

Memo



Date: June 9, 2011
File: 1824.01
To: City Manager
From: Cindy McNeely, Electrical Administration Manager
Subject: Electrical Utility - Net Metering Program

Recommendation:

THAT Council receive for information, the Report from the Electrical Administration Manager dated June 9, 2011 regarding a proposed net metering program to be implemented by the City of Kelowna, through the City service provider FortisBC;

AND THAT Council approve a Net Metering program for City of Kelowna residential, commercial, small and medium industrial customers taking service under select rate codes as identified in the report of the Electrical Administration Manager, dated June 9, 2011;

AND FURTHER THAT Council give reading consideration to Bylaw No. 10518 being Amendment No. 28 to the City of Kelowna Electricity Regulation Bylaw No. 7639.

Purpose:

To establish a net meter process and rate for the City of Kelowna Electrical customers.

Background:

On February 27, 2007 the Provincial Government released *The BC Energy Plan: A Vision for Clean Energy Leadership*, the "2007 Energy Plan", Net metering was identified as a component to support the Government's Energy Objectives and is seen to help "move the province towards electricity self-sufficiency and expands clean electricity generation, making B.C.'s electricity supply more environmentally sustainable".

Our current electrical service provider FortisBC believes that the development of a Net Metering Program is supportive of the objectives of the 2007 Energy Plan and that allowing individual customers to realize their own self-sufficiency contributes to this overall provincial goal.

On April 17, 2009 FortisBC submitted their Net Metering Tariff Application to the BCUC and on July 27, 2009 under Order G-92-09 the BCUC approved FortisBC's Net Metering Tariff Application.

City Staff advised Council that once FortisBC received approval from the BCUC on their Net Metering Tariff Application, the City would implement a similar program shortly after.

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Program Objectives:

A successful Net Metering Program will promote distributed renewable generation, allow customers to take responsibility for their own power production and at the same time reduce their environmental impact. The Net Metering Program should consider the requirements of the City of Kelowna, the customers who choose to take part, and the remaining ratepayers who do not.

From the perspective of the customer who seeks to enroll, the Net Metering Program should;

- contain an application process that is easy to complete and understand;
- not contain undue barriers to interconnection with the City Electric Utility;

City of Kelowna requires (through its service provider FortisBC) that a Net Metering Program;

- introduces no risk to the safety of its service provider, customers or the general public;
- is not administratively burdensome or costly;
- does not compromise the quality of service to City of Kelowna customers;
- does not introduce unreasonable costs to either the City or its non-participating customers and conforms to all city bylaws

It is the overriding intent of the program that customers gain the ability to offset their own consumption with a clean and renewable resource. It is not the intent of the program to provide a means for larger scale Independent Power Producers ("IPP") to bring their output to the market.

The City is proposing to implement a Net Metering Program where customers enrolled in the program will receive retail value for their energy generation.

The City believes that the Net Metering Program provides a fair and reasonable balance between the needs of all of its customers.

Eligible Rates

The Net Metering Tariff will be available to City of Kelowna customers taking service under the following Rate Codes:

RATE -CODE	DESCRIPTION
101-107	Residential
213, 215, 219	Commercial Service
116,201,204,218	General Service - Class B
220, 224	Primary Power Service
221,222	Irrigation Service
225,226,227	Special Service

Eligible Technologies

The BC Energy Plan at page 13 states that:

Clean or renewable resources include sources of energy that are constantly renewed by natural processes, such as water power, solar energy, wind energy, tidal energy, geothermal energy, wood residue energy, and energy from organic municipal waste.

With the exception of tidal energy, the City of Kelowna along with their service provider FortisBC has adopted these technologies as eligible for its Net Metering Program. If additional technologies are

recognized as clean and renewable by the BC Government in the future, then the City would make the appropriate revisions to its Program.

Maximum Generation Size

The maximum permissible total installed generating capacity associated with any single Net Metered System will be 50 kW.

Program Cap

The City is not proposing to cap the program participation at either a fixed amount or percentage of total system capacity at this time. The City will, however, monitor program participation and may impose such a cap should it become necessary.

Net Metering Rate and Billing

The Net Metering Tariff will complement the Net Metering Customer-Generator's existing rate. All electric power and energy delivered by the City at its service meter will be billed at the consumer's applicable rate.

Customer Charge

The Customer Charge will be billed as per the applicable underlying Tariff rate. There will be no additional Customer Charge associated with the Net Metering Tariff.

Demand Charge

For Net Metering customers billed under a rate that has a demand component, the City will continue to measure a billing demand and will bill the demand charge at the applicable demand rate. The demand charge will continue to be based on the monthly peak demand recorded by the meter. To the extent that an individual Customer-Generator may be able to lower peak load with a Net Metering System, Program participants may be able to realize savings in this area.

Monthly Billing Calculation

The bill for each billing period under the Net Metering Tariff will be calculated as:
Total Bill = Customer Charge + (Energy Rate x Net Consumption (kWh)*) + (Demand Rate x Billing Demand (kVA))

* For billing purposes, Net Consumption is the difference between the amounts of electricity supplied by the City to the Customer-Generator during the billing period and the electricity received from the Customer-Generator during the same billing period.

Treatment of Excess Generation

Net Excess Generation ("NEG") will result when the net energy delivered by a Customer-Generator's Net Metered System exceeds the net amount of energy received by the consumer's premises over the billing period.

The City is proposing to credit positive NEG at the end of each billing period in an amount equal to the NEG in kWh times the applicable retail energy rate contained in the Tariff rate under which the Customer-Generator receives service. This dollar amount will be transferred to the Customer-Generator's account balance and will be available to reduce the amount payable in subsequent billing periods.

Annual Settlement of Customer-Generator Account

Accumulated NEG credits will contribute to the balance on a Customer-Generator's account in a manner similar to any other financial transaction.

On an annual basis, at the City's discretion, a credit balance may be refunded or continue to be carried over to reduce amount payable in subsequent billing periods.

Metering

Each Net Metered System connected to the City Electrical Utility system will require that the net amount of energy delivered to the system and the net amount of consumption be recorded. Simple net-metering, allowing a standard electro-mechanical meter to spin in both directions will not be permitted. Typically, the Net Metered System will be connected through a single meter containing the number of separate registers required for this purpose. At the sole discretion of the City (through its service provider FortisBC), two meters may be utilized. In each case, the Customer-Generator is responsible for the costs associated with the installation of the meter base(s) if different than what existed prior to the Net Metered System being in place.

The City will provide the meters and any incremental costs over a standard meter will be shared among all City customers. (Currently, the incremental cost for a four-quadrant, bi-directional meter over the City's standard residential meter is approximately \$270.00).

Program Costs

The City expects that the administration of the Net Metering Program will introduce incremental costs associated with account set-up, billing, meter reading, and installation. However, due to the expected limited enrollment in the program, (** FortisBC currently only has four active accounts*) the City is not proposing to require any payment from a Customer-Generator over and above the Customer Charge applicable to the underlying customer rate, and the site inspection costs discussed below, if required. Costs are expected in the following categories and are estimated in Table 1.1 below.

- Initial review of application
- Signing of agreements
- Meter Installation
- Account set-up (one time)
- Incremental meter cost
- Incremental meter reading costs
- Annual reconciliation
- Site inspection (if required)

The City (through its service provider FortisBC) will at its sole discretion determine whether a site inspection is required prior to interconnection. A site inspection fee equal to the actual costs incurred by the City to conduct the inspection will apply should an on-site inspection be required. This site inspection fee will be capped at \$500.00.

Table 1.1 Estimated City of Kelowna Net Metering Program Costs

One Time Capital Costs per Installation		
1	Incremental meter cost	\$270.00
2	Meter installation	\$175.00
3	Total (1+2)	\$445.00

One Time O & M Costs per Installation		
4	Initial review of application	\$100.00
5	Signing of agreements	\$100.00
6	Account set-up	\$20.00
7		Total (4+5+6)
8	Total One-Time Cost (3+7)	\$220.00
		\$665.00
On-going Cost per Installation		
9	Incremental meter reading cost	\$3.00
10	Annual reconciliation costs	\$160.00
11	Total Annual Incremental Costs (9+10)	\$163.00

In addition to the costs described above, which occur with each Net Metered system installation, we anticipate an additional 25% of cost for contractor fees and administration fees. The City estimates that enhancements to the existing billing system may be required. The estimated cost for enhancements required by Corix to implement the Net Metering Program as described could potentially be an estimated \$5,000.

From a customer perspective, an often used assumption on the estimated cost of a generation system is \$10,000.00 per kW for engineering, design, purchase and installation, including permitting and inspection. As such, the use of a residential scale solar project could likely cost \$20,000.00 to \$30,000.00 or above.

Net Metering Process

It is in the interest of both the City and the potential Customer-Generator that the process for connecting a Net Metered System to the City Electrical Utility distribution system be straight-forward and not require an onerous amount of work for either party.

The City must also keep as a primary consideration, the safety of its service providers, the public, the customer, and all employees.

Following the receipt of a Net Metering Application to the City's service provider FortisBC, (see attached), a review of each proposed Net Metered System must be undertaken by the City and/or its Service provider in order to ensure that it is safe and complies with applicable standards. The installation must also comply with local electrical codes, building codes and City bylaws and proof of such will be required prior to final connection to the City Electrical Utility system.

A Net Metering Interconnection Agreement to the City's service provider FortisBC (also attached) will be required prior to final connection of the Net Metered System to the City Electrical Utility system. Also (see attached) are FortisBC Net Metering Interconnection Guidelines.

It is anticipated that the process of connecting a Net Metered System will take approximately eight weeks provided that the Applicant returns all required information to the City's Service provider in a timely manner.

A diagram of the City's Service provider FortisBC Net Metering Process (see attached) is also included in this report.

Conclusion

If Council is in support of Net Metering, staff will work with its service provider FortisBC on implementation and notify its customers that the by-law has been amended to include a Net Metering Tariff that will come into effect September 1, 2011. City staff will have to look at amending the zoning bylaw to provide regulations respecting some of the "eligible technologies" as they could have an impact on the character of a neighbourhood. We will also work with the Media and Communications Department to ensure that our customers and citizens are aware of this sustainability initiative.

Considerations not applicable to this report:

Internal Circulation:

Legal/Statutory Authority:

Legal/statutory Procedural Requirements:

Existing Policy:

Personnel Implications:

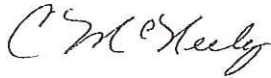
Technical Requirements:

External Agency/Public Comments:

Communications Considerations:

Alternate Recommendation:

Submitted by:



Cindy McNeely, Electrical Administration Manager

Approved for inclusion:



Joe Creron, Director, Civic Operations

cc: Director of Financial Services

Attach: FortisBC Net Metering Application

FortisBC Net Metering Interconnection Guidelines

FortisBC Net Metering Interconnection Agreement

FortisBC Net Metering Process Diagram

FortisBC 2010 Monitoring and Evaluation Report On Net Metering Program

Application for Net Metering

The following information is required by FortisBC for each request for an interconnected Net Metering System. This form shall be submitted to:

FortisBC Net Metering
1290 Esplanade
Trail BC V1R 4L4
netmetering@fortisbc.com

NOTE: Prior to completing this application, the applicant should read and be familiar with the following documents:

- FortisBC Net Metering Tariff Rate Schedule 95
- FortisBC Net Metering Interconnection Guidelines
- FortisBC Net Metering Interconnection Agreement

These can be found at http://www.fortisbc.com/customer_service/net_metering.html

FortisBC reserves the right to request any additional information from the applicant prior to the approval of this application.

Will the Net Metering System be installed as part of a new or existing service? (Check one)

New Existing

Customer Information

Customer Name: _____

Customer Address: Street: _____

City: _____ Province: _____ Postal Code: _____

Business Phone Number: () _____ Home Phone Number: () _____

Mailing Address (If different from above):

Street: _____

City: _____ Province: _____ Postal Code: _____

Electrician Name: _____

Electrician Phone Number: _____

Generating Facility Information

Site Location: (address) _____
Anticipated Date of Interconnection: _____
Utility Accessible Manual Disconnect Location: _____
Purpose of Facility: _____
Operating Load of Facility (if applicable): _____
Maximum Output: _____
Operating Power Factor: _____
Size/Number of Capacitor Banks _____
Transformer Size: _____

Transformer Winding Configuration: _____
Transformer Primary Fuse Size: _____
Proposed Metering Arrangement: _____

Generator Specifics

Type (Synchronous, Induction, Inverter): _____
Prime Mover type (Wind, etc.): _____
Photovoltaic Panel Manufacturer and Model: _____
Wind Turbine/Generator Manufacturer and Model: _____
Nominal Ratings (kW, kVA, Volts): _____
Single or Three Phase: _____
Generator Connection Configuration (delta, Wye): _____
Generator Grounding: _____
Generator Impedances (positive, negative and zero): _____
Auto Restart Requirements/Setting: _____
Reverse Power Relay Setting: _____

Protective Devices: _____

Protective Settings for Frequency,
Voltage and Fusing: _____

Line Diagram

It is the policy of FortisBC that a line diagram of the site be sent in with every application. When submitting, be sure that the drawing is securely fastened to this document (a staple, binder, etc.).

Owner Certification

I hereby certify that this application form has been filled out correctly and accurately.

Owner (signed): _____ Date signed: _____

Net Metering Interconnection Agreement

The following signed agreement is required prior to FortisBC Inc. ("FortisBC") connecting the customer's Net Metering System to the FortisBC system. Once this document is signed, it must be submitted to FortisBC.

The signing of this document by the customer signifies that the customer:

1. Has read all rules and regulations stated by FortisBC in their document 'Guidelines for Operating, Metering, and Protective Relaying for Net Metering Systems up to 50 kW and voltages below 750 Volts' and is willing to comply with the rules, regulations and terms of use outlined in this document.
2. Certifies that the facility to be interconnected has been installed to his/her satisfaction, and that the customer has been given any system warranty information, operating manuals, as well as instructions on the safe operation of the facility.
3. Will indemnify FortisBC for any damages to the facility or any persons working on/near the facility unless said damage was caused solely by the negligence of FortisBC.

The signing of this document, on the part of the contractor, signifies that the contractor:

1. Certifies that the system has been installed in accordance with the current version of IEEE 929, "Recommended Practice for Utility Interface of Photovoltaic Systems" (if applicable).
2. Certifies that the system has been installed in accordance with FortisBC's 'Guidelines for Operating, Metering, and Protective Relaying for Net Metering Systems up to 50 kW and voltages below 750 Volts'.
3. Certifies that the installation of the system is compliant with all local building and electrical codes.
4. Certifies that the system is compliant with all local electrical codes as well as sections 50 (Solar Photovoltaic Systems) and 84 (Interconnection of Electric Power Production Sources) of the Canadian Electrical Code.

FORTISBC

The signing of this document, on the part of FortisBC, signifies that the customer's facility has been approved for interconnection, and that interconnection will begin shortly after this document is approved by FortisBC.

Customer (signed): _____ Date signed: _____

Customer (printed): _____

Contractor (signed): _____ Date signed: _____

Contractor (printed): _____

FortisBC Inc.

Approved by: _____

Signature: _____

Date: _____

APPENDIX C-14

NET METERING

DEFINITION:

Customer-Generator - An electric Service Customer of the CoK that also utilizes the output of a Net Metered System.

Net Consumption - Net Consumption occurs at any point in time where the Electricity required to serve the Customer-Generator's load exceeds that being generated by the Customer Generator's Net Metered System.

Net Generation - Net Generation occurs at any point in time where Electricity supplied by CoK to the Customer-Generator is less than that being generated by the Customer-Generator's Net Metering System.

Net Excess Generation - Net Excess Generation results when over a billing period, Net Generation exceeds Net Consumption.

Net Metering - Net Metering is a metering and billing practice that allows for the flow of Electricity both to and from the Customer through a single, bi-directional meter. With Net Metering, consumers with small, privately-owned generators can efficiently offset part or all of their own electrical requirements by utilizing their own generation.

Net Metered System - A facility for the production of electric energy that:

- (a) uses as its fuel, a source defined as a clean and renewable resource in the BC Energy Plan;
- (b) has a design capacity of not more than 50 kW;
- (c) is located on the Customer-Generator's Premises;
- (d) operates in parallel with the CoK distribution facilities; and
- (e) is intended to offset part or all of the Customer-Generator's requirements for Electricity.

APPLICABLE: To City of Kelowna Electrical Customers receiving Service under Rate Codes 101- 107, 213, 215, 219, 116 , 201, 204, 218, 220, 221, 224 , ,222, 225, 226 and 227

Schedule "C" – Bylaw No. 7639 – Page 14.

APPENDIX C-14

NET METERING (Cont'd)

ELIGIBILITY: To be eligible to participate in the Net Metering Program, Customers must generate a portion or all of their own retail Electricity requirements using a renewable energy source. The generation equipment must be located on the Customer's Premises, Service only the Customer's Premises and must be intended to offset a portion or all of the Customer's requirements for Electricity.

Clean or renewable resources include sources of energy that are constantly renewed by natural processes, such as water power, solar energy, wind energy, geothermal energy, wood residue energy, and energy from organic municipal waste, and shall have a maximum installed generating capacity of no greater than 50 kW.

RATE: A Customer enrolled in the Net Metering Program will be billed as set forth in the rate schedule under which the Customer receives electric Service from the Company and as specified in the Net Metering Billing Calculation section in this schedule.

BILLING CALCULATION:

1. Net metering shall be, for billing purposes, the net consumption at CoK Service meter(s).
2. If the eligible Customer-Generator is a net consumer of energy in any billing period, the eligible Customer generator will be billed in accordance with the Customer-Generator's applicable rate schedule.
3. If in any billing period, the eligible Customer-Generator is a net generator of energy, the Net Excess Generation shall be valued at the rates specified in the applicable Rate Schedule and credited to the Customers account.
4. In the event that the operation of a renewable energy generating system results in a credit balance on the Customer-Generator's account at the end of a calendar year, the credit will be purchased by the CoK. If such amounts are not large, they will be carried forward and included in the billing calculation for the next period at the discretion of the CoK

APPENDIX C-14

NET METERING (Cont'd)

SPECIAL CONDITIONS:

1. Prior to the interconnection of a Net Metering System the Customer-Generator must submit a Net Metering Application for review and execute a written Net Metering Interconnection Agreement with the Company.
2. The Net Metered System and all wiring, equipment and devices forming part of it, shall conform to FortisBC's, "GUIDELINES FOR OPERATING, METERING And PROTECTIVE RELAYING FOR NET METERING SYSTEMS UP TO 50 kW And VOLTAGE BELOW 750 VOLTS" and shall be installed, maintained and operated in accordance with those Requirements.
3. Unless otherwise approved by the Company, the Customer-generator's Service shall be metered with a single, bi-directional meter.
4. The Contract Period for Service under this schedule shall be one (1) year and thereafter shall be renewed for successive one-year periods. After the initial period, the Customer may terminate Service under this Rider by giving at least sixty (60) days previous notice of such Termination in writing to CoK.
5. If the Customer-Generator voluntarily terminates the net-metering Service, the Service may not be renewed for a period of 12 months from the date of Termination.
6. The Company maintains the right to inspect the facilities with reasonable prior notice and at a reasonable time of day.
7. The Company maintains the right to disconnect, without liability, the Customer-Generator for issues relating to safety and reliability.
8. Inflows of Electricity from the CoK system to the Customer-Generator, and outflows of Electricity from the Customer-Generators Net Metering System to the COK system, will normally be determined by means of a single meter capable of measuring flows of Electricity in both directions.
9. Alternatively, if the CoK Service Provider determines that flows of Electricity in both directions cannot be reliably determined by a single meter, or that dual metering will be more cost-effective, COK may require that, at the Customers cost, separate meter bases be installed to measure inflows and outflows of Electricity.

APPENDIX C-14

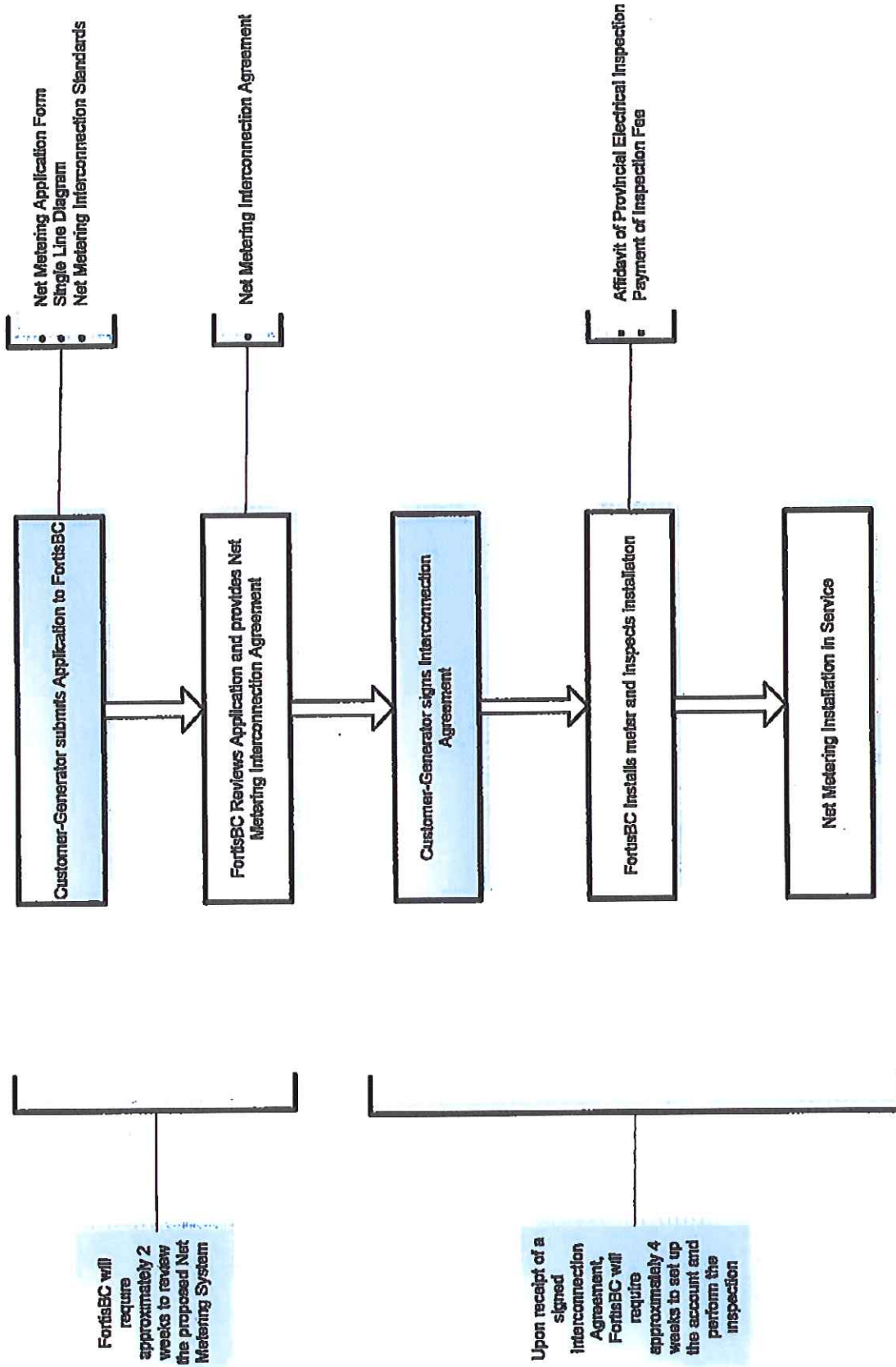
NET METERING (Cont'd)

SPECIAL CONDITIONS: (Cont'd)

10. A Net Metered System used by a Customer-Generator shall meet all applicable safety and performance standards established as set forth in the CoK's Service Providers Rules and Regulations.
11. A Customer-Generator shall, at its expense, provide lockable switching equipment capable of isolating the Net Metered System from the CoK system. Such equipment shall be approved by the Company and shall be accessible by the Company at all times.
12. The Customer-Generator is responsible for all costs associated with the Net Metered System and is also responsible for all costs related to any modifications to the Net Metered System that may be required by the CoK including but not limited to safety and reliability.
13. The Customer shall indemnify and hold CoK or its agents harmless for any damages resulting to CoK or its agents as a result of the Customer's use, ownership, or operation of the Customer's facilities other than damages resulting to CoK or its agents directly as a result of CoK or its agents own negligence or willful misconduct, including, but not limited to, any consequential damages suffered by CoK or its agents. The Customer is solely responsible for ensuring that the Customer's facilities operate and function properly in parallel with CoK system and shall release CoK or its agents from any liability resulting to the Customer from the parallel operation of the Customer's facilities with CoK's system other than damages resulting to the Customer from the parallel operation of the Customer's facilities with CoK's system directly as a result of CoK or its agents own negligence or willful misconduct.

Appendix F

Required Paperwork



Net Metering Application Process





Dennis Swanson
Director, Regulatory Affairs

FortisBC Inc.
Suite 100 - 1975 Springfield Road
Kelowna, BC V1Y 7V7
Ph: (250) 717-0890
Fax: 1-866-335-6295
electricity.regulatory.affairs@fortisbc.com
www.fortisbc.com

March 2, 2011

Via Email
Original via mail

Ms. Erica M. Hamilton
Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: 2010 Monitoring and Evaluation Report on FortisBC Inc. Net Metering Program

In its Decision G-92-09 of July 30, 2009, the Commission directed FortisBC Inc. (FortisBC or the Company) to file a report on its experience with the implementation of its Net Metering program.

Please find attached the Company's 2010 Net Metering Report intended to fulfill this requirement of the Order.

The Report contains a recommendation for changes to one aspect of the program that will require changes to the Company's Electric Tariff Schedule 95. An application to implement these changes will be filed with the BC Utilities Commission in the second quarter of 2011.

If further information is required, please contact the undersigned at (250) 717 0890.

Sincerely,

A handwritten signature in black ink, appearing to be "DS", written over a horizontal line.

Dennis Swanson
Director, Regulatory Affairs



2010 MONITORING AND EVALUATION REPORT ON
NET METERING PROGRAM

MARCH 2011

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1.0 Executive Summary

FortisBC files this report on the initial year of its Net Metering Program in compliance with Commission Order G-92-09.

The program has seen modest take-up to date with only four active and 2 pending participants. Of the active participants, there are two small hydro-electric and two photovoltaic installations.

Total installed capacity is approximately 38 kW. Given the capacity factors discussed in Section 5.1, this represents a total potential annual generation of 98,760 kWh. Were this amount of generation to materialize and be totally utilized by the net metered customers, a net impact of approximately \$2,160 would be absorbed by customers in general and therefore would have no impact on rates.

As discussed in Section 5.2, the cost of offering the program is approximately \$1,100 per applicant on a one-time basis. This is higher than estimated in the original Net Metering Application (the Application) due to a heavier involvement of field design staff than anticipated. Ongoing costs on a per-customer basis however have proven to be insignificant assuming no annual reconciliation of the customer's account is required.

The Company is not recommending any changes to the program parameters or structure, including the capacity limit, at this time, and the current process also seems to be functioning well. The only proposed change to the program deals with the treatment of excess generation between a customer's own usage requirements and the total generation possible under the existing 50 kW nameplate rating cap. This is discussed further in Section 6 of this report.

2.0 Background

FortisBC, in support of Provincial policy and customer interest, filed an Application for a net metering program on April 17, 2009. The Application was drafted to comply with the BC Utilities Commission (BCUC or the Commission) direction provided in letter L-37-03 to BC Hydro dated July 22, 2003, which included general guidance on program parameters.

Net metering is defined in the Application as a metering and billing practice that allows for the flow of electricity both to and from the customer through a single bi-directional meter. With net metering, consumers with small, privately-owned generators can efficiently offset part or all of their own electrical requirements by utilizing their own generation.

On July 30, 2009, by way of Order G-92-09, the Commission approved the FortisBC Net Metering program largely as proposed in the Application. In that Order, the Commission directed that:

The Commission Panel directs FortisBC to file a Net Metering-Monitoring and Evaluation Report (the "Report"). The Report should contain information similar in nature to that required for the BC Hydro Net Metering program (Commission Order G-26-04, Appendix A, Section 2.6).

Commission Order G-26-04, Appendix A, Section 2.6 includes a number of points drawn from a BC Hydro information request response that the BCUC directed BC Hydro to include in its report.

These are:

- *Number of net metering facilities;*
- *Generator rating and amount of energy delivered to BC Hydro from the net metering generation facilities;*
- *Performance of net metering participants by type, size, and location;*
- *Power quality and reliability of supply and how it affects other customers;*
- *The impact of net metering, including the impact on energy portfolio planning;*
- *Other utilities' experiences;*
- *Technological advances in distributed generation;*
- *Changes in regulatory and code requirements;*

- 1 • *Incremental cost of Rate Schedule 1289;*
- 2 • *BC Hydro costs recovered from customers on Rate Schedule 1289;*
- 3 • *Cost of energy to BC Hydro of energy generated by Rate Schedule 1289 customers; and*
- 4 • *Feedback from customers on the merits and problems with Rate Schedule 1289.*

5 In addition, in the Reasons accompanying the Decision the Commission directed BC Hydro to
6 consider a number of other factors, summarized as follows:

- 7 • The report should include a summary of all inquiries into net metering, the number of
8 applications filed, and the number of executed agreements;
- 9 • Consistent with the Commission Panel's earlier directives, BC Hydro should submit any
10 proposed revisions to the net metering tariff based on its evaluation;
- 11 • As a component of BC Hydro's monitoring and evaluation report (see section 2.6) the
12 Commission Panel directs BC Hydro to recommend amendments to the Availability
13 provisions in the net metering tariff pages in order that they reflect the final BC Clean
14 electricity definition;
- 15 • The Commission Panel directs BC Hydro, as a component of its monitoring and
16 evaluation report, to assess the practical experience associated with whether the
17 capacity constraint limited any potential customer applications or available
18 technologies. As a component of this report, BC Hydro should discuss the merits
19 associated with an increased capacity limit or a limit based on voltage;
- 20 • Therefore, the Commission Panel directs BC Hydro to discuss this issue (approve and
21 implement standard electromechanical meters for net metering use) with Measurement
22 Canada and to report on these discussions as part of its monitoring and evaluation
23 efforts.

24 When providing direction specifically to FortisBC, the Commission issued the following
25 directives:

26 *The Commission Panel directs FortisBC to record any incremental costs incurred for net*
27 *metering account reconciliation during the first 12 months of the program. FortisBC is to*

1 *include a summary of the costs as a section in its Net Metering–Monitoring and*
2 *Evaluation Report. (APPENDIX A to Order G-92-09 Page 4 of 6);*

3 *and*

4 *The BC Hydro report must contain information on net metering activities in other*
5 *jurisdictions. For the FortisBC Report, that effort need not be replicated. Instead, the*
6 *Report should be limited to descriptions and data on FortisBC program penetration, costs*
7 *and recommended future changes. As FortisBC offers Time-of-Use pricing, the Report*
8 *should address net metering program results for customers on regular rates as*
9 *compared to those under Time-of-Use rates. FortisBC should also make*
10 *recommendations for amendments to the Net Metering program that it deems*
11 *necessary. The Commission will provide FortisBC with additional guidance on specific*
12 *content closer to the due date, if requested.*

13 The Company recognizes that the Commission has indicated that the FortisBC “Report should
14 contain information similar in nature to that required for the BC Hydro Net Metering program”.
15 Accordingly, this report looks to the list of requirements above (included in its entirety for
16 completeness) and has selected those items that are relevant to FortisBC. This analysis will add
17 in a meaningful way to the body of information that will, in the Commissions estimation,
18 “provide a more complete picture of the progress of net metering in the province.”

1 **3.0 Program Results**

2 Participation in the FortisBC Net Metering program has been limited to date. Table 3.0 below
 3 summarizes the installations that have been connected under the Net Metering Tariff (the
 4 Tariff).

No.	Location	Source	Rate	Size	Months	Energy Received from Customer(kWh) (a)	Energy Delivered to Customer(kWh) (b)	Net Energy Delivered to customer(kWh) (b - a)
1	Gray Creek	Hydro	RS01	15 kW	8	3812	15640	11828
2	Creston	Solar	RS01	10.5 kW	7	6096	7344	1248
3	Crescent Valley	Solar	RS01	2.24 kW	8	130	11656	11526
4	Crescent Valley	Hydro	RS01	10 kW	3	4620	3850	(770)
5	Creston	Solar	RS01	7 kW	Pending			
6	Slocan	Solar	RS01	1.4 kW	Pending			

5 There are currently two Net Metering projects initiated in 2010 that are in the Application stage,
 6 with a total capacity of 8.4 kW. The energy source for both of these projects is solar.

7 In addition, two applications for Net Metering that have been reviewed by design staff were not
 8 carried forward by the customer beyond the application stage.

4.0 Discussion of Program Components

4.1 Eligibility

The Net Metering Program is available to all residential, small commercial, commercial, and irrigation rates provided that the sources of energy are clean and renewable, and that the installed capacity is no greater than 50 kW.

No customer from a class other than those listed above has applied for net metering or expressed dissatisfaction with the restriction. The Company is unaware of any customer desiring to use an energy source not included in the eligibility criteria.

The 50 kW cap on individual net metering installations was the subject of considerable discussion during the application process for the program. There has not been any notable customer concern expressed about the cap since the program has been active. There has, however, emerged a potential inconsistency between the intention of the program to limit the size of net metering installations to customer consumption, the 50kW cap and the encouragement of small-scale distributed generation.

FortisBC made the program intent clear during the Application process. At line 22 on page 5 of its Net Metering Tariff Application, the Company stated,

*It is the overriding intent of the program that customers gain the ability to **offset their own consumption** with a clean and renewable resource. It is not the intent of the program to provide a means for larger scale Independent Power Producers ("IPP") to bring their output to the market. (Emphasis added)*

In its final submission on the matter, the Company added that, "Furthermore, any surplus should be a temporary exception since the net metering program is intended **only** for customers to offset their own consumption." (Emphasis added, FortisBC Final Submission, page 5, point 18)

The Eligibility Criteria contained in Rate Schedule 95 are somewhat less clear on the intent when read in isolation in that it only states that a customer's Net Metered System, "must be intended to offset a portion or all of the customer's requirements for electricity." This leaves open to interpretation the use of energy above that level. This creates a situation where a customer can install a generator that is much larger than

1 required to offset consumption (subject to the 50 kW cap) with the intent of using the
2 excess capacity essentially as a commercial enterprise.

3 Customers generating a significant amount of excess generation are a concern since
4 they are violating a fundamental net metering principle of offsetting their own
5 consumption. The current Tariff language specifies with respect to excess generation
6 that, "If such amounts are not large, they will be carried forward and included in the
7 billing calculation for the next period at the discretion of the Company." The Company
8 believes that more specificity is required in the Tariff, which is discussed further in
9 Section 6.

10 The Company is satisfied that the 50 kW restriction itself presents no issues to the utility
11 and should remain unchanged. Maintaining this cap also keeps this program parameter
12 consistent with the similar BC Hydro program which also includes a 50 kW cap.

13 FortisBC does not propose to change any of the remaining eligibility criteria applicable
14 to the net Metering program.

15 4.2 Billing

16 By Order G-92-09 the Commission generally approved the FortisBC proposal to pay an
17 amount based on the applicable retail rate for all customer generation including that in
18 excess of the customer's own needs. The Company maintained in the Application that
19 this methodology provides a number of benefits.

- 20 • Net Excess Generation is automatically valued at the retail rate, and this rate will
21 automatically be adjusted as the retail rate changes.
- 22 • The account balance is visible to the Customer-Generator on each bill.
- 23 • No additional resources are required to maintain a separate account for a
24 Customer-Generator's generation information.

25 The treatment of net excess generation is outlined in Rate Schedule 95. The applicable
26 sections of the Tariff are:

- 27 3. If in any billing period, the eligible Customer-Generator is a net generator of energy,
28 the Net Excess Generation shall be valued at the rates specified in the applicable
29 Rate Schedule and credited to the Customer's account; and

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4. In the event that the operation of a renewable energy generating system results in a credit balance on the Customer-Generator's account at the end of a calendar year, the credit will be purchased by the Company. If such amounts are not large, they will be carried forward and included in the billing calculation for the next period at the discretion of the Company.

As noted in Section 2.0 of this report, FortisBC is required to report on reconciliation costs.

The Commission Panel directs FortisBC to record any incremental costs incurred for net metering account reconciliation during the first 12 months of the program. FortisBC is to include a summary of the costs as a section in its Net Metering–Monitoring and Evaluation Report. (APPENDIX A to Order G-92-09 Page 4 of 6).

The Company notes however that three of the customers currently utilizing the Net Metering program have not delivered more energy than they have consumed and require no reconciliation. The remaining customer has a small credit balance that will be carried forward into the next calendar year. No reconciliations have been carried out in the first year of the program. However, as discussed in Section 5.1 below, the Company anticipates that in practice, should reconciliation be required that would result in a customer refund, the cost would be less than the \$160 contained in the original Application.

This method of billing for Net Metering customers has worked well. However, as discussed in Section 4.1, a clarification on the treatment of the individual cap on installed capacity will necessitate a change to the practice. These changes are discussed in greater detail in Section 6.

FortisBC does not currently have any customers enrolled in the Net Metering program who take service on a Time-of-Use schedule and therefore cannot offer any comparison between such customers and those on a conventional rate.

1 **4.3 Metering**

2 Of the four installations contained in Table 3.0, three are metered by a single bi-
3 directional meter. The remaining system utilizes two meters as the generation source is
4 located remote of the principle residence of the customer.

5 FortisBC continues to monitor industry and regulatory developments regarding the
6 revenue metering for net metered installations. There have been no new Measurement
7 Canada Guidelines or updates to existing guidelines related to net metering since the
8 filing of the Net Metering Application. No changes to the existing metering
9 specifications for the program are anticipated.

10 **5.0 Program Impacts**

11 **5.1 Revenue Loss**

12 Lost revenue to FortisBC results from a net metering customer self-supplying some or all
13 of their own energy needs. As surmised in the original Net Metering Application, this
14 revenue loss, as well as all incremental costs resulting from the program is negligible
15 when compared to the Company's revenue requirement as a whole. Using assumptions
16 advanced by BC Hydro in its 2005 Net Metering Monitoring and Evaluation Report this
17 revenue impact can be estimated. Capacity factors of 10 percent for solar and 40
18 percent for hydro respectively, along with the capacity of the installation can be used to
19 estimate total potential annual energy production of each.

1 Applied to the FortisBC Net Metering installations yields the following results:

No.	Source	Capacity (kW)	Annual Energy (kWh)	Revenue Impact (\$/year*)
1	Hydro	15	52,560	4,661
2	Solar	10.5	9,198	816
3	Solar	2.24	1,962	174
4	Hydro	10	35,040	3,107
Total				8,758

2 * at residential rates effective January 1, 2011.

3 **5.2 Incremental Program Costs**

4 Incremental costs attributable to the Net Metering program are primarily due to the
 5 additional time required to liaise with the customer prior to project interconnection.
 6 Additional meter reading costs and the manual management of the customer’s billing
 7 information adds a further small cost. The only capital cost related to the program is for
 8 the additional cost of the bi-directional meters as compared to electromechanical
 9 versions.

10 Field personnel spend an average of 10 hours per project that progresses past the initial
 11 consultation, and 1 to 2 hours on those projects that do not progress past the initial
 12 consultation. Time spent by field personnel was underestimated in the Application.

13 In its Application, FortisBC estimated program costs as per Table 8.1 below.

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Table 8.1 FortisBC Net Metering Program Costs*

One Time Costs per Installation		
1	Initial review of application	\$100.00
2	Signing of agreements	\$100.00
3	Meter installation	\$175.00
4	Account set-up	\$20.00
5	Incremental meter cost	\$270.00
6	Total One-Time Costs	\$665.00
On-going Costs per Installation		
7	Incremental meter reading costs	\$3.00
8	Annual reconciliation costs	\$160.00
9	Total Annual Incremental Costs	\$163.00

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*FortisBC Net Metering Application, Page 13

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Table 5.1 contains a summary of these costs for 2010.

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Table 5.1 Summary of Net Metering Costs (2010)

Average One Time Costs per Installation		
1	Initial review of application	\$140.00
2	Signing of agreements (included in item	0.00
3	Field Design / Customer Visit	\$660.00
4	Account set-up	\$20.00
5	Incremental meter cost	\$270.00
6	Total One-Time Costs	\$1090.00
On-going Costs per Installation		
7	Incremental meter reading costs	\$3.00
8	Annual reconciliation costs (if required)	\$80.00
9	Total Annual Incremental Costs	\$83.00

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As approved by Commission Order G-92-09, FortisBC does not recover any of these costs from

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Net Metering applicants.

1 **6.0 Recommended Program Changes**

2 **6.1 Generator Sizing and Billing**

3 As discussed in Section 4.1, the Company proposes to add additional language to Rate
4 Schedule 95 that will not change the maximum allowable capacity of the program, but
5 will clarify the treatment of generation that is in excess of an individual customer's own
6 use.

7 The Company is of the opinion that the original intention of the program (to offset all or
8 some of the customers own consumption) is still valid, but there is no reason to prevent
9 additional generation if it falls within the 50 kW cap.

10 The principles in place for compensation for generation under the program remain
11 essentially the same. That is, offset consumption is automatically valued at the retail
12 rate, and a reasonable amount of generation that exceeds personal consumption will
13 also attract that retail rate.

14 The proposed change in the program will affect generation that a customer-generator
15 has installed with the intent to generate additional sales to FortisBC. The Company
16 believes that compensation for these sales should be offered in a manner consistent
17 with that of other small Independent Power Producers in its service area.

18 In the second quarter of 2011, FortisBC will file with the Commission an application to
19 change certain sections of the Net Metering program Tariff intended to allow
20 intentional generation above a customer's own use.