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Request IR-1:

Reference: Attachment 4. Distribution-Connected Aggregation Service Tariff. Beginning PDF page 71 of 190 of the application.

NSP's proposed tariff states "Under the DAS, the LRS will aggregate its customers' surplus generation and Distribution-connected Generation and use this to serve other LRS customers. To facilitate this, NS Power will separately track hourly customer imports of electricity and hourly LRS customer exports to the grid. Customer imports will be used to determine NS Power's charges to retail customers to retail customers under the Distribution Tariff and will serve as an input to the demand and energy amounts applicable to the LRS under the OATT, Standby Service, Energy Balancing Service, and Renewable to Retail Market Transition tariffs. Customer exports will be tracked and reported to the LRS to support the LRS' commercial arrangement with the RtR Customer and will serve as an input to the generation amount applicable to the LRS under the Standby Service, Energy Balancing Service and Renewable to Retail Market Transition tariffs.

Please provide an illustrative example of one billing cycle under this proposed tariff that shows:

- (a) A diagram or schematic illustrating each generation and delivery point for the retail customers and the LRS.**
- (b) Sample billing determinants for each retail customer and the LRS.**
- (c) Itemized bills from NSP to each retail customer and the LRS showing the billing determinants, rates and bill calculations for each element of each applicable tariff.**
- (d) The information that would be shared by NSP with the LRS 'to support the LRS' commercial arrangement with the RtR customer.**

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Response IR-1:

(a) Please refer to Attachment 1 for diagrams depicting flow of power from generator to load and the associated metering points for net billing surplus customers and Distribution-connected Generation.

(b-c) Retail customers of the Licensed Retail Supplier (LRS) remain customers of NS Power under the Distribution Tariff (DT). As per section 8.1 (d) of the Licenced Retail Supplier Terms and Conditions (submitted in redline as Attachment 12 of the application and reproduced below), charges for NS Power DT service provided by NS Power to RtR market retail customers shall be included in the bill to the LRS. The LRS is required to pay NS Power for these costs and then charge the LRS' customers the DT amounts without mark-up or adjustment.

8.1 The LRS shall be responsible for:

- (a) the procurement of electricity from qualified low-impact renewable electricity generators;
- (b) acquiring the services delivered under, and remaining in compliance with, the OATT, Energy Balancing Service Tariff, Standby Service Tariff, ~~and the~~ Renewable to Retail Market Transition Tariff, **Distribution-connected Aggregation Service Tariff, and the Distribution Tariff;**
- (c) payment to NS Power of all fees and charges for the LRS Tariffed Services;
- (d) payment to NS Power of all DT Charges applicable to the LRS's RtR Customer(s);**
- (e) adhering to the Credit Assurance requirements of NS Power as described in Section **19.018;**
- (f) obtaining and providing the RtR Customer's written consent, in a form acceptable to NS Power, in support of any transaction requests submitted to NS Power on behalf of the RtR Customer;
- (g) obtaining any consents from the RtR Customer required by NS Power with respect to the use or disclosure of Customer Information;
- (h) providing NS Power, in a timely manner, with up-to-date RtR Customer Information for all RtR Customers served by the LRS;

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- 1 (i) acting as the point of contact for RtR Customers served by the LRS on
2 all matters related to billing and collection of accounts;
3 (j) ensuring that the LRS's RtR Customers are aware of the terms and
4 conditions of any NS Power tariff to which the LRS subscribes that may
5 affect the RtR Customer;
6 (k) ensuring that the RtR Customers are aware of their responsibilities under
7 the NS Power Regulations; and
8 (l) notifying NS Power of the discontinuance of service to any RtR
9 Customer by the LRS.

10
11 [emphasis added]
12

13 Billable charges are described in Section 11.2 of the Distribution Tariff¹ as set out below:
14

15 11.2. Billing
16

17 Unless NS Power directs otherwise, the RtR Customer shall be invoiced by
18 the LRS and will pay the LRS for any charges or fees, inclusive of all
19 applicable taxes, owing by the RtR Customer to NS Power under this
20 Distribution Tariff (DT Charges). For greater certainty, the DT Charges
21 shall include:
22

- 23 (a) All fees and charges for the provision of Distribution System Access
24 under this Distribution Tariff;
25 (b) Demand Side Management Recovery Charges;
26 (c) any applicable costs incurred by NS Power resulting from performance
27 of repairs, changes, renewals, improvements or replacements outside of
28 normal working hours, at the RtR Customer's request; and
29 (d) Other items as may be approved by the Board.
30

31 Billing determinants for the charges noted above will be provided by NS Power to the LRS
32 through an automated transfer. Because the data is transferred in a system-generated file
33 format, a sample file would not provide a clear or easily readable representation of the
34 charges.
35

¹ The Distribution Tariff is available on the Open Access Same-time Information website at this link:
[https://www.nspower.ca/docs/default-source/monthly-reports/distribution-tariff-\(pdf\).pdf?sfvrsn=a87babb_4](https://www.nspower.ca/docs/default-source/monthly-reports/distribution-tariff-(pdf).pdf?sfvrsn=a87babb_4)

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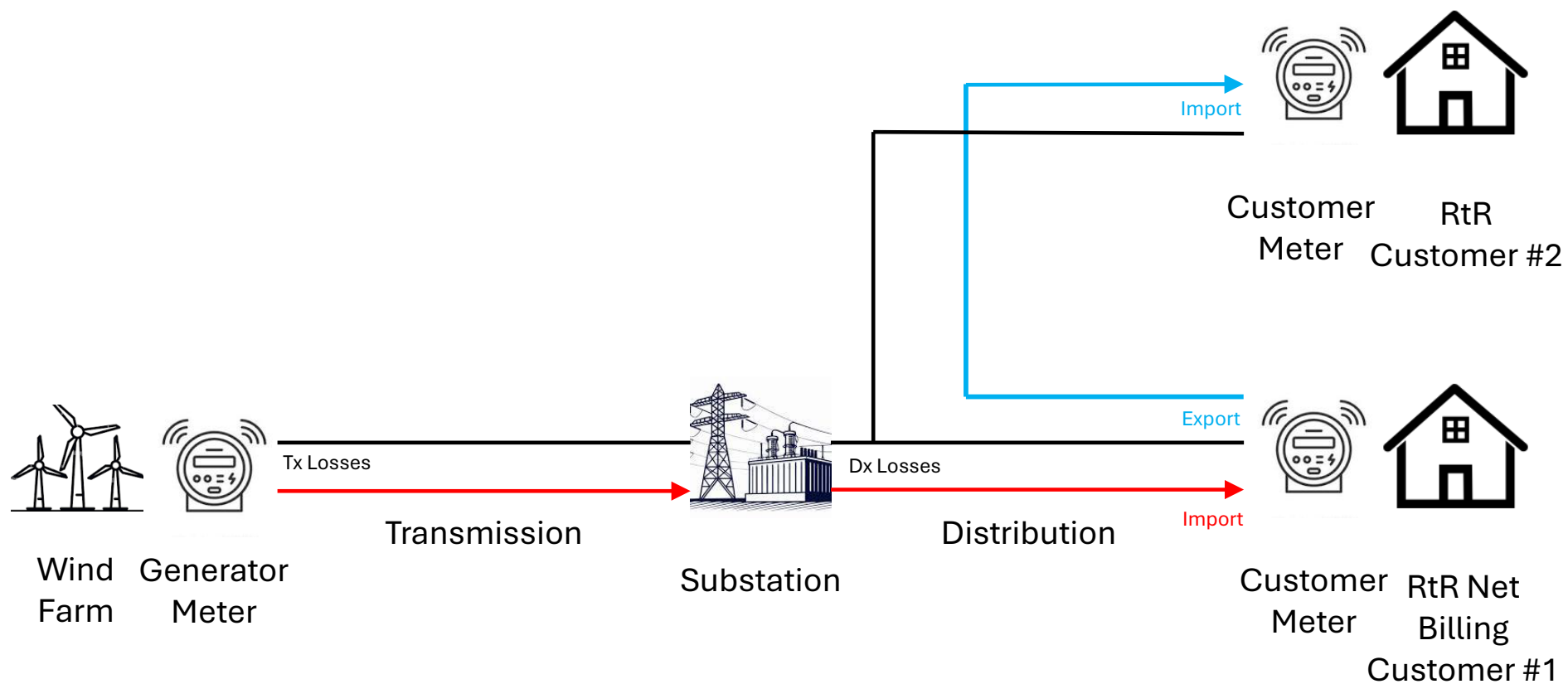
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1 A sample bill for the RtR tariff services provided by NS Power to the LRS is provided as
2 Attachment 2.

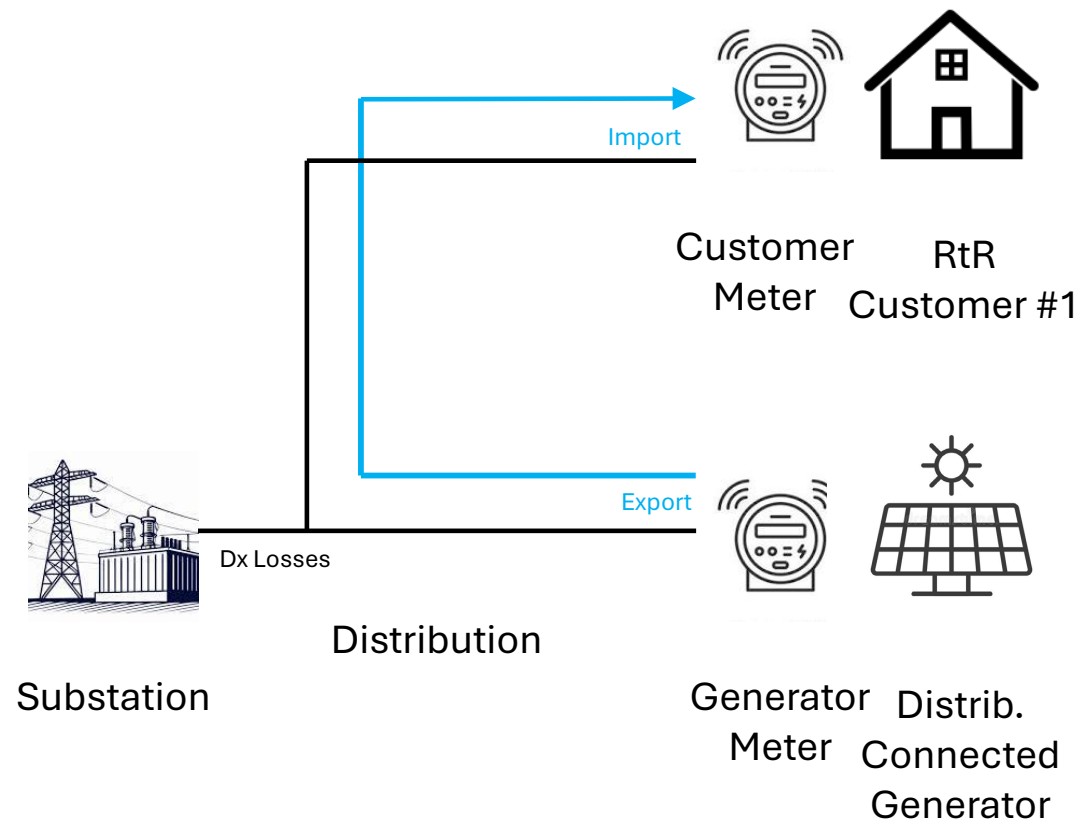
3
4 (d) Information that would be shared by NS Power with the LRS ‘to support the LRS’
5 commercial arrangement with the RtR customer would include the following:

- 6
- 7 • Upon receipt of authorization from a prospective customer, up to three years of
8 interval data and a PDF of the most recent NS Power bill showing consumption for
9 the past twelve months.
 - 10
 - 11 • As part of the monthly billing cycle, hourly metered interval data for each of the
12 LRS’ customers.

Net Billing Surplus Flows to Other Retail Customers



Distribution-Connected Generation Flows to Retail Customers





Nova Scotia Power Inc.

PO Box 848, Halifax,
Nova Scotia, B3J 2V7
www.nspower.ca

Preliminary Billing Only. Subject to Internal Audit.
Official Billing to Follow.

Renewable to Retail
Licensed Retail Supplier Invoice
Licensed Retail Supplier #1

Account Number: 123456-7Service for March, 2027

Energy Balancing Service (EBS) Tariff

Administration Charge		\$	367.53	/month	\$	367.53
Top-up Energy Charge	557 kWh	\$	0.104600	/kWh	\$	58.28
Spill Energy Credit	910 kWh	\$	(0.079290)	/kWh	\$	(72.16)
EBS Total :						\$ 353.65

Standby Service Tariff (SST)

Administration Charge		\$	367.53	/month	\$	367.53
Monthly Standby Contract Demand Charge	29 kW	\$	5.141000	/kW	\$	148.73
SST Total :						\$ 516.26

RTR Transition Tariff (RTT)

Energy Charge:						
Aggregated Customer Load (Adj. for Distribution Losses)	1,729 kWh					
Less Top-up Energy	(557) kWh					
RTT Energy	1,171 kWh	\$	0.014970	/kWh	\$	17.54
Demand Charge:						
LRS' Winter Peak Firm Demand	46 kW					
Less Monthly Standby Contract Demand	(29) kW					
RTT Demand	17 kW	\$	5.141000	/kW	\$	86.75
RTT Total :						\$ 104.29

Open Access Transmission Tariff (OATT)

Peak of Aggregated Customer Load (Adj. for Distrib. and Trans. Losses)						
	49 kW					
Transmission Service:						
Schedule 10 - Network Integration Transmission Service	49 kW x	\$4.24121	/kW	\$		206.77
Ancillary Services:						
Schedule 1 - Scheduling, System Control, & Dispatch	49 kW x	\$ 0.353980	/kW	\$		17.26
Schedule 2 - Reactive Control and Voltage Control	49 kW x	\$ 0.182760	/kW	\$		8.91
Schedule 3 - Regulation	49 kW x	\$ 0.217060	/kW	\$		10.58
Schedule 3 - Load Following	49 kW x	\$ 0.776850	/kW	\$		37.87
Schedule 5 - Operating Reserve (Spinning)	49 kW x	\$ 0.166580	/kW	\$		8.12
Schedule 6 - Operating Reserve (Supplemental 10 min)	49 kW x	\$ 0.331830	/kW	\$		16.18
Schedule 6 - Operating Reserve (Supplemental 30 min)	49 kW x	\$ 0.281230	/kW	\$		13.71
Schedule 4A Generation Forecasting Service:						
On-Peak						
Forecast Discrepancies Outside Deviation Band	- kWh					
Average On-Peak System Marginal Cost	\$ 0.142340	/kWh				
Discrepancies Outside Deviation Band X 10% Average System Marginal Cost				\$		-
Off-Peak						
Forecast Discrepancies Outside Deviation Band	- kWh					
Average Off-Peak System Marginal Cost	\$ 0.102360	/kWh				
Discrepancies Outside Deviation Band X 10% Average System Marginal Cost				\$		-
OATT Total :						\$ 319.41

Distribution Tariff (DT)

Aggregated Customer, Distribution, and Demand Charges	\$	98.23
Aggregated Customer- Requested Service Charges	\$	523.18
Aggregated Storm Cost Recovery Charges	\$	0.49
Aggregated Demand Side Management Recovery Charges	\$	-
DT Total :		\$ 621.90

Subtotal	\$ 1,915.51
Taxes: HST	\$ 268.17
Total Charges	\$ 2,183.68

Compliance Reporting Determinants for Billing Period

Total Distribution Losses	73 kWh
Total Transmission Losses	1 kWh

Disclaimer:

- Draft Mockup Invoice for illustrative purposes only.
- Energy, Demand, and Dollar values are for illustrative purposes only and do not reflect expected invoice amounts.
- Tariff rates displayed do not reflect current NSEB approved rates.
- Invoice layout, design, and content subject to change.

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Request IR-2:

Reference: Attachment 11. Standby Service Tariff

(a) Please elaborate on the engineering specifications, contractual provisions or other information NSP would require from LRSs to satisfy the requirements of special condition 5 (i) through (vi).

Response IR-2:

(a) While engineering specifications and contractual provisions have not yet been fully developed, in general the requirements of Special Condition (5) would be met as described in the paragraph following each of the requirements (i) through (iv), as follows:

(5) (i) If the LRS' resource is dispatchable, that it can start up and deliver energy contracted to, but unused by, the LRS to NS Power, if directed to do so by the NSPSO, in the event of a resource adequacy need;

The dispatchable resource would need to be under system operator dispatch control during periods of capacity shortfall, either through remote control via the system operator's Supervisory Control And Data Acquisition (SCADA) System, through an automated dispatch software, or through a manual voice-dispatch process. The specific requirements would depend on the technical capabilities of the resource for which a Capacity Contribution Factor (CCF) is assigned.

(5) (ii) If the LRS' resource is non-dispatchable, that it makes its full output for which it is provided an ELCC value contracted to, but unused by, the LRS available to deliver energy to NS Power, in the event of a resource adequacy need;

Same as 5 (i) above.

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1 (5) (iii) The LRS' resource will remain available for dispatch, if called upon
2 by the NSPSO, by coordinating with the NSPSO and refraining from
3 taking planned outages during certain critical times of the year, as
4 determined by the NSPSO;
5

6 Planned outage work will be scheduled with the system operator such that the generation
7 outages will not be taken during periods of expected capacity shortfall/tight system
8 conditions, in accordance with Market Rules Chapter 3: Reliability Planning
9 Requirements, Section 3.5 – Outage Management.
10

11 (5) (iv) Any export transactions utilizing energy from the LRS' resource
12 will be recallable by the NSPSO, up to the amount contracted to the
13 LRS, for delivery to the NS Power system in the event of a resource
14 adequacy need;
15

16 Should the LRS decide to export energy to another jurisdiction outside of the Nova Scotia
17 Balancing Area, the contract with the third party for such export would need to contain
18 provisions making it recallable by the Nova Scotia system operator in the event of a
19 capacity shortfall.
20

21 (5) (v) The LRS' resource, as applicable, will perform as needed to meet
22 NS Power's reliability requirements; and
23

24 The resource for which a CCF credit is provided would be required to undergo periodic
25 testing to ensure adequate response to dispatch directives, to meet the reliability needs of
26 the system operator.
27

28 (5) (vi) The capacity derived based on the capacity contribution factor is
29 procured and available to the LRS on a minimum three-year forward
30 basis, unless this requirement is waived by NS Power.
31

32 Any contract the LRS has for procuring a generation resource for which a CCF is assigned
33 under the Standby Service Tariff is required to be of sufficient duration such that the system

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1 operator can rely on the resource to meet future capacity needs for the purpose of longer-
2 term resource adequacy assessment and capacity planning.

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Request IR-3:

Reference: Potential Distribution Tariff charges - Attachment 2 page 17 of 50.

(a) In Nova Scotia Power's view are there potential incremental system costs associated with distribution-connected generation and/or surplus net metering on either a conceptual or empirically demonstrated basis? Please explain why or why not.

Response IR-3:

(a) Potential incremental system costs associated with distribution-connected generation and/or surplus net billing in the RtR market include the following:

- Distribution system upgrades. For distribution-connected generation, these costs would be generally identified in the interconnection processes and recouped from the interconnection customer. For net billing, over time, the accumulation of smaller sources of backflow onto the distribution system could result in the need for distribution system upgrades.
- Distribution system losses. The impact on distribution system losses is specific to the distribution zone and the amount of and location of distribution-connected generation and sources of net billing generation added, feeder configuration, loading conditions, and primary versus secondary metering. Distribution system losses can increase or decrease with the addition of distribution-connected generation and net billing. It is expected that as the RtR market matures and more experience with distribution-connected generation and net billing is obtained, the effect on distribution system losses will be better understood.

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1 **Request IR-4:**

2
3 **Reference: Line losses - Attachment 2 page 18 of 50.**

4
5 **In Nova Scotia Power's view is the assumption that distribution connected generation and**
6 **surplus net billing are not subject to distribution losses reasonable? Why or why not?**

7
8 Response IR-4:

9
10 The effect of distribution-connected generation and net billing exports on distribution system
11 losses is highly dependent on the characteristics of the specific distribution zone, including the
12 location of generation relative to load, feeder configuration, loading conditions, the amount of
13 generation connected to the system, and primary versus secondary metering.

14
15 While distribution-connected resources can reduce losses by serving local load and reducing the
16 distance electricity must travel, the magnitude of this benefit will vary across the system. In some
17 circumstances, such resources may materially reduce losses, while in others the impact may be
18 negligible or may even increase power flows on portions of the distribution network (e.g., losses
19 on secondary service conductors serving a customer are a significant source of losses, so net billing
20 exports could attract increased losses). As a result, the relationship between distribution-connected
21 generation and distribution losses is not uniform across NS Power's distribution system.

22
23 It is expected that as the market matures and more experience with actual distribution-connected
24 generation and net billing serving RtR customers is obtained, the effect on distribution system
25 losses will be better understood.