

Beyond Low-Hanging Fruit: Methods to Incentivize State Participation

Moderator:

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Office of Energy Performance and Conservation

NGA Lead by Example Workshop



Sticks and carrots



Motivating agencies

- Sticks
 - Legislation - *thou shalt until I'm irrelevant*
 - Executive Order - *thou shalt until I'm gone*
- Carrots
 - Shared savings
 - Address deferred maintenance
 - Bragging rights

The Stick

In June of this year, Governor Hogan issued Executive Order 01.01.2019.08 “Energy Savings Goals for State Government”

- "Maryland Leads by Example" energy-savings initiative with the goal of, by 2029, reducing energy consumption in State-owned buildings by 10 percent compared to a Fiscal Year 2018 baseline
- Five specific tasks for DGS Energy
- One task for rest of State: *All units of State government shall, in support of their core missions, implement projects and initiatives to conserve energy and reduce consumption.*

The Carrot

Quarterly meetings of the Working Group on Reducing Energy use in State Operations

- Members are the 20 agencies, or university campuses that use 90% of the energy in the State.
- Members are invited to tell their story in the Annual Report to the Governor
- Cross-fertilization of ideas
- Opportunity to brag

Financing

Energy Performance Contracting

- Budget neutral
- Ability to address deferred maintenance
- Get new stuff
- Financing from STO

State Agency Loan Program

- Zero percent interest
- Budget neutral

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M | DIVISION OF
CAPITAL ASSET
MANAGEMENT &
MAINTENANCE

**ENERGY/WATER AT DCAMM
NGA: LBE Workshop 10.03.2019**

OPPORTUNITIES FOR INCENTIVIZING SAVINGS IN BUILDINGS

1. Overview of what we do
2. Opportunities for savings and programs
3. Tools for incentivizing savings
 - a) CEIP (Clean Energy Investment Program)
 - b) CBEI (Commonwealth Building Energy Intelligence Program)



ENERGY PROGRAM OVERVIEW

1. Capital projects
 - Large: Comprehensive Energy Design-Build
 - Small: Utility Vendor

2. Operational improvements
 - Existing Building Commissioning
 - Real time metering
 - Measurement & Verification
 - Monitor, repair, and maintain solar assets

3. Electric grid programs
 - Demand Response and load management
 - Renewable and alternative energy credits

4. Advisory services
 - Resilience and climate adaptation
 - LEED and sustainable buildings
 - Utility incentive programs



COMMONWEALTH ENERGY INVESTMENT PROGRAM (CEIP)

- Created in 2010 as part of “leading by Example” initiative the Commonwealth Energy Investment Program (CEIP).
- CEIP is a low-cost financing mechanism that uses project savings to repay capital costs.
- Innovative program is “off cap” – allows access to funds without hitting debt ceiling limits.
- Client agency pays CEIP debt service through energy savings.
- Client agency signs agreements with DCAMM and A&F to commit to paying debt service.
- 1 major part of the criteria that helps the Commonwealth in its ACEEE (State Energy Efficiency) #1 rating.

COMMONWEALTH ENERGY INVESTMENT PROGRAM (CEIP): SPECIFICS

Eligible Participants	Working through DCAMM, any state agency that incurs energy and water costs in its normal operation.
Eligible Projects	Wide variety of state-owned projects, including light, heat, ventilation, air conditioning, equipment controls, cogeneration and power generation. Projects must contribute to achieving goals of Administration and must generate verifiable utility savings sufficient to pay for themselves within the term of the project.
Term	The financing term for each project will be less than or equal to the useful life of major equipment or installations, but in no event greater than 30 years. Larger equipment, useful life is used.
Savings	Projected annual savings must be equal to or greater than 1.1 times annual debt service as determined by A&F. Actual savings will be independently verified. Savings will be used to pay the debt service annually.
Operating Budget	Operating budgets will reflect the allocation of certain utility funds for debt service payments.
Source	Bonds come from Treasurer, using appropriations authorized by Legislature.



ENERGY INTELLIGENCE

Energy Intelligence Program supports DCAMM's mission and the Energy Program's Goals

- Improve building energy management practices
- Drive operational efficiencies
- Lower energy consumption and costs
- Assist in identifying capital needs for energy-using equipment and/or systems
- Measure and verify savings achieved through energy projects and implemented measures



*Other organizations using
Energy Intelligence Programs*

What problems are we trying to address?

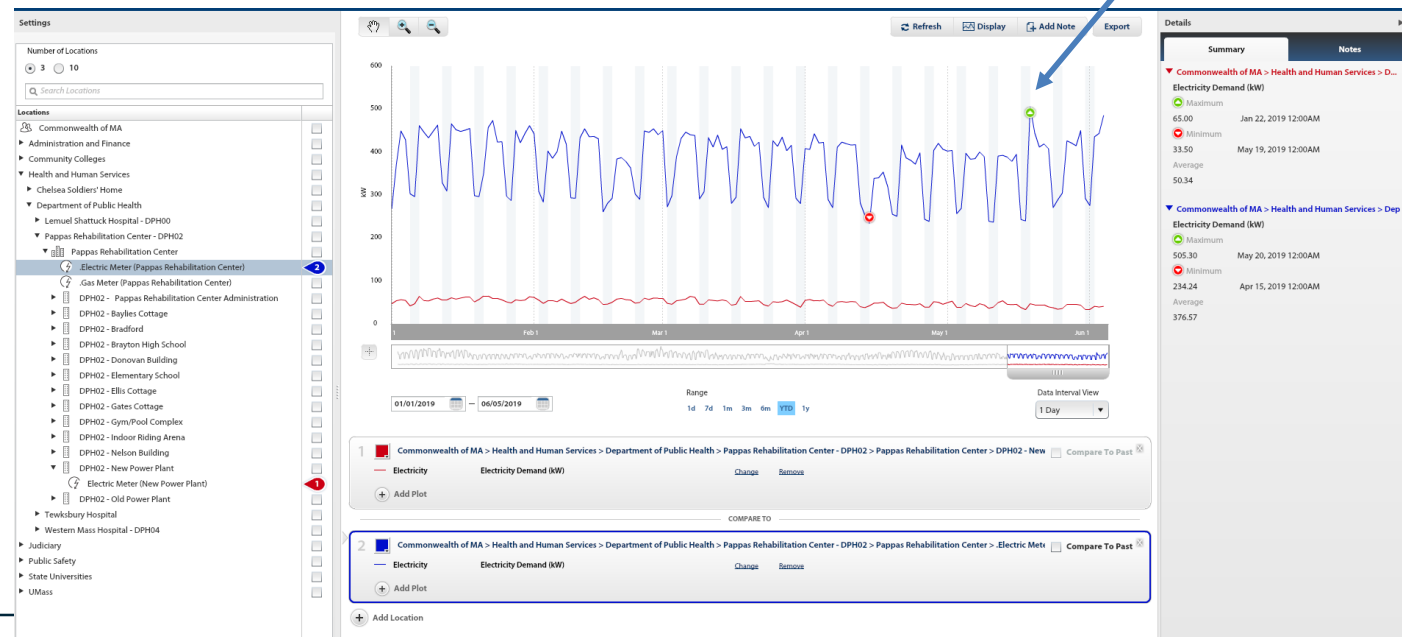
- Old buildings are difficult to operate efficiently
- Many buildings don't have systems in place to look at energy consumption
- Master metered building complexes or campuses
- One bill for multiple buildings
- Utility information is in many different places
- But energy data is HARD to get!

PROJECT PLANNING: EQUIPMENT RIGHT-SIZING

EXAMPLE: Pappas Rehabilitation Hospital Emergency Generator Replacement

PRHC requested a replacement emergency generator through the Deferred Maintenance Program

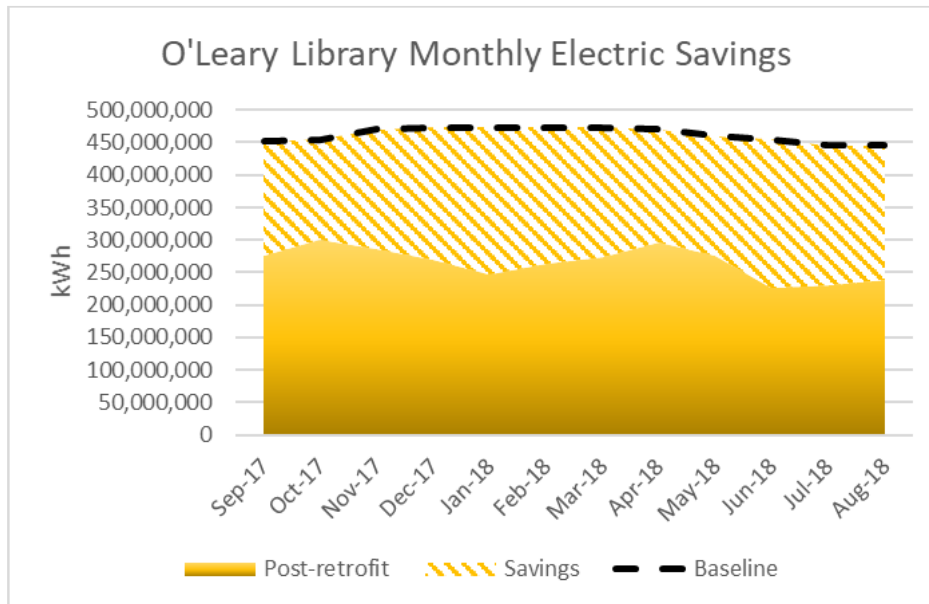
- Without data, equipment is often replaced in kind or based on perceived need
- Data showed that the maximum historical load never hit 600 kW
- Using the data, we showed that the replacement generator should be smaller – sized for the need, with room for growth
- This saves upfront and life cycle costs



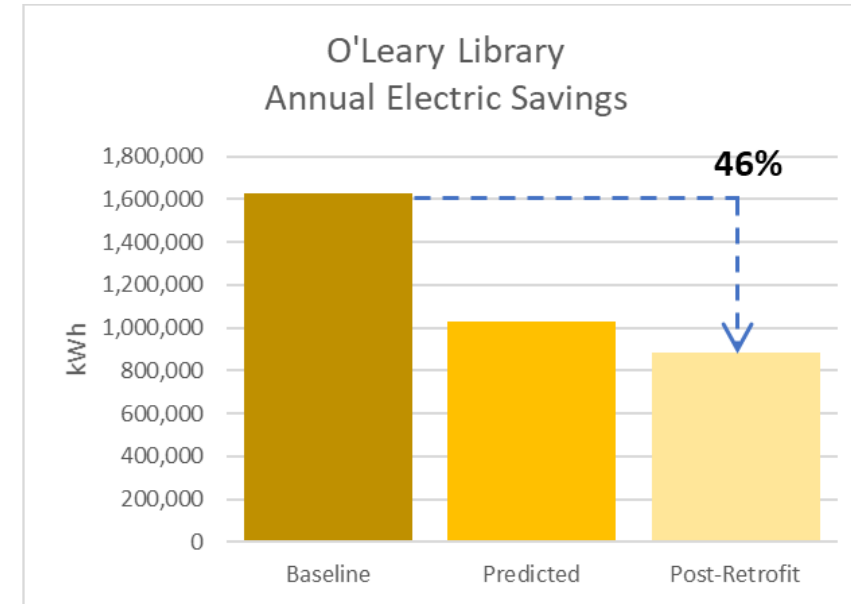
POST PROJECT: MEASUREMENT & VERIFICATION (M&V)

Using the International Performance Measurement & verification Protocol (IPMVP) Option C – whole building method:

- Data indicates building energy performance before and after energy retrofit project
- If savings do not match projections, we work with facility to understand why and correct, if necessary



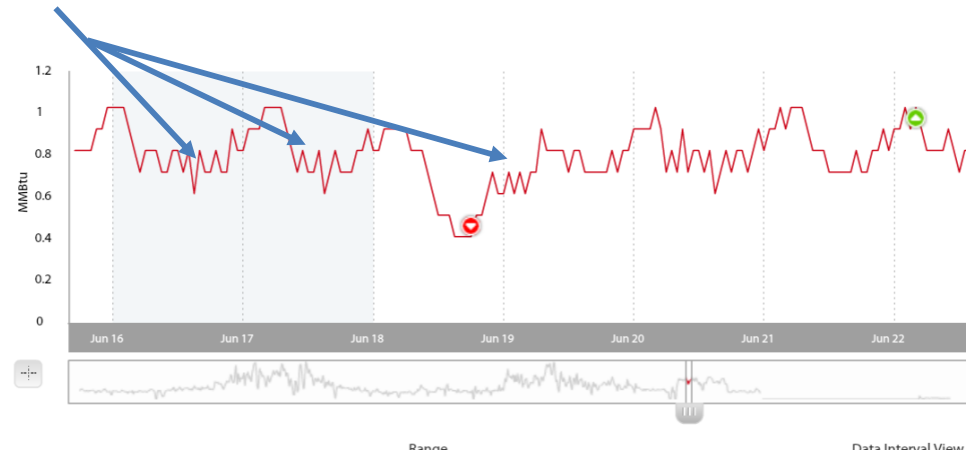
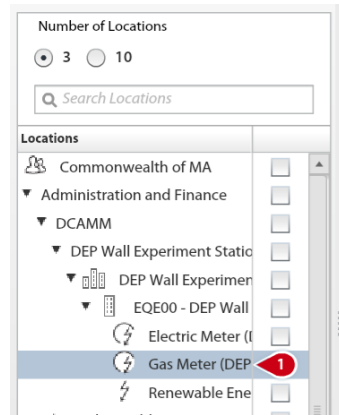
Source: CBEI, UMASS Lowell



ONGOING OPERATIONS: EXTENDING EQUIPMENT LIFE

Preventative Maintenance

Interval data immediately highlights odd or inconsistent patterns for further investigation.

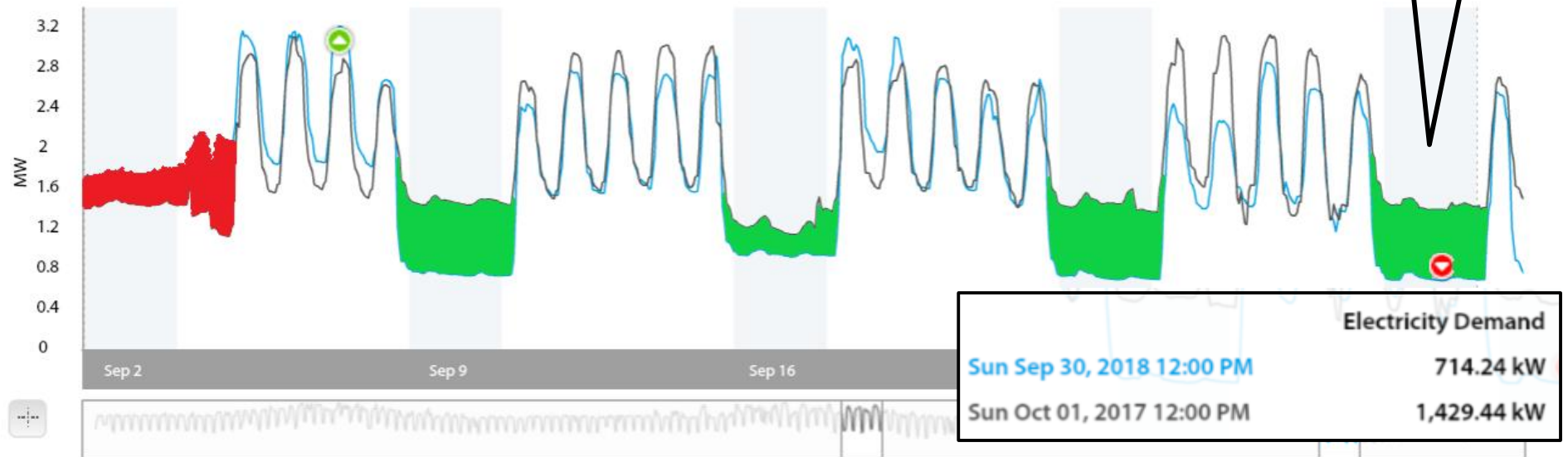


EXAMPLE: DEP Wall

- Data identified rapid equipment cycling which causes excess wear and tear and reduces equipment life.
- Working with the facility manager, we confirmed the cause and are correcting the problem.
- This saves energy and prevents premature equipment failure.
- Without visible data, cycling equipment often goes undetected.

ONGOING OPERATIONS: SHUT IT DOWN!

McCormack Building September 2018 vs September 2017



Typical "Opportunities"

- Scheduling changes
- Night baseload reduction
- Weekend and holiday shutdowns
- Peak demand reduction



QUESTIONS?



<https://www.mass.gov/energy-sustainability-at-dcamm>

<https://www.mass.gov/service-details/energy-savings-optimization-program>

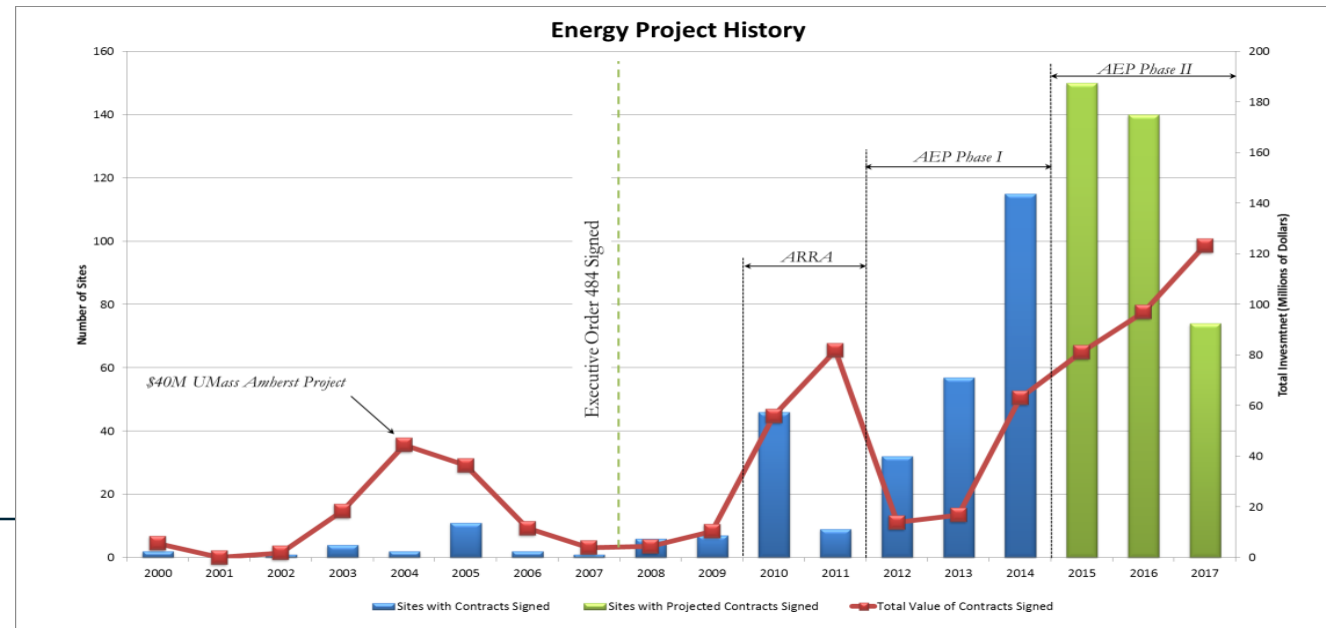
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CEIP HISTORY

- Existing TELP Contract Expired 2006/7 – no re-bidders
- Program scope: Both ARRA and the AEP required significant investments and ramping up of resources
 - internal (funding, staffing, data management)
 - external (consultants, contractors, grants)
- Economic crash dried up private investment
- Massachusetts increased rapidly municipal and state ESPC
- “High” interest cost cut needed deferred maintenance investments



EXAMPLE OF PLANNING REPORT

Total Annual Energy Use: Annual Unoccupied Use

