Big Data, Little Problems
League of CA Cities Public Works Officers Institute

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Thursday, March 19, 2020
Electric/Power Speed Sessions

Today’s Agenda

- What is SoCalREN?
- Understanding Measurement & Verification
- What is NMEC?
- The Value of Data Granularity
- Applications for NMEC
- Where Do I Get My Data?
- Q&A
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.

Public Agencies  Residential  Financing  Workforce

The SoCalREN Public Agency Programs are administered by the County of Los Angeles and funded by California utility ratepayers under the auspices of the California Public Utilities Commission. Learn more at socalren.org.

Who’s in the SoCalREN Public Agencies Network?

140 Agency Enrollments

89 Citi Counties

5 Special Districts

19 School Districts

22 Water Agencies
SoCalREN’s Metered Savings Program

The Metered Savings Program is an innovative approach to use normalized metered energy consumption (NMEC) to measure energy efficiency savings at the meter for facilities and other assets.

Unlock support for “stranded savings”  
One-stop shop from project start to finish  
Persistent energy savings with ongoing support

Learn more at socalren.com/MeteredSavings

What is Measurement & Verification?

Energy-efficient equipment installed  
"Natural" Energy Creep  
Savings

Energy creep delays return on investment for an energy project

Source: kW Engineering
Measurement & Verification Tools

Digital Data Logging

Building Management System

Operator Data Logging

SCADA System

What is NMEC?

Normalized Metered Energy Consumption

Before project installed

After project installed

Estimated energy use without efficiency project

Energy savings

Energy use after efficiency project

Time

Normalized Metered Energy Consumption

The Value of Granularity

Source: kW Engineering

![Graph with data points and trends, showing linear regressions, 12 months/data points per year, and less accuracy.]

Source: kW Engineering

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The Value of Granularity

Source: kW Engineering

![Graph with data points and trends, showing advanced analytics, 8760 hourly points per year, more accuracy, shorter monitoring duration (3 or 6 months), and autocorrelation issues.]

Source: kW Engineering
Continuous Commissioning

15-Minute Data: Cycling is not detectable and valve position is relatively constant throughout the day.

1-Minute Data: Reality of how the cooling coil is behaving. Cycling is over working the valve and shortening its expectancy.

Savings from periodic retro-commissioning

1) Added MBCx savings from persistence
2) Added MBCx savings from metering and trending
3) Added MBCx savings from continually identified new measures

Meter-Based Commissioning: Value with High-Res Data

Cooling Coil Valve Position

10:00 12:00 14:00 16:00 18:00

Cooling Coil Valve Position

0.00 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10

Southern California Regional Energy Network
Big Data Connections

✓ Green Button Connect
  ○ PG&E
  ○ SCE

✓ Request Utility Data Directly
  ○ Contact your Account Representative

✓ Subscription Services
  ○ Multiple vendors offer metering and submetering services

✓ DIY
  ○ Power monitors and other sensors can be purchased from a variety of retail outlets

Thank you!

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