Modified Table 8-1: FBC Demand-Side and Supply-Side Resource Options

Resource Option	Unit Energy Cost ($MWh)	Unit Capacity Costs ($KW-year)
PPA Tranche 1 Energy	$46	N/A
PPA Capacity	N/A	$96 - $115
Gas - Fired Generation (SCGT)	N/A	$80 - $143
Market Purchases	$38	$169 -$355
Kaslo NM#1 – 12 kW Solar PV*	**$65**	**($1,333)**
Kaslo NM #2 – 8.1 kW Solar PV*	**$95**	**($1,728)**
Pumped Hydro Storage	N/A	$217
Gas - Fired Generation (CCGT)	$82 - $100	$147 - $279
Biogas	$77 - $101	$621 - $838
PPA Tranche 2 Energy	$85 - $130	N/A
Municipal Solid Waste	$134	$1,031
Onshore Wind	$111 - $145	$1,219 - $1,618
Run - of - River Hydro	$87 - $150	$1,230 - $1,924
Kaslo NM #4 – 7 kW Solar PV*	**$175**	**($2,570)**
Solar	$169 - $184	$1,399 - $1,413
Wood - Based Biomass	$118 - $188	$663 - $774
Similkameen Hydro Project	$202	$1,298
Geothermal	$132 - $217	$857 - $1,506
FortisBC Ellison Solar Garden**	**$463**	**$670**
Kaslo NM #3 – 6 kW Solar PV	**N/A**	**($2,333)**

FBC at BCUC IR#1.25.1, when comparing NW PP Solar PV costs to the Company's own estimates, states:

"*Solar UEC is different because smaller plants were evaluated in B.C., so they were not able to realize the same economies of scale. In addition, it is likely that the solar intensities of good sites were greater in the U.S. as they are closer to the equator*".

* Kaslo NM #1 represents a self installed 12KW solar PV system amortized over 20 years in line with the acknowledged BC Hydro standard of 23 years for NM systems:

https://www.bchydro.com/energy-in-bc/acquiring_power/current_offerings/net_metering.html

KM#2 represents a self installed, with electrical contractor hook up, 8.1 solar PV system amortized over 20 years

KM#4 represents a contractor installed 7 KW solar PV system amortized over 20 years

** FBC Ellison Solar Garden pilot project with a twenty year amortization period for comparison with the three Kaslo NM installations as per specifications found in FBC application (720 Panels @ 0.335 kW/panel).

Solar Production, Solar Transfers and Total Use as a Function FBC Grid Purchase kWh
314 D Avenue Kaslo Net Metering Service Contract

April 19th FBC purchase 491/7.8 kWh
April 19th Solar production 419.6/6.7 kWh 85.5%
April 19th Solar transfers 280/4.4 kWh 57%
April 19th Solar use 139.6/2.2 kWh
April 19th Total use 350.6/5.6 kWh 63 Days -(28.6%)

June 16th Solar production 518.3/8.9 kWh 159.4%
June 16th Solar transfers 395/6.8 kWh 121.5%
June 16th FBC purchase 325/5.6 kWh
June 16th Solar use 123.3/2.1 kWh
June 16th Total use 53.3/.9 kWh 58 Days -(83.6%)

Aug 16th Solar production 514.6/8.4 kWh (3,241) 124%
Aug 16th FBC purchase 415/6.8 kWh (3,579)
Aug 16th Solar transfers 354/5.8 kWh (2,097) 85.3%
Aug 16th Solar use 160.6/2.6 kWh
Aug 16th Total use 221.6/3.6 kWh 61 Days -(46.6%)

Oct 17th Solar production 426.7/6.9 kWh (3,667.7) 105.6%
Oct 17th FBC purchase 404/6.5 kWh (3,983)
Oct 17th Solar transfers 296/4.8 kWh (2,393) 73.3%
Oct 17th Solar use 130.7/2.1 kWh
Oct 17th Total use 238.7/3.85 kWh 62 Days -(40.9%)

December 19th FBC purchase 542/8.6 kWh (4,525)
December 19th Solar production 105.5/1.7 kWh (3,773.2) 19.5%
December 19th Solar transfers 57/.9 kWh (2,450) 10.5%
December 19th Solar use 48.5/.8 kWh
December 19th Total use 533.5/8.5 kWh 63 Days -(1.6%)

February 20th FBC purchase 538/8.5 kWh (5,063)
February 20th Solar production 140/2.2 kWh (3,913.2) 26%
February 20th Solar transfers 89/1.4 kWh (2,539) 16.5%
February 20th Solar use 51/.8 kWh
February 20th Total use 500/7.9 kWh 63 Days -(7.1%)

April 17th FBC purchase 364/6.5 kWh (5,427)
April 17th production 142.3/2.5 kWh (4,055.5) 39.1%)
April 17h Solar Transfers 102/1.8 kWh (2,641) 28%
April 17th Solar use 40.3/.7 kWh
April 17th Total use 302.3/5.4 kWh 56 Days -(17%)

May 21st FBC Purchase 275/8.1 kWh (5,702)
May 21st Solar Transfers 141/4.1 kWh (2,782) 34 Days 51.3%
May 21st Total Use 4 kWh per day -(**50.6**%)

Between mid-February and mid-October 2017 solar PV production did not fall below 85% of FBC Grid purchase kWh values, and solar production transfers to the FBC grid ranged from a low of 57% to a high of 121.5% of kWh purchase values.

It is believed that a revamping of 8 of 12 panels “in series” will push production levels even higher in 2017, so that production and transfers will never again fall below 20% of grid consumption levels.

	Twelve Best Solar Production Days in January and February 2017			
Date	kWh Purchase	kWh Production	kWh Transfers	Transfers as % of Purchase
January 2nd*	8	5.6	4	50%
January 3rd*	8	5	3	37.5%
January 10th*	9	5.9	5	55.6%
January 11th*	9	6.1	4	44.4%
January 24th	8	3.7	3	37.5%
January 31st	8	8	7	87.5%
February 1st	6	8.2	6	100%
February 2nd*	9	8.5	7	77.8%
February 12th	8	7.1	5	62.5%
February 13th	7	6.8	5	71.4%
February 14th	8	3.6	3	37.5%
February 17th	8	5.6	5	62.5%
Twelve Day Average	8	6.2	4.8	59.3%
Five Day Average With FBC Peak Demand*	8.6	6.2	4.6	53.5%

At Shadrack IR#1.51.ii FBC lists in Table 1 the “Top Ten Peak Consumption Days in 2017”. On five of those ten days our household at 314 D Avenue in Kaslo offset 53.5% of our consumption from the FortisBC grid.

Electricity Consumption 2005-2017
Shadrack/Bauman Household

2005	**February**	**April**	**June**	**August**	**October**	**December**
Kwh Daily	1,194 19	1,182 19.1	1,094 18.9	828 13.1	1,048 18.7	1,074 17
Cost - Taxes	$93.73	$94.6	$89.05	$72.07	$85.9	$87.53
Cost +Taxes	$100.29	$101.22	$90.28	$73.86	$91.91	$93.66
2006	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	1,378 20	1,085 18.7	1,023 16.5	950 15.3	934 16.1	846 13.6
Cost - Taxes	$110.81	$93.42	$89.31	$84.44	$83.38	$77.52
Cost + Taxes	$117.91	$99.96	$95.96	$89.51	$88.38	$82.17
2007	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	1,063 17.1	829 13.4	681 11.5	678 10.9	572 9.4	662 11.2
Cost - Taxes	$92.63	$77.56	$68.74	$68.53	$61.24	$67.43
Cost + Taxes	$98.19	$82.21	$72.86	$72.64	$65.06	$71.75
2008	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	710 11.5	630 10.3	551 8.9	403 6.7 Fridge Broken	399 6.5 Fridge Broken	698
Cost - Taxes	$71.98	$67.11	$61.84	$51.45	$51.17	$72.50
Cost + Taxes	$75.87	$70.74	$65.18	$54.23	$53.93	$76.42
2009	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	604 10.1	678 10.9	581 10	580 8.1	430 7.4	687 11.1
Cost - Taxes	$70.67	$74.34	$67.10	$67.03	$56.64	$76.66
Cost +Taxes	$74.48	$78.36	$70.73	$70.65	$59.70	$80.80
2010	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	661 10.5	691 11.2	540 9.2	570 9.3	513 8.3	605 10.3
Cost - Taxes	$77.59	$81.59	$69.39	$71.80	$68.52	$76.79
Cost + Taxes	$81.78	$86.00	$73.13	$75.49	$71.94	$80.62
2011	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	596 9.6	584 9.6	487 7.9	622 10.4	413 6.9	638 10.3

Cost +Taxes	$79.37	$80.01	$72.90	$86.67	$67.40	$88.14
Cost - Taxes	$83.33	$84.01	$76.55	$91.00	$70.77	$92.55
2012	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	596 9.9	559 9	283 4.6 Away May	554 9.4	491 7.9	612 10
Cost - Taxes	$86.60	$84.12	$57.66	$77.91	$70.20	$80.19
Cost + Taxes	$90.93	$88.32	$60.54	$81.81	$73.71	$84.20
2013	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	576 9.1	587 9.5	480 9.4 Estimate	563 9.4 Estimate	459 7.9 Estimate	622 9.9 Estimate
Cost - Taxes	$79.88	$82.00	$72.58	$79.89	$70.74	$85.08
Cost + Taxes	$83.88	$86.10	$76.21	$83.88	$74.28	$89.33
2014	**February**	**April**	**June**	**August**	**October**	**December**
Kw/h Daily	665 10.4 Adjustment after strike	513 8.4	617 10	483 8.2	445 7.3	537 9.3
Cost - Taxes	$90.23	$76.98	$86.43	$74.25	$70.79	$79.16
Cost + Taxes	$94.74	$80.83	$90.75	$77.96	$74.33	$83.12
2015	**February**	**April**	**June**	**August**	**October**	**December**
Grid use Solar Transfer Net grid use Daily grid use Daily solar Total net use	673 - 673 10 - 10	398 - 398 9 .25 9.25	504 285 219 2.8 1.5 4.3	351 341 10 .2 3.3 3.5	446 284 162 2.7 2.3 5	509 106 403 6.6 1.2 7.8
Cost - Taxes	$93.05	$59.7	$50.94	$31.28	$45.82	$68.86
Cost + Taxes	$97.70	$62.69	$53.49	$32.85	$48.11	$72.81
2016	**February**	**April**	**June**	**August**	**October**	**December**
Grid use Solar Transfer Net grid use Daily grid use Daily solar Total net use	538 52 486 7.8 .8 8.6	491 280 211 3.3 2.2 5.5	325 395 -(70) -(1.2) 2.1 .9	167 127 40 1.7 2.4 4.1	404 296 108 1.7 2.1 3.8	542 57 485 7.7 .8 8.5
Cost - Taxes	$77.85	$52	$24.43	$37.24	$41.86	$78.98
Cost + Taxes	$82.00	$55.98	$27.5	$40.84	$45.41	$83.21

2017	**February**	**April**	**June**	**August**	**October**	**December**
Grid use Solar Transfer Net grid use Daily grid use Daily solar Total net use	538 89 449 7.1 .8 7.9	364 102 262 4.7 .7 5.4	274 141 133 4.3 N/A 3.9			
Cost - Taxes	$77.12	$58.60	To May 21st			
Cost + Taxes	$80.98	$61.23				

In 2014, the last year before we installed our solar PV system, our household's daily consumption of grid electrical power from FBC was 50.5% of 2005. By 2016, the first full year of solar production, average daily consumption had dropped to below 37% of 2005, and net daily consumption, after transfer of solar produced electrical power, was 19.9% of 2005.