

# Pottsville Area School District IGA Review November 8, 2023

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# PASD Goals for GESA RFQ

*Ultimate goal to reduce the Board's energy costs through improved energy efficiency and conservation*

## Pottsville Goals



### **HIGHEST PRIORITY**

Central Plant ATC Conversion of All Schools

- All JSC Elementary heat pumps/RTU's
- DHHL air handler replacement
- DHHL UV replacements (14)



### **NEXT PRIORITY**

JSC Elementary

- Fresh air systems (dedicated outside air)
- Cooling tower replacement



### **LOWER PRIORITY**

- Duct board replacement HS
- Remaining ATC conversion
- HVAC replacement in planetarium HS

## Ameresco Due Diligence Benefits



Assess all facilities across the school district



Provide a holistic approach through the IGA process



Communicate results of the assessment findings



Collaborate on a design build approach to address the District priorities based on the IGA results



Implement a strategy that maximizes all available funding mechanisms, addressing priorities



# All Schools and Academic Center-Assessment

- ✓ Building envelope system - air exfiltration which is air from inside leaking to the outside and air infiltration from the outside coming in
  - ✓ **Team discovered building envelope infiltration/exfiltration concerns in all buildings with respect to doors, windows, floors, etc.**
- ✓ Lighting
  - ✓ **Existing inefficient lighting remains in all buildings, except JSC Elementary**
- ✓ Building management system - Honeywell system
  - ✓ **Existing Honeywell system was at the end of its useful life more than 25 years ago.**
  - ✓ Demand control ventilation is the ability to automatically adjust the ventilation of a space depending on how many people are in a particular space
  - ✓ **Pneumatics remain in DHHL and PAHS (inefficient system using compressed air)**
- ✓ HVAC system - Evaluated existing equipment in each of the (4) buildings, such as: Boilers, Chiller, Cooling Towers, Air Handling Units, Root Top Units, Unit Ventilators, Radiators, and Steam Traps. Assessment for each building to follow. **Units are 15+ years past their useful life.**



# JSC Elementary & Academic Center HVAC Assessments

- ✓ JSC Elementary
  - ✓ Pipe insulation
  - ✓ Heat Recovery Units
  - ✓ Cooling tower
  - ✓ Fiberboard ductwork
- ✓ Academic Center
  - ✓ Roof Top Units





# DHHL Middle School and PAHS HVAC Assessments

- ✓ DHHL Middle School
  - ✓ Air handling systems
  - ✓ Pipe insulation
  - ✓ Pool system (pool cover and cogeneration) – not recommended at this time by the administrative team.
  - ✓ Cool Martz Hall – not recommended at this time by the administrative team.
  
- ✓ Pottsville Area High School
  - ✓ Steam traps
  - ✓ Pipe insulation
  - ✓ Window air conditioning unit



# All Measures Evaluated

		Measure Costs	O&M Savings	Energy Savings	Savings	Rebates	Measure Cost After Rebate
1	Lighting System Improvements	\$ 76,166	\$ 333	\$ 1,592	\$ 1,925	\$ 2,785	\$ 73,381
2	Integrated and New Energy Management Systems	\$ 1,688,373	\$ 1,006	\$ 103,946	\$ 104,952	\$ 52,199	\$ 1,636,173
3	Pneumatics to DDC Conversion	\$ 632,835	\$ -	\$ 1,507	\$ 1,507	\$ -	\$ 632,835
4	Install Thermostatic Radiator Valve	\$ 147,408	\$ -	\$ 2,183	\$ 2,183	\$ -	\$ 147,408
5	Demand Controlled Ventilation	\$ 19,301	\$ -	\$ 6,491	\$ 6,491	\$ 419	\$ 18,882
6	Elect to Hot Water-Unit Ventilator Replacement	\$ 827,894	\$ 4,000	\$ 6,240	\$ 10,240	\$ 24,528	\$ 803,366
7	Air Handling Unit Replacement	\$ 1,453,699	\$ 4,000	\$ 208	\$ 4,208	\$ 4,000	\$ 1,449,699
8	Air Handling Unit Refurbishment	\$ 73,900	\$ 250	\$ 773	\$ 1,023	\$ 1,230	\$ 72,669
9	Steam Trap Replacements	\$ 121,473	\$ -	\$ 14,636	\$ 14,636	\$ 9,600	\$ 111,873
10	Infiltration Reductions	\$ 81,028	\$ -	\$ 1,193	\$ 1,193	\$ 101	\$ 80,926
11	Pipe Insulation	\$ 79,274	\$ -	\$ 6,281	\$ 6,281	\$ -	\$ 79,274
12	Heat Recovery Units - Fresh Air System Replacement	\$ 1,146,867	\$ 400	\$ 2,019	\$ 2,419	\$ 400	\$ 1,146,467
13	Window AC Timer	\$ 3,797	\$ -	\$ 120	\$ 120	\$ -	\$ 3,797
14	Add cooling to Martz Hall	\$ 2,203,414	\$ -	\$ (14,652)	\$ (14,652)	\$ -	\$ 2,203,414
15	Replace Cooling Tower	\$ 407,797	\$ 1,000	\$ 3,404	\$ 4,404	\$ 2,204	\$ 405,593
16	Cogeneration	\$ 635,530	\$ (11,743)	\$ 14,393	\$ 2,650	\$ 6,097	\$ 629,433
17	Elect to Hot Water-Window Sill	\$ 713,674	\$ -	\$ 52	\$ 52	\$ 203	\$ 713,471
18	Exterior Lighting System Improvements	\$ 2,046,940	\$ -	\$ 7,196	\$ 7,196	\$ 10,296	\$ 2,036,643
19	Pool Cover	\$ 269,617	\$ -	\$ 5,822	\$ 5,822	\$ 3,137	\$ 266,480
20	Replace Fiberboard Ductwork	\$ 1,235,764	\$ -	\$ -	\$ -	\$ -	\$ 1,235,764
X	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Totals</b>		<b>\$ 13,864,749</b>	<b>\$ (753)</b>	<b>\$ 163,402</b>	<b>\$ 162,649</b>	<b>\$ 117,200</b>	<b>\$ 13,747,549</b>

Potential for cost avoidance through elimination or reduction of some maintenance contracts.



# ECM Matrix – All Measures Evaluated

Pottsville Area School District Energy Conservation Measures (ECMs)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	X	
	Lighting System Improvements	Integrated and New Energy Management Systems	Pneumatics to DDC Conversion	Install Thermostatic Radiator Valve	Demand Controlled Ventilation	Elect to Hot Water-Unit Ventilator Replacement	Air Handling Unit Replacement	Air Handling Unit Refurbishment	Steam Trap Replacements	Infiltration Reductions	Pipe Insulation	Heat Recovery Units - Fresh Air System Replacement	Window AC Timer	Add cooling to Martz Hall	Replace Cooling Tower	Cogeneration	Elect to Hot Water-Window Sill	Exterior Lighting System Improvements	Pool Cover	Replace Fiberboard Ductwork	Contingency	
Facility	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	X	
John S. Clark ES		X			X					X	X	X			X			X		X		
DHH Lengel MS	X	X			X	X	X	X		X	X			X		X	X	X	X			
High School	X	X	X	X	X				X	X	X		X					X				
Academic Center	X	X								X												



# Equipment in Immediate Need for Repair

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Equipment in need for immediate repairs:

- ✓ The gymnasium's heating and ventilation unit at Clarke ES
- ✓ A heating coil at one of the two units serving Martz Hall

These were not included in our evaluation since these units will need to be repaired in order to be used for this school year.

