

AEI & A&M Energy Analytics

October 2023 – Revisited June 2024

RTIS[®] Platform & Energy Savings Overview



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NH BOE - Energy Savings Study

12% Reduction in Annual Costs & Consumption: ~\$700k energy savings and 2.9M kWh reduction at 25 facilities

School Name	Demand Savings (\$)	Consumption Savings (\$)	Total Savings (\$)	Total Savings (kWh)
1 NH BOE Barack H. Obama Magnet University School	\$5,700	\$7,800	\$13,500	47,900
2 NH BOE Barnard School	\$9,600	\$17,100	\$26,600	106,100
3 NH BOE Beecher School	\$3,500	\$4,200	\$7,700	28,100
4 NH BOE Benjamin Jepson School	\$5,400	\$14,000	\$19,400	83,100
5 NH BOE Bishop Woods	\$7,600	\$15,100	\$22,700	92,200
6 NH BOE C.U.P. {Main Meter}	\$12,400	\$20,000	\$32,400	122,500
7 NH BOE Celantano School	\$5,900	\$18,200	\$24,000	107,500
8 NH BOE Central Kitchen	\$6,500	\$5,800	\$12,200	33,700
9 NH BOE Clarence Rogers School	\$2,300	\$4,100	\$6,400	24,200
10 NH BOE Clinton Ave School	\$5,600	\$12,000	\$17,500	72,900
11 NH BOE Columbus	\$6,100	\$18,700	\$24,800	112,000
12 NH BOE Cooperative Arts and Humanities Magnet School	\$11,500	\$21,700	\$33,200	129,000
13 NH BOE Davis St Magnet {Main Meter}	\$5,200	\$20,900	\$26,100	122,500
14 NH BOE E Rock Magnet	\$5,100	\$14,100	\$19,200	84,000
15 NH BOE ESUM School Device 1	\$7,200	\$30,400	\$37,600	177,200
16 NH BOE Fairhaven Middle School	\$15,200	\$36,200	\$51,400	220,700
17 NH BOE Hill Region Career	\$48,800	\$84,500	\$133,300	544,200
18 NH BOE Hillhouse HS	\$12,600	\$48,000	\$60,600	283,300
19 NH BOE Hillhouse HS Field House	\$1,900	\$6,800	\$8,700	39,100
20 NH BOE Jackie Robinson New School	\$8,800	\$22,600	\$31,400	137,300
21 NH BOE Lincoln Bassett	\$4,600	\$10,300	\$14,900	63,100
22 NH BOE Metropolitan Business School	\$6,100	\$13,000	\$19,100	78,300
23 NH BOE Sheridan Academy	\$13,200	\$18,200	\$31,400	119,600
24 NH BOE Sound Aquaculture School	\$3,400	\$15,200	\$18,500	88,300
25 NH BOE Strong School (FKA Vincent Mauro)	\$1,400	\$3,000	\$4,400	18,700
Total Savings Across Portfolio:			\$697,000	2,935,500

Our Utility Due Diligence analysis can help identify and realize energy savings through:

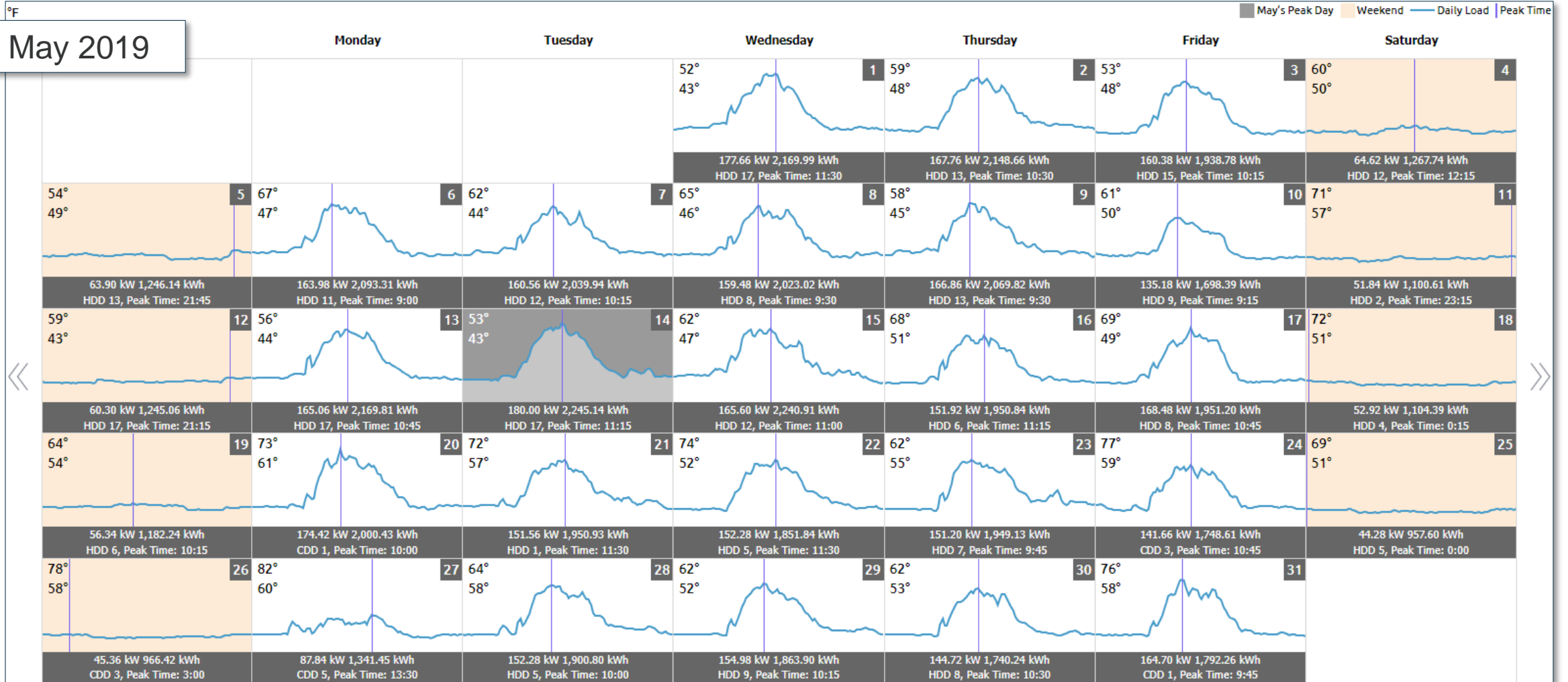
- Accessing current utility invoices & energy contracts (supply & delivery)
- Optimizing utility delivery rates
- Ensuring accurate billing from UI
- Identifying energy management opportunities:
 - Schedule optimization
 - Demand management
 - CAPEX prioritization
- Prioritizing energy management activities (facility prioritization)

Savings estimates are calculated using 2022 energy consumption and UI rates effective 9/2023.

High School Energy Load Pattern Example

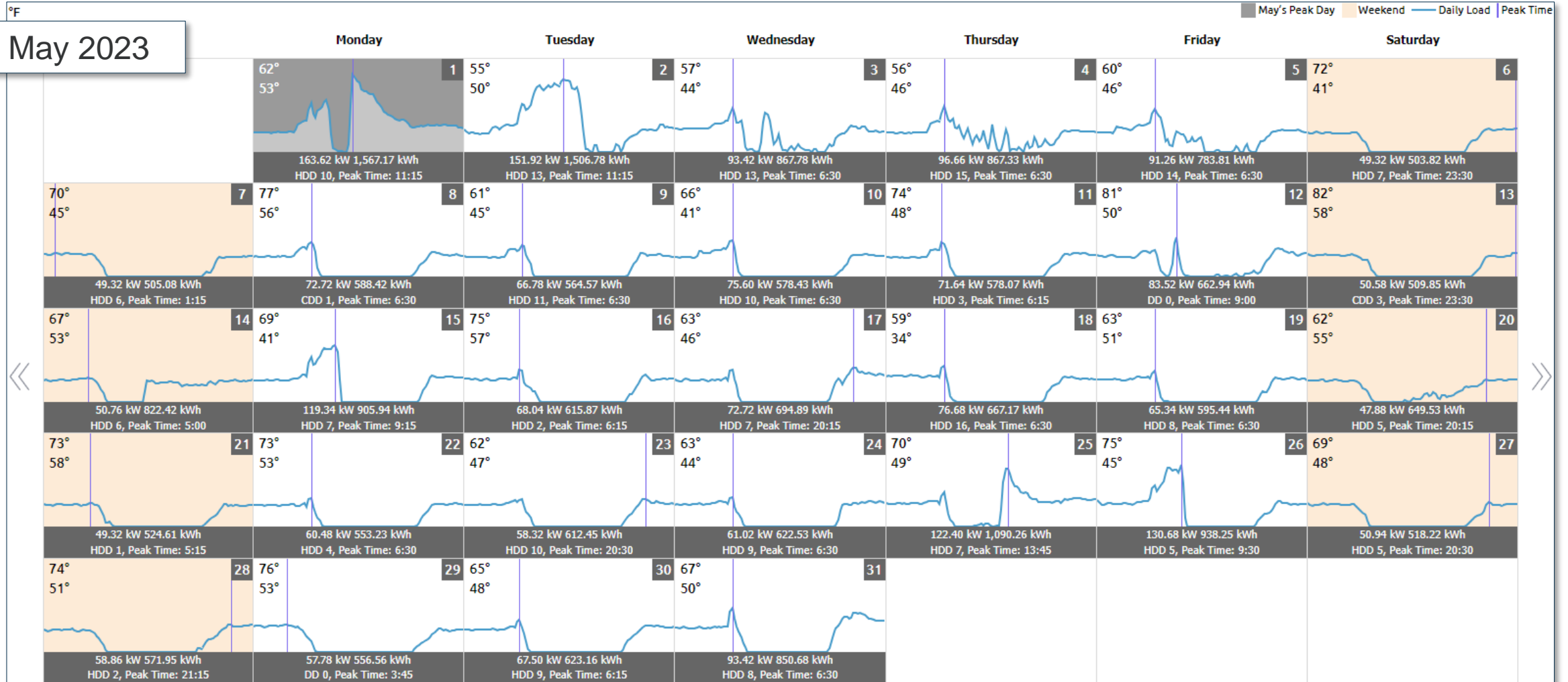
Efficient High School - ~800 Students ~180,000 sqft

Before Solar Installation



Efficient High School - ~800 Students ~180,000 sqft

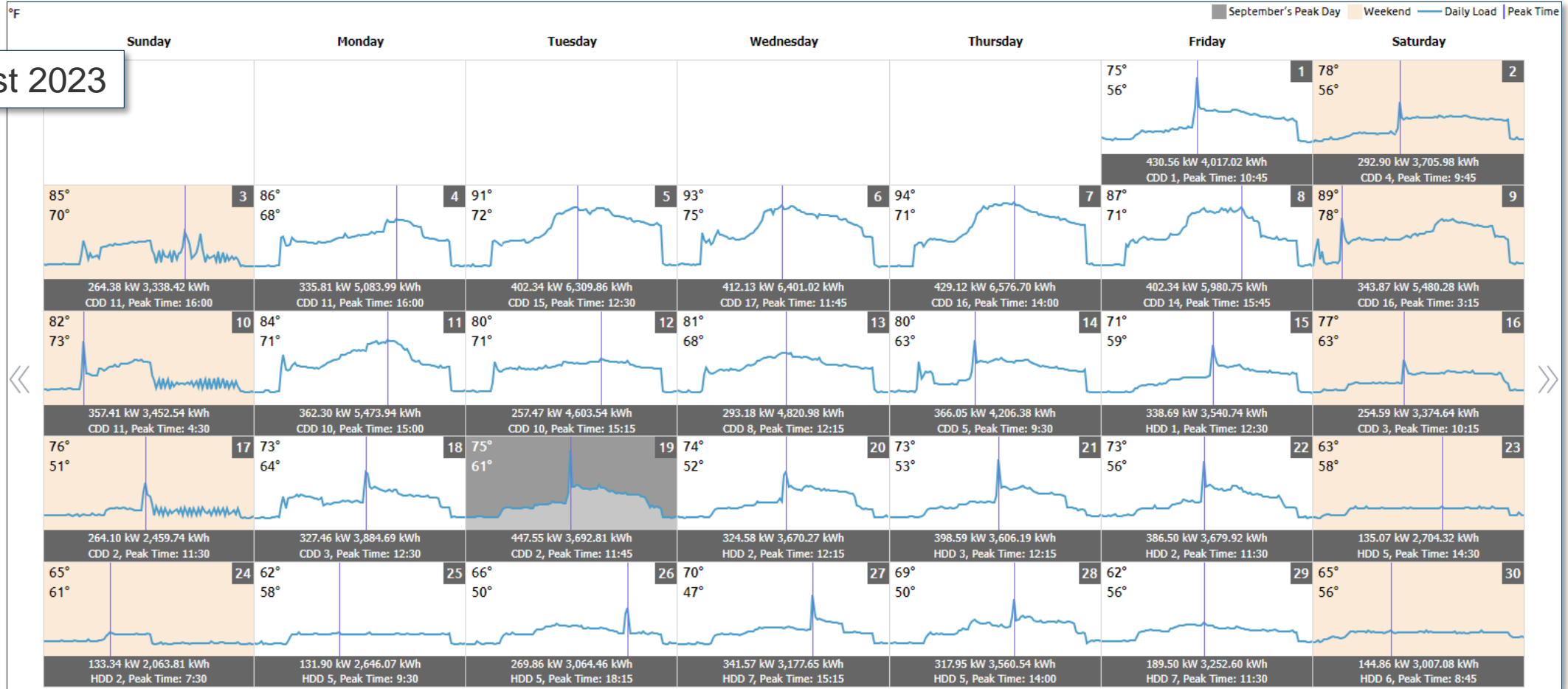
After Solar Installation



Bernard School: BMS Schedule Optimization & Demand Management

Up to 10% Annual Energy Cost Reduction through low to no-cost strategies

August 2023






- Can the building start-up be delayed 2 hours; 3am startup vs. 5am start up?
- Can it be further delayed on Saturday and Sunday; 7 or 8am startup?
- Can 1am startups be eliminated on Saturday?
- Can HVAC start-up procedures be staged or staggered?

Products and Services

Energy Cost Optimization (ECO): (Pre-Qualification in less than 2 weeks at no cost)

Our 4 to 12 week* energy review focuses on cost optimization, risk mitigation, and identifying a path to proactive energy management.

Cost Optimization Review Focus	
Financial Cost Optimization	<ul style="list-style-type: none"> Evaluate billing and utility rate structures Review energy plan for completeness
Energy Incentives and Commercials	<ul style="list-style-type: none"> Identify government & utility incentive programs Investigate market demand reduction opportunities Examine energy contract consolidation opportunities
Energy Related Tax Opportunities	<ul style="list-style-type: none"> Determine tax consequences associated with specific energy contracts Leverage A&M Tax Team for 179D commercial building energy efficiency tax deduction
Operational and Legal	<ul style="list-style-type: none"> Assess current energy loads to identify potential improvements Identify & pursue regional energy credits due to the client
Renewable Energy Analysis - Alternative Energy Sources	<ul style="list-style-type: none"> Identify renewable solution providers that align with client's energy strategy Outline expected saving opportunities & installation costs for each location identified



A&M Experience and Market Insights		
 <p>Fortune 500 Manufacturer Global Energy Monitoring & Cost Optimization</p>	 <p>US Broadcasting Company Energy Cost Optimization & CAPEX Prioritization</p>	 <p>Commercial Real-Estate Portfolio Energy Monitoring, Load Control, & Tariff Optimization</p>

Standard Data Request
<ul style="list-style-type: none"> 36 months of utility invoice history 36 months of interval meter data¹ Current energy supply & delivery contracts

1) Our team can help secure this information if it is not readily available

Pricing
<p>A Fixed Assessment Fee² plus 33% of Total Energy Savings Identified Above Fixed Rate</p> <p>Calculated based on the total historical analysis savings and the total first year savings.</p>

2) Cost Optimization Assessment fees vary, and are a function of the number of locations, accounts, data availability, and complexity of the assessment

Customer Results Example
 <p>Annual Energy Spend: \$3.0M Energy Savings: \$360K Cost Optimization Assessment: \$110K* ROI: 227% Payback Period: 2.5 Months**</p> 

*The timeline is a function of data access, completeness of data sets, size of the opportunity, and other factors to facilitate this project effort.

A&M Energy Monitoring (AMEN): Energy & Environmental Transparency

We identify opportunities through innovative data visualizations and analytics

The Platform's Focus

- Facility & Portfolio View Dashboards
- Real-Time Monitoring & Load Control
- Historical Data Tracking
- Sensor and Submetering
- Environmental Indicator Tracking
- Budget Management
- Demand Management & Energy Curtailment
- Capacity Tags, Coincident Grid Peaks, Peak Energy Cost Avoidance, and Scheduling Optimization

Additional Functionality

- Advance Energy Analytics
 - Trend Analysis & Load Forecasting
 - Cluster & Pattern Analysis
 - Anomaly Detection
- Occupancy Comfort & Health
 - Indoor air quality, comfort, humidity, air pressure, temperature, etc.
- Carbon Metrics
 - Global Tracking & Benchmarking
 - Green Investment Tracking
- Supply Contract T&C & Risk Management Tracking

Installation Support

- Customize solution to achieve monitoring goals
- Coordinate hardware installation/integration with facility staff
- Leverage existing data collection points and/or support upgrades
- Integrate with existing BMS to support automated scheduling & real-time load control

Pricing

SaaS Pricing ~\$.005/kWh

Pricing is a function of the number of meters, facilities, and required support

One-Time Hardware, Setup, & Integration Fee

Hardware installation and integration is unique for each facility and monitoring solution. Costs typically range from \$500 to \$2,000 per monitoring point but can be reduced if existing meter infrastructure can be leveraged.

A&M Experience and Market Insights



Fortune 500 Manufacturer
Global Energy Monitoring
Deployment & ECO



City School District
City Wide Monitoring,
Reporting, & Energy Usage
& Cost Optimization



Commercial Real-Estate Portfolio
Energy Monitoring, Load
Control, & Tariff Optimization

Customer Results Example



Annual Energy Spend (Before RTIS®): \$3.3M

RTIS® Cost Over Three Years: \$219K

Energy Savings Achieved: \$750K

ROI: 242%

Over 1.5M kWh Saved in Each Year

1,061 metric tons of GHG



Energy Management as a Service (EMaaS): The Partnership

Our analysts partner with our clients to recommend savings opportunities and operational improvements.

Managed Service Focus

- Research Energy Market Prices to Assist in Supply Contract Negotiation
- Build Analytical Models to Show Energy Cost Contribution vs. KPIs
 - Production Output Performance, Rentable Square Footage, etc.
- Customize Energy Strategy Algorithms
- Identify Energy Efficiency Opportunities to Adopt and Measure Progress
- Partner with Client to Ensure Operational and Financial Goals are Met
- Report Weekly, Monthly, Quarterly, or Semi-Annual

Sample Reports

- Anomaly Detection Reporting
- Idle Load Management
- Utility Cost Optimization & Rate Negotiation
- Load Factor & Volatility Monitoring
- Power Factor Monitoring
- High-Cost Mitigation and Curtailment
- Load Shifting Opportunity Monitoring
- Investment Tracking & Measurement and Verification
- Load Forecasting & Trending Analysis
- Sustainability Reporting - Carbon, Fuel Source, & Water Usage Tracking

Pricing

Managed Service Pricing ~\$375/hr.

Depending on client required services, number of facilities, datapoints, and reporting frequency, discounted rates can be applied

A&M Experience and Market Insights



Pharmaceutical Manufacturer
KPI Fine-Tuning, Performance Reporting, Anomaly Tracking



Public Buildings (Schools/Museum)
Virtual Energy Audits, Anomaly Detection, Solar Energy Optimization



Commercial Real-Estate Portfolio
Tariff Optimization, Customized Alerting, Tenant Cost Allocation

Customer Results Example



2 Year Energy Spend (Before Engagement): \$700K

2 Year EMaaS Service Cost: \$20K

Energy Savings Achieved: \$220K

(Peak Avoidance Strategy, Rate Optimization, Credit for Overpayments)

ROI: 1000%



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Building™*



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NEW HAVEN PUBLIC SCHOOLS

Operations Memorandum

To: New Haven Board of Education Finance and Operations Committee
From: Mike Carter, Operations Dept.
Date: July 19, 2024
Re: Agreement with Artis Energy Solutions to provide Energy Monitoring Services

Answer all questions and have a representative ready to present the details of each question during the Finance & Operations meeting or this proposal may not be advanced for consideration by the full Board of Education.

Company Information		
Vendor Name:	Artis Energy Solutions	
Doing Business as: (DBA)		
Vendor Address:	362 Industrial Park Rd, Suite 7, Middletown CT 06457	
Vendor Contact Name:	'Edyta Shim'	
Vendor Contact Email:	ShimE@artisenergysolutions.com	
Is the contractor a minority or women owned small business?	No	
Agreement/Contract Information		
New or Renewal Agreement/Contract?	Agreement	
Effective Dates: (mm/dd/yy) <small>Multi-yrs. require Board of Aldermen approval</small>	From 07/01/2024	To 06/30/2025
Total Amount: <small>If Multi-yr. include yr. to yr. breakdown</small>	\$104,808.00	
Funding Source Name: Acct. #:	2023-2024 Capital Projects 3C20-2074-58101	
Contract #: <small>(Local or State)</small>	TBD	



NEW HAVEN PUBLIC SCHOOLS

Key Questions:

1. What specific service will the contractor provide:

ARTIS will maintain, to the point of network internet connection, all installed 9000 series (or equivalent) data collection devices and all ARTIS installed watt-hour transducers, current transformers and related equipment required to accurately monitor all designated and approved monitoring points at all sites listed in Schedule A-1. ARTIS does not warrant, cover, service, or otherwise maintain any BOE network equipment, nor does it warrant, cover, service, or otherwise maintain any utility supplied and installed pulse generation equipment.

2. How was the contractor selected? **Attach appropriate supporting documents*

- Quotes
- Sealed Bid # _____
- Sole Source # _29197x_
- RFP# _____
- State Contract #
- Exempt Professional
 - Accountant
 - Actuary
 - Appraiser
 - Architect
 - Artist
 - Dentist
 - Engineer
 - Expert Professional Consultant
 - Land Surveyor
 - Lawyer
 - Physician/Medical Doctor

3. If the vendor was selected through Solicitation (Bid/RFQ/RFP) process; answer the following:

a. Please explain how the vendor was chosen? **Attach Vendor Proposal*

N/A

b. Who were the members of the selection committee? *(Minimum 3 members required)*

N/A



NEW HAVEN PUBLIC SCHOOLS

4. If this is a renewal with a current vendor, has the vendor met all obligations under the existing agreement/contract?

The vendor has met all obligations of previous agreement.

5. If this agreement/contract is a Renewal, has the cost increase? If yes, by how much? *Attach Renewal Letters

The cost from last year has increased by 4.5% which is an increase of \$4,513.00.

6. If this new agreement/contract, has cost for service increased from previous years? If yes, by how much?

N/A - Renewal

7. Is this a service that existing staff could provide? Why or why not?

No this is a specialized service which was deemed Sole source provider by purchasing dept to provide services needed.



NEW HAVEN PUBLIC SCHOOLS

Agreement/Contract Processing Checklist

To ensure timely processing of the submitted Agreement/Contract it is imperative to collect and provide all of the required documentation noted below and provide with submission to board.

Forms/Documents are available in: Drive G:\F&O Agenda Minutes\Agreement_Contract_Checklist\2022-2023

1. Has this vendor performed service(s) in prior fiscal years?	
If Yes,	Vendor # <u>55703</u>
If No or New,	Vendor must provide completed W9
2. A quotes or proposal submitting regarding the agreement/contract.	
If RFP	Attach Vendor Submitted
Other	Copy of State Contract, Quotes, etc.
<p>3. <u>Certificates of Liability Insurance (COI) are required for ALL agreements/contracts, read the following and select the applicable Rider.</u></p> <p>It is the submitters responsibility to request the COI from the vendor and attach with submission; the COI from the Vendor <u>must match rider specifications outlined.</u></p> <p>Failure to obtain or incorrect COIs will be returned for revision and will delay its processing.</p>	
Rider 300	Professional Services – Onsite Umbrella; w/ Auto; w/ Workers Compensation
Rider 305	Professional Services – Onsite Umbrella; No Auto; No Workers Compensation
Rider 310	Professional Services – Onsite Umbrella; w/ Auto; No Workers Compensation
Rider 315	Professional Services – Onsite Umbrella; w/ Youth under 21
Rider 320	Professional Services – Offsite; No Auto; No Workers Compensation
Rider 325	Professional Services – Offsite; No Auto; No Workers Compensation; w/ Youth under 21
Rider 330	Professional Services – Offsite Attorney; No Auto; No Workers Compensation
Rider 335	Professional Services – Onsite; Physician/Dentist; No Auto
Rider 340	Professional Services – Onsite Physician/Dentist w/ Youth under 21
Rider 345	Professional Services – Onsite Temp Nurses
Rider 350	Professional Services – Cyber – Onsite
Rider 355	Professional Services – Cyber – Offsite
<p>4. The City of New Haven requires the information requested in the <u>Disclosure Affidavit</u> before any City agency, department, or city official seeking agreement/contract shall obtain them, notarized.</p>	
Emailed Disclosures are acceptable.	



MEMORANDUM

BUREAU OF PURCHASES

CITY OF NEW HAVEN



Michael V. Fumiatti, Purchasing Agent
200 Orange Street, New Haven,
Connecticut 06510
Telephone (203) 946-8201
Facsimile (203) 946-8206

SLSRC #29197x

DT: February 2, 2018

TO: William F. Clark
Chief Operating Office

FR: Michael V. Fumiatti, Sr
Purchasing Agent

RE: Sole Source request – Artis Energy Proprietary Services – Electrical Monitoring

I have received and reviewed your sole source request for the above referenced vendor and purpose. The 83 Electrical Meters are proprietary and this company is the only company that can monitor this proprietary equipment with proprietary software.

Therefore, pursuant to Section 74(d)(i) of the City Charter, I hereby designate the above vendor as the "Sole Source" vendor for the above referenced purpose. Please include this sole source number in the vendor sourcing notes of your requisition.

While all else remains the same, this Sole Source does not expire

Please note any non-competitively bid contract which is \$100,000.00 or greater may require Board of Alderman approval.

Any questions, please feel free to contact me @ x8207.

cc: Joy Johannes - Food Policy Director
Sheila Carmon - Deputy Director CSA
Accounts Payable
File



OVERVIEW

Artis Energy Intelligence (Artis), a leading energy services firm, is submitting this proposal to provide Energy Monitoring Services to New Haven CT Schools from July 1, 2023 to June 30, 2028.

PROJECT SCOPE OF WORK

ARTIS will maintain, to the point of network internet connection, all installed 9000 series (or equivalent) data collection devices and all ARTIS installed watt-hour transducers, current transformers and related equipment required to accurately monitor all designated and approved monitoring points at all sites listed in Schedule A-1. ARTIS does not warrant, cover, service, or otherwise maintain any BOE network equipment, nor does it warrant, cover, service, or otherwise maintain any utility supplied and installed pulse generation equipment.

PROJECT FINANCIALS

Current price	\$95,976.00
2023-2024	\$100,295.00
2024-2025	\$104,808.00
2025-2026	\$109,525.00
2026-2027	\$114,453.00
2027-2028	\$119,604.00

PROJECT ACCEPTANCE BY:

CUSTOMER SIGNATURE & DATE: _____

PRINT NAME: _____

ARTIS ENERGY INTELLIGENCE :

SIGNATURE & DATE: _____

PRINT NAME: _____

362 Industrial Park Rd, Suite 7, Middletown, CT 06457

860.613.7000 | artisenergy.com

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SCHEDULE A-1: NEW HAVEN PUBLIC SCHOOLS MONITORING POINTS

Location Name	Address	Monitoring Points
NH BOE Academy School	444 Orange Street	11
NH BOE Adult Education Ctr	580 Ella T Grasso Blvd	1
NH BOE Barack H. Obama Magnet University School	69 Furnam Ave	9
NH BOE Barnard School	170 Derby Ave	2
NH BOE Beecher School	100 Jewell St	1
NH BOE Benjamin Jepson School	15 Lexington Avenue	1
NH BOE Betsy Ross Arts Magnet	150 Kimberly Ave	1
NH BOE Bishop Woods	1481 Quinnipiac Ave	1
NH BOE C.U.P. {Main Meter}	170 Dewitt Street	5
Hill Central Sub-Meter - SM2 (via the C.U.P)		
Roberto Clemente Sub-Meter - SM1 (via the C.U.P)		
NH BOE Celantano School	400 Canner Street	1
NH BOE Central Kitchen	131 Barnes Ave	1
NH BOE Clarence Rogers School	199 Wilmot Road	1
NH BOE Clinton Ave School	293 Clinton Ave	1
NH BOE Columbus	255 Blatchley Ave	1
NH BOE Cooperative Arts and Humanities Magnet School	177 College Street	1
NH BOE Davis St Magnet	35 Davis Street	11
NH BOE E Rock Magnet	133 Nash St	1
NH BOE Edgewood	737 Edgewood Ave	1
NH BOE ESUM School	500 Boston Post Road	16
NH BOE Fairhaven Middle School	164 Grand Ave	1
NH BOE High School in the Comm	175 Water St	3
NH BOE Hill Region Career	140 Legion Ave	1
NH BOE Hillhouse HS	480 Sherman Parkway	1
NH BOE Hillhouse HS Field House	480 Sherman Parkway	1
NH BOE Jackie Robinson New School	150 Fournier Street	1
NH BOE John Daniels	569 Congress Ave	1
NH BOE John S. Martinez School	100 James Street	1
NH BOE Katherine Brennan	200 Wilmot Rd	1
NH BOE Lexington Ave. Quinnipiac Elementary School (K-4)	460 Lexington Ave	1
NH BOE Lincoln Bassett	130 Bassett St	1
NH BOE Metropolitan Business School (New)	119 Water Street	1
NH BOE Nathan Hale	480 Townsend Ave	1
NH BOE New Horizons High School	103 Hallock Ave	1
NH BOE Reginald Mayo Learning Center	185 Goffe St	9
NH BOE Ross Woodward School	185 Barnes Ave	1
NH BOE Sheridan Academy	191 Fountain St	1
NH BOE Sound Aquaculture School	60 South Water Street	1

NH BOE Strong School (FKA Vincent Mauro)	130 Orchard St	1
NH BOE Troup Magnet	259 Edgewood Ave	1
NH BOE Truman School	114 Truman Street	1
NH BOE Wilbur Cross	181 Mitchell Dr	1
NH BOE Wooster Head Start and Conte School	21 Wooster Place	1
NH BOE Worthington Hooker [3-8]	691 Whitney Ave	1
NH BOE Worthington Hooker [K-2]	180 Canner St	1

In Process