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April 26, 2017

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Inc.
Application for Community Solar Pilot Project

FortisBC Inc. (FBC or the Company), in accordance with sections 44.2 and sections 59-60 of the *Utilities Commission Act*, hereby respectfully applies to the British Columbia Utilities Commission (the Commission) for an order authorizing FBC to implement new Rate Schedules 85A and 85B, and to construct a Community Solar Pilot Project. The Company is proposing to build a 240 kilowatt (kW) community solar array in Kelowna that will allow a limited number of FBC customers the opportunity to voluntarily subscribe to the generation output. The Company proposes to initially offer only Rate Schedule 85A to customers.

Based on the current timeline, and contingent upon Commission approval, the Company plans to have the facility built and operational no later than the end of 2017. FBC requests that the Commission issue an order approving this Application by June 30, 2017, to allow the Company time to solicit Program participants and construct the solar array prior to its commercial operation date.

If further information is required, please contact Corey Sinclair at 250-469-8038.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Interveners in the FBC 2016 Long Term Electric Resource Plan and Long Term Demand Side Management Plan proceeding



FORTISBC INC.

**Application for a Community Solar Pilot
Project**

April 26, 2017

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1 EXECUTIVE SUMMARY

2 With this Application, FortisBC Inc. (FBC or the Company) is applying to the Commission for
3 acceptance of capital expenditures related to a Community Solar Pilot Project (CSPP or
4 Program), and approval of the associated rate schedules. The CSPP is proposed for the Ellison
5 area in the north of Kelowna, and will provide an opportunity for FBC customers to meet a
6 portion of their needs with solar power.

7 For many customers of FBC, the ownership, as well as placement and operation of a
8 photovoltaic (PV) system is not desirable or feasible. Customer ownership and operation
9 requires upfront capital costs, as well as ongoing expenses associated with system operation
10 and maintenance. Beyond cost considerations, rooftop or ground-mounted solar installations
11 are feasible only for certain property owners. Customers who live in rental properties, multi-unit
12 residential buildings (MURBs), or townhomes are necessarily limited in their options. Other
13 customers that have aging rooftops or an unsuitable rooftop orientation may also be unable to
14 install a PV system. The Company's proposed CSPP is designed as an alternative to allow
15 these customers to have an option to make solar power part of their energy mix. Based on
16 research done by FBC, there is a reasonable degree of interest in such a program.

17 For its proposed CSPP, FBC will construct and own a 240 kW solar array, composed of 720
18 panels, on land currently owned by the Company at its existing Ellison Substation, at an
19 estimated cost of \$961 thousand.

20 The Application seeks approval for two rate options that will provide customers with an
21 opportunity for including solar power in the mix of energy used to power their home or business.
22 The first option, referred to as FortisBC Virtual Solar, provides customers with the opportunity to
23 receive the actual output of a specified number of panels by making a fixed monthly payment.
24 The second option, referred to as FortisBC Solar Offset, allows customers to specify a certain
25 percentage of consumption each billing period that will be served from the Program. In both
26 cases the cost to the customer is capped for as long as the customer remains in the Program.

27 FBC intends to initially roll out the Program by offering the FortisBC Virtual Solar option, which
28 customer research has indicated is the preferred option, and which will keep administration
29 efficient. FBC may add the FortisBC Solar Offset as an available rate option, if the Company
30 believes that rate option will attract additional subscribers.

31 Both options are equivalent in terms of the per-kWh price, and details of each option are
32 included in Section 6.3 of the Application.

33 FBC proposes to implement the CSPP as a pilot in order to gauge customer interest and to
34 gather information on the installation, operation, and maintenance of PV systems of this size.
35 This information will allow the Company to make prudent decisions with respect to the potential
36 to expand the Program in the future.

- 1 The design of the Program is such that when fully subscribed, all costs will be borne by Program
- 2 participants. If not fully subscribed, any unsubscribed output would be added to the existing
- 3 resource portfolio, reducing power purchases from other sources and increasing capital carrying
- 4 costs, the net effect being a modest cost to customers in general.

- 5 In consideration of the modest cost, scale, and potential ratepayer impact of the CSPP, and its
- 6 nature as a reviewable pilot, FBC proposes a regulatory process that is limited to one round of
- 7 information requests followed by intervenor submissions and FBC reply.

1. COMMUNITY SOLAR PILOT OPPORTUNITY

The CSPP is not a significant source of energy in the context of FBC's overall requirements; the Program is driven primarily by customer considerations. The Program will provide the Company with information regarding the complexities associated with offering community solar programs, including the level of customer commitment, constructability, contracting, interconnection, maintenance, and billing. The Program will provide customers with a new renewable energy option, and provide information to consider in the development of potential expanded offerings in the future.

As indicated in the Company's most recent Long Term Electric Resource Plan (LTERP), filed November 30, 2016,

The analysis provided in this LTERP shows that, based on the reference case load forecast, existing resources and contracts in place and the proposed level of DSM, FBC does not require any new supply-side resources for the next ten years. Optimization of market purchases and the BC Hydro PPA provide FBC with enough energy and capacity until 2025 to meet customers' requirements in a cost-effective and reliable manner.¹

Because there is no existing or mid-term power supply shortfall driving the need for solar energy, a key feature of the pricing and design of the Program is that the incremental costs of the Program are borne by customers who choose to participate in this optional pilot. To the extent there is less than a full subscription, there will be costs associated with the CSPP that will not be recovered from participants that will be recovered from other customers.

¹ FBC Long-Term Resource Plan, Page 1

1 **2. CUSTOMER FEEDBACK**

2 In order to gauge customer interest and preferences toward a FBC solar energy offering, the
3 Company contracted Sentis Market Research Inc. (Sentis) to conduct two research surveys –
4 one completed in February 2016 and the second in December 2016.

5 **2.1 FEBRUARY 2016 SURVEY**

6 The February 2016 survey of 506 residential customers and 217 commercial customers was
7 intended to explore residential and commercial customer awareness, knowledge, and attitudes
8 towards electricity generated from solar PV installations to help the Company make decisions
9 regarding if and how to proceed with a solar-based program. Further, FBC was interested in
10 assessing residential and commercial customer interest in, and willingness to pay for, electricity
11 from solar PV installations, both at the “community level” and the “rooftop level”.

12 Key results of the survey indicate broad support for FBC to begin offering solar energy as an
13 alternative to help meet customer demand, with three-quarters of both residential and
14 commercial customers stating that FBC should offer solar.

15 Among both residential and commercial customers, the primary reason for being likely to
16 consider rooftop solar is saving money on their electric bill. However, there are a number of
17 strong secondary reasons, beginning with GHG emissions reductions, followed by energy
18 independence, resource preservation and energy security. Residential customers most likely to
19 consider rooftop solar are particularly likely to be motivated by energy security and resource
20 preservation. Commercial customers most likely to consider rooftop solar are particularly likely
21 to be motivated by energy independence.

22 The primary reasons that customers are likely to consider community solar in particular
23 underscore the appeal of green community projects. Residential and commercial customers are
24 just as likely to cite ‘being part of a green community project’ as they are to cite electricity bill
25 savings as the primary reason they are likely to consider joining a community solar garden.
26 Furthermore, being part of a green community project is a particularly strong motivator among
27 the residential and commercial customers who are most interested in joining a community solar
28 garden.

29 While these results provide support for the CSPP, they also indicate that customers’
30 expectations concerning savings and the current price of solar may present a challenge to the
31 initial subscription and ongoing viability of a utility-led solar program. However, FBC recognizes
32 that there are other reasons that a customer may value solar as an energy source, such as
33 environmental concerns, and considers that the proposed pilot provides a reasonable balance
34 by allowing for Program expansion if justified but limiting customer impact if the subscription rate
35 is less than anticipated.

36 The main reason that residential and commercial customers may not consider rooftop solar is
37 that it will be too expensive to install. In line with this, the strongest secondary reason is that it

1 will take too long to get a full return on investment. The Program provides an opportunity for
2 customers to access solar power without the need for the high initial investment.

3 The research did indicate that customers are motivated by more than economic considerations.
4 Conserving the environment (i.e. reducing greenhouse gas emissions and preserving natural
5 resources), having a reliable/secure energy source and energy independence are important
6 secondary reasons.

7 The February 2016 survey results are included as Appendix D.

8 **2.2 DECEMBER 2016 SURVEY**

9 Based on the results of the first survey, FBC concluded that there was sufficient interest and
10 customer understanding regarding solar PV among customers to conduct a second survey that
11 was narrower in focus and aimed at gathering impressions about more specific service
12 offerings.

13 During November and December 2016, the Company conducted an online survey of 305
14 residential and 102 commercial customers to explore perception and preferences more closely
15 tied to the proposals contained in this Application. The study revealed that among customers
16 that would not consider a community solar option, a main reason cited is a preference to install
17 solar panels on their own roofs. However, close to half of customers indicated that they would
18 be likely to consider participation in a community solar installation within five years.

19 The cost of solar continues to be a consideration. However, the study also found that other
20 main reasons for not installing panels on a roof include a concern that the customer may move,
21 or that they have no ability to install panels at the new account premise. Both of these are
22 issues that the CSPP is intended to address.

23 Another important finding of the research is that both residential and commercial customers
24 consider the option of purchasing the output of a set number of panels more appealing than the
25 option of purchasing a percentage of electrical use from a community solar installation.

26 FBC concludes that the research conducted shows reasonable support for the CSPP and that
27 the impediments to access to a solar resource that the Company intends to address with its
28 Program are also recognized by customers.

29 The December 2016 survey results are included as Appendix E.

1 **3. BACKGROUND**

2 **3.1 SOLAR MARKETPLACE**

3 Both interest in renewable energy technologies generally, and solar PV systems in particular,
4 are increasing. This is partially in response to the falling cost of solar PV components. In June
5 of 2015, BC Hydro and Power Authority and FBC engaged Compass Renewable Energy
6 Consulting to prepare a British Columbia Solar Market Update. The report noted that,

7 Various technologies and processes under development will further lower the
8 cost of solar PV in the near term. The current path for conventional solar
9 technologies is improving and continuously reducing in cost.²

10 FBC recognizes that the adoption of solar PV as an alternative energy source is increasing, and
11 prices for solar panels continue to fall. This is further evidenced by the increasing participation
12 rate in the Company's Net Metering Program, which currently has approximately 160
13 customers.

14 However, even if the cost of solar PV was to fall to the point where it was an economic
15 alternative to utility supply, the reduction would not help those customers that cannot install a
16 typical residential rooftop system. This is one of the main drivers of this Application.

17 **3.2 CURRENT SOLAR INSTALLATIONS IN FBC'S SERVICE AREA**

18 At the present time, the ability of FBC customers to install a PV system is limited by access to,
19 and ownership of, the location at which the PV system is installed. Generally speaking, only in
20 the case where a building or land owner is the same as the holder of the account associated
21 with the same premise is a PV installation likely to be contemplated. Where a PV system is
22 installed it is most likely to be rooftop solar. An eligible FBC customer with a PV system has the
23 option of enrolling in the Company's Net Metering Program, subject to the terms and conditions
24 contained in Rate Schedule 95. The proposed Community Solar Pilot Program will provide an
25 opportunity for those customers not able to install a PV system, such as those that live in rental
26 properties, MURBs, or townhomes, or that cannot afford the up-front capital costs, with a new
27 renewable energy option.

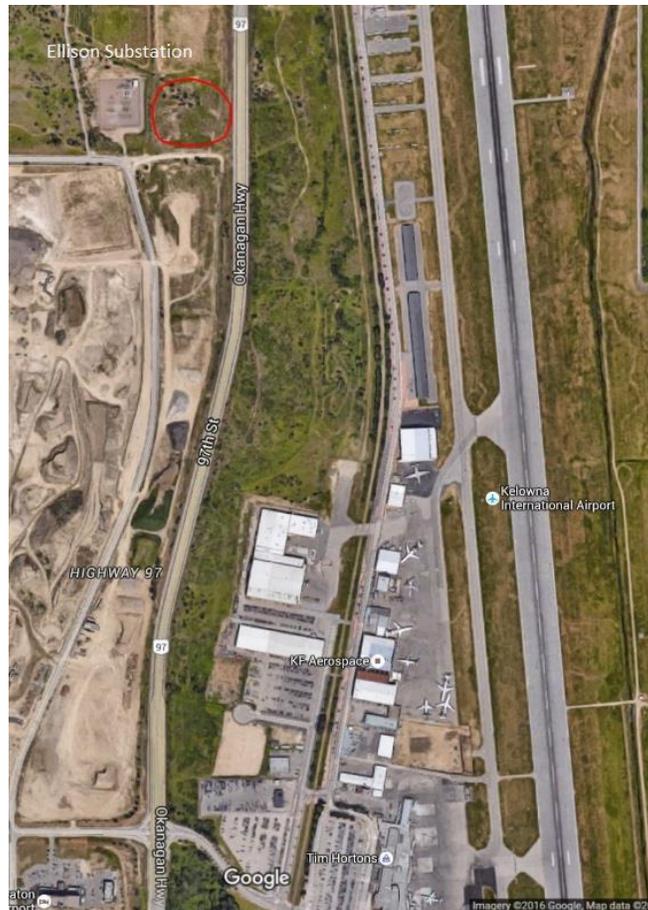
² <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/integrated-resource-plans/current-plan/rou-characterization-solar-report-20150624-compass.pdf> Page 22

1 **4. PROJECT DESCRIPTION**

2 **4.1 LOCATION**

3 The CSPP will be located at FBC's existing Ellison substation site approximately 1 km northwest
4 of the Kelowna airport terminal as indicated by the red circle in Figure 4-1.

5 **Figure 4-1: Proposed CSPP Location**



6
7

8 FBC proposes to construct the CSPP on the Ellison substation site. The construction of the
9 array will not affect the current operation of the substation. Preliminary discussions with
10 authorities at the Kelowna Airport have not uncovered any concerns on the part of the airport
11 with the proximity of the array. FBC will seek NAV Canada approval for the location of the
12 CSPP as part of the permitting process. Also as part of the permitting process, the Company
13 has sent letters describing the Project details to landowners in close proximity to the Project
14 location.

1 **4.2 PROJECT PROPOSAL AND COST ESTIMATE**

2 The Company initiated a Request for Proposal (RFP) process to solicit bids from experienced
3 solar PV contractors for the CSPP based on the location selected by FBC, with the contractor
4 requested to propose the layout and equipment to be used.

5 FBC received Engineer, Procure and Construct (EPC) proposals from three vendors. Skyfire
6 Energy Inc. (Skyfire) has been selected as both the most experienced and the lowest-cost
7 vendor. Solar projects of note that Skyfire has successfully completed include rooftop systems
8 at Okanagan College in Kelowna and Telus Garden in Vancouver. Skyfire has also constructed
9 a 1.05 MW ground-mounted system in Kimberley. The proposal received was for the installation
10 of a 240kW DC solar array comprised of 720 panels each rated at 335W as shown in Figure 4-2
11 below.

12 **Figure 4-2: Proposed Ellison Solar Project Layout**



13
14 The total capital cost of the CSPP will include Skyfire costs, FBC costs related to project
15 management, system connections, communications, and consultation. In addition to estimating
16 these amounts, FBC has added a 5% contingency amount to all costs, reflecting that the
17 majority of costs will be firm per the Skyfire contract. These amounts are set out in Table 4-1
18 below, which shows the total estimated capital cost of \$961 thousand, or \$3.9 CAD/Watt.

1

Table 4-1: Capital Cost Estimate

Item	Amount
Engineering and Construction	\$ 858,284
FBC Communications & Consultation	42,500
Contingency	44,368
AFUDC	15,592
Project Total	\$ 960,744

2

3 **4.3 OPERATIONS AND MAINTENANCE**

4 FBC expects that operations and maintenance (O&M) for the facility will begin at \$9 thousand in
5 2019 and escalate at 2 per cent inflation thereafter. Forecast O&M costs are included in the
6 rate calculations and are forecast to be fully collected from participants in a fully subscribed
7 Program.

8 **4.4 COMMERCIAL OPERATION DATE**

9 The Company anticipates the CSPP will be completed approximately six months after receipt of
10 Commission approval. Provided that such approval is received by June 30, 2017, the CSPP
11 should be in service by the end of 2017. The Company will not commence construction prior to
12 receiving a Commission order and will begin promoting the CSPP and offering subscriptions to
13 the Project output as it nears completion.

14 **4.5 ENERGY PRODUCTION**

15 The expected annual energy output of the CSPP in the first year is approximately 290,000
16 kilowatt-hour (kWh), or about 400 kWh for each of the 720 panels. This output is expected to
17 decline at approximately 0.5 per cent annually, which is typical for solar panels.

1 5. REGULATORY TREATMENT

2 FBC operates under the terms of a Performance-Based Ratemaking (PBR) Plan during the
3 period from 2014 – 2019.³ Under the PBR Plan, O&M expenses and regular capital
4 expenditures are primarily determined by formula, which is applied to a base value of capital
5 expenditures determined from FBC's approved 2013 capital expenditures. Capital projects
6 which exceed a threshold of \$20 million, in addition to certain other projects approved by the
7 Commission for flow-through treatment, are forecast and recovered outside of the capital
8 formula envelope.

9 FBC will include the capital costs of the CSPP, estimated at \$961 thousand, within the 2017
10 formula capital spending envelope, and the O&M expense, estimated at \$9 thousand starting in
11 2019, within the 2019 formula O&M envelope. The timing of including the capital costs in rate
12 base will depend on the level of FBC's actual 2017 capital expenditures, as further explained
13 below.

14 Under the terms of the PBR Plan, only the allowed formula capital expenditure levels are
15 included in rate base during the PBR term, unless the actual expenditures exceed the
16 prescribed dead band⁴, and within the dead band, variances from the formula amount are
17 subject to earnings sharing between customers and the Company. If formula capital spending
18 exceeds the dead band in 2017 inclusive of the CSPP capital costs, then any amount of formula
19 capital outside of the dead band is excluded from the earnings sharing calculation and the
20 amount of excess capital is added to opening rate base in the following year (2018 in this
21 case)⁵.

22 Variances from the allowed O&M formula envelope are also subject to the earnings sharing
23 mechanism.

24 Although FBC is not seeking any incremental funding for the capital expenditures or O&M
25 expense associated with this Program, the Company recognizes that the 2013 base capital
26 expenditures, and the formula capital under PBR, did not anticipate expenditures on new
27 generation resources such as the CSPP, or other new resources. FBC is therefore seeking
28 acceptance of the capital expenditures for the CSPP pursuant to section 44.2 of the *Utilities*
29 *Commission Act* (UCA).

30 Pursuant to section 44.2 of the Act, in considering whether to accept a capital expenditure
31 schedule, the Commission must consider:

³ Order G-139-14.

⁴ Under the PBR Plan, the dead band is defined as +/- 10 percent on an annual basis or +/- 15 percent on a cumulative two-year basis.

⁵ Order G-182-16 regarding FEI Annual Review for 2017 Delivery Rates, page 16.

1

Table 5-1: UCA Section 44.2 Requirements

	Objective	Comments
(a)	The applicable of British Columbia's energy objectives	<p>British Columbia's energy objectives include achieving "energy self-sufficiency" to generate at least 93% of the electricity in British Columbia from clean or renewable resources.</p> <p>The existing resources utilized by FBC to serve customer load are already overwhelmingly clean and renewable; being composed primarily of FBC's own embedded hydro-electric generation and long-term contracts with other entities engaged in hydro-electric energy production. However, the Company recognizes that the Program would provide an intermittent source of incremental clean and renewable energy that will added to the overall provincial portfolio.</p>
(b)	The most recent long-term resource plan filed by the utility	<p>FBC filed its 2016 Long Term Electric Resource Plan on November 30, 2016.</p> <p>The Community Solar Pilot Project is identified in section 2.3.3.1.</p>
(c)	The extent to which the schedule is consistent with the applicable requirements under sections 6 and 19 of the Clean Energy Act	<p>Section 6 of the CEA requires utilities other than BC Hydro to consider the provincial goal to achieve self-sufficiency.</p> <p>Section 19 of the CEA requires BC Hydro or a prescribed utility to pursue actions to meet the target of generating at least 93 percent of the electricity in British Columbia from clean or renewable.</p> <p>FBC is not a prescribed utility for the purpose of the CEA.</p> <p>The Solar Pilot Project is nevertheless consistent with Sections 6 and 19 of the CEA.</p>
(d)	Whether the demand-side measures, if any, are cost-effective	Not applicable.
(e)	The interests of persons who receive or may receive service from the utility	FBC submits the Solar Pilot Project is in the interests of its customers.

2

1 **6. PROGRAM DESCRIPTION**

2 **6.1 ELIGIBILITY AND PARTICIPATION**

3 For this pilot, the Company proposes to allow all customers on a retail electricity rate to enroll in
4 the Program, with the exception of those customers served under Rate Schedule 81⁶ (Radio-Off
5 Advanced Meter Option) and those on a Time-of-Use (TOU) or flat energy charge rate⁷. These
6 restrictions will minimize the billing system changes required to implement the pilot.
7 Participation is voluntary and available on a first come first served basis based on the date that
8 a customer submits an application to take part in the Program.

9 **6.2 PRICING METHODOLOGY**

10 The pricing for the Program is designed to recover the incremental revenue requirement of the
11 CSPP from Program participants over its 40 year expected life. The rates that accompany this
12 Application are designed to effectively offset the initial capital costs and ongoing incremental
13 costs of the Program in the Company's revenue requirement determination over the assumed
14 life of the Project. Because the revenue collected from customers will be based on estimated
15 costs, the actual costs may differ from that estimate. However, because some of the
16 assumptions that are contained in the rate derivation, such as the panel degradation, annual
17 output and O&M costs, will not be known until future years, FBC does not intend to adjust the
18 rates on an annual basis.

19 FBC has designed two pricing mechanisms that could ultimately be used in the Program. The
20 pricing mechanisms described in the following sections are equivalent in terms of the cost of the
21 solar energy to the customer on a per kWh basis, but have different structures that may appeal
22 differently to Program participants.

23 Both rate options have been developed based on the modeling and assumptions described in
24 the following section which is followed by detailed descriptions of each rate structure.

25 While two pricing options have been developed, FBC proposes to offer only the FortisBC Virtual
26 Solar option to customers at this time. The reasons for this approach is that this type of rate
27 option was preferred by surveyed customers, and that a single option is easier to manage both
28 administratively and in matching Program output to customer usage.

29 In the event that the FortisBC Virtual Solar option does not result in a fully subscribed Program,
30 the Company may consider offering the FortisBC Solar Offset option in the future in order to
31 allocate any remaining output.

⁶ Rate Schedule 81 is excluded since customer billing cycles must be synchronized with the monthly reading cycle of the solar array. This is not economic for radio-off customers. This restriction also impacts customers with standard advanced meters that are non-communicating.

⁷ TOU rates are excluded due to the expense of implementing the billing system changes required to capture the solar array output on a TOU basis for a relatively small number of customers.

1 **6.3 RATE DESCRIPTIONS**

2 The rate options are based on the recovery of the incremental revenue requirements solely from
3 Program participants, assuming that the output is fully subscribed. The analysis relies on the
4 following list of assumptions which are described in more detail below. The financial analysis of
5 the Project and determination of the rates is included in Appendix B.

6 **6.3.1 Depreciation Rate**

7 The average composite depreciation rate of 2.45% is based on the asset categories that
8 account for the Project capital. The asset may primarily be classified under three broad groups
9 as Solar Photovoltaic Panels, substation type accessory equipment, and communication
10 equipment. The average service life of the Solar Photovoltaic Panels of 40 years was
11 determined primarily based on panel degradation rates. Modern monocrystalline solar panels
12 such as those proposed to be installed in the CSPP typically show output degradation of about
13 0.5 per cent per year. Based on this, the panels are still expected to be producing over 80% of
14 rated output at the end of 40 years. The average service life of the substation and the
15 communication equipment is 50 years and 15 years respectively in line with standard industry
16 practice.

17 **6.3.2 Discount Rate**

18 The Discount Rate has been assumed to be 5.97 percent, equivalent to the Company's after-tax
19 weighted average cost of capital⁸.

20 **6.3.3 Capital Cost Allowance**

21 The fixed location photovoltaic equipment including the solar modules and related equipment
22 including inverters, control and power conditioning equipment, support structures for the solar
23 array and power dispatch equipment are all included in CCA Class 43.2 (CCA Rate 50 percent).
24 foundations are included in CCA Class 1 (CCA Rate 4 percent) and the fencing is included in
25 CCA Class 6 (CCA Rate 10 percent).

26 **6.3.4 Inflation**

27 Inflation has been estimated at 2 percent for the purpose of the study. This compares
28 reasonably with the Conference Board of Canada (CBOC) near-term forecast.

29 **6.3.5 Power Purchase Displacement Rates**

30 The BC Hydro Power Purchase Agreement (BCH PPA) has been assumed as the resource to
31 value energy displacement cost due to solar generation. Also, a future renewal of the BCH PPA

⁸ Calculated in accordance with FBC's Annual Review for 2017 Rates, Evidentiary Update dated October 5, 2016, Section 11 Schedule 26.

1 has been assumed. The year F2017 (1st April 2016 to 31st March 2017) BC Hydro rate of
2 \$46.99 / MWh has been effectively increased by the rate increase of 3.5 percent effective April
3 1, 2017 (F2018) and 3 percent effective April 1, 2018 (F2019). Thereafter, FBC has assumed
4 the B.C. Government's set target rate increases of 2.6 percent for each year until F2024 and 3
5 percent for the remaining period of the analysis.

6 **6.3.6 FortisBC Virtual Solar Panel**

7 Under the FortisBC Virtual Solar option (Rate Schedule 85A), the output of a defined number of
8 panels from the solar array would be directly linked to a single customer. The customer would
9 then receive a consumption credit equal to a portion of the actual total output of the Ellison solar
10 array in proportion to the number of subscribed panels to the total number of panels in the
11 CSPP. For example, based on the forecast energy output from the Ellison solar array, a
12 customer with a 3 panel allotment would receive, on average, about 100 kWh per month. This
13 would result in the customer's consumption being reduced by 100 kWh on their bill. The value
14 of the power to the customer depends on the rate under which the customer is normally billed
15 as compared to the lease payment the customer is making.

16 The monthly bill credit will be limited to the participant's monthly usage. In the event that the
17 portion of the CSPP output to which the customer is entitled exceeds the consumption
18 associated with the customer's account, the excess production will be carried forward on a kWh
19 basis to be credited on a participant's bill in a future month. This aspect of billing is further
20 described in the proposed Rate Schedule 85A included in Appendix A.

21 To obtain the lease payment for the CSPP, FBC first calculated the present value of the
22 incremental revenue requirement impact of the CSPP over the 40 year analysis period,
23 discounted at the company's 5.97% weighted average cost of capital. This results in a present
24 value of \$877,490⁹.

25 A flat annual payment of approximately \$58,132, also discounted at 5.97 percent, is equivalent
26 to the present value of the incremental revenue requirements of \$877,490.

27 There will be 720 solar panels in the array, yielding $\$58,132 / 720 = \81 per panel per year.

28 The annual payment per panel is \$81 which is paid in equal installments on a billing-period
29 basis.

30 Assuming that the rates associated with the Project became permanent, this fee would not
31 increase over time but, subject to periodic review, may need to be reduced in response to
32 changes in Program participation or the competitiveness of the Program with other renewable
33 options such as rooftop solar that may decrease in cost during the life of the Program. The

⁹ As per Section 4.4 of the Application, the 40-year revenue requirement analysis assumed the CSPP begins in-service by December 1, 2017, provided approval is received by June 30, 2017.

1 result of a fixed fee is that the notional value of the consumption offset would increase as
2 electricity rates increase.

3 **6.3.7 FortisBC Solar Offset**

4 Under the FortisBC Solar Offset option (Rate Schedule 85B), customers elect to serve a set
5 percentage of their consumption in each billing period from the Program. The percentage can
6 range from 10% to 100% in 10% increments. This structure is similar to the Renewable Natural
7 Gas (RNG) program currently offered by FortisBC Energy Inc. (FEI), where gas from renewable
8 sources is injected into the FEI distribution system for consumption by customers enrolled in the
9 RNG Program. The price of electricity supplied under the FortisBC Solar Offset rate would be
10 \$0.231/kWh. Similar to the FortisBC Virtual Solar rate, this rate would not increase over time
11 but, subject to periodic review, may need to be reduced in response to changes in Program
12 participation or the competitiveness of the Program with other renewable options, regardless of
13 what happens to the level of rates generally.

14 The cost per kWh for the Solar First rate was calculated by taking the present value of the
15 incremental revenue requirement divided by the present value of the annual kWh production
16 over 40 years for the life of the array.

17 $\$877,490 / 3,793,218 \text{ kWh} = \0.231 per kWh

18 **6.4 INDIVIDUAL CUSTOMER SUBSCRIPTIONS**

19 Under the FortisBC Virtual Solar option, Program participants may elect to receive the output
20 from one or more panels, but not parts or fractions of panels. Individual residential customers
21 may contract for the output of panels up to but not exceeding 100 percent of their usage for the
22 prior 12 month period, on a kWh basis. Non-residential customers will be limited to 25 panels
23 each for the first 6 months of the Program to allow sufficient time for residential customers to
24 subscribe. After that, any unsubscribed panels will be made available to all eligible customers.
25 In the event that a material change in a customer's consumption will result in the persistent
26 accumulation of unused output on an annual basis, FBC may require the customer to reduce
27 the number of panels subscribed such that other customers will have access to them.

28 Were the FortisBC Solar Offset option to be offered in the future, a customer may elect to have
29 up to 100 percent of consumption served by the solar array. FBC will maintain a wait list for
30 customers that would like to take part in the Program but are unable due to full subscription.

31 **6.5 AGGREGATE CUSTOMER SUBSCRIPTIONS**

32 FBC will ensure that the total expected consumption will not exceed the total output of the
33 CSPP.

1 When only the FortisBC Virtual Solar option is offered, since only the actual output of the array
2 is allocated to customers in a given month, there is no danger of a mismatch of output to
3 consumption.

4 If the FortisBC Solar Offset option is offered in the future, usage is variable and may cause a
5 mismatch of output to consumption. Were this to occur such that there is insufficient output to
6 satisfy the expected percentages of consumption, the individual FortisBC Solar Offset
7 customers would have their allocations reduced such that they will receive the same percentage
8 of the available output as if no shortage existed.

9 Depending on the mix of customer pricing it may be necessary to limit participation in one or
10 both rate options.

11 FBC will maintain a running total of projected annual subscriptions and will adjust the remaining
12 availability accordingly.

13 Should the Program be undersubscribed, the power will be absorbed into the FBC resource
14 stack, displacing other sources of power.

15 **6.6 RATE SCHEDULES AND TERMS AND CONDITIONS**

16 The rates that have been developed are specific to the Project that is described in this
17 Application. Based on FBC's experience with this pilot, there may be future solar projects for
18 which rates may need to be developed. To accommodate this eventuality, the rate schedules
19 have been drafted such that rates will be specific to "Defined Solar Generation Resources, or
20 DGSR". This will allow for future solar projects to be added to the existing rate schedule as they
21 are approved by the Commission. In the current case, the DGSR is defined as the Ellison Solar
22 Array.

23 The rate schedules proposed for each of these options are attached to the Application as
24 Appendix A.

25 **6.6.1 Term**

26 Service under the Program is available for a minimum of 12 consecutive months. This term of
27 commitment is low as compared to the installation of panels at the premise of the customer, but
28 helps to mitigate the potential for the additional administrative costs to FBC associated with
29 managing accounts and any customer wait list and transition.

30 **6.6.2 Cancellation**

31 After the initial 12 month term, customers can elect to leave the Program without penalty.
32 Cancellation will be effective as of the date on which the customer's meter is read for the billing
33 period during which the customer provides notification. A customer that leaves the Program will
34 have no priority re-subscription rights. In other words, should a customer leave the Program,
35 FBC will allocate the newly available Program output to the next customer in the wait list. There

1 is no guarantee that there will output available should a customer that has left the Program wish
2 to again subscribe to either of the rate options, but the customer could re-subscribe or be placed
3 on the waitlist in the future.

4 **6.6.3 Transferability**

5 The customer's participation in the Program is transferable. If participants move to a new
6 premise within the FBC electric service area, their subscription will transfer with them at no
7 charge. If a participant moves outside of the Company's service area, the customer will be
8 removed from the Program and the panels or output will be made available to other customers.

1 **7. PROGRAM ADMINISTRATION**

2 **7.1 PROGRAM MARKETING AND EDUCATION**

3 Promotion will initially be limited to a series of news releases, along with a website presence,
4 Twitter announcement, and e-mail to the Company's E-billing customers. Should these steps
5 fail to reach full subscription to the Program, the Company will consider additional means of
6 customer communication such as messaging via a paper bill insert.

7 **7.2 REPORTING**

8 FBC will be collecting data on an ongoing basis related to the performance of the solar
9 installation and customer value derived from participation in the Program. The Company will file
10 with the Commission and post to the FBC website on a quarterly basis, a report containing
11 information including but not limited to:

- 12 • Project energy production;
- 13 • Operating and Maintenance work and costs;
- 14 • Program subscription rates by billing option (if applicable);
- 15 • Program wait list status.

1 **8. APPROVALS SOUGHT AND FURTHER PROCESS**

2 With this Application, FBC requests that the Commission:

- 3 1. Pursuant to section 44.2 of the UCA, accept the capital expenditure schedule consisting
4 of the capital expenditures for the Community Solar Pilot Project.
- 5 2. Approve Rate Schedules 85A and 85B contained in Appendix A to this Application.

6 A draft order is included as Appendix C.

7 At the end of the pilot period, FBC will apply to continue with either one or both of the pricing
8 methodologies, an amended methodology, or to discontinue the Program. Since this Program
9 is a pilot, a future assessment will need to be made as to whether or not the Program should be
10 made permanent. The Company is proposing that after a period of two years from the date of
11 initial operation it will file with the Commission an Application regarding the ongoing viability of
12 the Program. FBC is confident in the success of the Program, however, should the Company
13 recommend that the Program not be made permanent, it will, as part of that Application, update
14 the Commission on the amount of energy that will be forecast to be included in the Company's
15 resource portfolio.

16

Appendix A

PROPOSED TARIFF PAGES

SCHEDULE 85A - FortisBC Virtual Solar Rate Option

APPLICABLE: The FortisBC Virtual Solar Rate Option is for individually metered Customers who wish to participate in the FortisBC Community Solar Pilot Program (CSPP). Under the FortisBC Virtual Solar Rate Option, the actual output of a defined number of solar panels that form a portion of a Defined Solar Generation Resource (DSGR) located in the FortisBC service area will be used to offset consumption at a premise at which the Customer also takes service from FortisBC. Participation in the FortisBC Virtual Solar Rate Option is limited in the Company’s sole discretion to the amount of solar generation available in each DSGR and subscription will be made on a first come, first served basis.

ELIGIBILITY: The Virtual Solar Rate is available to all Customers of FortisBC with the exception of those being served under Rate Schedule 81 (Radio-Off Advanced Meter Option), on a rate in which energy charges are either time differentiated (such as Time-of Use rates), or do not form a separate component of the rate, (such as with Lighting rates).

AVAILABILITY: For each DSGR, individual customers may contract for the output of a set number of panels capable of producing up to 100 percent of their usage for the prior 12 months, on a kilowatt-hour (kWh) basis. For any DSGR, non-residential customers will be limited to 25 panels each for the first 6 months of the DSGR operation to allow sufficient time for residential customers to subscribe. FortisBC may limit the number of solar panels allocated to any single customer. In the event that a material change in a customer’s consumption will result in the persistent accumulation of unused output on an annual basis, FBC may require the customer to reduce the number of panels subscribed such that other customers will have access to them.

BILLING:

1. Customers will be required to have meters read on the last day of each month and are required to be billed on a monthly basis.

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 FORTISBC INC.

Accepted for filing _____
 BRITISH COLUMBIA UTILITIES COMMISSION

By: Diane Roy _____
 Vice President, Regulatory Affairs

By: _____
 Commission Secretary

SCHEDULE 85B - Solar Offset Rate

APPLICABLE: The Solar Offset Rate is a program available to individually metered FortisBC Customers for the purpose of meeting a defined portion of total electrical service from a solar resource located within the FortisBC service area. With Solar First, Customers can choose the percentage of consumption on an existing account that will be supplied by solar generation from a Defined Solar Generation Resource (DSGR) located in the FortisBC service area. Participation in Solar First is limited in the Company’s sole discretion to the amount of solar generation available in each DSGR and subscription will be made on a first come, first served basis.

ELIGIBILITY: The Solar Offset Rate is available to all Customers of FortisBC with the exception of those being served under Rate Schedule 81 (Radio-Off Advanced Meter Option), on a rate in which energy charges are either time differentiated (such as Time-of Use rates), or do not form a separate component of the rate, (such as with Lighting rates).

RATE: For each kWh of energy deemed to be supplied from a DSGR as follows:

Ellison Solar Project Solar Offset Rate \$0.231 / kWh

BILLING:

1. Solar Offset Rate Customers are required to have meters read on the last day of each month and are required to be billed on a monthly basis.
2. Each month, the Solar Offset Rate portion of the customer bill will be determined as follows:

$$\text{Solar Offset Rate Charges} = \text{Total Metered Consumption} \times \text{Nominated Solar \%} \times \text{Solar Offset Rate}$$

In the event that in any given month, if, after deducting from the total array output, the output that is allocated to the Virtual Solar Panel customers there is insufficient output remaining to satisfy the aggregate requirement of the Solar Offset customers, the individual Solar Offset customers will have their allocations reduced such that they will receive the same percentage of the available output as if no shortage existed.

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 Vice President, Regulatory Affairs

By: _____
 Commission Secretary

BILLING (CONT):

3. Each month, the balance of the Customers consumption will be billed pursuant to the rate schedule under which the Customer normally takes service.
4. The Solar Offset subscription has no impact on the Demand Charges billed pursuant to the rate schedule under which the Customer normally takes service.

DEFINED SOLAR
GENERATION
RESOURCES:

1.	Ellison Solar Garden	720 Panels @ 0.335 kW/panel
	Project Annual Output:	290,000 kWh

SPECIAL PROVISIONS:

1. Customers may specify that 5% to 100% of monthly consumption is to be served under the *Solar First*, in 5% increments.
2. A customer that chooses to take service under *Solar First* must remain on the Program for a minimum of 12 billing periods, however, a Customer may change their nomination at any time.
3. Program participation is limited such that the Company will not allocate more than its best estimate of any DSGRs total annual output. This estimate will include consideration of the amount of the DSGR output that may be committed to the participants in any other Program that also supplies Customers from the same DSGR.

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 Vice President, Regulatory Affairs

By: _____
 Commission Secretary

EFFECTIVE (applicable to consumption on and after) TBD, 2018 G-XXX-17

Appendix B

FINANCIAL ANALYSIS AND DETERMINATION OF RATES

RATE DERIVATION

1. REVENUE REQUIREMENTS MODEL

Attached as Appendix B-2 is the revenue requirements analysis for the proposed Community Solar Pilot Project (CSPP) over a 40 year period. The 40 year analysis period is chosen as the average composite depreciation rate is 2.45 percent based on the asset categories that account for the Project capital. Refer to Section 6.3.1 of the Application for more detail.

The revenue requirements analysis is based on a capital cost estimate of \$960,744 and an operating cost of \$9,000 per year starting in 2019, escalated at 2 percent inflation annually.

The revenue requirements analysis also included the value of energy displacement to BC Hydro Power Purchase due to the solar generation. The analysis assumed the power purchase expense is expected to be reduced by a rate of \$48.63 per MWh in 2017 for the solar generation from the array. The analysis assumes this displacement rate will be escalated by 3 percent for 2018, then 2.6 percent annually until 2023, and finally 3 percent for the remaining analysis period. Refer to Section 6.3.5 of the application for more detail.

The project is also eligible for Capital Cost Allowance as Class 43.2 (CCA Rate 50 percent) for the solar modules and related equipment, Class 1 (CCA Rate 4 percent) for the foundation, and Class 6 (CCA Rate 10 percent) for the fencing.

2. TARIFF RATE CALCULATIONS

2.1 FORTISBC VIRTUAL SOLAR PANEL MODEL

Under the FortisBC Virtual Solar Panel option, the customer will be billed based on an annual flat (levelized) lease payment. To obtain this levelized lease payment, FBC first calculated the present value of the incremental revenue requirements impact of the CSPP over the 40 year analysis period, discounted at the company's 5.97 percent weighted average cost of capital. This results in a present value of approximately \$877,490 (Line 10 of Appendix B-2 Revenue Requirements Analysis).

Based on a present value of \$877,490 for the incremental revenue requirements over 40 years, the equivalent flat (levelized) annual payment is \$58,132 (Line 18 of Appendix B-2 Revenue Requirements Analysis), also discounted at 5.97 percent. For an array of 720 solar panels, the per panel per year rate will be approximately \$81 ($\$58,132 / 720$ panels).

1 **2.2 FORTISBC SOLAR OFFSET MODEL**

2 Under the FortisBC Solar Offset option, the customers elect to serve a set percentage of their
3 consumption in each billing period from the Program. The price of the electricity supplied under
4 this option will be a flat (levelized) rate of \$0.231/kWh. This flat (levelized) rate is calculated
5 based on the total present value of \$877,490 for the incremental revenue requirements, divided
6 by the present value of the annual kWh solar generation over 40 years period ($\$877,490 /$
7 $3,793,218 = \$0.231/\text{kWh}$). Please refer to Line 15 of Appendix B-2 Revenue Requirements
8 Analysis.

FortisBC Inc.

Community Solar Pilot Project

April 2017

(\$000s), unless otherwise stated

Line	Particulars	Reference	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2036	2046	2056	
1	Cost of Service															
2	Power Purchase Expense		(1)	(14)	(15)	(15)	(15)	(15)	(16)	(16)	(17)	(17)	(22)	(28)	(35)	
3	Operation & Maintenance	Line 35	0	1	9	9	9	9	9	9	10	10	12	15	18	
4	Property Taxes	Line 40	-	2	2	2	3	3	3	3	4	4	4	6	7	
5	Depreciation Expense	Line 64	-	24	24	24	24	24	24	24	24	24	24	25	26	
6	Income Taxes	Line 100	(69)	(90)	(44)	(18)	(2)	6	11	14	16	16	15	12	9	
7	Earned Return	Line 84	6	65	63	61	60	58	57	55	54	52	37	22	7	
8	Incremental Annual Revenue Requirement	Sum of Line 2 to Line 7	(64)	(13)	38	64	78	85	89	90	90	89	71	52	31	
9	PV of Revenue Requirement (After-tax WACC of 5.97%)	Line 8 / (1 + Line 86)^Yr	(61)	(11)	32	50	58	60	59	57	53	50	22	9	3	
10	Total PV of Annual Revenue Requirement	Sum of Line 9	877													
12	Annual Energy Generation (kWh)		23,697	282,939	281,524	280,116	278,716	277,322	275,935	274,556	273,183	271,817	258,528	245,889	233,867	
13	PV of Annual Energy Generation (kWh)	Line 12 / (1 + Line 86)^Yr	22,361	251,935	236,543	222,092	208,523	195,783	183,822	172,591	162,047	152,146	80,999	43,121	22,957	
14	Total PV of Annual Energy Generation (kWh)	Sum of Line 13	3,793,218													
15	Levelized Energy Rate - 40 yrs (\$/kWh)	Line 10 x 1000 / Line 14	0.231													
17	Lease Payment Calculation (40-year Term)															
18	Annual Lease Payment - 40 years	Line 10 x [Line 86 / (1 - (1 + Line 86)^-40)]	58.132													
19	Total Number of Panels		720													
20	Lease Payment per panel per year	Line 18 / Line 19	0.081													
21	Lease Payment per panel per month	Line 20 / 12	0.0067													
24	Revenue Requirement Check:															
24	Revenue Requirement	Line 8	(64)	(13)	38	64	78	85	89	90	90	89	71	52	31	
25	Revenue to be collected from <u>Participating Customers</u>	Line 18 (Fixed Annual Lease Payment)	58	58	58	58	58	58	58	58	58	58	58	58	58	
26	Variance	Line 25 - Line 24	123	71	20	(6)	(20)	(27)	(31)	(32)	(32)	(31)	(13)	6	27	
27	PV of Revenue Variance	Line 26 / (1 + Line 86)^Yr	116	63	17	(4)	(15)	(19)	(21)	(20)	(19)	(17)	(4)	1	3	
28	Total PV of Revenue Variance	Sum of Line 27	-	--> Should be zero (all revenue is all collected from participating customers over 40 years, thus no rate impact to non-participating customers)												
31	Operation & Maintenance															
31	Labour Costs		0	2	10	10	10	11	11	11	11	12	14	17	21	
32	Non-Labour Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
33	Total Gross O&M Expenses	Line 31 + Line 32	0	2	10	10	10	11	11	11	11	12	14	17	21	
34	Less: Capitalized Overhead	Overhead Rate of 15%	(0)	(0)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(3)	(3)	
35	Net O&M Expenses	Line 33 + Line 34	0	1	9	9	9	9	9	9	10	10	12	15	18	
38	Property Taxes															
38	General, School and Other		-	2	2	2	2	2	3	3	3	3	4	5	7	
39	1% in Lieu of General Municipal Tax ¹	1% of Line 8	-	-	(1)	(0)	0	1	1	1	1	1	1	1	0	
40	Total Property Taxes	Line 38 + Line 39	-	2	2	2	3	3	3	3	4	4	4	6	7	
41	1 - Calculation is based on the second preceding year, e.g. 2019 is based on 2017 revenue															
43	Capital Spending															
44	Project Capital Spending ²		945	-	-	-	-	-	-	-	-	-	-	-	-	
45	AFUDC		16	-	-	-	-	-	-	-	-	-	-	-	-	
46	Total Annual Capital Spending & AFUDC	Sum of Line 44 to 47	961	-	-	-	-	-	-	-	-	-	-	-	-	
47	Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-	
48	Total Annual Project Cost - Capital	Line 46 + Line 47	961	-	-	-	-	-	-	-	-	-	-	-	-	
50	Total Project Cost (incl. AFUDC)	Sum of Line 46	961													
51	Net Project Cost (incl. AFUDC and Removal)	Sum of Line 48	961													

2 - Excluding capitalized overhead; First year of analysis includes all prior year spending

53

54	Gross Plant in Service (GPIS)														
55	GPIS - Beginning	Preceding Year, Line 59	-	961	961	963	964	966	967	969	970	972	991	1,014	1,042
56	Additions to Plant ³		961	0	2	2	2	2	2	2	2	2	2	3	3
57	Retirements		-	-	-	-	-	-	-	-	-	-	-	-	-
58	Net Addition to Plant	Sum of Line 56 to 57	961	0	2	2	2	2	2	2	2	2	2	3	3
59	GPIS - Ending	Line 55 + Line 58	961	961	963	964	966	967	969	970	972	974	993	1,017	1,045
60	3 - Includes capitalized overhead														
61															
62	Accumulated Depreciation														
63	Accumulated Depreciation - Beginning	Preceding Year, Line 67	-	-	(24)	(47)	(71)	(94)	(118)	(142)	(166)	(189)	(430)	(676)	(927)
64	Depreciation Expense ⁴	Line 55 @ 2.45%	-	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(25)	(26)
65	Retirements		-	-	-	-	-	-	-	-	-	-	-	-	-
66	Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-
67	Accumulated Depreciation - Ending	Sum of Line 63 to 66	-	(24)	(47)	(71)	(94)	(118)	(142)	(166)	(189)	(213)	(454)	(700)	(953)
68	4 - Depreciation & Amortization Expense calculation is based on opening balance x composite depreciation rate; The composite rate of all assets addition to plant is 2.45%														
69															
70	Rate Base and Earned Return														
71	Gross Plant in Service - Beginning	Line 55	-	961	961	963	964	966	967	969	970	972	991	1,014	1,042
72	Gross Plant in Service - Ending	Line 59	961	961	963	964	966	967	969	970	972	974	993	1,017	1,045
73															
74	Accumulated Depreciation - Beginning	Line 63	-	-	(24)	(47)	(71)	(94)	(118)	(142)	(166)	(189)	(430)	(676)	(927)
75	Accumulated Depreciation - Ending	Line 67	-	(24)	(47)	(71)	(94)	(118)	(142)	(166)	(189)	(213)	(454)	(700)	(953)
76															
77	Net Plant in Service, Mid-Year	(Sum of Lines 71 to Line 75) / 2	480	949	926	904	882	860	838	816	794	772	550	327	104
78	Adjustment to 13-month average	⁵	(399)	-	-	-	-	-	-	-	-	-	-	-	-
79	Cash Working Capital	Line 59 x FBC CWC/Closing GPIS %	1	1	1	1	1	1	1	1	1	1	1	1	2
80	Total Rate Base	Sum of Line 77 to 79	83	951	928	906	884	862	839	817	795	773	552	329	105
81															
82	Equity Return	Line 80 x ROE x Equity %	3	35	34	33	32	32	31	30	29	28	20	12	4
83	Debt Component	⁶	3	30	29	28	28	27	26	26	25	24	17	10	3
84	Total Earned Return	Line 82 + Line 83	6	65	63	61	60	58	57	55	54	52	37	22	7
85	Return on Rate Base %	Line 84 / Line 80	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%	6.79%
86	After- Tax Weighted Average Cost of Capital (WACC)	⁷	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%	5.97%
87	5 - (Line 58 + Line 64) x [(Days In-service/365)-1/2]														
88	6 - Line 80 x (LTD Rate x LTD% + STD Rate x STD %)														
89	7 - ROE Rate x Equity Component + [(STD Rate x STD Portion) + (LTD Rate x LTD Portion)] x (1- Income Tax Rate)]														
90															
91	Income Tax Expense														
92	Earned Return	Line 84	6	65	63	61	60	58	57	55	54	52	37	22	7
93	Deduct: Interest on debt	Line 83	(3)	(30)	(29)	(28)	(28)	(27)	(26)	(26)	(25)	(24)	(17)	(10)	(3)
94	Add: Depreciation Expense		-	24	24	24	24	24	24	24	24	24	24	25	26
95	Deduct: Overhead Capitalized Expenses for Tax Purposes		(0)	(0)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(3)	(3)
96	Deduct: Capital Cost Allowance	Line 108	(199)	(315)	(182)	(105)	(61)	(35)	(20)	(12)	(7)	(4)	(0)	(0)	(0)
97	Taxable Income After Tax	Sum of Line 92 to 96	(196)	(257)	(126)	(50)	(6)	18	33	40	44	46	42	34	26
98	Income Tax Rate		26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
99															
100	Total Income Tax Expense	Line 97 / (1 - Line 98) x Line 98	(69)	(90)	(44)	(18)	(2)	6	11	14	16	16	15	12	9
101															
102	Capital Cost Allowance														
103	Opening Balance	Preceding Year, Line 109	-	746	431	249	144	83	48	28	16	9	0	0	0
104	Additions to Plant		961	-	-	-	-	-	-	-	-	-	-	-	-
105	Add: Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-
106	Less: AFUDC		(16)	-	-	-	-	-	-	-	-	-	-	-	-
107	Net Addition for CCA	Sum of Line 104 through 106	945	-	-	-	-	-	-	-	-	-	-	-	-
108	CCA (Composite CCA Rate @ 42.19%)	[Line 103 + (Line 107/2)] x CCA Rate	(199)	(315)	(182)	(105)	(61)	(35)	(20)	(12)	(7)	(4)	(0)	(0)	(0)
109	Closing Balance	Line 103 + Line 107 + Line 108	746	431	249	144	83	48	28	16	9	5	0	0	0

Appendix C
DRAFT ORDER



ORDER NUMBER

G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Inc.
Application for a Community Solar Pilot Project

BEFORE:

Panel Chair/Commissioner
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

- A. On April 26, 2017, FortisBC Inc. (FBC or the Company) applied to the British Columbia Utilities Commission (Commission), pursuant to section 44.2 of the *Utilities Commission Act* (UCA), for acceptance of capital expenditures related to a Community Solar Pilot Project (Project) and associated Rate Schedules (the Application).
- B. In the Application, FBC proposes to construct and own a 240 kW solar array, composed of 720 panels, on land currently owned by the Company adjacent to its existing Ellison Substation, approximately 1km northwest of the Kelowna airport terminal.
- C. The estimated capital cost of the Project is \$960,744.
- D. FBC proposes to include the capital costs of the Project within the 2017 formula capital spending envelope.
- E. FBC proposes to implement the Project as a pilot in order to gauge customer interest and gather information that will allow the Company to make prudent decisions with respect to the potential to expand the Project in the future.
- F. FBC is seeking approval for two pricing mechanisms that could ultimately be used in the Program. However, FBC proposes to initially offer the Virtual Solar Panel (Rate Schedule 85A) Option to customers as a single option is easier to manage both administratively and in matching Program output to customer usage. The Virtual Solar Panel (Rate Schedule 85B) Option provides customers with the measured output of panels at a cost of \$81.00 per panel, per year billed on a monthly basis.
- G. The Commission has reviewed and considered the Application and determines that the requests as outlined in the Application should be approved.

NOW THEREFORE pursuant to sections 44.2 and 59-60 of the *Utilities Commission Act*, the British Columbia Utilities Commission orders as follows:

1. The capital expenditures for FBC Community Solar Pilot Project are approved.
2. Rate Schedules 85A and 85B included in Appendix A of the Application are approved on an interim basis for a period of two years.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment (Yes? No?)

Appendix D

FEBRUARY 2016 SURVEY RESULTS

FortisBC: Solar Energy Survey

Summary of Results

Prepared for: Roy Mokha

February 29, 2016

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Background

FortisBC is exploring residential and commercial customer awareness, knowledge, and attitudes towards electricity generated from solar PV installations. Particularly, FortisBC is interested in distributed generation (DG). To help it make decisions regarding if and how to proceed with DG, FortisBC wants to measure residential and commercial customer interest in, and willingness to pay for, electricity from solar photovoltaic (“PV”) installations, both at the “community level” and “rooftop level”. Customer feedback will help FortisBC gain a better understanding of the potential to provide customers with electricity generated through solar PV systems within its electric service territory.

Objectives

The survey was conducted among FortisBC residential and commercial electricity customers. It addressed these objectives:

- Measure overall impressions of FortisBC compared to other large organizations serving residential and commercial customers
- Past installation of energy efficiency measures
- Assess assumptions of the make-up of FortisBC’s existing electric resource base and awareness of clean and renewable energy sources
- Assess awareness of solar PV and past consideration of using solar power
- Measure current interest in adopting rooftop solar PV and community solar PV
- Gauge drivers of interest in adopting solar PV and reasons for non-interest
- Assess how customers would prefer to pay for a solar PV system
- Determine who customers would prefer their solar service provider to be
- Gauge support for FortisBC offering solar PV as an energy alternative to customers

Residential

Overall Impressions

- Customers have more favourable impressions of FortisBC than they have of other large organizations.
- 60% of customers rated their overall impression of FortisBC as 7 or higher on a 10-point scale. Compare this to ratings for Telus (50%), Shaw (38%), BC Hydro (33%), and Rogers (15%).

Energy Efficiency Measures in the Past 2 Years

- As an indicator of engagement in energy efficiency, customers were asked if they undertook any of nine household energy efficiency measures in the past 2 years.
- Only 13% of customers did not take any of these measures, 25% took one measure and 61% took at least two.
- The most common measure taken was installing energy-efficient light bulbs (76%) followed by replacing old appliances with more energy efficient ones (39%) and installing water-efficient showerheads or toilets (33%).

Commercial

Overall Impressions

- Like residential customers, commercial customers have more favourable impressions of FortisBC than they have of other large organizations.
- 55% of customers rated their overall impression of FortisBC as 7 or higher on a 10-point scale – compared to Shaw (41%), Telus (40%), BC Hydro (36%), and Rogers (16%).

Energy Efficiency Installations/ Maintenance

- As an indicator of engagement in energy efficiency, customers were asked if they had each of six energy-efficiency systems/equipment and policies at their building.
- The most common types of equipment are energy-efficient lighting (71%) and programmable thermostats (68%). 59% of customers have annual maintenance done on their heating system and just under half (47%) have automatic shut-offs on equipment.

Residential

Assumptions about How FortisBC Generates Electricity

- Three-quarters (75%) of customers indicated that hydro is the source from which FortisBC generates the majority of its electricity.
- The balance of customers either don't know the source of FortisBC's electricity (17%) or assume it is natural gas (8%).

Awareness of Clean and Renewable Energy Sources

- Customers were asked which of six energy sources they consider clean and renewable.
- Customers were most likely to select solar (90%) and wind (85%), followed by geothermal (66%), hydro (50%) and natural gas (10%).

Commercial

Assumptions about How FortisBC Generates Electricity

- Similar to residential customers, just over three-quarters (77%) of commercial customers indicated that hydro is the source from which FortisBC generates the majority of its electricity.
- The balance of customers either don't know the source of FortisBC's electricity (11%) or assume it is natural gas (12%).

Awareness of Clean and Renewable Energy Sources

- Like residential customers, commercial customers are most likely to select solar (94%) and wind (89%) as being clean and renewable energy sources, followed by geothermal (68%), hydro (51%) and natural gas (11%).

Residential

Familiarity with Solar PV

- Solar photovoltaic (solar PV) technology is a concept new to many customers - broadly a third (31%) of FortisBC's residential customers have never heard of it, 29% are not familiar with it but have heard of it, and 24% have heard of it but have a limited understanding.
- Only 16% of customers have a good understanding of solar PV.

Past Consideration of Installing Solar Panels

- A sizable percentage of customers (46%) have considered installing solar panels at their home – 9% have looked into it quite a bit; 37% have considered it but have not really looked into it.
- This leaves 54% of customers who have yet to consider installing solar panels at their home.

Commercial

Familiarity with Solar PV

- Like residential customers, just under a third (30%) of commercial customers have never heard of solar photovoltaic (solar PV) technology.
- 19% of customers have heard of it, but are not familiar with it, and 34% are familiar with it but have a limited understanding of it.
- Only 17% of commercial customers have a good understanding of solar PV.

Past Consideration of Installing Solar Panels

- Relative to residential customers, commercial customers are less likely to have considered installing solar PV panels at their businesses – 30% have considered it – 7% have looked into it quite a bit whereas 23% have not.
- 7-in-10 have never considered installing solar panels.

Residential

Interest in Rooftop Solar

- Customers were given a description of a rooftop solar system and a graphic of how it works.
- 41% of customers are likely to consider installing rooftop solar panels in the next 3 to 5 years – 15% are very likely and 26% are somewhat likely.
- 47% of customers are unlikely to consider installing rooftop solar panels in the next 3 to 5 years – 25% are very unlikely and 22% are somewhat unlikely.

Reasons for Being Likely (or Unlikely) to Install Rooftop Solar

- The most common reason that customers are likely to install rooftop solar panels is to save money (81%). This is followed by GHG emissions reduction (60%), increased energy independence (48%), resource preservation (48%), energy use reduction (47%), and having a safe reliable source of energy (42%).
- The most common reason that customers are unlikely to install rooftop solar panels is that it will be too expensive to install (60%). This is followed by the belief that the investment will take too long to pay back (43%), wanting to wait for further improvements in technology (24%) and not believing solar will save money (22%).

Commercial

Interest in Rooftop Solar

- Despite being less likely than residential customers to have considered installing rooftop solar in the past, commercial customers are more likely to consider installing solar panels than residential customers. 51% are likely to consider installing rooftop solar panels in the next 3 to 5 years – 17% are very likely and 34% are somewhat likely.
- 39% of commercial customers are unlikely to consider installing solar panels in the next 3 to 5 years – 22% are very unlikely and 17% are somewhat unlikely.

Reasons for Being Likely (or Unlikely) to Install Rooftop Solar

- The most common reason that commercial customers are likely to install rooftop solar panels is to save money (84%). This is followed by GHG emissions reduction (59%), reduced energy use (52%), increased energy independence (51%), having a safe and reliable source of energy (50%) and resource preservation (47%).
- The most common reasons that commercial customers are unlikely to install solar panels is that they will be too expensive to install (56%) and that it will take too long to recover the full return on the investment (42%).

Residential

Expected Savings and Payback

- Over one-third (35%) of customers do not have an expectation regarding how much a solar rooftop system would save them on their electricity bill.
- 37% of customers would expect to save at least 30% on their bill, while 28% would expect to save less than 30%.
- Over one-third of customers (36%) believe that it would take more than 10 years to get a complete return on their investment in rooftop solar panels. 52% believe it would take 5 to 10 years, and 11% believe it would take less than five years.

Options for Paying for Rooftop Solar Panels

- 7-in-10 customers don't know what option they would choose when it comes to paying for rooftop solar panels when their choices are buying them and having them installed by FortisBC, buying them and having them installed by a third party, leasing them from FortisBC, or leasing them from a third party.
- Even among those who are likely to install a rooftop solar system (41% of customers), over half aren't sure what option they would choose. However, among this group, the most common preference by far is to either buy or lease them from FortisBC.

Commercial

Expected Savings and Payback

- Similar to residential customers, just over one-third (34%) of commercial customers do not have an expectation regarding how much a rooftop solar system would save them on their electricity bill.
- Commercial customers' expectations regarding savings are somewhat lower than residential customers' expectations. 30% of commercial customers expect to save at least 30%; 35% expect to save less than 30%.
- Just under one-third of commercial customers (32%) believe that it would take more than 10 years to get a complete return on their investment in rooftop solar panels. 58% believe it would take 5 to 10 years, and 10% believe it would take less than 5 years.

Options for Paying for Rooftop Solar Panels

- Among commercial customers having at least some interest in installing solar panels, just over half (54%) are not sure what payment option they would choose.
- The most common preferences are to buy them and have them installed by a third-party provider (17%) and to lease them from FortisBC (14%).

Residential

Interest in Community Solar

- Customers were given a description a community solar project and a graphic of how it works.
- 42% of customers are likely to consider joining a community solar project in the next 3 to 5 years – 15% are very likely and 27% are somewhat likely. There is substantial overlap among customers interested in rooftop solar and community solar – 64% of those likely to consider installing rooftop solar are also likely to consider joining a community solar project.
- 42% of customers are unlikely to join a community solar project in the next 3 to 5 years – 29% are very unlikely and 13% are somewhat unlikely.

Commercial

Interest in Community Solar

- Similar to residential customers, 41% of commercial customers are likely to consider joining a community solar project in the next 3 to 5 years – 15% are very likely and 25% are somewhat likely.
- 45% of commercial customers are unlikely to join a community solar project in the next 3 to 5 years – 24% are very unlikely and 21% are somewhat unlikely.

Residential

Reasons for Being Likely (or Unlikely) to Join a Community Solar Project

- The most common reasons that customers are likely to consider joining a community solar project are to save money (69%) and be part of a green community (64%). These are followed by an anticipated reduction in GHG emissions (57%), resource preservation (53%), energy use reduction (37%) and the anticipated affordability of joining (36%).
- The most common reason that customers are unlikely to join a community solar project is that it will be too expensive (46%). This is followed by the belief that it won't save money (33%), wanting to wait for further improvements in technology (27%), concerns about reliability (17%) and concerns that it will not work at the customer's home (15%).

Commercial

Reasons for Being Likely (or Unlikely) to Join a Community Solar Project

- The most common reasons that commercial customers are likely to consider joining a community solar project are to save money (73%) and be part of a green community (69%). These are followed by an anticipated reduction in GHG emissions (49%), resource preservation (48%), the anticipated affordability of joining (41%), energy use reduction (39%) and energy independence (39%).
- The most common reason that commercial customers are unlikely to join a community solar project is that it will be too expensive (49%). This is followed by wanting to wait for further improvements in technology (37%), not believing it will save enough money (33%) and concerns that it will not work at the organization's building (30%).

Residential

Expected Savings and Payback of Community Solar

- As is the case for rooftop solar, over one-third (37%) of customers do not have an expectation regarding how much joining a community solar project would save them on their electricity bill.
- However, customers' expectations regarding energy savings from community solar tend to be somewhat lower than expectations regarding rooftop solar - 27% of customers would expect to save at least 30% on their bill, while 36% would expect to save less than 30%.
- As is the case for rooftop solar, over one-third of customers (37%) assume that an investment in a community solar project will take more than 10 years to fully pay back. 48% believe it would take 5 to 10 years, and 15% believe it would take less than five years.

Commercial

Expected Savings and Payback of Community Solar

- As is the case for rooftop solar, over one-third (38%) of commercial customers do not have an expectation regarding how much joining a community solar project would save them on their electricity bill.
- Like residential customers, commercial customers' expectations regarding energy savings from community solar tend to be somewhat lower than expectations regarding rooftop solar - 19% of customers would expect to save at least 30% on their bill, while 43% would expect to save less than 30%.
- As is the case for rooftop solar, over one-third of customers (40%) assume that an investment in a community solar project will take more than 10 years to fully pay back. 47% believe it would take 5 to 10 years, and 7% believe it would take less than 5 years.

Residential

Preferred Solar Service Provider

- When asked who they would prefer to be their solar service, customers' most common responses were 'don't know' (39%) and FortisBC (38%). 17% of customers would prefer to own and operate the system themselves.

Support for FortisBC Offering Solar Energy

- Support for FortisBC offering solar electric energy as an alternative for its customers is substantial. Only 2% of customers definitely said that FortisBC should not offer solar energy. Almost three-quarters (73%) believe that it should and 19% think that it may be a good idea.
- Among those who think that FortisBC should offer solar electric energy as an alternative, 10% would definitely consider contributing a small amount on a monthly basis to help offset the increased cost of generating solar energy – 31% might consider it. 42% said that they would not consider it.

Commercial

Preferred Solar Service Provider

- As is the case with residential customers, when asked who they would prefer to be their solar service provider, commercial customers' most common responses were 'don't know' (32%) and FortisBC (36%). 25% of these customers would prefer to own and operate the system themselves.

Support for FortisBC Offering Solar Energy

- Support among commercial customers for FortisBC offering solar electric energy as an alternative is also substantial. Only 2% of customers said that FortisBC should not offer solar energy. Just over three-quarters (76%) believe that it should and 19% think that it may be a good idea.
- Among those who think that FortisBC should offer solar electric energy as an alternative, 12% would definitely consider contributing a small amount on a monthly basis to help offset the increased cost of generating solar energy. Another 31% might consider it while 38% said that they would not.

Residential

Interest in Electric and Hybrid Vehicles

- Only 1% of customers own or lease a vehicle powered solely by electricity and only 1% say that they are likely to buy or lease such a vehicle in the next 1 or 2 years.
- However, interest in electric vehicles is substantial – 28% of customers would like to buy or lease an electric vehicle but the cost is currently prohibitive. Only half (49%) of customers indicate that they are unlikely to buy or lease an electric vehicle in the foreseeable future.
- The pattern of results is similar for hybrid vehicles. 3% of customers currently own or lease a hybrid and 3% are likely to buy or lease one in the next 1 or 2 years.
- 30% of customers would like to buy or lease a hybrid but the cost is currently prohibitive – and only 45% indicate that they are unlikely to buy or lease an electric vehicle in the foreseeable future.

Appendix E

DECEMBER 2016 SURVEY RESULTS



Solar Energy Research Results

Prepared for:

Roy Mokha

December 5, 2016 INTERIM DRAFT REPORT

Objectives

The research was conducted among FortisBC residential and commercial electricity customers and addresses the following objectives:

- › Assess familiarity with solar panels as a power source for home and businesses
- › Measure past consideration of installing solar panels and participating in a community solar installation
- › Measure current interest in installing rooftop solar with net metering
- › Determine reasons why customers are interested in/not interested in installing rooftop solar panels
- › Gauge customer preferences regarding purchasing versus leasing solar panels
- › Measure current interest in participating in a community solar installation
- › Determine reasons why customers are interested in/not interested in participating in a community solar installation
- › Measure the relative appeal of rooftop versus community solar
- › Measure overall impressions of FortisBC compared to other large organizations serving residential and commercial customers
- › Collect home and business demographics

Methodology

- › A phone recruit-to-online survey methodology was employed for this study.
- › The sample was composed of phone listings for residents and commercial enterprises from FSAs corresponding to FortisBC's electrical service areas. Prospective participants were telephoned and asked if they would be interested in participating in an online survey about alternative energy sources. Interested participants were emailed a unique link to the survey.
- › To qualify for the survey, respondents had to have been the person responsible for paying their household's (business') electric bill and be the decision maker for their household's (business') home energy use. They also had to be a FortisBC electricity customer and not currently using solar energy system as a primary heat source.
- › To enhance response rates, email reminders were sent to those who had not completed the survey within 5 days of receiving the email invitation. Respondents who completed the survey were entered into a draw to win one of the following: a grand prize of \$500 Visa gift card, one of three \$100 Visa gift cards, or one of four \$50 gift cards.
- › The survey was administered from November 9 to December 2, 2016. The phone recruit-to-online survey conversion for the residential sample was 74% while the commercial sample was 52%. A total of 305 surveys were completed with residential customers and 102 surveys with commercial customers.
- › The margins of error (M.O.E) associated with each sample size at the 95% confidence level is shown in the table below:

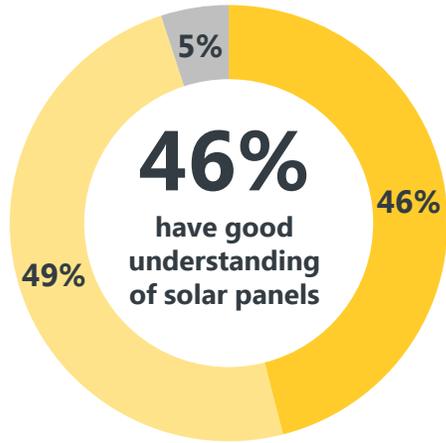
	Sample Size	M.O.E
Residential	305	+/- 5.6%
Commercial	102	+/- 9.7%

- › At the data processing stage, the residential survey data was weighted by age to bring it in line with that of household maintainers in the selected FSAs.
- › No weighting was necessary for the commercial survey data.

Familiarity with Solar Panels

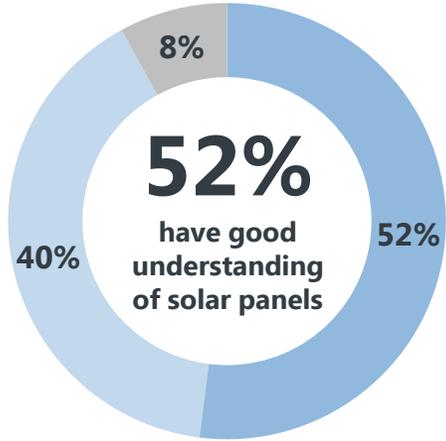
- › Just under half of residential customers (46%) indicate that they have a good understanding of how solar panels work – with the most of the balance indicating that they are familiar with solar panels but have a limited understanding of how they work.
- › At 52%, commercial customers are somewhat more likely than residential customers to indicate that they have a good understanding of how solar panels work.
- › A small percentage of residential and commercial customers are not familiar with solar panels.

Residential



- Yes, have a good understanding of how they work
- Yes, have a limited understanding
- Not familiar with solar panels

Commercial



- Yes, have a good understanding of how they work
- Yes, have a limited understanding
- Not familiar with solar panels

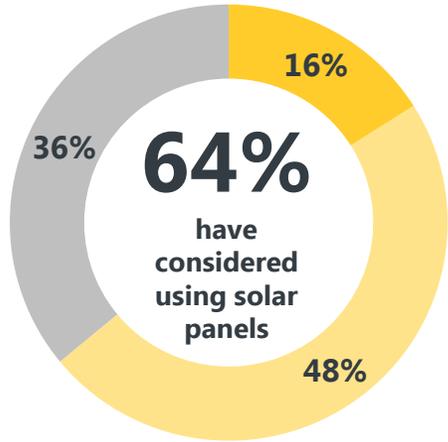
Base: Residential (305), Commercial (102)

RQ9/BQ8: Are you familiar with solar panels as a way to provide power to homes and businesses?

Past Consideration of Solar

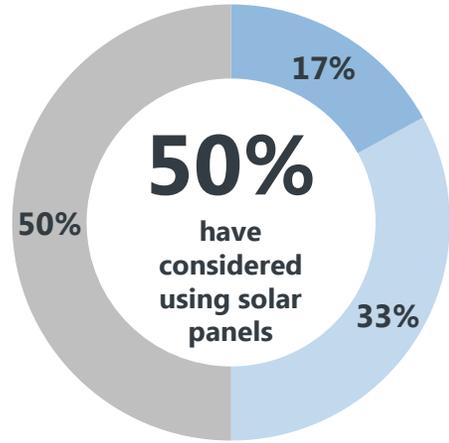
- > Just under two-thirds of residential customers have considered using solar panels – with 16% having looked into it quite a bit.
- > Past consideration of solar is lower among commercial customers, at 50%. However, like residential customers, 17% of commercial customers have looked into it quite a bit.

Residential



- Yes, have looked into it quite a bit
- Yes, have considered but not really looked into it
- No, have not considered

Commercial



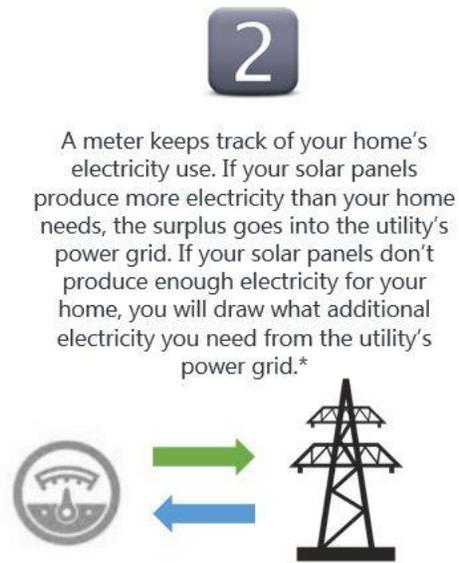
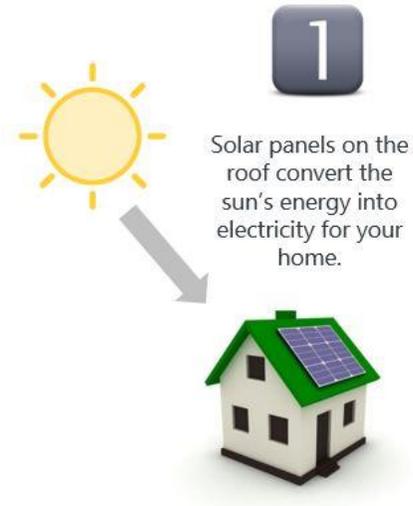
- Yes, have looked into it quite a bit
- Yes, have considered it, but not really looked into it
- No, have not considered

Base: Residential (305), Commercial (102)

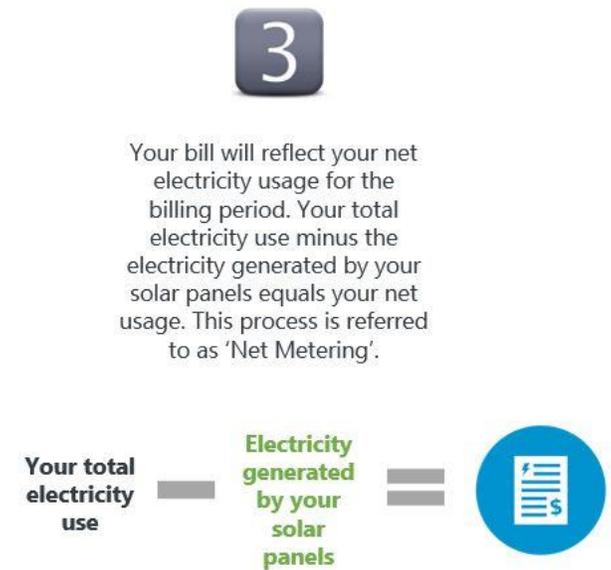
RQ10/BQ9: Have you ever considered using solar panels to generate energy for your home/business?

Interest in Rooftop Solar

- > Customers were shown this infographic which explained how net metering works and how net metering impacts their electricity bill.
- > The infographic was adapted accordingly for commercial customers.



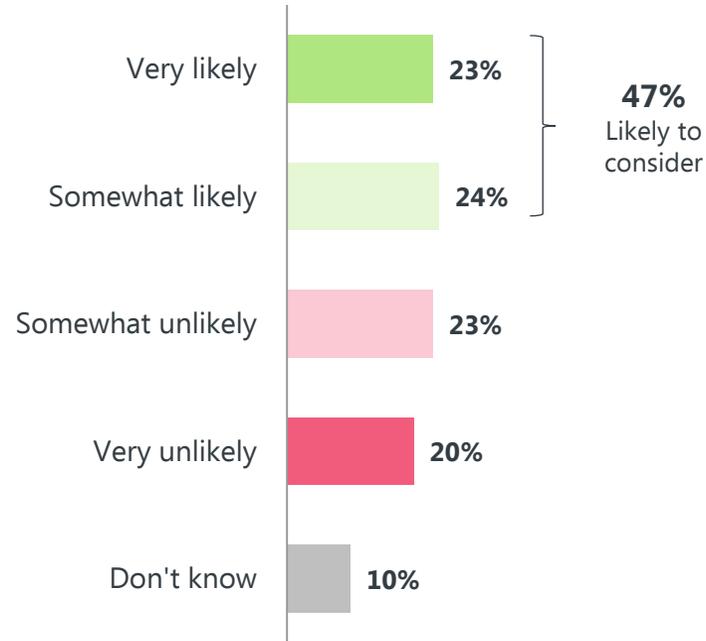
**The meter is called a bi-directional meter. It runs backwards when the solar panels produce more electricity than your home needs, and it runs forward when the solar panels produce less electricity than your home needs*



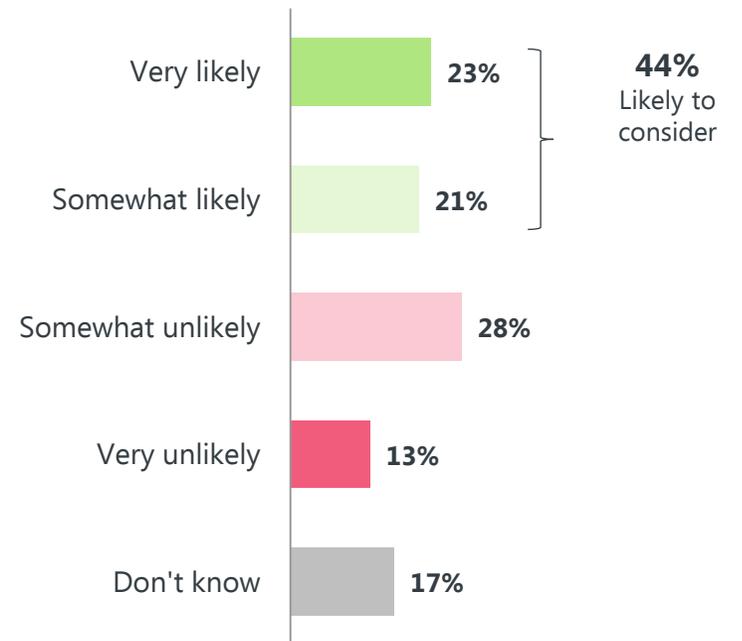
Current Consideration of Installing Rooftop Solar Panels

- › Just under half of residential customers (47%) indicate that they are likely to consider installing solar panels at their home in the next 3 to 5 years – 23% are very likely to consider it.
- › Similarly, 44% of commercial customers indicate that they are likely to consider installing solar panels for their business in the next 3 to 5 years, including 23% who are very likely to consider it.

Residential



Commercial

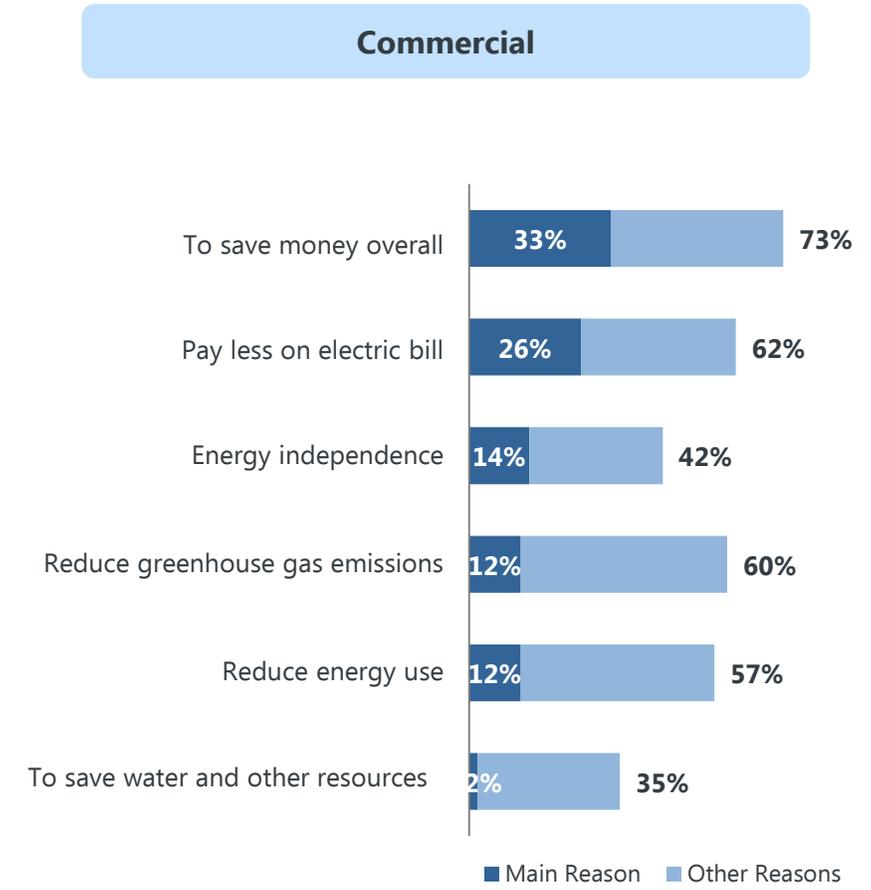
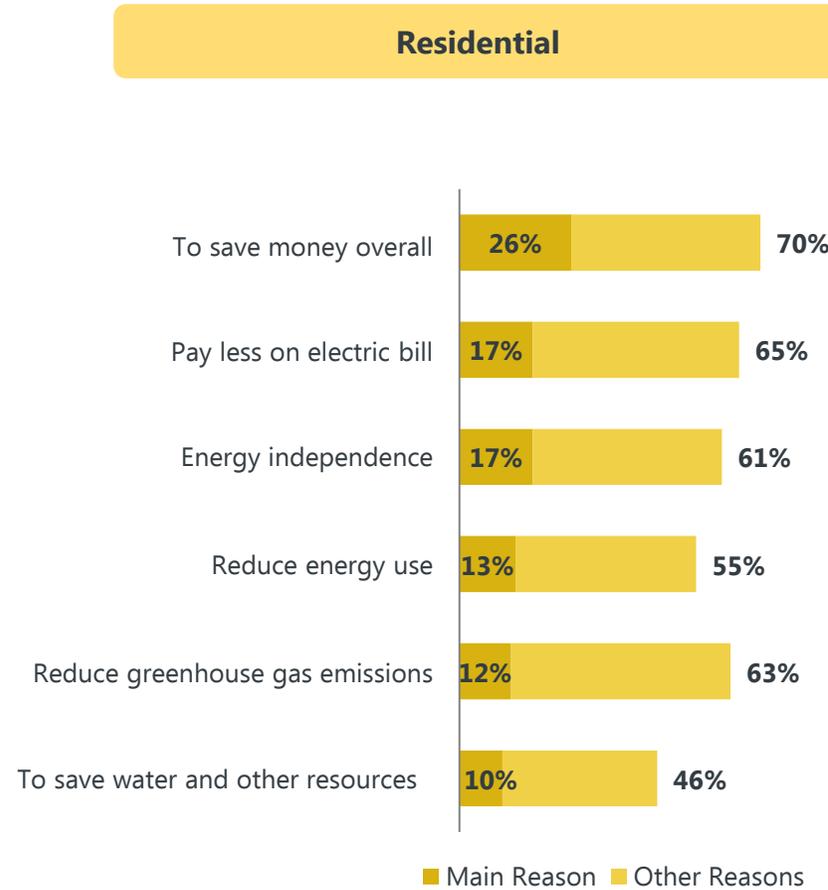


Base: Residential (305), Commercial (102)

RQ13/BQ12: Based on the description provided, and what you might already know or have heard about rooftop solar electric technology, how likely are you to consider installing solar panels [if residential: at your home] in the next 3 to 5 years?

Reasons Likely to Consider Rooftop Solar

- > While the prospect of saving money is the strongest motivator for considering rooftop solar among both residential and commercial customers, being able to reduce energy use and reduce greenhouse gas emissions are important secondary motivators among both customer groups.
- > Energy independence is a weaker motivator among commercial customers, perhaps because they are less likely than residential customers to consider this a realistic outcome.

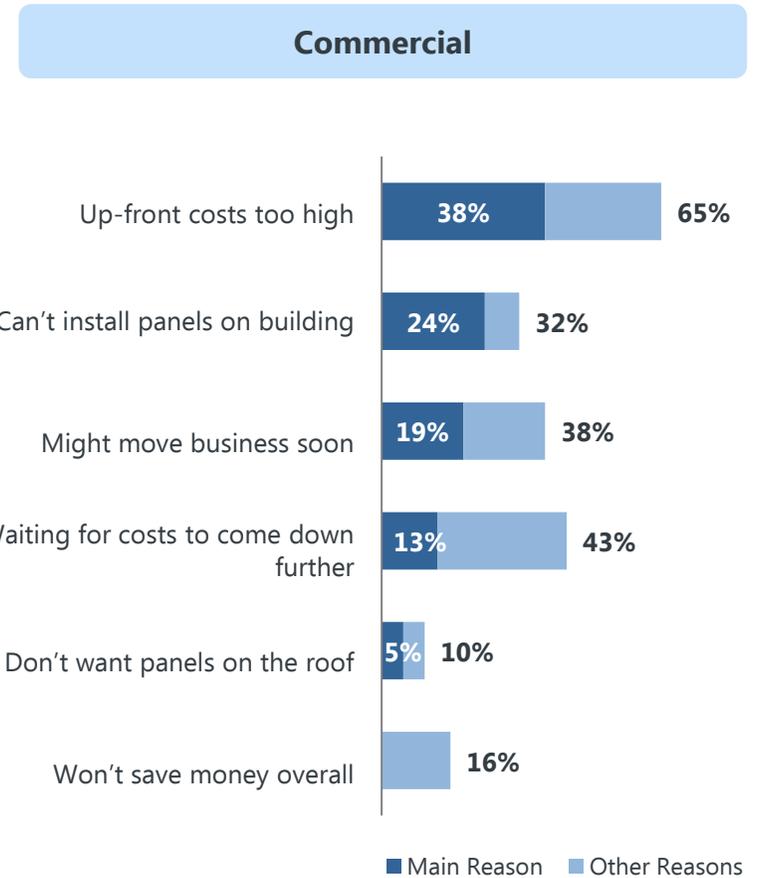
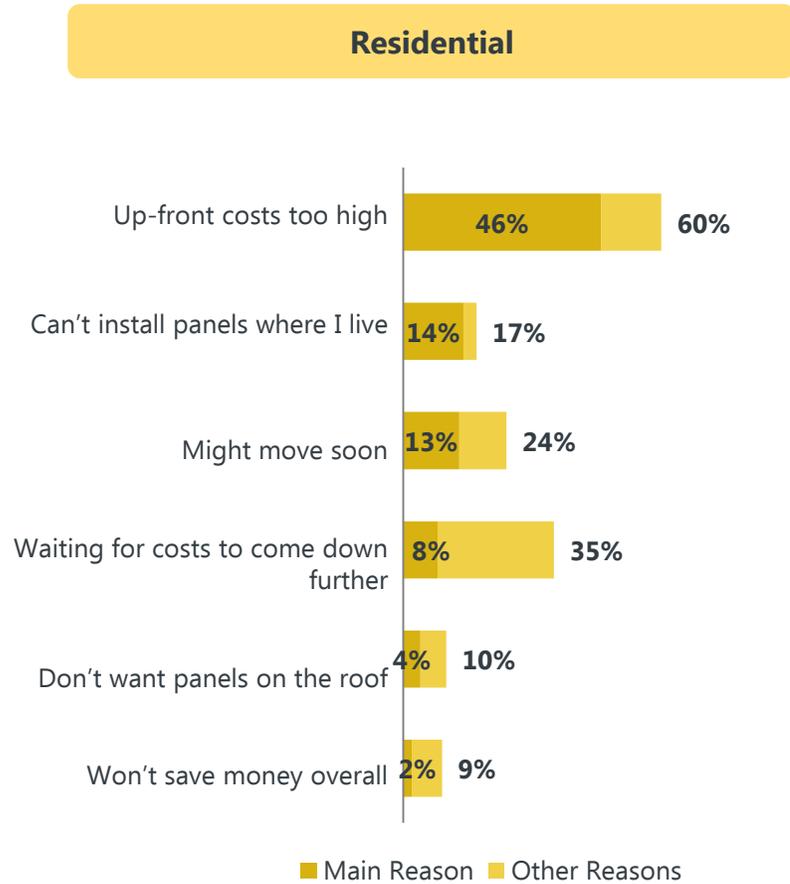


Base: Residential Likely to Consider (119), Commercial Likely to Consider (42)

RQ14a/BQ13a: What is the main reason [you are/your organization is] likely to consider installing rooftop solar electric panels in the next 3 to 5 years? Select only one. / RQ14b/BQ13b. Are there any other reasons? Select all that apply.

Reasons Unlikely to Consider Rooftop Solar

- > The main reason that both residential and commercial customers are unlikely to consider installing rooftop solar in the next 3 to 5 years is that they perceive the up front costs to be too high.
- > Secondary reasons include the prospect of moving, and wanting to wait for the costs to come down further.
- > Commercial customers were more likely than residential customers to cite an inability to install panels on their building(s) as a reason why they are unlikely to install solar panels in the next 3 to 5 years.
- > A small percentage of customers are not likely to consider installing rooftop solar because they believe that it won't save them money overall.



Base: Residential Not Likely to Consider (155), Commercial Unlikely to Consider (37)

RQ15a/BQ14a: What is the main reason [you are/your organization] is not likely to consider installing rooftop solar electric panels in the next 3 to 5 years? Select only one. / RQ15b/BQ14b. Are there any other reasons? Select all that apply.

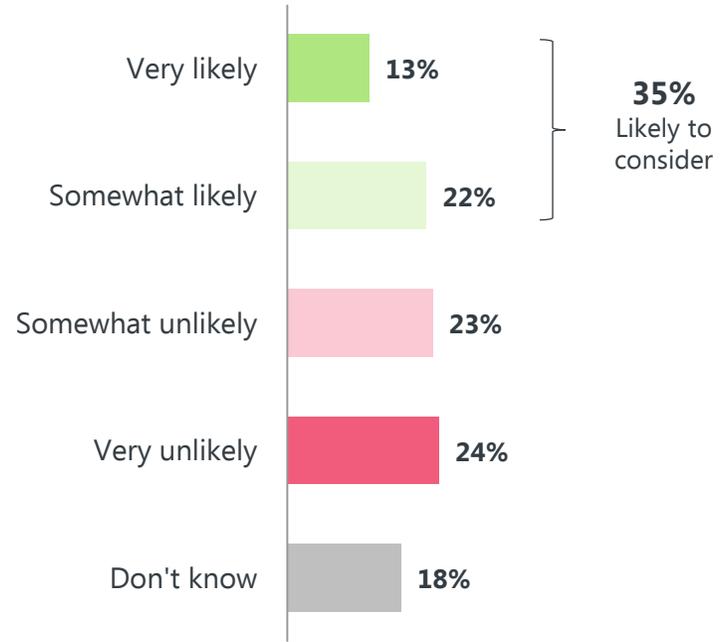
Interest in Rooftop Solar Purchase/Lease Options – Residential

Customers were presented with two options for how they could pay for a rooftop solar electric system and asked how likely they would be to consider installing rooftop solar in the next 3 to 5 years:

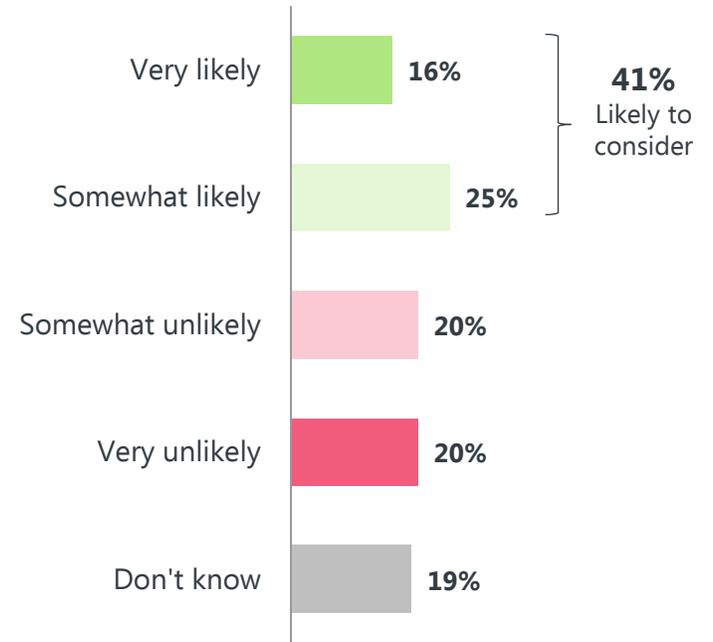
- A) "You could purchase solar panels for \$1,300. Thereafter, your annual energy cost would fall by \$50 in the first year and more in the future as electricity rates increase"
- B) "You could lease solar panels for \$115 per year. Thereafter, your annual energy cost would fall by \$50 in the first year, and more in the future as electricity rates increase."

- > Just over one-third (35%) of residential customers indicate that they are likely to consider purchasing the rooftop solar panels in the next 3 to 5 years – 47% are unlikely.
- > The leasing option is somewhat more appealing with 41% indicating that they are likely and 40% indicating that they are unlikely.
- > With both options, 2-in-10 residential customers indicate that they don't know whether or not they would consider installing rooftop solar panels.

Rooftop Solar Panel PURCHASE Option



Rooftop Solar Panel LEASE Option



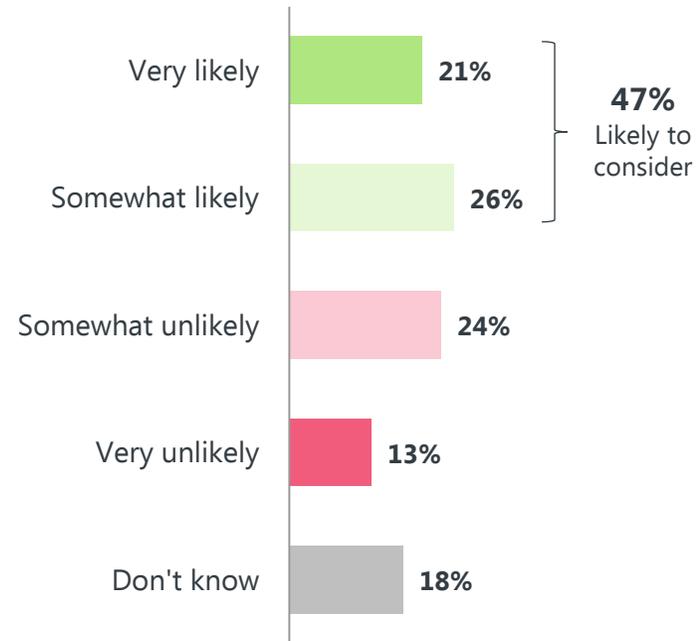
Base: Residential (305)

RQ17a/RQ17b: How likely are you to consider installing solar panels at your home in the next 3 to 5 years assuming the following: [PURCHASE/LEASE OPTION]

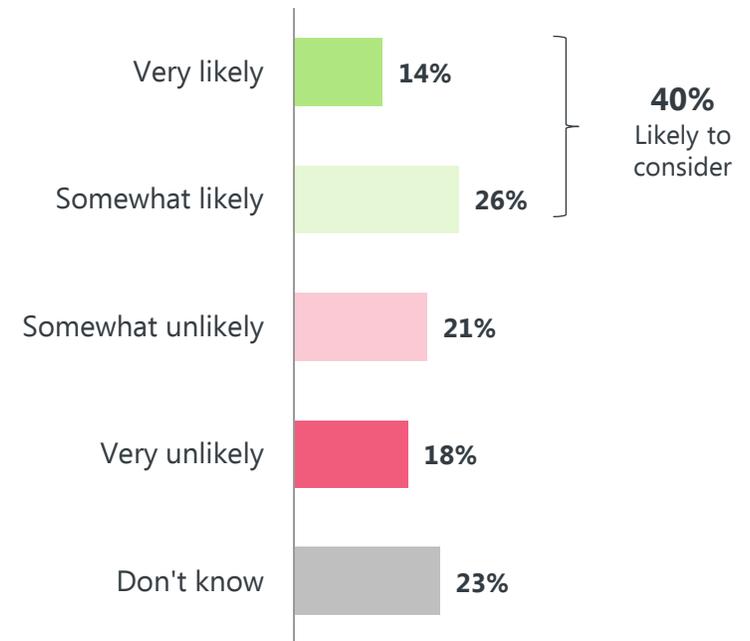
Interest in Rooftop Solar Purchase/Lease Options – Commercial

- > Commercial customers are more likely than residential customers to consider purchasing solar panels (at a cost of \$1,300). Just under half of commercial customers (47%) indicate that they are likely to consider purchasing rooftop solar panels in the next 3 to 5 years. Compare this with 35% of residential customers.
- > The leasing option is somewhat less appealing than the purchase option – with 40% of commercial customers indicating that they are likely to consider the leasing option in the next 3 to 5 years.
- > As is the case with residential customers, 2-in-10 commercial customers indicate that they don't know whether or not they would consider it.

Rooftop Solar Panel PURCHASE Option



Rooftop Solar Panel LEASE Option



Base: Commercial (102)

BQ17a/BQ17B: How likely are you to consider installing solar panels at your business in the next 3 to 5 years assuming the following: [PURCHASE/LEASE OPTION]

- > Customers were presented with a description of a community solar installation as well as several images of these installations.

Description of Community Solar Installation

"A community solar installation is not located on your property. It is a larger solar installation that is shared by a number of electricity customers. Customers can participate in a community solar installation in different ways. One way is to purchase or lease individual solar panels, and receive bill credits just like you would if the solar panels were installed [at your home/ on your building(s) or facilities].

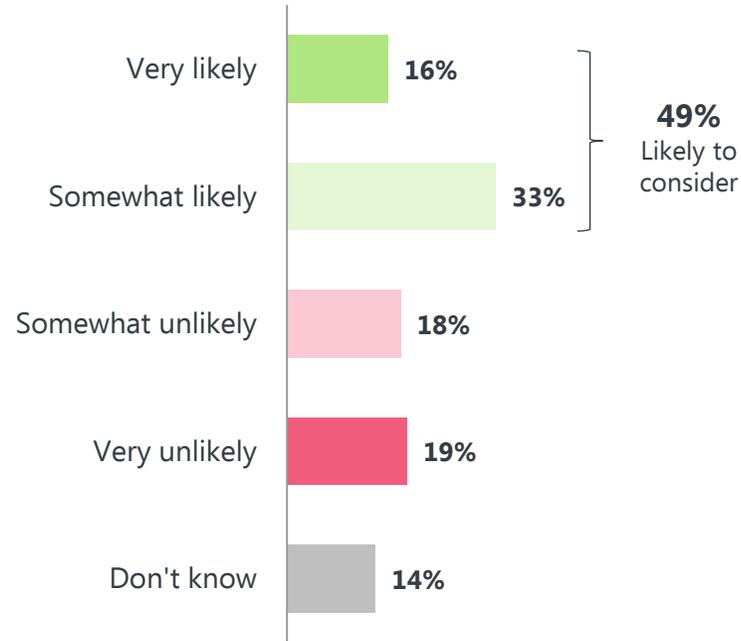
If you participated in a community solar installation, you would not have solar panels installed [on your home/ on your building(s) or facilities] and you could keep your share of the community solar installation [if you moved/if your organization moved] within the FortisBC service area. Otherwise, you would sell your share."



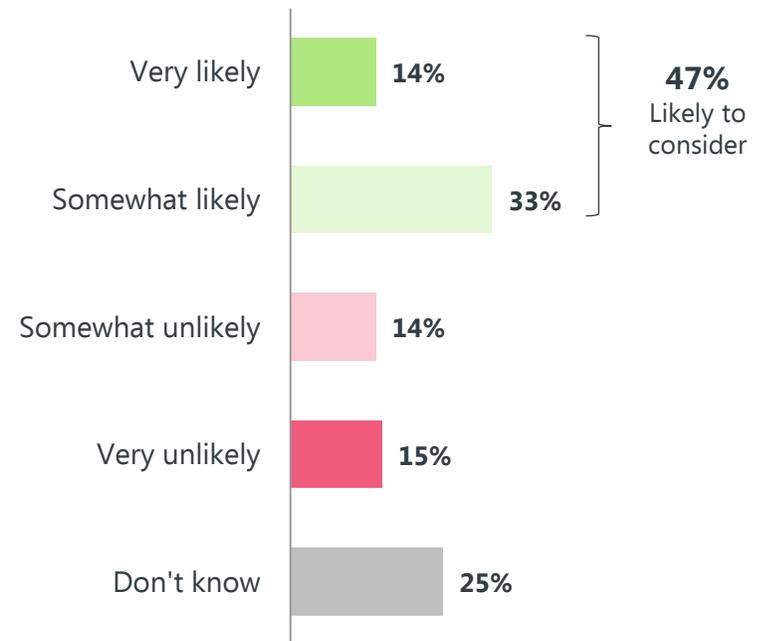
Current Consideration of Community Solar

- › Just under half of residential and commercial customers indicate that they are likely to consider participating in a community solar installation in the next 3 to 5 years.
- › A higher percentage of residential customers (37%) than commercial customers (29%) indicate that they are not likely to consider participating in a community solar installation. Commercial customers are more likely to indicate that they don't know whether or not they would participate (25%), compared to residential customers (14%).

Residential



Commercial



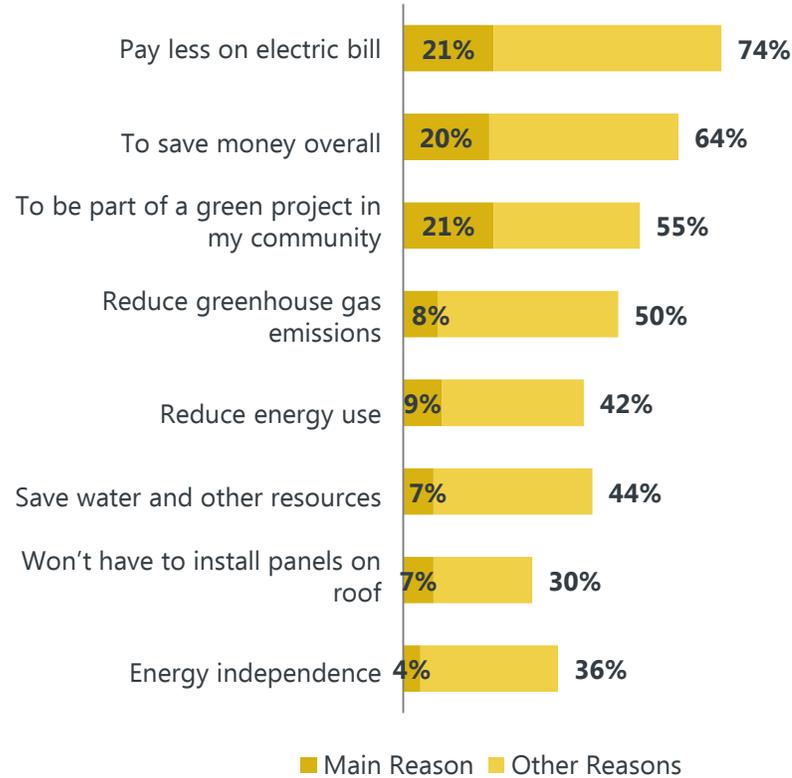
Base: Residential (305), Commercial (102)

RQ19/BQ18: Based on the description provided, and what you might already know or have heard about community solar installations, how likely are you to consider participating in a community solar installation in the next 3 to 5 years?

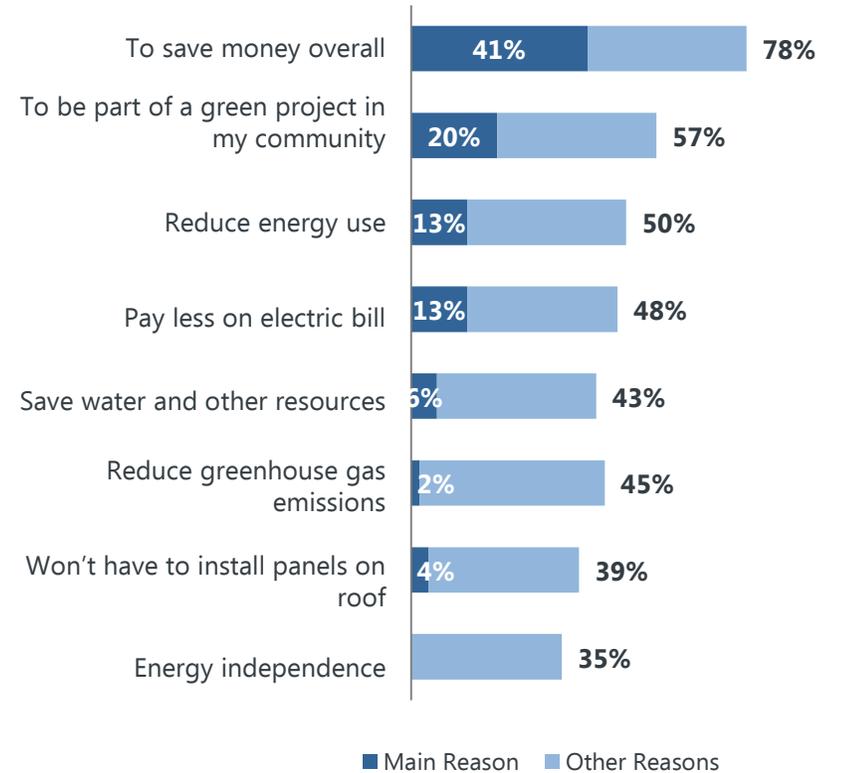
Reasons Likely to Consider Community Solar

- > The primary driver to participate in a community solar installation is financial, particularly among commercial customers.
- > However, being part of a green project in the community ranked high among the reasons residential and commercial customers gave for considering joining a community solar installation.
- > As is the case with rooftop solar, energy conservation and greenhouse gas emission reduction are important secondary motivators.

Residential



Commercial

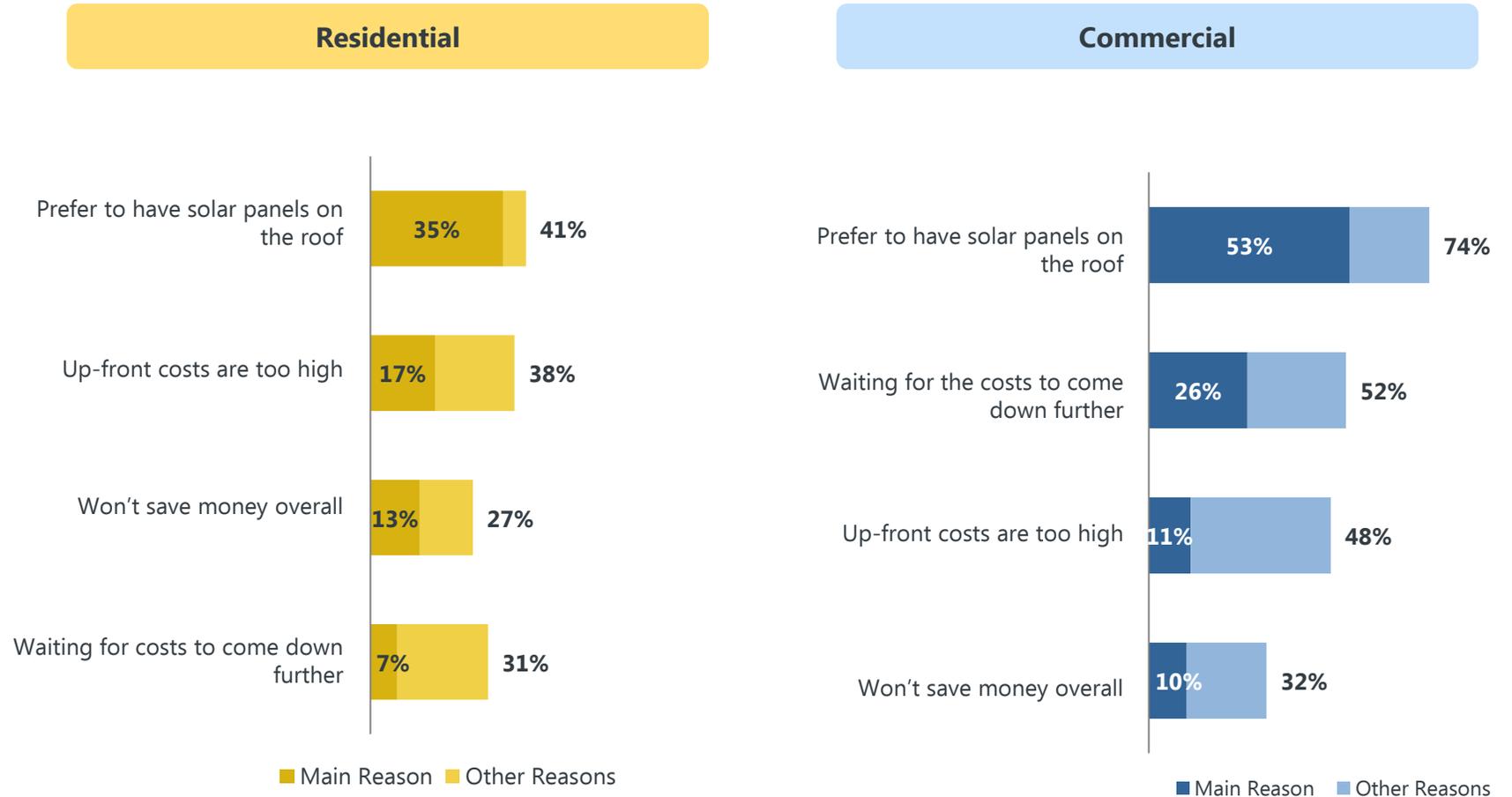


Base: Residential Likely to Consider (144), Commercial Likely to Consider (46)

RQ20a/BQ19a: What is the main reason [you are/your organization is] likely to consider participating in a community solar installation in the next 3 to 5 years? Select only one. / RQ20b/BQ19b: Are there any other reasons? Select all that apply.

Reasons Unlikely to Consider Community Solar

› Among both residential and commercial customers, their main reason for being unlikely to participate in a community solar installation in the next 3 to 5 years is that they would prefer to have solar panels installed on their roof.



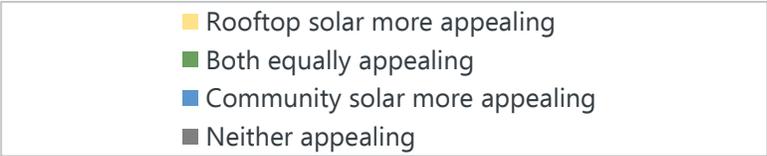
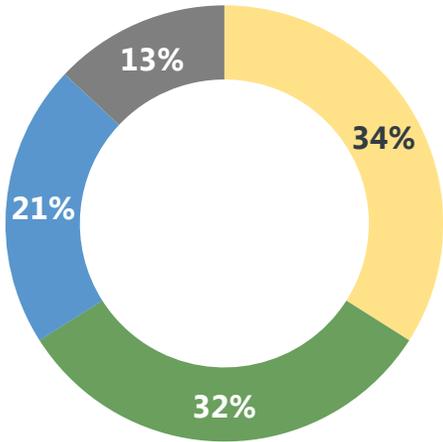
Base: Residential Not Likely to Consider (115), Commercial Not Likely to Consider (19)

RQ21a/BQ20a: What is the main reason [you are/your organization is] not likely to consider participating in a community solar installation in the next 3 to 5 years? Select only one. / RQ21b/BQ20b. Are there any other reasons? Select all that apply.

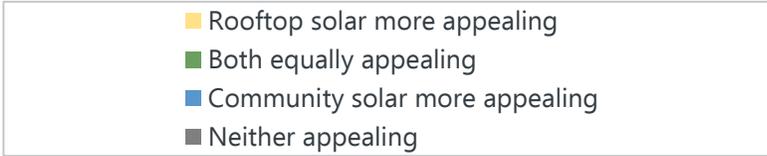
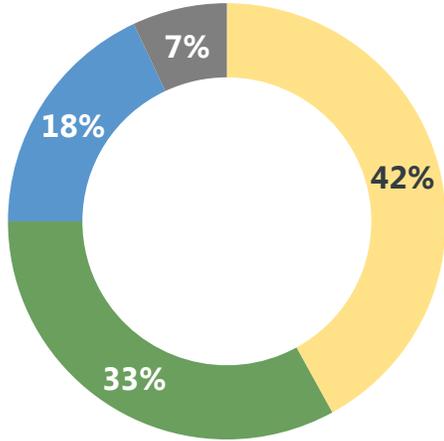
Comparing Rooftop and Community Solar

- › Both residential and commercial customers consider rooftop solar more appealing than community solar.
- › Among residential customers, 34% consider rooftop solar more appealing, while 21% consider community solar more appealing.
- › The difference is more pronounced among commercial customers, with 42% considering rooftop solar more appealing versus 18% considering community solar more appealing.
- › A relatively small percentage of customers indicate that they do not find either option appealing. This suggests that customers generally do not have concerns with the reliability of solar panels as reliable generators of electricity. If this were the case, there would likely have been a higher percentage of customers indicating that neither option is appealing.
- › The majority of both residential (58%) and commercial customers (53%) expect to pay less for solar panels in a community solar installation than rooftop solar panels. Only 15% of both customer groups expect to pay more for solar panels in a community solar installation.

Residential



Commercial



Base: Residential (305), Commercial (102)

RQ22/BQ21: And thinking about these two options – a community solar installation and a rooftop solar system – do you...

Comparing Rooftop and Community Solar with % Purchase Option

- › Customers were presented with the option of purchasing a percentage of their electricity needs from a community solar installation.
- › They were then asked to indicate the relative appeal of rooftop and community solar.

Description of Purchasing a Percentage of Electricity Needs from a Community Solar Installation

“Another way to participate in a community solar installation is to purchase a percentage of your electricity needs from the solar installation. **The price of power from the solar installation would be fixed for 30 years, but initially would be higher than current electricity rates.** Over time, the cost would be about the same with this option as with purchasing or leasing community solar panels.”

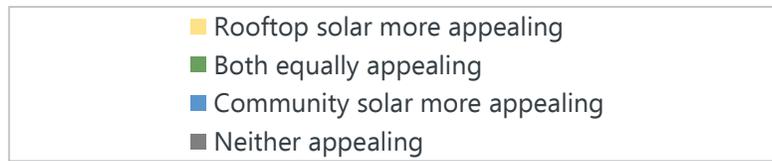
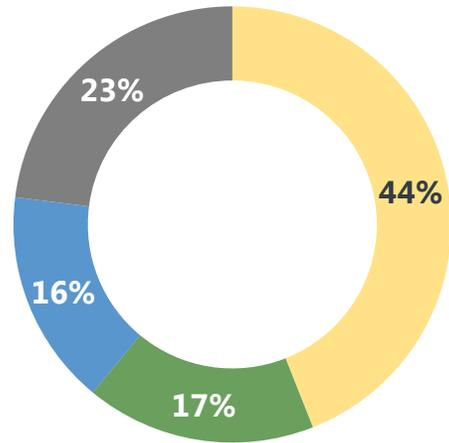
Current electricity rates are about 13 cents per kilowatt hour (kWh). Electricity rates from the solar installation would be 26 cents per kilowatt hour - but they would be fixed for 30 years.

ONLY INCLUDED FOR RESIDENTIAL CUSTOMERS: the average residential customer uses about 1,000 kWh of electricity per month.

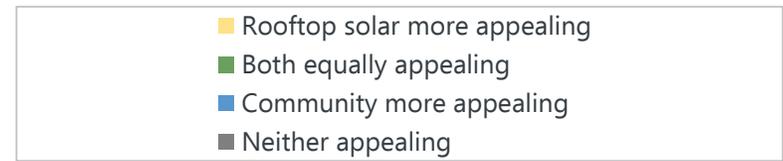
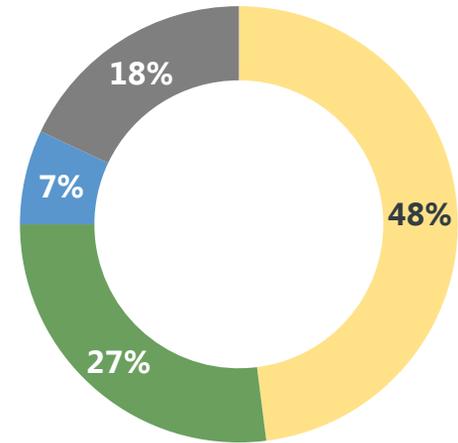
Comparing Rooftop and Community Solar with % Purchase Option

- › Introducing the option of purchasing a percentage of one’s electricity needs from community solar installation decreases the appeal of community solar relative to rooftop solar.
- › With this option, 44% of residential customers consider rooftop solar more appealing than community solar; 34% consider rooftop solar more appealing than community solar when the “purchase a percent” option is not offered.
- › Similarly, 48% of commercial customers consider rooftop solar more appealing than community solar; 42% consider rooftop solar more appealing than community solar when the “purchase a percent” option is not offered.

Residential



Commercial



Base: Residential (305), Commercial (102)

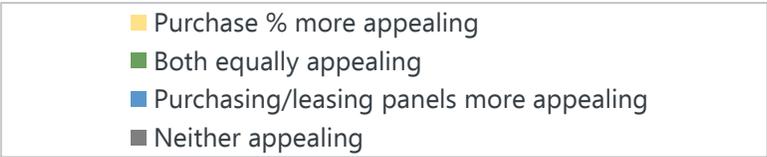
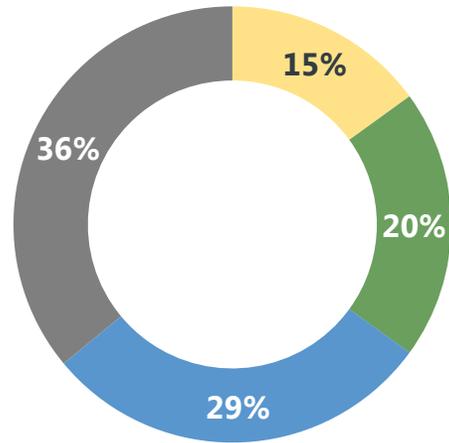
RQ25/BQ24: And thinking about these two options – purchasing a percentage of your electricity from the community solar installation and the rooftop solar system – do you...

Community Solar Installation: Purchasing a % of Electricity in the Installation vs. Purchasing/Leasing Solar Panels in the Installation

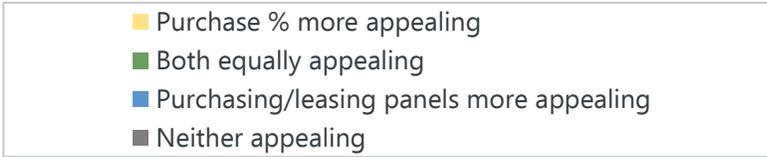
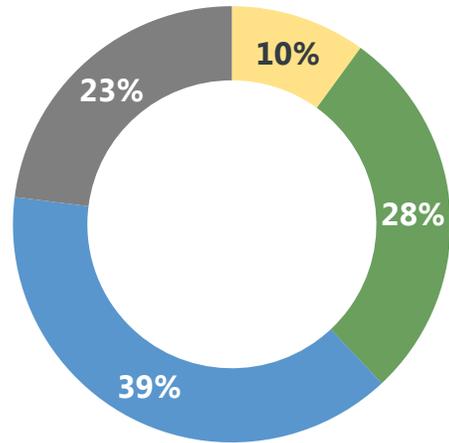
Customers were asked to indicate the relative appeal of **purchasing a percentage of their electricity** from the solar installation and **purchasing/leasing solar panels** in the community solar installation.

- > Both residential and commercial customers consider the purchase/lease option more appealing than the option of purchasing a percentage of electricity from the community solar installation.
- > However, there is a notable percentage of customers – particularly residential customers – who do not consider either option appealing.
- > Customers generally do not have a very clear preference regarding what percentage of their electricity they would consider purchasing from a community solar installation – 58% of residential customers, and 50% of commercial customers indicated that they don't know.

Residential



Commercial



Base: Residential (305), Commercial (102)

RQ26/BQ25: And thinking about these two options – purchasing a percentage of your electricity from the community solar installation and purchasing/leasing solar panels from the community solar installation – do you consider...