



COMMERCIAL SOLAR PV CASE STUDY

Inuvik

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ABOUT US

Solvest is a Solar and Storage engineering, procurement, and construction (EPC) firm specializing in Northern Canada and remote energy system solutions. With offices in Whitehorse and Yellowknife we proudly serve all three Territories.

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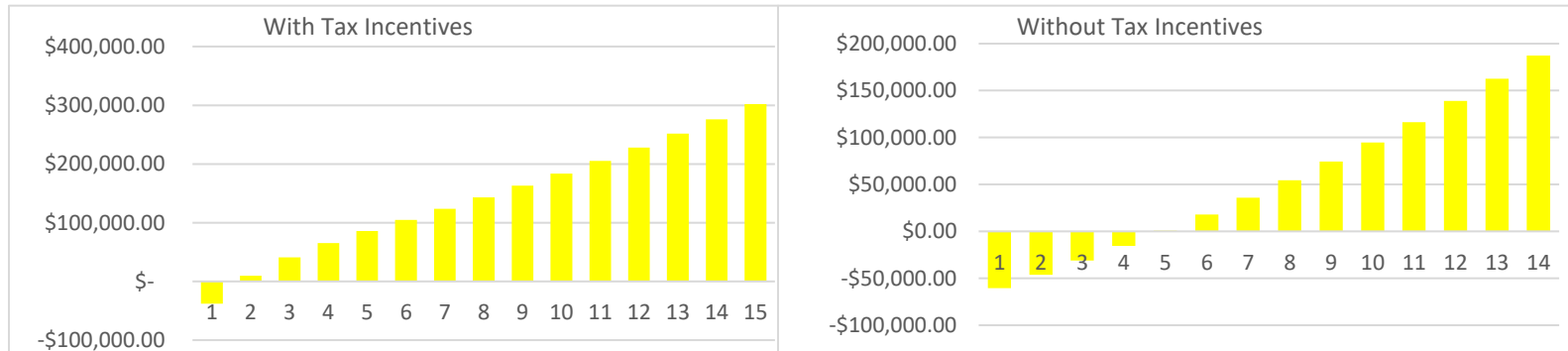
This solar design was created to show the rough costs and benefits of the maximum allowable commercial solar PV installation in Inuvik under optimal conditions (steep roof pitch facing due south) vs. non optimal (shallow roof pitch + 30° off south). The below costs are for a full turn-key solar system including everything from shipping and permitting to materials and labour. Conservative model parameters were used in combination with data from local existing systems previously installed to tailor our analysis to Inuvik’s climate and conditions.

Commercial Solar PV Design Summary

	25.6kWdc – Non Solar Optimal	12.8kWdc -Non Solar Optimal	25.6kWdc – Solar Optimal
Number of Solar Modules	64 x 400W	32 x 400W	64 x 400W
Price (before GST + Rebate)	\$89,000	\$50,000	\$89,000
Cost per Watt	\$3.48	\$3.91	\$3.48
Annual Power Produced	20530 kWh	10265 kWh	22970 kWh
Cost per kWh (2018)	\$0.593 kWh	\$0.593 kWh	\$0.593 kWh
Value of Power (Year 1)	\$12174.29	\$6087.15	\$13,621.21
Diesel equivalent abated	6000 L	3000 L	6500 L
Equity Payback (NO CCA)	6 Years	7 Years	5.5 Years
Pre-tax IRR	25%	22%	28%
Break-Even (CCA Included)	2 Years	3 Years	2 Years

- 25.6 kWdc/15kWac is currently the largest energy generation system permitted under Net Metering
 - **The economics of smaller systems scale well, to the benefit of the system owner**
- 5% energy price inflation was conservatively used in our analysis
 - Historical data shows 5-12% energy inflation in NWT over the past decade
 - **The upcoming Federal Carbon Policy will likely accelerate energy inflation**
- Leasing opportunities are available with entirety of lease payments tax deductible
- From the CRA: [“Under Classes 43.1 and 43.2 in Schedule II of the Income Tax Regulations, certain capital costs of systems that produce energy by using renewable energy sources \(including solar\) are eligible for accelerated capital cost allowance ... may be written-off at 50 percent per year on a declining balance basis.”](#) (Click for link)
 - The charts below illustrate the tax benefits of class 43.1 and 43.2

Cumulative Cash Flows - \$89,000 – 25.6kW Commercial Solar PV System



Please contact us for more information and/or a free solar viability assessment and analysis:

- Custom Design – Residential to Utility scale
- Ground, Roof, Pole Mount, Trackers
- Lead-acid, AGM, Li-ion, Saltwater batteries
- Industrial Solar, Batteries, and Generator integrated systems

- Energy and Financial Analysis
- In-depth energy production models
- Relevant policies and tax incentives are applied
- Detailed financial parameters