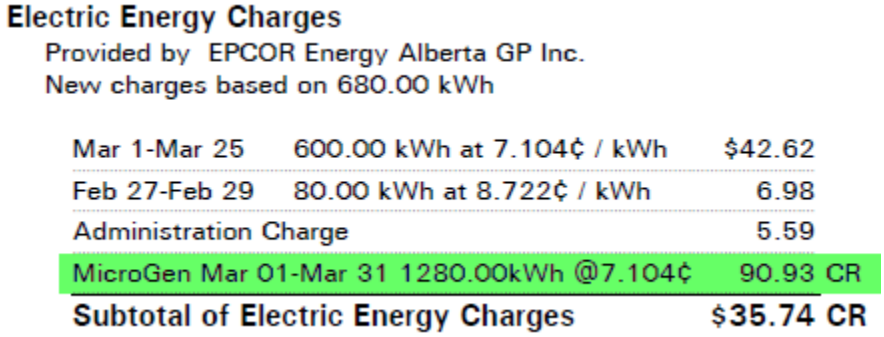
Electricity Bill Part 2: Impact of Solar Panels

by Justin Smalley | Apr 15, 2020 | Sustainability

In Part 1, we explored how to read an electricity bill, and now in Part 2 we will explore the impact our solar panels had on our bill. The Inglewood Community League had its solar panel system installed in October 2019. Now that spring is here, the sun is out longer, the snow has melted off our panels, and we are generating a great deal of electricity! In April, we saw an immediate impact on our electricity bill and wanted to share it with the community. Solar panels will impact your bill in two ways.

The first way solar impacts your bill is any electricity generated in excess to what you are consuming within the building is sold back to the grid. This shows up as a credit directly on your electricity bill as "MircoGen". In March, we exported 1280 kWh, nearly double our import of 680 kWh.



Electric Energy Charges

Provided by EPCOR Energy Alberta GP Inc.
New charges based on 680.00 kWh

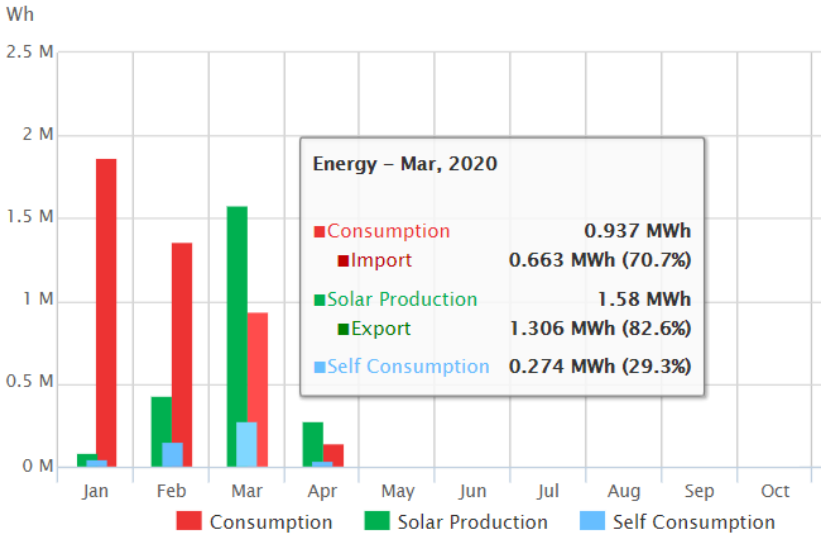
Mar 1-Mar 25	600.00 kWh at 7.104¢ / kWh	$42.62
Feb 27-Feb 29	80.00 kWh at 8.722¢ / kWh	6.98
Administration Charge		5.59
MicroGen Mar 01-Mar 31 1280.00kWh @7.104¢		90.93 CR
Subtotal of Electric Energy Charges		**$35.74 CR**

1 Credit on our electricity bill for exported solar power

It is important to note that when exporting electricity (i.e. selling back to the grid), we get credited at electricity rate (7.104 ¢/kWh). We are not credited the variable delivery charges on exported electricity, but are not charged for them either. The delivery and transmission infrastructure (i.e. power lines) are still utilized when exporting and therefore we not doing anything to warrant a credit on delivery.

As an aside, the average usage in March for the last three years was about 1400 kWh. Our consumption this year was less than half the average. This change was primarily from the hall being shut down due to COVID.

The second way solar panels impact your electricity bill is not actually observable on the bill itself. This is the electricity which is generated and then self-consumed; i.e. consumed in the building rather than being exported to the grid. If there were no solar panels, we would otherwise be importing/buying this power from the grid. Our solar inverters have an added electricity meter which allow us to better record how much we have self consumed.



2 March 2020 Solar Production

For the date range of our bill, we used our SolarEdge data portal found to have self-consumed 33 kWh during Feb 27-Feb 29 and 240 kWh Mar 1-Mar 25. Knowing this, we can now re-calculate the bill by adding in the self-consumed power and removing the Microgen export. The "with solar" column is our actual bill, and the "without solar" gives us an accurate comparison of what our bill would have been without solar. The values that changed are highlighted in yellow, which is everything except the fixed costs.

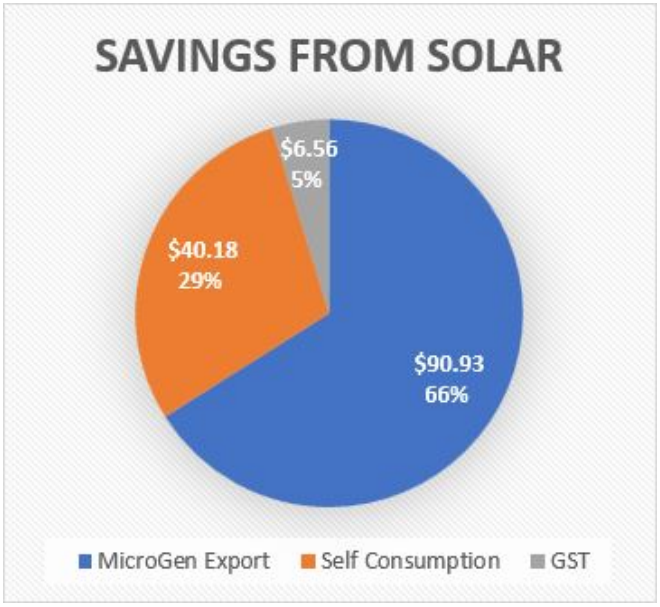
		WITH SOLAR		WITHOUT SOLAR	
Variable Costs	***¢/kWh***	***kWh***	***Cost***	***kWh***	***Cost***
Feb 26-Feb 29	16.141	80	$ 12.91	113	$ 18.24
Mar 1-Mar 25	14.523	600	$ 87.14	840	$ 121.99
Subtotal Variable Costs		**680**	**$ 100.05**	**953**	**$ 140.23**
Electricity Fixed					
Administration			$ 5.59		$ 5.59
Distribution 28 days @ 37.844 ¢/day			$ 10.60		$ 10.60
Subtotal Fixed Costs			**$ 16.19**		**$ 16.19**
MicroGen Export	***¢/kWh***	***kWh***		***kWh***	
Mar 01-Mar 31	7.104	1280	$ (90.93)	0	$ -
Subtotal Fixed Costs			**$ (90.93)**		**$ -**
Subtotal			**$ 25.31**		**$ 156.42**
GST			$ 1.27		$ 7.82
Total			$ 26.57		$ 164.24

3 Recalculation of Electricity bill without solar

The total difference between the two scenarios is $137.67. Not only are we getting credited $91 on what we export, but we have saved an extra $40 by self-consuming an extra 263 kWh! For the electricity you export, you get credited only the electricity rate, approximately 7 ¢/kWh. For electricity you self-consume, you are avoiding importing/buying which means you are effectively saving ~16 ¢/kWh, about double!

Description	Amount
MicroGen Export	$ 90.93
Self-Consumption	$ 40.18
GST	$ 6.56
Total	**$ 137.67**

4 Breakdown of money saved with solar – March 2020



5 Breakdown of money saved with solar – March 2020

Key Takeaway 1: Solar panels impact your electricity bill in two ways. a) The amount you export which is visible right on your bill and b) The amount you self consume, which is hidden and impacts your bill without you ever seeing it.

Key Takeaway 2: You get the most bang for your buck by self-consuming electricity. Each kWh you self consume is worth 2-3 times more than a kWh exported! With solar, if you can shift more of your electricity usage to daytime hours when the sun is shining, such as washer and dryer, you will save substantially more money!
I hope you enjoyed these articles. We are half way through our first year with solar, and I have several more topics ready to dig deeper into. Stay tuned!