Grand Trunk Railway
(GTR) Shops

UPDATE: SOLAR PANELS

The Feasibility of Solar Panels and the Payback

Arcadian PROJECTS

R. RITZ ARCHITECT INC.

UPDATE: The feasibility of solar panels and the payback

Challenges and Potential Roadblocks

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Electricity Grid Constraints

Many regional stations, distribution lines, and transformers are at their thermal limits. Connecting a new solar array ofeeten triggers expensive "Upstream Grid Asset" reinforcements that the developer may have to fund, or the connection may be denied.

Facility Readiness & Retrofit Barriers

The feasibility of roofeetop solar is frequently hindered by structural weight limits and electrical infrastructure that lacks the necessary capacity to integrate new generation sources without a full system overhaul.

Long-Term Load Consistency & Site Tenure

Project viability depends on a guaranteed, long-term operational horizon where the facility's energy demand consistently matches or exceeds solar production to avoid "stranded" generation.

Major Financial Incentives for Solar

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Incentive Program	Financial Impact	Key Eligibility / Requirement
SaveOnEnergy Retrofit	**$860 / kW-AC**	Must be **Load Displacement** (Behind-the-Meter). Projects >10kW capped at 1MW or 50% of costs.
Clean Technology ITC	**20-30% Refundable Credit**	For **taxable corporations** owning the system; requires compliance with prevailing wage/apprentice rules.
Clean Electricity ITC	**5-15% Refundable Credit**	Specifically for **tax-exempt entities** (MUSH sector, Indigenous-owned, or Crown corps).
Accelerated CCA	**100% Write-off (Yr 1)**	Under **Class 43.1/43.2**; allows full expensing of the asset in the first year to offset taxable income.

Grand Trunk Renewal Solar High-Level Budgetary Outlook

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Location: Stratford, ON

Capacity: 625 kWac (117% Overbuild)

Yield: ~795,000 kWh/yr

Financial Pathway Comparison

Base EPC Cost: $1,376,000 *(Excludes LDC fees, Structural/Electrical upgrades)*

Feature	Net Metering (Class B)	Load Displacement (SaveOnEnergy)
Primary Benefit	Yearly credit for 100% of generation.	**$537,500 Upfront Rebate** ($860/kWac)
Annual Savings	~$111,300 (@ $0.14/kWh).	Variable (only offsets real-time load)
Waste Risk	Low (Grid acts as a battery).	**High** (Excess power is lost/unpaid)
Simple Payback	**~12.5 – 13.5 Years**	**~6.5 Years** (Estimated with Rebate)