



Stakeholder MEETING

2017

The Five Ws of Energy Monitoring

Facilitator



**Damon
Bosetti**

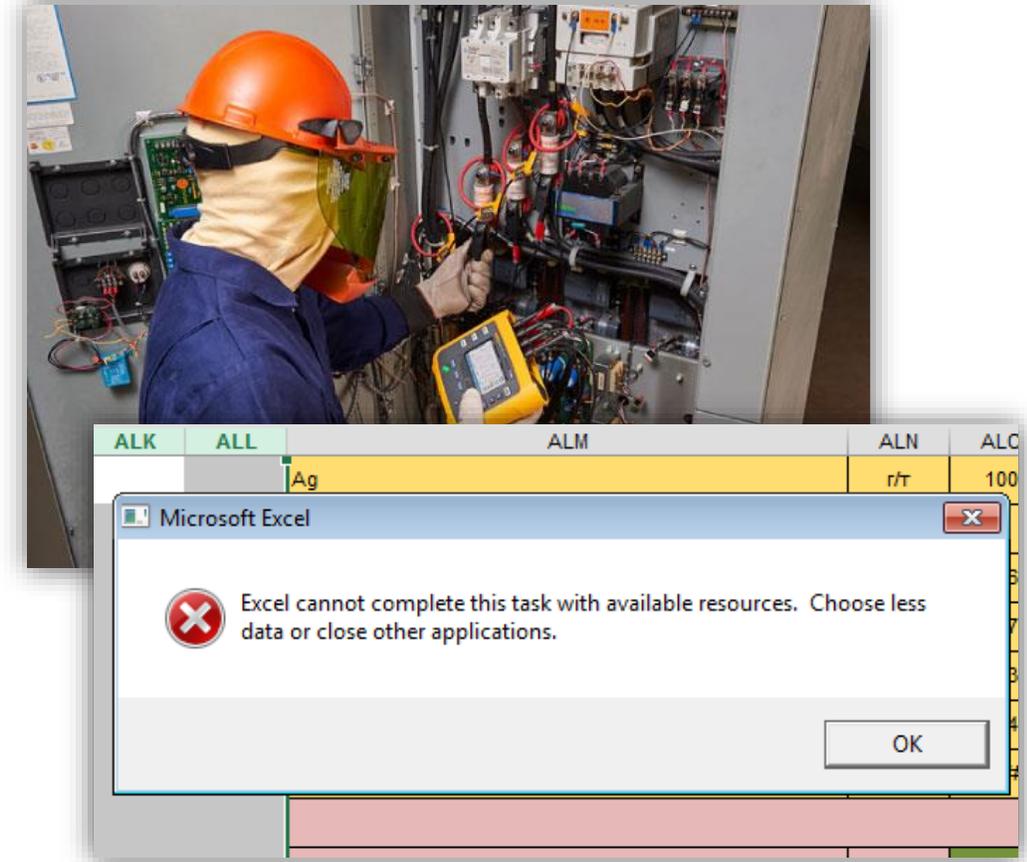
DLC

Discussion Session Ground Rules

- Please sign in on the Roster
- Please state your name and organization
 - At least the first two times you speak
 - Allows us take more detailed notes
- Self-police (and speak up) on any areas where you feel anti-trust issues may become problematic
- Be courteous to others!
- Don't be afraid to speak up
- Presentations will be posted on the website (no need for photos)

Energy Data: Always Useful, Sometimes Difficult

- Who has worked with energy data?
 - How was collecting it?
 - How was analyzing it?
- Energy monitoring will open up massive savings if (and only if) we can describe how we'll use it.



It's Getting Easier . . . And Fuzzier

- Advanced Lighting Control Systems (ALCS) are evolving fast
 - 18 of 21 systems on the DLC QPL support energy monitoring . . .
 - . . . in varying forms and accuracies
- Users need to know
 - Can I trust this data?
 - Can I use it for my business needs?
- We are going to brainstorm use cases for the ANSI C137 committee

Why Do We Care?

- Measurement and Verification (M&V) rules the roost
 - Sets utility investment in Energy Efficiency (EE) programs
 - Is ultimately a **risk management** tool
 - Not just a utility tool – used wherever EE performance is calculated
- Measurement difficulty and uncertainty cause de-rating of EE effects, leaving value on the table
- Energy Measurement that is
 - Easy to access
 - Accurate
 - Uniformwill increase market adoption and unlock new business models!



Brainstorming Time

- For each of the use cases below, we'll ask
 - Who, What, When, Why, Where, and How?about the scenario's needs for energy measurement data
- Any others we missed?

EE Program Admin

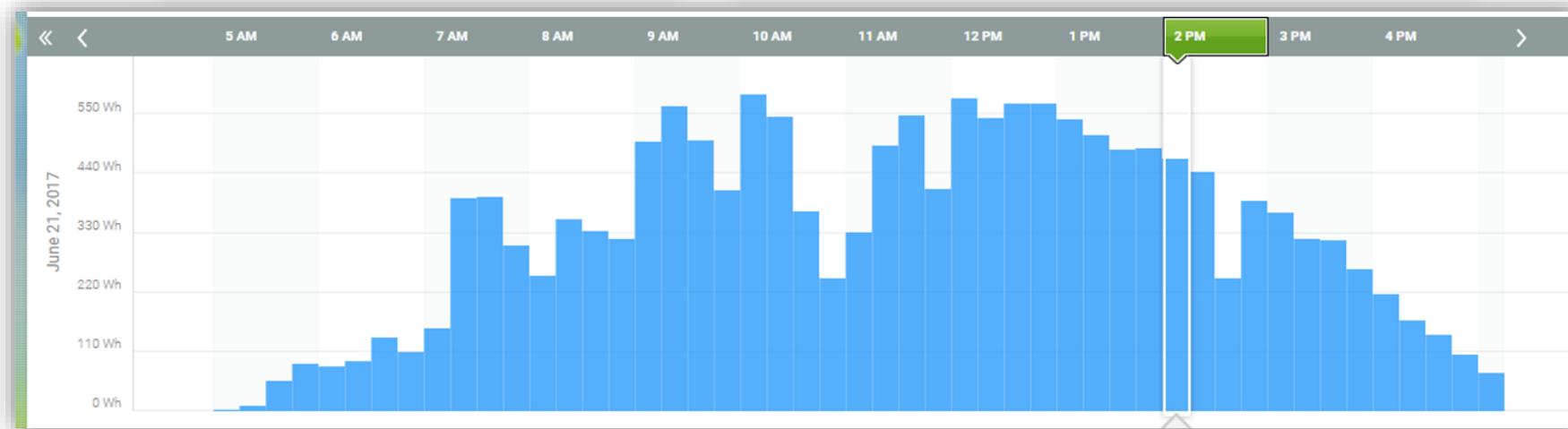
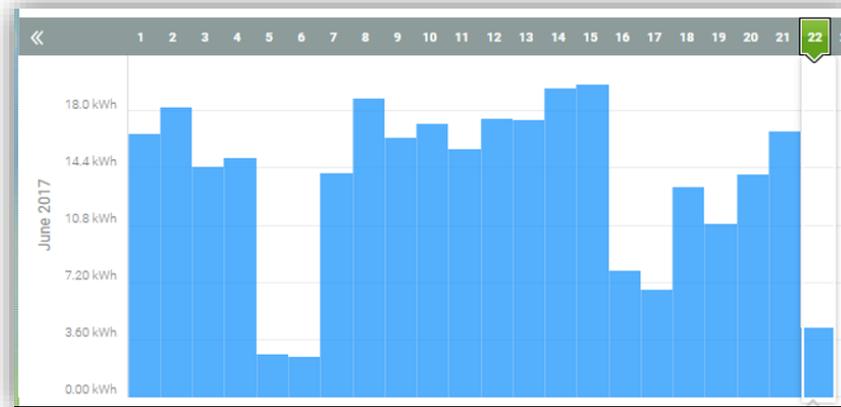
General O&M - Facility

External Compliance - Facility

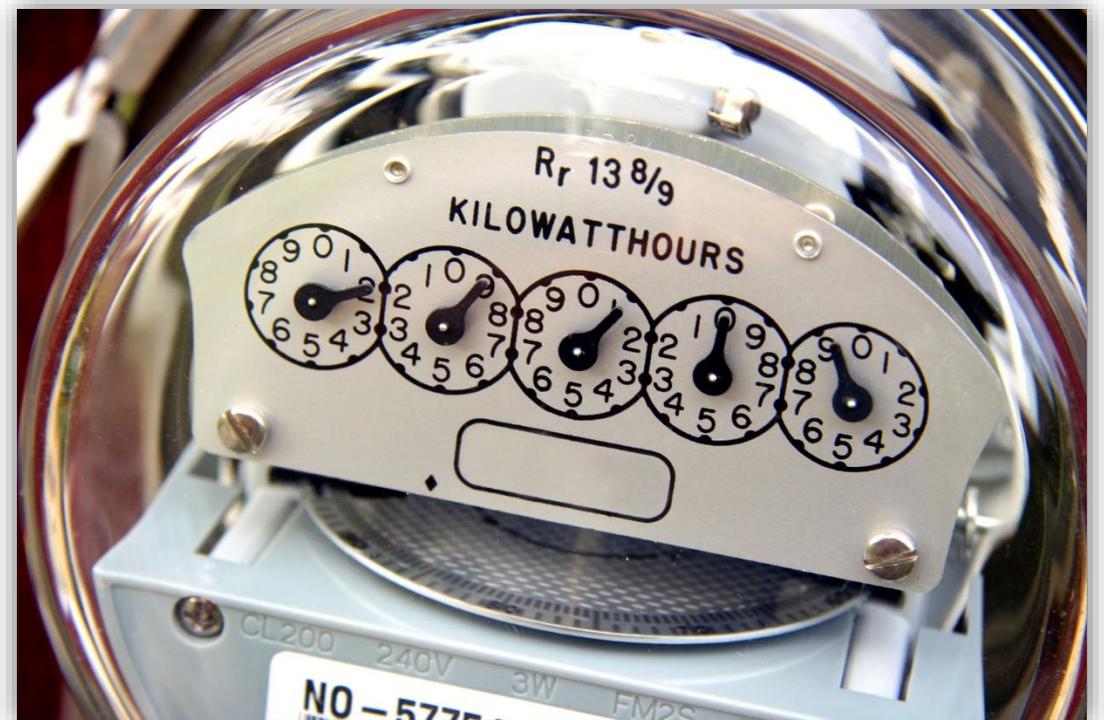
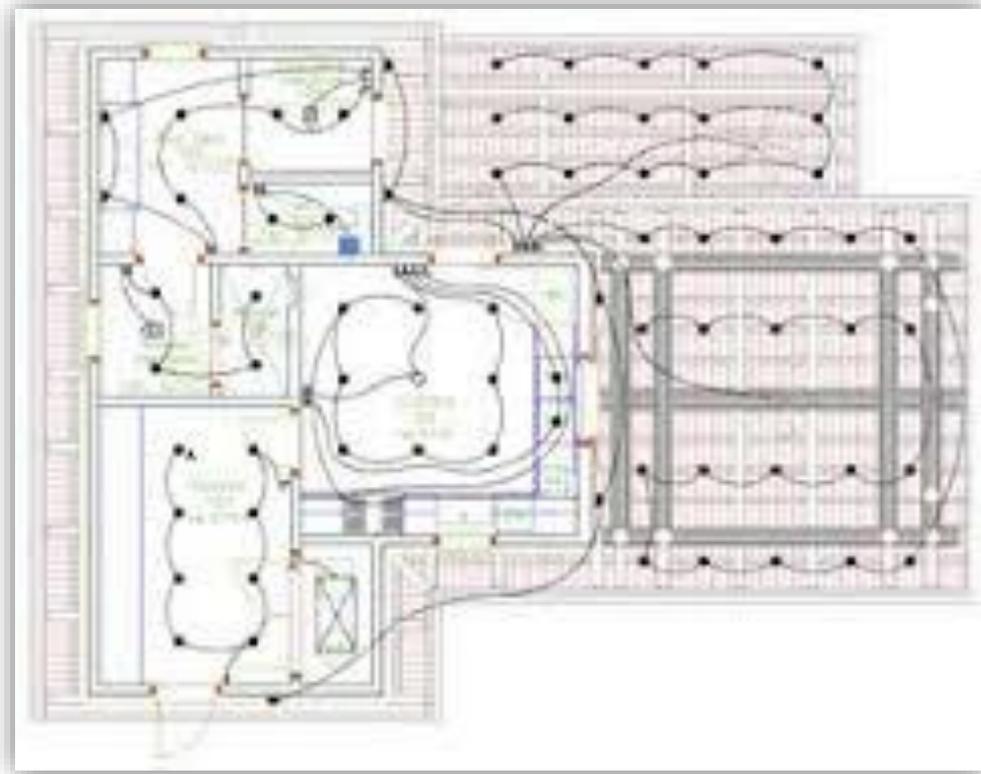
Fault Detection – Facility or Utility

ESCO-type Service Contract

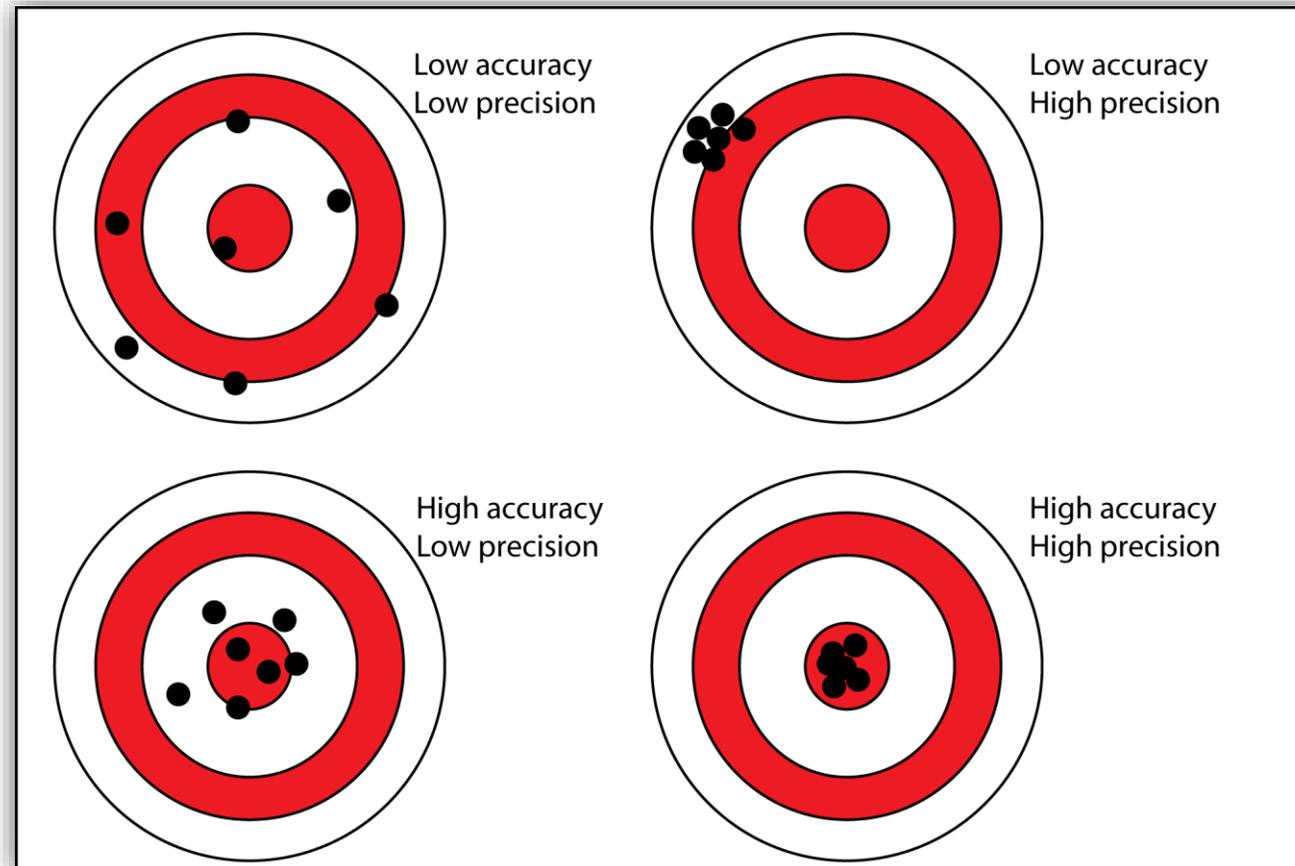
Terms: Resolution (Time)



Terms: Resolution (Space)



Terms: Accuracy and Precision



EE Program Admin

Perform M&V for a rebated system, either one-time or continuous.

Who	
What	
When	
Why	
Where	
How	

ESCO-type Service Contract

In pay-for-performance or Lighting-as-a-Service (LaaS) model, observe how system is operating to ensure contract success.

Who	
What	
When	
Why	
Where	
How	

General O&M - Facility

Day-to-day facility operations. Are people's needs being met? How am I doing with my daily energy spend?

Who	
What	
When	
Why	
Where	
How	

External Compliance - Facility

Compliance with external requirements, like ENERGY STAR benchmarking, ISO 50001, carbon disclosure for investors, or building code.

Who	
What	
When	
Why	
Where	
How	

Fault Detection – Facility or Utility

ID lighting equipment that is malfunctioning. Log and flag abnormal electrical conditions. Alert areas that may need maintenance soon.

Who	
What	
When	
Why	
Where	
How	

What Does Specification Success Look Like?

At the DOE Connected Lighting Workshop, the industry was challenged to adopt a 1-year turnaround for standards.

Imagine: we are at the 2018 SHM, celebrating the release of the ANSI C137 standard on energy monitoring.

- What exactly did we do, that made this happen?
- What were the challenges, and how did we overcome them?
- Who did what?

Conclusion

- When energy measurement is trusted and accepted across all ALCS systems, we'll all win
- Join C137's efforts! We need
 - Use cases
 - Time and attention





Stakeholder MEETING

2017

Thank you!

The Five Ws of Energy Monitoring