

NH's Unique Approach to Wastewater Energy Efficiency

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*Working Together to Reduce Energy Use,
Protect the Environment, and Save Money*

EVERSOURCE



What We'll Discuss

- 1) Partnerships
- 2) Energy.gov Grant
- 3) Benchmarking
- 4) Auditing
- 5) Implementation
- 6) Next steps

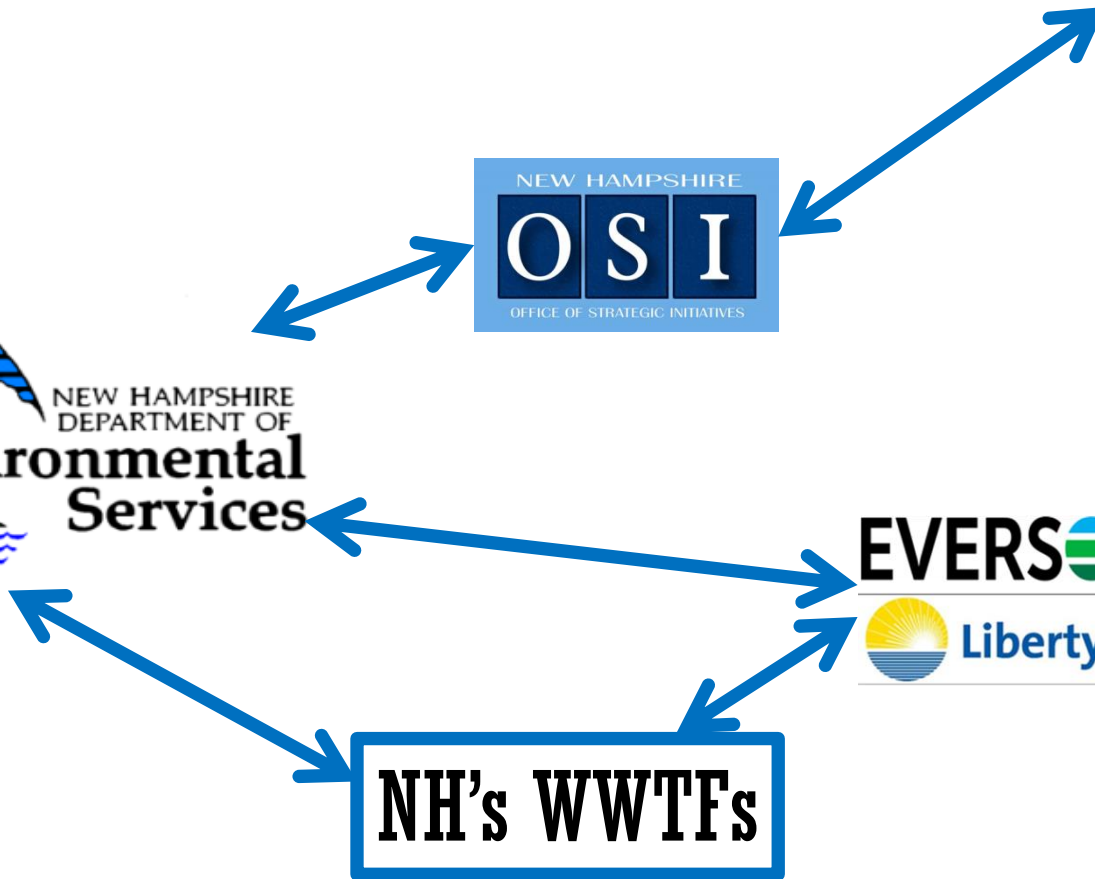
LEADING NH'S WASTEWATER TREATMENT FACILITIES TO ENERGY EFFICIENCY

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



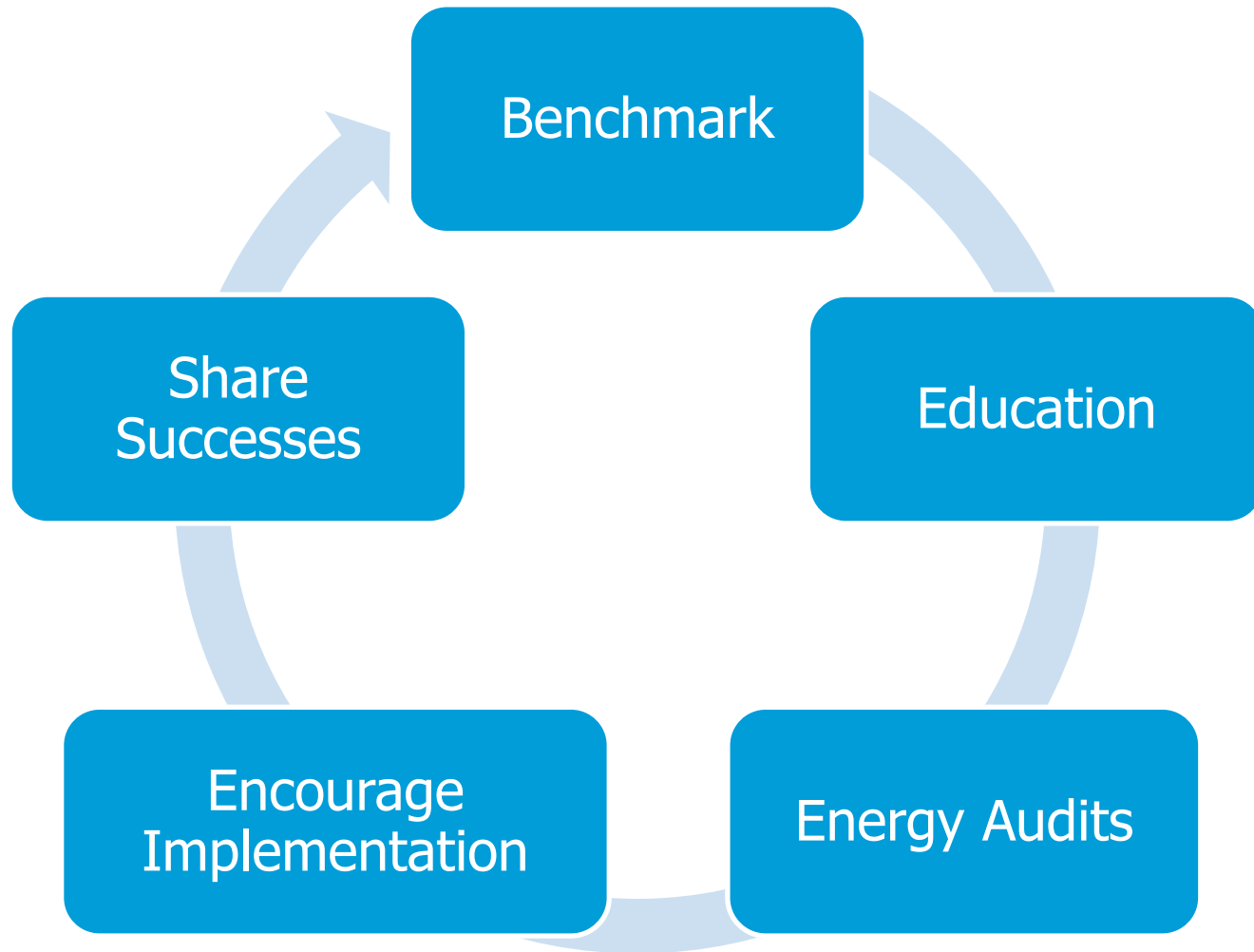
NH's WWTFs



What makes NH's WWTP energy efficiency work unique?



Leading NH's Wastewater Treatment Facilities to Energy Efficiency



AUDIT FUNDING SOURCES

\$193,630 - USDOE Grant

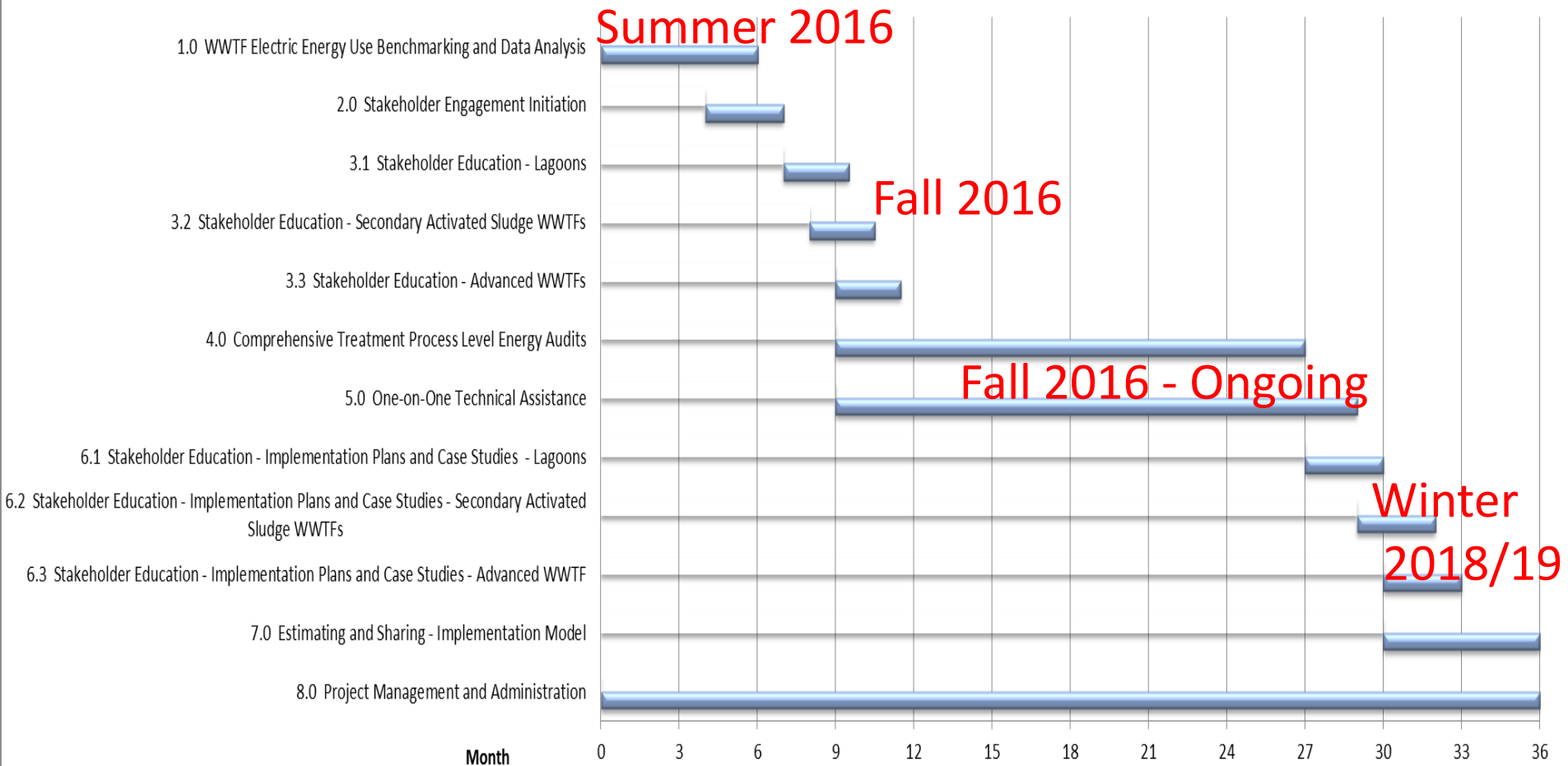
\$53,580 - NH Utilities

\$87,890 - CWSRF Loan Forgiveness

\$80,000 - DWSRF Grant

\$415,100 - To fund 41 DW and WW
Energy Audits

USDOE 2015-2018 Grant Schedule

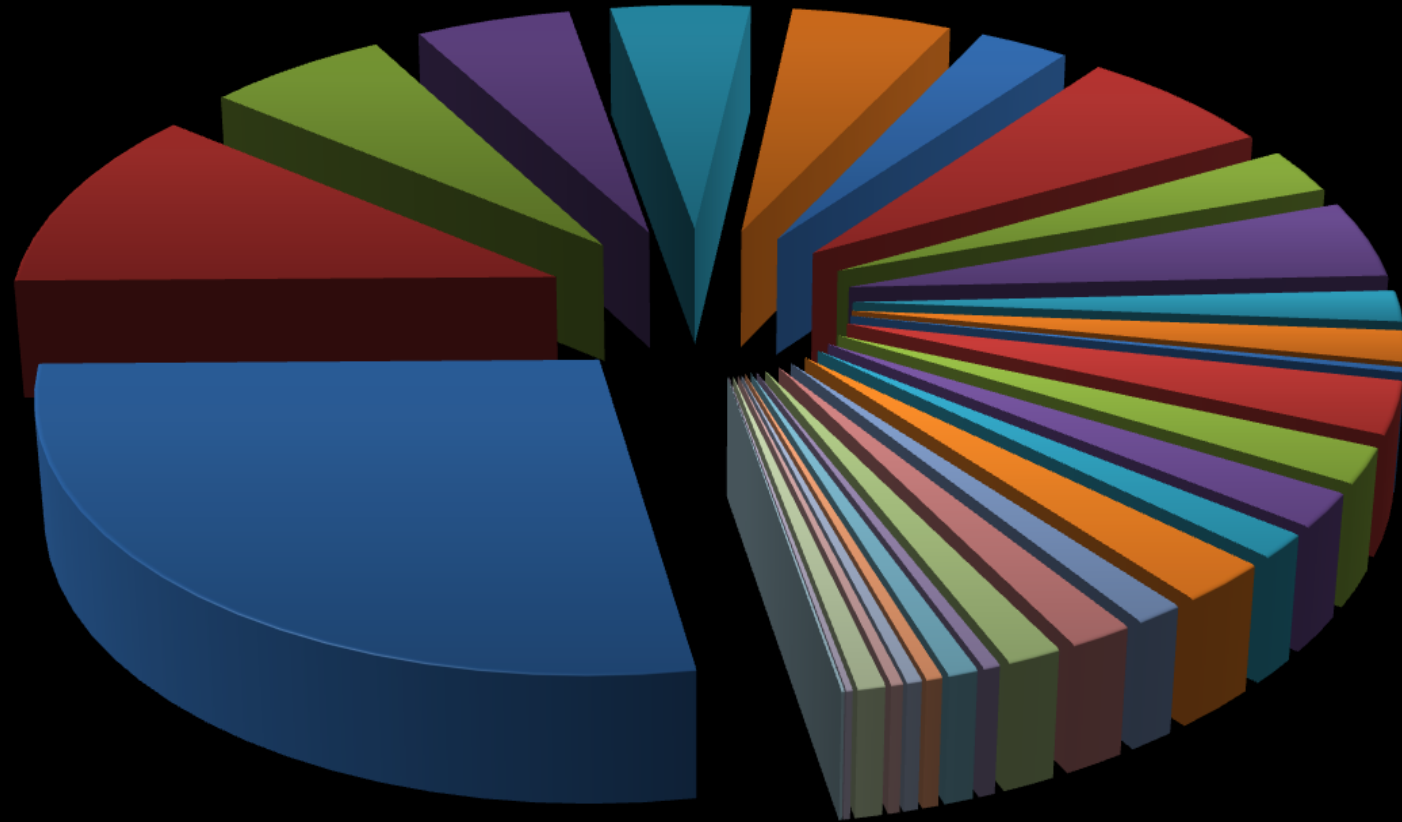


Benchmarking

- Compile total energy use for WWT
- Evaluate single WWTP
- Compare similar NH WWTPs
- Compare NH WWTPs to other states
- Track improvements

Annual Average kWh Usage for Facilities Selected for Energy Audits

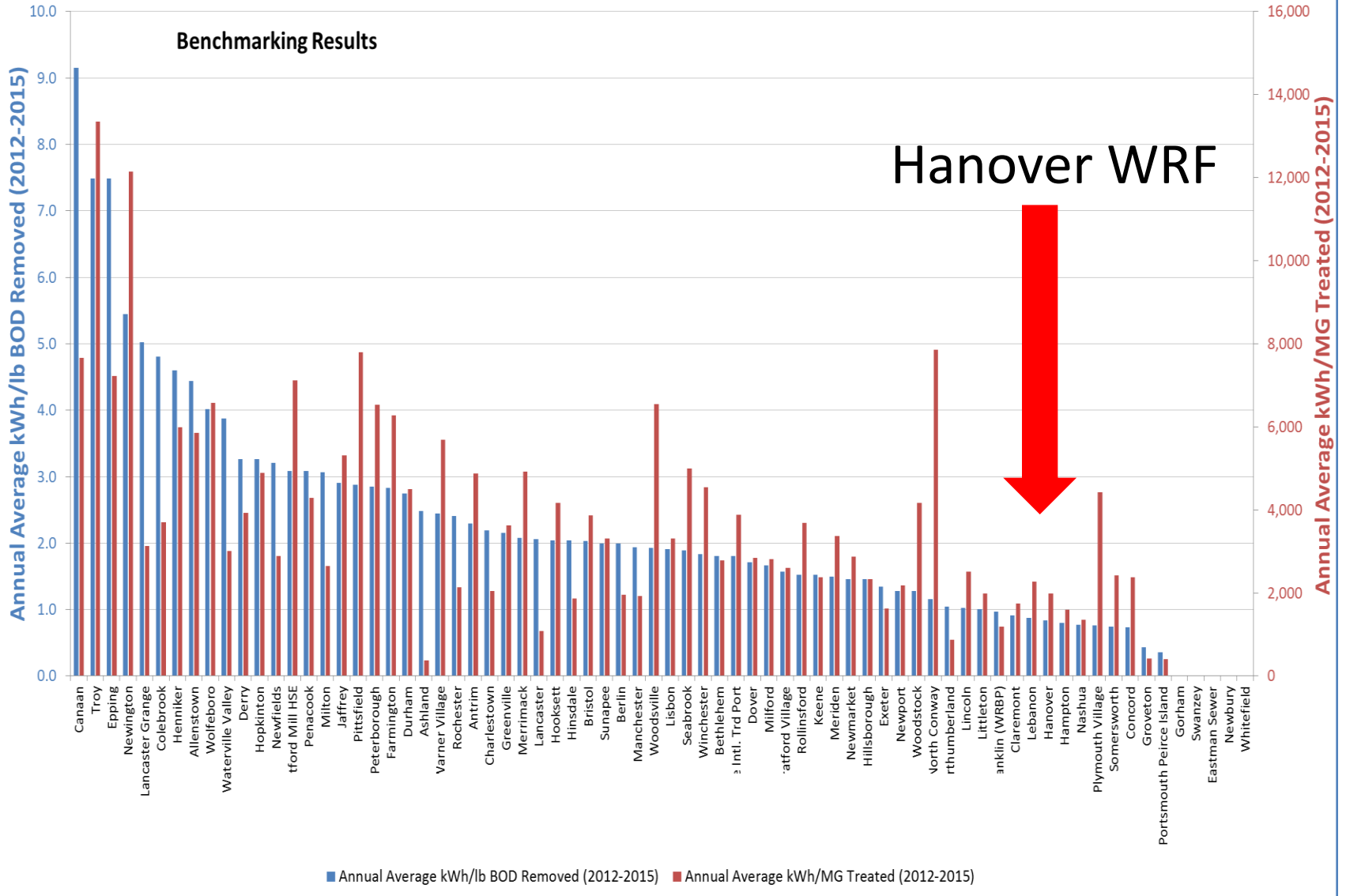
Sorted by Annual Average Daily Flow
(Largest to Smallest)



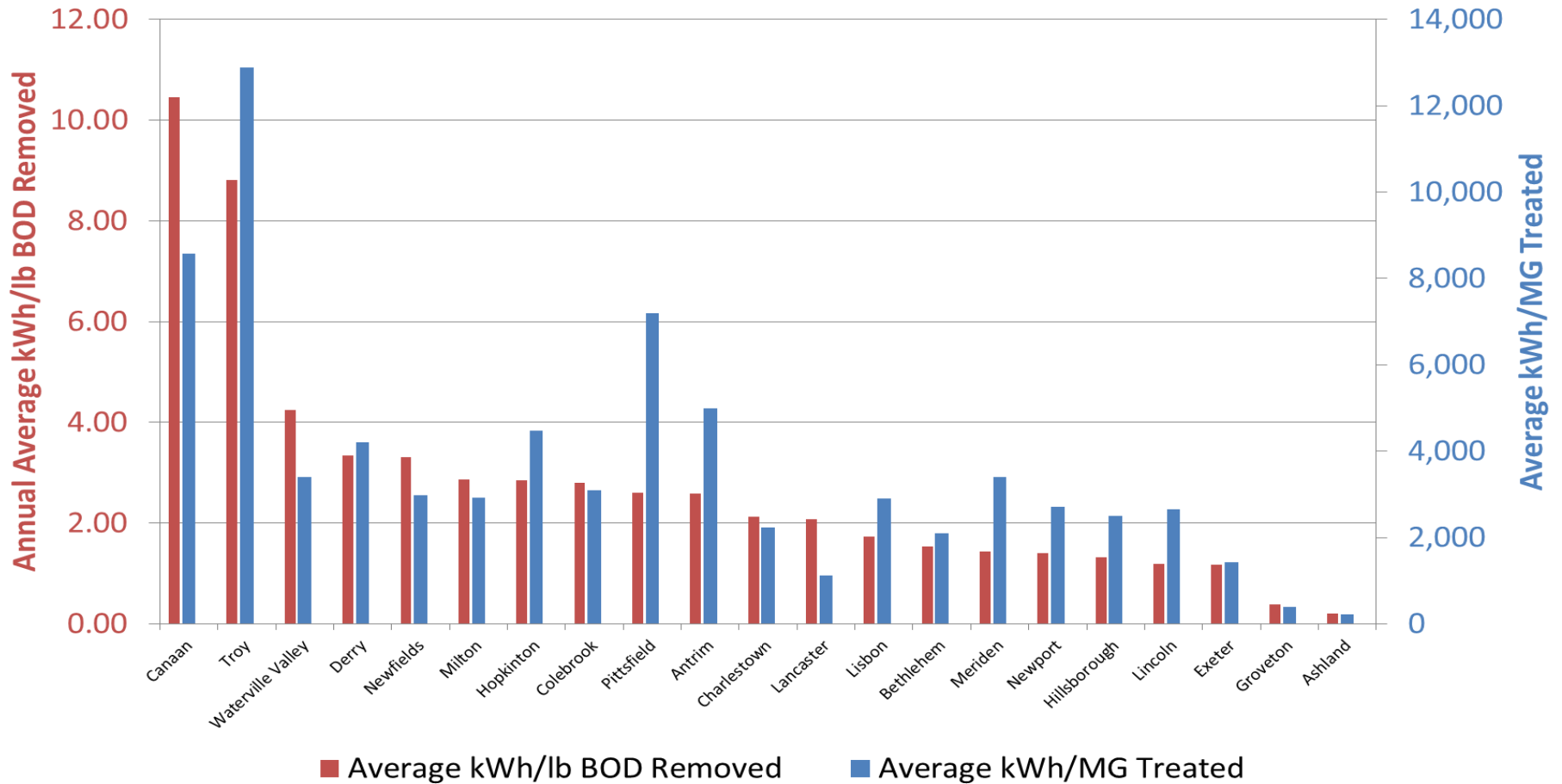
- Manchester
- Nashua
- Concord
- Keene
- Rochester
- Dover
- Hampton
- Merrimack
- Berlin
- Derry
- Claremont
- Hanover
- Ashland
- Durham
- Hooksett
- Jaffrey
- Penacook
- North Conway
- Plymouth Village
- Peterborough
- Wolfeboro
- Charlestown
- Henniker
- Colebrook
- Waterville Valley
- Lisbon
- Troy
- Canaan
- Meriden

Benchmarking Results

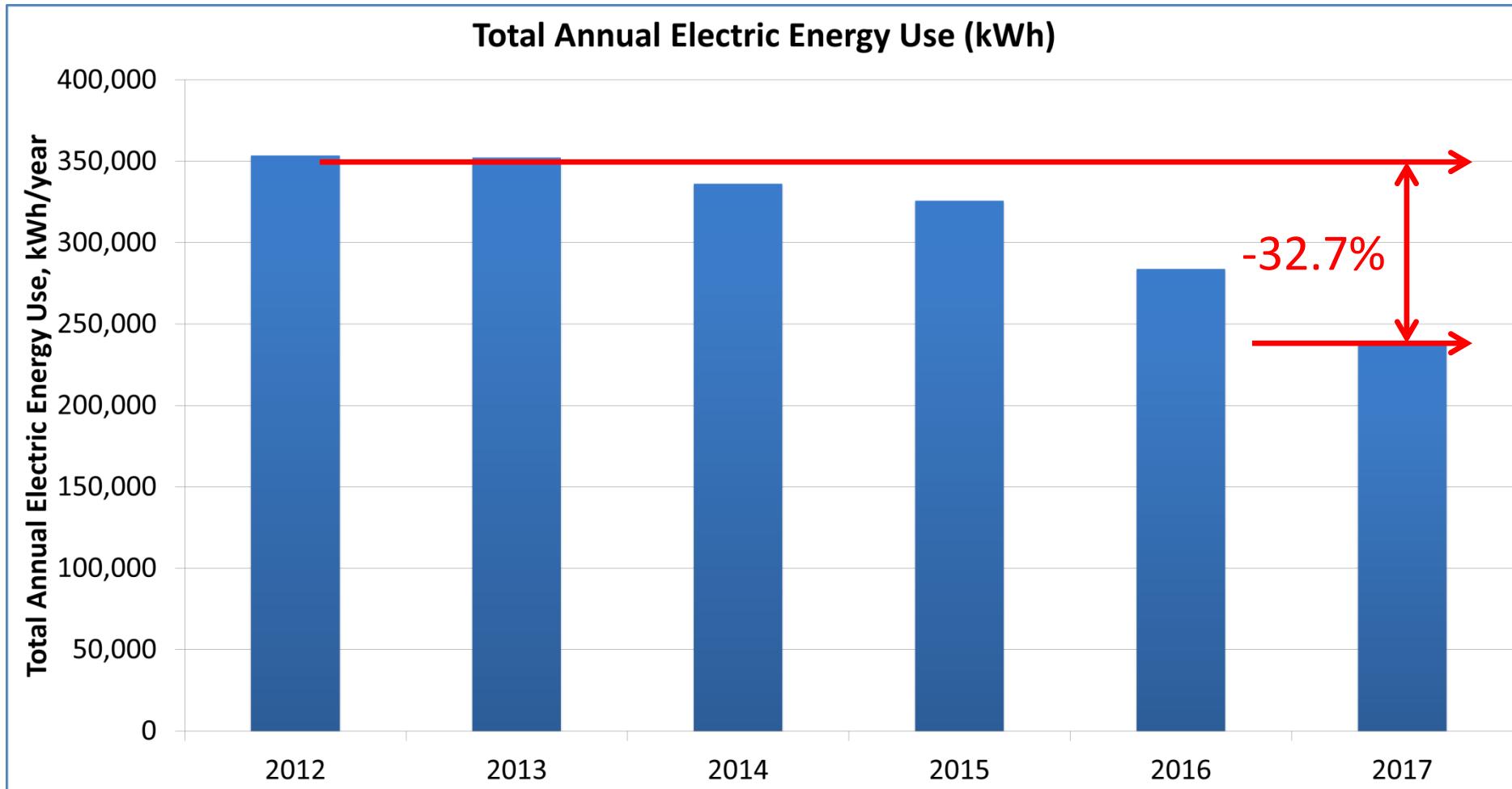
Hanover WRF



2015 Benchmarking Results for NH's Aerated Lagoon WWTPs

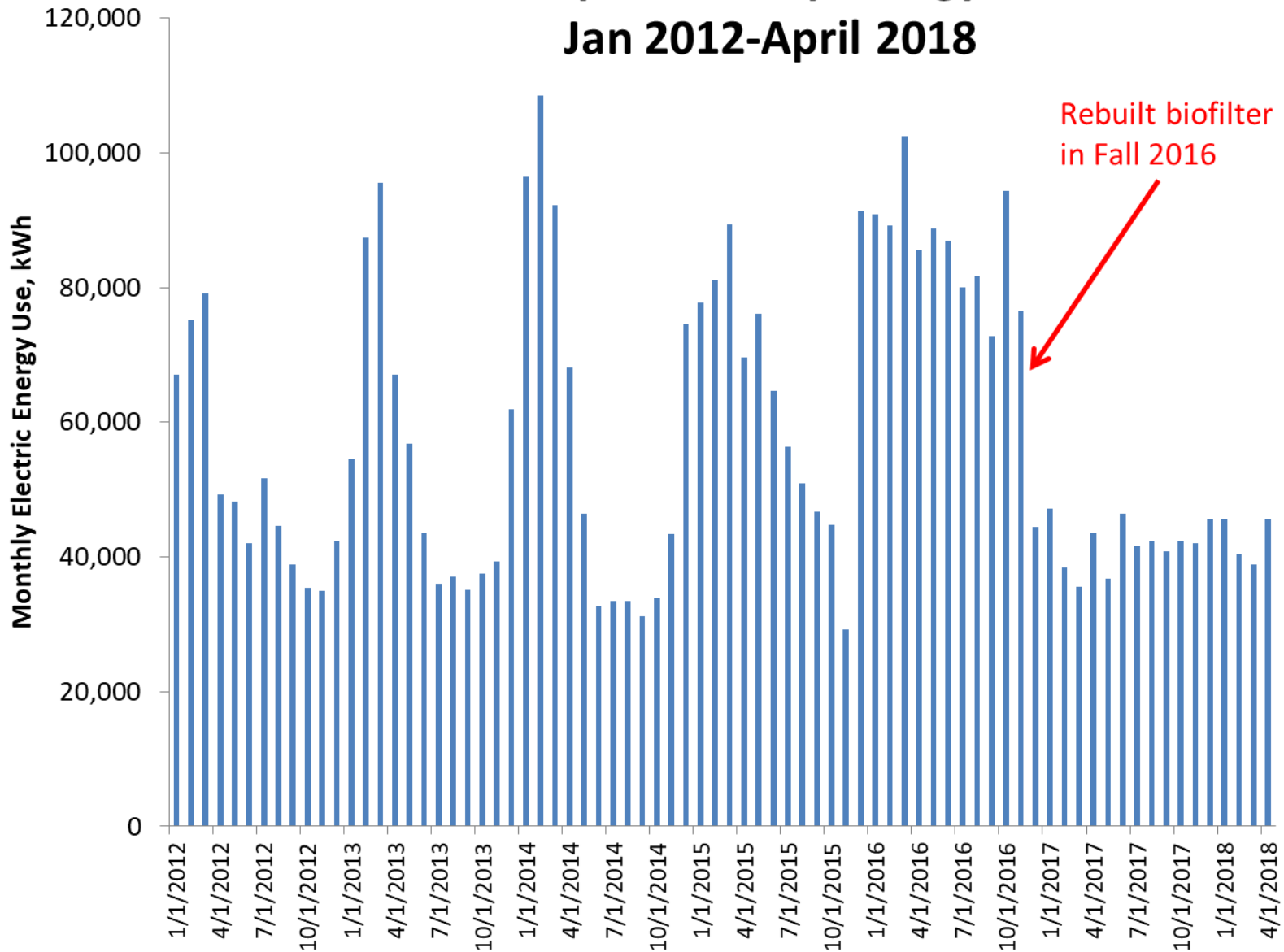


Benchmarking Energy Efficiency Progress: Troy Lagoons



Merrimack Compost Facility Energy Use Over Time

Jan 2012-April 2018



**66,103,313 kWh of
electricity is used
annually to treat
wastewater in 66
NH plants**

At an annual cost of....

\$7,932,398

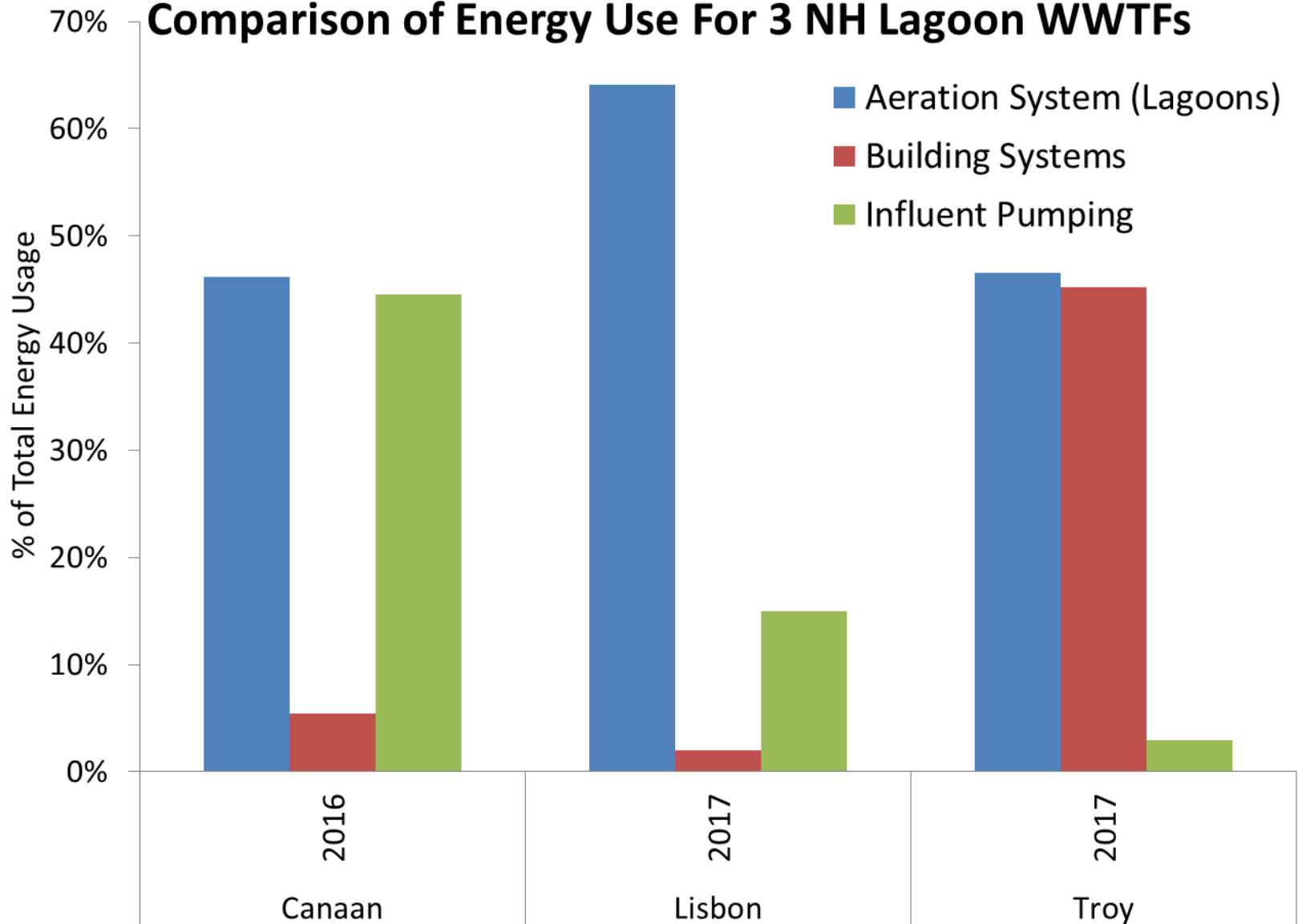
(based on \$0.12/kWh)

**And that does NOT include
demand charges and other fees!**

• Energy Audits

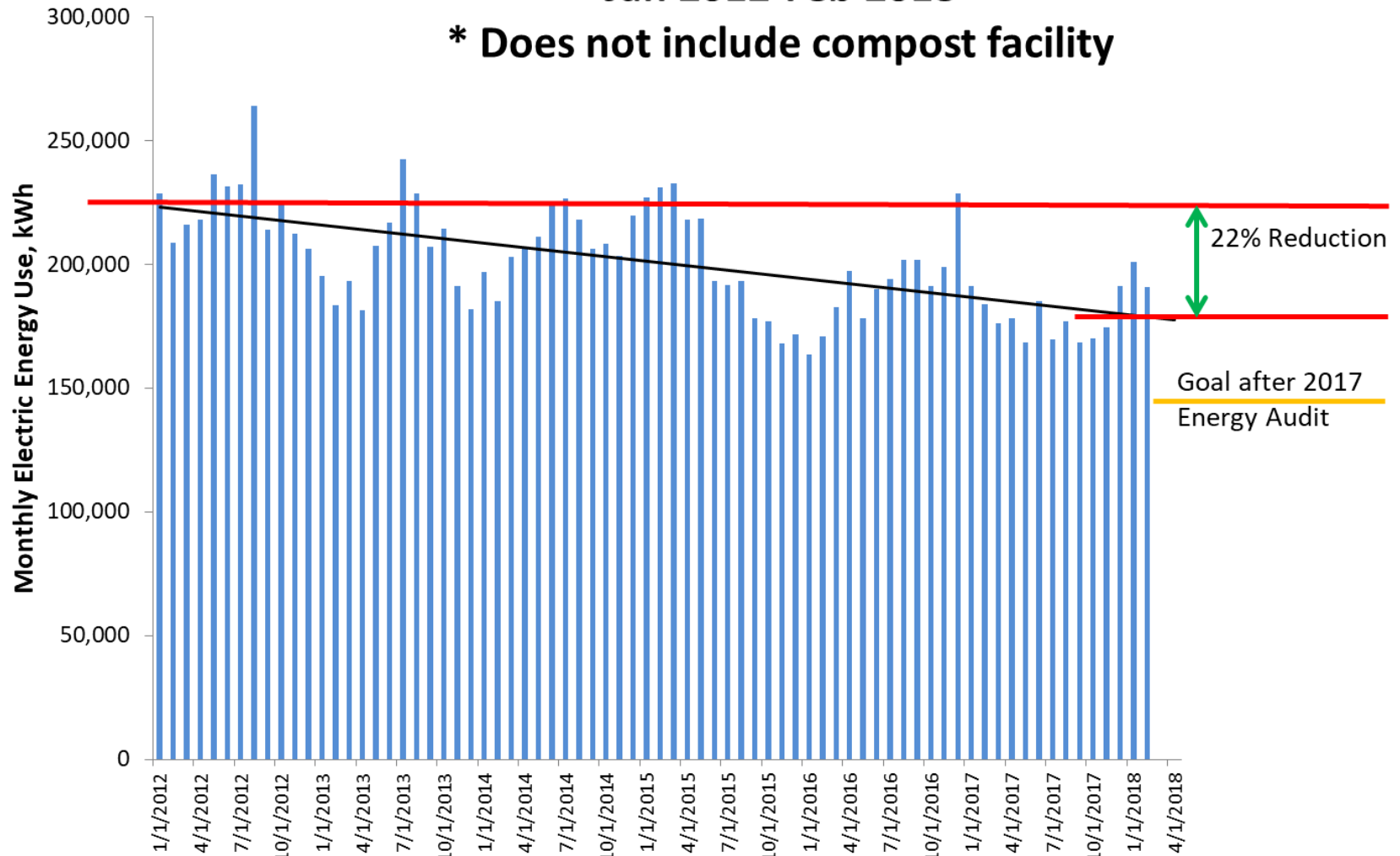


Comparison of Energy Use For 3 NH Lagoon WWTFs



Merrimack WWTF Electric Energy Usage Over Time, kWh Jan 2012-Feb 2018

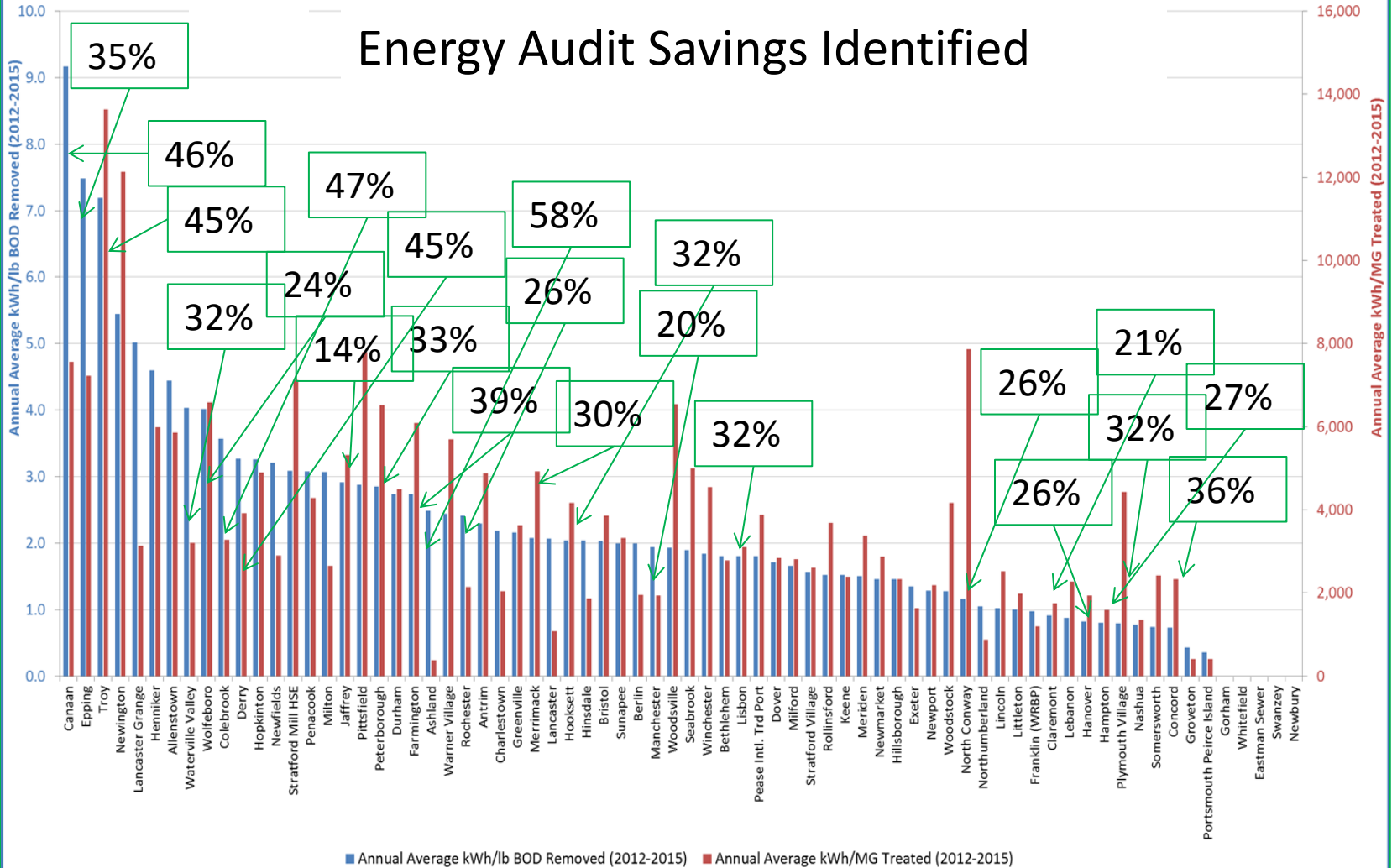
*** Does not include compost facility**



Completed WWTP Audit Details

- 23 Audits
- Sizes: 0.08 MGD to 34 MGD
- Cumulative Design Capacity:
94.4 MGD

Energy Audit Savings Identified

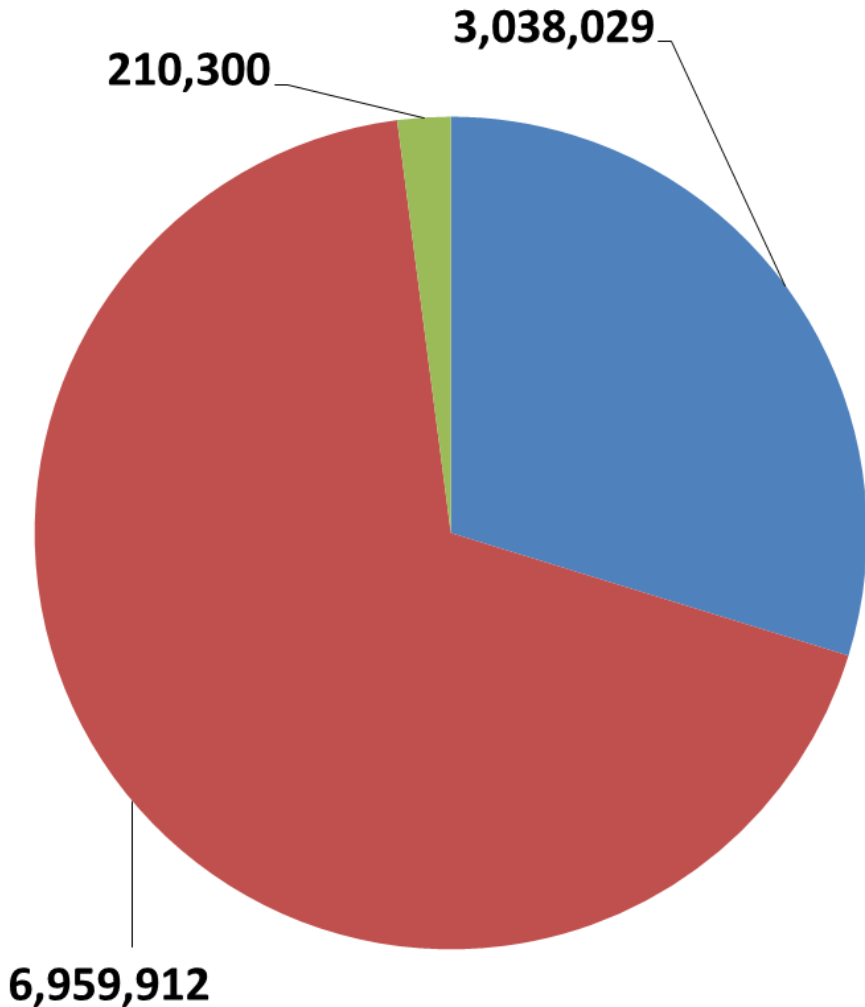


Energy Audit Findings

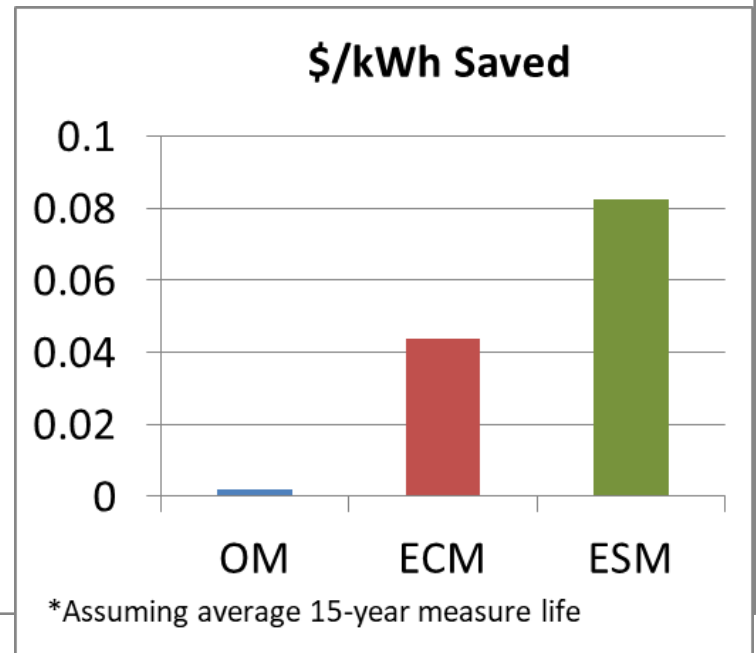
Potential Savings

- **32%** Overall Energy Use
- **10,208,241** kWh Electricity
- **63,481** therms NG
- **18,662** gallons Propane
- **7,824** gallons Fuel Oil

Distribution of Total Annual Energy Savings [kWh] (Based on findings from 23 CEAs)



- Operational Measures (OM)
- Energy Conservation Measures (ECM)
- Energy Supply Measures (ESM)



Implementation

- **\$4,967,603** Implementation Costs
- **\$1,357,535** Projected Annual Avoided Costs
- **3.2** Year Payback (before incentives)

Implementation Funding

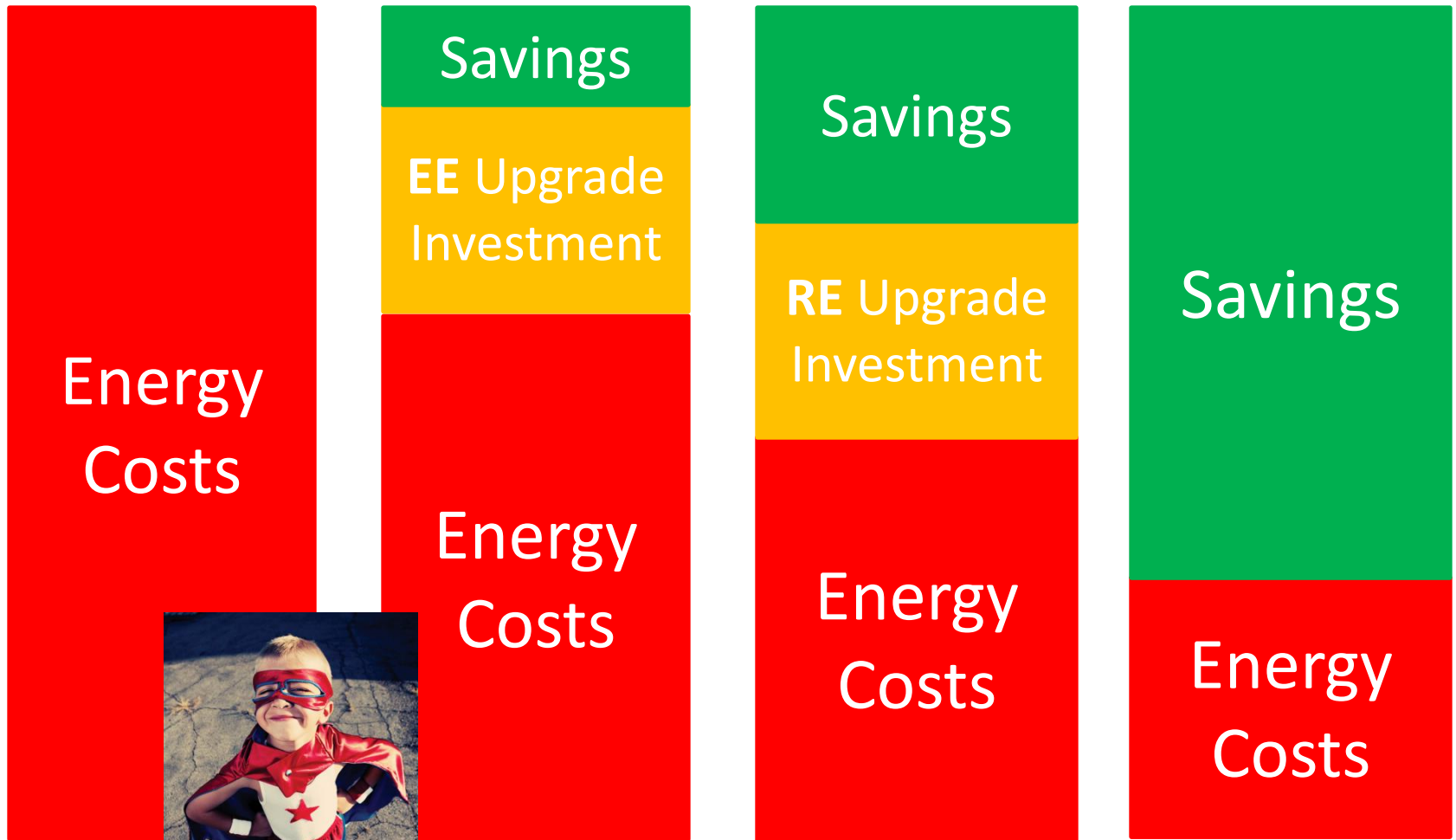
- **NH Saves**
 - CORE Electric Funds
 - RGGI Municipal Funding
- **CWSRF Loan Forgiveness**
 - 50% up to \$400,000



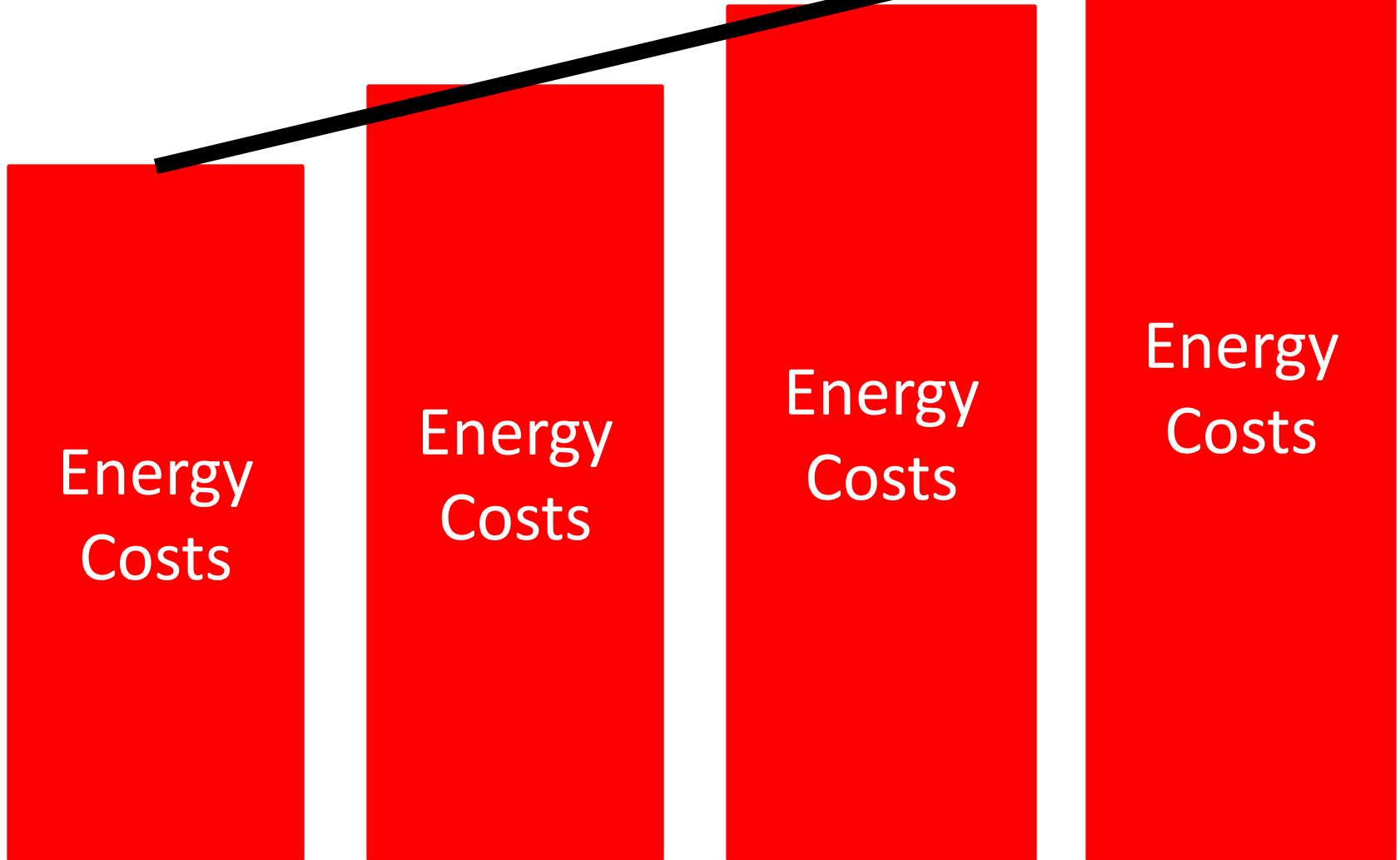
THE



Let your EE savings pay for your RE projects!



Without EE and RE





Expand Benchmark Tool



Continue Energy Audits



Promote Implementation



Energy Data Management



Share Successes



Questions?

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