



Dayton Independent Schools

ECM - Project Opportunities (12.5.2018)

	Energy Conservation Measures	Annual Fuel Savings	Annual Electrical Savings	Annual Maint. Savings	Project Cost	Utility Rebate Amount	ROI (%)
1	<p><u>Lighting Retrofits (Interior) at Admin Building, High School, Elementary School and Day Care - All LED Replacements with Dimming and LightCloud Controls at the High School Gym</u></p> <p>Dimming capabilities will be provided at the Jr. High/High School and Elementary School</p> <ul style="list-style-type: none"> - Retrofit fluorescent fixtures with direct wire LED - Replace gym fluorescent fixtures with LED high bay fixtures - Relamp incandescent with LED screw in lamps - Retrofit CFLs with LED can kits and direct wire LED plug in lamps - Install vending miser controls - Strategically implement occupancy sensors - Replace existing exit fixtures with LED exit fixtures - 10 Year Material Warranty <p>Not Included Scope</p> <p>High School</p> <ul style="list-style-type: none"> - (4) Existing screw based LED fixtures typically found in closets - (5) Existing LED 2x2's found in the Girl's locker room - (41) Existing LED 2x4's found in the Art room and Main Office Area - School recently renovated / added-on to the front entrance area and installed the LED fixtures 	\$ -	\$ 21,278	\$ 9,120	\$ 224,700	\$ 28,700	15.51%
2	<p><u>Lighting Retrofits (Exterior) at Admin Building and Elementary School</u></p> <ul style="list-style-type: none"> - Replace HID fixtures with LED canopy, wall pack and flood fixtures - Replace CFLs with LED wall pack and canopy fixtures - Retrofit CFLs with direct wire LED plug in lamps - 10 Year Material Warranty <p>Not Included Scope</p> <ul style="list-style-type: none"> - Entire High School exterior - already has LED - All Daycare / Bus Parking exterior is utility owned <p>Elementary School</p> <ul style="list-style-type: none"> - (5) Existing LED wall-packs - (2) Existing screw based LED fixtures 	\$ -	\$ 525	\$ 365	\$ 6,890	\$ 820	14.66%
3	<p><u>Solar 30 kW Rooftop PV System at High School - Customer Requested</u></p> <ul style="list-style-type: none"> - Install 30 kW rooftop system at High School - System will produce approximately 39,200 kWh annually <p>EOU looked into a power purchase agreement but it does not make financial sense for the School because of their low kWh price</p>	\$ -	\$ 3,862	\$ (420)	\$ 62,400	\$ -	5.52%



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4	<u>Upgrade Controls High/ Middle School, Replace and Integrate Controls at Elementary School and Implement Advanced Energy Conservation Measures</u> - Upgrade existing Tridim AX control system at the high school/middle school to Tridium N4 to eliminate all JAVA issues and integrate the elementary school into the new N4 system (Elementary has Tridium AX and Carrier controls) - Install new plant controllers at the elementary school for the hot water plant, chilled water plant, exhaust fan plant - Programming under ASHRAE Cycle 2 for all (38) unit ventilators that will have new factory Carrier OPEN controls over BACnet - Install CO2 sensors on (25) rooftop units at the high school/middle school, and elementary school in order to implement demand control ventilation - Integrate the new controllers at the elementary school into the newly upgraded N4 system at the high school/middle school - Point I/O Verification to thoroughly analyze program, and verify points	\$ 1,549	\$ 12,890	\$ 3,120	\$ 183,420	\$ 2,180	9.69%
5	<u>Condensing Boiler (High School)</u> - Replace (1) existing Weil-McLain non-condensing boiler with (1) new Weil-McLain condensing boiler - Removal and disposal of (1) existing Weil-McLain LGB-8 boiler - Installation of (1) new Weil-McLain Slim-Fit 750 boiler - New boiler is up to 93% efficient and has a 5:1 turndown ratio	\$ 2,534	\$ -	\$ 1,380	\$ 68,060	\$ -	5.75%
6	<u>Variable Frequency Drives (High School, Elementary School)</u> - Install variable frequency drive on (2) 2-HP hot water pumps at the high school - Install (1) 25-HP variable frequency drive on the cooling tower fan at the elementary school	\$ -	\$ 676	\$ 185	\$ 7,820	\$ 720	12.13%
7	<u>Time Clock for Domestic Hot Water Pumps (Administration)</u> - Install digital time clock for domestic hot water pumps at the administration building - Time clock will be set up to reduce the run time of the pumps during unoccupied hours	\$ -	\$ 58	\$ 20	\$ 370	\$ -	21.08%
8	<u>Programmable Thermostats (Administration)</u> - Replace existing (11) thermostats that control the administration building with (11) new programmable Wi-fi thermostats - New thermostats will be able to be viewed, scheduled, and controlled remotely through a cellphone app as long there is a Wi-fi connection	\$ 72	\$ 317	\$ 185	\$ 4,870	\$ 140	12.14%
9	<u>Kitchen Enhancements (High School)</u> - Install thermal dampening gel packs on (1) walk-in refrigerator and (2) walk-in freezer unit	\$ -	\$ 420	\$ 132	\$ 3,120	\$ 120	18.40%



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10	<u>Checkbook Fund</u> - Mechanical, Electrical and Lighting "Contingency and Repairs Checkbook" <i>- if not used, the funds will be refunded to the facility in full</i>	\$ -	\$ -	\$ -	\$ 10,000	\$ -	NA
12	<u>M&V and Project Commissioning</u> - Project Measurement and Verification and Project Commissioning	\$ -	\$ -	\$ -	\$ 20,860	\$ -	NA
13	<u>Unit Ventilator Replacements (38) with DDC Controls -</u> Replacement of the existing unit ventilators with new Carrier unit ventilators and new Carrier Open controls that will be fully integrated into the building automation system via BACnet.	\$ 1,620	\$ 6,170	\$ 10,070	\$ 367,200	\$ 4,780	4.93%
14	<u>Turn Key Project</u> Project Design, Engineering, Project Management, Energy Engineering, Permits, OCEPC Participant, Rebate Acquisition, Etc.	\$ -	\$ -	\$ -	\$ 36,420	\$ -	NA
Project Totals		\$ 5,775	\$ 46,196	\$ 24,157	\$ 996,130		7.64%
Estimated Rebates						\$ (37,460)	
Project Totals (With Rebates)		\$ 5,775	\$ 46,196	\$ 24,157	\$ 958,670		7.94%