



Big Spring School District  
**Phase II Investment Grade Audit**  
August 15, 2023





**Mark J. Gallick**  
**McClure Company**  
Account Executive  
25 Years of Experience



**Mike Grochalski, PE,  
CEM**  
**McClure Company**  
Senior Project  
Development Engineer  
13 Years of Experience



**John Gunning, PE**  
**McClure Company**  
Senior Mechanical  
Engineer  
23 Years of Experience

## ECM-1 High School HVAC Upgrades

### + Proposed Scope of Work

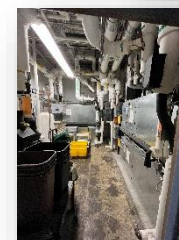
- Kitchen Cooling:
  - Remove the Make-Up Air Unit and install a new DX/HW Make-Up Unit
- Roof Top Units & Energy Recovery Ventilators:
  - Remove the Roof Top Units and Energy Recovery Ventilators
  - Install new consolidated RTU/ERVs
  - One (1) system will remain a separate RTU and ERV
- Roof Mounted Exhaust Fans:
  - Remove and replace the Exhaust Fans



## ECM-2 Mount Rock HVAC Upgrades

### + Proposed Scope of Work

- Kitchen Cooling:
  - Provide and install mini-split heat pump systems
    - Two (2) indoor ceiling cassettes and one (1) outdoor condensing unit
- Energy Recovery Ventilator Upgrades:
  - Remove existing and install new Energy Recovery Ventilators
  - Remove six (6) Water to water heat pumps and connect the geothermal loop directly to the new Geothermal Water Heat Pump Energy Recovery Ventilators and Roof Top Heat Pump
  - Replace Library AHU with a new RTU Heat Pump
  - Replace computer room split system with two (2) ceiling cassettes
- Rebalance the supply, outside, and exhaust air on all equipment
  - Add damper actuators to the existing relief damper to alleviate pressure issues





## ECM-3 Oak Flat E.S. Kitchen Cooling Upgrades

### + Proposed Scope of Work

- Kitchen Cooling:
  - Provide and install mini-split heat pump systems
    - Two (2) indoor ceiling cassettes and one (1) outdoor condensing unit



## ECM-4 Newville E.S. HVAC Upgrades

### + Proposed Scope of Work

- Office HVAC Upgrades:
  - Remove two (2) Rooftop Water Source Heat Pumps, one (1) split system FCU/HP and above ceiling energy recovery unit
  - Install two (2) Rooftop water source heat pumps, one (1) Mini-split Fan Coil Unit
- Remove and replace two (2) exhaust fans in the same location



## ECM-5 High School Window Replacements

### + Proposed Scope of Work

- Replacement of forty-five (45) pieces of exterior insulated glass
  - 1" clear insulated glass with low emissivity coating
  - New glazing gasket to be replaced as needed



## ECM-6 Mount Rock E.S./Admin Roof Replacement

### + Proposed Scope of Work

- Roof Upgrade:
  - Remove the existing EPDM Roofing Membrane
    - Replace any wet/damaged insulation
  - Install ½" fiberboard insulation
  - Install one ply of 80 mil modified base sheet
  - Install 80 mil modified cap sheet
  - Install 145 mil reinforced surface sheet
  - Provide and install all flashing and lap seams
- Window/GC Modifications for the Roof Upgrade:
  - Existing roof level windows in connector will be removed and infilled for new roof flashing
  - Existing clerestory windows in LGI room will be removed and sill height will be increased to allow new roof flashing. New windows will be provided and install in new opening



Big Spring School District						
ECM	Description	ECM Cost	20 Year Energy Savings	Development Status	Design Option 1	Design Option 2
1	High School HVAC Upgrades					
1a	Kitchen Cooling	\$ 147,753	\$ -	IGA	x	
1b	RoofTop Units & Energy Recovery Ventilators	\$ 3,431,640	\$ 592,012	IGA	x	x
1c	Exhaust Fans	\$ 166,271	\$ -	IGA	x	x
2	Mount Rock HVAC Upgrades					
2a	Kitchen Cooling	\$ 57,116	\$ -	IGA	x	
2b	Energy Recovery Ventilator Upgrades	\$ 960,643	\$ 83,083	IGA	x	x
2c	Rebalancing	\$ 51,104	\$ -	IGA	x	x
3	Oak Flat E.S. Kitchen Cooling Upgrades	\$ 74,149	\$ -	IGA	x	
4	Newville E.S. HVAC Upgrades	\$ 220,356	\$ 3,067	IGA	x	x
5	High School Window Replacements	\$ 51,856	\$ 11,933	IGA	x	x
6	Mount Rock E.S./Admin Roof Replacement	\$ 1,920,449	\$ 18,073	IGA	x	x
7	2.05 mW Solar PPA (20 Year Savings)	\$ -	\$ 617,462	Scoping		
8	3.77 mW Solar PPA (20 Year Savings)	\$ -	\$ 1,534,908	Scoping	x	x
					Design Option 1	Design Option 2
Total Hard Costs (THC):					\$7,081,337	\$6,802,319
Engineering Costs (Mechanical, Electrical, Energy, Structural, Consultant, Etc.):					\$285,163	\$271,563
Permit & Bonds:					\$144,057	\$138,375
Commissioning:					\$34,565	\$32,917
Measurement & Verification:					\$21,603	\$20,573
Total Soft Costs (TSC):					\$485,388	\$463,429
					Design Option 1	Design Option 2
Total Project Costs (TPC=THC+TSC):					\$7,566,725	\$7,265,748
Project Term (Years):					20	20
20 Year Energy and Operational Savings (\$):					\$2,243,076	\$2,243,076
Actual Project Costs (TPC-S):					\$5,323,649	\$5,022,672



## Reduce Costs

**Save** on Electricity Costs Now & No Fees Upfront



## Maximize Incentives

Leverage Rebates & Tax Credits to **Reduce** Install Cost



## Future Planning

**Protect** District Long Term from Electricity Escalation



## Real World Financials

**Realistic** Solar Analysis & Financial Projections



## Educational Tool

Live Solar Dashboard **Curriculum** Opportunity & Internships





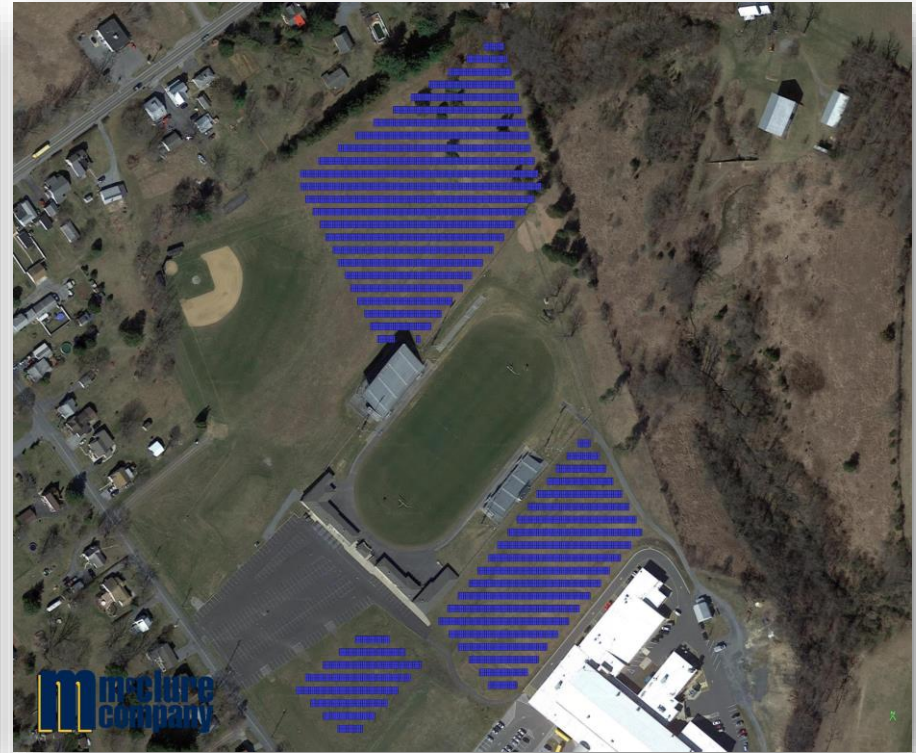


**+ 2.05 mW**

77% offset of campus

\$1.12M - \$1.40M 30-Year Savings

\$9,000-\$11,000 Year 1 Savings



**+ 3.77 mW**

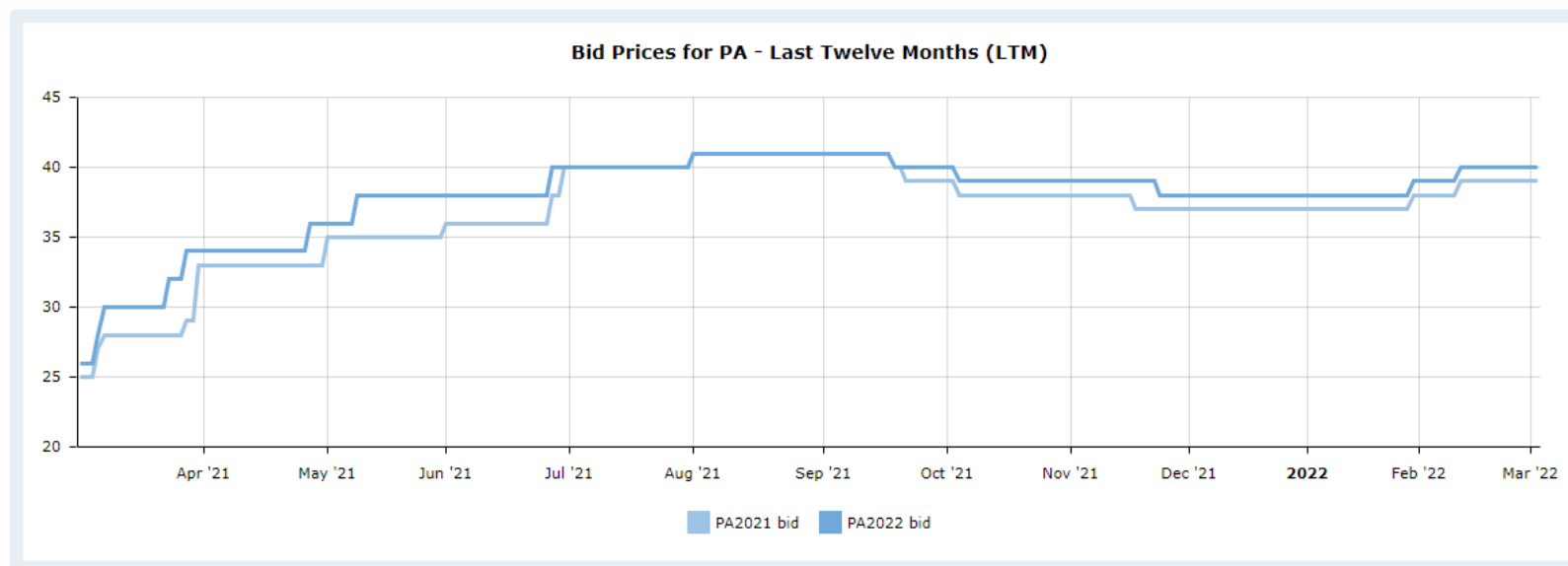
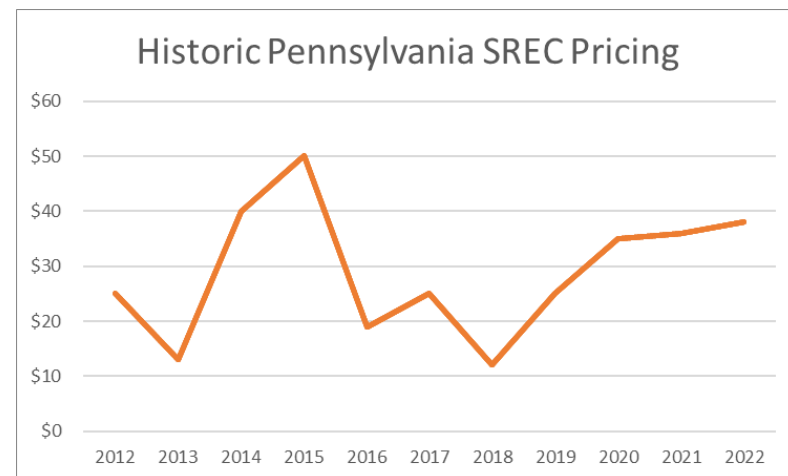
100% offset of campus

\$2.76M - \$3.46M 30-Year Savings

\$20,360-\$25,450 Year 1 Savings

## Solar Renewable Energy Credits (SRECs)

- Volatile Market – Stock Option
- Caution Over Stipulating
- Historically, SRECs pricing has been \$11-\$50
- McClure modeled \$42/Year for Years 1-5, \$32 for Years 5-10, \$22 for Years 11-15, and \$12 for Years 16-30
- McClure to manage SRECs – however, District has option to manage SRECs directly



Sources:

<https://www.flettexchange.com/markets/srec/pennsylvania/market-prices>

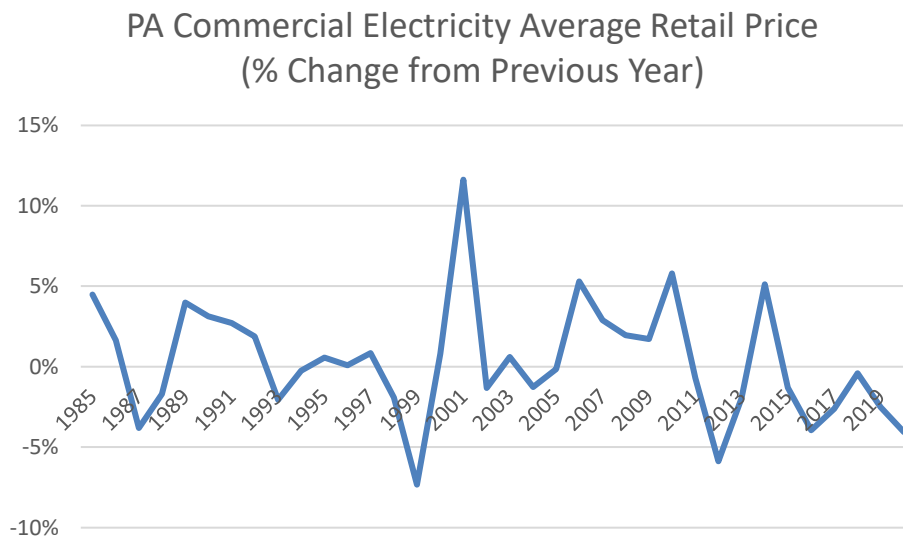
<https://www.sretrade.com/markets/rps/srec/pennsylvania>

<https://www.greentechmedia.com/articles/read/renewable-portfolio-standards-drive-60-of-us-clean-energy-boom>

## Electricity Analysis

### Escalation

- Over the last 35 years, the PA average annual cost increase in electricity is **3.3%**.
- Except for deregulation (2001, 11.6%), the maximum cost increase in electricity was **5.9%**.
- McClure modeled **2.5%** per year increase in electricity rates over the 30-year PPA.
- District locks power rate for 30 years.



Sources:

[https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep\\_prices/com/pr\\_com\\_PA.html&sid=PA](https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_prices/com/pr_com_PA.html&sid=PA)

<https://www.eia.gov/state/data.php?sid=PA#Prices>





# Question & Answer

**Mark J. Gallick**

Account Executive

717-574-6539

[markgallick@mcclureco.com](mailto:markgallick@mcclureco.com)