

Financial Decision Support Tool

The Financial Decision Support Tool is a Microsoft Excel-based spreadsheet tool that assesses the incremental costs, benefits and GHG emission savings of implementing individual or portfolios of energy saving measures. The tool provides estimates of net present value, profitability, and simple payback for future building improvements, based on incremental discounted cash flows between a Reference Case (the building owner's original capital renewal plan) and a Project Case where additional energy saving measures are included. The table below is an example output from the tool. The table shows a prioritized list of energy efficiency and renewable energy upgrades that could be considered for Bankview 1, based on three profitability scenarios:

- Private-owner perspective (economic) - only measures with a positive private NPV
- Public benefits considered (economic and environment) - all measures with a positive public NPV. Note: from a public policy perspective, the inclusion of a value for GHG emissions avoided will justify additional measures¹
- Social benefits considered (economic, environmental, and social) - (all measures with a benefit cost ratio ≥ 0.7)²

¹ Applying a value to avoided GHG emissions is often referred to as the social cost of carbon (SCC). The SCC is an aggregate measure of the impacts of climate change. It is defined as the incremental social cost of emitting one more tonne of carbon into the atmosphere at any point in time. The social cost of carbon takes into account, for example, costs such as changes in net agricultural productivity, human health, and property damages from increased flood risk. Ideally, to minimize overall costs, governments would invest in all activities that reduce greenhouse gas emissions at a price per tonne that is less than or equal to the social cost of carbon.

² To reflect the wider social benefits of low-income energy assistance programs offered by utilities, regulators tend to relax the cost-effectiveness criteria. The Ontario Energy Board uses a threshold equivalent to a BCR of 0.7 for low-income housing projects. Governments may choose to compensate private building owners for the incremental cost of energy efficiency upgrades that pass the public or social threshold, but do not have a positive private NPV.

Project ID	Description of energy efficiency and conservation measure	Benefit cost ratio	NPV Private (\$)	NPV Public (\$)	Operational cost savings	Lifetime CO2-eq savings	Capital expenditure
5	Install low-flow faucet aerators in apartments as part of building refurbishment	12.0	3,250.3	3,551.0	4,305.6	8.0	295.0
14	Upgrade all windows to achieve R5. Increase window air tightness from CSA A1 to A2.	8.4	16,489.2	23,470.4	35,578.8	221.8	2,235.0
6	Install low-flow showerheads in apartments as part of building refurbishment	4.6	6,057.3	6,775.6	9,376.3	19.0	1,664.0
11	Replace existing electric clothes dryers with natural gas dryers as part of building refurbishment	3.4	7,532.7	9,179.4	12,986.9	43.8	3,100.0
21	Weather stripping and air sealing to increase building air tightness from 'loose' to 'average' (4.5 ACH @ 50 Pa) as part of building refurbishment	2.2	13,227.3	22,470.3	38,437.5	273.6	11,066.0
4	Upgrade lighting in apartments (full LED: "Lighting-Apart D" package). Retrofit with building refurbishment	2.1	6,969.0	8,959.0	19,865.0	57.5	6,167.0
7	Replace existing clothes washing machines with Energy Star qualified appliances as part of building refurbishment	1.7	1,379.9	1,671.7	3,761.5	7.6	1,890.0
10	Install programmable thermostats in apartments as part of building refurbishment	1.6	2,485.9	4,973.2	8,295.7	68.0	3,900.0
3	Upgrade lighting in common areas (T12 to T8, plus CFL to LED: "Lighting-Comm A" package). Retrofit with building refurbishment	1.4	1,487.0	2,388.0	6,168.0	23.0	4,083.0
24	Solar PV system, 72 panels with PTC rating of 221 W (15.9 kW installed capacity)	1.1	6,686.7	18,259.4	118,069.7	366.1	55,650.0
19	Upgrade hot water heaters from existing tanks to condensing units (improvement in efficiency = 30%) as part of building refurbishment	0.9	928.0	3,502.1	16,658.3	126.5	12,450.0
16	Upgrade all patio doors with Energy Star in-swing French Doors to achieve R 3.85 as part of building refurbishment	0.9	1,638.3	1,938.7	18,229.6	113.6	11,232.0
20	Replace existing boilers to higher efficiency condensing boilers (improvement in efficiency = 10%) as part of building refurbishment	0.7	8,865.0	2,600.5	26,051.3	185.4	25,330.0
12	Upgrade all East and West exterior walls to R25. 6" cellulose blown insulation (R19) + 1-1/2" unfaced fiberglass (R6)	0.5	5,619.7	3,880.9	8,861.7	55.2	10,283.4
13	Upgrade all exterior walls to R25. 6" cellulose blown insulation (R19) + 3" unfaced fiberglass (R12)	0.3	9,395.7	7,586.1	9,222.1	57.5	14,249.1
17	Upgrade parkade roof to R50 as part of building refurbishment with 6" expanded polystyrene (R25)	0.3	9,341.0	7,679.8	8,465.7	52.8	13,796.3
8	Replace existing refrigerator in apartments with Energy Star qualified appliances as part of building refurbishment	0.2	17,637.1	17,123.5	4,185.5	13.9	20,904.0
18	Upgrade ceiling roofs to R50 as part of building refurbishment with 5" expanded polystyrene (R20)	0.1	19,545.0	18,389.4	5,889.7	36.7	22,644.6
23	Solar, closed loop, add-on hot water system, 3/4" tubing, 54 77" x 39" panels (maximum for available roof space)	0.1	65,096.2	61,957.3	15,996.9	99.7	73,515.0