

Introductions

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Project Lead

The 4 B's



- The **B**ack Story
- The **B**lueprint
- The **B**enefits
- The **B**ubbles

(it's a metaphor)

The Back Story

October 2023 Council session building the Strategic Plan – included discussion of bringing solar to Standard as a means of generating revenue or alleviating expenditures.

November 2023 Investigation into Solar begins

December 2023 Carter James of Terralta – guest attendant to share benefits of a solar system for Standard.

January 2024 Emails with the vision and request for site IDs sent to community groups

- *First to respond were Library, Hall & Curling*

Council motion to adopt the Strategic Plan. [PASSED](#)

March 2024 First site inspection completed by Terralta (at no cost) at the Arena for a possible roof mount solar system.

May 2024	Grant Research begins
October 2024	ATCO Grant Awarded! (\$15,000)
October 2024	<p>Council motion “to direct administration to pursue grant funding to be used towards Terralta’s solar system proposal.”</p> <p><u>PASSED</u></p> <p style="text-align: right;"><i>*Emails to all groups were sent</i></p>
December 2024 thru April 2025	<ul style="list-style-type: none"> • FCM GHG Retrofit Feasibility Study Grant submitted, amended, and submitted again. • email communications with Community Groups giving updates as well as asking for data – <u>all complied</u> • Collected two additional solar design proposals • Council motion (March) <u>to pursue the installation of at photovoltaic system that would serve all municipal buildings to be paid for by grants or by municipal & group contributions, or a combination of both.</u> <u>PASSED</u> • Council motion (April) to direct admin to meet with non-profit groups to discuss the solar proposal. <u>PASSED</u>

April 22, 2025

Community Group Meeting

Group leaders urge Village to include WRC and make the system as big as possible.

- *All groups were emailed a copy of the meeting minutes and tables used in the presentation.*
-

April 30, 2025

Discovery of the Municipal Electricity Generation Program!

** See March motion*

- Requires all sites to be in one account.
 - Finite amount of funds available
-



May 7, 2025

Council motion to:

- “draft agreements with selected community groups of municipally owned buildings to aggregate into the Village’s power account, to get these agreements signed, and to finalize the aggregation.” PASSED
 - to do the same with the groups of non-municipal buildings. PASSED
-

May 8, 2025

FCM Grant Awarded! (\$104,000)

FCM Grant and ATCO grant combine for \$119,000 to pursue building energy efficient retrofits for all municipal buildings and feasibility study of a photovoltaic system for the arena.

June 2025	Solar system will return to the roof mount plan as preferred to the ground mount design.
June 24, 2025	Council motion to “partner with Terralta for Solar design to be brought to Council for approval.” <u>PASSED</u>
July 28, 2025	The MEGP has only 38% funds remaining <ul style="list-style-type: none">• Advised to get application in as soon as possible; preferably before the end of summer• Council motion to aggregate all municipal and non-profit buildings without an aggregation agreement for the purpose of the solar project. <u>DEFEATED.</u>
July 30, 2025	Community Hall Board emergency meeting – request for solar system presentation and motion to support the system for the hall.
August 2025	All Aggregation Agreements* are collected, including the last-minute addition of the church building and Connect Mobility. <i>(*includes agreement to pay for power while waiting for solar)</i> Aggregation process begun.

August 2025

Terralta site assessment for Community Hall, Village Office & Fire Hall.

FCM Grant site inspections moved forward – Hall, Fire Hall and Village Office roof inspections not included due to inclusion in Solar Design which will conduct the roof structure engineering inspection.

September 2025

- ✓ Aggregation Complete – all sites are under Village account.
- ✓ Contract with Terralta ready
- ✓ Thorough Design completed by Terralta
- ✓ 12-month Consumption data collected

We now meet the criteria for the MEGP! *(see April/May 2025)*

* Village needs to sign the contract and send it in with the MEGP application.

**motion from June 24th moves to partner with Terralta

September 10, 2025

Council motion to sign contract with Terralta as written.

DEFEATED

No further motion to apply for the MEGP.

September 16, 2025

- Community Hall Board members spearhead an emergent request for council to meet regarding Solar and the effect of the defeated motion.

Jan 2024 Adopt strategic plan – includes intention of solar

Mar 2024 - → Site inspections, data collection, design submission
Oct 2024

Oct 2024 Find funds for solar

Mar 2025 Pursue installation of solar for all municipal buildings

Apr 2025 Discuss with non-profit and invite into the solar plan

May 2025 Draft aggregation agreements with all groups

Jun 2025 Partner with Terralta

Jul 2025 Aggregate all municipal buildings
(without an aggregation agreement)  Groups returned all Aggregation agreements

Aug/Sept 2025 → All necessary steps & documentation are complete for
application to MEGP and towards beginning solar project.

Sept 2025 Sign provided contract, as written, with Terralta
(supposed to be followed by motion to apply to MEGP.)  Groups request audience with Council

The Effect...

- **Lose the MEGP**

The MEGP has accepted a preliminary application to assist with a speedy application should the project move forward. Funds are nearing completion.

- **Roof Structural Study for Fire Hall, Community Hall incomplete**

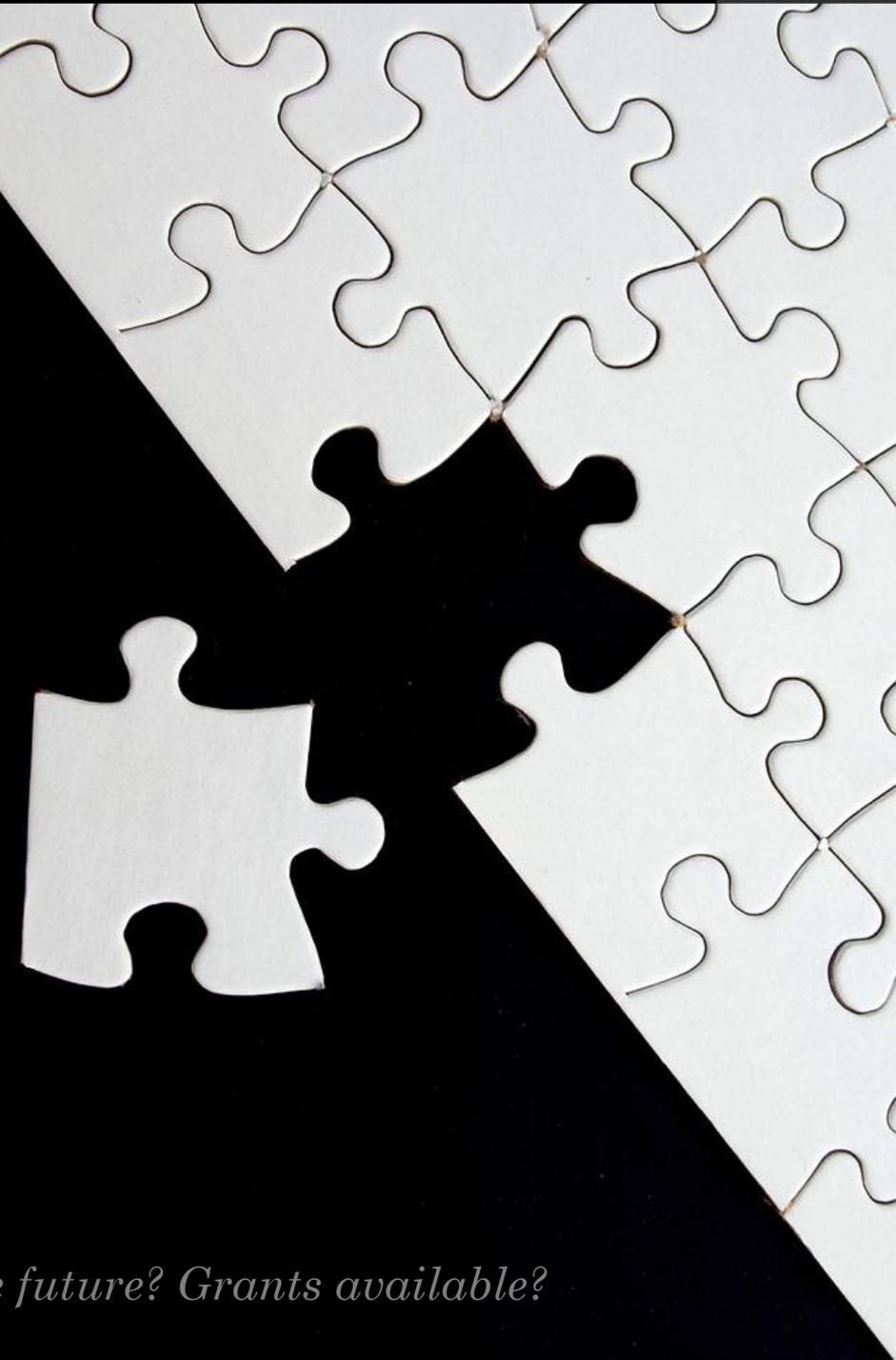
Council was informed that by removing the Solar Roofs from the FCM grant, the FCM grant budget was satisfied, and that the roofs would get their inspection through the solar studies.

- **Rely on other grants?**

- *Confidence is low that other grants would cover as much as the MEGP.*
- *FCM Capital grant is an 80/20 grant...takes from other capital projects.*
- *If recommended solar, roof mount on Fire Hall and Community Hall would require roof study.*

- **Groups go it alone?**

More questions, more research, more delays; expandable in the future? Grants available?



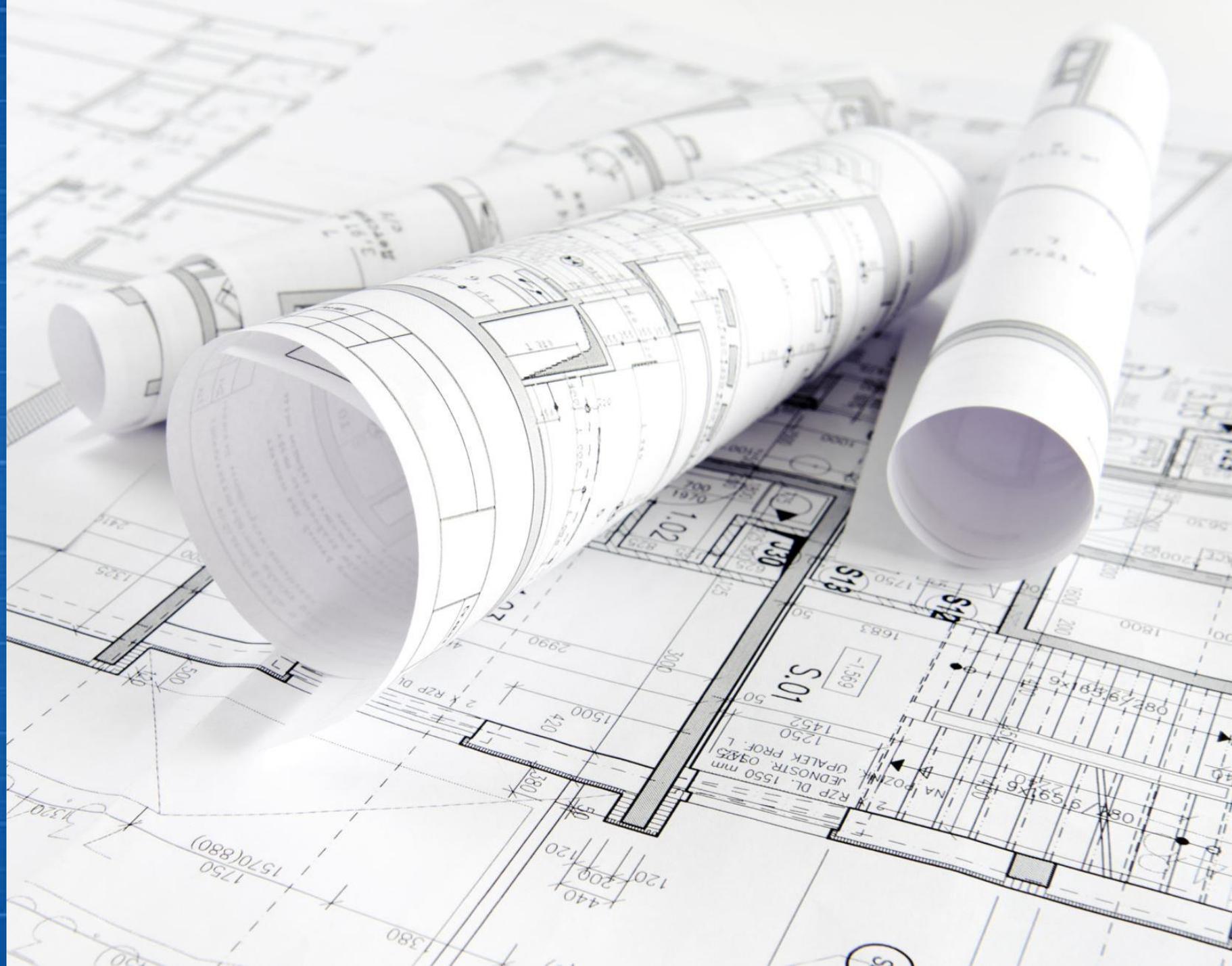
The 4 B's

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- The **B**enefits
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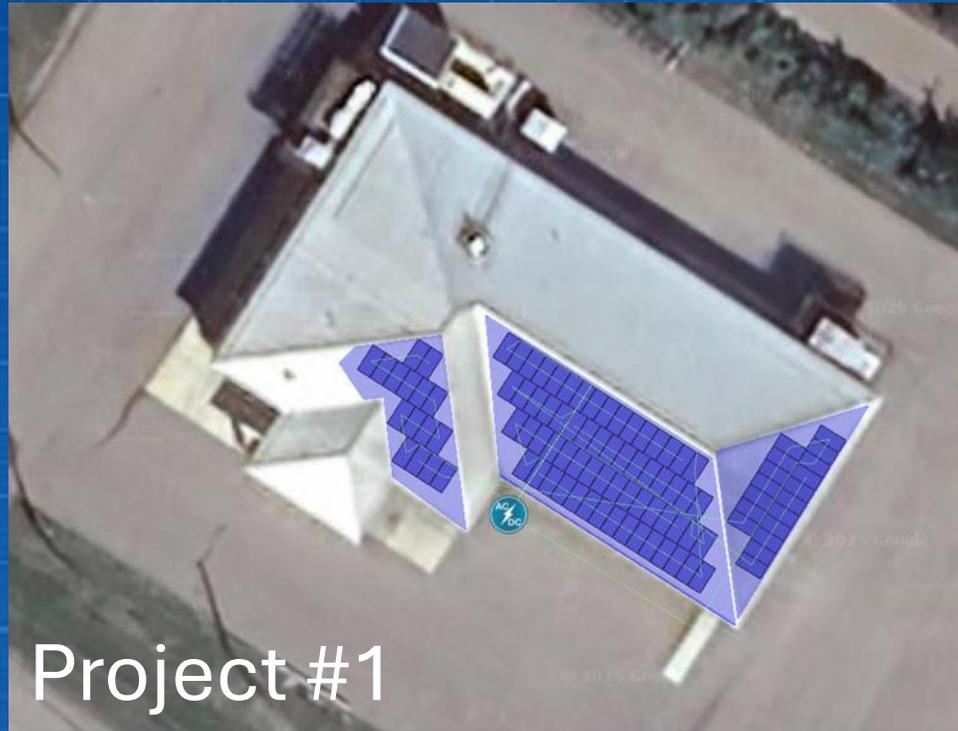
(it's a metaphor)



The Blueprint

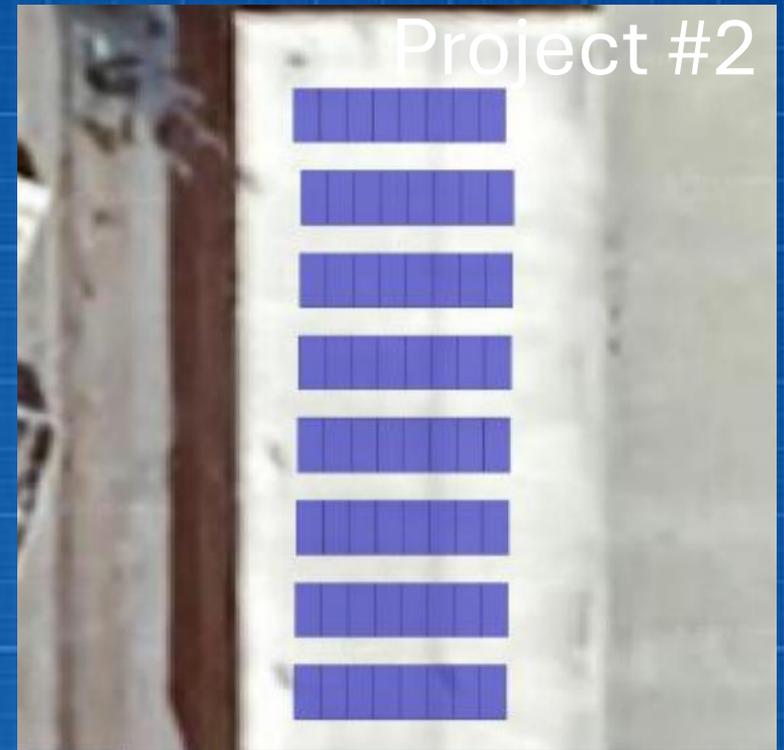


Terralta's Design: Two Projects



Community Hall – hall, curling, library, seniors, campground/ball park

Site consumption = 67,341 kWh
Est. 1st year production = 69,690 kWh
55.35 KW dc system = 103% Offset
\$140,036



Fire Hall – fire hall, sewer lift station, Village park, historical church building, office, shop, internet

Site consumption = 48,180 kWh
Est. 1st year production = 46,510 kWh
55.35 KW dc system = 104% Offset
\$108,240

Cost Breakdown for TOTAL project: \$248,276

- 46.6% MEGP Rebate



- 53.4% Split between Village & Groups

according to percentage of 12-month consumption

**church stat not available at time of meeting*

	Site Consumption (KWh)	Percent of total consumption	\$ split
Curling	24626	21.39%	\$28,390
822			
Broadway	5761	5.00%	\$6,621
Hall	32867	28.54%	\$37,812
Fire (65%)	21215	18.42%	\$15,862
Fire (35%)			\$8,542
Office			
Shop			
Campground	23874	20.73%	\$27,462
Park			
Sewer Lift			
Mem Lane	1800	1.56%	\$2,062
Seniors	5000	4.34%	\$5,752

\$132,503

The Payment Plan

- 30% up front
= \$74,483
- 30% at mid-project
= \$74,483
- 30% at near completion
= \$74,483
- 10% at end to turn the power on
= \$24,830

- 46.6% Reimbursed from MEGP
(if it hasn't come during the project)
= \$115,773
- 26.4% Reimbursed by Groups
= \$65,545
- 27% Village cost
= \$67,035



Currently sitting in the Unrestricted Reserves+ account!

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B₃

E₁

N₁

E₁

F₄

I₁

T₁

S₁

R₄

E₁

H₄

D₂

Z₁₀

A₁

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A₁

E₁

C₃

Short Term Financial Benefit

Quantitative

Groups can access any donation, useable casino, fundraising or other means to pay for their portion.

	<u>Annual Electrical Payment*</u>	<u>Group Contribution</u>	<u>Years to Break Even</u>	<u>\$ Saved after 10 years</u>
Curling	\$7300	\$32,734	4.5	\$73,000
Hall	\$13,300	\$43,676	3.3	\$133,000
Fire	\$5,400	\$18,323	3.4	\$54,000
Village	\$11,600	\$49,241	4.3	\$116,000
Memory Lane	\$800	\$2,387	2.9	\$8,000
Senior's	\$2,500	\$6,641	2.7	\$25,000

IF current rates for power remain the same.

*amounts adjusted to consider distribution fees, etc.

**Addition of the church building will decrease overall expenses.

Long Term Financial Benefit

- Some uncertainty in electricity generation –
 - Retired coal plants
 - Increase in natural gas generation
- AESO (Alberta Electric System Operator)
 - In 10 years, rate of electricity could be 18.0¢/kWh
 - Current floating rate is at 4.0¢/kWh
 - What will that look like? (next slide)

	Site Consumption (KWh)	Annual Electrical Payment*	Cost of electricity in 10 years (2035)*	Average paid over 10 years
Curling	24626	\$7300	\$10,220	\$87,600
Hall	32867	\$13,300	\$18,620	\$159,600
Fire	21215	\$5,400	\$7,560	\$64,800
Office	23874	\$11,600	\$16,240	\$139,200
Shop				
Campground				
Park				
Sewer Lift				
Mem Lane	1800	\$800	\$1,120	\$9,600
Seniors	5000	\$2,500	\$3,500	\$30,000

* AESO predicts a 40% increase compared to current rates by 2035.

Combined Total = \$490,800

That's like paying for the solar project 3.7 times!

Comparative Return on Investment

Quantitative

Expansion of Frederick Ave Subdivision:

- Cost = **-\$1,000,000**
- 11 lots @ \$40,000 = **\$440,000**

(assume all sold in 10 years)

- Property taxes on 11 homes
@ \$3500/house x 10 years

(3 yr blding contract) = **\$385,000**

Total ROI in 10 years = -\$175,000

Solar Project (just the Village):

- Cost = **-\$67,035**
- 10 years annul electrical cost
= **\$130,000 saved***

(*averaging \$13,000 / yr – distribution fees)

Total ROI in 10 years = \$62,965

Installation price – once in a lifetime!

- Solar installs are measured as \$/Watt

Solar Panel Costs by Province in Canada

Province/Territory	Average Cost per Watt (CAD)	10 kW System Cost After Incentives
Alberta	\$2.40 – \$3.20	\$17,500 – \$24,000
Quebec	\$2.50 – \$3.30	\$17,000 – \$24,500
Manitoba	\$2.40 – \$3.00	\$16,500 – \$22,500
Saskatchewan	\$2.60 – \$3.20	\$18,500 – \$24,500

Solar Panel Costs by Province in Canada

Province/Territory	Average Cost per Watt (CAD)	10 kW System Cost After Incentives
Alberta	\$2.40 – \$3.20	\$17,500 – \$24,000

Price with Terrlta & MEGP

Project – CH = \$1.63/Watt installed

Project – FH = \$2.05/Watt installed

\$1.80/Watt installed
with premium components!

\$0.60 - \$1.40/watt cheaper than average!

Grant Energy Reserved for Elsewhere

- Defeating the Solar Project today, means delaying its pursuit until “tomorrow”.
- Grants pay for energy savings, not just solar, while the MEGP is just solar.
- USING OTHER GRANTS FOR SOLAR LATER, IMPEDES OTHER PROJECTS.

- **Round two.** Opens July 1 and closes Sept. 30

[Apply for a grant](#) →[Expand all](#)

Save Energy Grant: What applicants should know

> Eligibility

> Available Funding

The Save Energy grants range from \$1,000 up to \$7,500 per project. Costs covered under the grant funding includes the cost of materials and labour.

> Evaluation Criteria

> How to apply

> Examples of previously funded projects

- Energy efficient appliance upgrades
- Home energy evaluation kits
- LED retrofits and lighting conversions
- Window and door upgrades
- Insulation upgrades
- Expansion of an EasyFix program
- Ice re-surfacer energy efficient upgrade

Generation of “profit” (credit on account)

Quantitative

Solar Club Rates

Switch for free and keep more money in your pocket

Pre-Solar Rate

7.28¢/kWh

This Solar Ready™ program will save you money while you wait for solar to be installed and go live.

LO Winter Rate

8.49¢/kWh

Once your site is registered as a micro-generator, it will automatically be switched to the LO Rate.

[Click Here for Variable Rate Info](#)

HI Summer Rate

30.00¢/kWh

Switch to the HI Rate at any time. Designed for club members exporting excess electricity to the grid.

When using solar, the electricity bill pays is difference between what you use and what you produce.

During the winter months, when importing more energy from the grid, the LO rate is used.

During the summer months, when producing a lot of electricity, this is the rate at which the excess power is sold back to the grid.

In Alberta, under the Micro-Generation Regulation, micro-generators are billed using net billing. Under net billing,

LO Winter Rate

8.49¢/kWh

Once your site is registered as a micro-generator, it will automatically be switched to the LO Rate.

[Click Here for Variable Rate Info](#)

HI Summer Rate

30.00¢/kWh

Switch to the HI Rate at any time. Designed for club members exporting excess electricity to the grid.

“In Alberta, under the Micro-Generation Regulation, micro-generators are billed using net billing. **Under net billing, homeowners are credited or paid for excess electricity at the same rate they pay for power from the grid. This can lead to a zero or near-zero electricity bill.**” (solarclub.ca/faq/)

By using the solar club, the HI season creates a positive credit that carries into the LO season.

Self-Paying Project

NO Operating Budget
NO Village Property Taxes
NO Infrastructure Dollars

Quantitative
& Qualitative



Unrestricted reserves

Annual surplus in a high-interest savings account.

Current balance \$74,000

Village portion of solar = \$67,035

Municipal Account

Used for the regular in & out of all monies.

Money goes out for bills, group's charges, etc.

Money comes in from group's owing, etc.

Current balance \$700,000+



Infrastructure Projects

- Government Funding & applicable Grants

Operating Budget

- Village Property Taxes

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(it's a metaphor)

The Bubbles





The Solar Project is too expensive.

- It will require loans
- The groups will require loans
- Infrastructure projects won't be completed

NO Operating Budget
NO Village Property Taxes
NO Infrastructure Dollars

Unrestricted Reserves

Annual surplus in a high-interest savings account.

Current balance \$73,369

Village portion of solar = \$67,035

Municipal Account

Used for the regular in & out of all monies.

Money goes out for bills, group's charges, etc.

Money comes in from group's owing, etc.

Current balance \$700,000+





The Solar Panels require expensive maintenance.

- Maintenance costs are exorbitant
- Panels don't last that long
- Panels can't handle hail or snow or inclement weather

Real Experience:

Stirling, Raymond & Ryley –
planning for maintenance is
unnecessary.

Terralta & Dandelion Renewables

–
Panels are virtually maintenance
free.

Google:

“do solar panels require high
maintenance?”

Short answer: NO

Long answer: NO

“a prevalent misconception”

<https://stantonsolar.com/do-solar-panels-require-high-maintenance/>

Terralta typical service all for
preventative maintenance
= \$1,702/day



Hi-MO 7

LR7-72HGD 585~620M

23.0%
MAX MODULE
EFFICIENCY

0~3%
POWER
TOLERANCE

<1%
FIRST YEAR
POWER DEGRADATION

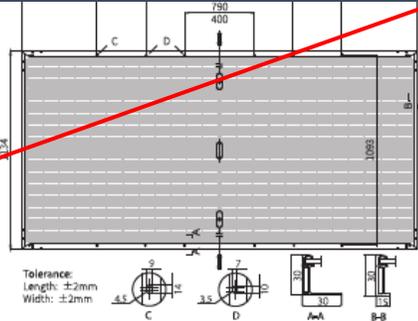
0.4%
YEAR 2-30
POWER DEGRADATION

HALF-CELL
Lower operating temperature

Dual glass, 2.0+2.0mm semi-tempered glass
Anodized aluminum alloy frame

Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68, three diodes
Output Cable	4mm ² , +400, -200mm/±1400mm Length can be customized
Glass	Dual glass, 2.0+2.0mm semi-tempered glass
Frame	Anodized aluminum alloy frame
Weight	33.5kg
Dimension	2382×1134×30mm
Packaging	36pcs per pallet / 144pcs per 20' GP / 720pcs per 40' HC



Electrical Characteristics

STC: AM1.5 1000W/m² 25°C NOCT: AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR7-72HGD-585M	LR7-72HGD-590M	LR7-72HGD-595M	LR7-72HGD-600M	LR7-72HGD-605M	LR7-72HGD-610M	LR7-72HGD-615M	LR7-72HGD-620M
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	585	445.3	590	449.1	595	452.9	600	456.7
Open Circuit Voltage (Voc/V)	52.01	49.43	52.12	49.53	52.23	49.64	52.34	49.74
Short Circuit Current (Isc/A)	14.29	11.48	14.37	11.54	14.45	11.61	14.53	11.67
Voltage at Maximum Power (Vmp/V)	43.57	41.41	43.68	41.51	43.79	41.63	43.90	41.72
Current at Maximum Power (Imp/A)	13.43	10.76	13.51	10.82	13.59	10.88	13.67	10.95
Module Efficiency(%)	21.7	21.8	22.0	22.2	22.4	22.6	22.8	23.0

Electrical characteristics with different rear side power gain (reference to 605W front)

Pmax/W	Voc/V	Isc/A	Vmp/V	Imp/A	Pmax gain
635	52.44	15.35	44.00	14.44	5%
666	52.44	16.08	44.00	15.13	10%
696	52.54	16.81	44.10	15.81	15%
726	52.54	17.54	44.10	16.50	20%
756	52.54	18.27	44.10	17.19	25%

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Bifaciality	80±5%
Fire Rating	UL type 29 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.045%/°C
Temperature Coefficient of Voc	-0.230%/°C
Temperature Coefficient of Pmax	-0.280%/°C

25mm Hailstone at the speed of 23m/s

Operational Temperature = -40 C to +85 C

Hail Impact Test

Hi-MO 5 Ice-Shield can withstand up to about **17X** impact energy compared to IEC standard with 25mm hailstone.

Traditional Module



Quarter Half Dollar

Hi-MO 5 Ice-Shield



Golf Ball Billiard Ball



Timing doesn't matter – this is a big deal for nothing.

- We can just get the next grant
- The benefit takes too long to realize anyway
- What's wrong with waiting for the technology to get better

- The “Timing” component is the MEGP which will cover 46.6% Alternate grants are not as large.
- Benefits are realized as soon as the panels start producing electricity.
- Waiting is an intention to invest...so why not now, when conditions are favorable?





The panels will wear themselves out before they ever get paid off.

- The Return on Investment is miniscule
- Panels loose effectiveness and essentially become useless

- Using the Solar Club, the electricity credit will add up very quickly.
- “Paying the system off” is a calculation to see the ratio of current non-solar electrical costs to potential solar costs.

Every organization can “pay the system off” in under 5 years in using this ratio.

- Panels have 30 year warranty
- Inverters have a 25 year warranty

