2015 Rate Design Application (RDA)

Transmission Service Rates

Transmission Service Rates Workshop No. 2

May 7, 2015

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TSR– 2015 RDA

A. Introduction – Gord Doyle
   - Transmission Service Rates (TSR) and 2015 RDA Module 1
   - Industrial load curtailment pilot for F2016-F2018

B. Rate Schedule (RS) 1823: TSR default stepped rate – Greg Simmons

C. Voluntary Options – Justin Miedema
   - Rejected at this time: revision of RS 1825 (Time of Use (TOU)); retail access
   - Considered for further stakeholder input: Freshet rate; Real Time Pricing (RTP) rate

D. RS 1827, the rate for four customers exempt from stepped rates – Greg Simmons

E. Other TSR – Greg Simmons
   - RS 1852 (Modified Demand)
   - RS 1853 (Independent Power Producer (IPP) Station Service)
   - RS 1880 (Standby and Maintenance)

A. Introduction

TSR and 2015 RDA Module 1

For TSR, 2015 RDA Module 1 to include:

- **RS 1823**: Elements of RS 1823 over which British Columbia Utilities Commission (BCUC) has jurisdiction: (1) pricing principles for F2017-F2019, so long as Tier 2 pricing is within BC Hydro's energy Long-Run Marginal Cost (LRMC); (2) bill neutrality/revenue neutrality
  - RS 1823 90/10 split is not within BCUC jurisdiction unless Lieutenant Governor in Council refers this matter to BCUC pursuant to section 5 of the *Utilities Commission Act* (*UCA*)
- **Other existing TSR**
  - RS 1827, RS 1852, RS 1853, RS 1880
- **Options**
  - Existing (RS 1825 TOU) and new (all rate options considered: Freshet rate, RTP, retail access)
  - TSR options included in Module 1 given amount of prior input and review – e.g., 2013 Industrial Electricity Policy Review (IEPR)
  - General Service and Residential options to be addressed in 2015 RDA Module 2 or later

A. Introduction

TSR and 2015 RDA Module 1

- 2015 RDA Module 1 to be filed with BCUC on or about 17 September 2015:
  - Round 1 Information Requests (IRs): mid October 2015
  - BC Hydro responses to Round 1 IRs: mid to late November 2015
  - Procedural Conference: early to mid December 2015 – identify parts of Module 1 that can proceed to Negotiated Settlement Process (NSP) or Streamlined Review Process (SRP) in January 2016
  - Round 2 IRs for matters not the subject of January 2016 NSP/SRP processes: January 2016
  - BC Hydro responses to Round 2 IRs: February 2016
  - Intervenor evidence/IRs/responses to IRs: March 2016/early April 2016
- **Two TSR Module 1 timing imperatives likely to be reflected in requested Module 1 Order:**
  - Freshet rate in place before 2016 freshet period – BC Hydro likely to propose at Procedural Conference that Freshet rate be subject to NSP or SRP in early January 2016, with a BCUC decision no later than third week of January 2016;
  - RS 1823 pricing principles required for F2017 – 1 April 2016

A. Introduction

Load Curtailment

- BC Hydro is launching a 3 year load curtailment pilot commencing on 1 October 2015 where TSR customers are called on to reduce consumption by agreed amount to test capability and are given period to recover plus payment
- BC Hydro in discussions with Association of Major Power Consumers of British Columbia (AMPC) concerning pilot design
- BC Hydro proposes to meet with participating customers and AMPC within 30 days of 30 April 2016 (end of pilot Year 1) to review results of Year 1, determine if pilot terms and conditions should be amended

Reason for Pilot

- The 2013 Integrated Resource Plan (IRP) forecasts need for capacity in F2019 after taking into account DSM target, with or without liquefied natural gas (LNG) load – shortfall up to 700-800 megawatts (MW) with expected LNG load of 3,000 gigawatt hours (GWh)/360 MW
    - As a result, 2013 IRP recommended exploring development of 400 MW of natural gas-fired generation (Simple Cycle Gas Turbines (SCGTs))
- Load curtailment as an opportunity to reduce amount of SCGTs that might be required

A. Introduction

Load Curtailment cont.

- Maximum value for pilot is based on SCGT Unit Capacity Cost ($88/kW-year)
- Pricing determined as an adjustment off this maximum value

Treatment in 2015 RDA

- BC Hydro's legal view is that load curtailment pilot is not a "rate" as defined by section 1 of *UCA* because the essential element of a rate is "compensation of a public utility"
    - Pilot-related expenditures to be included in BC Hydro Demand Side Management (DSM) expenditure determination request submitted to BCUC under subsection 44.2(1)(a) of *UCA*

B. RS 1823 – Default Stepped Rate

RS 1823 Elements

- At the TSR Workshop No.1 (22 October 2015) four potential RS 1823 issues raised:
  - 90/10 Tier 1/Tier 2 split
  - Definition of revenue neutrality
  - Pricing principles (application of General Rate Increases (GRI))
  - Demand charge

B. RS 1823 – Default Stepped Rate

90/10 Tier 1 / Tier 2 Split

- Section 3(1) of Direction No. 7 confirms core rate design elements of RS 1823 by reference to recommendation #8 of Heritage Contract Report – includes 90/10 split
- **BC Hydro favours continuation of 90/10 split based on:**
  - Feedback from stakeholders receiving service under RS 1823 (AMPC, Mining Association of BC (MABC) and Canadian Association of Petroleum Producers (CAPP)): unanimous support for maintaining 90/10 split
    - Multiple lines of input: 2013 IEPR task force process; 2015 RDA-related May/June 2014 industrial customer sessions; September/October 2014 individual meetings with AMPC, MABC and CAPP; TSR Workshop No.1
  - B.C. Government's response to IEPR task force final report recommendation #12 (not act on BCUC's 2009 TSR report while BC Hydro has surplus (energy: forecast to 2030 with IRP actions)) supports maintaining 90/10 split
  - 2013 IRP alternative – 80/20 split – fares poorly on Bonbright customer understanding and acceptance, and rate and bill stability, criteria in comparison to 90/10 split; questionable if 80/20 split performs better on Bonbright efficiency criterion

B. RS 1823 – Default Stepped Rate

90/10 Tier 1 / Tier 2 Split cont.

- Feedback from stakeholders who do not receive RS 1823 service is mixed - some suggest examination of alternatives to 90/10 split; others support continuation of 90/10 split
- 2013 IRP 'DSM Option 4' alternative: 80/20 split
- Lowering Tier 2 threshold necessitates reduction in Tier 1:

Comparison of 90/10 and 80/20 Split

	90/10 Split			80/20 Split	
	Per Dir. No. 6	LRMC Lower	LRMC Upper	LRMC Lower	LRMC Upper
Tier 1	38.36	37.79	36.02	31.24	27.26
Tier 2	85.03	90.20	106.10	90.20	106.10

- Any increase in conservation from 80/20 split would likely cannibalize savings already assumed from Power Smart Partners – Transmission program
- In aggregate, RS 1823 customers currently consuming at 95 percent of Customer Baselines Load (CBL) – expected to increase as customer funded DSM projects expire over time pursuant to the DSM persistence schedule in Tariff Supplement (TS) 74

B. RS 1823 – Default Stepped Rate

Definition of Revenue Neutrality

- Since introduction of RS 1823 in April 2006, revenue neutrality defined as bill neutrality
  - "Bill neutrality" means there wouldn't be any change to a customer's bill if customer moves from prior flat rate to RS 1823 and continues to consume at CBL
  - Bill Neutrality approach is defined by following equation:

Flat Rate (RS 1823a/RS 1827) = [0.90 x Tier 1 Rate] + [0.10 x Tier 2 Rate]

  - Alternative approach is to set rates so target level of forecast revenue is achieved – this is "Revenue Neutrality on a Forecast Basis"
  - Revenue Neutrality approach on Forecast Basis is defined by following equation:

Target Revenue = [Forecast Tier 1 GWh x Tier 1 Rate] + [Forecast Tier 2 GWh x Tier 2 Rate]

  - Residential and General Service rates use "Revenue Neutrality of a Forecast Basis" approach

B. RS 1823 – Default Stepped Rate

Definition of Revenue Neutrality cont.

- At rate class level, differences in revenue between two approaches depends on type of change (e.g., GRI or change to Tier 2/LRMC) and aggregate consumption relative to aggregate CBL
- For illustration, table compares revenues under Bill Neutrality to revenues under Revenue Neutral on a Forecast Basis:

Bill Neutrality Approach Results in Revenues that are:	Aggregate Consumption	
	Less than Aggregate CBL	Greater than Aggregate CBL
GRI Applied to Tier 1 only	Greater	Lower
GRI Applied to Tier 1 and Tier 2 Equally	***Equal***	***Equal***
Increase in Tier 2 (LRMC)	Lower	Greater
Decrease in Tier 2 (LRMC)	Greater	Lower

- Revenue differences are relatively small in all but most extreme cases (i.e., large adjustments to Tier 2 rate)
- Stakeholders receiving service under RS 1823 favour Bill Neutrality approach; other stakeholders support Revenue Neutrality on Forecast Basis approach
- As noted by several stakeholders, definition of revenue neutrality tied to pricing principles

B. RS 1823 – Default Stepped Rate

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Pricing Principles (Application of General Rate Increases)

- Direction No. 6 prescribed that GRI is to be applied equally to both the Tier 1 and Tier 2 for F2015-F2016
  - Both Revenue neutrality is preserved under this approach, since GRI is applied to Tier 1 and Tier 2 rates equally
- At TSR Workshop No.1 BC Hydro identified 3 pricing principle approaches for application of GRIs:
  - Option 1 – Continue with Direction No. 6 approach of applying GRI equally to both tiers:
    - Under Option 1, the Direction No. 6 approach is modified for F2017 only as Tier 2 price is set to lower end of LRMC; for F2018 and F2019 Tier 1 and Tier 2 each increase equally by GRI
    - Prioritizes the Bonbright customer understanding and acceptance, and rate and bill stability, criteria;

B. RS 1823 – Default Stepped Rate

Pricing Principles (Application of General Rate Increases) cont.

- Option 2 – Tier 2 held constant at LRMC – Tier 1 calculated to achieve Bill Neutrality if customer consumes at 100 percent of its CBL
    - This approach reflects BCUC's decision concerning BC Hydro's Application to Vary Pricing of RS 1823, 1825 and 1880 (BCUC Order G-97-08); and
- Option 3 – increase Tier 2 to upper end of energy LRMC range

- AMPC, MABC and CAPP support Option 1
- Views of stakeholders who do not receive service under RS 1823 mixed – some supported Option 1, some Option 2; requests for more information on Option 3 (this is provided in TSR Workshop No.1 consideration memo)
- **For F2017 to F2019 period, BC Hydro supports Option 1 on basis of RS 1823 customer feedback and minimal difference between Bill Neutrality/Revenue Neutrality on Forecast Basis**

B. RS 1823 – Default Stepped Rate

Pricing Principles (Application of General Rate Increases) cont.

- Energy LRMC range of $85 to $100 per megawatt hour (2013 dollars) is inflated – refer to TSR Workshop No.1 consideration memo
- Option 1 requires initial upward adjustment of Tier 2 rate so that it reaches lower band of LRMC (to $92 in F2017)

- Forecast rates in F2017 and F2018 under Options 1-3 identified in following table:

	F2017 Rates ($ Per MWh)			F2018 Rates ($ Per MWh)		
	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
Tier 1	39.50	39.50	38.36	40.88	41.04	39.20
Tier 2	92.00	92.00	102.27	95.22	93.80	110.40
Over/(Under) Recovery ($ Million)	(2.2)	(2.2)	(8.8)	(2.3)	(1.4)	(12.0)

- **Given link between revenue neutrality and pricing principles, BC Hydro seeks further stakeholder feedback on:**
  - **Identifying Option 1 as BC Hydro's preferred RS 1823 pricing principle for F2017-F2019; carrying forward Option 2 as an alternative in 2015 RDA; rejecting Option 3**

B. RS 1823 – Default Stepped Rate

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Definition of Demand and Demand Charge

- Billing demand for purposes of calculating demand charge is higher of:
  - Highest kV.A demand during the High Load Hours (HLH) in billing period;
  - 75 percent of highest billing demand in immediately preceding November to February winter period; or
  - 50 percent of the Contract Demand stated in Electricity Supply Agreement
- At TSR Workshop No.1, BC Hydro made the following observations:
  - Definition of HLH (0600 to 2200 Monday to Saturday, except statutory holidays) is a 16-hour block consistent with BC Hydro's system capacity requirements; and
  - Demand charge recovers about 65 per cent of demand-related costs identified in the F2013 Fully Allocated Cost of Service study

B. RS 1823 – Default Stepped Rate

Definition of Demand and Demand Charge cont.

- AMPC, MABC and CAPP support maintaining existing definition
- Other stakeholders have mixed views – some support maintaining existing definition seems reasonable given BC Hydro's system capacity requirements; others support investigating alternate definitions
- **BC Hydro supports maintaining existing demand charge:**
  - Supported by RS 1823 customers
  - Aligns with the Bonbright criterion of fair apportionment of costs among customers, customer understanding and acceptance, and rate and bill stability criteria

C. VOLUNTARY OPTIONS: FRESHET RATE

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C. FRESHET RATE

BACKGROUND

- BC Hydro presented the concept of a freshet rate at TSR Workshop No.1
- Most stakeholders support the idea and encouraged BC Hydro to continue investigating the concept, particularly AMPC who represents TSR customers who could potentially use the rate
- BC Hydro posted a consideration memo in March 2015 to respond to stakeholder feedback
- Subsequent meetings have been held with individual customers and AMPC on the structure of the rate (i.e. sign up process, time period, pricing, baselines and expected take-up)

OBJECTIVES FOR TODAY

1. Provide additional information on system characteristics and the freshet period
2. Obtain stakeholder feedback on key elements of the rate
3. Provide additional information on shifting, market prices and the benefits of the rate

CONCEPT

The freshet rate would encourage customers to increase electricity consumption during the freshet period (May – July) , when BC Hydro has a long-term recurring issue of energy oversupply

Freshet rate would provide financial and operational benefits to BC Hydro:

- Increase the ability to import cheap electricity in Light Load Hour (LLH) periods to maximize trade benefits
- Reduce probability of spills at BC Hydro facilities
- Recover what BC Hydro would otherwise obtain on the export market, but with potential economic benefits for B.C.
- Shifting within the freshet period (HLH to LLH)

TSR customers benefit through purchase of incremental freshet energy at market prices rather than RS 1823 Tier 1 or Tier 2 prices

FRESHET PERIOD

- There is an over supply of energy in the May to July period
- Some TSR customers asked if the freshet period can be extended to include adjacent months (March/April and August/September)
- System conditions and market prices in the May to July freshet period are unique and BC Hydro believes a May to July period is most appropriate

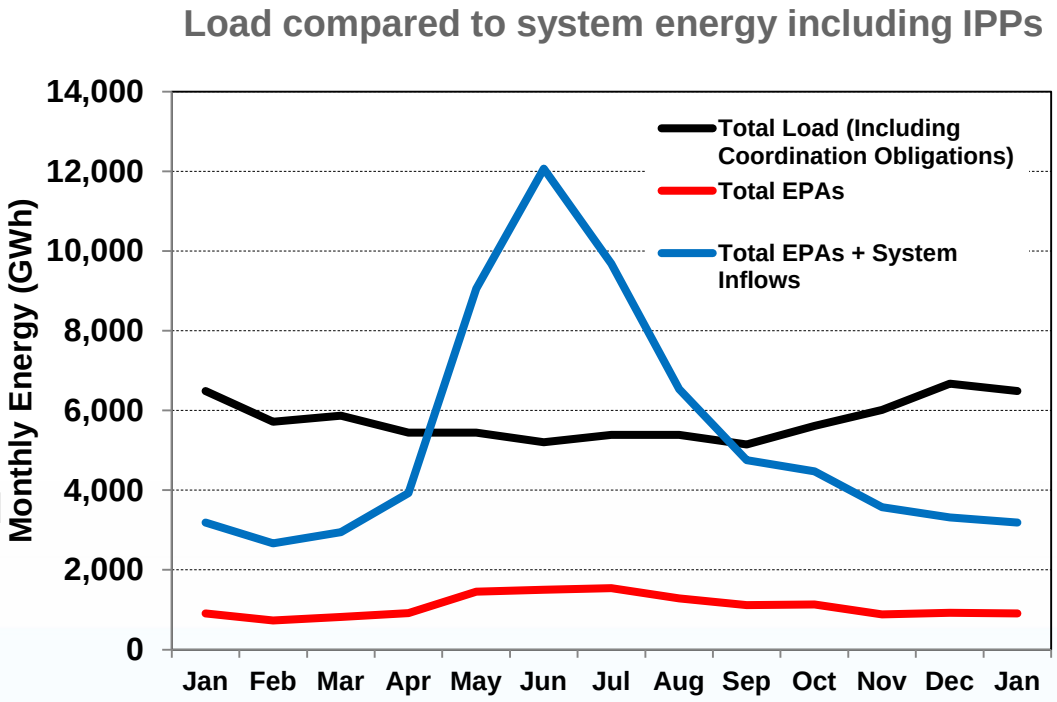
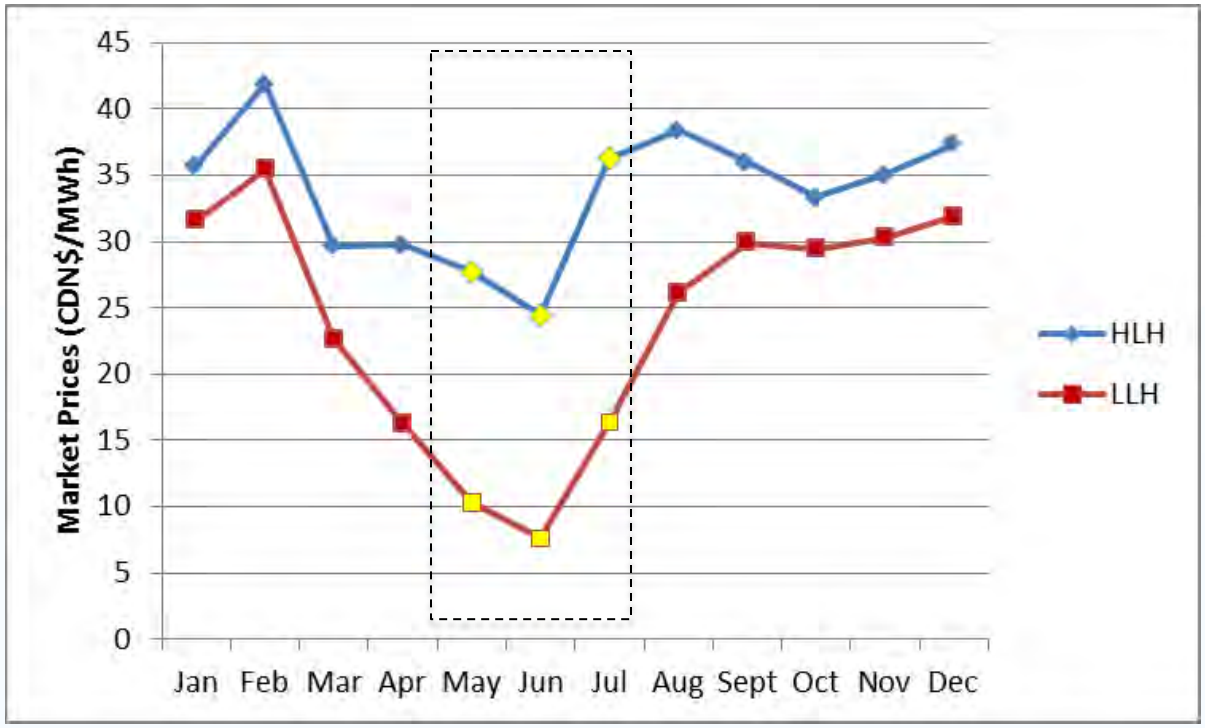


Figure 5, Page 46 of the TSR Workshop No.1 Consideration Memo

FRESHET PERIOD

The figure below shows a 5 Year average (2010-2014) of Mid-C prices, which reach their lowest point during the May to July freshet period



Average August prices are noticeably higher than May-July prices

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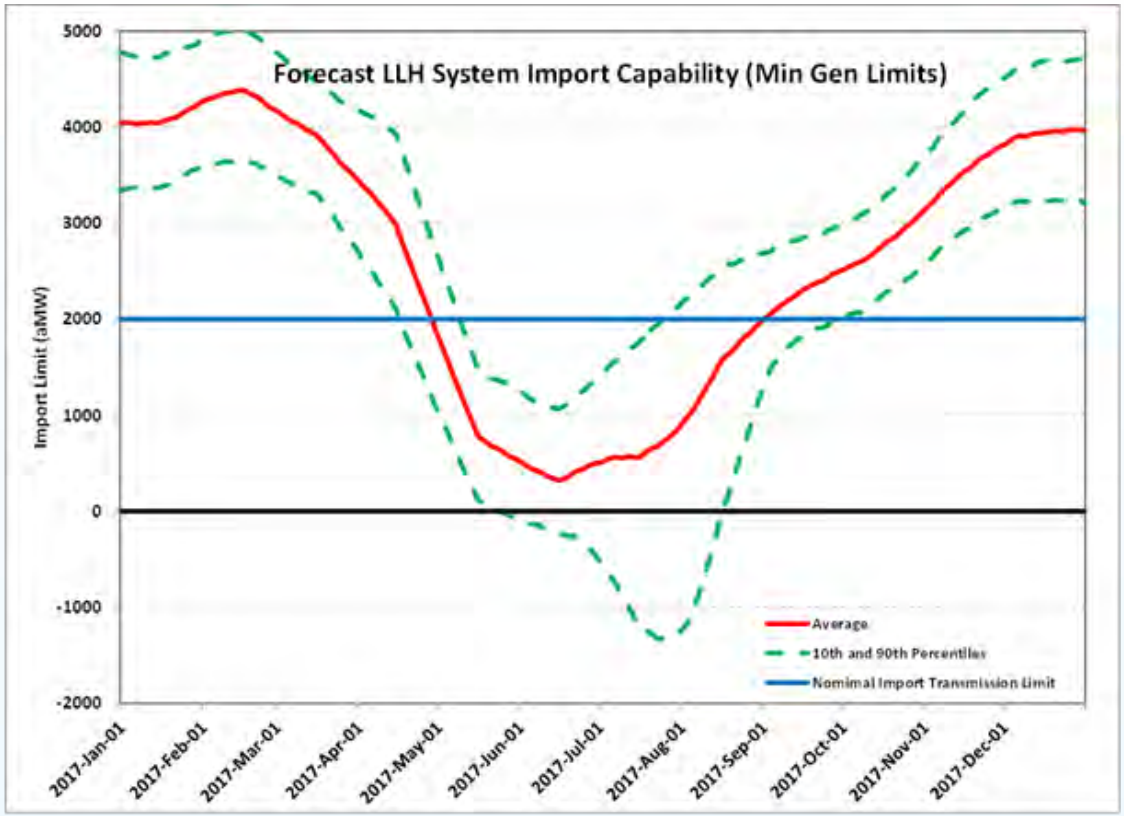
FRESHET PERIOD

- The Freshet rate helps BC Hydro deal with high system inflows, but it also provides significant benefits during LLH if it enables the import of cheap energy to serve load
- Graph below illustrates Load minus Minimum Generation
- During times where Import Capability < US intertie capacity of **2,000 MW** BC Hydro could be forgoing economic imports because of Minimum Generation constraints



When import capability < 0, BC Hydro forced to spill or sell because it cannot turn down the minimum generation

Import constraints generally occur in the May to August period

SERVING INCREMENTAL FRESHET LOAD

- Incremental freshet load could be served by:
  - Increasing imports
  - Decreasing exports
  - Drawing on system storage

- Source of energy to serve incremental load depends on many factors including amount of load, whether BC Hydro is in a net import or export position, storage levels and market prices

- There is a high degree of variability in BC Hydro's import/export behaviour during the freshet

Percentage of freshet hours with net exports		
	LLH	HLH
2010	16%	18%
2011	37%	72%
2012	78%	97%
2013	42%	63%
2014	18%	56%

PROPOSED KEY ELEMENTS

- Pilot for 2 years for TSR customers
- BC Hydro is targeting to have pilot effective prior to 2016 freshet period
- Non-Firm (interruptible): May to July period
- Freshet energy provided on an “as available” basis, so no advancement of infrastructure to provide service under freshet rate
    - Incremental load is non-firm
        - No demand charge consistent with other non-firm rates
        - incremental demand and energy not included in BC Hydro’s load forecast
- Could be designed to be neutral or even beneficial for non-participating customers

PRODUCT OPTIONS: #1 FIXED VOLUME & PRICE

	Proposing	Discussion
Commitment	Annual sign up • Customer signals interest by late February • Determine baselines (6 weeks) • BC Hydro announces prices early April • Customer commits to consume a fixed volume of incremental energy at the fixed price • Fixed May to July period	• Volumes contracted shortly after prices announced to minimize impacts if spot price starts to change • Market based penalties if freshet volume fails to materialize under all baseline scenarios • As a courtesy, customers provide 48 hours notice of large increases in freshet load (> 10 MW)
Pricing	• Based on HLH and LLH Market forward prices • Floor price of $0/MWh + US wheeling	• Addition of wheeling fees in all hours is consistent with pricing of energy provided under Open Access Transmission Tariff (OATT) energy imbalance and loss compensation rates • Separate baselines for LLH and HLH baselines are possible
Pro-argument	• Some customers requested certainty • The cost of providing hedging options will be reflected in price charged	
Con-argument	• Requires customer to commit in advance of freshet • Penalties required if volumes do not materialize because BC Hydro will likely hedge volumes • Requirement for a fixed volume may reduce customer participation	

PRODUCT OPTION – #2 FLEXIBLE VOLUME & SPOT MARKET PRICES

	Proposing	Discussion
Commitment	Annual sign up • Customer signals interest by late February but doesn't make an upfront volume commitment • Determine baselines (6 weeks) • May to July freshet period	• Penalties required under some types of baselines if no incremental freshet energy (discussed on next slide) • As a courtesy, customers provide 48 hours notice of large increases in freshet load (> 10 MW)
Pricing	• Based on spot HLH and LLH market prices • Floor price of $0/MWh + US wheeling costs	• Addition of wheeling fees in all hours is consistent with pricing of energy provided under OATT's energy imbalance and loss compensation rates
Pro-argument	• Most TSR customers said they would rather take price risk and make their own hedging decisions • No upfront volume nomination which gives customers greater flexibility than option 1	
Con-argument	• BC Hydro doesn't know contracted volume far in advance • Customers accept spot market price risk • Customers take risk that incremental energy is interrupted if BC Hydro cannot supply at a market price (e.g., tie line constraint)	

- **AMPC & TSR customer feedback supports option 2**
- **BC Hydro would prefer to develop one option rather than both and seeks feedback on the two options**

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MEASURING INCREMENTAL FRESHET ENERGY

Option	Baseline Options	Application of pricing to sales > Baseline
1	Freshet Baselines (2 in total for HLH/LLH) Based on consumption over the May to Jul freshet period	Average of HLH/LLH prices over entire freshet period ❖ Ensures there is a net gain in freshet energy consumption and no adjustments required if there is no net gain ❖ Does not provide a real time price signal to customers
2	Monthly Baselines (6 in total for HLH/LLH in each month)	Average of HLH LLH prices for each month within the freshet period ❖ Adjustments to ensure customers only benefit if there's a net gain in freshet consumption
3	Daily Average (aMW)	Daily HLH or LLH price multiplied by incremental consumption above baseline ❖ Adjustments to ensure customers only benefit if there's a net gain in freshet consumption ❖ Provides a real time price signal to customers
4	Daily (based on actual daily loads in the corresponding baseline period)	Daily market prices applied to energy consumption in excess of the daily baseline ❖ Daily baselines are too volatile ❖ Adjustments still required; unnecessarily complicated

- **BC Hydro believes options 1 and 3 are leading alternatives**
  Option 1 is simpler but option 3 sends a better price signal

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MEASURING INCREMENTAL FRESHET ENERGY

Example – Option 3

Step 1: Determine gross benefits to the customer for each day consumption > baseline

	Sales	Daily Baseline	Daily Change	Incremental consumption		Base Rate
All values in MWh				Portion at market prices	At RS 1823	At RS 1823
Day 1	110	100	+10	10	0	100
Day 2	105	100	+5	5	0	100
Day 3	97	100	-3	0	0	97
Day 4	95	100	-5	0	0	95
Net incremental			**+7**			
Gross Incremental				**+15**		

MEASURING INCREMENTAL FRESHET ENERGY

Step 2: After the fact adjustment

- Scale daily incremental volumes by ratio of net incremental consumption at end of the period (7 MWh) to gross incremental energy (15 MWh) = ratio of 7/15

	Treatment of daily incremental consumption above baseline		Total incremental
Baseline	Portion at market prices (MWh)	Portion at RS 1823 (MWh)	MWh
Day 1	10*(7/15) = 4.6	5.4	10
Day 2	5 * (7/15) = 2.3	2.7	5
Total for Day 1&2	**6.9**	**8.1**	**15**

Under option 3 a customer can respond to daily prices, but the benefits they receive under the rate are dependent on a net increase in freshet purchases

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SETTING BASELINES

- In the past, BCUC has approved CBLs based on either 1 or 3 years of consumption history

  - RS 1848 RTP and RS 1850 TOU - 3 year averages
  - RS 1823 CBL – 1 year average using calendar 2005 consumption

BC Hydro seeks feedback on the following Freshet Rate Pilot proposal:

- Examine freshet consumption in F2015 and F2016 before deciding whether a 1 or 3 year baseline should be used
- For consistency same baseline period should be used for all customers that sign up for pilot
- BC Hydro will adjust freshet baseline in a manner consistent with principles of TS 74
- Customers with aggregated RS 1823 CBLs will have their freshet baseline aggregated as well
- Demand Baseline also required

BENEFITS OF THE FRESHET RATE
TO CUSTOMERS AND NON-PARTICIPANTS

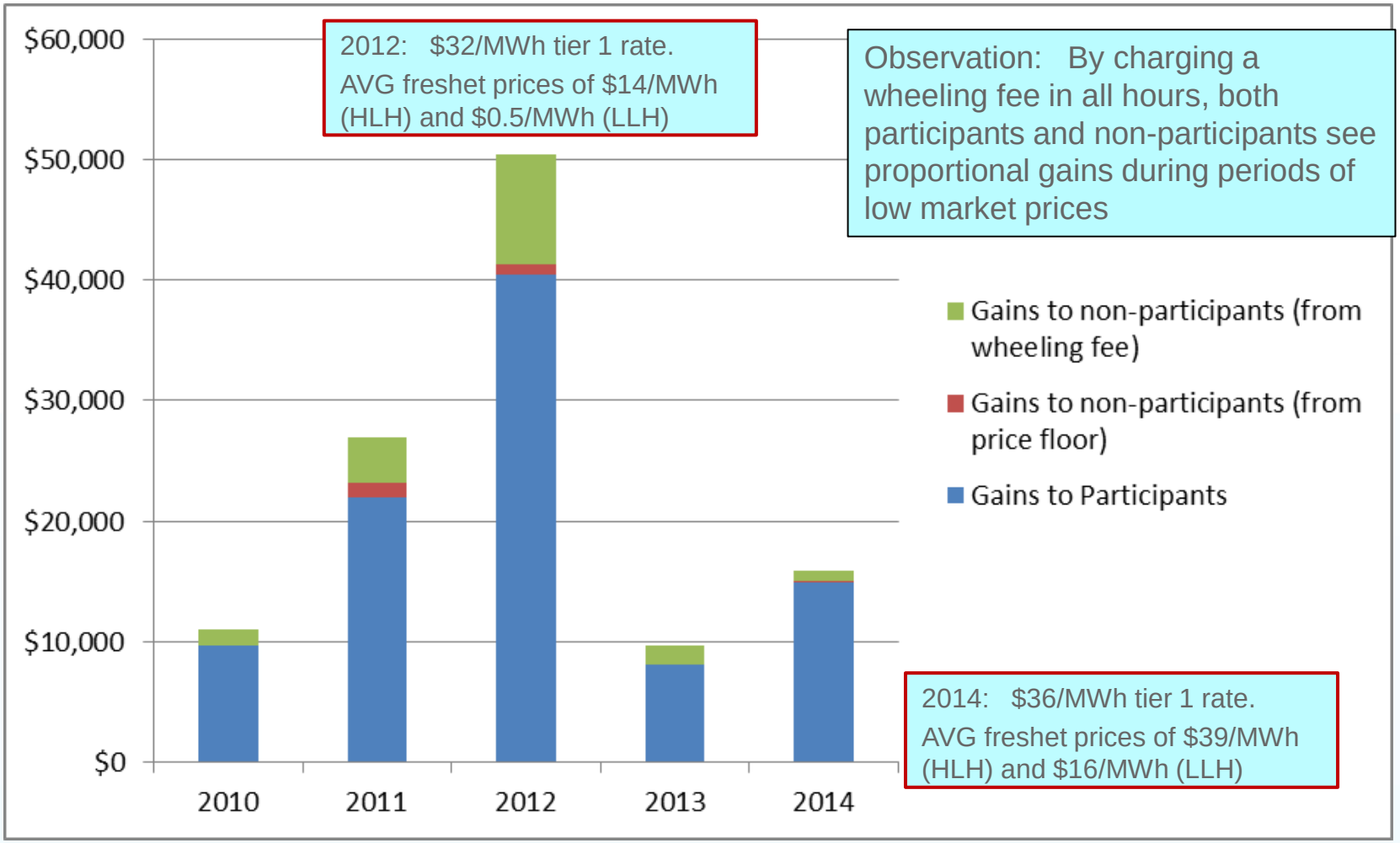
- The March 2015 consideration memo includes a preliminary analysis of potential freshet rate benefits using historic market prices from 2010 to 2014

- **Benefits to participating TSR customers** were calculated as difference between Tier 1 rate and Mid-C price (US $0/MWh floor) plus a wheeling fee (CDN $6/MWh assumed)

- **Benefits to non-participants come from two sources:**
  - Charging a $0/MWh price floor when market price is negative
  - Charging an assumed $6 CDN/MWh wheeling fee during times of export

BENEFITS OF THE FRESHET RATE

TO CUSTOMERS AND NON-PARTICIPANTS BASED ON 1 MW OF INCREMENTAL USE



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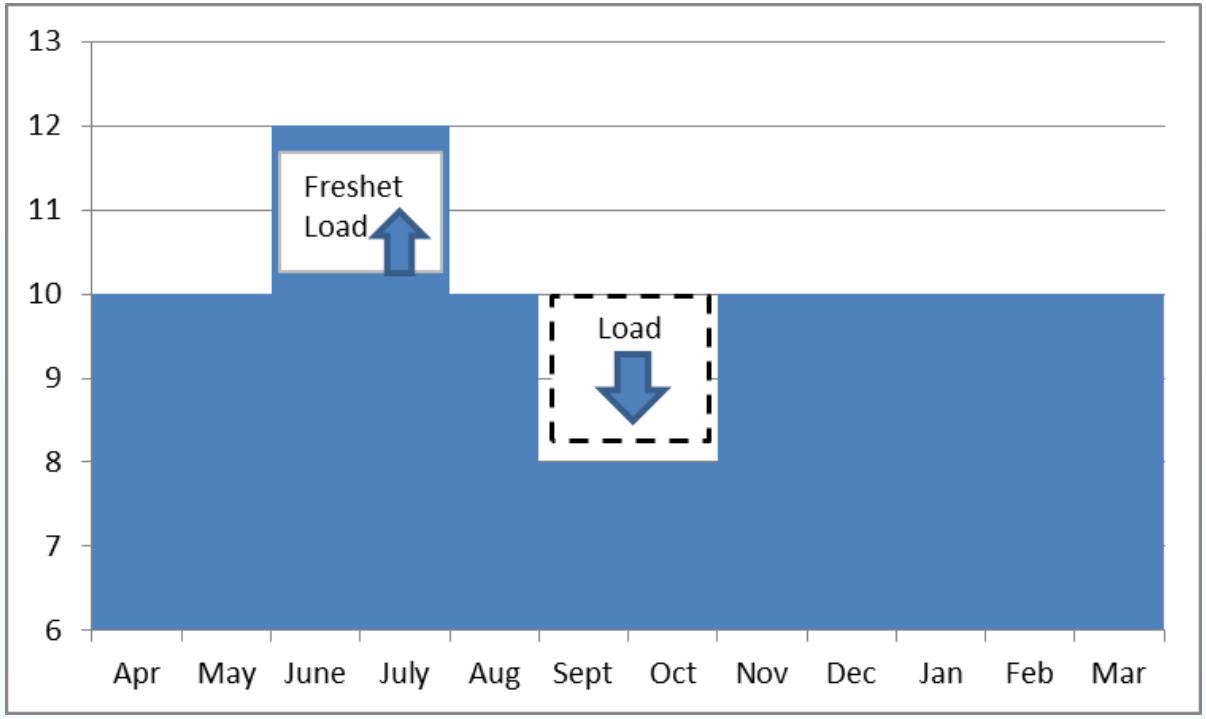
QUESTION – SHOULD SHIFTING QUALIFY?

- Shifting occurs to the extent customers use more energy during the freshet and less during other times of the year with no change in annual consumption
- Suggests that a year end billing reconciliation will be required



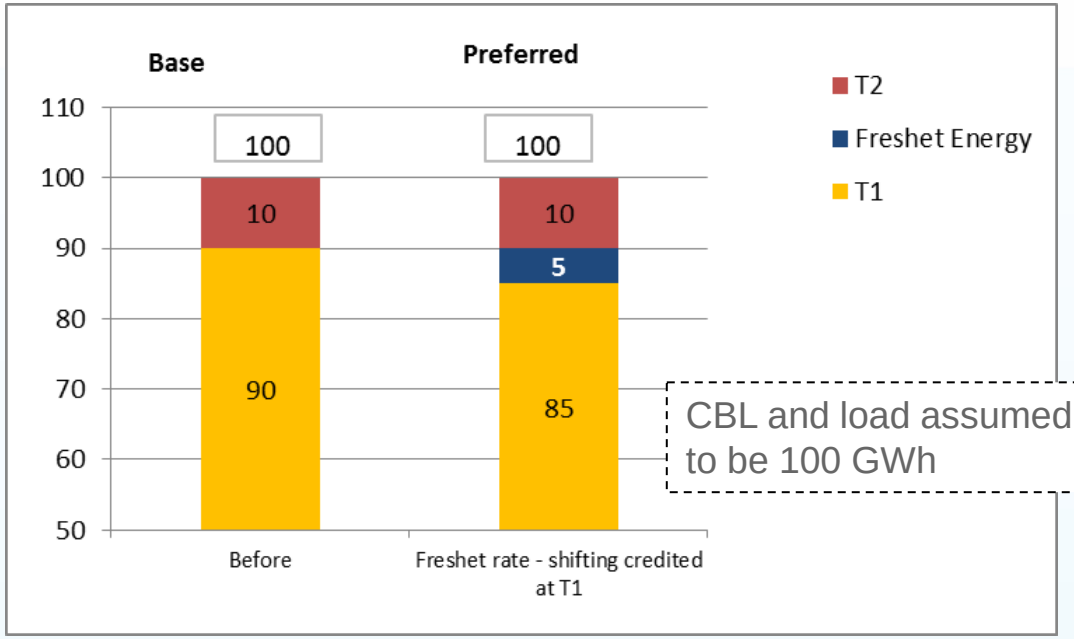
QUESTION – WHAT'S THE VALUE OF SHIFTING?

Should shifted energy result in a tier 1 or tier 2 savings to the customer?

In the example below, shifted energy is valued as a reduction in Tier 1

Rationale: BC Hydro does not realize long term cost savings from shifted freshet energy so a tier 2 credit is not appropriate. Only if shifted energy was removed from the long term load forecast could a Tier 2 credit be justified

Total load remains unchanged at 100 GWh, but 5 GWh of energy has been shifted to the freshet and reduced Tier 1 purchases in the non-freshet period



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EXAMPLES OF SHIFTING - BILLING ADJUSTMENTS WILL BE NEEDED

GWh	Base year	Year 1		
	Base	Case 1	Case 2	Case 3
CBL	100	100	100	100
DSM project?		None	None	Yes – 3 GWh
Incremental Freshet energy	N/A	5	5	5
Sales	**100**	**105**	**100**	**102**
Shifted Energy	N/A	0	5	0

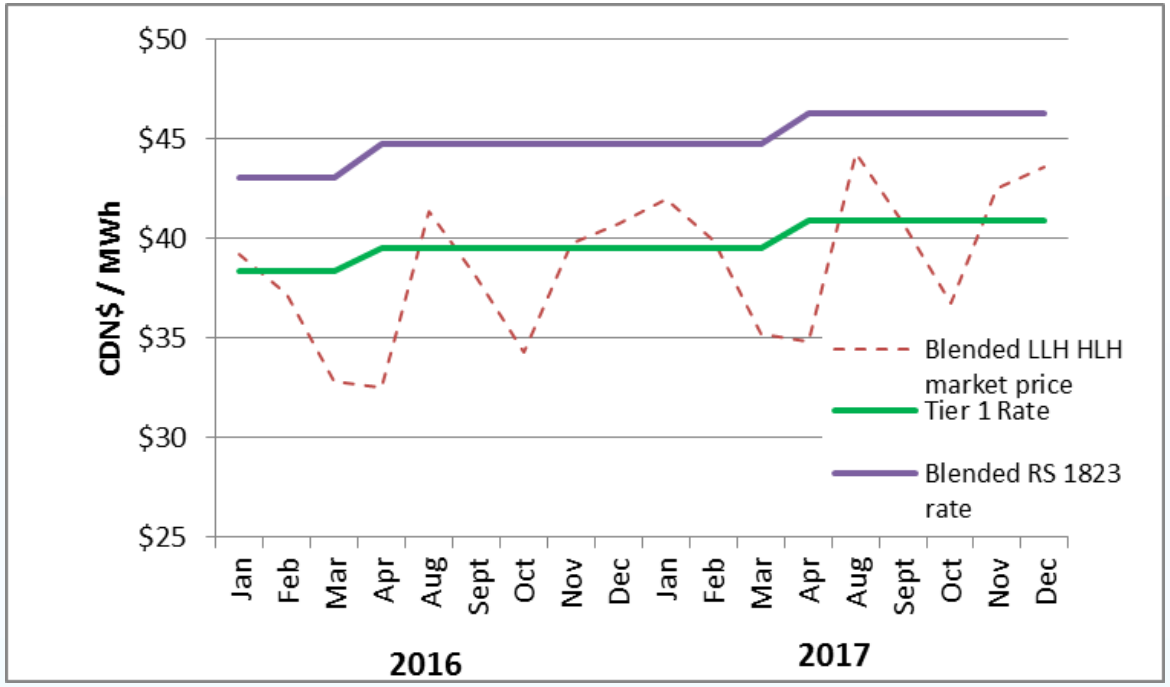
Case 2: Customer reduces production and sales by 5 GWh in the non-freshet and increases by 5 GWh in the freshet

Case 3: Customer completes a 3 GWh DSM project in the non-freshet and increases purchases by 5 GWh in the freshet

IMPACT OF SHIFTING: FORWARD VIEW

- If customers shift and market prices < Tier 1 rate, the revenue loss (Tier 1) will exceed the gain in export revenue (Mid-C) and there could be a loss to non-participants assuming BC Hydro can't store and export the shifted energy in a higher valued period

- The graph below shows market prices and projected Tier 1 rate **in non-freshet periods**



Average market prices are slightly below the tier 1 rate so impact from shifting may be moderate

If shifting was valued at RS 1823 blended rate, market prices are almost always lower and financial impact of shifting would be greater

Market forecast based on the Mid Scenario in the 2013 IRP and an 80 cent CDN/US dollar.

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IMPACT OF SHIFTING: HISTORICAL VIEW

Average prices during non-freshet periods vs. Tier 1 (CDN $/MWh)					
	2010	2011	2012	2013	2014
HLH	39	30	25	38	44
LLH	33	21	20	31	35
Tier 1	28	31	32	33	36

Historically, market prices have fallen below the tier 1 rate

A shift of 10 MW for a 1 month period at a loss of $5/MWh amounts to ~$35,000.

In summary, shifting may negatively impact non-participants (but the impact may be small) and it may enable more customers to use the rate

BC Hydro seeks feedback on the following:

- **BC Hydro proposes to allow shifting**
- **From TSR customers: will this lead to a meaningful increase in customer take-up?**

FRESHET RATE TAKE-UP

- The number of customers and volume of incremental energy that may use the freshet rate is uncertain
- BC Hydro has held discussions with AMPC and customers to better assess take-up of the rate
- Based on customer feedback, BC Hydro expects 5 to 30 MW of average incremental energy over the freshet period. Customers indicated that take-up is dependent on market prices, whether they have spare capacity, whether shifting is permitted, and the rate's simplicity and understandability
- BC Hydro believes chemical producers and pulp mills are the most likely users of the pilot

SAMPLE EVALUATION QUESTIONS FOR THE PILOT

- Did the rate provide industrial customers with lower cost options?
- Did the rate have positive or negative impacts on non-participating customers?
- How many customers used the rate? Volumes of use?
- How did customers use the rate (e.g., increase production, turning down self-generation?)
- To what extent did shifting contribute to higher freshet energy?
- Was there any shifting within the freshet period from HLH to LLH?
- Were there any issues with setting baselines, implementation, or billing?

- **Preliminary evaluation report would be provided to the BCUC after pilot is in place for 2 full freshet periods: fall 2017**

- **To measure shifting, a final evaluation report could only be prepared after 2 full billing years have passed: spring 2018**

C. VOLUNTARY OPTIONS: RTP

- Subsequent to the March 2015 consideration memo, BC Hydro met with AMPC and there was limited TSR customer interest in a RTP that allows all incremental consumption to be purchased at market prices – **BC Hydro seeks further feedback on RTP**

Possible Barriers:

- **Legal issue**: It is arguable (at least) that there are requirements for TSR customers to take firm service under either RS 1823 or RS 1825 (i.e., Recommendation #14 from Heritage Contract Report – part of section 3(1) of Direction No. 7)
- **Design issues**:
  - Creates inconsistencies – customers save at Tier 2 if they reduce consumption but pay market prices if they increase consumption
  - Reducing prices and encouraging incremental production on a year round basis could be seen as incompatible with DSM, even if the incremental load is not in BC Hydro's load forecast and long term planning
  - Definition of incremental consumption is problematic

C. Voluntary Options

Voluntary TOU: RS 1825

- **BC Hydro will not be proposing changes to RS 1825 in 2015 RDA Module 1:**
  - Insufficient Price Differential – TSR Workshop No.1 Consideration memo: requires price differential between HLH and LLH periods of 3-4 whereas differential has averaged 1.45 over last five years;
  - Default RS 1823 has more benefits – Customers can save more on energy costs through implementation of conservation initiatives;
  - Customer Suitability – Few customers have capability to shift load from one period to another, and price differential provides little incentive to invest in storage and sprint capabilities
  - No 2015 RDA stakeholder strongly favoured BC Hydro pursuing a reconfigured RS 1825, including RS 1823 customers
  - No Canadian jurisdictions offer industrial customers a voluntary TOU, although Manitoba Hydro is considering such a rate

C. Voluntary Options

Retail Access

- Through section 14 of Direction No. 7, B.C. Government:
  - Directed BCUC to issue order cancelling BC Hydro's retail access program, and
  - Prevented BCUC from setting rates for BC Hydro that result in direct or indirect provision of unbundled transmission service to retail customers in BC Hydro's service areas or those who supply such customers, except on application by BC Hydro
- **BC Hydro will not apply to BCUC to establish a retail access program as part of 2015 RDA Module 1:**
  - Timing – BC Hydro is in process of implementing a significant capital plan to re-invest in infrastructure
  - Design - In general, stakeholders not opposed to retail access if non-participants were held harmless; however, difficult to design a retail access program that benefits TSR customers and also holds non-participants harmless
    - Likely to negatively impact other ratepayers in short to medium term
    - Requires exit fees to avoid stranded asset investments; commitment period of at least 5 years and re-entry fees; no-arbitrage provisions, etc
  - Practically speaking likely to consist of access to spot market and not access to B.C.-based IPPs

D. RS 1827 – Rate for Exempt Customers

- Currently 4 customers receive service under RS 1827 flat rate – City of New Westminster (CNW), University of British Columbia (UBC), Simon Fraser University (SFU) and Vancouver International Airport (YVR)
- Exemption from stepped rates for CNW and UBC are prescribed under section 391) of Direction No. 7 (reference to Heritage Contract recommendation #15)
  - As a result, BCUC cannot move these customers to RS 1823 – BCUC can only review and make recommendations regarding these exemptions through a section 5 *UCA* inquiry review process
  - **BC Hydro proposes to continue with RS 1827 (status quo) for the following reasons:**
  - There doesn't appear to be significant change in circumstance for any of the four exempted customers since their original exemption in 2006.
  - For UBC and CNW, exemption was confirmed in March 2014 via Direction No. 7

D. RS 1827 – Rate for Exempt Customers

- Bonbright customer and understanding and acceptance, and bill and rate stability, criteria - Feedback from RS 1827 customers:

- Prior to TSR Workshop No. 1, BC Hydro met with each of four RS 1827 customers – each indicated a preference to remain on RS 1827

- Workshop No. 1 feedback from these customers indicated that while taking service on a flat rate, all four customers have invested in DSM projects in recent years

- While RS 1823 is a more efficient rate than RS 1827 (RS 1827 does not have a LRMC price signal), it is questionable whether significant additional energy conservation could be achieved by transferring some or all to RS 1823 or a stepped rate

- **Based on stakeholder feedback, rate class treatment of four customers and FortisBC Inc. is being examined – preliminary observations are set out in Workshop No. 1 consideration memo, additional material to be reviewed at proposed 'wrap up' RDA workshop for 25 July 2015**

E. Other Transmission Service Rates

RS 1852 (Modified Demand)

- A voluntary interruptible rate first implemented in 2000
- Available at BC Hydro's discretion to TSR customers in locations
  a) that are transmission constrained, and/or
  b) where market opportunities arise which allow for a different HLH time period
- The energy and demand rates are the same as that for RS 1823
- The definition of demand is modified to consider a distinct morning and afternoon peak for HLH – this is particular to Vancouver Island's 'two peak's system load (6 am to 10 am; 4 pm to 8 pm

RS 1853 (IPP Station Service)

- First implemented in 2001, an interruptible rate available to IPP customers at transmission voltages for purposes of forced outages, scheduled maintenance and black-start re-energization of generators
- Energy is provided "as available"; at Mid-C index price
- During F2014, about 14 GWh sold under RS 1853 with revenues of about $0.6 million

E. Other Transmission Service Rates

RS 1880 (Standby and Maintenance Rate)

- An interruptible rate first implemented in 1991; Available to TSR customers with self-generation for replacement of energy due to outages of customer's on-site generation that are transmission constrained
- Energy is provided "as available" – customers required to advise BC Hydro within 30 minutes of taking energy under RS 1880
- Energy rate based on RS 1823 Tier 2 price
- F2014 – about 40 GWh sold under RS 1880 with revenues of about $3 million

BC Hydro Consideration

- Few stakeholder comments on these three interruptible rate schedules, although some additional information was requested regarding RS 1853 and RS 1852 – refer to TSR Workshop No.1 consideration memo
- **BC Hydro seeks stakeholder feedback on RS 1852 demand definition**
- **At this time, BC Hydro not proposing material changes to RS 1853 or RS 1880**

NEXT STEPS

NEXT STEPS

1. 30-day written comment period to commence with the posting of workshop summary notes (posting of notes by late May, with feedback end date likely late June)

2. Consideration memo for Workshop: mid-July

3. Wrap-up RDA Workshop proposed for 30 July to address rate classes and format of 2015 RDA Module 1

4. 2015 RDA Module 1 to be filed on or about 17 September

THANK YOU

SEND COMMENTS TO:
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