

Design, Construction and Retrofit Strategies

Lighting	Quantity of Time that Measure will be in place (years)	2023-2024		2024-2025		2025-2026		2026-27		2027-2028		2023/24-2027/28		Energy Payback Period	%related to Electricity	%related to Natural Gas
		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 (D5020, D502001, D502003, D502004)	30	\$ 1,403,000	1,276,304	\$ 1,442,000	1,314,454	\$ 1,485,200	1,354,052	\$ 1,529,918	1,394,674	\$ 1,576,772	1,426,514	19,526,098	7	100	0	
Outdoor Lighting (D30200)	30	\$ 150,000	136,740	\$ 154,000	140,261	\$ 163,072	148,130	\$ 169,428	153,912	\$ 183,628	163,912	2,136,153	7	100	0	
Occupancy Sensors (D5021, D5022)	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	5	100	0	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100	

H.V.A.C.	Quantity of Time that Measure will be in place (years)	2023-2024		2024-2025		2025-2026		2026-27		2027-2028		2023/24-2027/28		Energy Payback Period	%related to Electricity	%related to Natural Gas
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Efficient Boilers (near condensing) (D3020, D302001, D302002)	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	15	5	95	
High-efficiency Boilers (condensing) (D3020, D302001, D302002)	15	\$ -	-	\$ 600,000	1,303,097	\$ -	610,000	\$ 1,367,840	636,540	\$ -	1,408,979	655,636	1,401,246	10	5	95
High-efficiency Boiler Burners (D3020)	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	5	5	95	
Geothermal (D3020B)	25	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	35	100	0	
Heat Recovery/Enthalpy Wheels (D3090)	20	\$ 70,000	139,362	\$ 72,100	143,543	\$ 74,263	147,849	\$ 76,491	152,284	\$ 78,736	156,853	2,175,947	8	20	80	
Economizers (D306002)	15	\$ 70,000	95,254	\$ 72,100	98,291	\$ 74,263	101,914	\$ 76,491	104,665	\$ 78,736	107,187	1,446,956	7.5	50	50	
Energy Efficient HVAC systems (D3050, D3040)	25	\$ 2,000,000	272,988	\$ 2,050,000	280,261	\$ 2,121,800	288,669	\$ 2,185,454	297,249	\$ 2,251,918	306,249	4,248,447	75	50	50	
Energy Efficient Rooftop Units (D302098)	35	\$ 618,000	240,974	\$ 618,000	240,974	\$ 636,540	242,997	\$ 636,540	242,997	\$ 655,636	249,687	3,186,336	30	50	50	
High Efficiency Domestic Hot Water (D3200)	10	\$ 100,000	175,696	\$ 103,000	180,166	\$ 106,000	185,395	\$ 109,273	191,587	\$ 112,651	197,747	2,743,251	10	15	85	
Efficient Chillers and Controls (D3010, D301011, D303012)	25	\$ 100,000	6,362	\$ 103,000	6,508	\$ 106,000	6,772	\$ 109,273	6,917	\$ 112,651	7,163	93,648	100	100	0	
High-efficiency Motors (D304007, D303011)	20	\$ 150,000	95,724	\$ 154,500	98,596	\$ 159,138	101,554	\$ 163,909	104,601	\$ 168,826	107,739	1,484,607	10	100	0	
VFD (D302056)	10	\$ 60,000	84,227	\$ 61,800	87,064	\$ 63,654	89,860	\$ 65,564	92,664	\$ 67,531	102,964	1,471,230	5	75	25	
Demand Ventilation (D3040)	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	5	50	50	
Entrance Heater Controls (D302099)	20	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	5	50	50	
De-stratification Fans (D3090)	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	7	100	0	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100	

Controls	Quantity of Time that Measure will be in place	2023-2024		2024-2025		2025-2026		2026-27		2027-2028		2023/24-2027/28		Energy Payback Period	%related to Electricity	%related to Natural Gas
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Building Automation Systems - New (D3060)	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	15	50	50	
Building Automation Systems - Upgrade (D3060)	15	\$ 75,000	51,018	\$ 77,250	52,549	\$ 79,568	54,125	\$ 81,955	55,749	\$ 84,413	57,422	796,594	15	50	50	
Real-time energy data for operators to identify and diagnose building issues	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	3	50	50	
Voltage Harmonizers (D501001)	15	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	7	100	0	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100	

Building Envelope	Quantity of Time that Measure will be in place	2023-2024		2024-2025		2025-2026		2026-27		2027-2028		2023/24-2027/28		Energy Payback Period	%related to Electricity	%related to Natural Gas
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Glazing (B302006, B2020, B3021)	30	\$ 1,300,000	258,815	\$ 1,339,000	266,579	\$ 1,379,170	274,578	\$ 1,420,545	282,814	\$ 1,463,161	291,298	4,041,045	80	20	80	
Increased Wall Insulation (B2010)	30	\$ 1,500,000	987,205	\$ 1,549,000	618,143	\$ 1,591,360	635,038	\$ 1,639,091	652,647	\$ 1,688,263	672,227	8,325,488	40	20	80	
New Roof (B3010, B3020)	22	\$ 5,000,000	398,119	\$ 5,150,000	401,240	\$ 5,300,000	422,424	\$ 5,460,000	438,698	\$ 5,627,544	448,191	6,216,998	200	20	80	
New Windows (B3020)	32	\$ 1,300,000	268,815	\$ 1,339,000	266,579	\$ 1,379,170	274,578	\$ 1,420,545	282,814	\$ 1,463,161	291,298	4,041,045	80	20	80	
Treatments	10	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	10	20	80	
Shading Devices	30	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	20	100	0	
Other (Describe)		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	-	0		100	

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Total		\$ 13,875,000	4,053,958	\$ 14,891,250	5,509,854	\$ 15,537,988	5,675,150	\$ 16,798,127	5,845,404	\$ 18,272,071	6,020,706	77,076,232				

Keys	
yellow	= Default value
blue	= Calculated Value
\$0.1967	= cost of 1 ekWh electricity
0.0303	= cost of 1 ekWh natural gas
0.0050	m ² = 1 ekWh (as per NRCan conversion table)
\$0.4116	= cost of 1 m ³ of natural gas