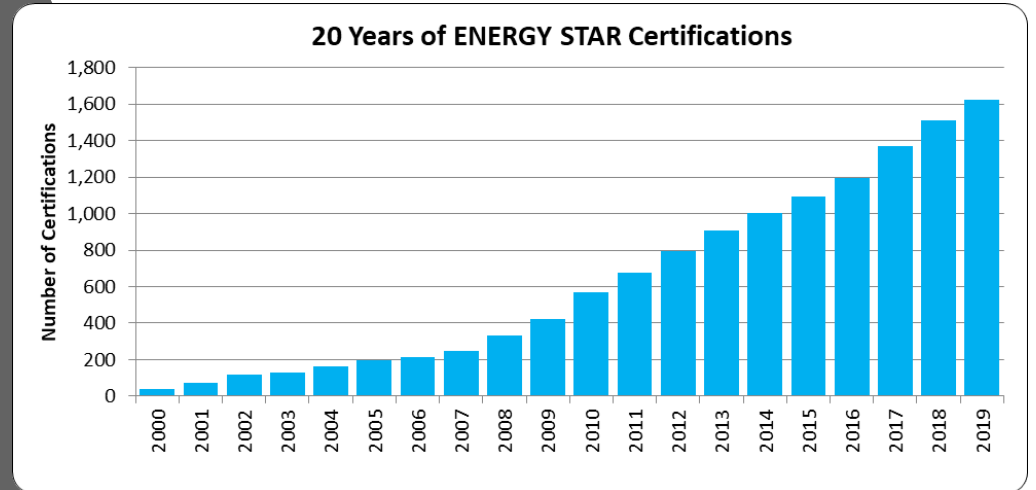
# Worst Practices in Energy Benchmarking



Barry Abramson  
Principal



Meghan McNulty  
Project Engineer





# Top 10 Beatles Songs

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about ENERGY STAR® Benchmarking







# Song List

Yesterday

Here, There & Everywhere

Tell Me Why

Lovely Rita

The Long & Winding Road

Come Together

Hello Goodbye

Don't Let Me Down

Instant Karma

We Can Work it Out



Yesterday

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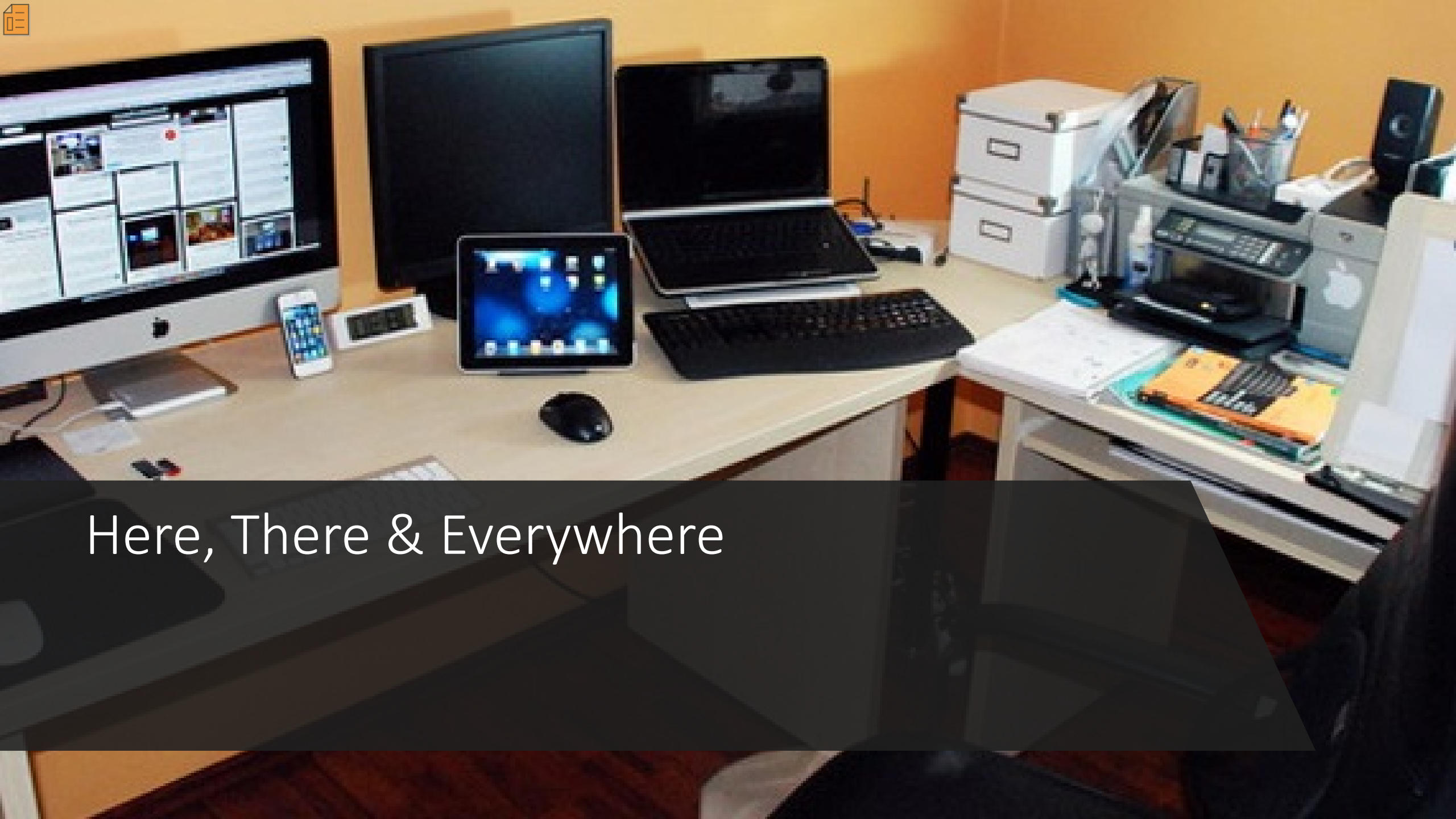
# Yesterday

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- Data Center:
  - dedicated space, >75kW constant load
- Data Closet:
  - a few servers in a closet
- Storage:
  - pictured





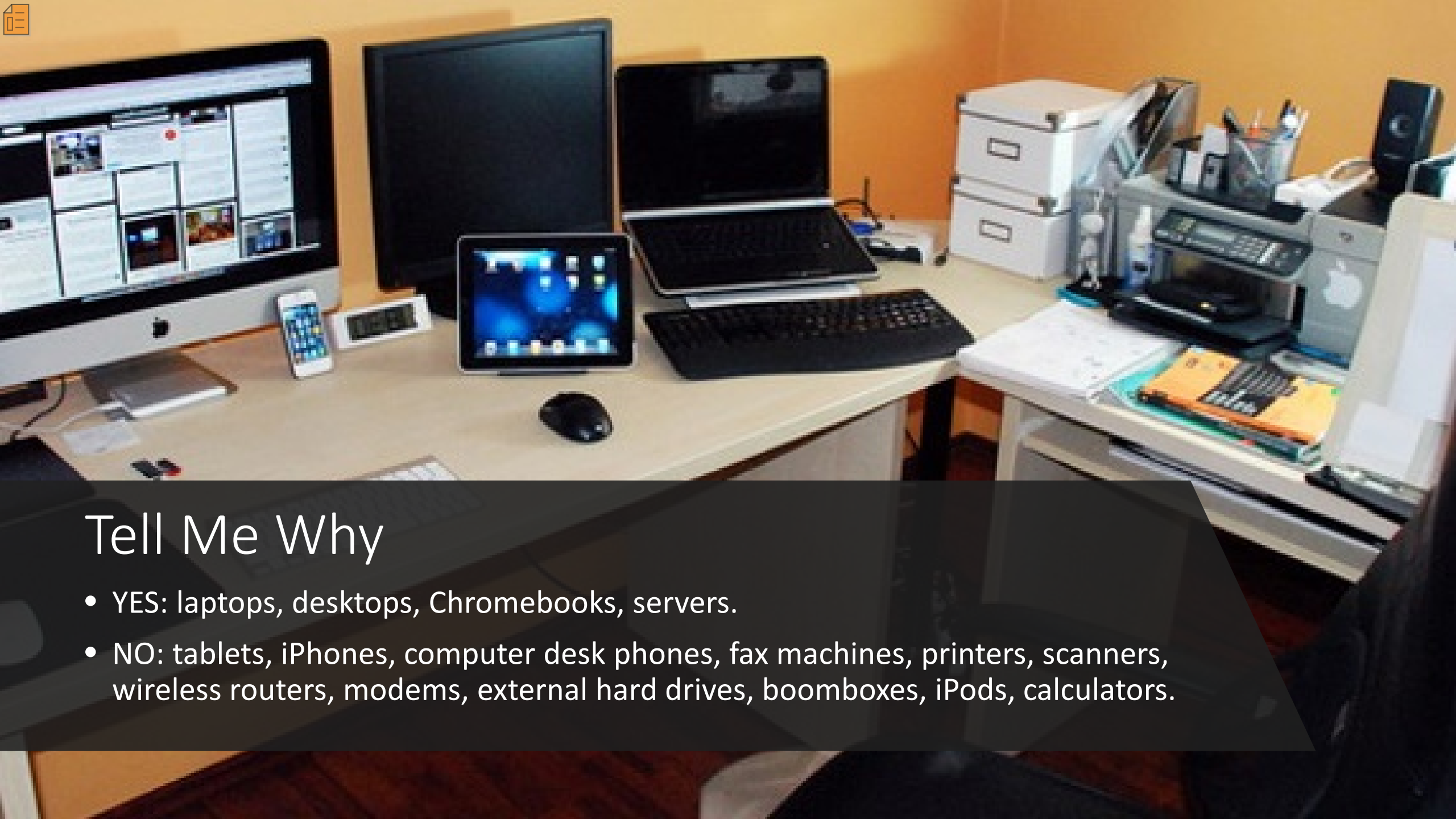


Here, There & Everywhere



# Tell Me Why

- YES: laptops, desktops, Chromebooks, servers.



# Tell Me Why

- YES: laptops, desktops, Chromebooks, servers.
- NO: tablets, iPhones, computer desk phones, fax machines, printers, scanners, wireless routers, modems, external hard drives, boomboxes, iPods, calculators.



Lovely Rita (Meter Maid)



# Lovely Rita (Meter Maid)

“Everything’s on the main meter...”

- EUI reality check
- Visit every electric room



# The Long & Winding Road

## Meters - Used to Compute Metrics (22)

[Add A Meter](#)[Change Meter Selections](#)[View as a Diagram](#)

Name Meter ID	Energy Type	Most Recent Bill Date	In Use? (Inactive Date)
(1). Meter 1 20011493552:1310 451 68536285	Natural Gas	Not In Use	No (11/14/2018)
(2). Meter 2 20012589069:132 4915 68536290	Natural Gas	Not In Use	No (10/29/2019)
(2). Meter 3 20017994058:131 0451 68536307	Natural Gas	Not In Use	No (04/29/2019)
(3). Meter 3 after April 20017994058:131 0451 68536308	Natural Gas	06/27/2020	Yes

# The Long & Winding Road

<a href="#">ESTAR CER 1</a> 68536310	Meter 4	<a href="#">0:14342</a>	Electric - Grid	Not In Use	No (11/06/2019)
<a href="#">ESTAR CER 68536301</a>	Meter 4 before Nov	<a href="#">0:25635</a>	Electric - Grid	Not In Use	No (01/09/2019)
<a href="#">ESTAR CER 7</a> 68536309	Meter 5	<a href="#">0:85216</a>	Electric - Grid	11/06/2019	Yes
<a href="#">ESTAR CER 8</a> 68536287	Meter 5 before Nov	<a href="#">0:85216</a>	Electric - Grid	Not In Use	No (11/06/2019)
<a href="#">ESTAR CER 7</a> 68536298	Meter 5 before Jan	<a href="#">0:87215</a>	Electric - Grid	Not In Use	No (01/09/2019)
<a href="#">ESTAR CER 4</a> 68536306	Meter 6	<a href="#">0:82395</a>	Electric - Grid	10/04/2019	Yes
<a href="#">M 5</a> 68966630	Meter 7	<a href="#">0012589069:132491</a>	Natural Gas	08/27/2020	Yes
<a href="#">M 5</a> 68536291	Meter 8		Electric - Grid	Not In Use	No (01/09/2019)

# The Long & Winding Road

Meter 69011132	<a href="#">30000:143421</a>	Electric - Grid	08/12/2020	Yes
Meter 69005665	<a href="#">30000:25635</a>	Electric - Grid	08/12/2020	Yes
Meter 69014367	<a href="#">30000:852167</a>	Electric - Grid	08/12/2020	Yes
Meter 69014364	<a href="#">30000:852168</a>	Electric - Grid	08/12/2020	Yes
Meter 69005660	<a href="#">30000:872157</a>	Electric - Grid	08/12/2020	Yes
Meter 69011020	<a href="#">23230:823954</a>	Electric - Grid	08/12/2020	Yes
Meter 68536302	<a href="#">10000:823954</a>	Electric - Grid	Not In Use	No (09/07/2018)
Meter 68536297	<a href="#">10000:852168</a>	Electric - Grid	Not In Use	No (10/01/2017)
Meter 68536292	<a href="#">10000:852167</a>	Electric - Grid	Not In Use	No (10/01/2017)
Meter 68536303	<a href="#">10356:852167</a>	Electric - Grid	08/31/2019	Yes





# Come Together

Opportunity for Automated  
Benchmarking providers?

## Meter Summary

35 Energy Meters Total

22 - Used to Compute Metrics

13 - Not Used in Metrics

[Add A Meter](#)

Current Energy Date  
Aug 31, 2019

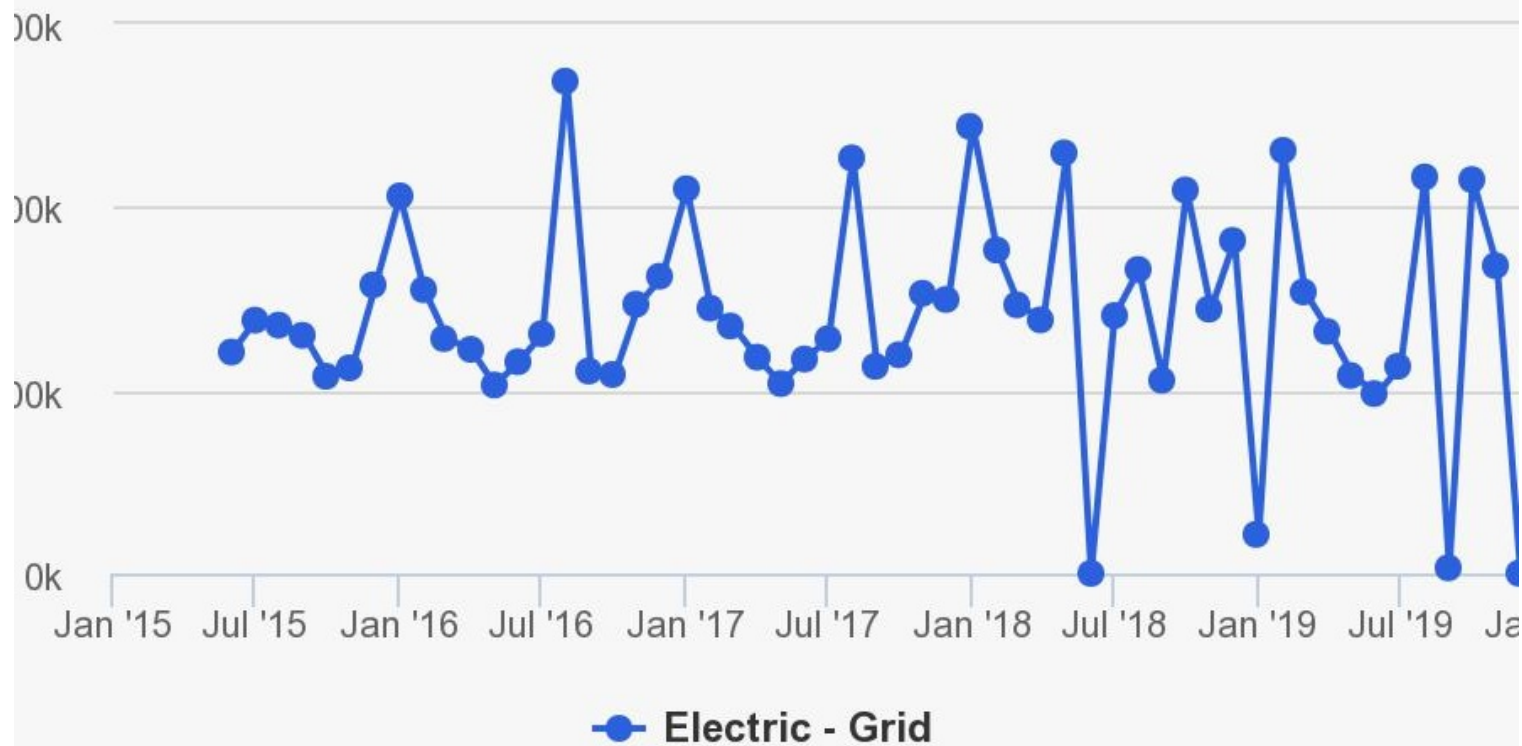
[Enter Your Bills](#)

Physical meters: 10



## Energy Use by Calendar Month (Not Weather Normalized) for

Office Building

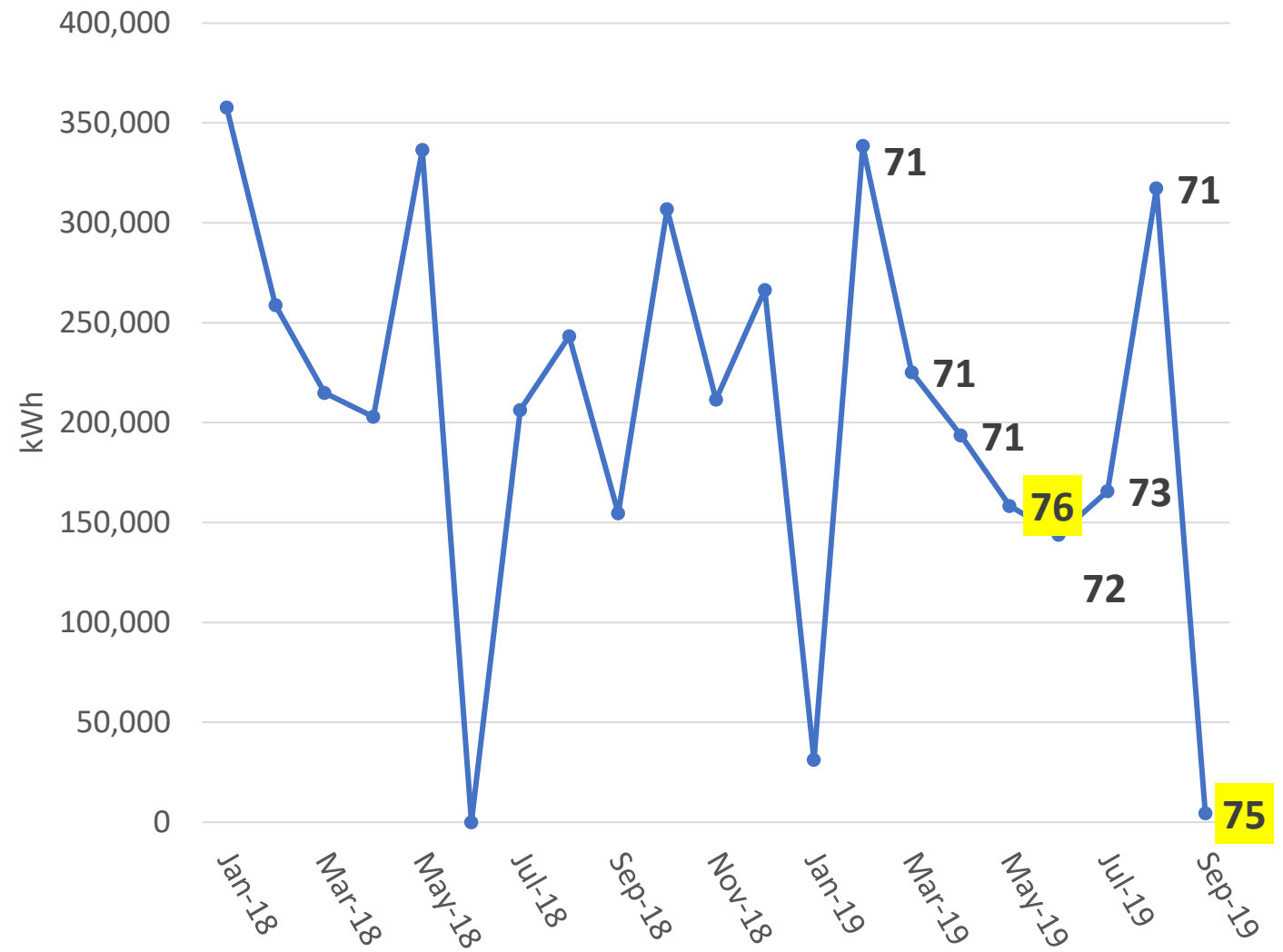


Hello  
Goodbye  
(I say high,  
you say low)



Don't Let  
Me Down

Utility Aggregate Data & ENERGY STAR Score



**LENNON**

**INSTANT KARMA!**



APPLES 1003



## ACTION REQUIRED - ENERGY STAR Certification Audit Form for...



ENERGY STAR Certification Review Team <ESCerti

To Barry Abramson

Cc ENERGY STAR Certification Review Team



Wed 2:58 PM

Dear Barry Abramson:

Thank you for applying for ENERGY STAR Certification. This email is to inform you that your application for [redacted] Office Building has been selected to receive an audit. The audit process consists of confirming building characteristics and use details by filling out the attached form, as well as providing copies of your utility bills; this should typically take 1-2 hours to complete.

Instant  
Karma:

*AUDIT!*





## WE EARNED IT!

Our building received  
U.S. EPA's ENERGY STAR  
signifying superior  
energy performance!

We Can Work it Out

# Thank you for Attending!

## Questions?

**Slides will be sent to all webinar registrants after today's session.**

If you're unsure how to benchmark your property, please check out the FAQs at

[www.energystar.gov/BuildingsHelp](http://www.energystar.gov/BuildingsHelp)

If you have any other questions about Portfolio Manager or the ENERGY STAR program, contact us by clicking the "Send us your question" link at

[www.energystar.gov/BuildingsHelp](http://www.energystar.gov/BuildingsHelp)

# Upcoming ENERGY STAR Webinars

**September 24<sup>th</sup>**      **DataTrends: Commercial Buildings & Onsite Renewable Energy**  
3pm ET

**October 6<sup>th</sup>**      **Introducing ENERGY STAR Tenant Space Recognition**  
1pm ET

**October 15<sup>th</sup>**      **Tracking GHG Emissions in Portfolio Manager**  
1pm ET

Register for these upcoming webinars and more at:  
<http://esbuildings.webex.com>