

# BMHS Energy Performance Update

SBC Meeting April 11, 2024

Interval Data Systems, Inc.



# Agenda

- ▶ Introduction to Interval Data Systems
- ▶ IDS Scope and Role
- ▶ Planned Energy Performance vs Actual
- ▶ Impact of Solar Generation
- ▶ Examples of Energy Performance Improvements
- ▶ Wrap Up
- ▶ Questions

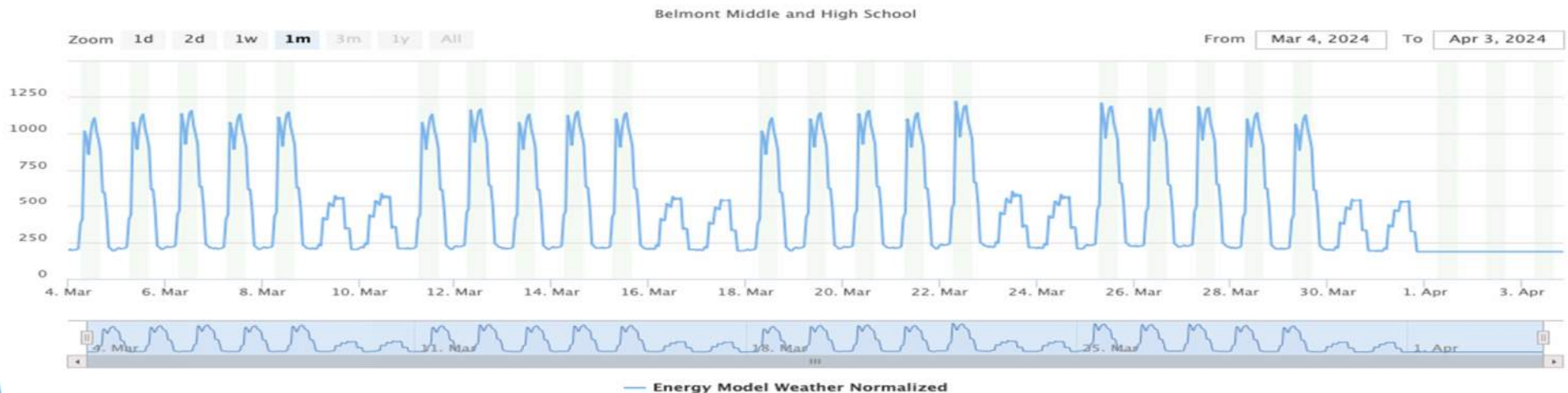
# Interval Data Systems – Background

- ▶ Extensive Experience in Building Operations
- ▶ Subject Matter Expertise
  - HVAC Mechanical Design
  - Control Systems
  - Energy and HVAC data interpretation
  - Efficient Operating Strategies
- ▶ Energy Management and Analytics Platform
- ▶ Assure school operates as intended

## BMHS Energy Model (Design)

Energy Performance (EUI) is prediction and used as an operational goal

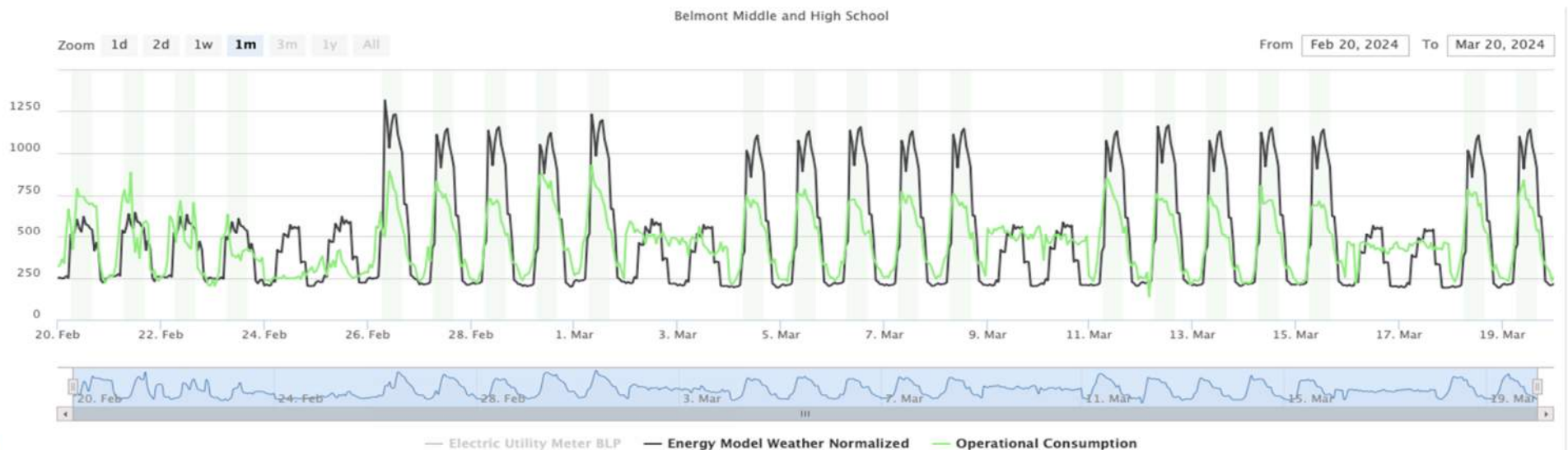
- ▶ Energy Model is used in the design of mechanical systems and building envelope
- ▶ School Designed for 30.2 EUI (amount of energy used/SF annually)
- ▶ Energy Model Report (1/20/2020)



## BMHS Tracking (Actual versus Design)

School performing better  
than model

- ▶ IDS continuously tracks energy usage compared to model
- ▶ Since Sept 1, 2023 performance better than model
- ▶ Actual approximately 28 EUI



## **Energy Performance Observations**

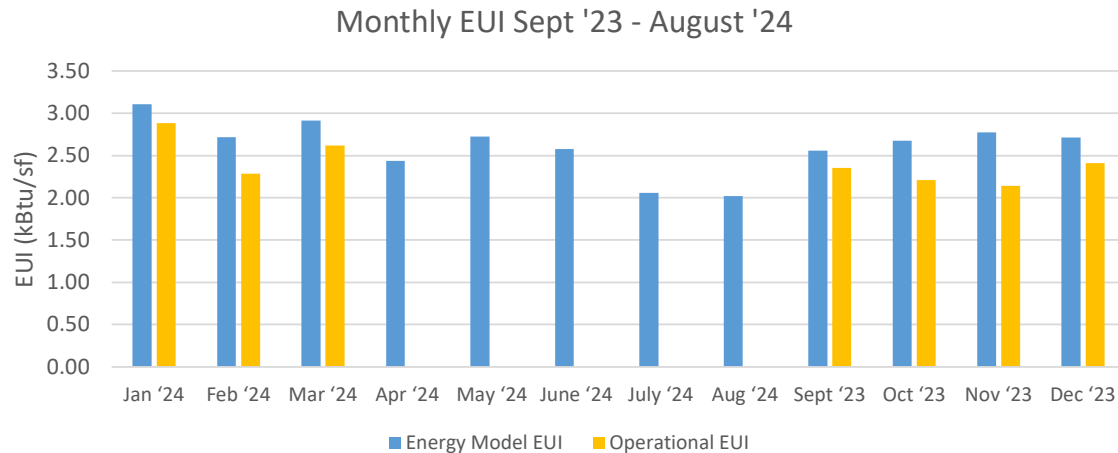
- ▶ In general, performing better than planned
- ▶ Maximum daily demand significantly less than predicted
- ▶ In school unoccupied hours demand slightly greater than model
- ▶ Summary next page

# Energy Performance to Date

Period of comparison began 9/1/23 through 4/1/24

- ▶ In general, September '23 thru March '24 energy usage tracked similar to the energy model but
  - Building used **13%** less energy than predicted for first 7 months of operation
- ▶ Building on target to achieve **~27 EUI** if similar performance is achieved for April thru August '24

Month	Energy Model EUI (kBtu/sf)	Operational EUI (kbtu/sf)	Energy Savings (kbtu/sf)
Jan '24	3.11	2.88	7%
Feb '24	2.72	2.29	16%
Mar '24	2.91	2.62	10%
Apr '24	2.4 (est.)	-	-
May '24	2.7 (est.)	-	-
June '24	2.6 (est.)	-	-
July '24	2.1 (est.)	-	-
Aug '24	2.0 (est.)	-	-
Sept '23	2.56	2.35	8%
Oct '23	2.68	2.21	18%
Nov '23	2.77	2.14	23%
Dec '23	2.71	2.41	11%
<b>TOTAL</b>	<b>31.2</b>	<b>TBD</b>	<b>13%</b>



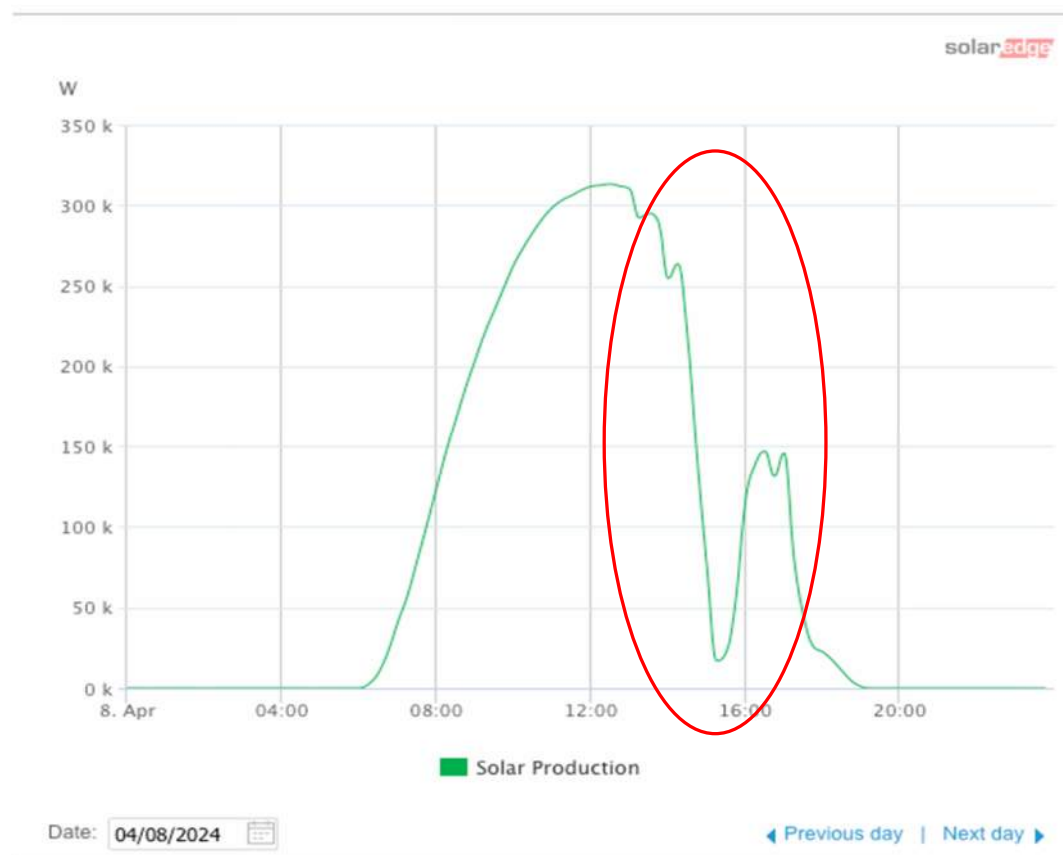
# Solar Generation

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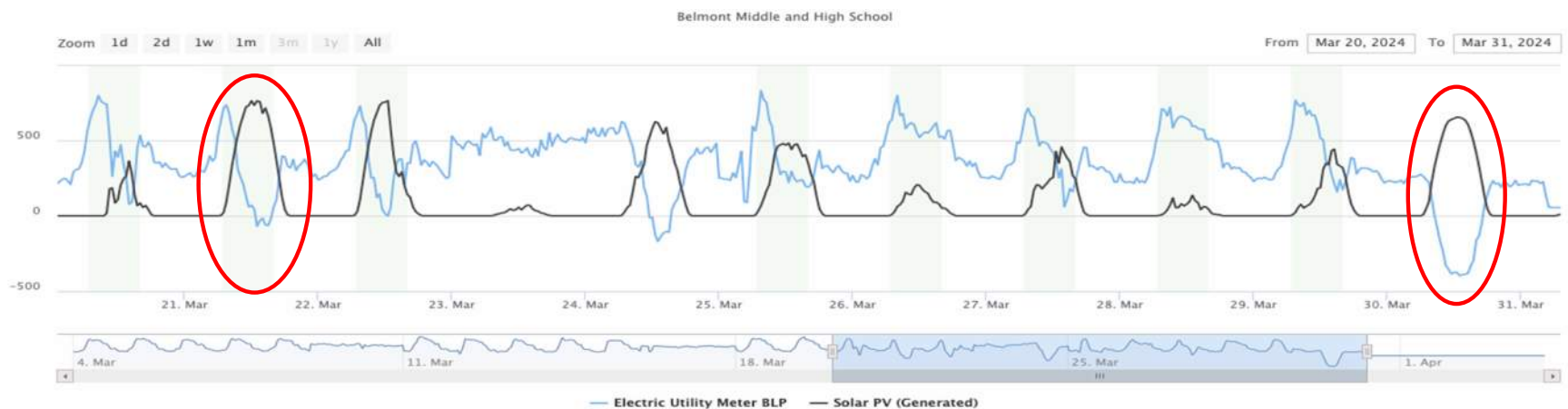
If you are a  
solar panel ...

This is what an  
eclipse looks like



## Solar System

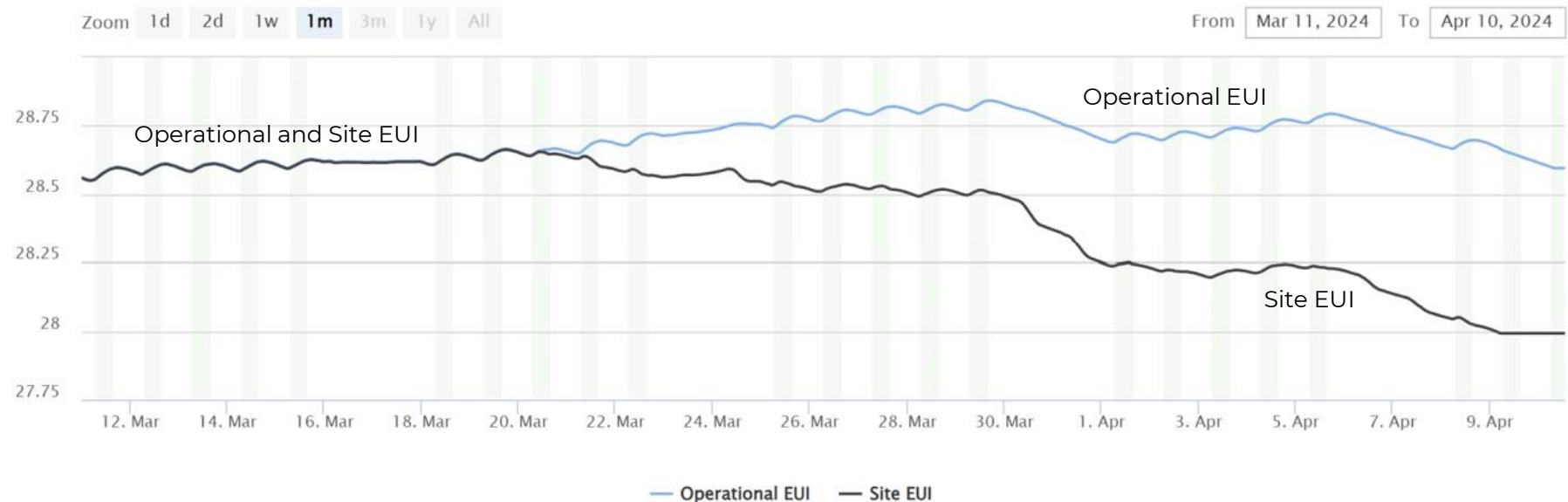
- ▶ Operational 3/20/2024
- ▶ Solar generates, BLP reduces purchase
- ▶ Few days solar generation school exceeded demand supplied back to BLP
- ▶ Weather not cooperating so far



## Solar System Impact

Now Tracking Operational  
EUI and Site EUI

- ▶ Site EUI changed when solar was enabled
- ▶ Site EUI is anticipated at < 20 EUI
- ▶ Site EUI will improve with improved Operational EUI
- ▶ Lower Operational EUI - Buy less, sell more



# Interval Data Systems – Role

- ▶ Source of unbiased accurate information backed up with operational data
- ▶ Troubleshoot to achieve operational goals
- ▶ Facilitate HVAC delivery team working together
- ▶ Identify operational improvements to exceed performance goals
- ▶ If you want a scientific answer to how the HVAC system is performing or how efficiently energy is being used ..  
Contact IDS



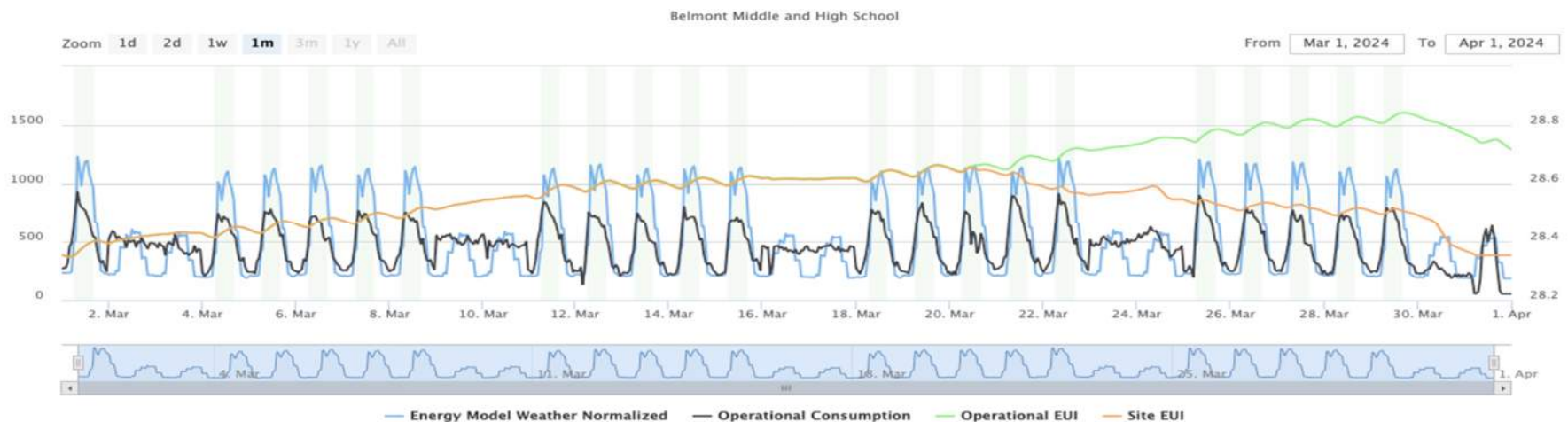
# Examples of IDS' Work

# Examples

- ▶ Recent identification of weekend excessive energy use
- ▶ Excessive equipment use which led to increased energy caused by stuck occupancy override switch
- ▶ Excess CO2 which triggered change in sensor location and unnecessary oscillation of fan

## Wrap Up

- ▶ Energy Performance of School is better than planned
- ▶ Locate root cause issues for shortest path/cost to remediation
- ▶ Financial benefit of solar increases as less energy is required to operate school (buy less, sell back more)
- ▶ Opportunity exists for additional energy reduction
- ▶ First MSBA school with Operational Data Record





# End

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