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July 7, 2017

Industrial Customers Group
c/o #301 – 2298 McBain Avenue
Vancouver, BC
V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

Re: FortisBC Inc. (FBC)
Project No. 1598911
Application for Community Solar Pilot Project
Response to the Industrial Customers Group (ICG) Information Request (IR) No. 1

On April 26, 2017, FBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-89-17 setting out the Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to ICG IR No. 1.

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

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

FortisBC Inc. (FBC or the Company) Community Solar Pilot Project Application (the Application)	Submission Date: July 7, 2017
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1 **1. Reference: Exhibit B-1, Section 1, p. 1**

2 **Cost Recovery**

3 “To the extent there is less than a full subscription, there will be costs associated with
4 the CSPP that will not be recovered from participants that will be recovered from other
5 customers.”

6 1.1 Please confirm that FBC is not willing to assume any risks related to the CSPP,
7 including risks related to the cost of installation and operations and maintenance,
8 and output and life expectancy?
9

10 **Response:**

11 FBC believes that the assumptions in its Application regarding costs, output and life expectancy
12 are reasonable and considers the associated risk to be minimal.

13 Regardless, the CSPP is a Project with a primary purpose to provide an option for customers
14 who have the interests set out in the Application and to allow FBC to gain insight into the
15 operation of solar installations for future benefit of all of its customers. As such, the costs are
16 appropriately borne by the customers who will benefit.

17

18

19

20

21 1.2 Please comment on whether risks to be assumed by customers could be
22 transferred to an alternative supplier that FBC is unwilling to assume, including
23 risks related to the cost of installation and operations and maintenance, and
24 output and life expectancy?
25

26 **Response:**

27 Please refer to the response to ICG IR 1.1.1 for a discussion of risk. Please also refer to the
28 responses to ICG IR 1.3.1 and the remainder of that series of IRs in relation to the concept of
29 “alternative supplier”.

30

1 **2. Reference: Exhibit B-1, Section 3.1, p. 4**

2 **Net Metering Program Participation**

3 “This is further evidenced by the increasing participation rate in the Company’s Net
4 Metering Program, which currently has approximately 160 customers.”

5 2.1 Please describe the amount of new customers that have applied for the Net
6 Metering Program Tariff since BCUC Order G-199-16 was issued.

7
8 **Response:**

9 Since Order G-199-16 was issued, 47 new customers have applied for Net Metering.

10
11

12
13 2.2 Please discuss the effect of BCUC Order G-199-16 and FBC’s application for
14 reconsideration of that order on the incentive for new customers to apply for the
15 Net Metering Program Tariff.

16
17 **Response:**

18 FBC assumes the question is asking about the incentive for customers to apply for the CSPP
19 since the Net Metering Program is not the subject of this Application.

20 Although FBC cannot speculate on the outcome of the Net Metering Reconsideration
21 Application, FBC can state generally that it does not expect any significant impacts on the
22 CSPP from the outcome of that proceeding. As stated in the Application, FBC expects that the
23 CSPP will generally appeal to customers that may not be able to participate in the Net Metering
24 program for various reasons.

25
26

27
28 2.3 Please discuss whether Sentis’ survey specifically questioned customers’
29 knowledge and opinion of the Net Metering Program Tariff in the context of
30 adding their own solar generation, and if not, why not?

31
32 **Response:**

33 Net metering was not investigated in the Sentis surveys. Rather, the surveys focused on two
34 primary objectives including (1) to gauge the relative appeal of rooftop versus community solar
35 installations and (2) to gather insight regarding preferred billing option.

36

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1 **3. Reference: Exhibit B-1, Section 3.1, p. 4**

2 **Utility Supply of Solar PV Generation**

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

7 3.1 Please confirm that there are other alternatives to “utility supply” than installation
8 of solar facilities by end-use customers?

9
10 **Response:**

11 ICG IR 1.3.1 is the start of a series of information requests that involve related concepts. FBC
12 will set out some background before dealing, against that backdrop, with each of the specific
13 questions posed.

14 FBC is a utility that is involved in the generation, transmission and distribution of electricity.
15 From the perspective of an end-use customer, the service that FBC provides involves the 24/7
16 delivery of electricity to that end-use customer, without any requirement for the end-use
17 customer to take on the responsibility of arranging for or overseeing any part of the generation,
18 transmission or distribution process, until the switching on of a stove or light switch in the end-
19 use customer’s home. This is the service that would continue to be provided through the pilot
20 project, with the customer-driven enhancement of one or two new rate schedules available to
21 customers who have particular interest in solar power.

22 In FBC service territory, FBC is the only entity that provides the fully bundled service described
23 above to FBC’s end-use customers. It is not presently feasible, legally or practically, for another
24 third party to do so.

25 As the full bundled service described above is only available to an FBC end-use customer from
26 FBC, the only available alternative is for an end-use customer to purchase, install and operate
27 his or her own means of generation to supply his or her own needs – that is, a form of self-
28 generation, in contrast to service from the utility in whose service territory the customer resides.
29 The two options are quite different, with self-generation requiring the customer to take on
30 considerably more responsibility.

31 In most cases a customer who uses the option to self-generate solar power (or to use other
32 means of self-generation) will choose to remain connected to the FBC system in order take
33 advantage of the back-up provided by the utility should the customer generation fail or be
34 insufficient to meet the customer’s requirements at a given point in time. The CSPP will not
35 allow a customer to subscribe to the Program for even 100 percent of his or her needs without
36 FBC remaining the default supplier. No alternative exists for this service.

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1 Within the self-generation category, there are various alternatives available to the end-use
2 customer to offset load (depending on his or her circumstances) related to the size and type of
3 generation that the customer may use.

4 In terms of the solar means of self-generation, the end-use customer would purchase one or
5 more solar panels to install on his or her property, in order to generate electricity for his or her
6 own consumption. As noted above, this is quite a different proposition from the simple receipt of
7 service; the end-use customer needs not only to have a property capable of accommodating the
8 panel (whether on a rooftop or otherwise), but also the interest in taking on various
9 responsibilities. In order to purchase the panel, the end-use customer needs to source that
10 panel, and may shop around for it among potential sellers. In order to start generating
11 electricity, the end-user customer may need to have an installer actually install the panel, and
12 may shop around for the installer. In order to keep generating electricity, the end-user customer
13 may need to find someone able to make repairs to the panel.

14 FBC does not sell, install or repair panels, nor do the sellers, installers or repairpersons
15 compete in the service that FBC provides.

16 The price at which panels are sold, installed or repaired may have an effect on whether or not
17 end-use customers wish to purchase and operate their own panels, or instead prefer simply
18 take service from FBC. However, the price for purchasing and servicing the necessary
19 equipment is likely to be only one of many factors that go into the customer's decision. Other
20 practicalities, such as the availability of a rooftop if a customer inclined to self-generate is
21 interested in solar power, is another factor. Given the divergence that self-generation entails
22 from utility service, a further factor that may influence a customer's decision is whether or not he
23 or she is inclined and has time to take on the sorts of responsibilities that go along with
24 successfully initiating and maintaining a self-generation project of whatever form.

25 In terms of the specific comment in the Application to which ICG IR 1.3.1 relates, FBC noted
26 there that "even if the cost of solar PV was to fall to the point where it was an economic
27 alternative to utility supply, the reduction would not help those customers that cannot install a
28 typical residential rooftop system". Solar PV in this context refers to self-generation by a
29 customer using solar power. In this regard, then, even if the cost of self-generation by a
30 customer using solar power fell, the option of self-generation by solar means would not become
31 more feasible for customers lacking a space in which to install a solar panel.

32 Summing up, when ICG IR 1.3.1 asks whether there are "other alternatives to 'utility supply'
33 than installation of solar facilities by end-use customers":

- 34 • For the fully bundled service that FBC provides, there are no alternatives to utility supply.
- 35 • The alternative to the service that FBC provides is self-generation by the end-use
36 customer.
- 37 • If the end-use customer does not wish to, or cannot, use solar power as a means of self-
38 generation, he or she may be able to turn to some other "behind the meter" generation
39 source such as micro-hydro or fossil fuel generation.

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1
2 FBC notes that certain of the information requests that ICG poses seem to be inviting a
3 discussion of whether someone other than a utility (the entity who provides the service to end-
4 use customers) or end-use customers (the persons who self-generate) might be able to have a
5 generating facility that generates solar power. FBC provides some context for these information
6 requests as well.

7 In this regard, it may be that an independent power producer (IPP) could operate a solar power
8 generating facility – the same as is the case with any other kind of generation facility – and
9 attempt to sell the power generated there to a utility, for distribution by the utility to its
10 customers. If an IPP were to establish such a facility and seek to sell its output to FBC, FBC
11 would evaluate whether it makes sense to purchase that output based on the same factors that
12 it uses to evaluate such potential otherwise. Considerations that FBC would likely take into
13 account in determining whether or not to purchase the power that the IPP was offering –
14 whether derived from solar generation, hydroelectric, wind or otherwise – include reliability,
15 price, interconnection location, etc. FBC’s LTERP, which is currently before the Commission,
16 includes solar generation among its resource options. However, the purpose of this Application
17 is to provide customer choice and an enhancement for customers. As such the resource
18 evaluation principles of the FBC LTERP do not apply to the pilot project as this is not for general
19 utility supply.

20 As reflected in the above paragraph, where FBC purchases power from an IPP, the IPP’s
21 customer is FBC. The IPP does not have any direct relationship with FBC’s customers, to whom
22 FBC distributes electricity as part of the service that it provides in its service territory.

23 ICG IRs 1.3.12 and 1.3.13 appear to be premised on the assumption that an IPP who generates
24 power from a solar array would be in a different position than all other IPPs in FBC service
25 territory and potentially have a direct relationship with FBC end-use customers. FBC:

- 26
- 27 • does not believe that the framework for such access to end-use customers (whether
28 specific to solar power or more broadly across sources of generation) presently exists or
should exist, or if it did, should be employed.
 - 29 • notes that the concept of unbundled *transmission* service was the subject matter of the
30 access principles application and transmission access application in the late 1990s.
31 However, the customers to be served via the proposed rate schedules associated with
32 the pilot project are those that meet the eligibility criteria contained therein, and are
33 clearly not restricted to “Eligible Customers” within the meaning of the access principles
34 decisions, nor has the framework associated with those decisions developed to the point
35 that it could or should apply here more broadly to include the full range of customers
36 eligible for the CSPP.
- 37

38 The issues associated with distribution access other than by FBC to FBC end-use customers
39 are not an appropriate subject matter for this Application, including because:

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- 1 • This Application is simply a request by FBC for approval of a pilot project related to
2 FBC's service to FBC end-use customers. There is no general principle being
3 considered that by extension could relate to a third party gaining access to FBC's end-
4 use customers.
- 5 • This Application relates to a solar power pilot project whereas the issue of distribution
6 access to FBC end-use customers would likely not be specific to IPPs engaged in a
7 specific form of generation; FBC does not presently see a basis for differentiating IPPs
8 interested in solar arrays from other IPPs with other forms of generation. There would be
9 no basis for the question of distribution access to FBC's end-use customers to be
10 examined in the context of an application related to solar power.
11

12 FBC would strongly oppose injection of these issues in the context of its Application.
13
14
15
16

- 17 3.2 Please comment on whether a person who owns or operates a solar installation
18 similar to that being proposed by FBC in this application is a public utility as
19 defined by the Utilities Commission Act?
20

21 **Response:**

22 For convenience, the definition of "public utility" found in the *Utilities Commission Act* is also set
23 out at the end of the present response. Please also refer to the response to ICG IR 1.3.1 for
24 reference.

25 If the words "solar installation similar to that being proposed by FBC in this application" refer to a
26 solar installation that (like the proposed pilot project) is owned and operated by a person as part
27 of their ownership and operation of a generation, transmission and distribution system providing
28 service to end-use customers, then:

- 29 • FBC is the only owner and operator falling within this category in FBC service territory
30 who serves FBC end-use customers. FBC is a public utility as defined by the *Utilities*
31 *Commission Act*.
- 32 • If Nelson Hydro or another municipal utility in FBC service territory were to own and
33 operate such an installation and use it to serve their own end-use customers, the
34 installation likely would not be owned or operated by a public utility given the fact that the
35 definition of "public utility" carves out "*a municipality or regional district in respect of*
36 *services provided by the municipality or regional district within its boundaries*".
37

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1 If the words “solar installation similar to that being proposed by FBC in this application” are
2 intended simply to refer to a large collection of solar panels, the answer to ICG IR 1.3.2 is “it
3 depends”.

4 In some circumstances it may be a public utility that owns or operates a large collection of solar
5 panels, and in some circumstances it may not.

6 As noted above, FBC as the owner and operator of the large array is a public utility, while a
7 municipal utility who owns or operates that large array is not.

8 If the person owning and operating the large collection of solar panels were a large user
9 supplying itself, the installation would not be owned or operated by a public utility given the
10 exception in the definition of “public utility” for “*a person not otherwise a public utility who*
11 *provides the service or commodity only to the person..., if the service or commodity is not resold*
12 *to or used by others*”.

13 If the person owning and operating the large collection of solar panels were supplying the
14 person’s employees or tenants (without resale), the installation would not be owned or operated
15 by a public utility given the exception in the definition of “public utility” for “*a person not*
16 *otherwise a public utility who provides the service or commodity only to... the person’s*
17 *employees or tenants, if the service or commodity is not resold to or used by others*”.

18 There may also be circumstances where a person with a large collection of solar panels would
19 otherwise meet the definition of “public utility” under the *Utilities Commission Act* but would for
20 certain purposes not be treated as a public utility. FBC notes the potential for exemption e.g.
21 under s. 22 of the *Utilities Commission Act* or s. 7 of the *Clean Energy Act*. If an IPP owned the
22 large collection of solar panels, it might be generating and selling electricity to a utility for
23 compensation within the meaning of “public utility”, but an exemption from certain forms of
24 regulation could apply. This answer, of course, is somewhat speculative; it depends on the
25 particular circumstances.

26 The *Utilities Commission Act* defines “public utility” as follows:

27 ***“public utility”*** means a person, or the person's lessee, trustee, receiver or liquidator,
28 who owns or operates in British Columbia, equipment or facilities for

29 (a) the production, generation, storage, transmission, sale, delivery or provision of
30 electricity, natural gas, steam or any other agent for the production of light, heat, cold or
31 power to or for the public or a corporation for compensation, or

32 (b) the conveyance or transmission of information, messages or communications by
33 guided or unguided electromagnetic waves, including systems of cable, microwave,
34 optical fibre or radiocommunications if that service is offered to the public for
35 compensation,

36 but does not include

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1 (c) a municipality or regional district in respect of services provided by the municipality or
2 regional district within its own boundaries,

3 (d) a person not otherwise a public utility who provides the service or commodity only to
4 the person or the person's employees or tenants, if the service or commodity is not
5 resold to or used by others,

6 (e) a person not otherwise a public utility who is engaged in the petroleum industry or in
7 the wellhead production of oil, natural gas or other natural petroleum substances,

8 (f) a person not otherwise a public utility who is engaged in the production of a
9 geothermal resource, as defined in the Geothermal Resources Act, or

10 (g) a person, other than the authority, who enters into or is created by, under or in
11 furtherance of an agreement designated under section 12 (9) of the Hydro and Power
12 Authority Act, in respect of anything done, owned or operated under or in relation to that
13 agreement;

14

15

16

17 3.2.1 If so, please comment on the appropriate scale of regulation for
18 services provided by such a public utility to another public utility,
19 assuming that such services are provided exclusively to the public utility
20 under the terms of a contract approved by the Commission?

21

22 **Response:**

23 There should be no assumption that there is a public utility to public utility relationship involved.

24 ICG IR 1.3.2 relates to “a person who owns or operates a solar installation similar to that being
25 proposed by FBC”. As noted in the response to ICG IR 1.3.2, who the owner/operator
26 potentially is differs depending on how the words “solar installation similar to that being
27 proposed by FBC” are interpreted.

28 In the case of the pilot project, which would be owned and operated by FBC (which in turn, as
29 noted in the response to ICG IR 1.3.2, is of course a public utility), the scenario in ICG IR
30 1.3.2.1 does not arise. FBC’s service would not be “to another public utility” in the context of the
31 pilot project. The service of which the pilot project forms part (and which is described in the
32 response to ICG IR 1.3.1) is directed to FBC’s end-use customers.

33 If ICG is intending to ask not about the services that would be provided via the pilot project but
34 about an IPP that might sell electricity generated via a solar array to a public utility, under those
35 circumstances regulation would be as it is today with respect to other IPPs selling to FBC.

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1 Please refer as well to the responses to ICG IR 1.3.1 and ICG IR 1.3.2; the latter response also
2 deals with the underlying question of whether the IPP would be a “public utility”.

3
4

5
6

7 3.3 Please comment on whether a competitive market exists for a solar installation
8 similar to that being proposed by FBC in this application?
9

10 **Response:**

11 Please refer to the response to ICG IR 1.3.1.

12 The solar installation that FBC proposes in this Application is part of the generation,
13 transmission and distribution system operated by FBC to offer 24/7 service to FBC end-use
14 customers in FBC’s service territory. There is not a competitive market in this regard.

15
16

17
18

19 3.4 Please reference any prior decisions of the Commission relevant to this
20 application? In particular, has the Commission approved the installation and
21 ownership of solar facilities by either BC Hydro or FBC?
22

23 **Response:**

24 This is a very broad question. The application that FBC is making is part of a long tradition of
25 seeking Commission approval for rate schedules under sections 59 and 60 of the *Utilities*
26 *Commission Act*, as well as more recently of seeking Commission input via section 44.2 of the
27 *Utilities Commission Act*. It is also impacted to an extent by the PBR framework, with its own
28 line of case law, that the Commission referenced in the first item of its procedural conference
29 agenda. FBC reserves the right to refer to authorities from any of these streams in the course
30 of its final argument.

31 With respect to solar facilities in particular, FBC is not aware of approval for solar facilities
32 specifically having been sought from the Commission.

33 Correspondingly, FBC is also not aware of any decisions in which the Commission has either
34 approved or not approved solar facilities.

35 As this issue arises elsewhere in the ICG IR responses as well, FBC notes that this application
36 relates to FBC service territory only, as the proposed installation would be located there, it
37 would be owned and operated by FBC, and power supplied by the installation would be

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1 provided only to FBC end-use customers. Therefore, while certainly at times decisions
2 regarding other utilities can serve as good references, strictly the experience in BC Hydro
3 service territory does not in any event pertain here.

4

5

6

7 3.5 Please comment on whether FBC should be encouraged by the Commission to
8 pursue opportunities to purchase power from solar installations rather than
9 approving the installation and ownership of solar facilities by FBC?

10

11 **Response:**

12 FBC is not at present seeking generally to install and own “solar facilities” in the plural. This
13 Application relates simply to a pilot project from which various data may be obtained. The
14 experience associated with that pilot project may also shape FBC’s preferences and what
15 proposals it may make going forward.

16 Please also refer to the response to ICG 1.3.1, including in relation to how an approach by an
17 IPP (whether its generation were solar or otherwise) to sell power to FBC would be addressed.
18 FBC does not see this Application as an appropriate forum or stage, legally or factually, for the
19 question posed.

20

21

22

23

24

25 3.6 Please comment on whether the owners and operators of solar facilities that
26 have been built in BC compete in a competitive market?

27

28 **Response:**

29 Please refer to the response to ICG IR 1.3.3.

30 The owners and operators of solar facilities are, or may notionally be:

31 • A utility such as FBC that would have the solar facility as part of its generation,
32 transmission and distribution system, in order to provide 24/7 service to its end-use
33 customers. FBC does not compete in a competitive market in relation to such service;
34 rather, in its service territory.

35 • An end-use customer that installs a solar facility to supply its own needs. The question of
36 competition among owners and operators of solar facilities does not arise in that regard
37 as each end-use customer supplies itself.

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- 1 • An IPP that installs a solar facility to sell its output to a utility like FBC. FBC is not aware
2 of such a facility having been built in FBC service territory. FBC is aware of one such
3 facility, SunMine, in BC Hydro service territory, but does not know the details of the
4 SunMine-BC Hydro arrangement or what if any competition is or was associated with the
5 project, though it believes SunMine may be selling power to BC Hydro under BC Hydro's
6 standing offer program. More fundamentally, as FBC's Application relates only to FBC
7 service territory, FBC is of the opinion that the SunMine situation and otherwise "in BC"
8 (the geographic parameter of the question) is not relevant.
9

10

11

12

- 13 3.7 Please comment on whether the installation and ownership of solar facilities has
14 been in a competitive market? If so, please comment on whether the FBC
15 proposal maintains competition in that market?
16

17

Response:

18 Please refer to the responses to ICG IR 1.3.3 and 1.3.6. FBC's proposal does not detract from
19 any competition that exists, but again, with respect to the provision of the service to which
20 FBC's pilot project relates, FBC notes that it is not part of a competitive marketplace; FBC is the
21 only provider of that service in FBC service territory to the FBC end-use customers that the pilot
22 project is directed to.

23 With respect to specifically the *installation* of the solar facility proposed in FBC's Application, as
24 described on page 6 of the Application, FBC initiated a Request for Proposals (RFP) process to
25 solicit bids from experienced solar PV contractors for the pilot project. FBC received proposals
26 from three vendors and selected Skyfire Energy Inc. as the most experienced and lowest cost
27 vendor. In that respect, there was competition.

28

29

- 30 3.8 Please comment on whether the installation and ownership of solar facilities by
31 FBC is likely to harm other entities that install and own solar facilities?
32

33

Response:

34 Again, FBC is not seeking in this Application approval for the "installation and ownership of solar
35 facilities" in the plural. It is simply seeking approval for a pilot project.

36 The only "other entities that install *and* own solar facilities" in FBC's service territory are
37 presently, to the best of FBC's knowledge:

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- 1 • end-use customers who generate power to supply their own needs. FBC does not see
2 how they could be harmed by FBC’s pilot project, which simply offers them the option of
3 receiving 24/7 service with a solar orientation. They need not do so.
- 4 • Nelson Hydro, which owns a solar facility serving Nelson Hydro’s end-use customers.
5 Nelson Hydro’s end-use customers would not be able to subscribe to FBC’s pilot project,
6 nor would FBC’s end-use customers be able to subscribe to Nelson Hydro’s project.

7

8 As noted in earlier responses, there are also entities that install but do not own solar facilities
9 (that is, participants in a marketplace that includes sellers of solar panels, installers of solar
10 panels, and those who repair and maintain solar panels). FBC does not engage in their line of
11 business, nor do they engage in FBC’s line of business. As an aside, FBC’s pilot project does
12 not diminish the number of solar panels that would be installed in its service territory. FBC’s
13 own Project involves the installation of 720 new solar panels, offering a solar option at least in
14 part to customers who would not have a place to install their own. The pilot project may also
15 increase awareness and engagement in solar power, encouraging further installations including
16 by individual customers.

17 In the future, if an IPP were to emerge in FBC service territory wanting to install and own a solar
18 facility, and sell to FBC power derived from a solar facility owned by the IPP, further to its
19 response to ICG IR 1.3.1 FBC would evaluate whether it should purchase that power based on
20 various factors, as it would with power generated from other sources such as hydroelectric,
21 wind, etc. The pilot project would not harm that IPP.

22 FBC notes more generally that the discussion of “harm” in this context is quite novel and in its
23 view not apt. A solar facility is another means of generating electricity, which is the product that
24 FBC otherwise generates, transmits and distributes. If FBC were to suggest building another
25 hydroelectric generation facility or expanding output from an existing facility, it does not expect
26 there to be a suggestion that it would “harm” IPPs who generate electricity using run of river
27 technology. Discussing “harm” in the context of solar power is anomalous at best.

28

29

30

31

32 3.9 Please comment on whether customers will be denied the benefits of competition
33 if public utilities install and own solar facilities?

34

35 **Response:**

36 Please refer to the responses to ICG IRs 1.3.1, 1.3.3, 1.3.6, 1.3.7, and 1.3.10.

37

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3.10 Please comment on whether ongoing competition related to the installation and ownership of solar facilities is likely to result in the availability of new and innovative options related to solar facilities and/or the supply of power from solar facilities?

Response:

10 With respect to the suggestion of “ongoing competition”, please refer to the responses to ICG
11 IRs 1.3.3, 1.3.6, 1.3.7, and 1.3.8.

12 The Company does not believe that “new and innovative options related to solar facilities and/or
13 the supply of power from solar facilities” would be confined to or even necessarily associated
14 with competition. FBC sees its pilot project as both new and innovative from the perspective of
15 engaging with customer interest in this particular field.

16
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19 3.11 Please comment on whether the installation and ownership by FBC of the solar
20 installation that is the subject of this application is likely to lock customers into a
21 high cost installation if the costs of supply of power from solar facilities is reduced
22 over time due to ongoing competition?

23
24 **Response:**

25 With respect to the suggestion of “ongoing competition”, please refer to the responses to ICG
26 IRs 1.3.3, 1.3.6, 1.3.7, and 1.3.8.

27 With respect to the suggestion that the pilot project involves a “high cost installation”, FBC does
28 not view it as such and relies on the information provided in the Application and elsewhere in
29 these IR responses in this regard.

30 FBC also does not see customers being “locked in”. First, subscription is not compulsory.
31 Second, the subscription term included in the pilot is only 12 months, which may or may not be
32 amended should the Program become permanent

33 If for whatever reason (please refer to the responses to earlier IRs regarding whether there is
34 competition and its effects) the costs of self-supply go down – e.g., through a decrease in the
35 price of solar panels – it may be that an end-use customer would factor that into his or her
36 decision on whether to continue to take service from FBC or to self-supply. The customer would
37 be able to do so.

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4 3.12 Please comment on whether FBC is willing to enable a market-based mechanism
5 to determine the eventual supply of power from solar installations to customers,
6 including customers of FBC?

7

8 **Response:**

9 The pilot project involves FBC service to its end-use customers. It is part of FBC's service in its
10 service territory and there is not a market-based mechanism to provide that service to FBC's
11 end-use customers. Rather, the service is provided on rates and in circumstances approved by
12 the Commission.

13 Please refer to the response to ICG IR 1.3.1 in relation to the potential discussion invited by ICG
14 IR 1.3.12 of distribution access by an IPP to FBC's end-use customers.

15

16

17 3.13 Please comment on whether FBC's proposal forecloses a market-based
18 mechanism to determine the eventual supply of power from solar installations to
19 customers, including customers of FBC?

20

21 **Response:**

22 Please refer to the response to ICG IR 1.3.12.

23 The pilot project itself does not foreclose anything; it simply enhances the service that FBC
24 provides to its end-use customers.

25

26

27

28

29 3.14 Please comment on whether FBC evaluated the resources in the community of
30 Ellison to determine whether such resources are adequate to build FBC's
31 proposed facilities?

32

33 **Response:**

34 FBC has sourced a contractor who would be capable of building the proposed project at the
35 proposed site. Further, the solar resources at the Ellison site would be sufficient to operate a
36 solar array.

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4 3.15 Please comment on whether FBC is willing to purchase power from solar
5 facilities that are installed and owned by other entities? If so, please identify any
6 mechanisms FBC has established for such purchases?

7

8 **Response:**

9 FBC's resource requirements over a twenty-year planning horizon are being examined in the
10 Company's 2017 LTERP, which is currently before the Commission. Solar generation is one of
11 the resource options included in the LTERP. At this time, the conclusion of the LTERP is that
12 FBC does not require any new supply-side resources for the next ten years. The present
13 Application has a different focus, as set out in the Application and in the response to ICG IR
14 1.3.1.

15 In general, if solar facilities were offering power for sale to FBC (other than on a limited basis by
16 end-use customers via the net metering program, which is dealt with otherwise), FBC would
17 consider the purchase of power from them in the appropriate circumstances, including – as is
18 the case in relation to otherwise generated power – accessibility, price, reliability, the needs of
19 FBC, etc. If it were determined that the output of such a facility met the needs of FBC and its
20 customers, then the power could be acquired in a manner similar to that employed to purchase
21 power from other IPP generation in the past. Also refer to the response to ICG IR 1.3.1.

22 IPP generation from which purchases have been made or considered in the past has included
23 generation from various sources, including run of river. There is no inherent (or other) difference
24 of which FBC is aware if the source were a solar array.

25

26

27

28 3.16 Please comment on whether FBC's proposal relies on the Commission to select
29 the most efficient technology and provider of solar power?

30

31 **Response:**

32 No, the proposal does not rely on the Commission selecting the technology or provider of solar
33 power.

34 FBC is proposing a pilot project in relation to its provision of service to FBC end-use customers.
35 The proposal as put forth by FBC requires Commission approval. If the Commission finds the
36 proposal deficient in some way, it may deny the proposal as filed. However, the Commission's
37 role is not to select technologies or providers of solar power.

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5 3.17 Please comment on whether FBC is of the view that competition provides the
6 best inventive framework for innovation?

7

8 **Response:**

9 This is a very broad question, one which FBC does not believe lends itself to a single definitive
10 response.

11 Markets for many products and services, at least in North American context, tend to be
12 predominantly competitive, and therefore, most innovation occurs in competitive markets.
13 However, innovation often occurs within regulated markets such as the utility market. Examples
14 in BC would be FBC's adoption of Advanced Metering Infrastructure, as well as FortisBC
15 Energy Inc.'s RNG and NGT initiatives, to name but a few.

16 As well, what is the best framework for innovation may also depend on the product or service in
17 question as a competitive market may not exist for that product and service, so innovation is
18 best supported in a regulated market.

19 In the context of the matters raised in this Application, please refer to the responses to ICG IRs
20 1.3.1, 1.3.6, 1.3.7, and 1.3.10.

21

22

23

24 3.18 Please comment on whether competition for the installation and ownership of the
25 solar facilities proposed by FBC in this application has occurred?

26

27 **Response:**

28 To repeat a point made in earlier responses as well, the proposal is for a pilot project rather than
29 large-scale installation and ownership of "solar facilities" (which is the term used in the
30 question).

31 Apart from that, however, as also noted earlier, the installation and ownership of the solar facility
32 at issue here are as part of FBC's generation, transmission and distribution system culminating
33 in service to FBC's end-use customers. There is not competition with respect to the provision of
34 that service in FBC service territory.

35 Please also refer to the responses to ICG IRs 1.3.1, 1.3.3, 1.3.6, and 1.3.7.

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3.19 Please comment on whether the FBC proposal will increase the barriers to entry of alternative suppliers into the solar power sector in the FBC service area?

Response:

As noted in earlier responses, there is no alternative supplier of the service to FBC end-use customers that the pilot project involves. The pilot project does not change that situation.

FBC is not aware of barriers to entry specifically facing IPPs who wish to supply power to FBC using solar generation facilities.

3.20 Please comment on whether it is reasonable to expect alternative suppliers will be able to supply from solar facilities the amount of power proposed to be supplied by FBC in the application?

Response:

As noted in earlier responses, there is no alternative supplier of the service to FBC end-use customers that the pilot project involves.

Simply with respect to the generation of electricity, presumably with sufficient funding another entity could purchase 720 solar panels and hire someone to install them. Whether that entity would be capable of generating power using those panels may depend on the entity and the circumstances, including the technology and location selected, the zoning, etc. Whether that entity would be capable of generating the power reliably, making necessary repairs, etc. is another question.

With respect to the “supply” of power in the sense of the sale of power to FBC, please refer to the factors outlined in the response to ICG IRs 1.3.1 and 1.3.15 in relation to FBC’s determination of whether or not to purchase such power if offered.

With respect to the sale of power directly to FBC’s end-use customers, please refer to the discussion in the response to ICG IR 1.3.1.

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3 3.21 Please comment on whether FBC proposal limits customer choice and
4 discourages future innovation in solar facilities by circumventing the typical
5 competitive processes that have resulted in the development of solar facilities to
6 date in BC?

7

8 **Response:**

9 In the opinion of FBC, its proposal expands customer choice, does not discourage innovation,
10 and does not “circumvent” anything. It is responsive to customer interest, may increase
11 customer awareness, and provides customers with the opportunity to notionally specify the
12 source of energy received from FBC.

13 The information request embeds within it a variety of assumptions, including about the existence
14 of “typical” processes and the effect of any such processes, with which FBC is not in a position
15 to agree. FBC also notes that its Application relates simply to a pilot project in FBC service
16 territory and should not be the forum for a province-wide debate or review.

17

18

19

20

21 3.22 Please comment on whether FBC believes that there are natural monopoly
22 characteristics of solar facilities? If not, please explain why FBC believes that the
23 cost of power from its solar facilities should be determined based on regulatory
24 principles such as cost of service, instead of market-driven mechanisms?

25

26 **Response:**

27 Where generation is installed by a utility for the purpose of supplying its customers, it is
28 associated with certain natural monopoly characteristics with which the utility is associated.
29 These do not turn on the specific means of generation or source of generation (water, solar,
30 wind, etc.): power generated through a solar array is electricity in the same way as is power
31 generated through a hydroelectric facility.

32 The service to be provided via the pilot project, if approved, is a facet of the service that FBC
33 provides to its end-use customers in its service territory and should be regulated in the same
34 manner as FBC’s service more generally. Also refer to the response to ICG IR 1.3.1.

35 Of course, as earlier responses have noted, one or more solar panels or other form of
36 generation may also be installed by an end-use customer or an IPP, but neither of those
37 categories of owner provides service using that generation facility to another end-use customer
38 of FBC.

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3.23 Please comment on whether FBC recognizes that competitors in a competitive market are more likely to create a dynamic “Green Economy” than are regulated public utilities?

Response:

For the purpose of answering ICG IRs 3.23-3.24 and 3.26, FBC interprets “Green Economy” through the lens of the legislation and policy applicable to FBC, such as the *Clean Energy Act*. This legislation and policy balance “green” objectives with other appropriate objectives in certain circumstances to produce a vision of a “Green Economy” that the government at any given time believes it appropriate to pursue.

Though ICG IR 1.3.23 suggests that regulated public utilities are not as interested in or affiliated with a “Green Economy” as other entities, from FBC’s perspective this is not a fair characterization. As (or, further to the question, despite being) a regulated public utility, FBC pursues consistency with the BC *Clean Energy Act* and other policies and statutes regarding “green” objectives. The pilot project itself meets applicable requirements under s. 44.2 of the *Utilities Commission Act* as well as the *Clean Energy Act*. Please refer to Table 5-1 in the Application.

Further, FBC generally provides support for green technologies in both gas and electric fields, as well as for environmental awareness. The pilot project itself may raise environmental awareness by drawing attention to solar power.

FBC notes that ICG IR 1.3.23 also appears to be premised on a competitive marketplace being an alternative to regulated utility service. However, please refer to the responses to ICG IRs 1.3.3, 1.3.6, and 1.3.7.

3.24 Please describe the role FBC believes is appropriate for public utilities in a “Green Economy”?

Response:

Please refer to the response to ICG IR 1.3.23.

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1 3.25 Please comment on whether the installation and ownership of solar facilities by
2 public utilities in BC is likely to reduce economic opportunities for other entities to
3 supply solar power?
4

5 **Response:**

6 Further to previous responses in this regard, FBC notes that the Application relates only to a
7 pilot project in FBC service territory.

8 In FBC service territory, there is not an opportunity for other entities to provide the service of
9 which the pilot project would be part to FBC's end-use customers. The pilot project does not
10 change the existing situation in this regard. Please refer to the response to ICG IR 1.3.1.

11 The pilot project does not reduce any opportunities for end-use customers to supply their own
12 power or for an IPP to sell power from solar generation to the utility.

13
14

15

16 3.26 Please comment on whether the installation and ownership of solar facilities by
17 either BC Hydro or FBC is likely to reduce the growth of the Province's capacity
18 to compete in the green economy?
19

20 **Response:**

21 This question is again very broad. As noted earlier, this Application relates simply to a pilot
22 project in FBC service territory, under the legislative and policy provisions noted in the
23 Application. FBC is also not in a position to speak for BC Hydro. To the extent the ability or
24 intention of the "Province" to "compete" in the "green economy" is reflected in legislation and
25 policy, please refer to the response to ICG IR 1.3.23. More broadly, FBC sees its pilot project
26 as a potentially positive force in customer engagement and support for "green" sources of
27 energy.

28

1 **4. Reference: Exhibit B-1, Section 4.2, p. 6**

2 **Project Proposal and Cost Estimate**

3 4.1 Please describe the choice of location with regard to the effect of solar insolation,
4 cloud cover, horizon and other effects on project energy output as compared to
5 other locations in FBC's service territory.

6
7 **Response:**

8 The average solar irradiance, the average power per unit received from the sun, for FBC's
9 service territory ranges from approximately 1100 to 1150 kWh per kWp (kilo-watt peak). The
10 lowest is found in Rossland and the highest in Creston, according to Natural Resources
11 Canada. Kelowna has an average solar irradiance of approximately 1130 kWh/kWp, which
12 suggests it is a favourable location within the FBC service territory.

13 The topography of the service territory presents challenges for PV solar. For example, while it is
14 possible to install solar PV adjacent to the Vaseux Terminal station, a large mountain will limit
15 the amount of sun exposure. In comparison, the Ellison Substation has favourable horizon
16 compared to other available locations.

17
18

19
20 4.2 Please identify the other project locations FBC has considered. Has FBC
21 considered Osoyoos, Grand Forks, Waneta, Castlegar, or Creston, for example,
22 and if not, why not?

23
24 **Response:**

25 In the course of investigating sites for this installation, FBC also considered these other
26 locations::

- 27 • Lee Terminal
28 • Vaseux Terminal
29 • A.A. Lambert Terminal
30 • D.G. Bell Terminal
31 • Land adjacent to the City of Kelowna Glenmore Landfill

32 These locations were considered but were ultimately rejected for the purposes of the CSPP,
33 largely due to lack of visibility. As discussed in the Application, "being part of a green community
34 project" is a strong motivator among residential and commercial customers. It is improbable that
35 these customers would feel a connection to the CSPP if they were unable to conveniently see
36 the PV solar installation. The Ellison location is highly visible as it is located near a large
37 residential community, a major provincial highway and near the airport.

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4.3 Please provide the model by which FBC has estimated annual energy production. Please also provide the solar insolation database that was used in the model. If FBC has not modeled the energy production, please explain why not and how the annual energy production was estimated.

Response:

10 FBC did not model the energy production because energy production is highly dependent on
11 system design and equipment specifications. As part of the RFP process, proponents were
12 required to propose a system capable of generating an annual energy output of at least 1000
13 kWh (AC) per installed kW (DC) and were required to submit the expected annual energy
14 production for their respective proposals.

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4.4 Please discuss the inverter technology that is being used for this Project, and the cost of the inverter(s). Does FBC expect the inverter(s) to have a 40 year life expectancy, and if not, please identify where in the project maintenance expenses (Appendix B-2) the cost of inverter(s) replacement has been captured. Please provide a statement confirming 40 year's life expectancy from the manufacturer of the proposed inverter(s).

Response:

26 The SkyFire proposal specified the use of the SMA Sunny Tripower TL-US for the CSPP,
27 specifically the STP24000TL-US-10 model. The particular inverter model proposed for the
28 CSPP has a warranty period of 10 years, extendable to 20 years upon purchase of the
29 Extended Warranty Plan offered by SMA.

30 FBC does not expect the inverters to have a 40 year life expectancy. Inverters typically have a
31 life expectancy of 10 to 20 years, depending on the environment. The estimated cost for each
32 inverter is approximately \$8,000 (in 2017 dollars).

33 FBC did not include the cost of replacing the inverters over the 40 year period in the financial
34 analysis submitted for the Application. FBC has submitted a revised financial analysis as
35 detailed in BCUC IR 1.11.5 which includes the replacement costs of the inverters together with
36 the replacement costs of the communication equipment. As the inverters typically have a life
37 ranged from 10 to 20 years, FBC assumed replacement of three inverters for every five years,
38 starting in Year 10 in the revised financial analysis. The table below summarized the revised
39 financial analysis. Please refer to BCUC IR 1.11.5 for further detail.



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	Original as Filed	Revised Financial Analysis
PV of Incremental Revenue Requirement (40 years)	\$877,490	\$933,072
Virtual Solar Panel Option – Annual Rate (\$/panel/yr)	\$81.00	\$86.00
Virtual Solar Panel Option – Monthly Rate (\$/panel/mth)	\$6.70	\$7.20
Solar Offset Option (\$/kWh)	\$0.231/kWh	\$0.246/kWh

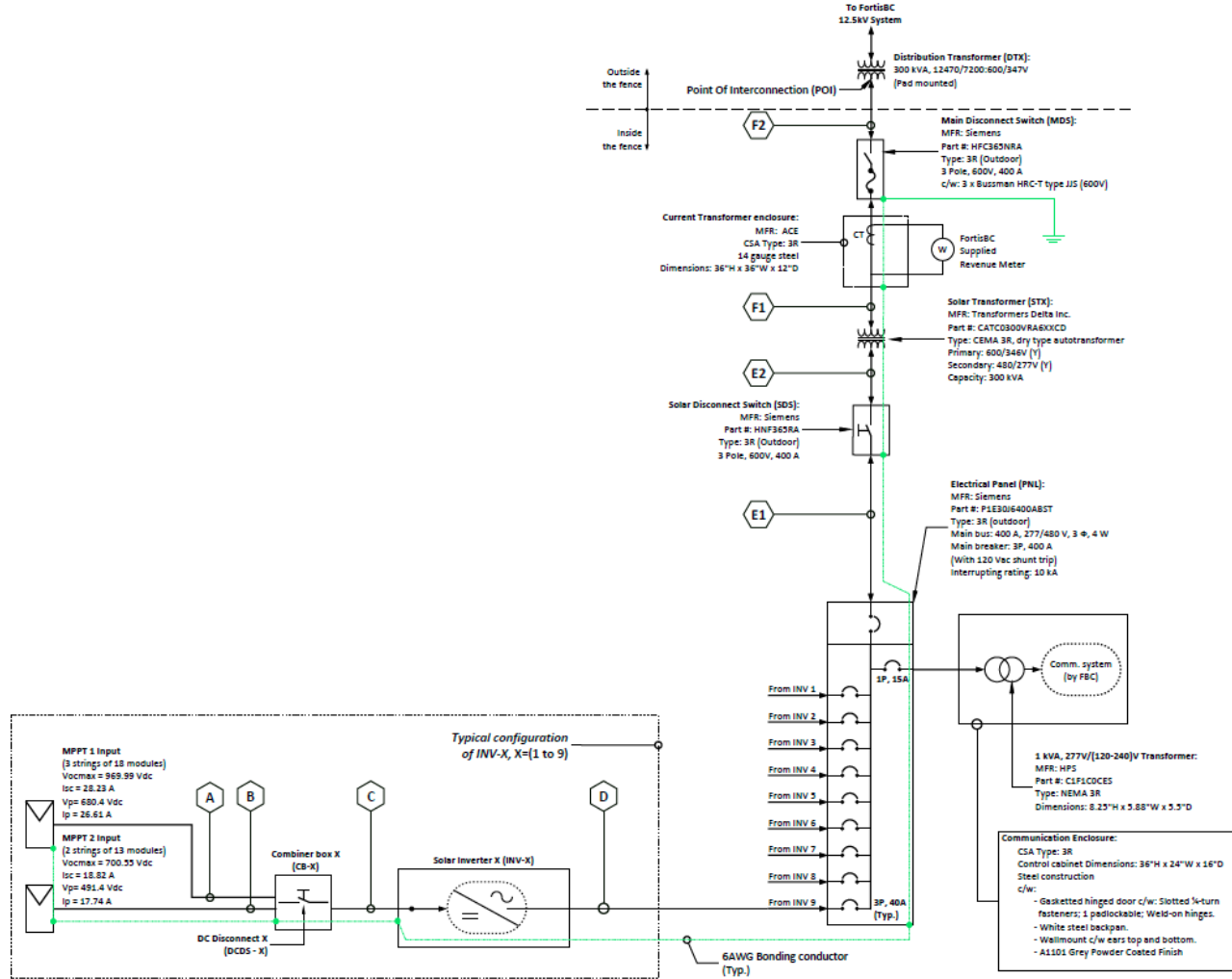
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4.5. Please provide a single line diagram for the project, and describe the method of interconnection to the FBC system and the associated cost of breakers, protection, metering and other equipment required for the interconnection.

Response:

10 A single line diagram has been provided below.

11 The point of interconnection is the low voltage side of the 300 kVA distribution padmount
12 transformer. The cost of installing this interconnection is approximately \$60 thousand and was
13 included in the cost estimate.



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4.6. Please describe the method of racking for this Project, and explain what civil investigations have been performed at the proposed site to validate the suitability of the method of foundations for the racking.

Response:

FBC completed a geotechnical investigation on the Ellison Substation property in 2007 prior to requesting Commission approval for the construction of the substation. The testpits completed at that time focused on the west side of the property, where the substation is located today.

Based on an extrapolation of the data from the 2007 geotechnical investigation, SkyFire believed that it was possible to use screw piles rather than traditional concrete foundations to support the racking system, however this was subject to an updated geotechnical investigation. SkyFire completed a geotechnical investigation on the east side of the property, where the



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- 1 proposed CSPP would be located. This investigation revealed that screw piles would be very
- 2 difficult to install. As a result, SkyFire proposed cast-in-place concrete ballasts.

- 3 Cast-in-place concrete ballasts are used commonly in the PV solar industry. Additionally, the
- 4 design that SkyFire has proposed has been signed off by a Professional Engineer registered in
- 5 BC. As such, FBC believes that the foundations are suitable for the purposes of the CSPP.

- 6

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1 **5. Reference: Exhibit B-1, Section 6.1, p. 10**

2 **Eligibility and Participation**

3 “For this pilot, the Company proposes to allow all customers on a retail electricity rate to
4 enroll in the Program, with the exception of those customers served under Rate
5 Schedule 81 (Radio-Off Advanced Meter Option) and those on a Time-of-Use (TOU) or
6 flat energy charge rate.”

7 5.1 Please further describe the difficulties, complications, and costs associated with
8 offering the Program to Rate Schedule 81 customers.

9
10 **Response:**

11 The issue with offering the program to RS 81 customers (and customers with non-
12 communicating meters) is that the manual meter reading routes for such meters are unlikely to
13 synchronize with the reading schedule of the proposed Ellison solar array. Once per month, the
14 incremental production of the solar array will be measured, divided by the number of panels,
15 and allocated to the Virtual Solar customers. That production should properly be netted against
16 consumption during the same period.

17
18

19
20 5.2 Please explain why customer billing cycles must be synchronized on a monthly
21 basis, rather than on an annual or some other basis.

22
23 **Response:**

24 Please refer to the response to Resolution IR 1.14.

25
26

27
28 5.3 Please discuss other mechanisms that would allow for the Program to be offered
29 to Rate Schedule 81 customers.

30
31 **Response:**

32 As discussed in the responses to ICG IR 1.5.1 and BCSEA IR 1.10.1, there may be
33 mechanisms by which the Program could be offered to RS 81 customers and customers with
34 non-communicating meters, but FBC elected not to include them in the CSPP due to cost
35 considerations.

36

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1 **6. Reference: Exhibit B-1, Section 6.3.6, p. 12**

2 **FortisBC Virtual Solar Panel Tariff**

3 “Assuming that the rates associated with the Project became permanent, this fee would
4 not increase over time but, subject to periodic review, may need to be reduced in
5 response to changes in Program participation or the competitiveness of the Program
6 with other renewable options such as rooftop solar that may decrease in cost during the
7 life of the Program.”

8 6.1 Please further describe how program participation and other renewable options
9 would reduce the cost of the Virtual Solar Panel tariff.

10

11 **Response:**

12 Please refer to the responses to BCOAPO IRs 1.9.2.1 and 1.9.2.2.

13

14

15

16 6.2 Would greater than estimated project costs (for example, higher actual
17 maintenance costs than the estimate) that trigger a recalculation of the tariff.
18 Please discuss the threshold of increased costs that would trigger such a
19 recalculation.

20

21 **Response:**

22 Please refer to the response to BCSEA IR 1.12.4. FBC has not defined a threshold at this time.

23

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1 **7. Reference: Exhibit B-1, Section 6.3.7, p. 13**

2 **FortisBC Solar Offset Tariff**

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

6 \$877,490 / 3,793,218 kWh = \$0.231 per kWh.”

7 7.1 Please explain why the Solar Offset tariff appears to be a higher cost than the
8 Virtual Solar Panel Tariff (\$81/ 400 kWh = \$0.2025 per kWh).

9
10 **Response:**

11 The output of an individual panel in the first year is expected to be slightly less than 400 kWh,
12 and will degrade slowly thereafter, increasing the effective amount per kWh paid each year.
13 The Solar Offset tariff includes the effect of this degradation of the life of the asset.

14
15

16
17 7.2 What is the “Solar First” rate?

18
19 **Response:**

20 Please refer to the response to BCSEA IR 1.23.1.

21

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1 **8. Reference: Exhibit B-1, Section 8, p. 17**

2 **Cost Recovery**

3 “FBC is confident in the success of the Program, however, should the Company
4 recommend that the Program not be made permanent, it will, as part of that Application,
5 update the Commission on the amount of energy that will be forecast to be included in
6 the Company’s resource portfolio.”

7 8.1 Please identify the costs that may be borne by customers if the Company
8 recommends that the Program not be made permanent?

9
10 **Response:**

11 If the output of the Ellison solar array becomes a part of the embedded resources used to
12 supply customers generally, rather than specifically to Program participants, as would be the
13 case if the Program was not carried forward past the pilot period, all embedded and future costs
14 associated with the Project would be borne by all customers of FBC. Please refer to the
15 response to BCUC IR 1.16.1 for an analysis of the rate impact of a zero subscription rate at the
16 end of the pilot period.

17