



# Township of Union Public Schools




Energy Savings Improvement Program (ESIP): Savings Discussion

April 24, 2024

Life Is On



# Project Goals

 <b>Reduce Energy &amp; Operational Costs</b>	 <b>Improve Indoor Air Quality (IAQ) &amp; Comfort</b>	 <b>Fund Major Capital Needs</b>
<p>Significant savings &amp; incentives</p> <p>Positive economic impact</p>	<p>Better temperature control</p> <p>Additional air conditioning in select areas</p> <p>Updated lighting systems</p>	<p>\$15 M in capital improvements</p> <p>HVAC</p> <p>Roofing</p> <p>+ More</p>

**Budget Neutral Project:  
Zero taxpayer impact**

# Timeline

2018	Local Government Energy Audit
July 2019	RFP for an Energy Services Company (ESCO)
2019 - 2020	Project Development and Approvals
Oct 2020 – Feb 2021	Financing & Construction Contracts
2021 – 2022	Construction
June 2023 – June 2024	Measurement & Verification period (year 1)

A wide-angle photograph showing a vast array of solar photovoltaic (PV) panels installed on a flat roof. The panels are arranged in neat, parallel rows, extending across the entire visible roof area. In the background, a suburban residential neighborhood with various houses and bare trees is visible under a clear, light blue sky. To the right, a green soccer field with a goal is partially visible. The overall scene conveys a message of sustainable energy adoption in educational institutions.

**Solar PV at all 10 schools**

# New Ceilings: Burnet & Battle Hill



Before



After

# High School: New Electrical Transformers



# High School: New Rooftop Units & HVAC



# Franklin: New Boilers





# Hannah Caldwell: New Chiller



Old Chiller



New Chiller

# Hannah Caldwell: New Cooling Tower



# Roofing Upgrades

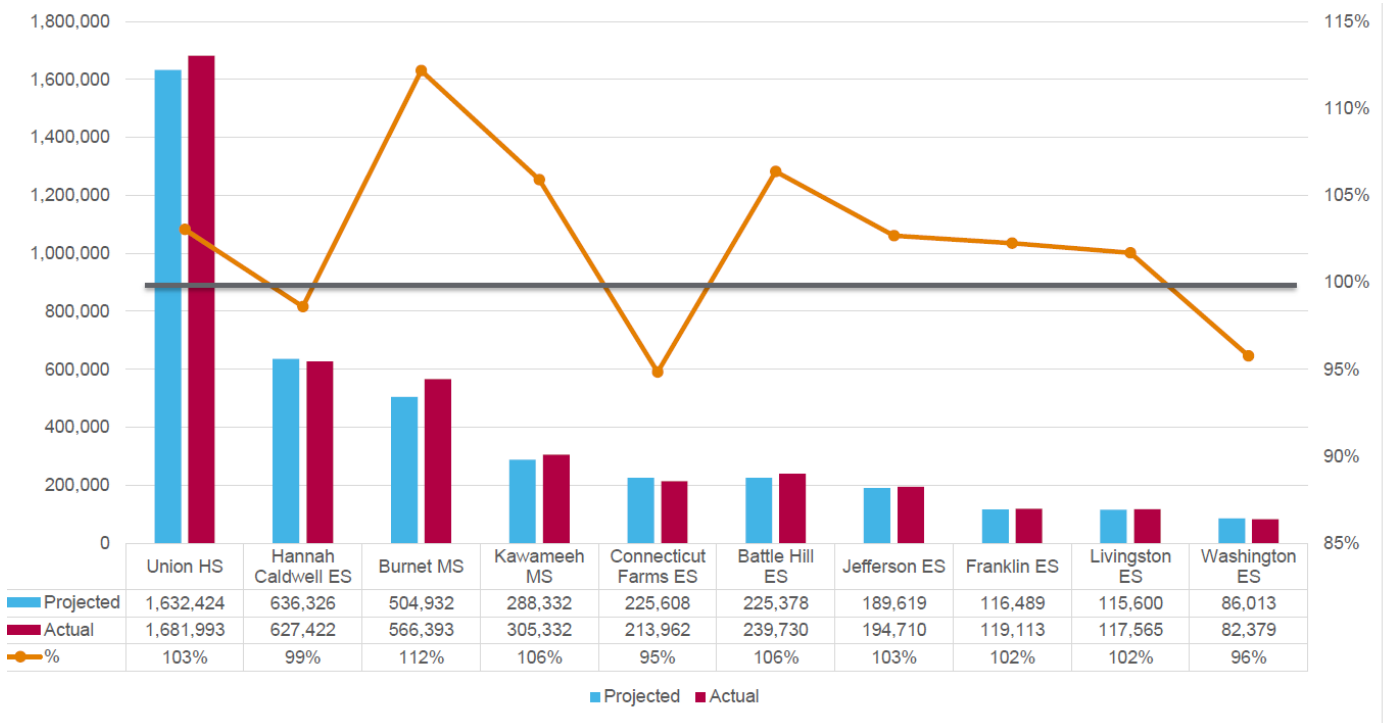


Over 400,000 square feet

Across 6 schools

# Projected vs. Actual Solar Production (kWh)

Overall: 101% of expected



# Example Solar Savings

February 2024, Union High School

## Electric from Solar (43% of kwh)

Generation Amount	Electric Rate	Amount
68,583.1 kWh	\$0.01776 / kWh	\$1,218.04
<b>Total Before Tax</b>		<b>\$1,218.04</b>
<b>Tax and Fees</b>		<b>\$0.00</b>
<b>Total</b>		<b>\$1,218.04</b>

PPA Rate: \$0.01776 / kWh  
(1.5% escalator for 15 years)

## Electric from Grid (57% of kwh)

### Delivery charges

Monthly service charge		\$370.81
Charges for delivering electric to you:		
Annual Demand	417.900 kW x \$4.959608	\$2,072.62
<i>The highest Measured Demand in any time period in the current month.</i>		
kWh - On-peak	38,487 kWh x \$0.008613	\$331.49
<i>Energy consumed between 8am-10pm, Monday to Friday.</i>		
kWh - Off-peak	51,412 kWh x \$0.008613	\$442.81
<i>Energy consumed outside peak hours.</i>		
Societal Benefits	89,899 kWh x \$0.008282	\$744.54
<i>This charge recovers the cost of government mandated programs designed to achieve public policy goals, such as energy conservation.</i>		
<b>Total electric delivery charges</b>		<b>\$3,962.27</b>

### Supply charges

BGS Capacity		
Transmission	0.001 kW x \$10,000,000	\$0.01
Cost of electric supplied by PSE&G:		
On-peak	38,487 kWh x \$0.076152	\$2,930.86
Off-peak	51,412 kWh x \$0.059106	\$3,038.76
<b>Total electric supply charges</b>		<b>\$5,969.63</b>

**Total electric charges** **\$9,931.90**

Grid rate: \$0.093047 / kWh  
(varies, rate shown for Feb 2024 only)

# Measurement & Verification: Total Energy Usage

## Context:

- 6 months into 12-month measurement & verification period
- Not all meters are being tracked/normalized (HS, Burnet, and Hannah Caldwell focus)
- Some adjustments due to hours of operation
- Always on the lookout for opportunities for improvement regarding energy savings

## Bottom line:

- Currently savings appear to be right on target
- Full 1-year savings report expected in the fall

# Questions?