

# 2015 RATE DESIGN APPLICATION (RDA)

## TRANSMISSION SERVICE RATE (TSR) STRUCTURES – WORKSHOP #1



FOR GENERATIONS

22 October, 2014

# AGENDA

Approximate Time	Item	Presenter(s)
9 :00 – 9:10	Welcome	Anne Wilson
	Background	Gord Doyle
	Rate Schedule (RS)1823	Greg Simmons
	Options to manage electricity bills <ul style="list-style-type: none"> <li>• Freshet rate</li> <li>• Load curtailment program</li> <li>• Time of use (TOU)</li> <li>• Retail access</li> </ul>	Gord Doyle/Kathy Lee/ Justin Miedema
10:15-10:30	Break	
	Options to manage rates cont'd	
Noon – 1:00 PM	Break for lunch	
	Options to manage rates cont'd	
	Other Transmission Service rate structures	Greg Simmons
2:20 – 2:30	Closing and Next Steps	Anne Wilson

## INTRODUCTION: WORKSHOP TOPICS

- Background - Existing Transmission voltage service Rate Schedules; Legal context; Bonbright criteria
- Topic 1 - RS 1823 (default rate):
  - Definition of revenue neutrality
  - Pricing principles for F2017-F2019
  - Tier 1/Tier 2 - 90/10 split
  - Demand charge

## INTRODUCTION: WORKSHOP TOPICS

- Topic 2 - Options for Transmission service customers to manage their electricity bills:
  - Freshet rate
  - Load curtailment program
  - TOU rate
  - Retail access

## INTRODUCTION: WORKSHOP TOPICS

- Topic 3 - Other Transmission service rate structures:
  - RS 1827 – Exempt Rate
  - RS 1880 – Maintenance and Standby Rate
  - RS 1853 – Independent Power Producer (IPP) Station Service
  - RS 1852 – Modified Transmission Demand

# BACKGROUND: EXISTING TRANSMISSION SERVICE RATES

## Rate Schedule Portfolio:

- **RS 1823: Stepped Rate (default service)**
- **RS 1825: TOU Rate**
- **RS 1827: Exempt Rate**
- **RS 1852: Modified Transmission Demand**
- **RS 1853: IPP Station Service**
- **RS 1880: Maintenance & Standby Rate**
- **RS 3808: FortisBC Power Purchase Agreement (not part of 2015 RDA)**

## Tariff Supplements:

- **TS No. 5: Electricity Supply Agreement**
- **TS No. 6: Transmission extension policy (separate workshop)**
- **TS No. 74: Customer Baseline Determination (CBL) Guidelines (not part of 2015 RDA)**

## BACKGROUND: LEGAL CONTEXT - DIRECTION NO. 6

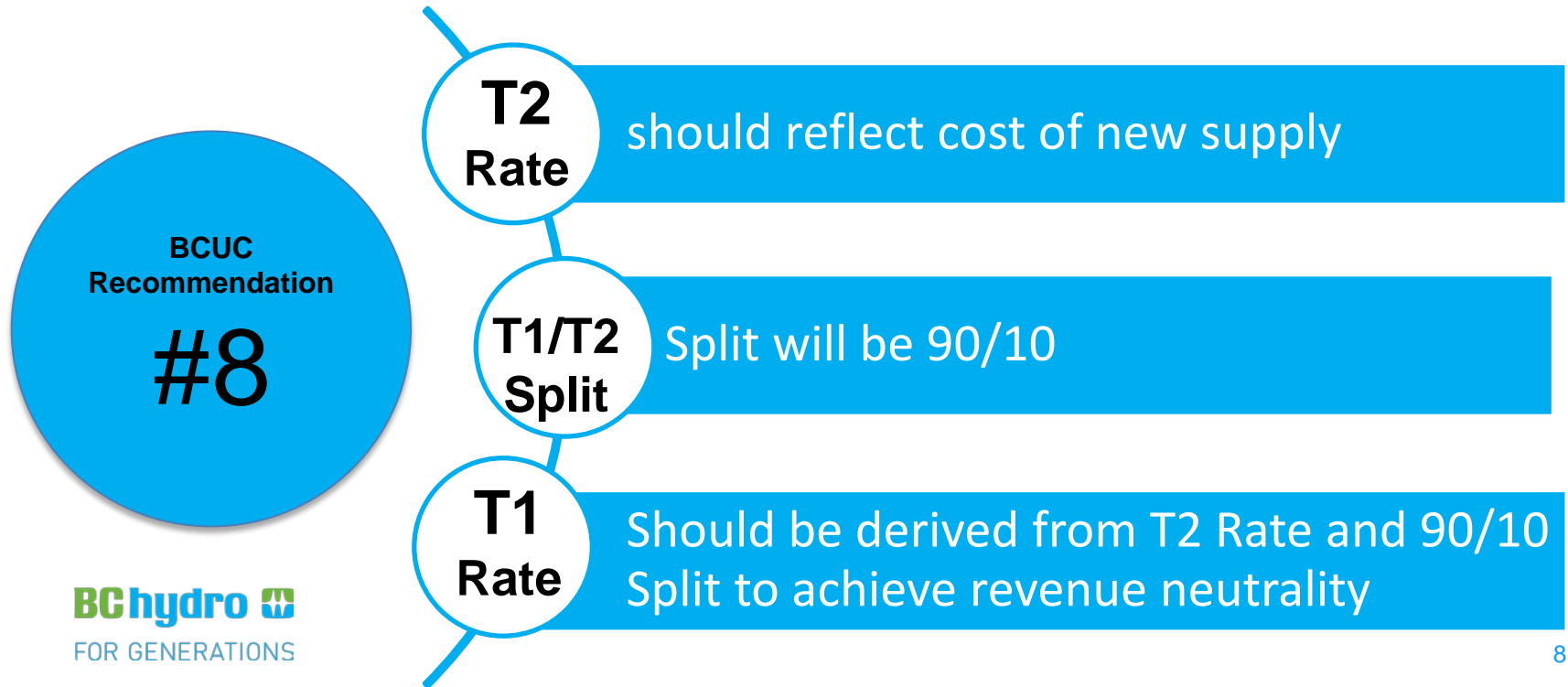
Sets pricing principles for RS 1823 for F2015/F2016:

1. Section 3(c) of Direction No. 6 orders British Columbia Utilities Commission (BCUC) to approve new rates for RS 1823 customers for F2015 and F2016
2. Uniform application of F2015 general rate increase (9%) and F2016 general rate increase (6%) to RS 1823 Tier 1 and Tier 2 energy rates

Rate Class	Rate Schedule	Rate	F2015	F2016
Transmission Service	1823	Demand rate (\$/kVA)	6.925	7,341
		Energy rate A (\$/kWh)	0.04059	0.04303
		Energy rate B Tier 1 (\$/kWh)	0.03619	0.03836
		Energy rate B Tier 2 (\$/kWh)	0.08022	0.08503
		Minimum demand (\$/kVA)	6.925	7.341

## BACKGROUND: LEGAL CONTEXT - DIRECTION NO. 7

- Replaces Heritage Special Direction No. HC2
- **Section 3(1):** BCUC must ensure transmission customer rates are set consistent with Recommendations #8-#15 of 2003 BCUC Heritage Contract Report & Recommendations:
  - Recommendation #8 – RS 1823
  - Recommendation #15 – RS 1827





## BACKGROUND: DIRECTION NO. 7 – RS 1823

- **Section 3(1)** raises jurisdictional issues regarding RS 1823 on Recommendation #8 issues:
  - BCUC cannot change the 90/10 Tier 1/Tier 2 split
- BC Hydro view: BCUC can set pricing principles for F2017 and beyond without further direction, so long as Tier 2 rate is within the energy Long-Run Marginal Cost (LRMC) range of \$85 per megawatt hour (/MWh) to \$100/MWh and thus reflects cost of new supply
  - E.g., F2016 Tier 2 rate = 8.50 cents per kilowatt hour (c/kWh)
- BC Hydro view: BCUC can revisit the definition of revenue neutrality adopted in 2005 as long as Tier 1 rate continues to be derived from Tier 2 rate “to achieve, to the extent reasonably possible, revenue neutrality”

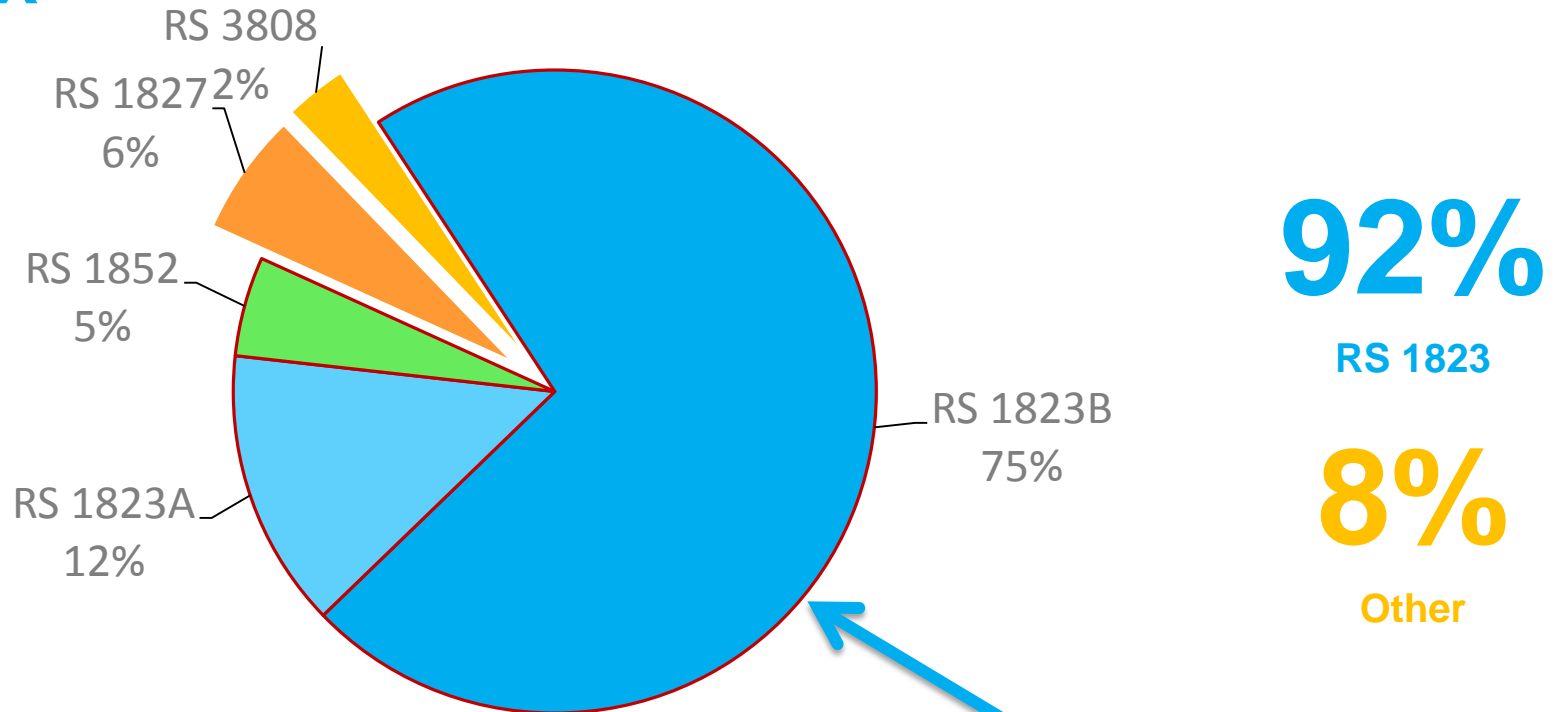
## BACKGROUND: DIRECTION NO. 7 – RS 1827

- **Section 3(1)** also raises jurisdictional issues regarding RS 1827 due to Recommendation #15
- Aquila (now FortisBC), New Westminster and University of British Columbia (UBC) are to be exempt from RS 1823 on basis that these entities “distribute all or a significant portion of their load to others”
- In 2005, Simon Fraser University (SFU) and Vancouver International Airport Authority (YVR) applied to the BCUC for inclusion on RS 1827 – granted per BCUC Order G-10-06

## BACKGROUND: BONBRIGHT CRITERIA & MEASURES FOR EVALUATION

Criteria	Elements	Measures
<b>Economic Efficiency</b>  Price signals that encourage efficient use and discourage inefficient use (1)	Efficient pricing	LRMC (Energy) reference
		Energy Conservation (Total GWh)
<b>Fairness</b>  Fair apportionment of costs among customers (2); Avoid undue discrimination (3)	Cost causation	Cost causation, including cost recovery through fixed versus variable charges
	Bill impacts	Maximum and customer bill impact % by customer segment
<b>Practicality</b>  Customer understanding and acceptance, practical and cost effective to implement (4); Freedom from controversies as to proper interpretation (5)	Design complexity	Customer acceptance and understanding, including bill impacts and jurisdictional references as appropriate
	Administration complexity	BC Hydro opinion
	Implementation and Sustaining costs	One-time & sustaining (\$ if possible, qualitative ranking otherwise)
<b>Stability</b>  Recovery of the revenue requirement (6); revenue stability (7); rate stability (8)	Revenue recovery	Forecast revenue neutrality
	Rate stability	Design, pricing & transition certainty, and flexibility to changes in rates, load, LRMC, etc.
	Historical continuity	Degree of rate structure changes relative to status quo

# BACKGROUND: TRANSMISSION SERVICE RATES MIX



\*2013 Actual Energy Purchases (GWh)

**RS 1823 Default Service**

- RS1823B is Stepped Rate
- RS1823A is Flat Rate for customers without a CBL
- RS1852 customers served energy under RS 1823

# TOPIC I: RS 1823 – STEPPED RATE - POTENTIAL AREAS OF REVIEW

- A. Definition of Revenue Neutrality
- B. Pricing Principles: Application of General Rate Increases (GRI)
- C. The Tier 1/Tier 2 Split
- D. Demand Charge – Definition of Billing Demand
- E. Other?

## A. DEFINITION OF REVENUE NEUTRALITY

- BC Hydro's Stepped Rate Application (2005) stated:
  - Revenue neutrality means that if the stepped rate customer does not change its usage relative to its CBL, the customer's bill should remain unchanged after the implementation of the Stepped Rate (from 2002 Energy Plan)
  - Revenue neutrality was defined relative to the then existing flat rate RS 1821 (now equivalent to RS 1827)
  - In the context of RS 1823, revenue neutrality means bill neutrality and is defined by the following equation:

$$\text{RS 1827 Flat Rate} = 0.90 \times \text{Tier 1} + 0.10 \times \text{Tier 2}$$

## A. DEFINITION OF REVENUE NEUTRALITY

- In contrast to RS 1823, the Residential Inclining Block (RIB), Large General Service (LGS) and Medium General Service (MGS) rates are revenue neutral on a forecast basis
  - This means that the calculated RIB, LGS and MGS rates collect the same revenue as the target revenue in each rate class
  - The target revenue is calculated by the forecast load multiplied by the previous year's rates and the Revenue Requirement (RR) percentage increase
  - TSR rates calculated by the original “bill neutrality” pricing formula keeping Tier 2 rate fixed will not collect the same revenue as the target revenue and is not therefore revenue neutral on a forecast basis
    - F2015 and F2016 rates as prescribed by Direction No. 6 are revenue neutral on a forecast basis since the RR percentage increase was applied to both Tier 1 and Tier 2 rates

## A. DEFINITION OF REVENUE NEUTRALITY

The difference between the two approaches to revenue neutrality are best shown through an example – F2015 is used as the test year (assuming no rate increase)

### 1. F2015 Revenue (forecast revenue neutral)

	Forecast Load (GWh)	F2015 Rates (\$ Per MWh)	Revenue (\$ millions)
Tier 1	10,073	36.19	364.5
Tier 2	480	80.22	38.5
	10,553		403.0



## A. DEFINITION OF REVENUE NEUTRALITY

### 2. RS 1823 Definition of Revenue Neutrality (bill neutrality)

- For example, assume Tier 2 is set at \$90/MWh
- From the equation that defines RS 1823 revenue neutrality identified previously:

$$\text{Tier 1} = [\text{RS 1827 Flat Rate} - 0.10 \times \text{Tier 2}] \div 0.90$$

$$\text{Tier 1} = [\text{RS 1827 Flat Rate} - 0.10 \times 90.00] \div 0.90$$

$$= [40.59 - 9.00] \div 0.90$$

$$= 35.10$$

$$\text{Tier 1} = 35.10$$

$$\text{Tier 2} = 90.00$$

## A. DEFINITION OF REVENUE NEUTRALITY

### 3. LGS/MGS Approach – Forecast revenue neutral

- Revenue is defined as forecast revenue at existing rates (i.e., \$403 million for F2015)
- Using the F2015 revenue figure, forecast Tier 1 and Tier 2 consumption and the Tier 2 rate of \$90 per MWh, Tier 1 rate is calculated as follows:

$$\text{Revenue} = [10,073 \text{ GWh} \times \text{Tier 1}] + [480 \text{ GWh} \times \$90.00 \text{ per MWh}]$$

$$\$403 \text{ million} - \$43.2 \text{ million} = [10,073 \text{ GWh} \times \text{Tier 1}]$$

$$\$359.8 \text{ million} \div 10,073 = \text{Tier 1} = \mathbf{35.72}$$

$$\mathbf{\text{Tier 1} = 35.72}$$

$$\mathbf{\text{Tier 2} = 90.00}$$

## A. DEFINITION OF REVENUE NEUTRALITY

### 4. Comparison of Forecast Neutrality and Bill Neutrality

	Forecast Load (GWh)	F2015 Rates (\$ Per MWh)		Forecast Revenues (\$ millions)	
		RS 1823 Approach (Bill Neutrality)	Target Revenue Approach (Forecast Neutrality)	RS 1823 Approach (Bill Neutrality)	Target Revenue Approach (Forecast Neutrality)
Tier 1	10,073	35.10	35.72	353.6	359.8
Tier 2	480	90.00	90.00	43.2	43.2
	10,553			<b>396.8</b>	<b>403.0</b>
<b>Surplus/(Deficit)</b>				<b>(6.3)</b>	<b>0.0</b>

## B. APPLICATION OF GRI

- For the application of GRI, two approaches have been used to date resulting in similar revenues
  - Option 1 - Direction No. 6 – GRI has been applied equally to both Tier 1 and Tier 2
  - Option 2 - Prior to Direction No. 6 – Tier 2 held constant at LRMC, Tier 1 calculated using Tier 2 rate, blended rate (inclusive of GRI), and the 90/10 split
- Alternate approach:
  - Option 3 - apply GRI to Tier 2 only while LRMC is within \$85 to \$100 / MWh range

## B. APPLICATION OF GRI

(\$ million)	Revenue	Difference
Base Case		
Revenue at F2016 Rates	427.2	
Assumed Rate Increase @ 4%	17.1	
	444.3	n/a
Option 1:Rate Increase Applied to Both Tier 1 and Tier 2	444.3	0.0
Option 2:Rate Increase Applied to Tier 1 - Tier 2 Fixed	446.5	+ 2.2
Option 3:Rate Increase Applied to Tier 2 - Tier 1 Fixed *	436.9	- 7.4

\* Note that revenue neutrality is not achieved per RS 1823 definition until Tier 2 rate is greater than \$100 / MWh – as a result, in the calculation it is capped at \$100 and Tier 1 is adjusted to achieve revenue neutrality

## C. TIER 1/TIER 2 SPLIT

- As noted, a 90/10 split is prescribed by section 3(1) of Direction No.7
- Change to split would require amendment to Direction No. 7
- Industrial Electricity Policy Review (IEPR)/RDA stakeholder engagement –  
The feedback received to date generally favours maintaining the current 90/10 split
- BC Hydro supports maintaining the current 90/10 split

## D. DEMAND CHARGE – DEFINITION OF BILLING DEMAND

- Billing demand currently based on peak kV.A during High Load Hour (HLH) in billing period (i.e., 0600 to 2200 Monday to Saturday, except Stats)
- 16 hour block is consistent with current system requirements
- BC Hydro supports maintaining the existing demand charge
- The transmission rate demand charge recovers about 65% of the demand-related costs identified in the F2013 Cost of Service Study

## E. OTHER

- Are there any other elements of RS 1823 that should be reviewed as part of the upcoming RDA?



## TOPIC II: OPTIONS FOR MANAGING ELECTRICITY BILLS

- Freshet Rate
- Load Curtailment
- TOU
- Retail Access

## A. DRIVERS FOR DISCUSSION OF FOUR OPTIONS

- October 2013 IEPR report:
  - Recommendation #13 : “BCH should work with its industrial customers and the Commission to develop options that take advantage of industrial power consumption flexibility, such as time of use rates and interruptible rates.”
- Approved 2013 Integrated Resource Plan (IRP):
  - Recommendation #2: “Implement a voluntary industrial load curtailment program from F2015 to F2018 to determine how much capacity savings can be acquired and relied upon over the long term.”
  - Recommendation #5: “Investigate incentive-based pricing mechanisms over the short term that could encourage potential new customers and existing industrial and commercial customers looking to establish new operations or expand existing operations in BC Hydro’s service area.”

## A. DRIVERS FOR DISCUSSION OF FOUR OPTIONS CONT'D

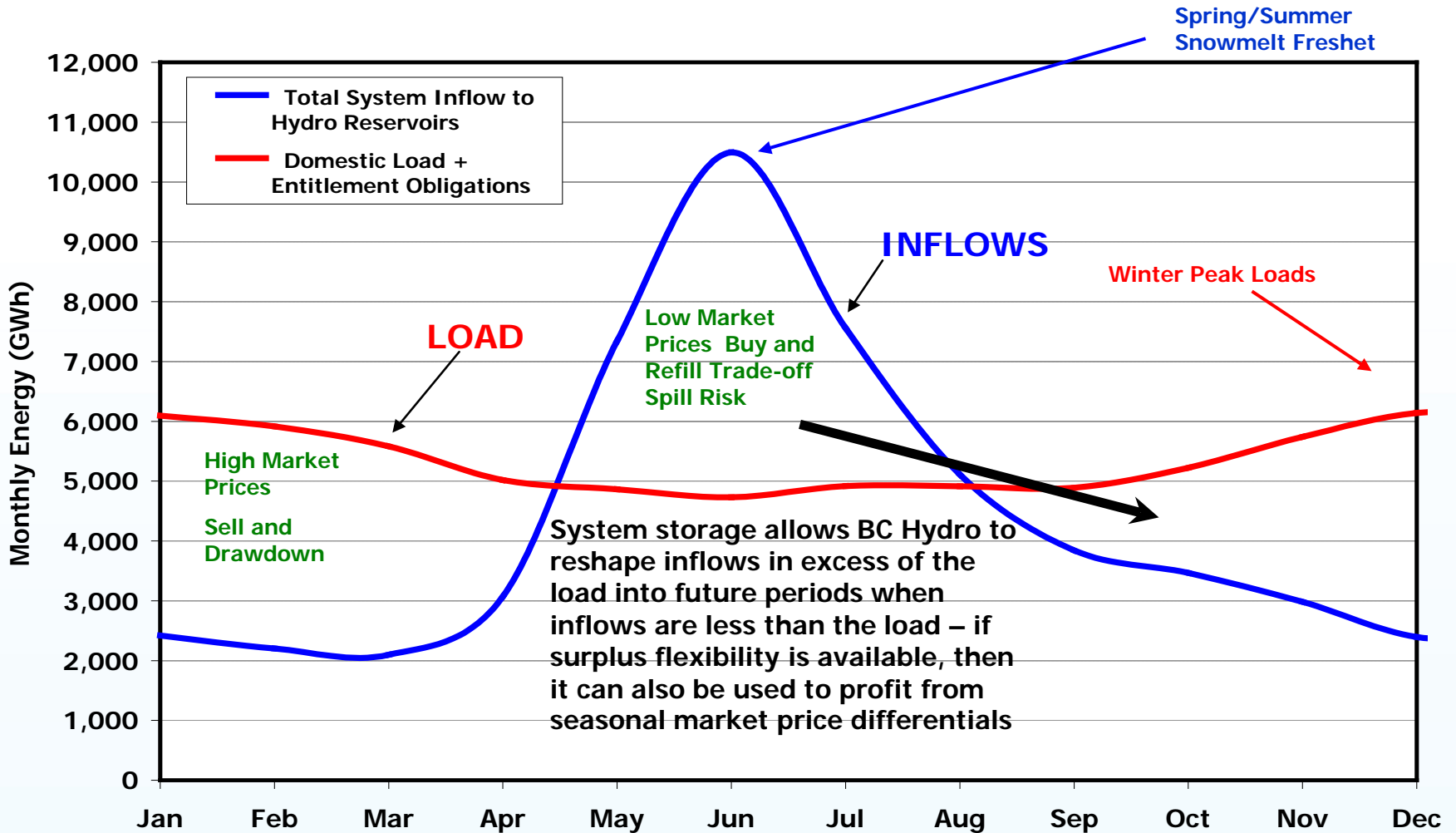
### November 2013 Government Response to IEPR:

- “A rate design review process will be launched to examine ways to provide industrial customers with more options to reduce their electricity costs.”
- “BCH will implement a voluntary load curtailment program with industrial customers starting in 2015.”

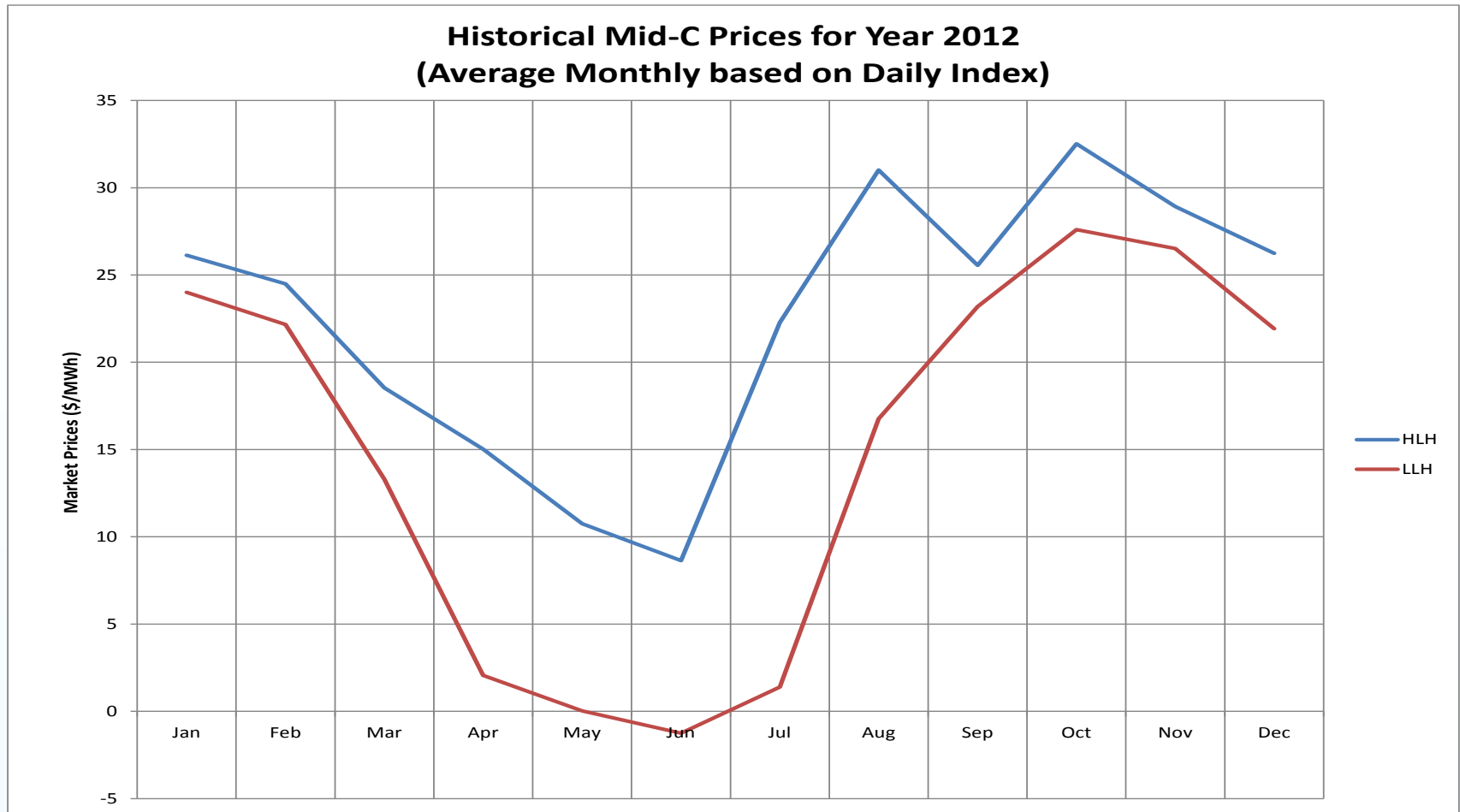
## B. FRESHET RATE:

- Freshet energy oversupply
  - long-term recurring issue for BC Hydro
- Approved 2013 IRP:
  - Chapter 6 of the IRP identified “Increase loads during freshet periods” as one of the potential mitigation measures to the freshet oversupply/low market price concerns
- Freshet rate
  - Encourages industrial customers to increase electricity consumption during freshet periods

## B. FRESHET RATE - ANNUAL LOAD & INFLOW PROFILE - ILLUSTRATION

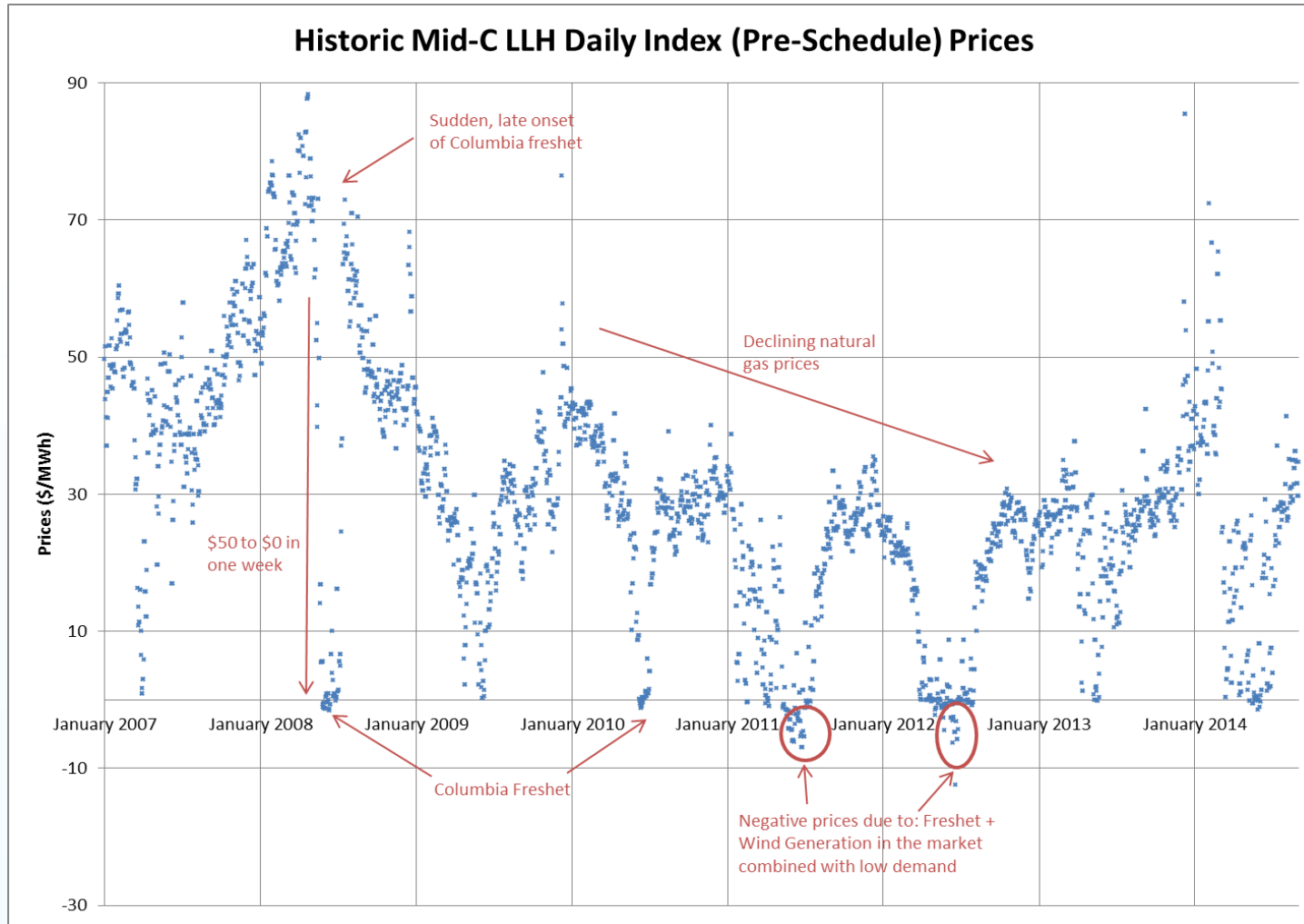


## B. FRESHET RATE - ANNUAL MARKET PRICE PROFILE



Also need to consider transmission cost outside of the Province

## B. FRESHET RATE - HISTORICAL LIGHT LOAD HOUR MARKET PRICES (MWH)



Light load hour (LLH): Sunday + Mon to Sat 10:00 pm to 6:00 am

Many variables drive the prices, e.g.:

- Gas and GHG prices
- Water variability
- Timing of freshet and U.S. wind generation

### B. FRESHET RATE – BENEFITS

- BC Hydro's system generally has an oversupply of energy during freshet
- Freshet period based on system need: May to July
- Electricity market prices during freshet are very low, sometimes negative
- A freshet rate would provide financial and operational benefits to BC Hydro:
  - Instead of selling surplus to market
  - Reduce probability of spills at BC Hydro facilities
  - Increase the ability to import cheap electricity to maximize trade benefits
- Beneficial to both participating and non-participating customers



## B. FRESHET RATE – POTENTIAL ATTRIBUTES

- Available for “incremental” production or generator turndown (BC Hydro had a self-generation turbine turndown rate in 1990’s: RS 1844)
- Freshet period – May, June, July
- Provided on an “as available” basis, so no advancement of infrastructure to provide service under freshet rate
- Average monthly price or Separate High Load Hour/Light Load Hour (HLH/LLH) prices
- Announced annually probably January or February - Two options:
  - Fixed price - Market forward price
  - Hourly market price - BC Hydro’s opportunity cost (i.e., Mid-C price with adjustments)
- Incremental consumption under freshet rate would not affect CBL and demand charge

## B. FRESHET RATE – CONSIDERATIONS & COMPLEXITIES

- Determination of “incremental” production and energy usage during freshet periods
- Should shifts in production from non-freshet periods to freshet periods be considered?
- Ability of customers to ramp up production for 3 month period only
- Interplay with turn-down provisions in electricity purchase agreements

## C. LOAD CURTAILMENT

- A tool to reduce electricity consumption during high demand periods (reduce capacity need)

### Typical Objectives:

- Defer long term capacity resources (primary objective for the IRP recommendation):
  - Generation
  - Transmission (location specific, needs to be assessed case by case)
- Take advantage of Market opportunities
- Short-term contingencies
  - Generation: Operational capacity shortage or insurance (e.g. 2007 BC Hydro load curtailment program)
  - Transmission: Local constraint relief

## C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - TIMING

Based on the approved IRP:

	Now to F2016	F2017 to F2018	F2019 to F2023	F2024 onwards until around F2030
Base Resource Plan (BRP)	Surplus	<p><b>Surplus</b></p> <p>Plans on successful Demand Side Management (DSM) delivery of 950 MW and Electricity Purchase Agreement (EPA) renewals of 150 MW by F2018</p>	Planned market reliance (<300 MW)	<p><b>Surplus</b></p> <p>Plans on successful Site C build out, DSM delivery of 1,700 MW and EPA renewals of 550 MW by F2024</p>
BRP with Expected Liquefied Natural Gas (LNG)	Surplus	<p><b>Surplus</b></p> <p>Plans on successful Demand Side Management (DSM) delivery of 950 MW and Electricity Purchase Agreement (EPA) renewals of 150 MW by F2018</p>	Planned market reliance (<300 MW) and gas peakers to meet LNG capacity need	<p><b>Surplus</b></p> <p>Plans on successful Site C build out, DSM delivery of 1,700 MW and EPA renewals of 550 MW by F2024</p>

## C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - TIMING

On an expected basis (F2019 to before Site C):

- Reduce market reliance

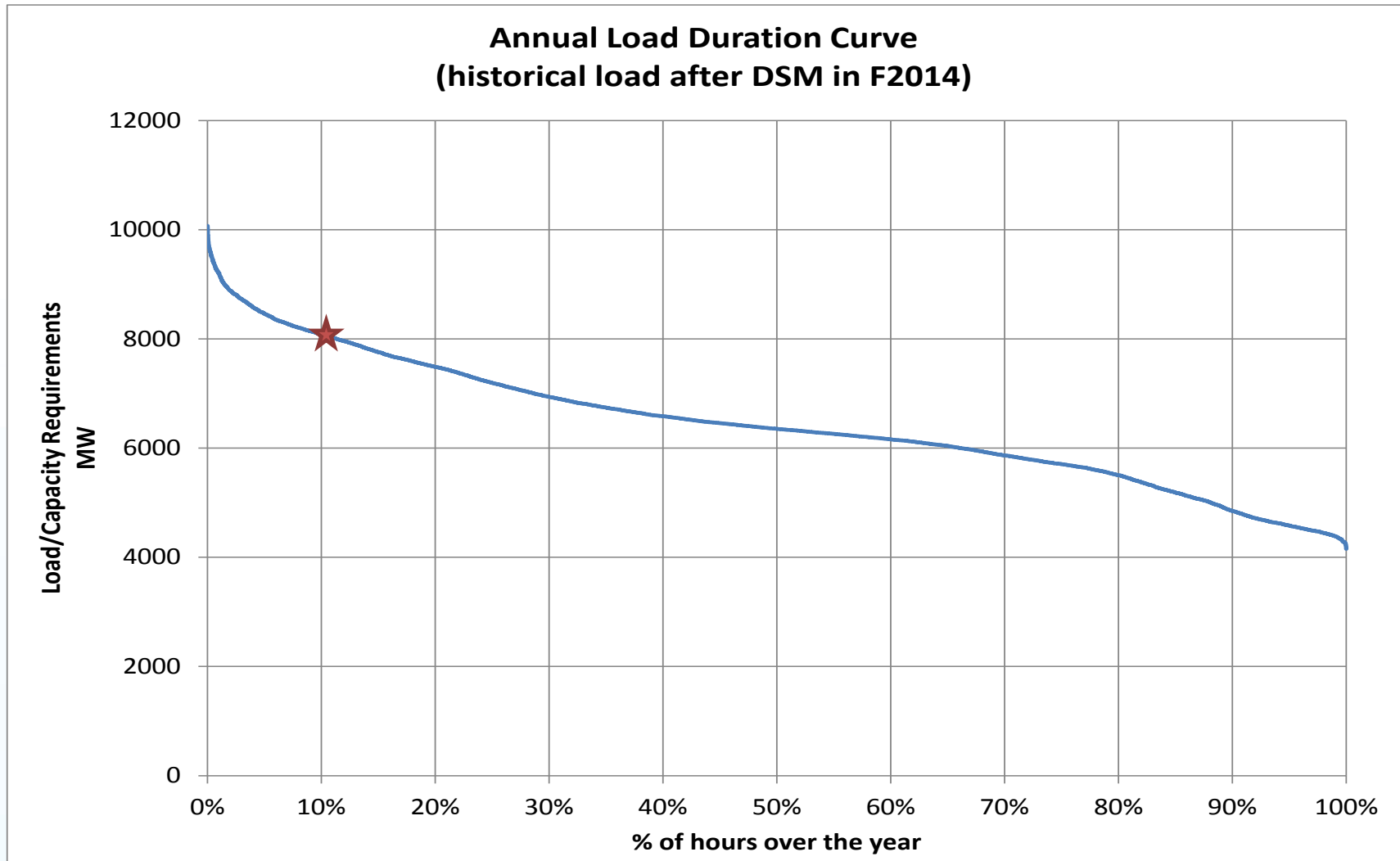
On a planning contingency or longer term basis (uncertainty):

- Load growth
- LNG load
- DSM deliverability and its capacity contribution
- Contribution from intermittent IPP/EPA renewals
- Site C approval

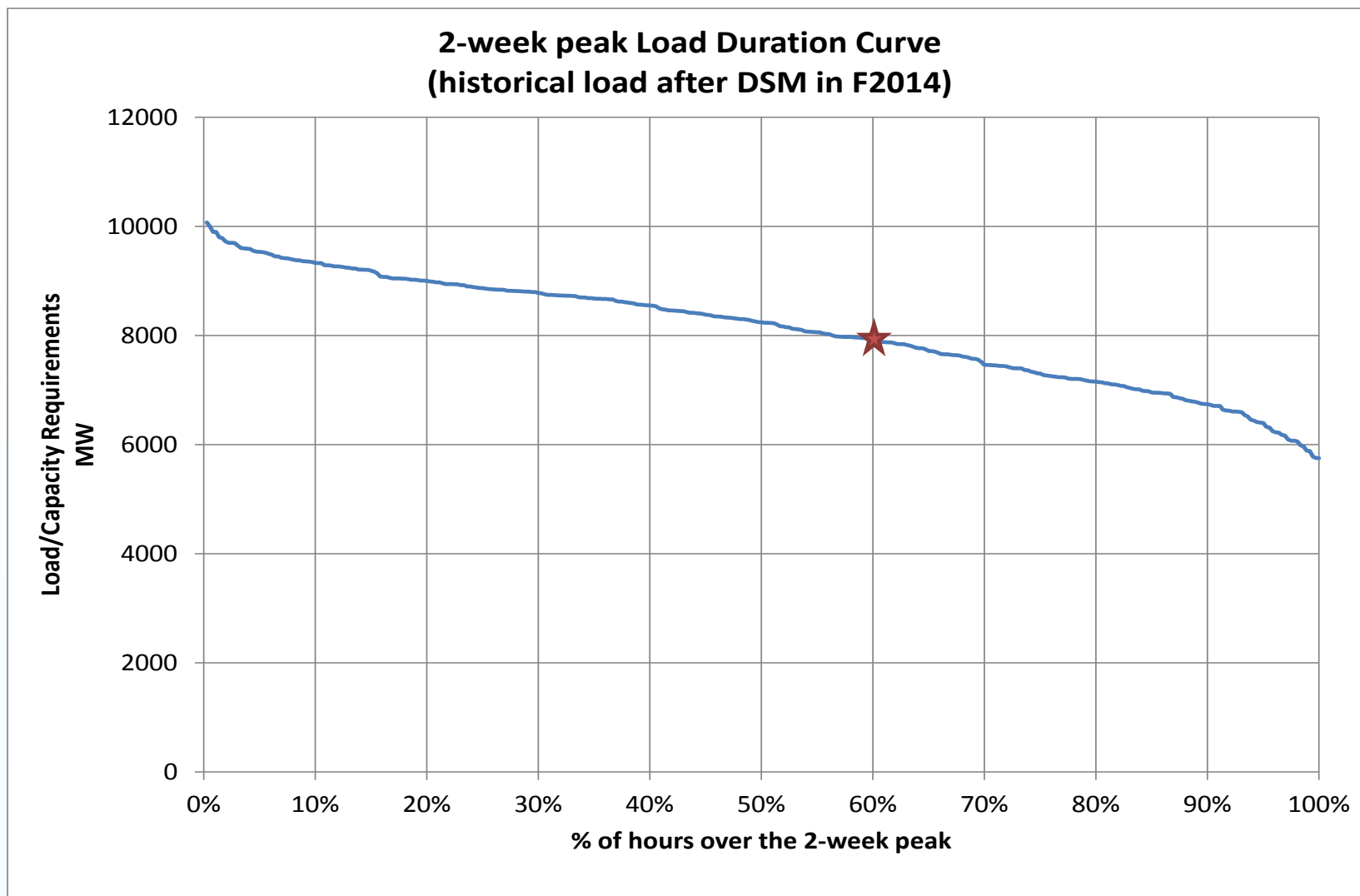
Limited capacity resource options before Pumped Storage:

- Revelstoke Unit 6 (Rev 6)
- Default capacity resource after Rev 6: Simple Cycle Gas Turbines (SCGTs) (within the *Clean Energy Act's* 7% non-clean headroom)

## C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - CHARACTERISTICS



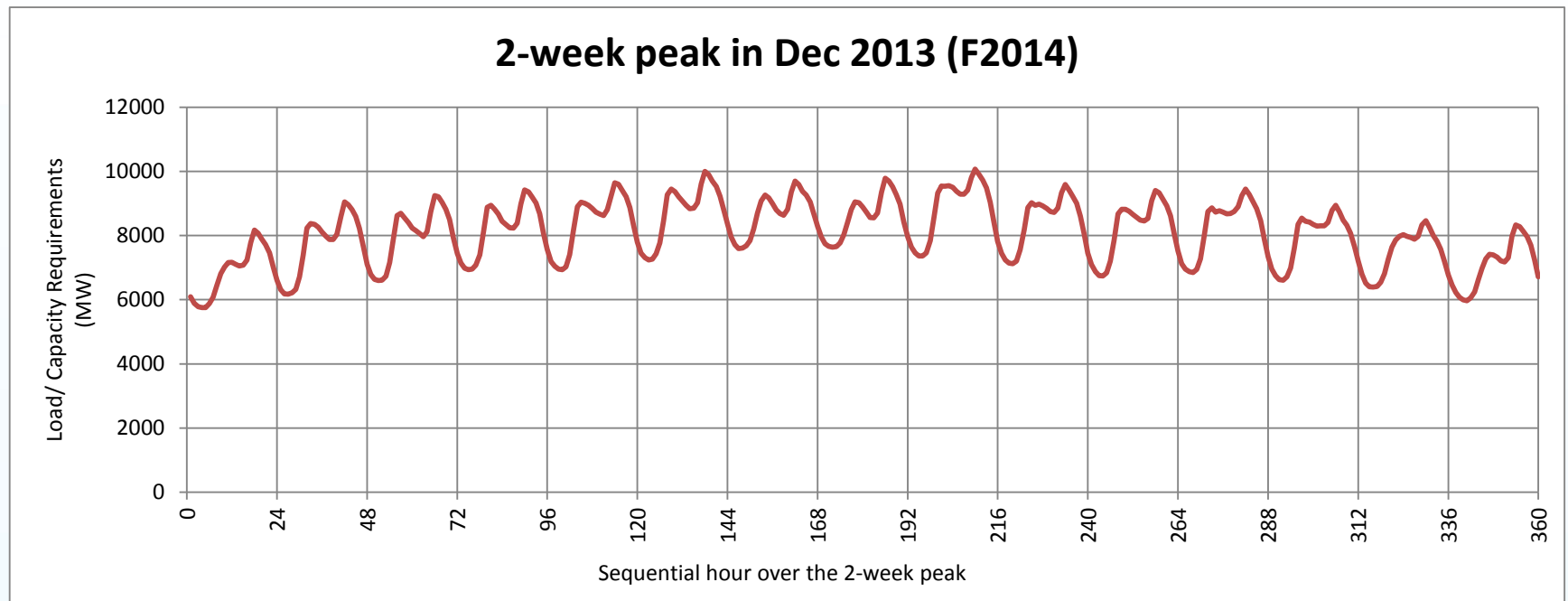
## C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - CHARACTERISTICS



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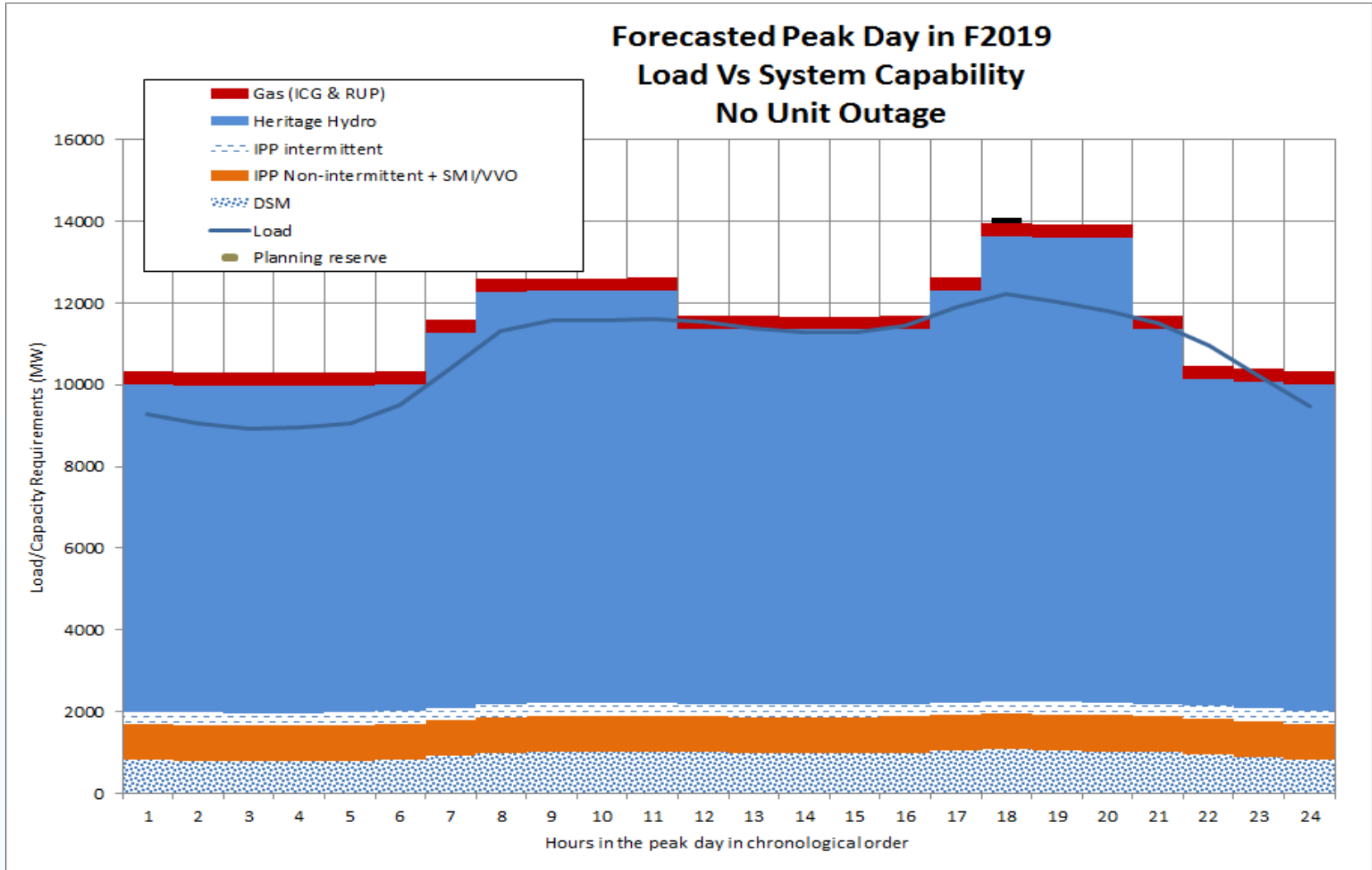
Reliably serve load during peak periods:

- 2 week cold snap
- multiple occurrence in the winter
- November to February

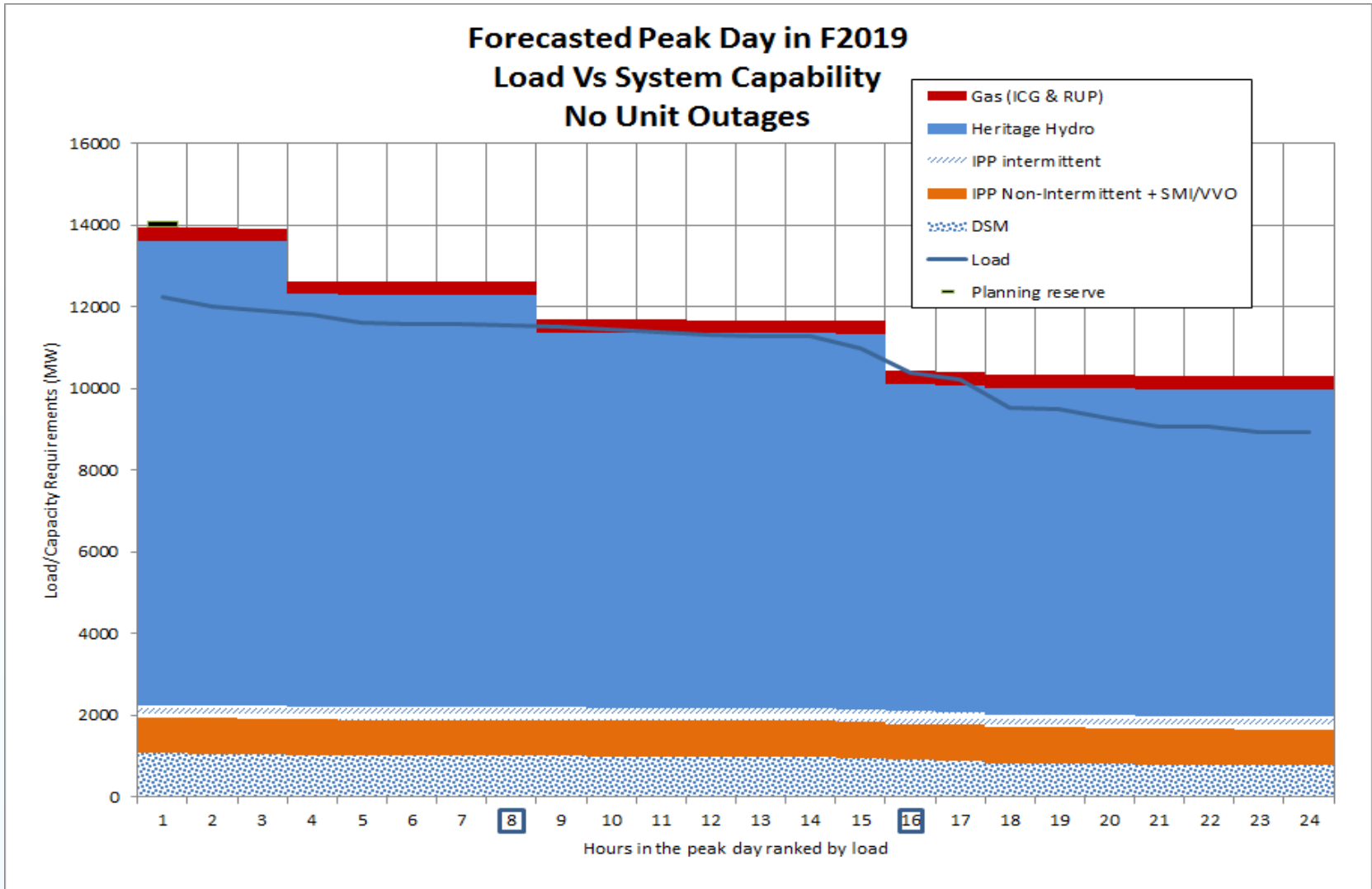




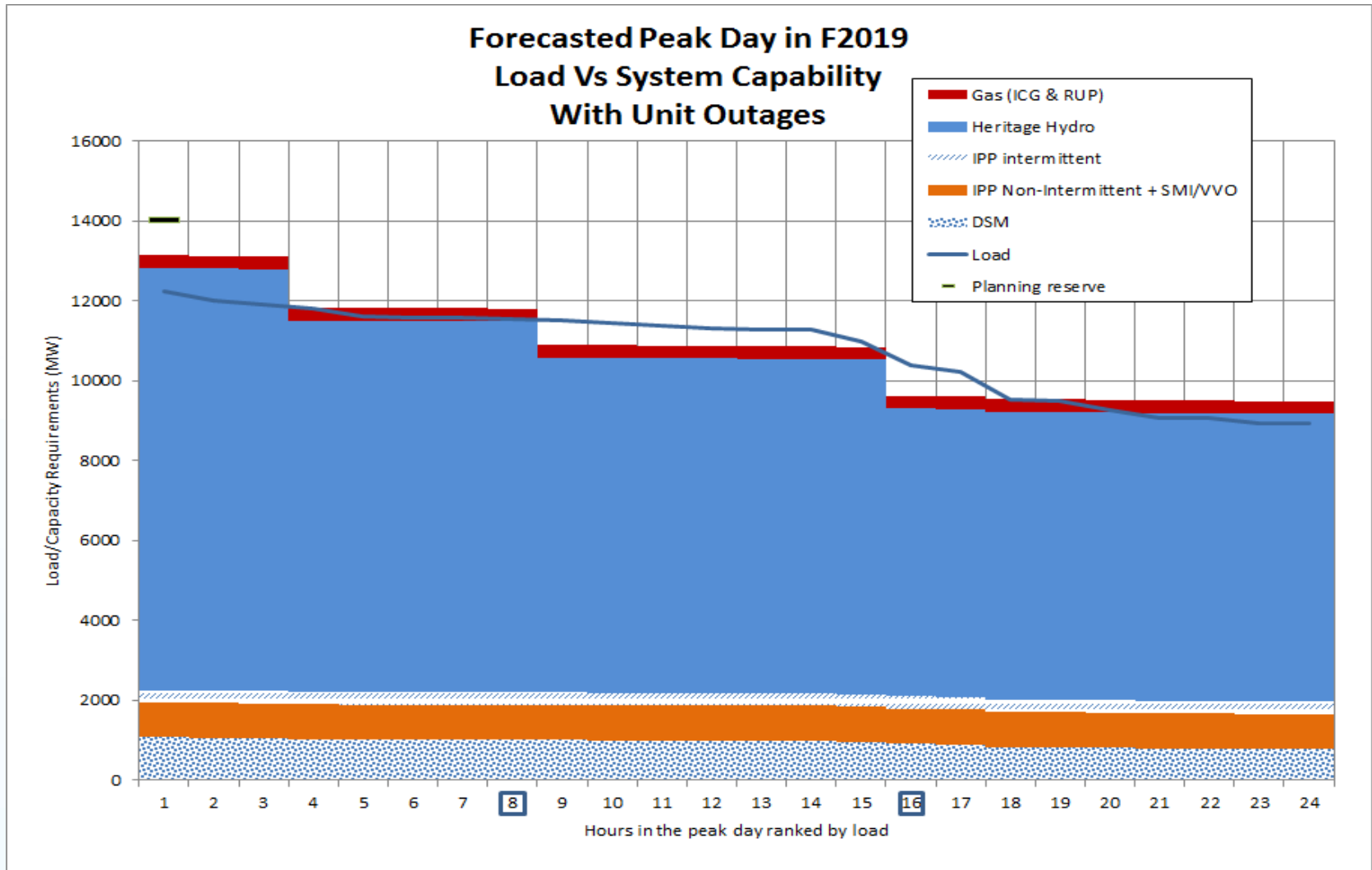
### C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - CHARACTERISTICS



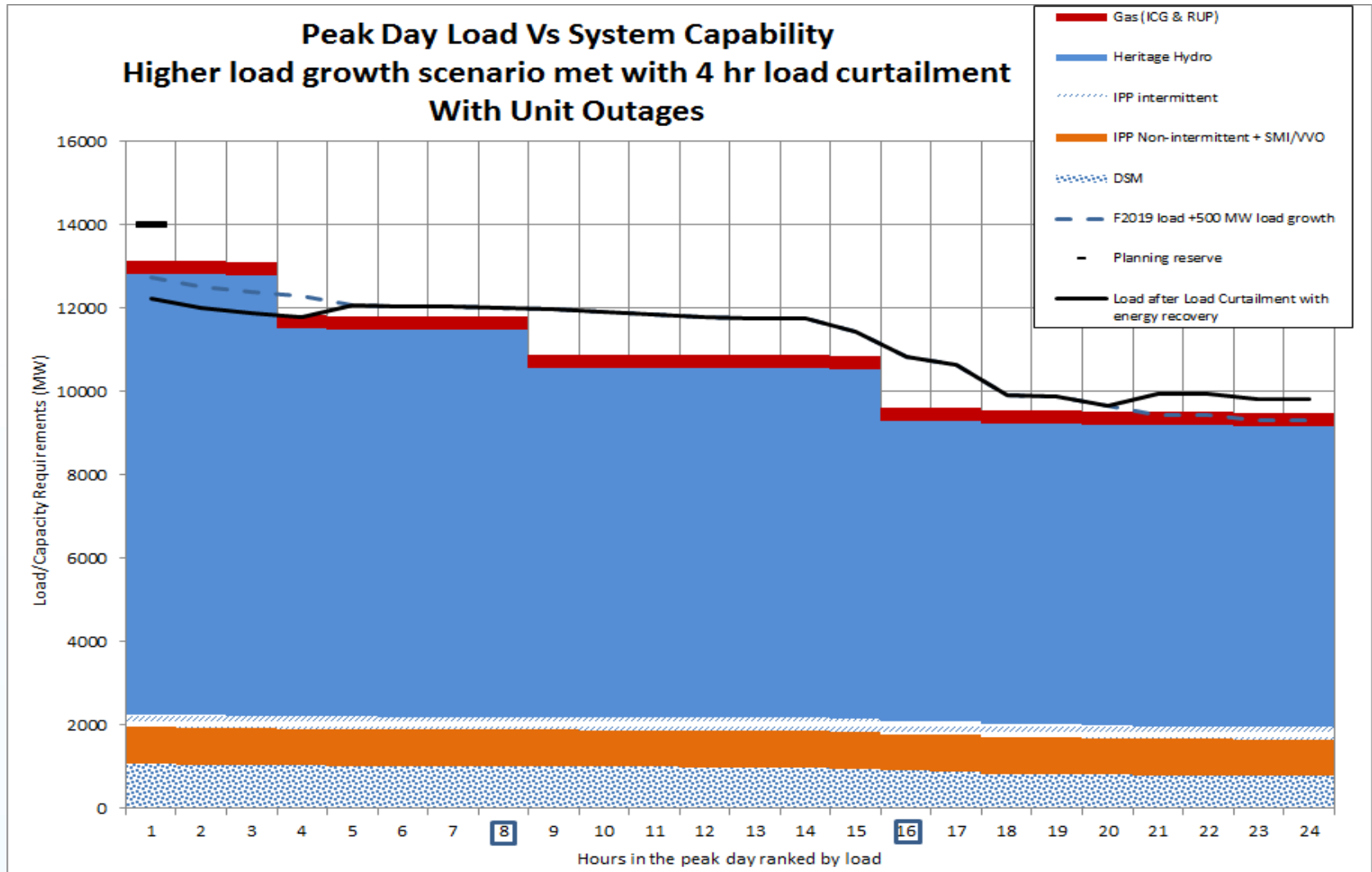
### C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY – CHARACTERISTICS



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## C. LOAD CURTAILMENT - NEED FOR GENERATION CAPACITY - SUMMARY

### Timing:

- **On an expected basis, limited need**
- **However, significant uncertainties on load forecast and resource delivery**

### Characteristics:

- Shoulder hours during peak periods (8 to 16 hours) becoming energy constrained
- 2-week cold snap can happen multiple times a year, anytime during winter (November to February)

## C. LOAD CURTAILMENT - GENERATION CAPACITY SYSTEM REQUIREMENTS:

Rev 6 and SCGT with 18% capacity factor provide the following:

- 16 hours/day
- Monday to Saturday each week
- Available any time during the winter (November to February)
- Long-term commitment
- High degree of dispatch certainty

## C. LOAD CURTAILMENT - VALUE OF CAPACITY RESOURCES TO BC HYDRO

Value is relative to generation capacity alternatives

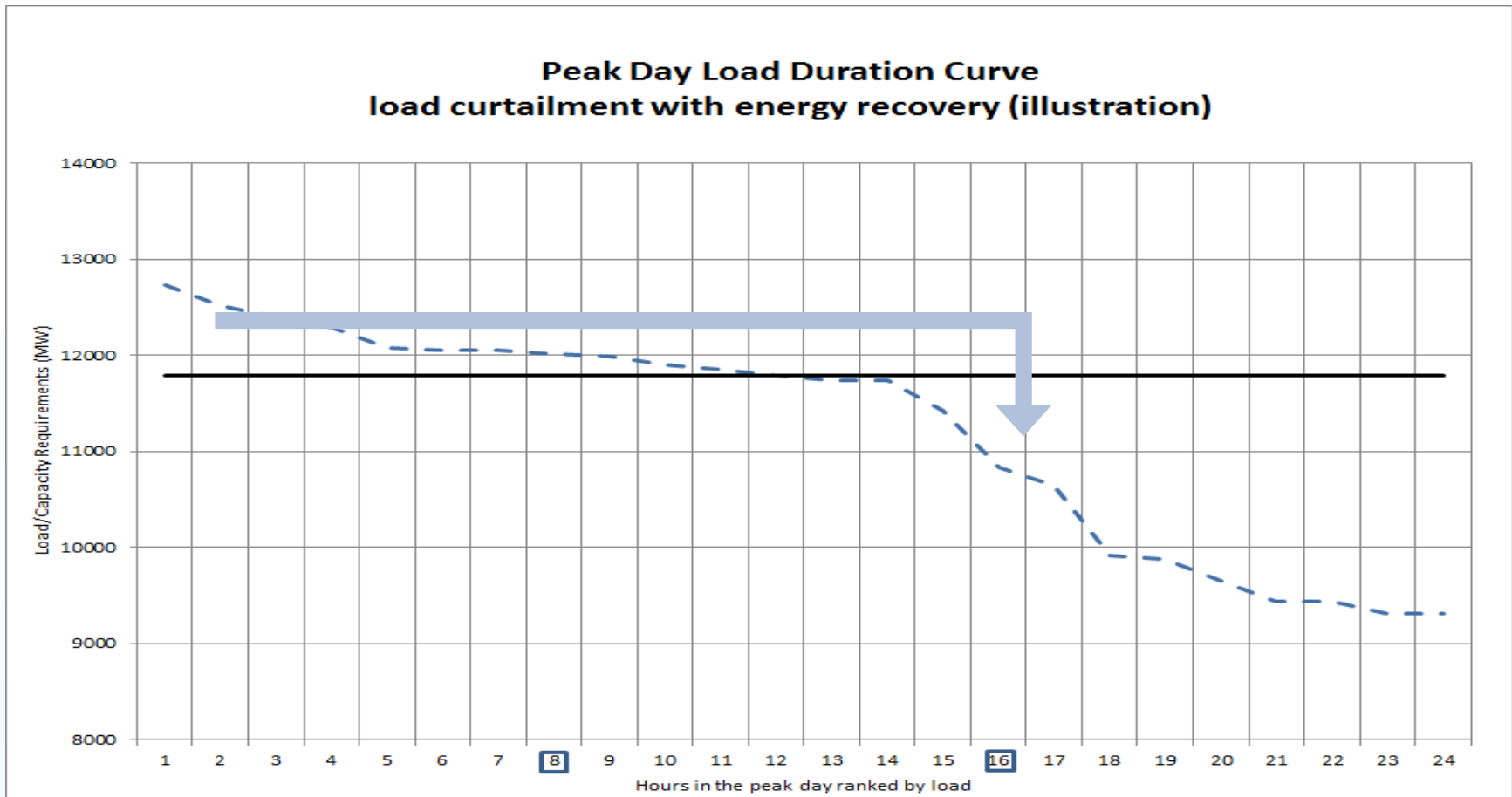
Need	Resource Options	Unit Capacity Cost \$/kW-yr	Capacity Potential
Expected in the mid term for a short time but uncertainty given self sufficiency requirement, not a long term alternative	Market	~ 30	planned reliance in current BRP <300 MW
Expected in the long term & Contingency in the mid term	Rev 6	50 - 55	488 MW
	SCGT	88*	up to 600 MW by F2024 given 18% capacity factor requirement & 93% clean objective, also permitting uncertainty
Expected in the distant future & Contingency sooner	Pumped storage	124**	

\* The net cost of SCGT would depend on the dispatch cost (including gas price) relative to the benefits from reducing energy need.

\*\* Each pump and generate cycle has about 30% energy loss which results in additional need for energy and therefore substantial cost impact. This impact is additional to the cost shown.

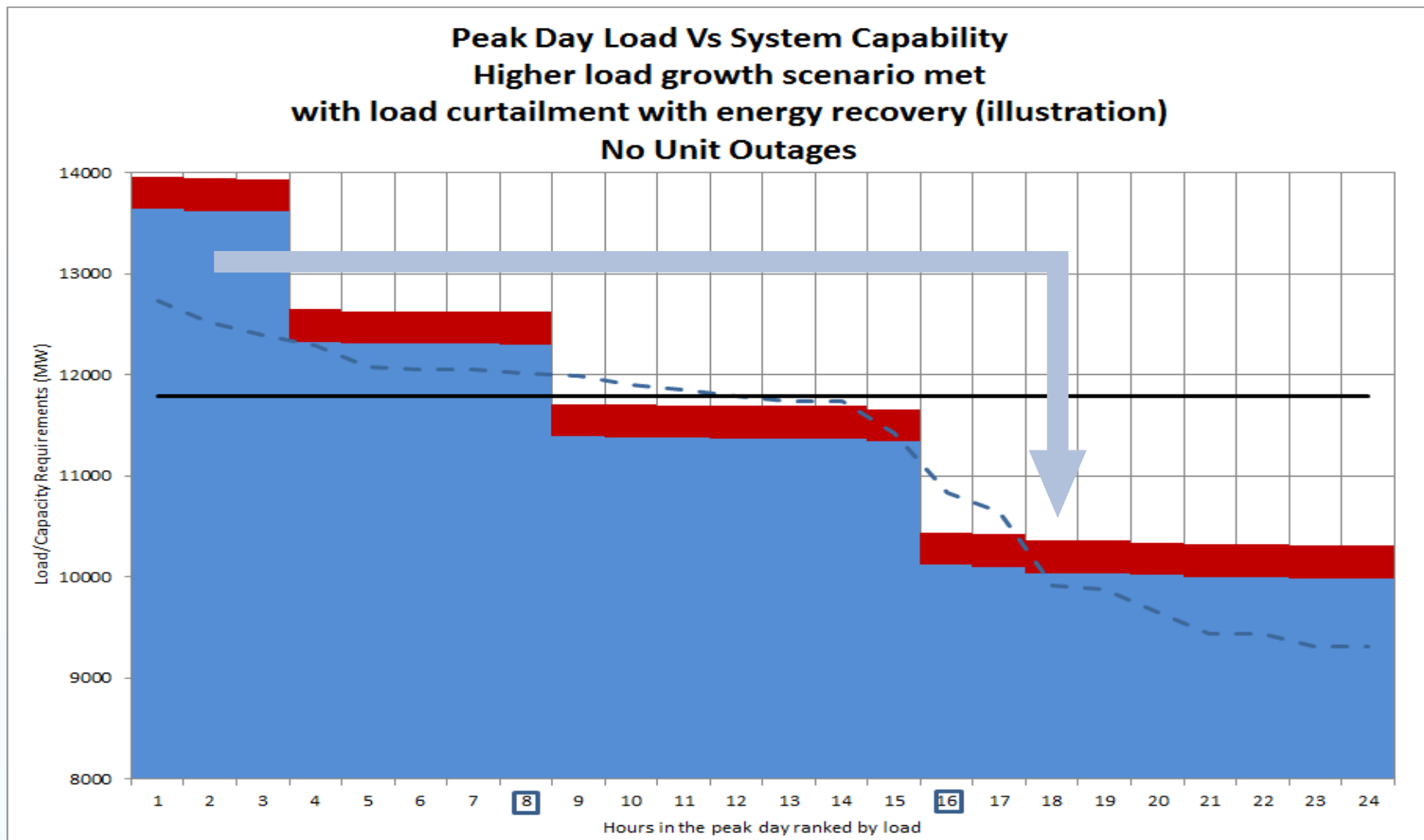
## C. LOAD CURTAILMENT CONSIDERATIONS

- Recovery pattern has impact on system capacity need





## C. LOAD CURTAILMENT CONSIDERATIONS



## C. LOAD CURTAILMENT - VALUE FOR GENERATION CAPACITY - SUMMARY

- Short-term value is based on the market
- Value in learning about deferring long-term generation resources
- Both Rev 6 & SCGTs yield:
  - Reliability benefits:
    - provide dependable capacity to meet load
  - Economic benefits:
    - dispatchable and almost always available to shape energy from low to high value periods
    - fast acting dispatchability to provide ancillary services (e.g. regulation, operating reserves, voltage support)
- **Value should reflect characteristics**

## C. LOAD CURTAILMENT CONSIDERATIONS - SUMMARY

Balancing capacity and potential participant needs:

- Monday to Saturday each week for 2 consecutive weeks (an event)
- 2-week event can be expected at least 3 times a year, any time during the winter (November to February)
- Aggregation to 16 hours/day in winter (recovery has impact on feasibility); up to 4 hours for remainder of year
- Long-term commitment (5 years)
- High degree of dispatch certainty

## C. BC HYDRO'S 2007 LOAD CURTAILMENT PROGRAM

- **Developed for operational contingency:**
  - Evergreen (1 year, renewed by actual agreement) and fixed term (commitment between 3 to 7 years) agreements
  - Insurance product - not curtailed on an expected basis
  - Only required for operational time horizon
  - 4 hour blocks once per day
- **Curtailed capacity:**
  - 355 MW, 309 MW and 257 MW were available in F2008, F2009 and F2010 respectively.
- **Customers indicated different pricing/options would be considered if longer term commitment offered**

## C. LOAD CURTAILMENT - JURISDICTIONAL REVIEW

Winter peaking jurisdictions were the focus of the jurisdictional review:

- Manitoba Hydro – optional curtailable program is for operational contingency (maintaining operating and contingency reserves), not a planning resource and not used to facilitate market transactions
- Hydro Quebec – optional interruptible rate for operational purposes (reduce short-term use of market and short-term reliability issues)
- SaskPower – optional program for short-term operational and market issues, not long-term planning resource

## C. LOAD CURTAILMENT - JURISDICTIONAL REVIEW

### MANITOBA HYDRO CURTAILABLE PROGRAM

- An optional program that allows larger customers to nominate a portion of their load to be curtailed
- Manitoba Hydro offers four base options which vary by notice period, maximum duration of curtailment, maximum number of curtailments per year, maximum annual hours of curtailment
- Duration: 3 of 4 options – maximum of 4 hours per curtailment period
- Provides the ability to maintain generation reserves and not have to shed firm load in the event of loss of generation or transmission

## C. LOAD CURTAILMENT - JURISDICTIONAL REVIEW

### MANITOBA HYDRO CURTAILABLE PROGRAM CONT'D

- The curtailable load is assigned a long-term levelized value that is 42% of the annual carrying cost of a SCGT (in 2012 assumed \$78/kw-year for SCGT)
- Manitoba Hydro in regulatory filings stated that curtailable load is less valuable than a generation resource such as a SCGT because:
  - It has limited dispatchability
  - It is not guaranteed to exist in the long term

## C. LOAD CURTAILMENT - JURISDICTIONAL REVIEW:

### HYDRO QUEBEC INTERRUPTIBLE ELECTRICITY OPTION – LARGE POWER

An optional interruptible rate for large power customers:

- Customer is offered credits in exchange for curtailing electricity consumption at utility's request
- Reduce the use of short-term markets for energy purchases and address short term reliability issues caused by adverse weather conditions in the winter
- Fixed capacity payment credit is based on cost of purchasing capacity on the New York market
- Duration is 4 to 5 hours



## C. LOAD CURTAILMENT - JURISDICTIONAL REVIEW:

### SASKPOWER OPTIONAL PROGRAMS

- Two optional programs offered based on differing notice periods, fixed payments
- Contract length is 1 year, so not a planning resource
- Duration is 4 hours per event

## D. RS 1825 – TOU RATE

- **Revenue Neutrality** - RS 1825 is revenue and customer bill neutral to the RS 1827 flat rate at 100 per cent of CBL in the same way as RS 1823
- **Customer Base Line** - The RS 1825 customer's annual CBL (which is the sum of the four unique TOU periods) is the same as it would be if the customer was receiving service under RS 1823
- **No Takers** - No transmission voltage customer has chosen RS 1825 since it was established in 2005
  - A number of reasons for this were cited in the Transmission Service Rate Three-Year Summary Report (September 2009)
  - Many of these reasons were reiterated in IEPR submissions and through RDA engagement

## D. RS 1825 – TOU

- For F2015, the RS 1825 rates are as follows:

	Number of Hours	Tier 1 Rate (\$/MWh)	Tier 2 Rate (\$/MWh)
Winter HLH CBL (November - February)	1,600	36.19	89.52
Winter LLH CBL (November - February)	1,280	36.19	81.13
Spring CBL (May-June, 7 x 24)	1,464	36.19	72.26
Remainder months CBL (March, April, July, August, September, October: 7 x 24)	4,416	36.19	79.23
<b>Total/Weighted Average</b>	<b>8,760</b>	<b>36.19</b>	<b>80.22</b>

## D. RS 1825 TOU

### 1. Insufficient Price Signal

- TOU pricing is restricted to the second tier and is too flat to incentivize shifts in load

### 2. Default RS 1823 More Beneficial

- RS 1823 allows customers to benefit by conserving energy rather than shifting load
- The RS 1823 demand charge has a time of use element and can be reduced by shifting energy use to LLH from HLH

### 3. Customer Suitability

- Only a subset of customers have the ability to shift energy usage to benefit from a TOU rate

### 4. Complexity

- Management of 4 CBLs

## D. RS 1825 - TOU

- Through engagement BC Hydro has heard there is overlap between a TOU rate and a load curtailment program
- To date, BC Hydro has heard more support for a load curtailment program

## E. Retail Access

- There are different forms of retail access: 1) physical access to B.C.-based generation only (IPPs); 2) physical access to the spot market; and 3) market price indexing
- The previous retail access program focused on #1 and was suspended by the BCUC in 2012
- Retail access was considered in the IEPR as way to provide industrial customers with the ability to reduce their electricity costs
- In response to the IEPR, government stated that BC Hydro will develop additional options to help industrial customers reduce their costs.
- BCUC Order G-36-14 cancelled the previous retail access program in March 2014
- Section 14 of Direction No. 7 prohibits the establishment of retail access without an application by BC Hydro

## E. Retail Access - Benefits

- Participating customers benefit to the extent market prices are below the TSR Tier 1 and Tier 2 rates
- Enhanced customer choice – customers can choose additional suppliers

## E. Retail Access - Challenges

- If retail access energy is acquired from external markets, there are negative impacts on non-participating ratepayers including:
  - Stranded investment risk to extent infrastructure was built or resources were acquired to serve customers that now choose to purchase from other suppliers
  - Trade income may be negatively impacted to the extent BC Hydro backstops third party purchases

### Example:

Assuming a customer displaced 100 GWh of Tier 2 energy priced at \$74/MWh, there would be a \$7.4 million revenue loss. Part of this could be made up by BC Hydro increasing exports or decreasing imports (~\$30/MWh in revenue), but there would still be about a \$44/MWh or 4.4 million loss that would need to be collected from non-participating customers through rates.

- BC Hydro believes there are better options than retail access to give industrial customers low cost options



## TOPIC 3: OTHER RS - RS 1827 EXEMPT RATE

- Currently, there are four transmission-voltage customers that have been exempted from stepped (inclining block) rates and receive service under RS 1827:
  1. City of New Westminster;
  2. UBC;
  3. SFU;
  4. YVR
- These customers represent about 6 percent of total energy sales under transmission service rates

## OTHER RS: RS 1827 EXEMPT RATE CONT'D

### Three Potential Options for RS 1827:

**Option 1 - Status Quo**– Propose no change to the RS 1827 structure

- Misalignment with “Bonbright” efficiency criteria as rate applicable to marginal consumption under RS 1827 is the blended rate

**Option 2 - Transfer to RS 1823**

- Absent changes to Direction No. 7, for New Westminster and UBC a move to RS 1823 would likely proceed by way of a Section 5 Utilities Commission Act inquiry, with BCUC recommendation to the Government and ultimately a change to Direction No. 7
- Bill impact to RS 1827 customers would depend on the level of load growth

## OTHER RS - RS1827 EXEMPT RATE CONT'D

**Option 3** - Transfer to New Marginal Cost Rate – e.g., Similar to RS 3808

- Tier 1 at RS 1827 Blended Rate
- Tier 2 at LRMC
- CBL could include allowance for load growth
- Bill impact to RS 1827 customers would depend on the allowance for load growth

## OTHER RS – RS 1880 GENERATOR STANDBY RATE

- Available to Transmission Service Customers with non-contracted self-generation
- Replacement energy during outages of customer's on-site generation
- Provided on an “as available” basis
- No demand charge since service is non-firm
- Energy purchases do not effect customer's CBL
- Energy charge is aligned to the RS 1823 Tier 2 Price (i.e., LRMC based:\$80.22 per MWh in F2015)
- Administration charge of \$150 per incident

## OTHER RS - RS 1880 GENERATOR STANDBY RATE CONT'D

- In F2014, about 40 GWh was sold under RS 1880 representing about \$3 million in revenues
- 287 “events” in F2014
- Stakeholder engagement to date suggest an overall satisfaction with the rate

## OTHER RS - RS 1853 IPP STATION SERVICE

- Available to IPPs served at Transmission voltage
  - Electricity is provided to the extent that BC Hydro has the energy and capacity to do so
  - Electricity is provided solely for the purpose of maintenance and black-start purposes
- Pricing is aligned to the hourly Mid-C firm HLH and LLH indices
- Stakeholder engagement to date has identified no issues with this rate structure

## OTHER RS - RS 1852 MODIFIED DEMAND

- Available to customers who receive service under RS 1823 who are in a location which will:
  - a) Allow BC Hydro to curtail load to alleviate a potential local or regional transmission constraint; or
  - b) Allow BC Hydro to take advantage of market opportunities.
- In a) above, for the purposes of calculating Billing Demand HLH is defined as 06:00 to 10:00 and 16:00 to 20:00 Monday to Friday, excluding statutory holidays
- In b) above, for the purposes of calculating Billing Demand HLH is defined as 06:00 to 22:00 Monday to Friday, excluding statutory holidays
  - This is the same as under RS 1823 with the exception that Saturday is excluded
- Stakeholder engagement to date has identified no issues with this rate structure

## NEXT STEPS

- Target for posting Summary Workshop notes by 31, October 2014
- Followed by a 30 day comment period
- Send comments to [bchydroregulatorygroup@bchydro.com](mailto:bchydroregulatorygroup@bchydro.com)
- Next TSR rate structures workshop will be in March 2015



# THANK YOU

SEND COMMENTS TO:  
[bchydroregulatorygroup@bchydro.com](mailto:bchydroregulatorygroup@bchydro.com)

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please contact:

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