Harnessing RTEM in Healthcare

@ Josie Robertson Surgery Center

utiliVisor

NEW YORK STATE OF OPPORTUNITY. | NYSERDA

September 13, 2023

RTEM Talks
with Memorial Sloan Kettering and utiliVisor

Speakers:
Jonathan Liang, Energy Project Manager at Memorial Sloan Kettering Cancer Center
Ed Harvey, Systems Engineer at utiliVisor

Moderator:
Thomas Yeh, the Technical Advisor of the Real Time Energy Management (RTEM) Program for New York State Energy Research and Development Authority (NYSERDA)

September 13, 2023
1-2 PM

NEW YORK STATE | NYSERDA

Agenda 9/13/23

Welcome (5 min)

MSKCC presentation (20 min)

Panel discussion (20 min)

Online audience Q&A (10 min)

Closing remarks (5 min)

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A. What is RTEM?

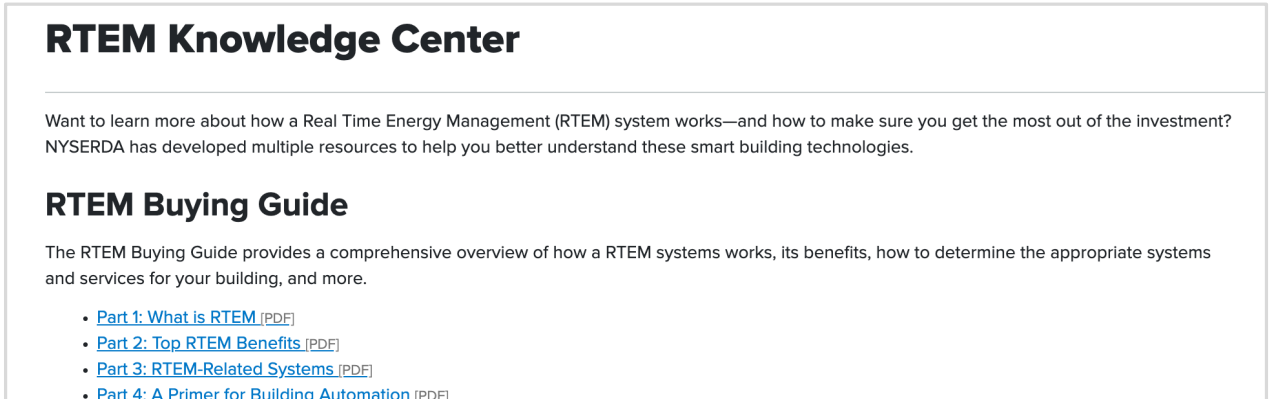
B. RTEM at the Josie Robertson Surgery Center

C. Challenges and Successes with RTEM

D. Results

What is RTEM?

“**Real Time Energy Management** is a combination of systems and services employed to monitor and identify building improvement opportunities. The system consists of hardware, software, and secure internet connectivity that continuously transmits a building’s current and historical performance data to the cloud.”



RTEM Knowledge Center

Want to learn more about how a Real Time Energy Management (RTEM) system works—and how to make sure you get the most out of the investment? NYSERDA has developed multiple resources to help you better understand these smart building technologies.

RTEM Buying Guide

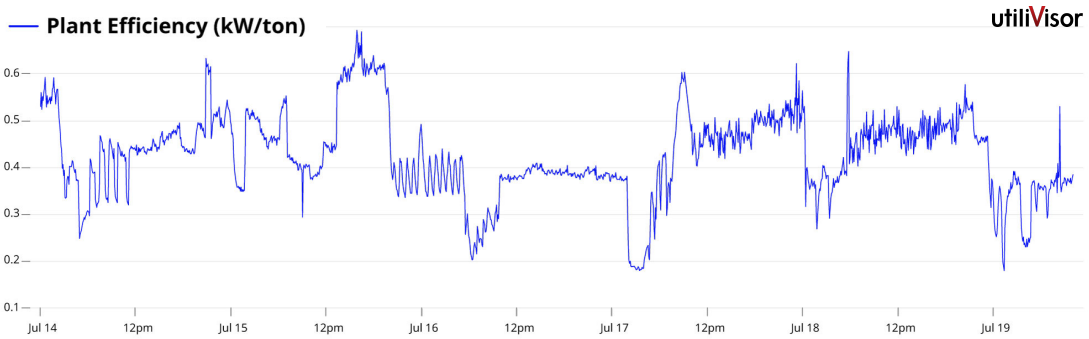
The RTEM Buying Guide provides a comprehensive overview of how a RTEM systems works, its benefits, how to determine the appropriate systems and services for your building, and more.

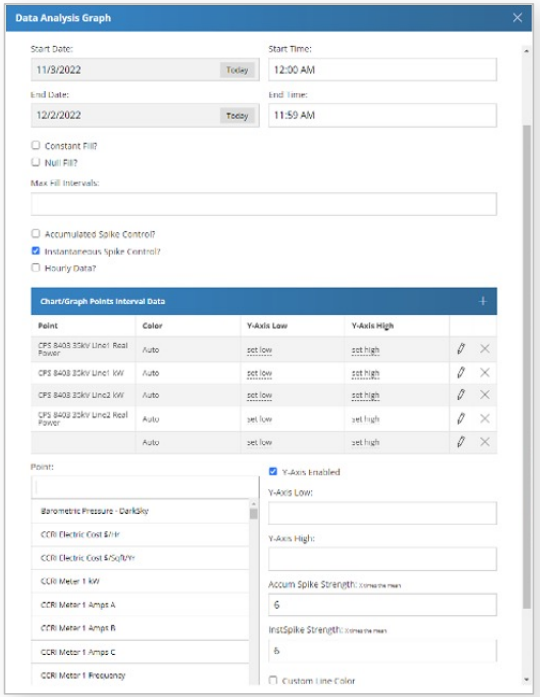
- Part 1: What is RTEM [PDF]
- Part 2: Top RTEM Benefits [PDF]
- Part 3: RTEM-Related Systems [PDF]
- Part 4: A Primer for Building Automation [PDF]

Why Real-Time?

RTEM helps discover potential capital projects

- Justify implementing projects (boilers)
- Measure ECMs, baselines, and points



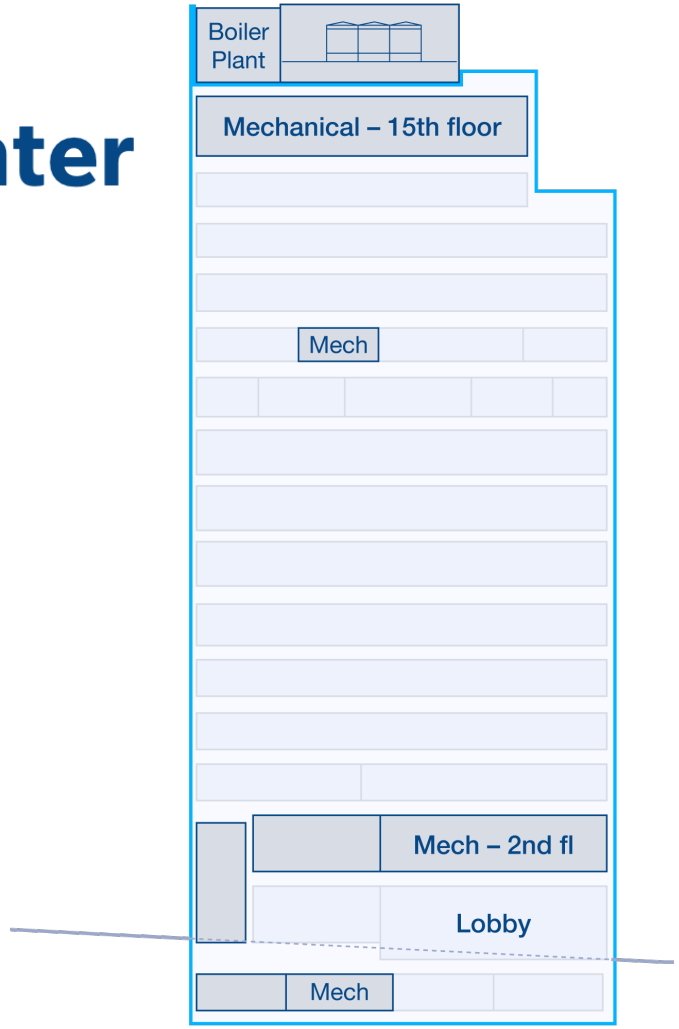


RTEM & HEALTHCARE

Josie Robertson Surgery Center

RTEM implementation

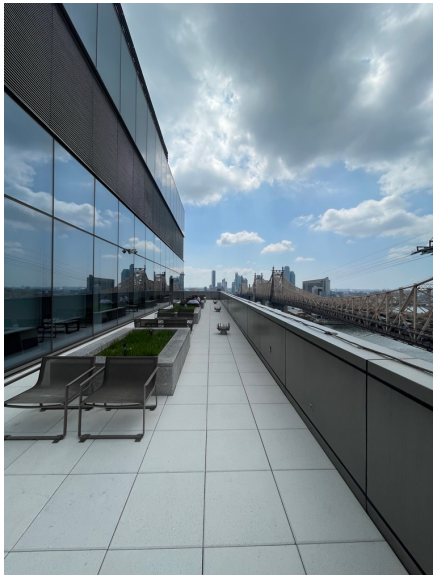
- Right place, right time
- Alignment with NYSERDA incentives
  - 30% of installation cost coverage
  - 30% of service for first three years

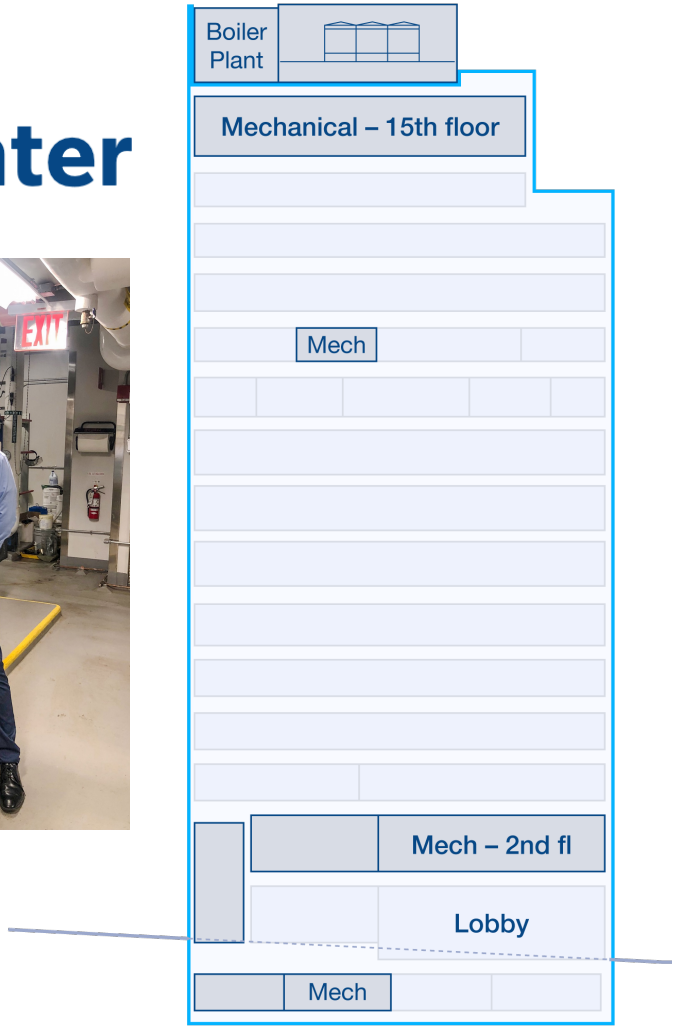


Memorial Sloan Kettering

ABOUT

Josie Robertson Surgery Center





Memorial Sloan Kettering

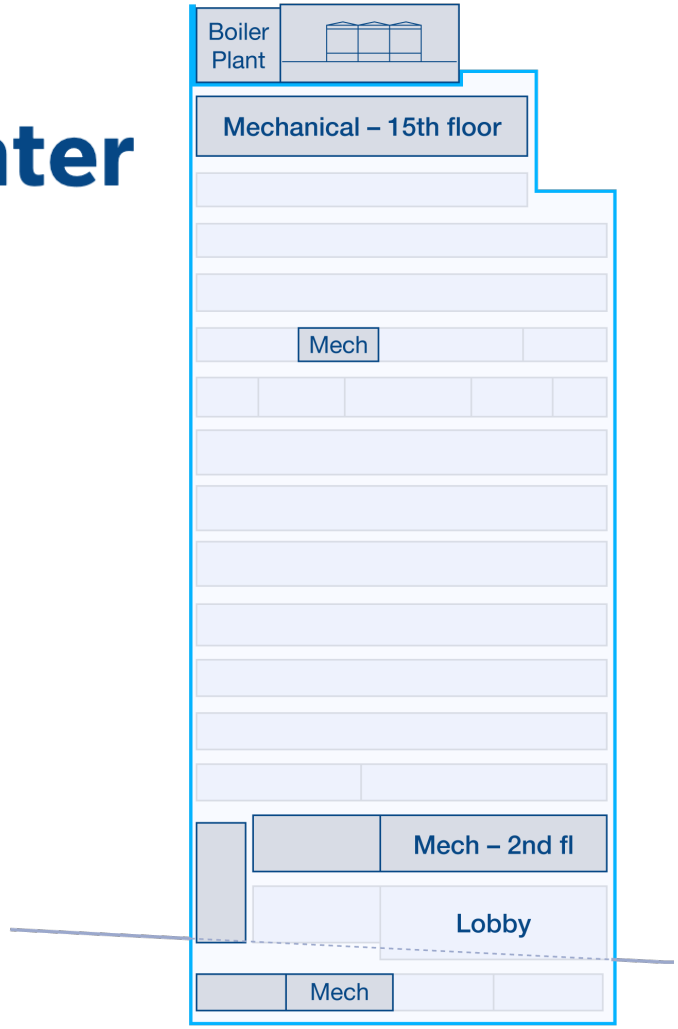
ABOUT

Josie Robertson Surgery Center

2016 – facility first started seeing patients

2017 – hardware furnished & programmed

2017 – utiliVisor started monitoring



Memorial Sloan Kettering

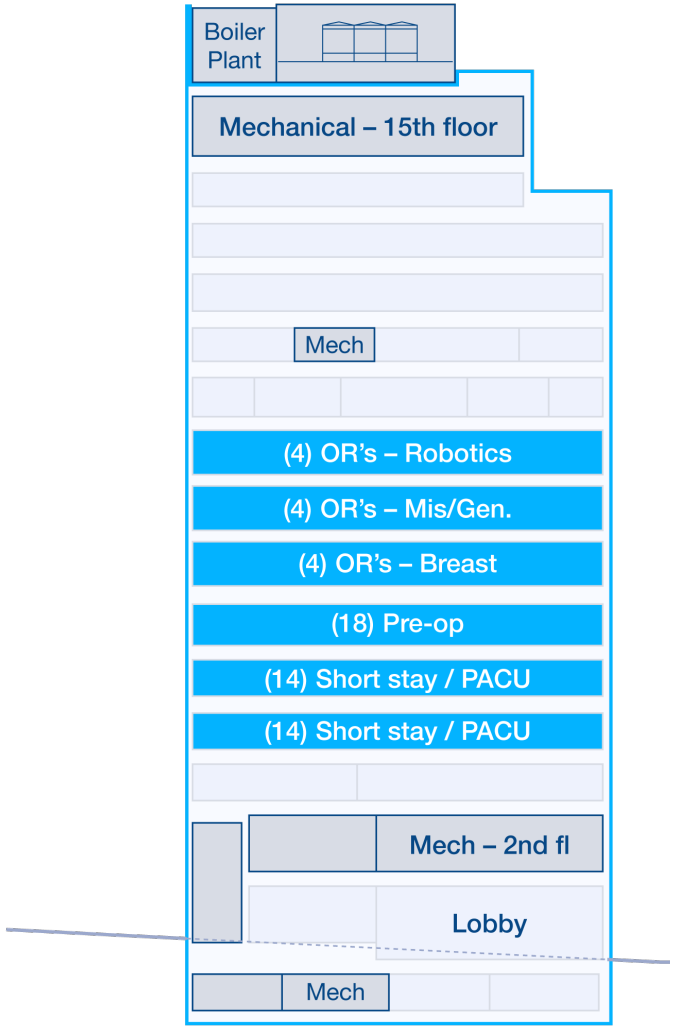
RTEM

Challenges at Josie Robertson

Best way to save energy is to turn it off

VS

- 24/7 facility operation & operating rooms
- Balance of performance/compliance
  - Joint commission
  - ASHRAE standards
  - NYC local laws (LL97/LL87)

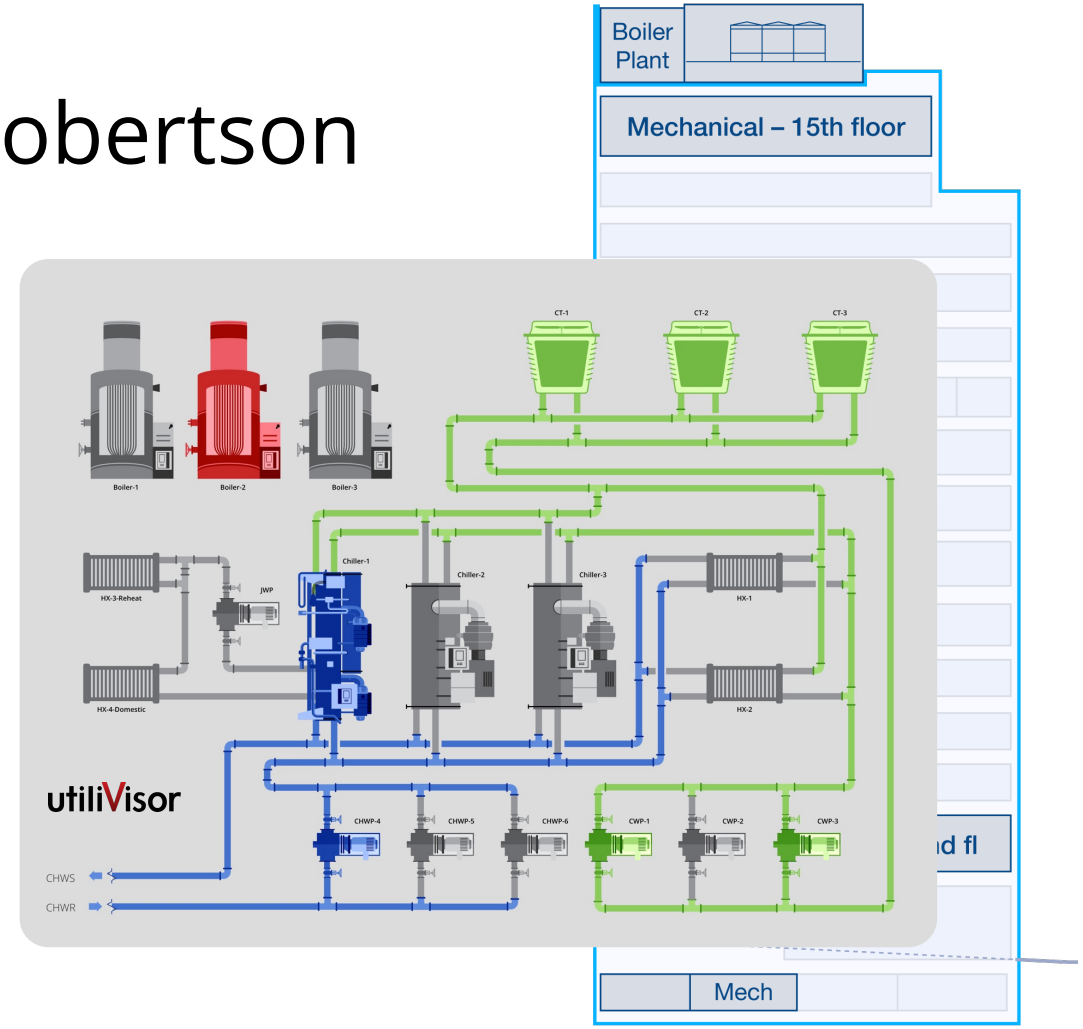


RTEM

Challenges at Josie Robertson

Working with the data available

- BMS limitations (data volume, frequency, detail)
- No bypass installed / preheat setpoints / etc.
- Ideal world: designed at 100%, not reality
- Using information received to the best of our abilities



RTEM

Successes at Josie Robertson

TOP FIVE IMPLEMENTED ECMS

1. **Reduce Condenser Approach**
   Found at >6 Deg F; lowered to <1 Deg F
2. **Free Cooling Heat Exchangers**
   Increased Enthalpy in use from 18 BTU/lb up to 22 BTU/lb.
3. **AHU Scheduling**
   Static Reset During unoccupied hours (Manual to Automatic)
4. **AHU Preheat Valve Operations**
   Found enabling at 65 Deg F OAT, lowered to 45 Deg F.
5. **Clear Chiller Surge Maps**
   Chiller VFD not found not operating below 50Hz with vane operation not optimized.

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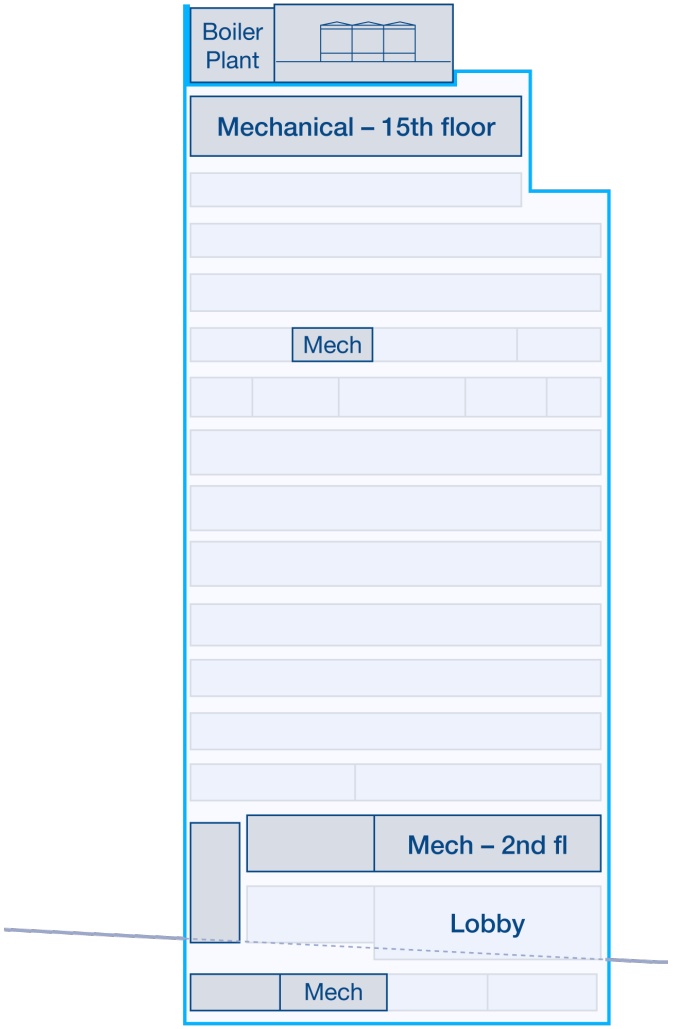

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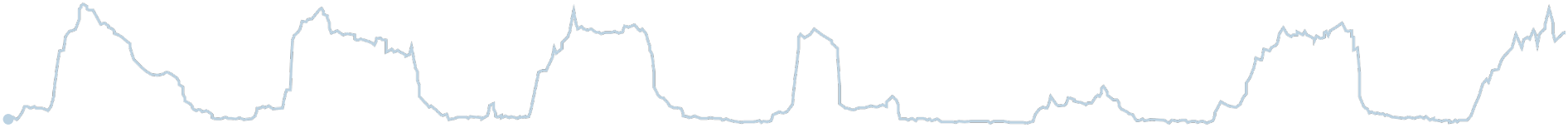
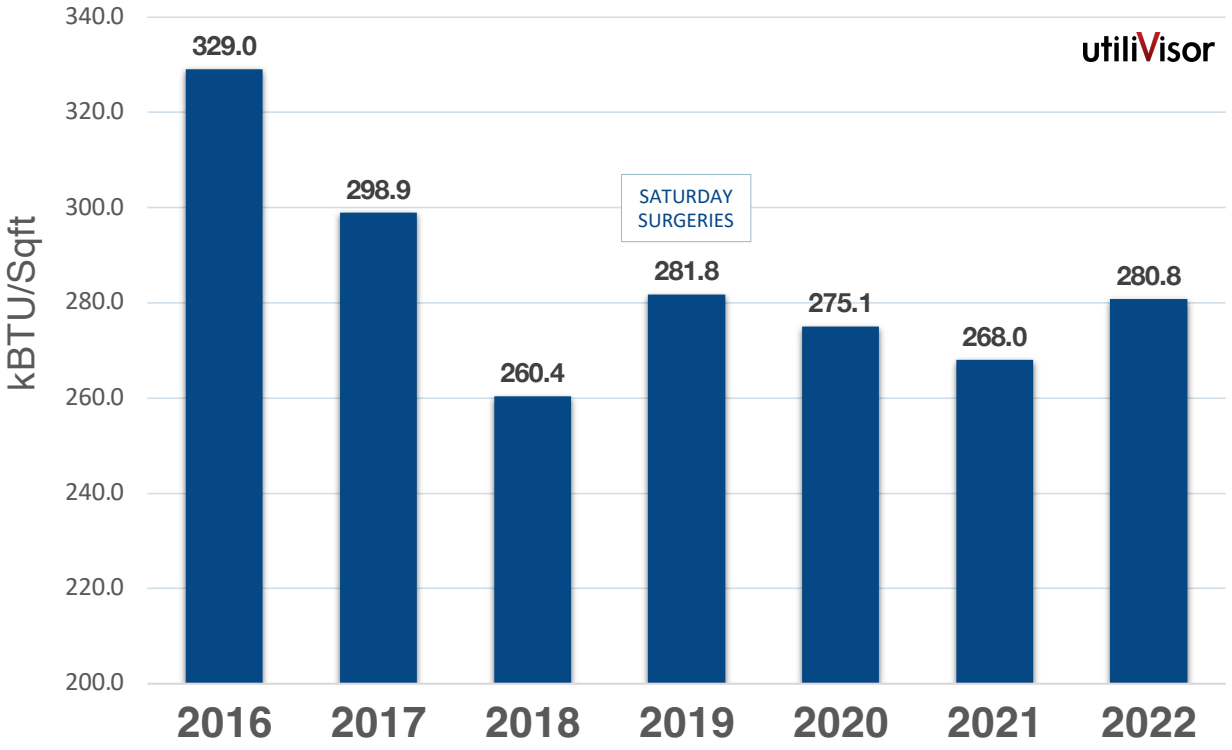
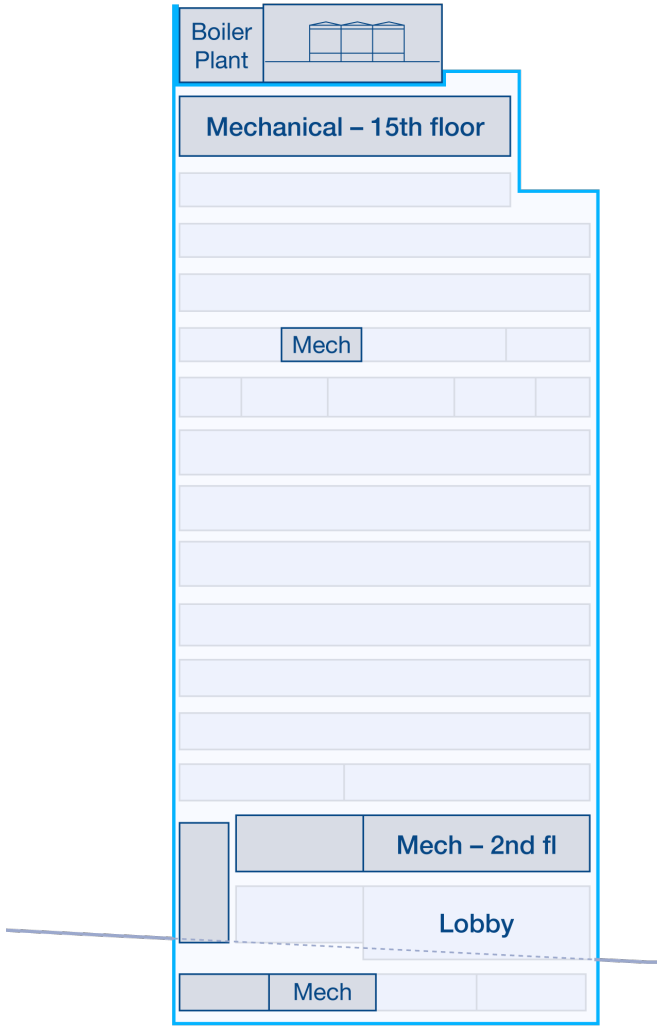


Results of RTEM

RESULTS

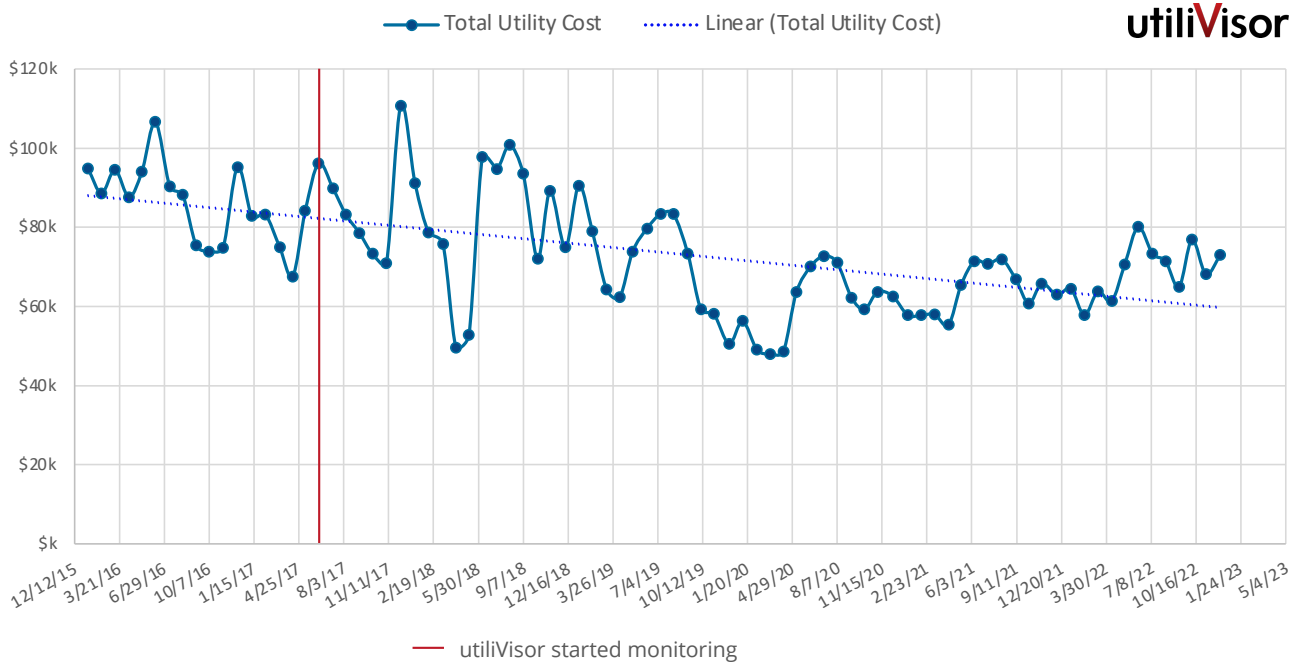
Comparison of Site EU by Year

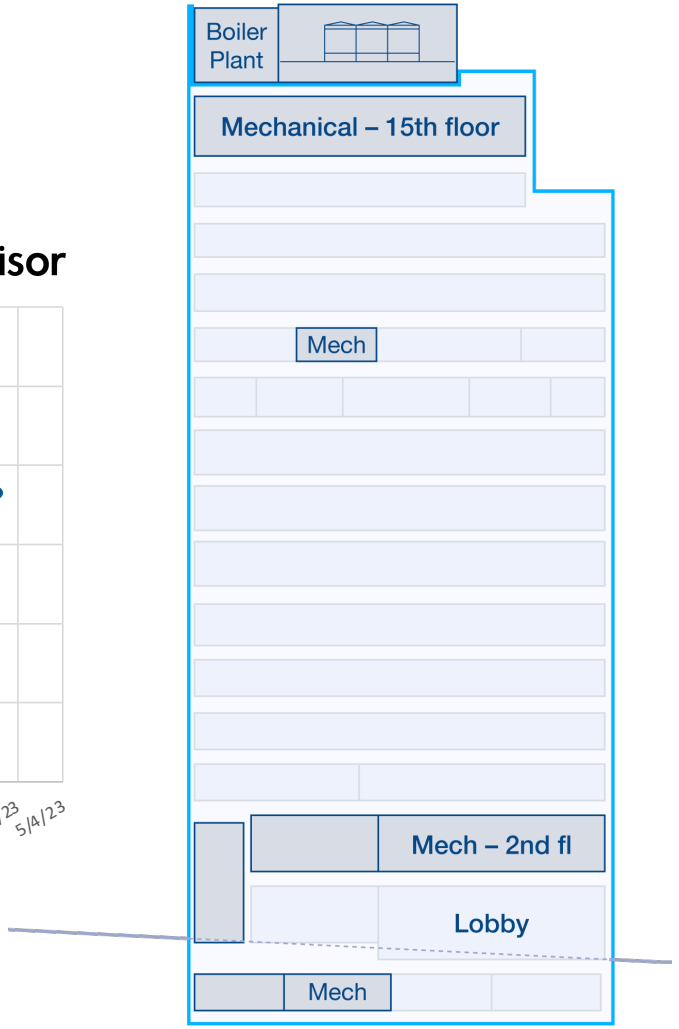




RESULTS

JRSC Total Utility Cost





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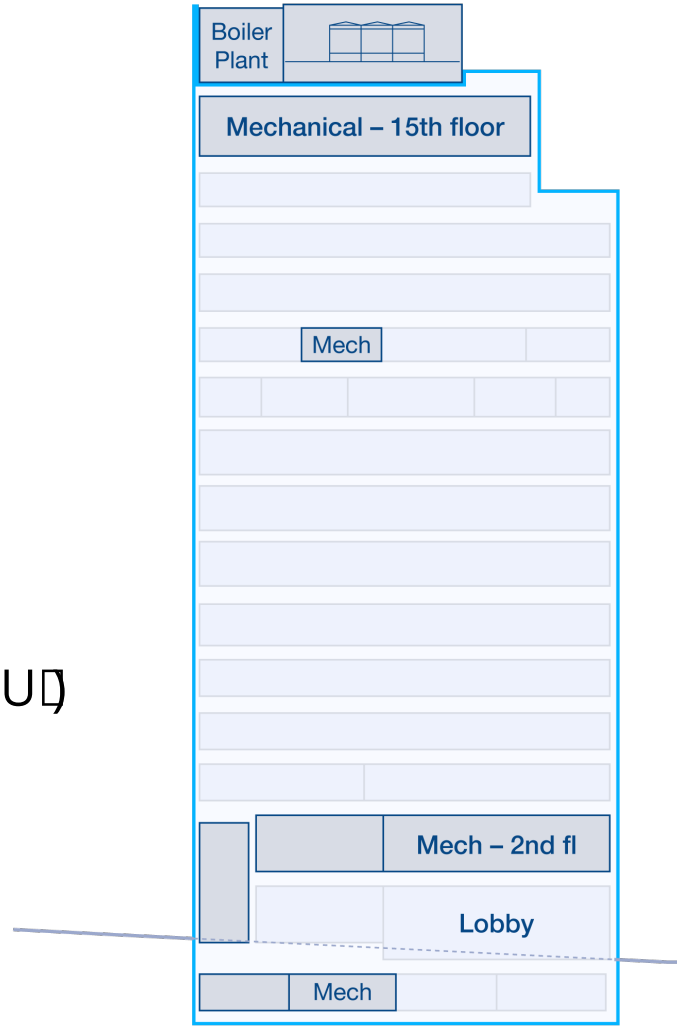
RESULTS

Savings since 2017 to date

523,000 total kWh energy savings

$53,200 energy cost reduction (annually)

14.65% reduction in site energy use intensity (EUI)



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Questions?

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NYSERDA' RTEM Resources

- RTEM Talks webinar series
- Qualified Vendor Lists (RTEM Vendors , + Tenant Vendors)
- Existing Success Stories
- Project Dashboard of 1000+ sites
- Buying Guide in Knowledge Center

Contact us at RTEM@nyserda.ny.gov