

Design, Construction and Retrofit Strategies

Lighting	Quantity of Time that Measure will be in place (years)	2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
		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
High Efficiency Lighting Systems	15	\$ 370,000	302,041	\$ 370,000	302,041	\$ 387,000	315,918	\$ 387,000	315,918	\$ 387,000	315,918	4,613,878	7	100	0
Outdoor Lighting	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	7	100	0
Occupancy Sensors	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	5	100	0
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100

H.V.A.C.	Quantity of Time that Measure will be in place	2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
		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	\$ 2,150,000	3,985,079	\$ 2,150,000	3,985,079	\$ 550,000	1,019,439	\$ 550,000	1,019,439	\$ 550,000	1,019,439	41,982,345	15	5	95
High-efficiency Boilers (condensing)	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	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	\$ 110,000	14,404	\$ 110,000	14,404	\$ 110,000	14,404	\$ 110,000	14,404	\$ 110,000	14,404	216,057	75	50	50
Energy Efficient Rooftop Units	15	\$ 100,000	32,736	\$ 100,000	32,736	\$ 100,000	32,736	\$ 100,000	32,736	\$ 100,000	32,736	491,039	30	50	50
High Efficiency Domestic Hot Water	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	10	15	85
Efficient Chillers and Controls	25	\$ 620,000	35,429	\$ 620,000	35,429	\$ 620,000	35,429	\$ 620,000	35,429	\$ 620,000	35,429	425,143	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

Controls	Quantity of Time that Measure will be in place	2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
		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	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	15	50	50
Building Automation Systems - Upgrade	10	\$ 550,000	360,095	\$ 630,000	543,416	\$ 830,000	543,416	\$ 830,000	543,416	\$ 830,000	543,416	7,234,635	15	50	50
Real-time energy data for operators to identify and diagnose building issues	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	3	50	50
Voltage Harmonizers	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	7	100	0
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100

Building Envelope	Quantity of Time that Measure will be in place	2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023			
		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	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	80	20	80
Increased Wall Insulation	50	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	40	20	80
New Roof	25	\$ 3,550,000	306,457	\$ 3,550,000	306,457	\$ 3,300,000	284,876	\$ 3,300,000	284,876	\$ 3,300,000	284,876	4,467,369	200	20	80
New Windows	30	\$ 810,000	174,810	\$ 810,000	174,810	\$ 413,000	89,132	\$ 413,000	89,132	\$ 413,000	89,132	2,108,080	80	20	80
Treatments	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	10	20	80
Shading Devices	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	20	100	0
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100

Design, Construction & Retrofit Strategies Total		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2018/2019-2022/2023		
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Total	\$ 8,260,000	5,211,050	\$ 8,540,000	5,394,371	\$ 6,310,000	2,335,349	\$ 5,690,000	2,299,920	\$ 5,690,000	2,299,920	61,538,545			

Keys	
colour: yellow	= Default value
colour: blue	= Calculated Value
\$0.175	= cost of 1 ekWh electricity
\$ 0.0287	= cost of 1 ekWh natural gas
0.0966	m ³ = 1 ekWh (as per NRCan conversion table)
\$0.30	= cost of 1 m ³ of natural gas