Calculating Energy Conservation Goals for FY 2019 to FY 2023

Design, Construction and Retrofit Strategies

		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
Lighting	**Quantity of Time that Measure will be in place (years)**	**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 Saving (ekWh)**	**Estimated Total Accumulated Energy Savings (ekWh)**	**Energy Payback Period**	**%related to Electricity**	**%related to Natural Gas**
High Efficiency Lighting Systems	15	$ 255,350	208,449	$ 350,000	285,714	$ 1,100,000	897,959	$ 439,000	358,367	$ 450,000	367,347	5,963,061	7	100	0
Outdoor Lighting	15	$ 17,200	14,041	$ -	-	$ -	-	$ 41,000	33,469	$ -	-	137,143	7	100	0
Occupancy Sensors	10	$ 59,400	67,886	$ -	-	$ -	-	$ 41,000	46,857	$ -	-	433,143	5	100	0
Other (Describe)		$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	0		100

		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
H.V.A.C.	**Quantity of Time that Measure will be in place**	**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)**	**Energy Payback Period**	**%related to Electricity**	**%related to Natural Gas**
Efficient Boilers (near condensing)	30	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	15	5	95
High-efficiency Boilers (condensing)	15	$ 60,000	166,817	$ -	-	$ 200,000	556,058	$ 200,000	556,058	$ 150,000	417,043	4,031,417	10	5	95
High-efficiency Boiler Burners	10	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	5	5	95
Geothermal	20	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	35	100	0
Heat Recovery/Enthalpy Wheels	30	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	8	20	80
Economizers	15	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	7.5	50	50
Energy Efficient HVAC systems	30	$ 30,000	3,928	$ 275,000	36,009	$ 1,000,000	130,944	$ -	-	$ -	-	556,510	75	50	50
Energy Efficient Rooftop Units	15	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	30	50	50
High Efficiency Domestic Hot Water	15	$ -	-	$ 16,000	31,619	$ -	-	$ 31,000	61,262	$ -	-	249,000	10	15	85
Efficient Chillers and Controls	25	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	100	100	0
High-efficiency Motors	20	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	10	100	0
VFD	15	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	5	75	25
Demand Ventilation	10	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	5	50	50
Entrance Heater Controls	20	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	5	50	50
Destratification Fans	10	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	7	100	0
Other (Describe)		$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	0		100

		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
Controls	**Quantity of Time that Measure will be in place**	**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)**	**Energy Payback Period**	**%related to Electricity**	**%related to Natural Gas**
Building Automation Systems - New	10	$ 25,000	16,368	$ -	-	$ -	-	$ -	-	$ -	-	81,840	15	50	50
Building Automation Systems - Upgrade	10	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	15	50	50
Real-time energy data for operators to identify and diagnose building issues	10	$ 15,000	49,104	$ 15,000	49,104	$ 7,500	24,552	$ -	-	$ -	-	515,590	3	50	50
Voltage Harmonizers	15	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	7	100	0
Other (Describe)		$ -	-	$ -	-	$ -	-	$ -	-		-	-	0		100

		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
Building Envelope	**Quantity of Time that Measure will be in place**	**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)**	**Energy Payback Period**	**%related to Electricity**	**%related to Natural Gas**
Glazing	30	$ -	-	$ 25,000	5,395	$ -	-	$ -	-	$ -	-	21,581	80	20	80
Increased Wall Insulation	50	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	-	40	20	80
New Roof	25	$ 960,000	82,873	$ 600,000	51,796	$ 1,000,000	86,326	$ -	-	$ -	-	880,525	200	20	80
New Windows	30	$ -	-	$ -	-	$ -	-	$ 244,500	52,767	$ -	-	105,533	80	20	80
Treatments	10	$ -	-		-	$ -	-	$ -	-	$ -	-	-	10	20	80
Shading Devices	30	$ -	-	$ -	-	$ -	0	$ -	-	$ -	-	-	20	100	0
Other (Doors)		$ -	-	$ 35,000	6,667	$ -	-	$ 45,000	8,571	$ -	-	43,810	30	100	0

		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023
Design, Construction & Retrofit Strategies Total	**Quantity of Time that Measure will be in place**	**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)**
Total		**$ 1,421,950**	**609,466**	**$ 1,316,000**	**466,304**	**$ 3,307,500**	**1,695,838**	**$ 1,041,500**	**1,117,351**	**$ 600,000**	**784,390**	**13,019,154**

Keys	
colour: yellow	= Default value
colour: blue	= Calculated Value
$0.175	= cost of 1 ekWh electricity
$ 0.0287	= cost of 1 ekWh natural gas
0.0955	m^3 = 1 ekWh (as per NRCan conversion table)
$0.30	= cost of 1 m^3 of natural gas