

York Region District School Board

Renewable Energy	Define	Number of systems in asset portfolio	Total size (kW)	Total number of ekWh generated annually	Actual or Estimated Generation (ekWh)
Solar photovoltaic		12	315.4	374,827	374,827
Solar air		0		0	0
Solar water		0		0	0
Wind Turbine		0		0	0
Biomass		0		0	0
Other		0		0	0

Design, Construction and Retrofit Strategies													
Lighting	Quantity of Time that Measure will be in place (years)	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23	
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)	
High Efficiency Lighting Systems	15	\$ 20,000	16,327	\$ 20,000	16,327	\$ 20,000	16,327	\$ 20,000	16,327	\$ 20,000	16,327	244,898	
Outdoor Lighting	15	\$ 5,000	4,082	\$ 5,000	4,082	\$ 5,000	4,082	\$ 5,000	4,082	\$ 5,000	4,082	61,224	
Occupancy Sensors	10	\$ 2,000	2,286	\$ 2,000	2,286	\$ 2,000	2,286	\$ 2,000	2,286	\$ 2,000	2,286	34,286	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
HVAC	Quantity of Time that Measure will be in place	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23	
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)	
Efficient Boilers (near condensing)	30	\$ 1,300,000	903,594	\$ 1,200,000	834,086	\$ 1,200,000	834,086	\$ 1,000,000	695,072	\$ 1,000,000	695,072	12,441,788	
High Efficiency Boilers (condensing)	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
High-efficiency boiler burners	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Geothermal	20	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Heat recovery/enthalpy wheels	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Economizers	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Energy efficient HVAC systems	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Energy efficient Rooftop units	15	\$ 600,000	130,944	\$ 500,000	109,120	\$ 500,000	109,120	\$ 400,000	87,296	\$ 400,000	87,296	1,680,443	
High Efficiency Domestic Hot Water	15	\$ 50,000	39,524	\$ 50,000	39,524	\$ 50,000	39,524	\$ 50,000	39,524	\$ 50,000	39,524	592,856	
Efficient Chillers and Controls	25	\$ 100,000	4,762	\$ 100,000	4,762	\$ 100,000	4,762	\$ 100,000	4,762	\$ 100,000	4,762	71,429	
High-efficiency motors	20	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
VFD	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Demand Ventilation	10	\$ 50,000	32,736	\$ 50,000	32,736	\$ 50,000	32,736	\$ 50,000	32,736	\$ 50,000	32,736	491,039	
Entrance Heater Controls	20	\$ 15,000	9,821	\$ 15,000	9,821	\$ 15,000	9,821	\$ 15,000	9,821	\$ 15,000	9,821	147,312	
Destratification Fans	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Controls	Quantity of Time that Measure will be in place	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23	
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)	
Building Automation Systems - New	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Building Automation Systems - Upgrade	10	\$ 400,000	112,237	\$ 300,000	84,178	\$ 300,000	84,178	\$ 250,000	70,148	\$ 250,000	70,148	1,360,878	
Real-time energy data for operators to identify and diagnose building issues	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Voltage Harmonizers	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Building Envelope	Quantity of Time that Measure will be in place	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23	
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)	
Glazing	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Increased Wall Insulation	50	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
New Roof	25	\$ 2,000,000	172,652	\$ 2,000,000	172,652	\$ 2,100,000	181,285	\$ 2,000,000	172,652	\$ 2,000,000	172,652	2,615,677	
New Windows	30	\$ 400,000	6,906	\$ 600,000	10,359	\$ 600,000	10,359	\$ 400,000	6,906	\$ 400,000	6,906	127,762	
Treatments	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Shading Devices	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	
Design, Construction and Retrofit Strategies Total		\$ 4,942,000	1,435,869	\$ 4,842,000	1,319,931	\$ 4,942,000	1,328,564	\$ 4,292,000	1,141,610	\$ 4,292,000	1,141,610	19,869,591	

Energy Payback Period	% related to Electricity	% related to Natural Gas
7	100	0
7	100	0
5	100	0
0		100

Energy Payback Period	% related to Electricity	% related to Natural Gas
40	5	95
10	5	95
5	5	95
35	100	0
8	20	80
7.5	50	50
75	50	50
45	50	50
25	15	85
120	100	0
10	100	0
5	75	25
15	50	50
15	50	50
7	100	0
0		100

Energy Payback Period	% related to Electricity	% related to Natural Gas
15	50	50
35	50	50
3	50	50
7	100	0
0		100

Energy Payback Period	% related to Electricity	% related to Natural Gas
80	20	80
40	20	80
200	20	80
1000	20	80
10	20	80
20	100	0
0		100

 = Default value
 = Calculated Value
\$0.175 = cost of 1 ekWh electricity
\$ 0.0287 = cost of 1 ekWh natural gas
0.0955 m³ = 1 ekWh (as per NRCan conversion table)
\$0.30 = cost of 1 m³ of natural gas

Operations and Maintenance Strategies												
Policy and Planning	Quantity of Time that Measure will be in place (years)	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)
New school design/construction guidelines and specifications	5	\$ 10,000	19,642	\$ 10,000	19,642	\$ 10,000	19,642	\$ 10,000	19,642	\$ 10,000	19,642	294,623
Day and Night Temperature Guidelines for all Schools	10	\$ 2,000	6,906	\$ 2,000	6,906	\$ 2,000	6,906	\$ 2,000	6,906	\$ 2,000	6,906	103,591
Night time blackout of sites	Interior	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	24,490
	Exterior	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	\$ 2,000	1,633	24,490
Procures only Energy Star certified appliances	5	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Demand Ventilation (servicing)	3	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
HVAC optimization (coil cleaning, re-calibration of equipment)	3	\$ 2,000	9,821	\$ 2,000	9,821	\$ 2,000	9,821	\$ 2,000	9,821	\$ 2,000	9,821	147,312
Commissioning (retro and re)	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Energy Audits	Quantity of Time that Measure will be in place	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Total Accumulated Energy Savings (ekWh)
Walk Through Audit	5	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Engineering Audit	5	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Operations and Maintenance Strategies Total		\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	594,505

Energy Payback Period	% related to Electricity	% related to Natural Gas
5	50	50
5	20	80
7	100	0
7	100	0
5	100	0
5	50	50
2	50	50
10	50	50
0		100

Energy Payback Period	% related to Electricity	% related to Natural Gas
1000	50	50
1000	50	50
0		100

\$0.175 = cost of 1 ekWh electricity
 \$ 0.0287 = cost of 1 ekWh natural gas
 0.0955 m³ = 1 ekWh
 \$0.30 = cost of 1 m³ of natural gas

Occupant Behaviour Strategies

Training and Education	Quantity of Time that Measure will be in place (years)	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23 Estimated Total Accumulated Energy Savings (ekWh)
		Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	Estimated Cost of Implementation	Estimated Annual Energy Savings from all projects (ekWh)	
Building Operator Training	3	\$ 10,000	28,622	\$ 10,000	28,622	\$ 10,000	28,622	\$ 10,000	28,622	\$ 10,000	28,622	429,332
Energy Benchmarking Program	5	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Building Automation Training (site specific)	3	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Ongoing training and awareness programs for energy conservation	5	\$ 10,000	6,236	\$ 10,000	6,236	\$ 10,000	6,236	\$ 10,000	6,236	\$ 10,000	6,236	93,537
Provide detailed information on Building Operational costs	1	\$ 5,000	49	\$ 5,000	49	\$ 5,000	49	\$ 5,000	49	\$ 5,000	49	737
Provide detailed information on energy consumption (e.g. via the Utility Consumption Database or other database)	1	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Participate in environmental programs, such as EcoSchools, Earthcare	1	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Other tools (Define)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-
Occupant Behaviour Strategies Total		\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	523,605

\$0.175 = cost of 1 ekWh electricity
 \$ 0.0287 = cost of 1 ekWh natural gas
 0.0955 m³ = 1 ekWh
 \$0.30 = cost of 1 m³ of natural gas

Energy Payback Period	% related to Electricity	% related to Natural Gas
3	60	40
1000	50	50
1	60	40
10	90	10
1000	50	50
1000	50	50
5	90	10
0		100

Conservation Goal

	2018	
Total Building Area (includes portables) (m ²)	1,504,095	Enter from UCD - use square meters 1 ft ² = 0.0929 m ²
Total Building Area (includes portables) (ft ²)	16,189,953	
Energy Consumption for the board (ekWh)	212,230,158	

	2018-19		2019-20		2020-21		2021-22		2022-23		2018/19-2022/23
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Appendix B; Design, Construction and Retrofit Strategies Total	\$ 4,942,000	1,435,869	\$ 4,842,000	1,319,931	\$ 4,942,000	1,328,564	\$ 4,292,000	1,141,610	\$ 4,292,000	1,141,610	19,869,591
Appendix C; Operations and Maintenance Strategies Total	\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	\$ 18,000	39,634	594,505
Appendix D; Occupant Behaviour Strategies Total	\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	\$ 25,000	34,907	523,605
TOTAL	\$ 4,985,000	1,510,409	\$ 4,885,000	1,394,472	\$ 4,985,000	1,403,105	\$ 4,335,000	1,216,151	\$ 4,335,000	1,216,151	20,987,702
Percentage reduction		0.71		0.66		0.66		0.57		0.57	3.18
Conservation Goal (ekWh/m ²)	↑	1.00	↑	0.93	↑	0.93	↑	0.81	↑	0.81	4.48
Conservation Goal (ekWh/ft ²)		0.09		0.09		0.09		0.08		0.08	0.42

Check this total to confirm validity of estimated amount to be spent during that year

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