2015 RATE DESIGN APPLICATION

WORKSHOP AGENDA – MAY 8TH, 2014

Facilitator: Anne Wilson, BC Hydro

BC hydro
FOR GENERATIONS

8 May 2014

MAY 8TH WORKSHOP #1 - AGENDA

Approximate Time	Item	Presenter
9:00 - 9:15	Welcome and Agenda Review	Janet Fraser / Anne Wilson
9:15 - 10:00	1. Introduction, Scope and Context	Gordon Doyle / Craig Godsoe
10:00 - 10:45	2. Cost of Service (COS)/Rate Rebalancing	Justin Miedema
10:45 - 11:00	BREAK	
11:00 - 11:45	3. Rate Structures for Residential, three General Service categories, Irrigation and Street Lighting	Rob Gorter
11:45 - 12:30	4. Rate Structures for Transmission service customers	David Keir
12:30 - 2:00	LUNCH	
2:00 – 3:00	5. Transmission Extension Policy	David Keir
3:00 - 3:45	6. Distribution Extension Policy	Rena Messerschmidt
3:45 - 4:00	Close and Next Steps	Anne Wilson

WORKSHOP #1 PARTICIPANT FEEDBACK

BC Hydro is seeking participant feedback on:

- Proposed in-scope and out of scope items for 2015 RDA
  - Items bolded throughout presentations
- Proposed engagement process
- Any additional comments

Methods of collecting feedback from Workshop #1:

- High level summary of issues from today
- Feedback Form – handout and posted on website
- Written comments

Three Week Comment Period: Feedback Due May 30, 2014

Contact Information:

- 2015 Rate Design Application Website: http://www.bchydro.com/about/planning_regulatory/regulatory.html
- Fax number: 604-623-4407
- Email: bchydroregulatorygroup@bchydro.com

Please address all emails and faxes : **“Attention 2015 RDA”**

2015 RATE DESIGN APPLICATION

INTRODUCTION TO AND CONTEXT FOR BC HYDRO'S 2015 RATE DESIGN APPLICATION

Presenters: Gordon Doyle, Regulatory Manager, Craig Godsoe, Sr. Solicitor & Counsel

BC hydro
FOR GENERATIONS

8 May 2014

PURPOSE OF FIRST WORKSHOP

- Highlight issues identified through:
  - Previous British Columbia Utilities Commission (BCUC) decisions
  - 2013 Industrial Electricity Policy Review (IEPR)
  - Matters raised by customers since BC Hydro's 2007 Rate Design Application (RDA), the last BC Hydro comprehensive rate design application;
- Obtain feedback on BC Hydro's proposed 2015 RDA scope; and
- Outline proposed next steps for and obtain feedback on proposed 2015 RDA customer engagement process

ITEMS INFORMING PROPOSED 2015 RDA SCOPE

1. Previous BCUC decisions, in particular:
    1. *2007 RDA*
    2. *2008 Residential Inclining Block (RIB) Application*
    3. *2009 FortisBC COS/RDA*
    4. *2010 Large General Service (LGS) Application Negotiated Settlement*
    5. *2012 Dawson Creek/Chetwynd Area Transmission Project (DCAT) Certificate of Public Convenience and Necessity (CPCN) proceeding*
    6. *2013 RIB Re-pricing Application*
2. Relevant IEPR recommendations and November 2013 BC Government responses
3. Approved November 2013 Integrated Resource Plan (IRP)

2015 RDA SCOPE

- **All 7 customer classes: Residential, Small General Service, Medium General Service, LGS, Irrigation, Street Lighting and Transmission**
- **COS, and Rebalancing within confines of section 58.1 of the *Utilities Commission Act* (*UCA*)**
- **Rate structure design, including relevant IEPR recommendations such as Recommendation #13 to take advantage of industrial power consumption flexibility such as Time of Use (TOU) and/or Interruptible rates, and Recommendation #11: Retail Access (current program cancelled per Direction No. 7)**
- **Transmission and Distribution extension policies, informed by DCAT CPCN proceeding and IEPR submissions for Transmission, and 2007 RDA and customer issues for Distribution**
- **Electric Tariff terms and conditions**

BC HYDRO CURRENT VIEW ON OUT OF SCOPE ISSUES

1. **BC Government policy**
   - **Mandatory TOU for Residential or Commercial customers**
   - **Creation of new regional rates – Postage stamp rates confirmed as BC Government policy in response to IEPR recommendation #9 to continue using postage stamp rates**
   - **Feed in Tariff – Section 16 of *Clean Energy Act* requires cabinet to enact regulation to make this a requirement and Cabinet has not enacted regulation to date**
   - **Specific tariffs for Northwest Transmission Line (NTL) and Liquefied Natural Gas (LNG):**
     - **NTL TS 37 set through BCUC Order G-52-13 per section 8(2) of *Clean Energy Act* - but principles informing TS 37 are in scope (e.g., level of customer contribution)**
     - **Any Electricity Supply Agreements (ESAs) with LNG proponents as a result of the BC Government's LNG Strategy - but principles informing LNG ESAs are in scope taking into account confidentiality requirements**

BC HYDRO CURRENT VIEW ON OUT OF SCOPE ISSUES (CON'T)

2. **Recently Reviewed by BCUC**
   - **Net metering (Rate Schedule (RS) 1289) - 2014: Application currently before the BCUC**
   - **Smart Meter Choices Program charges – April 25, 2014 BCUC decision G-59-14**
   - **FortisBC Power Purchase Agreement (RS 3808) – May 6, 2014 BCUC decision G-60-14**
   - **Customer Baseline Determination (Tariff Supplement (TS) 74) – 2013/2014: Recent BCUC decision G-19-14**

3. **Tariffs outside of load supplying rates – Open Access Transmission Tariff**
4. **Demand Side Management (DSM) program expenditures – but program descriptions in scope to provide context for conservation rate structures**

LEGAL CONTEXT

BCUC's rate setting function governed by sections 58-61 of the *UCA*

- For ease of reference, BC Hydro refers to the legal test that its proposed rates, and the rates to be set by BCUC, must be "fair, just and not unduly discriminatory"
- Section 58.1 limits the BCUC's jurisdiction to set rates for purpose of changing the revenue to cost ratios for customer classes (maximum 2 percentage point increase per year)

Direction No. 6/BCUC Order G-48-14

- Rates set for F2015 and F2016

LEGAL CONTEXT

Direction No. 7

- Section 9 – Rate increase caps of 4% for F2017, 3.5% for F2018 and 3% for F2019 on average; **BC Hydro proposes that these rate increase limits will be assumed for RDA modelling purposes**
- Section 10 – Deferral Account Rate Rider (DARR) is 5% except on application by BC Hydro; **BC Hydro proposes that this DARR level will be assumed for RDA modelling purposes**
- Section 5 – BC Hydro's rates are established on a cost of service basis
- Appendix A is the Heritage Contract

LEGAL CONTEXT

- Section 3 – Raises jurisdictional issues regarding RS 1823 (transmission stepped rate), TS 5 (ESA) and TS 6 (Facilities Agreement)
- Section 3(1) – RS 1823: BCUC “must ensure” that rates for transmission rate customers “are consistent with recommendations #8 to #15 … in the commission’s [October 2003] report and recommendations” e.g., BCUC to establish a stepped rate for transmission customers within certain parameters – 90/10 Tier 1/Tier 2 split
- Section 3(2) – TS 5 and T6 – BCUC “must ensure … the rates for [BC Hydro] transmission rate customers are subject to … the terms and conditions found in Supplements 5 and 6 of [BC Hydro’s] tariff”
- **BC Hydro proposes to proceed as if RS 1823, TS 5 and TS 6 are in scope for the 2015 RDA**

CONTEXT: BONBRIGHT RATE DESIGN CRITERIA & PROPOSED MEASUREMENTS

Bonbright Criteria	Rate Design Consideration	Proposed Measurement
1. Recovery of the revenue requirement	• Do not create a large revenue shortfall that must be re-allocated to a future period	• **Forecast revenue neutrality**
2. Fair apportionment of costs	• Mitigate or avoid unnecessary subsidies between or within classes	• **Cost of Service** • **R/C ratio** • **Range of reasonableness**
3. Signal efficient use	• Promote economically efficient consumption and investment decisions	• **LRMC referent** • **Conservation savings : GWh**
4. Customer understanding and acceptance	• Simple, practical and easy to understand • Forecast bill impacts are reasonable	• **BC Hydro and stakeholder opinion** • **Maximum & customer bill impact %**
5. Practical & cost effective to implement	• Cost and complexity (e.g. education, administration and marketing)	• **BC Hydro and stakeholder opinion** • **Estimated implementation cost**
6. Rate & bill stability	• Build or maintain historical continuity and predictable rates and bills	• **BC Hydro and stakeholder opinion** • **Customer bill impact %**
7. Revenue stability	• Provide predictable and stable revenues over time (given changes in load etc.)	• **Forecast revenue neutrality**
8. Avoidance of undue discrimination	• Do not create adverse bill impacts within or between classes	• **R/C ratio, Forecast revenue neutrality** • **Maximum and customer bill impact %**

BONBRIGHT RATE DESIGN CRITERIA: CUSTOMER BILL IMPACT MEASUREMENT

- Measurement was a significant issue in the 2008 RIB proceeding
- Examples: i) 10% maximum customer bill impact, ii) 2x the class average rate change
- Context
  - Revenue Requirement Application (RRA) rates set for F2016 per Direction No. 6; rate caps for F2017, F2018 and F2019 of 4%, 3.5% and 3% in Direction No. 7 to BCUC
  - Possible bill impacts from rebalancing, subject to subsection 58.1(6) of *UCA* (maximum 2 percentage points)

- **BC Hydro Proposal**:
  - **Maintain 2013 RIB approach - Maximum of 10% bill impact, representing all-in costs (consisting of RRA rate caps + DARR + rate changes due to rate rebalancing + rate changes due to rate design), to single most adversely impacted customer – to be used for modelling purposes**

CONTEXT: LONG-RUN MARGINAL COST (LRMC) OUTLOOK

- LRMC set out in the approved IRP – and will be revisited as part of the IRP Fall 2015 review

Levelized firm energy price for Lower Mainland delivery

- $85-$100/MWh (F2013 real dollars)
- Marginal resources are DSM and Electricity Purchase Agreement (EPA) renewals
- Range reflects uncertainty concerning DSM delivery risk, Site C uncertainty, potential LNG loads, level of cost-effective EPA renewals

Levelized dependable capacity price for Lower Mainland delivery

- $50-$55/kW-year (F2013 real dollars)
- Marginal capacity resource is Revelstoke Unit 6 (next most cost effective)

LRMC APPLICATION TO RATE STRUCTURES

	Residential Inclining Block Rate	MGS & LGS 2-Part Rates	Transmission Service Stepped Rate
	2013 Re-Pricing	**2009 NSA**	**F2015/F2016 Re-Pricing**
Pricing	11.95 c/kWh F2016	9.90 c/kWh F2016	8.50 c/kWh F2016 (7.36 c/kWh F2009-F2014)
Rate Structure	Step 2 rate	2-Part Rate Charge or Credit	Tier 2 rate
LRMC Basis	2013 IRP Load Resource Balance	2006 Call For Tender, Plant Gate	2006 Call For Tender, Plant Gate (7.36 * RRA)
Marginal Resources	Incremental DSM & EPA Renewals	Greenfield IPPs	Greenfield IPPs

PROPOSED CUSTOMER ENGAGEMENT

- Customer engagement reflects breadth of issues, with a number of different methods
- Informed by the following:
    1. 2015 RDA filed: End of June 2015
    2. Other relevant BC Hydro reviews/applications
        - 2015 Q3/Q4: IRP review, including resource options and LRMC
        - 2016 Q1: next RRA for rates effective 1 April 2016

PROPOSED CUSTOMER ENGAGEMENT AND TIMING

- **BC Hydro proposes three main streams:**
    1. **7-10 topic-specific workshops;**
    2. **face-to-face focused meetings; and**
    3. **online ways to provide feedback**

- **BC Hydro proposes two topic-specific workshops for June with materials to be distributed in advance for each topic-specific workshop:**
    - **Thursday, 19 June Workshop - Review of consultant report on BC Hydro's COS methodology and BC Hydro's straw man response to the report**
    - **Wednesday, 25 June Workshop - Review of initial modelling results for RIB – alternatives to the RIB and alternative means of delivering the RIB (e.g., Tier 1/Tier 2 threshold, Basic Charge amount) - and Electric Tariff charges**

- **Written comment periods to be provided after each topic-specific workshop**

- **Additional topic-specific workshops for summer/fall of 2014 – for example: BC Hydro's draft COS analysis; General Service rates; TS 6**

2015 RATE DESIGN APPLICATION

COST OF SERVICE INTRODUCTION AND SCOPE

Presented by: Justin Miedema, Senior Regulatory Specialist

BC hydro
FOR GENERATIONS

May 8th, 2014

OUTLINE

- Background
- RRA, Functionalization, Classification and Allocation of costs
- 2007 RDA Directives currently in COS
- 2007 RDA Directives to be reflected in 2015 COS
- Key methodologies to review
- Rate rebalancing
- Next steps

BACKGROUND

WHAT IS A FULLY ALLOCATED COST OF SERVICE STUDY (COS)?

- Purpose of COS is to allocate costs to distinct customer classes in accordance with costs incurred in serving each class
- Last in-depth review by BCUC was in the 2007 RDA proceeding
- Using the methodology approved by the BCUC in 2007, BC Hydro updates COS annually
- The study produces Revenue-to-Cost (R/C) ratios for each customer class

The COS can also be used to:

- Inform rate design
- Set BC Hydro's extension allowances

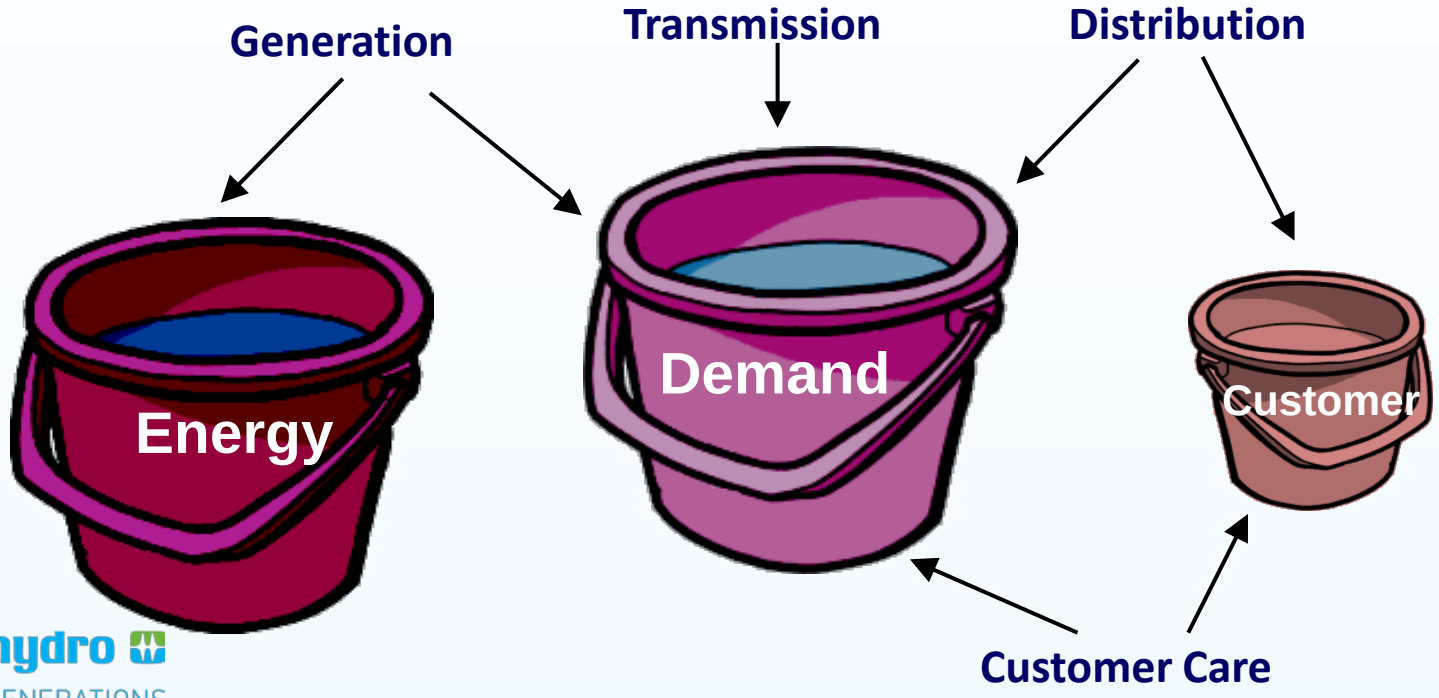
COS STEP 1: REVENUE REQUIREMENT

- A revenue requirement compares overall BC Hydro revenues to its expenses and determines the overall adjustment to rate levels required
- **For purposes of the 2015 RDA COS, BC Hydro proposes to use the F2016 Revenue Requirement**
    - F2016 costs are basis of rates required by Direction No. 6 and recently set by BCUC

COS STEPS 2 & 3: FUNCTIONALIZATION AND CLASSIFICATION

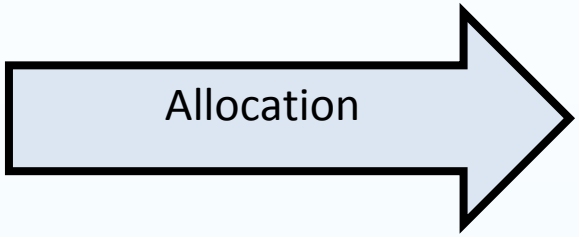
- The second step in COS is to functionalize the revenue requirement – separate cost data into functional activities performed in operation of BC Hydro system (e.g., generation, transmission, distribution and customer care)

- The third step is classify functionalized expenses to traditional cost-causation categories – the three primary classifiers are: energy, demand and customer



COS STEP 4: ALLOCATION

- The fourth step is the allocation of BC Hydro's total functionalized and classified revenue requirement to the customer classes of service.



<u>Current Customer classes:</u>

- Residential
- Small General Service (SGS) (<35 kilowatts (kW)
- Medium General Service (MGS) (35 kW to 150 kW)
- Large General Service (LGS) (>150 kW)
- Irrigation
- Street Lighting
- Transmission

COS STEPS 2, 3 AND 4

Functionalization	Classification	Allocation	% of RRA
Generation	Energy	Energy use	39%
	Demand	Winter coincident peak (4CP)	17%
Transmission	Demand	4CP	16%
Distribution	Demand	Non-coincident peak (NCP)	17%
	Customers	# of customers	7%
Customer Care	Demand	NCP	4%
	Customers	Weighted by: 90% - # customers 10% - revenue	

EXAMPLE

- Using the F2013 COS, the table below shows how an additional $1 million in generation cost would be allocated to customer classes.

Functionalization	Generation		
Classification	55% Demand	45% energy	Total
Allocation	4CP	Share of Energy consumption	
	($000's)	*($000's)*	*($000's)*
Residential	$196	$209	$405
SGS	$43	$32	$76
MGS	$39	$30	$69
LGS	$119	$84	$203
Transmission	$149	$92	$241
Other	$3	$3	$6
Total	**$550**	**$450**	**$1,000**

In this example, residential and transmission customers would be allocated about 40% and 25% of the additional generation cost respectively.

2007 RDA DIRECTIVES CURRENTLY REFLECTED IN COS

#	Directive
3	4CP allocation for Generation and Transmission demand costs
4	Classification of Distribution and Customer care set at 65% demand, 35% customer
5	Classification of Generation set at 55% demand, 45% energy
6	Functionalization of DSM set at 90% Generation and 10% Transmission
7 & 10	Classification of Powerex Net Income and Trade income to follow overall Generation Classification

2007 RDA DIRECTIVES TO BE INCORPORATED IN THE 2015 COS

#	Directive
4	BC Hydro is directed to conduct both a minimum system[1] and zero intercept analysis[2] for inclusion in its next COS or rate design filing
8	Prepare a study for inclusion in its next COS or rate design filing that examines and quantifies the capacity benefits associated with independent power producer (IPP) contracts
9	Energy Planning costs should be functionalized to Generation
14	Include interruptible service to E-Plus customers as a separate class in its future COS and calculate costs of providing service as though BC Hydro has the ability to interrupt the class for the four winter months

1 -The minimum system method assumes a minimum size the distribution system can be built to serve the minimum loading requirements of customers.
2 -The zero intercept method seeks to identify a portion of plant related to a hypothetical no capacity situation or zero intercept situation.

KEY METHODOLOGIES TO REVIEW

- **Embedded or Marginal Study**

- An embedded cost study uses the average costs of serving both new and existing customers and loads.

- A marginal cost study uses the marginal costs of serving new customers or loads.

- **BC Hydro proposes that COS continue to be prepared using embedded costs rather than marginal costs.**

  - This is consistent with historic practice and the BCUC's 2007 RDA finding that there has been no widespread adoption of marginal cost of service methodologies.

  - BCUC noted that marginal costs can continue to inform rate design – e.g., stepped rates.

- BC Hydro's COS consultant found in 2013 that embedded approach is industry standard and is currently used by:

  - Manitoba Hydro, Hydro Quebec, Newfoundland Power, PacifiCorp, Avista Energy, Puget Sound, Bonneville Power Administration.

KEY METHODOLOGIES TO REVIEW

Functionalization

- Functionalization between Generation, Transmission, Distribution and Customer Care
- DSM (currently 90% Generation, 10% Transmission)
- Regulatory and Deferral Accounts
- Smart Meters (is this a Generation, Transmission, Distribution or Customer Care cost?)
- Corporate Costs
- Non Integrated Areas

Classification

- BC Hydro owned Generation: currently 45% energy / 55% demand
  - Thermal Generation is treated as 100% demand
- Contracted Generation (IPPs): currently 100% energy
- Powerex Net Income: currently treated like other Generation expenses
- Transmission: currently 100% demand
- Distribution: currently 35% customer, 65% demand
- Customer Care: currently 35% customer / 65% demand

KEY METHODOLOGIES TO REVIEW

Allocation

- Pro rata share of energy consumption for Generation energy costs
- 4CP for Generation demand costs
- 4CP for Transmission costs
    - Should the regional system be treated differently than the bulk system?
- NCP for distribution demand costs
- Weighting factors for distribution customer and customer care costs

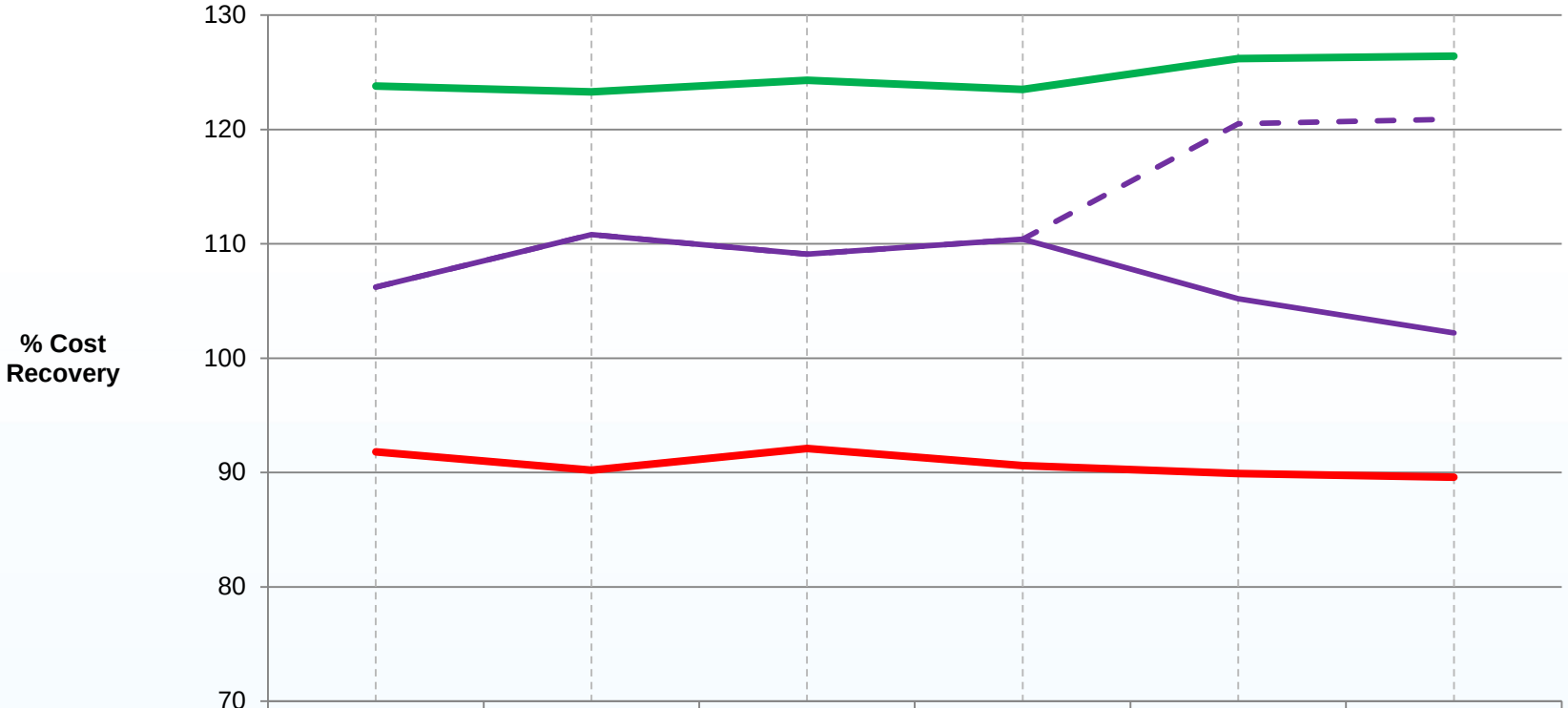
Other

- Direct Assignments
- Treatment of BC Hydro owned street lights
- Distribution and Transmission voltage loss assumptions

RATE REBALANCING

- The concept behind rate rebalancing is that rates should reflect the cost of service.
- To accomplish this, rates for individual rate classes are adjusted either upwards or downwards towards a given R/C ratio target.
- Section 58.1 of the *UCA* restricts cost shifting such that R/C ratios, expressed as a percent, can only increase or decrease by no more than 2 percentage points per year.

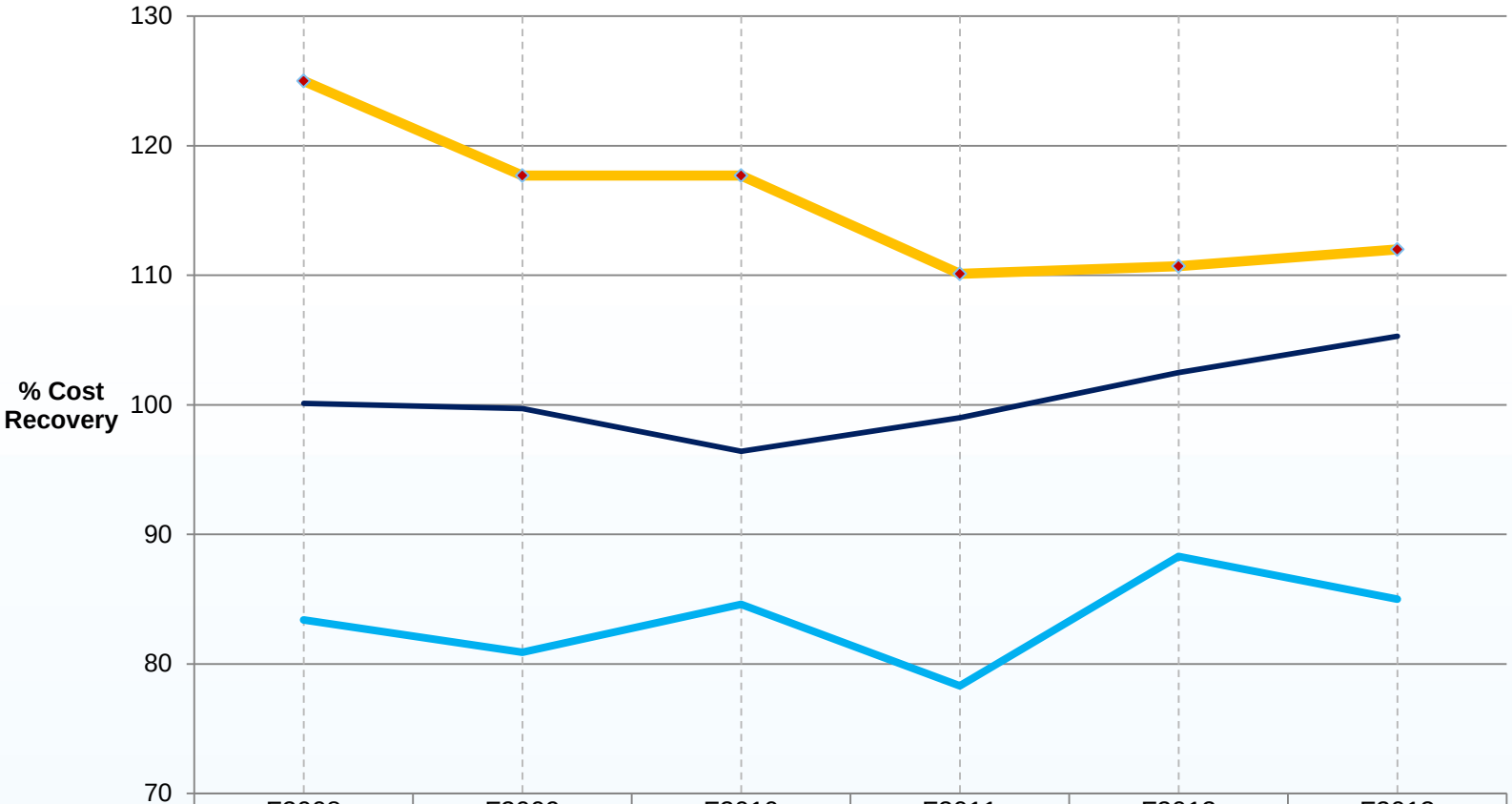
RATE RE-BALANCING:
HISTORIC RATE CLASS R/C RATIOS



	F2008	F2009	F2010	F2011	F2012	F2013
Residential	91.8	90.2	92.1	90.6	89.9	89.6
GS < 35 kW	123.8	123.3	124.3	123.5	126.2	126.4
MGS	106.2	110.8	109.1	110.4	120.5	120.9
LGS	106.2	110.8	109.1	110.4	105.2	102.2

- * Until F2012, MGS & LGS customers were grouped into one rate class so the R/C ratios shown for F2008 to F2011 reflect what customers in the respective rate classes would have experienced as part of the blended rate class.

RATE REBALANCING: HISTORIC RATE CLASS R/C RATIOS



	F2008	F2009	F2010	F2011	F2012	F2013
Irrigation	83.4	80.9	84.6	78.3	88.3	85
Street Lighting	125	117.7	117.7	110.1	110.7	112
Transmission	100.1	99.7	96.4	99	102.5	105.3

RATE REBALANCING

- **BC Hydro proposes to use a 95% to 105% R/C ratio range of reasonableness for all customer groups:**
  - Each class with a R/C ratio below 95% receives a rebalancing/RRA of up to ***x***% in a given year.
  - Excess revenue resulting from the above increases is applied to classes that have a R/C ratio above 105%.
  - If in any year a customer class achieves a R/C ratio within the range of reasonableness, no further adjustments would be made in that year.
- It may seem ideal to attempt to bring each customer class to 100%.
- Selection of 95% to 105% range of reasonableness reflects the fact that during COS certain assumptions are necessarily made in absence of perfect data.
- This has led most public utilities to adopt a range as an appropriate goal.

NEXT STEPS

- BC Hydro is refining its response to the BCUC's 2007 RDA directives.
- We will hold a COS topic-specific workshop (scheduled for June 19) to present third party consultant report reviewing BC Hydro's COS methodology.
- We plan to present a straw man response to the consultant report and the BCUC's directives at this workshop.
- Copies of consultant report and straw man proposal will be circulated about a week before the June COS topic-specific workshop.

2015 RATE DESIGN APPLICATION

RATE STRUCTURES: RESIDENTIAL, LARGE, MEDIUM AND SMALL GENERAL SERVICE, IRRIGATION AND STREET LIGHTING

Presented by: Rob Gorter, Senior Regulatory Specialist

BC hydro
FOR GENERATIONS

May 8, 2014

AGENDA

1. Residential Rates
   - RIB Rate
   - End-Use Rates
   - Low-Income
   - Other issues
2. Commercial Rates
   - MGS and LGS 2-Part Rates
   - SGS Rates
3. E-Plus – Dual Fuel Rates
4. Non-Integrated Area Rates
5. Farms and Irrigation Rates

RESIDENTIAL INCLINING BLOCK RATE

2008 BCUC RIB Decision

- Step 1 rate = a lower price for consumption up to the defined threshold
- Step 2 rate = a price to signal efficient use; consumption above defined threshold
- LRMC is appropriate referent to a Step-2 rate
- Threshold = 1350/kWh per two-month billing cycle
- Threshold ≈ 90% of median consumption of Residential class
- 80% of low income customers estimated better off compared to a flat rate

2011 BCUC RIB Decision

- LRMC confirmed as appropriate referent to a Step-2 rate
- Pricing electricity above LRMC is not economically efficient
- No legislative requirement to maximize conservation

2013 RIB RATE RE-PRICING DECISION (ORDER G-13-14)

- **Approval of a proposed pricing principle for two years: F2015 and F2016**
  - Apply RRA increases to each of the three main elements of the RIB rate
  - Proportional differential between the Step 1 and Step 2 rate is maintained
  - All customer bill impacts limited to Class Average Rate Change

- **Temporary relief from certain elements of Directive 4 of BCUC Order G-45-11**
  - A revisit of the setting of the Step-1 to Step-2 threshold level
  - Address interaction of the Basic Charge and the RIB rate structure
  - Address Minimum Charge and cost of remaining attached to the system

RIB RATE EVALUATION

Key Findings of F2009-F2012 Evaluation

- Three econometric models support current elasticity assumption of -0.1
- Incremental energy savings ranged between 11 and 202 GWh over the 4 years
- Price elasticity generally higher for customer segments with higher consumption
- 50% of residential customers aware of the RIB rate
- RIB rate appears to be achieving its overall objective of encouraging conservation

Next Evaluation: F2013-F2016; including 2 years of relatively high RRA increases

- Will not be available to support 2015 RDA
- Updating the analysis based on F2013 - F2014 data only of limited value
  - Low F2014 RRA increase of 1.44%

RIB RATE - SCOPE ISSUES

1. Basic and Minimum Charges (Order G-13-14)

- Current Basic Charge ≈ 30% customer-related fixed cost recovery & = Minimum Charge
- Key Issues:
  1. Increase the Basic Charge toward cost-based?
  2. Decouple Minimum Charge to reflect cost of remaining attached to the system during periods of very low consumption or dormancy?

For June workshop BC Hydro proposes to model the impacts of:

1. **A Basic Charge increase to 50% customer-related fixed cost recovery**
2. **Minimum Charge ($/mo.) $10, $15 and $20, assuming status quo Basic Charge**
3. **Minimum Charge ($/mo.) $10 and $15, assuming Basic Charge 50% assumption**

Will also update 2012 FortisBC RIB jurisdictional review of customer charges

RIB RATE - SCOPE ISSUES

2. Setting of Step 1 / Step 2 Threshold (Order G-13-14)

- 2008 Decision: 675 kWh/month based on ~90% of median consumption (762 kWh/mo.)
- 4-year average Median consumption (F2009-F2012) = 763 kWh/month
- **BC Hydro proposes to model thresholds set at: Mean, Median and Status Quo (675 kWh/mo.)**

3. Capacity Signal in LRMC for Rate-making (2013 RIB Re-pricing proceeding)

- **BC Hydro proposes that the LRMC for RIB rate-making not include capacity value**
- Will support RIB rate design modeling for June workshop
- Request stakeholders speak at June workshop on concept of adding capacity value to LRMC (energy) for RIB ratemaking purposes

RIB RATE - SCOPE ISSUES

4. Alternative Rate Designs to RIB?

BC Hydro proposes at the June workshop to review the concepts and illustrative modeling results of the following alternatives, as raised in the 2008 RIB proceeding:

- Three-step rate (e.g. lower Step 1 and 2 thresholds, high priced Step 3)

- 'Seasonal' rates (e.g. a threshold or rate that varies by season)
  - Many utilities implement a high rate in high use periods
  - Varying thresholds by season to moderate electric heating impacts yields lower effective rate in high use periods

- Customer Baseline Rates, to 1.7 million residential customers
  - BC Hydro unaware of any jurisdictions offering these rates to Residential
  - Very administratively complex and demonstrated customer concerns (MGS & LGS)

RESIDENTIAL – OTHER SCOPE ISSUES

End Use Rates

- Examples: Electric Heat Rate, Heat Pump Rate
- Issues:
  - Is there a *separate* cost of service basis for end-use / segmentation?
  - Are the characteristics of service *different* from other customers in the class?
  - Does the BCUC therefore have *jurisdiction* to approve?
  - Would the rate be administratively *complex*?

BC Hydro proposes to avoid rate designs where it would need to know what happens beyond the customer meter

RESIDENTIAL – OTHER SCOPE ISSUES

Low Income

- Issue of ‘lifeline rates’ for low income customers arose in the 2008 RIB
- BC Hydro takes no position on the social value of ‘lifeline rates’

BC Hydro’s position in the 2008 RIB:

- Absent government direction, BC Hydro has no cost- basis on which to propose a lifeline rate, and the BCUC would have no jurisdiction to approve

BC Hydro will examine the impact of RIB designs on low income customers

RESIDENTIAL – OTHER SCOPE ISSUES

Application of RIB thresholds to unmetered legal or other secondary suites?

- RS 1101 does not allow for doubling Step-1 Threshold
- Consistent with tariffs of other utilities with residential inclining block rates
- Whether suite is legal may have little bearing given range of municipal practice

LARGE, MEDIUM AND SMALL GENERAL SERVICE

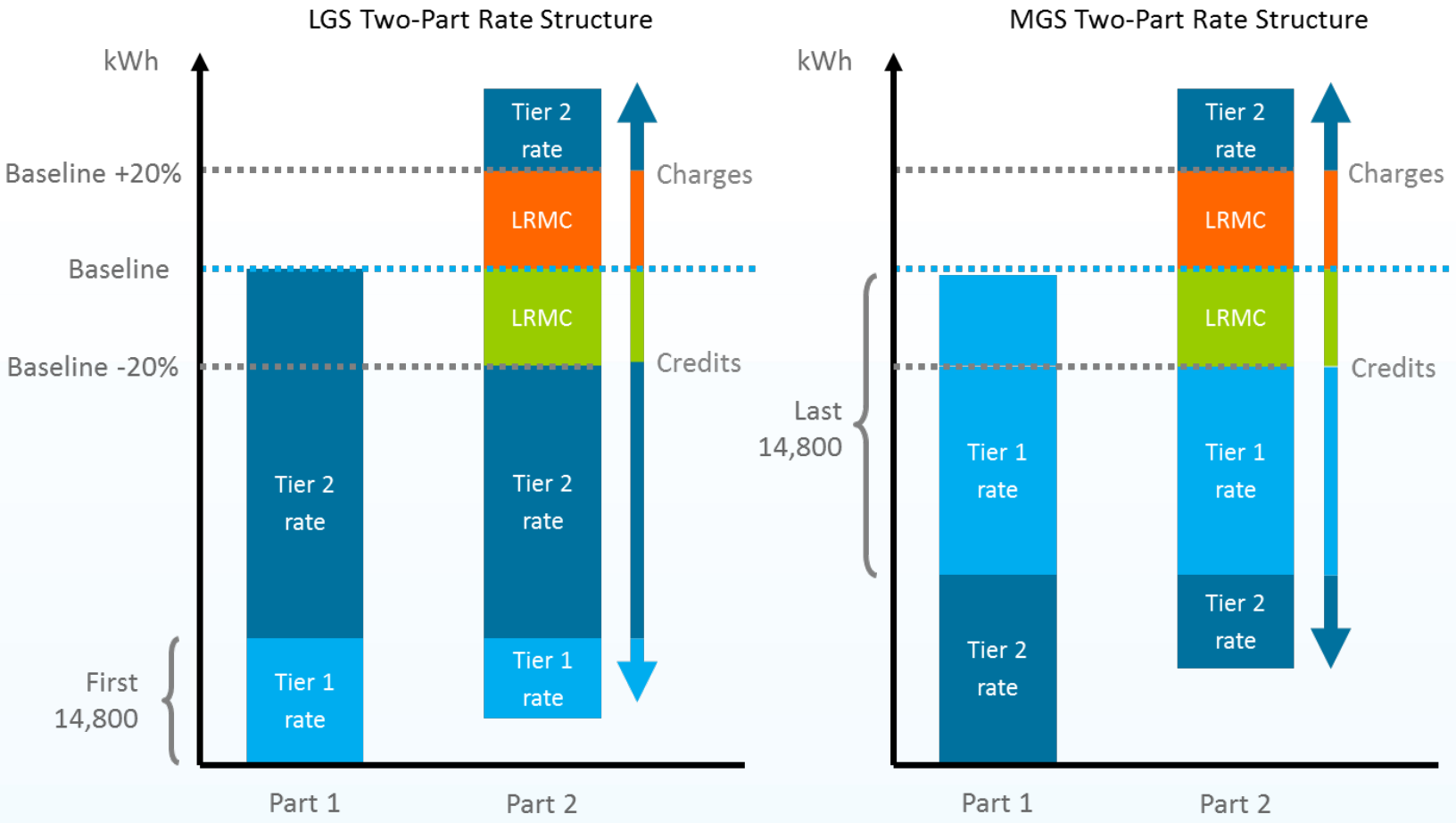
- Three general service categories:

1. LGS (RS 1600, 1601, 1610 or 1611): ~ 7,000 accounts
   - Customers who have an annual peak demand of at least 150 kW or use more than 550,000 kWh of electricity per year
   - Two-part LGS rate was implemented January 2011

2. MGS (RS 1500, 1501, 1510 or 1511): ~ 16,000 accounts
   - Customers who have annual peak demand between 35 kW and 150 kW and with less than 550,000 kWh of electricity per year
   - Two-part MGS rate was implemented between April 2012 and April 2013

3. SGS (RS 1300, 1301, 1310 or 1311): ~170,000 accounts
   - Customers who have annual peak demand of less than 35 kW

MGS AND LGS PRICING – HOW IT WORKS



LGS AND MGS SCOPE ISSUES

Three-year Evaluation Report (filed December 30, 2013)

- Filed in accordance with LGS NSA (2010)
- Impacts and customer response to 2-Part rates: 2011 - 2012
- BC Hydro will conduct another evaluation of the LGS and MGS rates later in 2014

Scope

- **Address issues with MGS and LGS 2- Part Rates identified in 3-Year Report**
  - **Impact of rates on growing customers**
  - **Baseline treatment for new accounts**
  - **MGS Part 1 structure**
  - **Administration and operational challenges, customer understandability**
  - **Conservation achieved**
  - **Cost of service and allocation of energy and demand charges**
- **Impact of future evaluation results and conservation findings**
- **Rate design alternatives**

SGS

- Flat rate, currently priced above LRMC
- No measurement of demand

Scope Issues

- **Maintain current design?**
- **Implement conservation stepped rate design?**
- **Conservation potential versus bill impacts, simplicity?**
- **Higher fixed charge based on COS, which means lower energy charge?**

E-PLUS (DUAL FUEL) SERVICE

Interruptible service (closed to new customers and not transferable)

- Discounted rate on condition of having an alternative fuel back-up heating system
- BC Hydro has the right to interrupt the supply of electricity if no surplus hydro energy
- Planned as firm load and cost of service is the same as for all residential customers
- F2008: ~12,000 customers
- F2014: ~ 9,000 customers

2007 RDA: BC Hydro directed to:

- Include E-Plus customers as a separate class in future COS
- Invest time and resources to ensure E-Plus customers comply with terms of service

BC Hydro proposes to maintain its verification and attrition approach

NON-INTEGRATED AREAS

Background

- 11 remote service areas on Zone II rates; not connected to main transmission grid
- In general, 1st block of Zone II rates equal Zone I flat rates; incremental amounts set at a higher rate to partially reflect higher cost of electricity generation in these remote areas (and to discourage electric heat)
- Zone II rates are not fully cost recovered and are subsidized by Zone I customers
- Zone 1B (Bella Bella) exempt from RIB rate

Scope

- **Rates structures (e.g. Status Quo, full cost recovery, rolled-in to Zone I)**
- **Clarify terminology applicable to Zone II rates and create clear tariff definitions consistent with Special Direction No. 10 and the “Remote Communities Regulation”**

FARMS AND IRRIGATION RATES

- Farm customers served under Res. Exempt RS 1151, or may elect MGS or LGS service
- A ‘Farm’ not defined in the tariff or the *UCA*
- Irrigation (RS 1401) available to a separate class based on customer’s pump capacity
- Irrigation rates available based on a defined irrigation season

Scope

- **Definition, options and applicability of rates for farm customers: Res., MGS & LGS**
  - **Appropriate rate schedules for domestic versus commercial service?**
  - **Policy basis or rate objective to exempt farms from the RIB rate?**
  - **COS basis for a farm class of customers?**

- **Policy basis or rate objective to maintain irrigation class**
  - **Suitability of irrigation rate schedules for hotel/golf course customers?**
  - **Rate classes based on customer pump capacity?**

2015 RATE DESIGN APPLICATION

TRANSMISSION VOLTAGE SERVICE - SUPPLY RATES

Presenter: David Keir, Rates and Pricing Manager

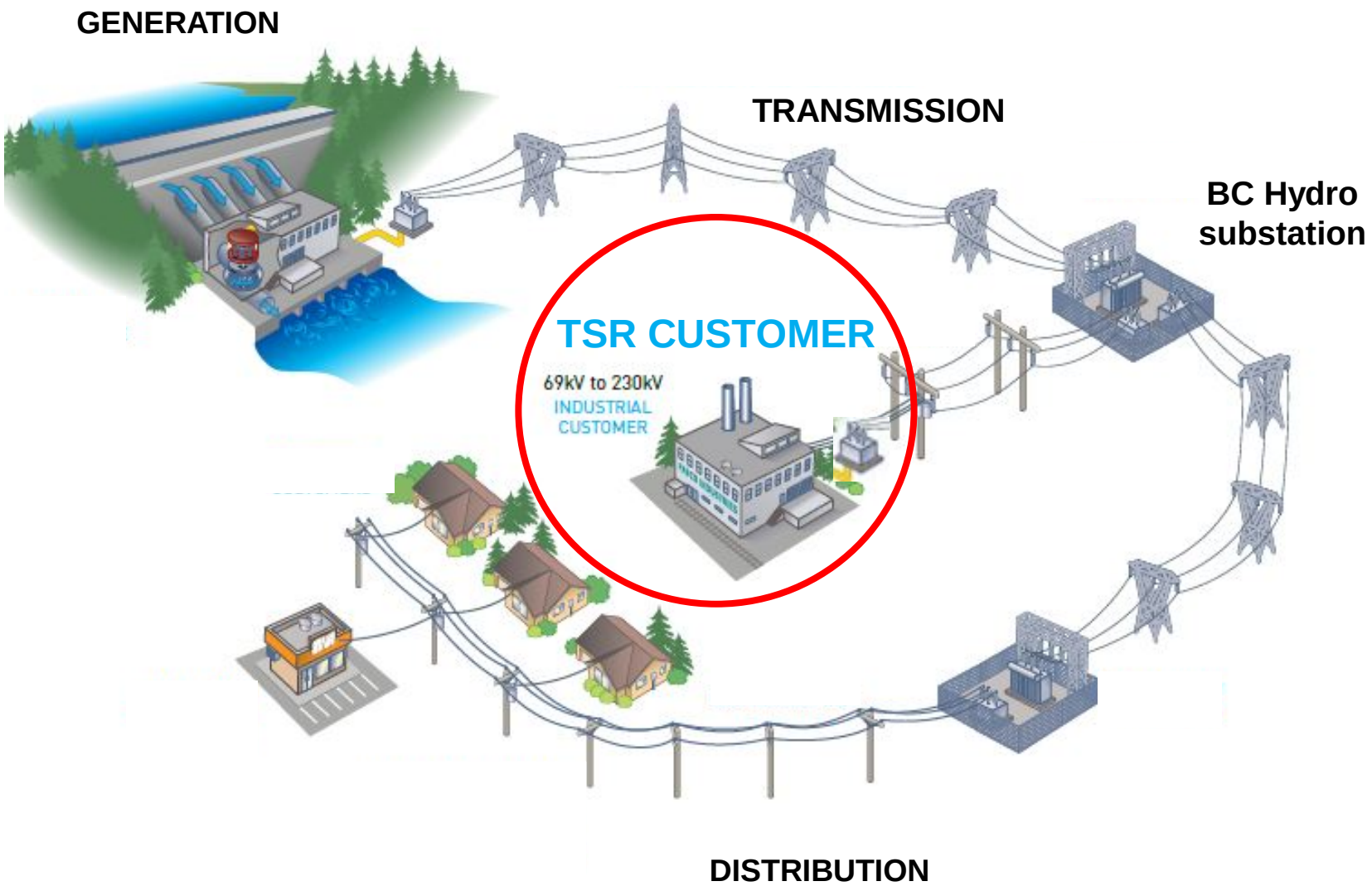
BC hydro
FOR GENERATIONS

May 8, 2014

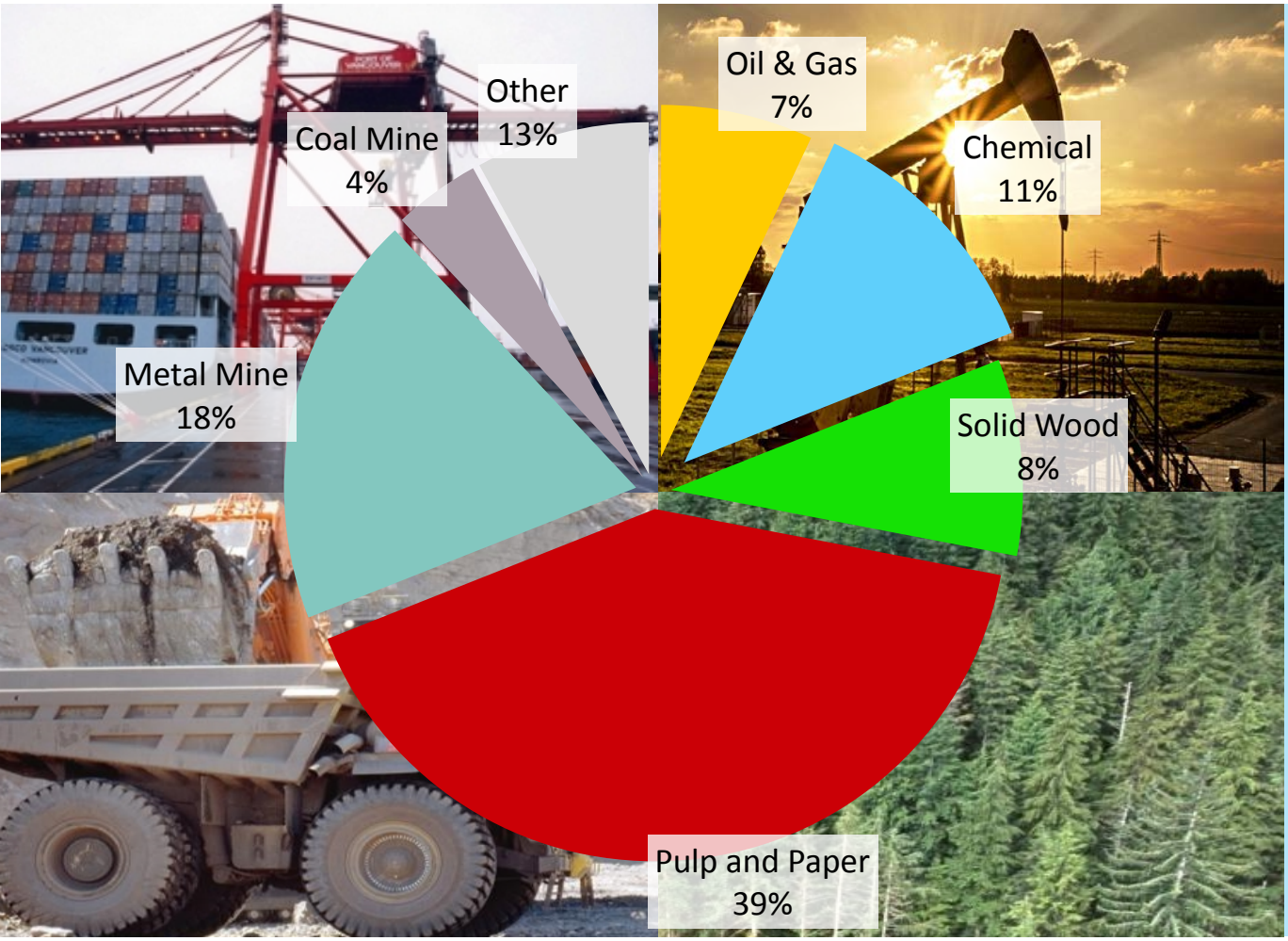
AGENDA

1. Introduction to Transmission Service Class
2. Transmission Service Rates (TSR) Portfolio
3. Legislative & Regulatory Context
4. Proposed Scope Categories for Engagement:
    - RS 1823 Stepped Rate
    - Time of Use
    - Standby / Interruptible
    - Retail / market access
    - Exempt / Surplus / Other
5. Open Forum

TRANSMISSION VOLTAGE SERVICE



TRANSMISSION CUSTOMER CLASS



146

customers

14,301

GWh

$688M

revenue

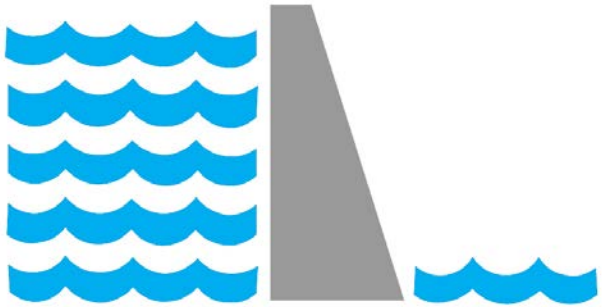
Source: BC Hydro F2013 Annual Report

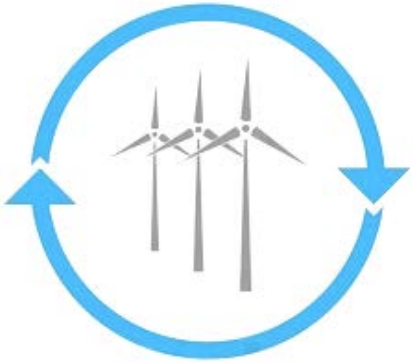
TSR ELECTRICITY SUPPLY: ENERGY + DEMAND

BC HYDRO

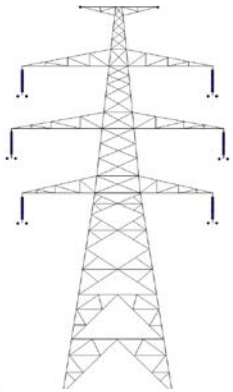
POWER PRODUCERS (IPP)

MARKET





TRANSMISSION SYSTEM



TSR Electricity Bill = **75%** + **25%**

ENERGY (*generation*)

DEMAND (*wires/capacity*)

Reflects "typical" split of energy and demand charges on TSR customer bill

APPROVED TRANSMISSION SERVICE RATES

> 60 kV **< 35 kV**

Rate Schedule Portfolio:

- **RS 1823: Stepped Rate (default service)**
- **RS 1825: Time of Use Rate**
- **RS 1827: Exempt Rate**
- **RS 1852: Modified Transmission Demand**
- **RS 1853: IPP Station Service**
- **RS 1880: Maintenance & Standby Rate**
- RS 1890: Energy Imbalance *Cancelled*

Tariff Supplements:

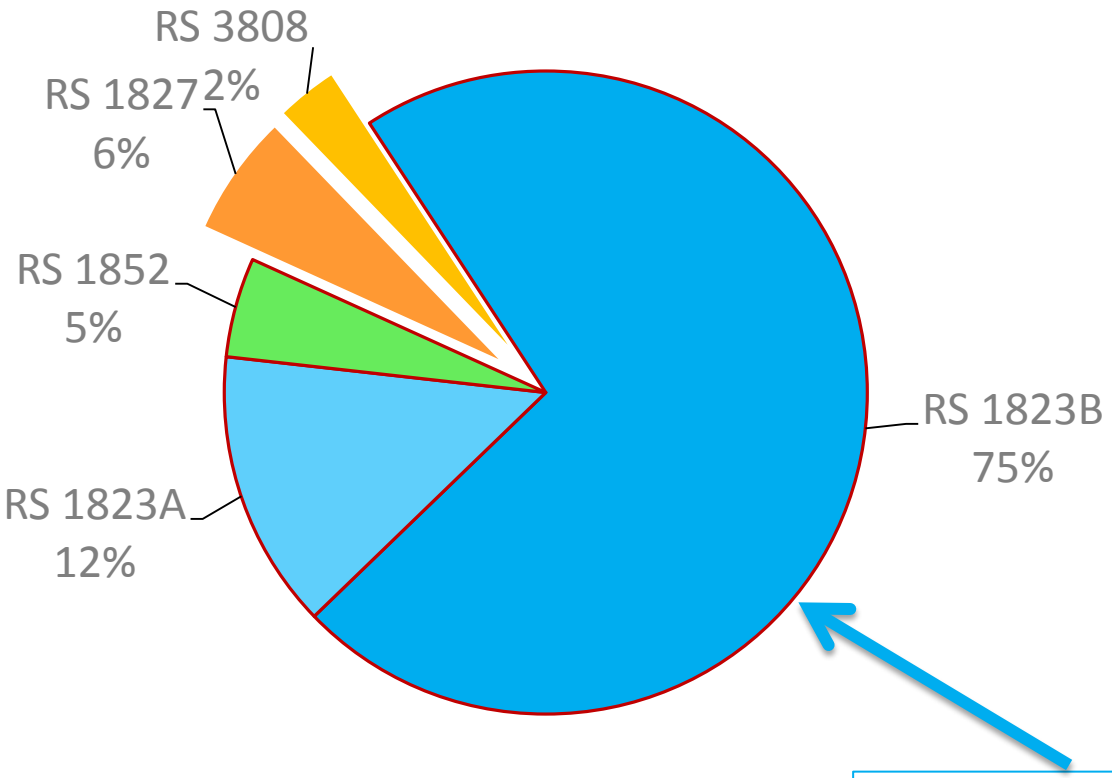
- **TS No. 5: Electricity Supply Agreement**
- TS No. 74: CBL Determination Guidelines
- TS No. 71: Retail Access Program *Cancelled*

Large General Service Rates
> 150 kW demand

- **RS 1600, 1601**
- **RS 1610, 1611**
- **BC Hydro Electric Tariff**

BC hydro
FOR GENERATIONS

TRANSMISSION SERVICE RATES MIX



92%

RS 1823

8%

Other

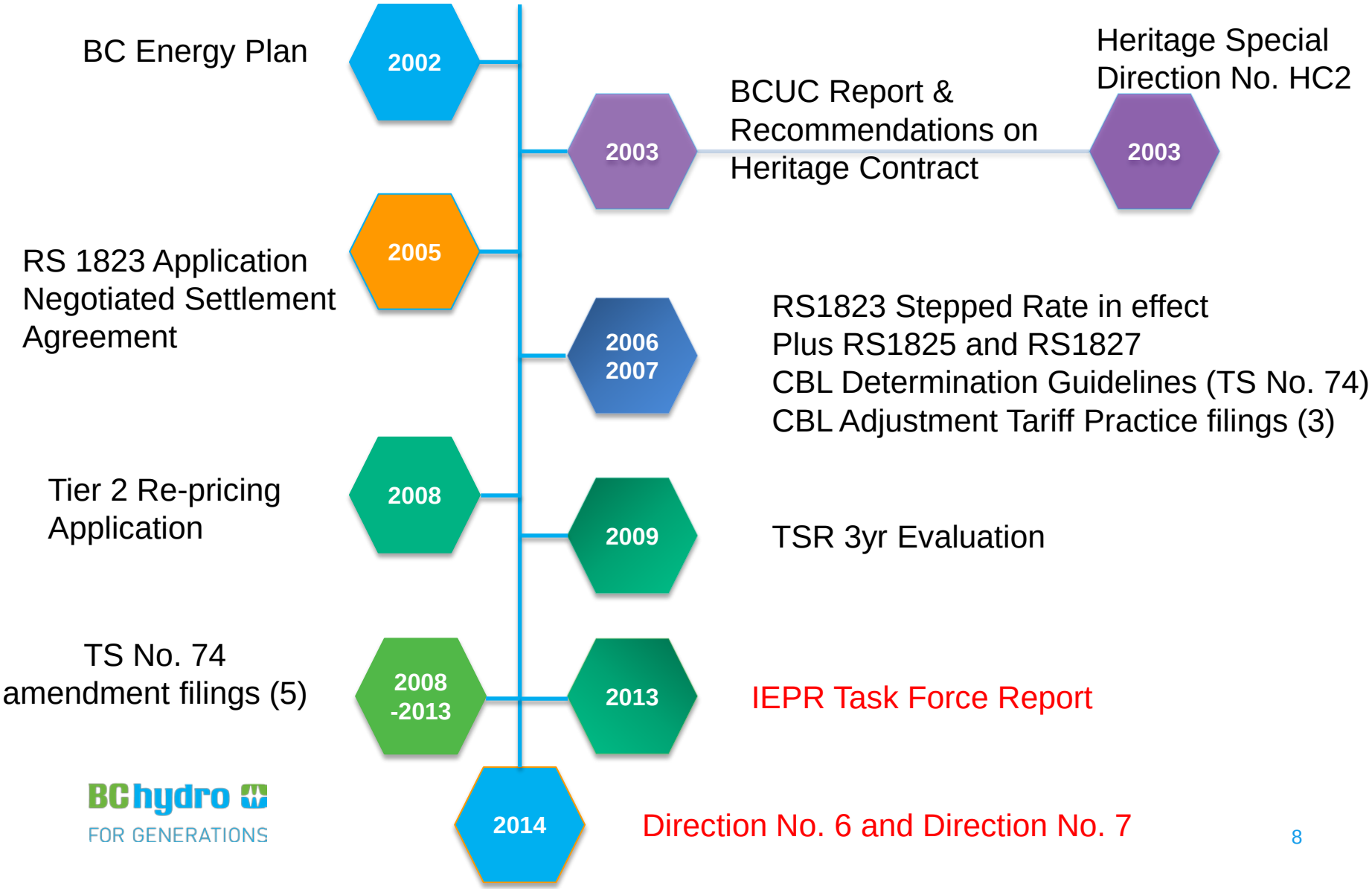
*2013 Actual Energy Purchases (GWh)

RS 1823 Default Service

- RS1823B is Stepped Rate
- RS1823A is Flat Rate
- RS1852 customers served energy under RS 1823

BC hydro
FOR GENERATIONS

STEPPED RATE HISTORY



BC hydro
FOR GENERATIONS

INDUSTRIAL ELECTRICITY POLICY REVIEW

- Government appointed Task Force – Jan 2013
- Review electricity policy for industrial transmission customers
- Terms of Reference (original/expanded):
  a) RS 1823 Stepped Rate
  b) Interconnection Tariff (TS No. 6)
  c) Postage Stamp Rates
  d) End use Rates
  e) Retail/market access
  f) Time of Use Rates
  g) Load interconnection timing and process
  h) Generation and bulk system cost allocations for large loads
- Process: Issue Papers – 3 rounds of written submissions and in-person meetings
- **Task Force Final Report: 31 October 2013 - 17 Recommendations**

INDUSTRIAL ELECTRICITY POLICY REVIEW

	Taskforce Recommendations	Government Response
9	Continue using postage stamp rates	Government will continue to use postage stamp rates
10	End use rates which have no impact on ratepayers could be considered, those which impact ratepayers and are directed by government should be paid for by taxpayers and not ratepayers	A rate design review process will be launched to examine ways to provide industrial customers with more options to reduce electricity costs
11	BC Hydro should develop a revised retail access program	A rate design review process will be launched to examine ways to provide industrial customers with more options to reduce electricity costs
12	Government need not act on the BCUC's 2009 TSR report until BC Hydro's surplus has diminished and the effect of other recommendations in this report can be seen	Government accepts this recommendation
13	BC Hydro should work with industrial customers and the Commission to develop options that take advantage of industrial power consumption flexibility, such as time of use and interruptible rates	A rate design review process will be launched to examine ways to provide industrial customers with more options to reduce electricity costs. BC Hydro will implement a voluntary load curtailment program with industrial customers starting in 2015

DIRECTION NO. 6: TSR APPLICATION

SUMMARY

1. Section 3(c) of Direction No. 6 orders 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.
3. Reflects nuanced change to BCUC approved RS 1823 energy pricing principles.

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

In the absence of Direction No. 6, the Tier 1 Rate would have increased by 11.2% in F2015 and Tier 2 Rate would have remained unchanged.

DIRECTION NO. 7: TSR APPLICATION

- Replaces Heritage Special Direction No. HC2.
- **Section 3**: Ensure transmission customer rates are set consistent with Recommendations #8-15 of 2003 BCUC Report & Recommendations.
- **Section 14**: Cancel retail access program; withdraw any obligation to provide unbundled transmission services under OATT for retail loads.

BCUC Recommendation #8

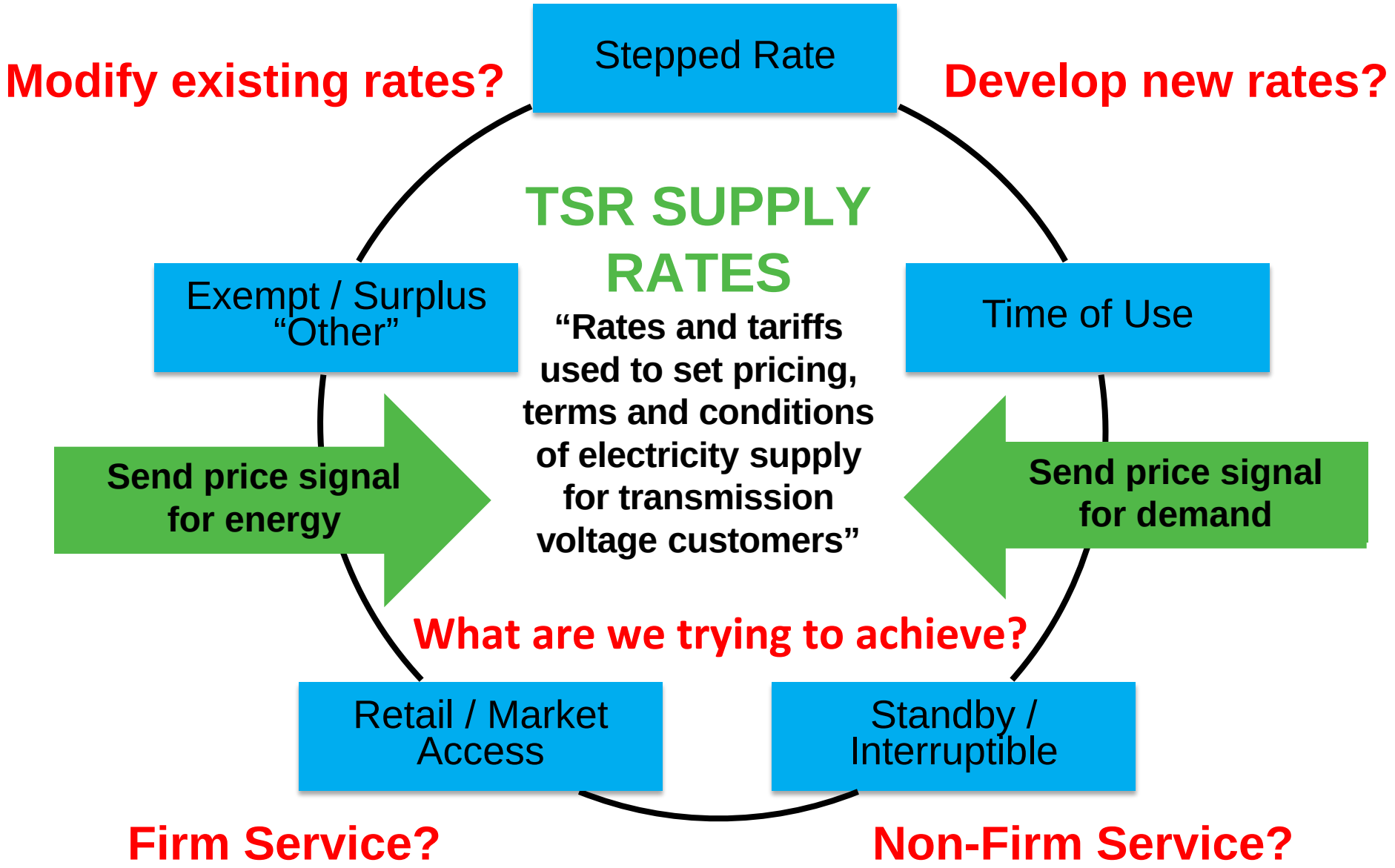
T2 Rate — should reflect cost of new supply

T1/T2 Split — Split will be 90/10

T1 Rate — Should be derived from T2 Rate and 90/10 Split to achieve revenue neutrality

BC hydro
FOR GENERATIONS

TSR SUPPLY: PROPOSED SCOPE CATEGORIES

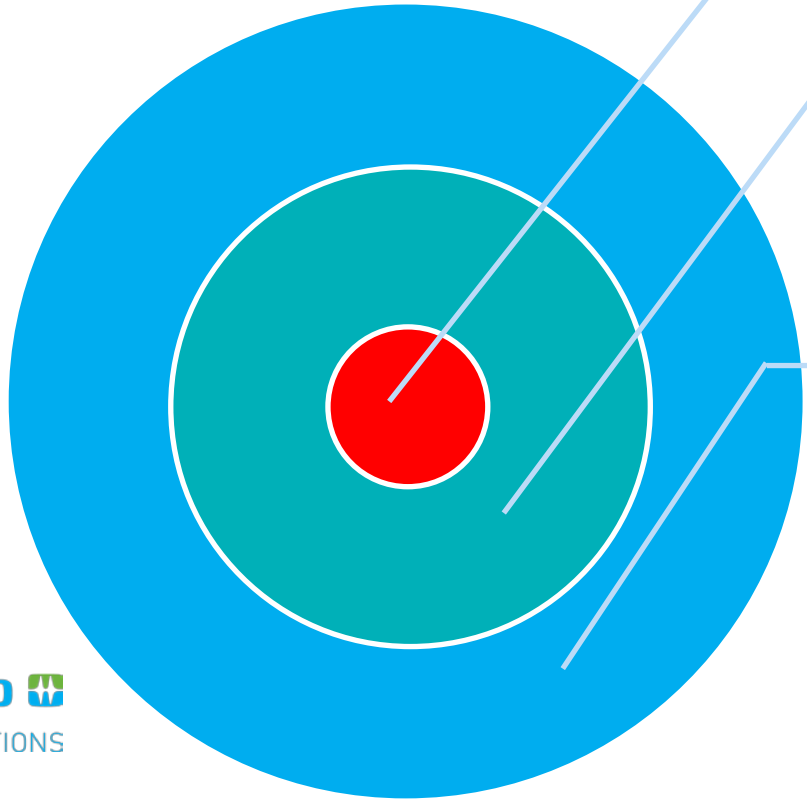


TSR SUPPLY: STEPPED RATE

Existing rates/tariffs:

- **RS 1823 Stepped Rate**
- CBL Determination Guidelines: TS No. 74

Proposed Scope Items:



RS1823 energy pricing principles? (T1 & T2 Rates)

Revenue and bill neutrality definition?

Demand charges: COS allocation; TOU period refinements?

BC hydro
FOR GENERATIONS

TSR SUPPLY RATES: TIME OF USE

Existing Rate Schedules:

- RS1825 Time of Use Rates (0 customers)
- RS1852 Modified Transmission Demand (1 customer)

Utility Concept:

- Send price signal (energy or capacity) to reduce system demand
- Shift load to off-peak periods
- Defer generation/transmission investment and reinforcement

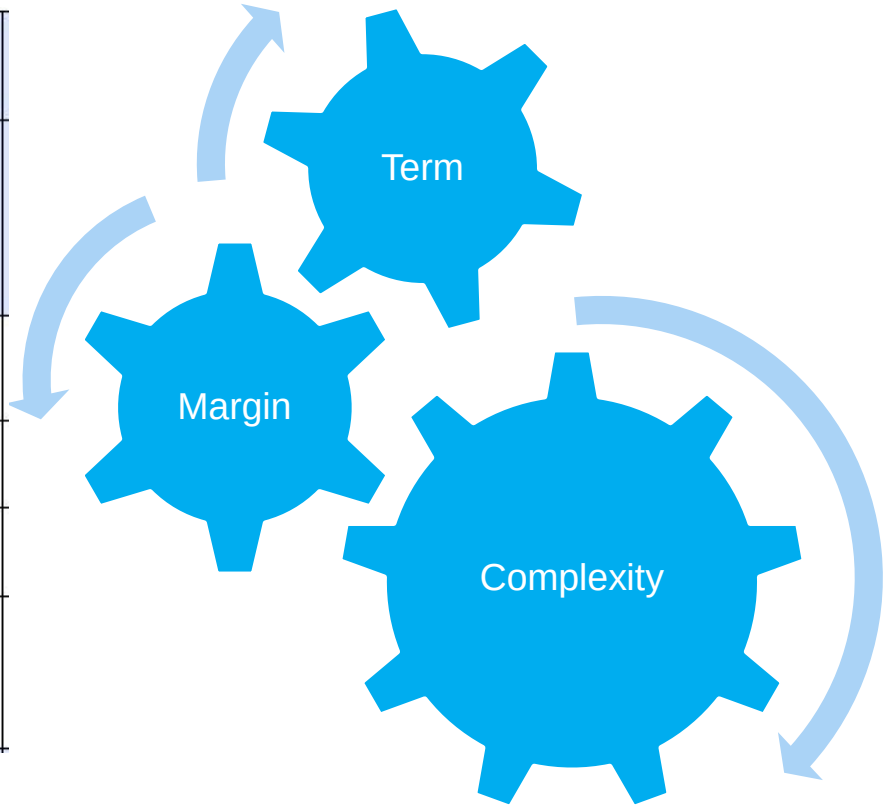
Typical Customer Characteristics:

- Large, discrete load centres
- Sophisticated production + operating controls
- Labour and supply chain flexibility
- Storage/sprint capability for make-up production (i.e., run harder in off-peak)

RS 1825 DESIGN EXAMPLE

- RS 1825 design uses 4 TOU pricing periods
- Unique Energy CBL established for each pricing period
- Annual RS 1823 CBL = sum of 4 x RS 1825 pricing period CBLs

RS 1825		F2014	F2014
TOU Pricing Period	**# of Hours**	**Tier 1 Rate (c/kWh)**	**Tier 2 Rate (c/kWh)**
Winter HLH CBL (November – February)	1,600	3.320	8.213
Winter LLH CBL (November – February)	1,280	3.320	7.443
Spring CBL (May – June, 7x24)	1,464	3.320	6.629
Remainder CBL (March, April, July, August, September, October – 7x24)	4,416	3.320	7.269



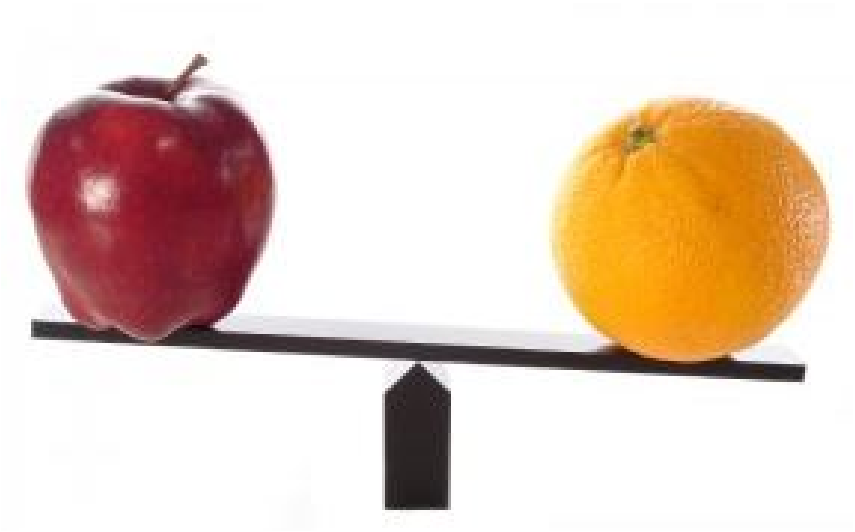
PRICE SIGNAL

1. Reduce/shift load from HLH to LLH in winter months
2. Reduce/shift load from winter months to other months

TSR SUPPLY RATES: TOU / INTERRUPTIBLE

Proposed Scope Items:

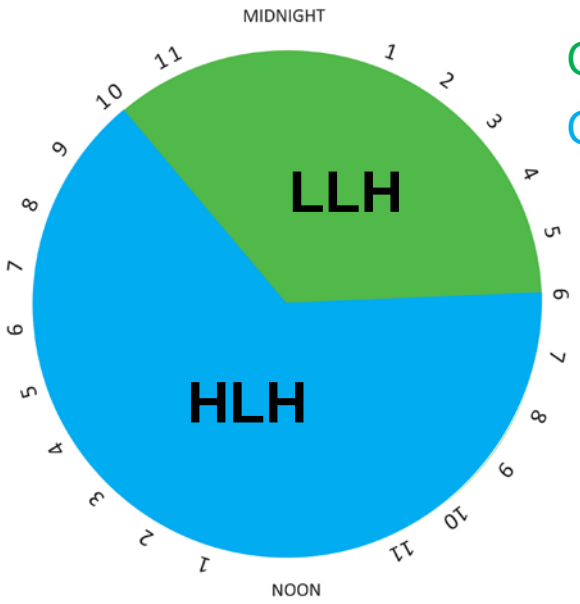
1. **TOU scope partially informed by TSR 3yr Evaluation**
2. **Better definition of desired capacity product(s)**
3. **Better understanding of customer capabilities & ratepayer impacts**



- **What does BC Hydro need?**
- **When do we need it?**
- **What are system-based alternatives?**
- **What can customers do? How do we know?**
- **How should capacity alternatives be compared?**

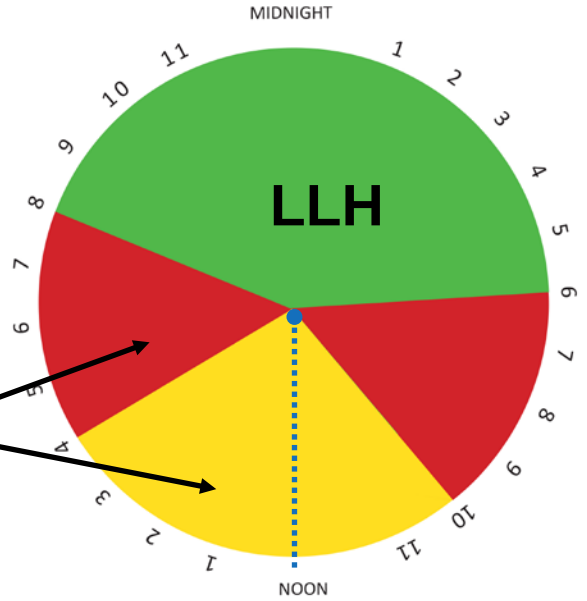
TOU / INTERRUPTIBLE: ILLUSTRATIVE EXAMPLE

CURRENT APPROACH



Off-peak
On-peak

CONCEPTUAL DESIGN



Off-peak
On-peak
Mid-peak

8hr block

Revelstoke Unit 6 and SCGT can do all this

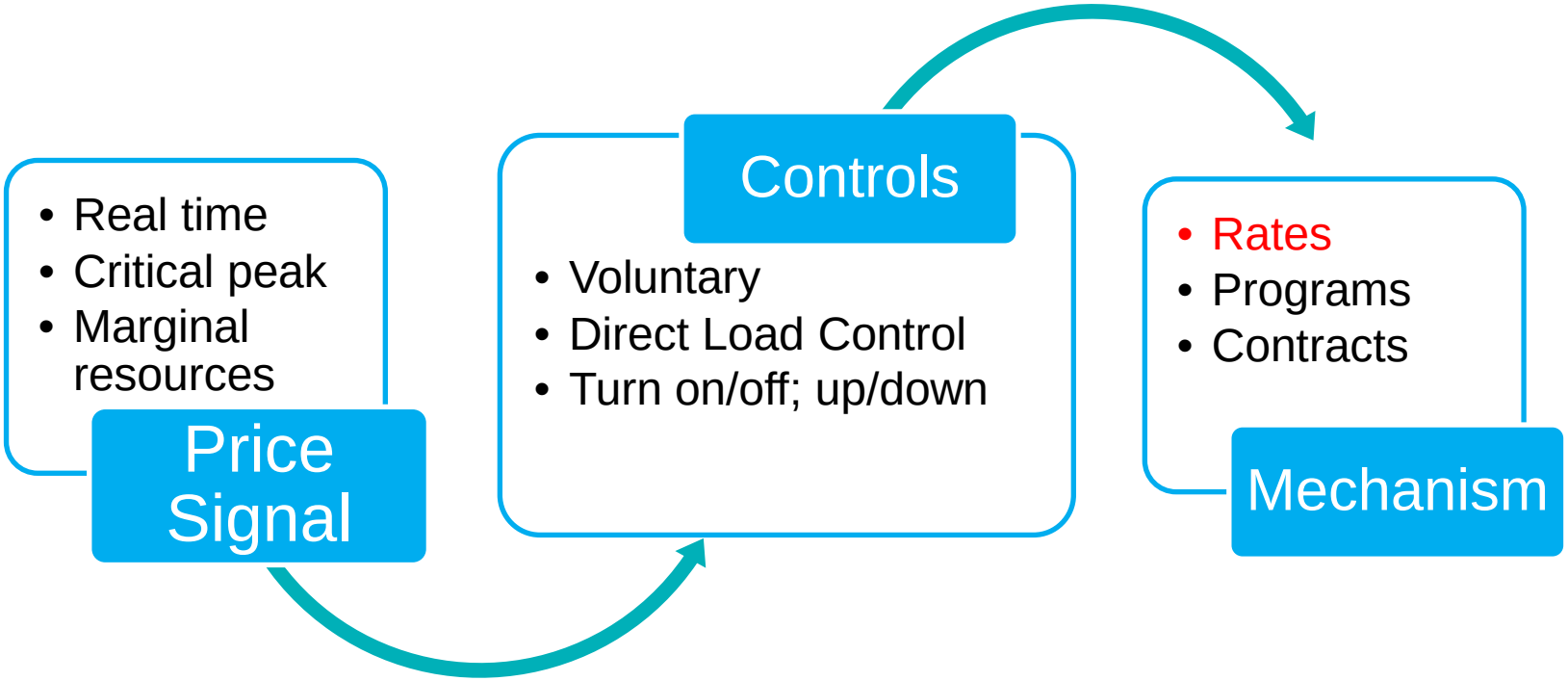
RESOURCE NEEDS

"system" vs "regional"

- Higher value for "package"
- Lower value for components

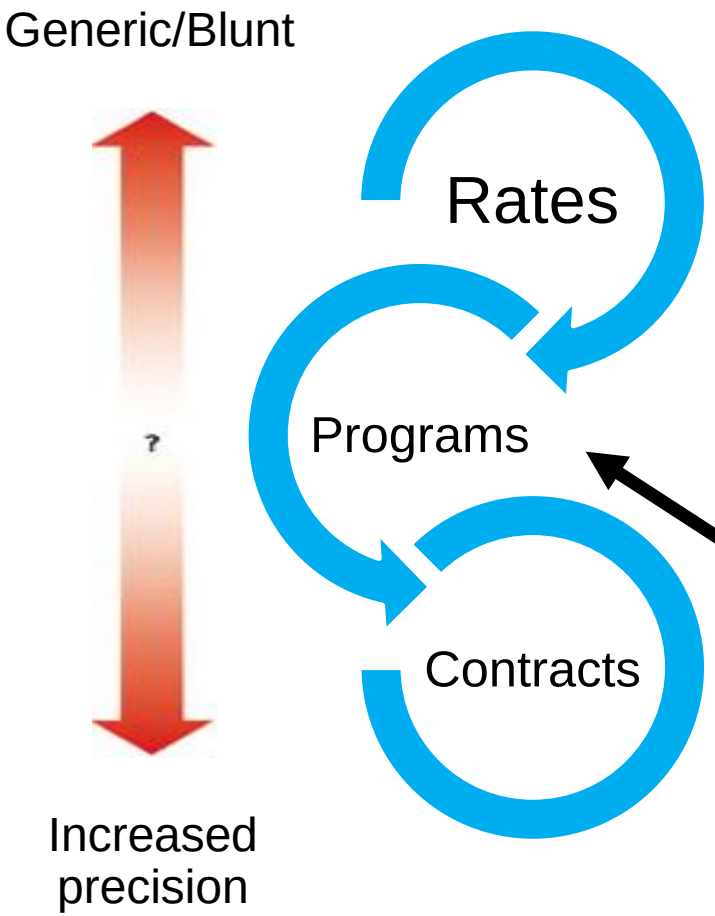
1. On-peak capacity
2. On-peak energy
3. Spinning/supplemental reserve
4. Winter contingency
5. Voltage support
6. Back-up intermittent resources

CAPACITY/DEMAND RESPONSE CONSIDERATIONS



1. **How to align pricing to reflect supply costs?**
   - *Firm vs non-firm resources and delivery*
2. **What is a balanced view re: customer impacts?**
   - *Re-allocation of existing costs vs deferral of future costs*
3. **How provide cost-effective and reliable control of system demand?**

TSR SUPPLY RATES: STANDBY / INTERRUPTIBLE



Existing Rate Schedules:

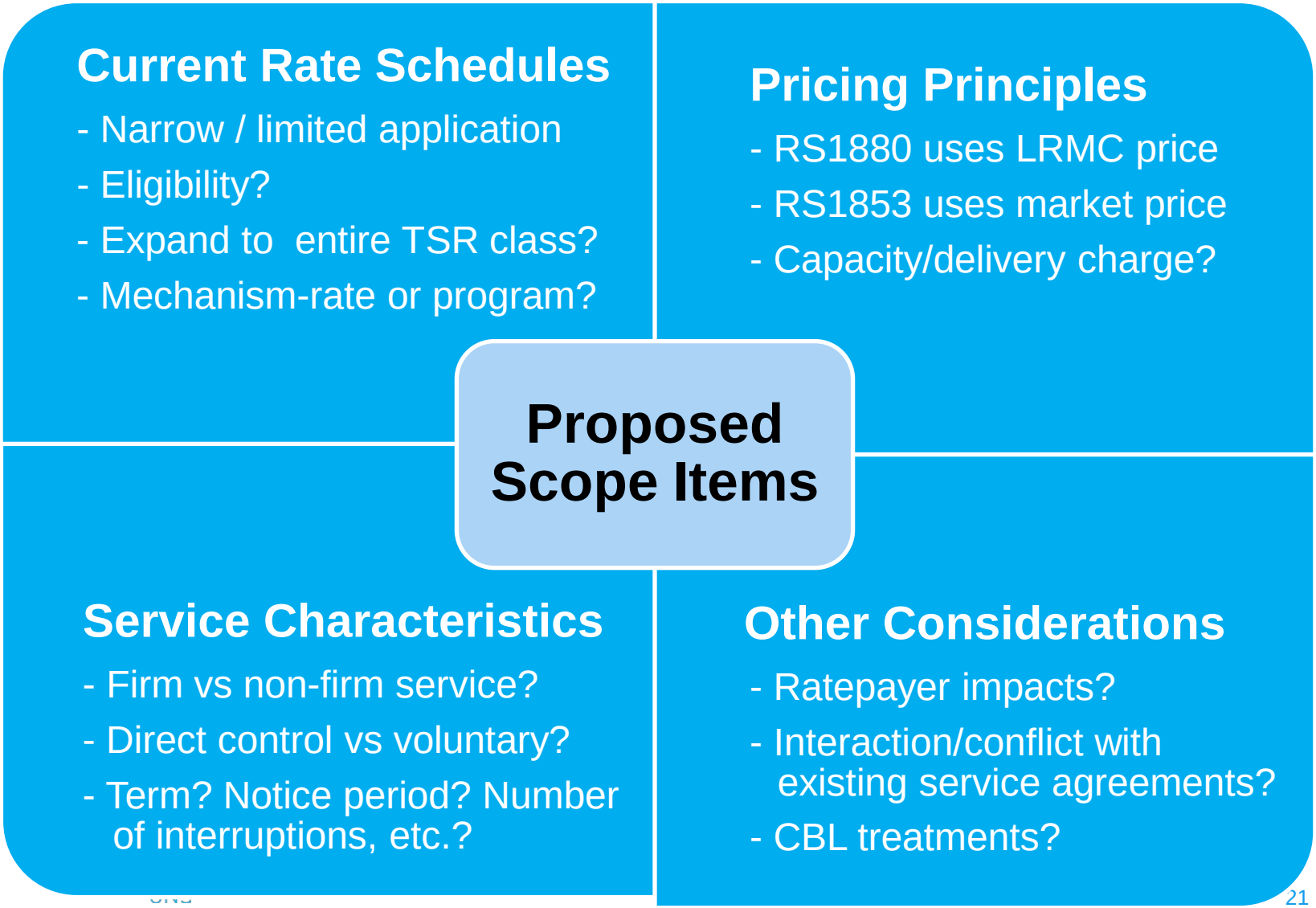
- Service is "non-firm" / interruptible … *only provided where energy/capacity is available (not in resource planning stack)*
- **RS 1880**: Standby & Maintenance Rate (for TSR customers with self-gen)
- **RS 1853**: IPP Station Service Rate (for emergency and black-start power)

2008 Load Curtailment Program

- 1-5yr agreement terms, since lapsed
- Rights generally not exercised
- Reflected short-term need (insurance)

BC hydro
FOR GENERATIONS

TSR SUPPLY RATES: STANDBY / INTERRUPTIBLE



TSR SUPPLY RATES: RETAIL/MARKET ACCESS

Existing Rate Schedules:

- *RS 1890: Energy Imbalance (Cancelled per Direction No. 7)*
- *TS No. 71: Retail Access Program (Cancelled per Direction No. 7)*
- *OATT access withdrawn per Direction No. 7 (for retail loads)*

Proposed Scope Items:

1. **Market-based pricing simulation only (i.e., no physical access)?**
2. **Appropriate market pricing references for energy, capacity, carbon?**
3. **Integrate market-based pricing mechanism with other rates?**
4. **Eligibility? Term? Risk?**
5. **Participant vs non-participant impacts?**
6. **Service characteristics: firm vs non-firm supply?**
7. **Utility cost/benefit analysis (operations, planning, trade-offs)?**

TSR SUPPLY RATES: EXEMPT/SURPLUS

Existing Rate Schedules:

- **RS 1827:** 4 customers with BCUC exemptions – City of New West. UBC, Simon Fraser Univ., YVR
- No “surplus” rate on the books at present

Proposed Scope Items:

1. **Is the rationale for exemption still appropriate?**
2. **Should specific rates be designed to reflect specific operating circumstances at specific times (e.g., energy surplus)?**

2015 RATE DESIGN APPLICATION

TRANSMISSION SYSTEM INTERCONNECTION TARIFFS

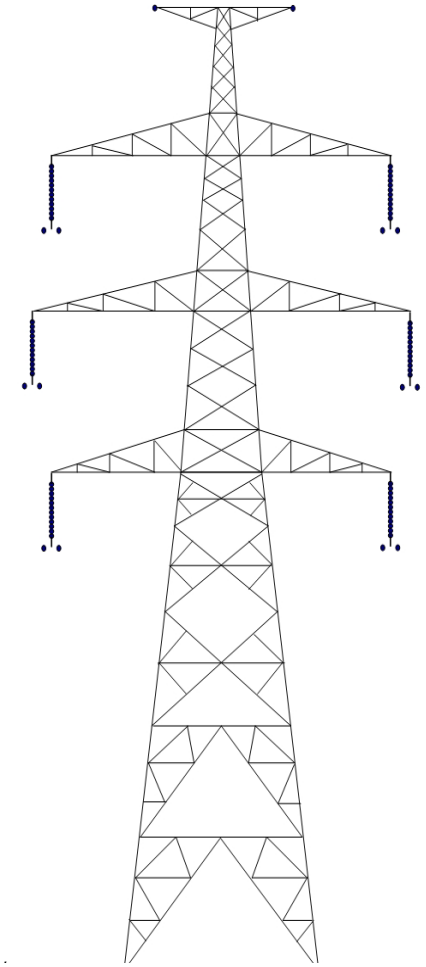
Presenter: David Keir, Rates and Pricing Manager

BC hydro
FOR GENERATIONS

May 8, 2014

AGENDA

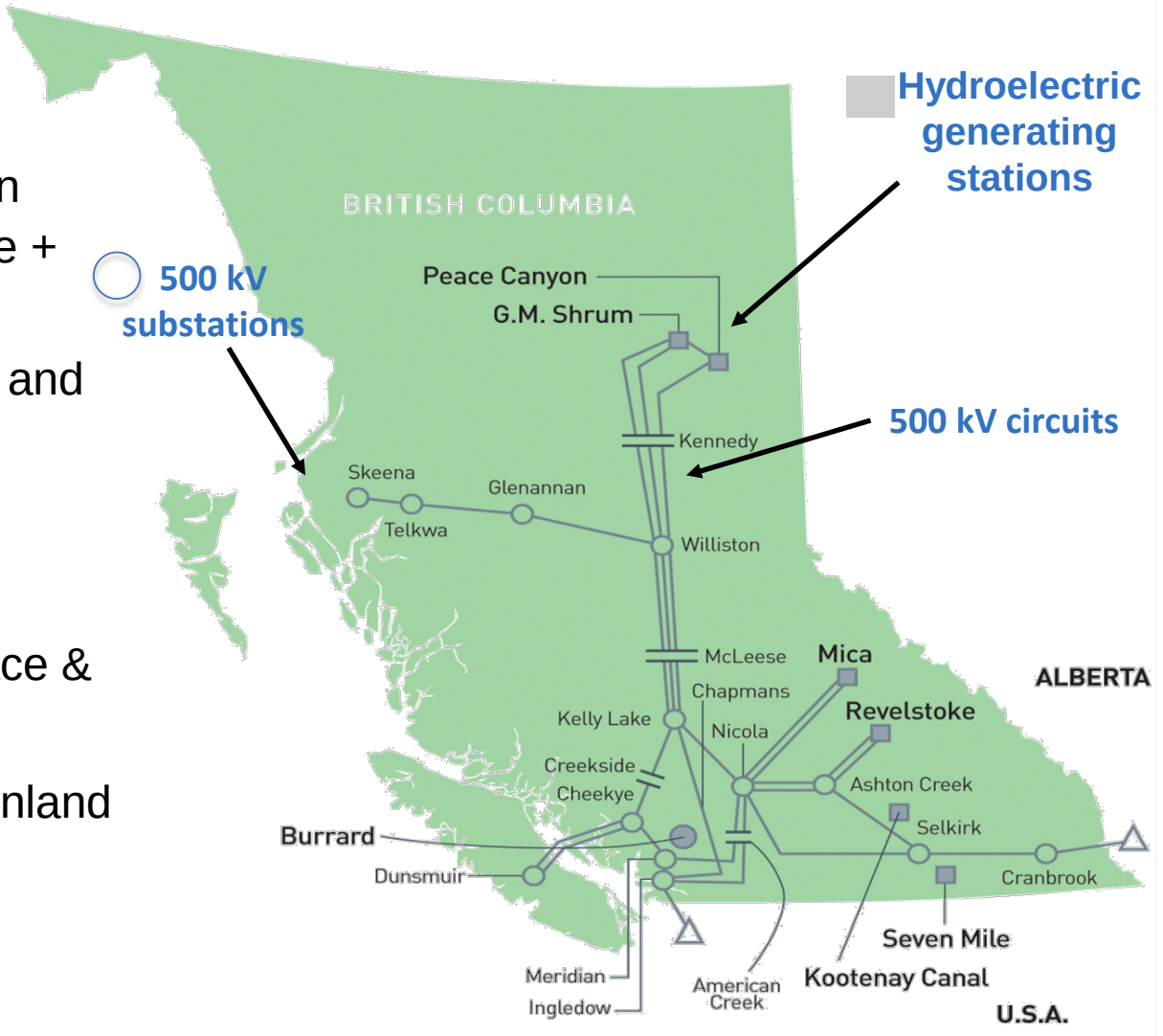
1. Transmission System Overview
2. BC Hydro's Interconnection Tariffs
3. TS No. 6 Overview (how it works)
4. Interconnection Examples
5. Review Context
6. Proposed Scope Items for Engagement and Next Steps
7. Open Forum



BC HYDRO TRANSMISSION SYSTEM

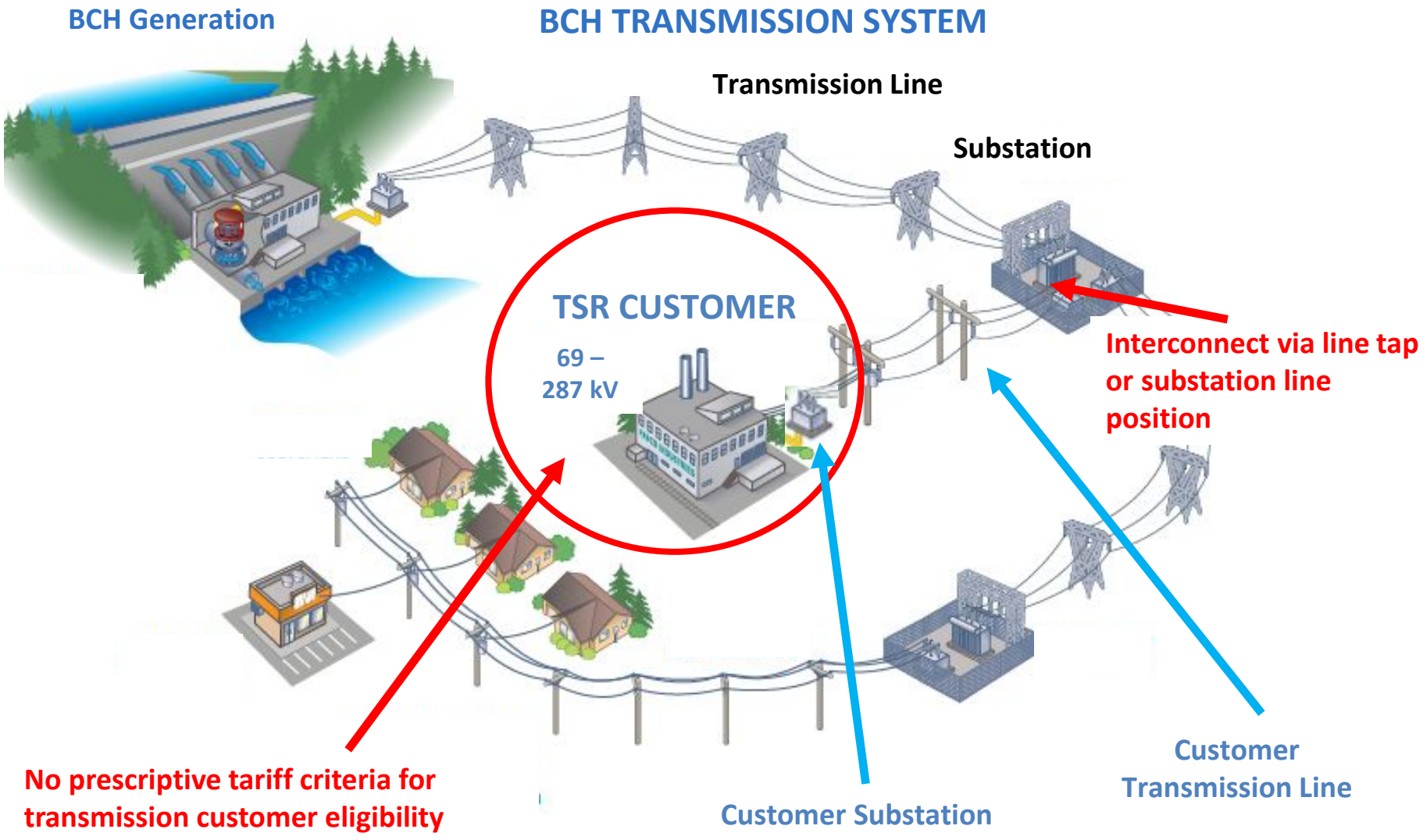
Summary

- 18,600 km of transmission lines and submarine cable + 300 substations
- Interconnected to Alberta and the US Pacific Northwest
- 12,047 MW of domestic generation
- 85% of generation in Peace & Columbia regions
- 70% of load in Lower Mainland and Vancouver Island

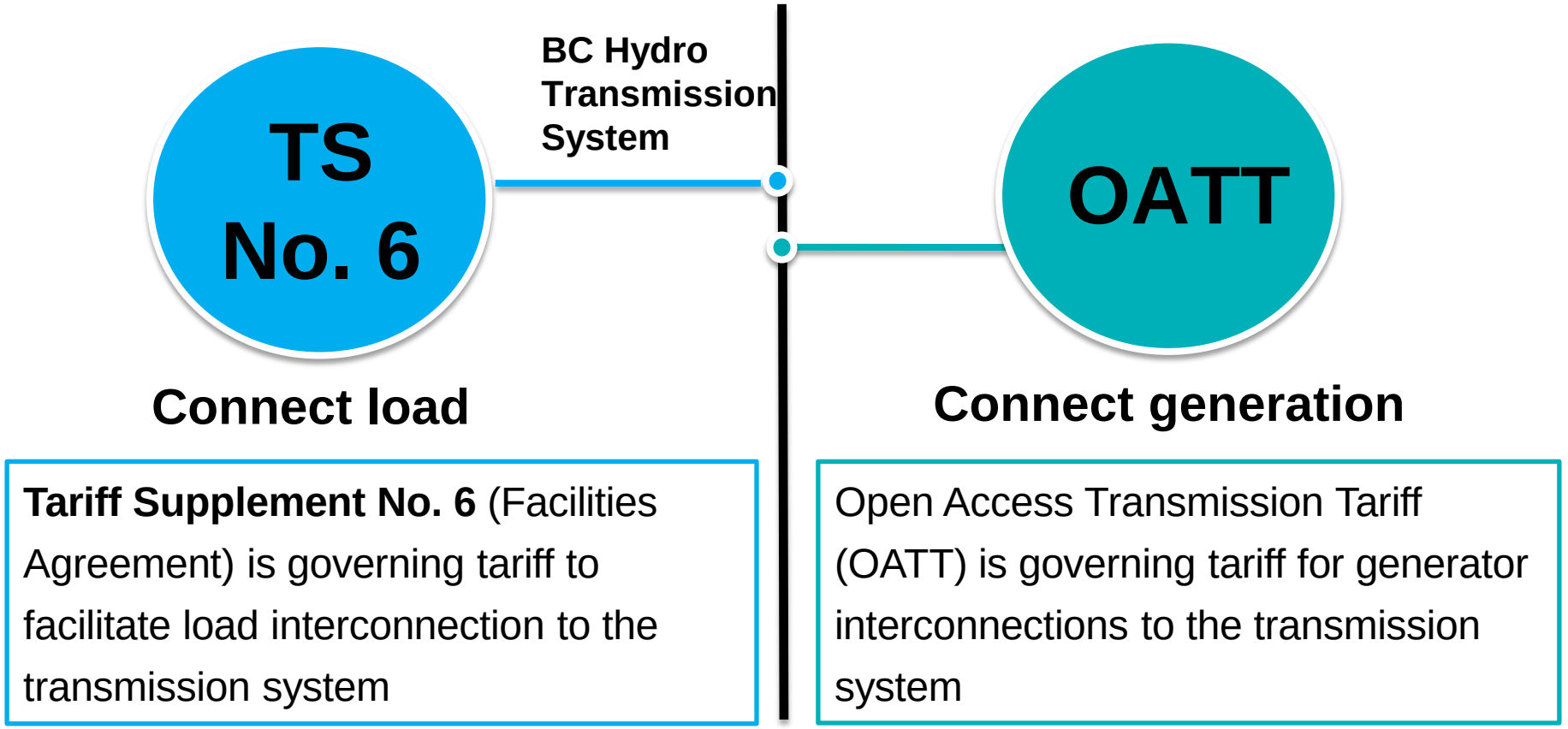


BC hydro
FOR GENERATIONS

Transmission Voltage Service Illustration



BC HYDRO'S INTERCONNECTION TARIFFS



NEW CUSTOMER PERSPECTIVE

New transmission customers are typically natural resource-based industrials:

How do I get connected?

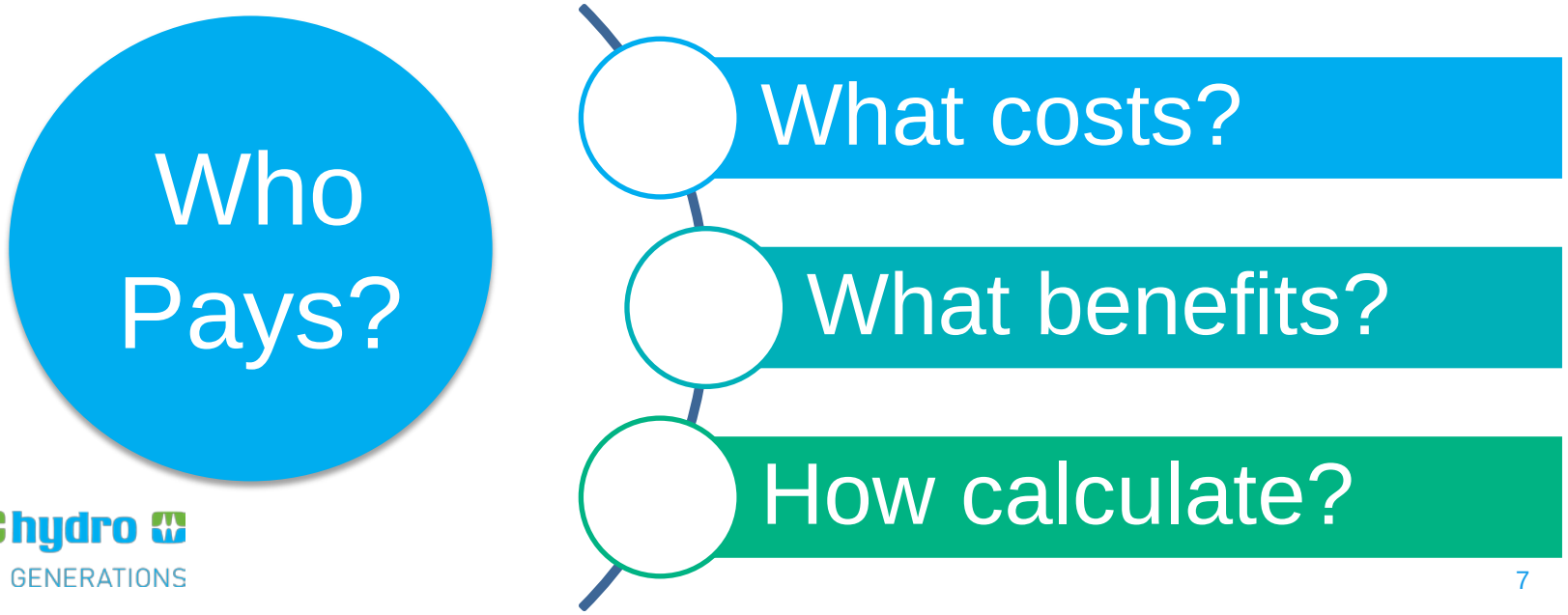
How long will it take?

How much will it cost?

EXTENSION POLICY: KEY DEFINITIONS

Extension / Contribution Policy:

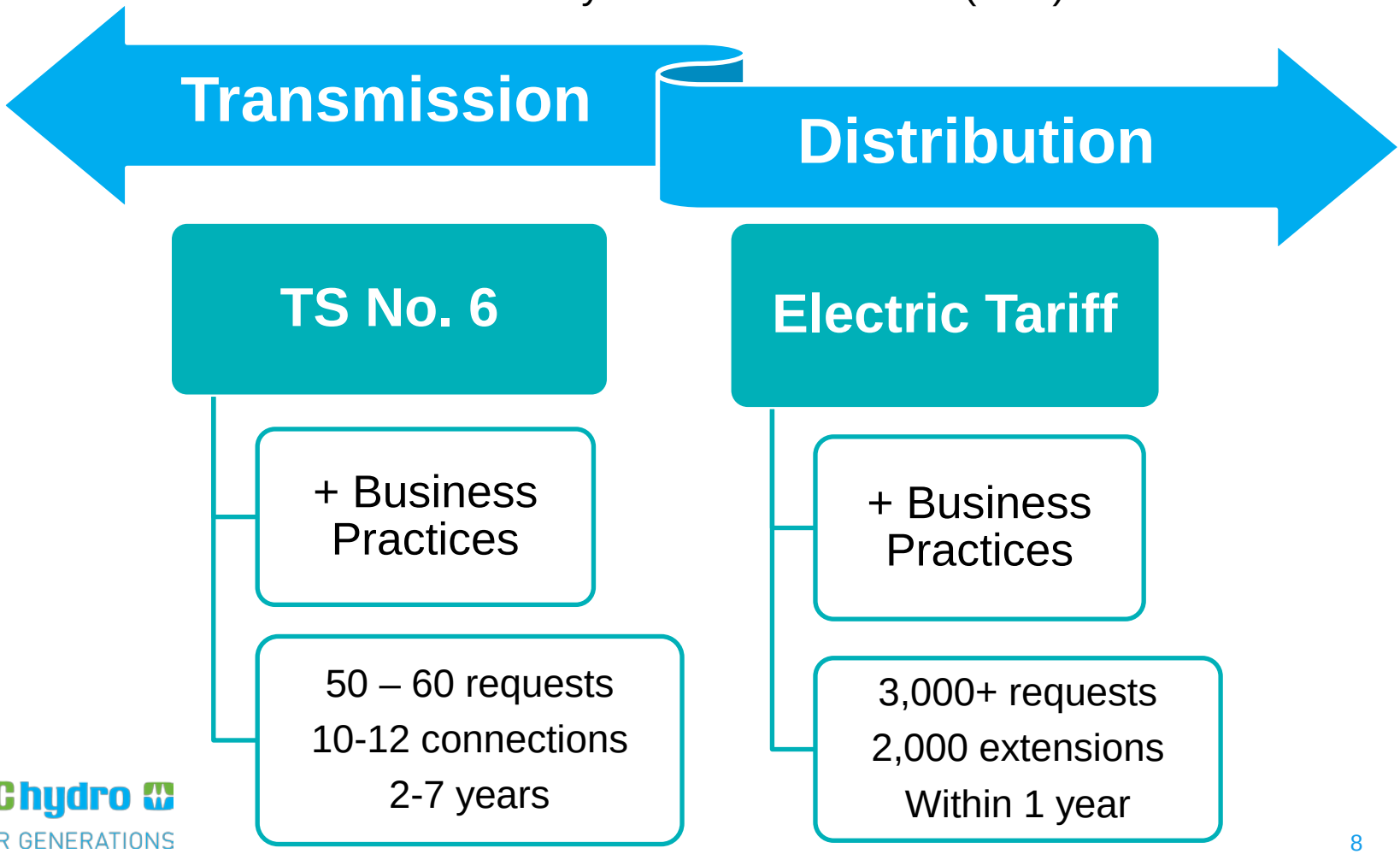
1. Rules allocating incremental costs of new service between the utility (on behalf of existing customers) and new customers.
2. Underlying premise is that new customer pays incremental costs of the new service, net of benefits to the utility/existing customers.
3. Costs borne by the utility/existing customers commonly referred to as utility “offset”, “allowance”, or “contribution”.



BC hydro
FOR GENERATIONS

EXTENSION POLICY: T & D APPLICATION

1. Extension policy applies to all new loads, big and small, T&D
2. Application can vary with unique customer circumstances
3. Consideration of BCUC 1996 System Extension Test (SET) Guidelines



BC hydro
FOR GENERATIONS

TS NO. 6 (FACILITIES AGREEMENT)

- Approved January 1991 pursuant to BCUC Order G-4-91 and NSA
- Sets out “rights and obligations” of BC Hydro and customer re: construction, ownership, operation of facilities
- **Part 1: “**Agreement for New Transmission Service Customers” … also referred to as “Facilities Agreement”
- **Part 2:** Provisions Respecting System Reinforcement and Transmission Extension Polices for Permanent Service (*“Appendix 1”*)

BC hydro
FOR GENERATIONS

TS NO. 6 LOAD INTERCONNECTION

Summary

1. BC Hydro performs studies to determine cost, method and timing of transmission system interconnection.

2. BC Hydro is responsible to deliver power from the transmission system to the customer at the Point of Delivery (POD).

3. Customer is responsible to bring power from POD to their plant site: *(involves building a transmission line, substation and distribution system)*

TS NO.6: SYSTEM FACILITIES/INFRASTRUCTURE

BC Hydro System

- System Reinforcement
- Basic Transmission Extension (BTE)

- BC Hydro design/build/own
- "additions" & "alterations" to transmission system
- Utility "offset" formula for costs

BC Hydro design/build/own
Customer pays

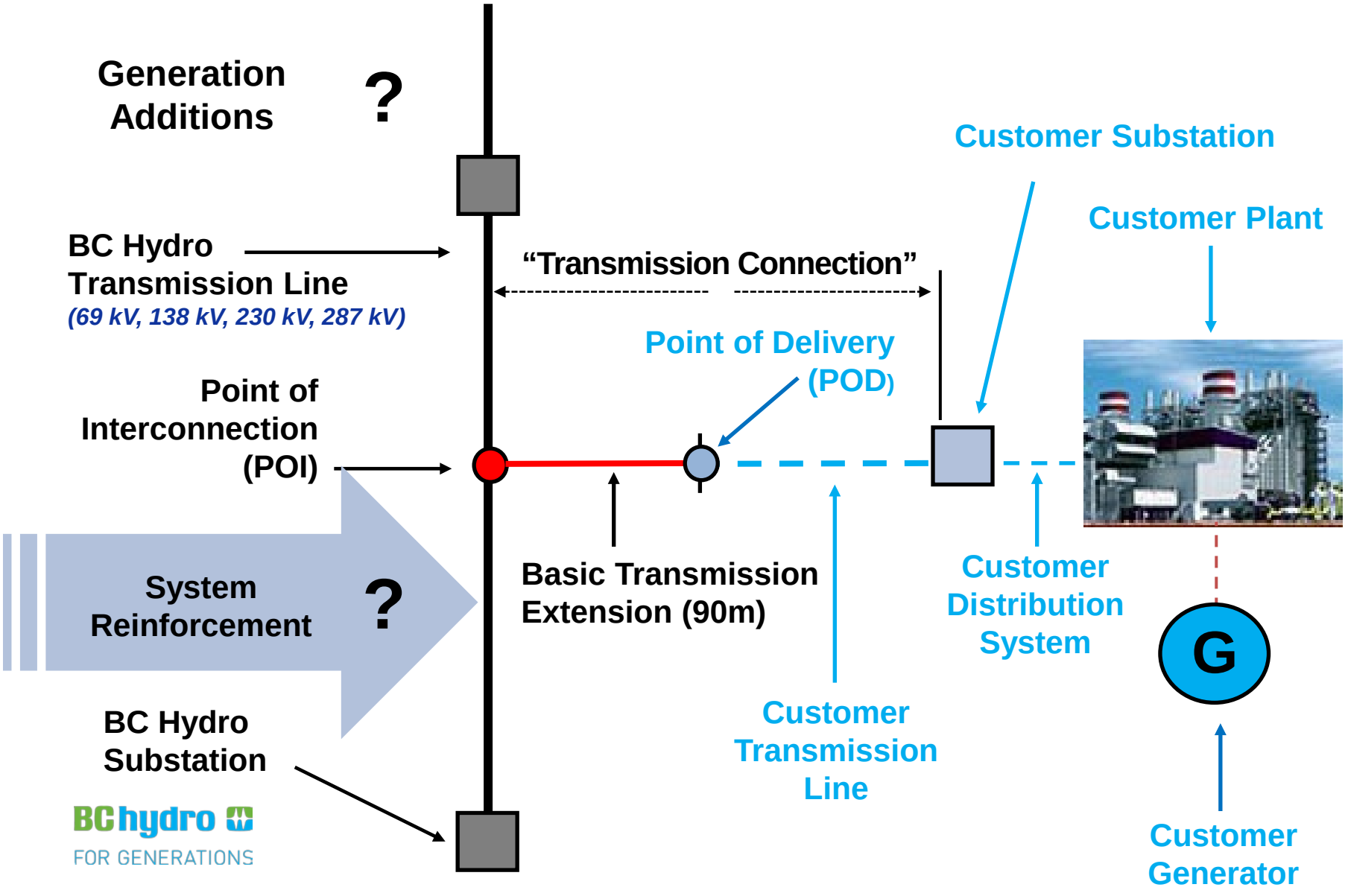
Customer System

- Transmission Line
- Substation
- Distribution System
- Plant

- Customer pays to design/build/own
- Option to transfer transmission line *(if built to BC Hydro standards)*

These are the system "facilities" required to serve electricity to the customer…

ILLUSTRATIVE TRANSMISSION CONNECTION



TS NO. 6: UTILITY CONTRIBUTION / MAXIMUM OFFSET

Utility contribution or “maximum offset” is calculated using ~ 7.4 years of customer electricity revenue, assuming constant dollars and rate pricing

Per Section 5(c)(ii) of TS No. 6

DISCLAIMER: Overview of tariff mechanics and application only

$$\frac{\text{Revenue} - \text{Expenses}}{0.135} + \text{Benefits} + \text{Depreciation}$$

FORMULA APPLICATION:
Customer provides refundable security … no capital contribution

Formula application:

- **Revenue**: annual RS 1823 energy and demand (current rates)
- **Expenses**: annual O&M value for capital cost of wires (0.6%) and stations (1.2%)
- **Benefits**: typically assumed to be zero
- **Depreciation**: ½ x 3% annual straight-line depreciation of capital SR costs

TS NO. 6: THE 150 MVA THRESHOLD

- *"System Reinforcement shall not include additions or alterations to generation plant and associated transmission, or transmission lines at 500 kV and over, unless the new or incremental loads exceed 150 MVA." Section 2 of TS No. 6 (Definitions)*

< 150 MVA

System Reinforcement:

- Basic Transmission Extension
- Substations, lines, capacitors
- No generation and/or related transmission
- No 500 kV transmission system

> 150 MVA

System Reinforcement:

- Includes cost of upgrades to 500 kV "bulk" transmission system
- Includes cost of generation additions or alterations to serve incremental load (all load, not just >150 MVA)

CONSIDERATIONS

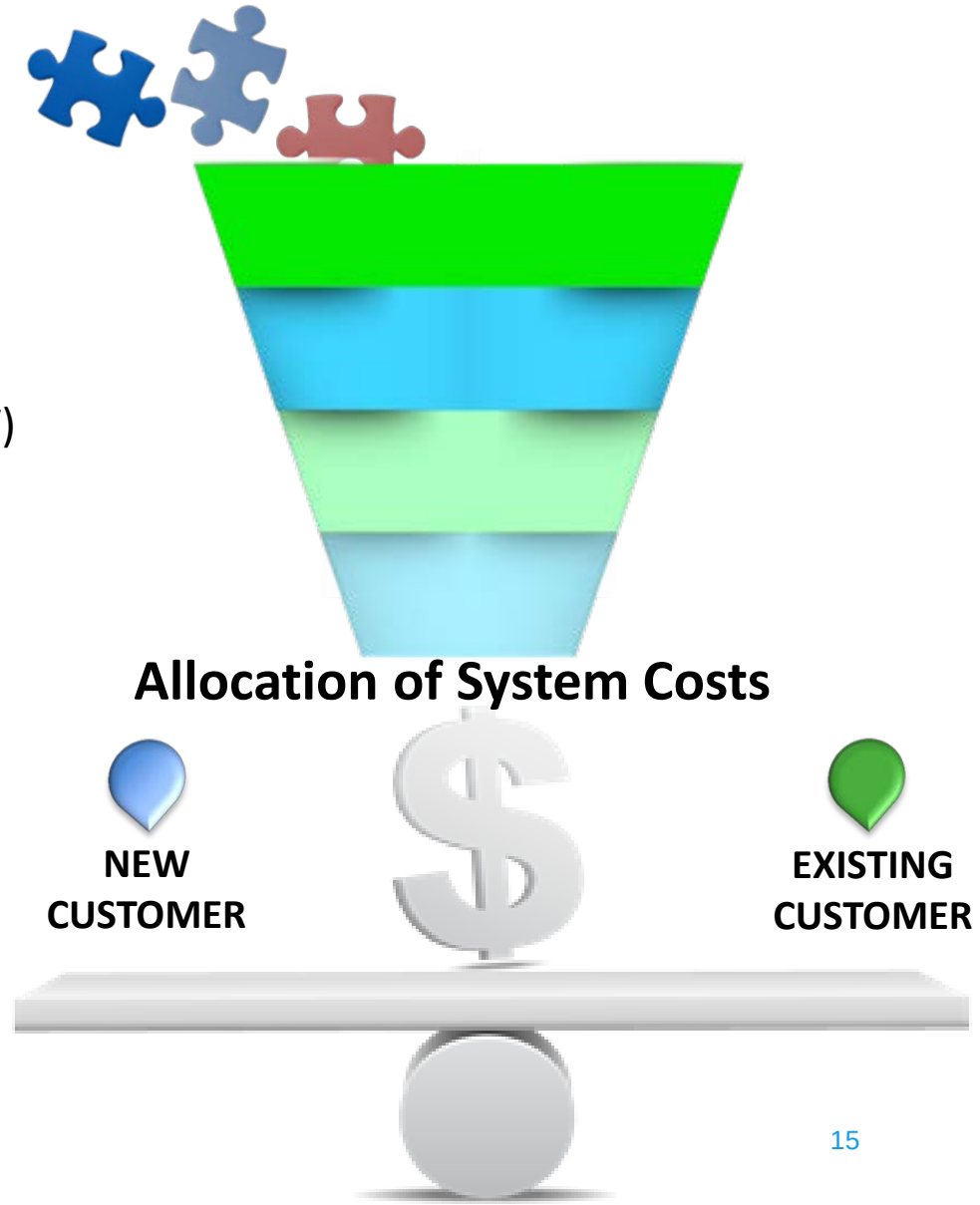
1. **Phased/Staged Loads**
2. **Single site POI vs multiple site POI**
3. **Regional load "clusters"**
4. **Is a threshold necessary?**

BC hydro
FOR GENERATIONS

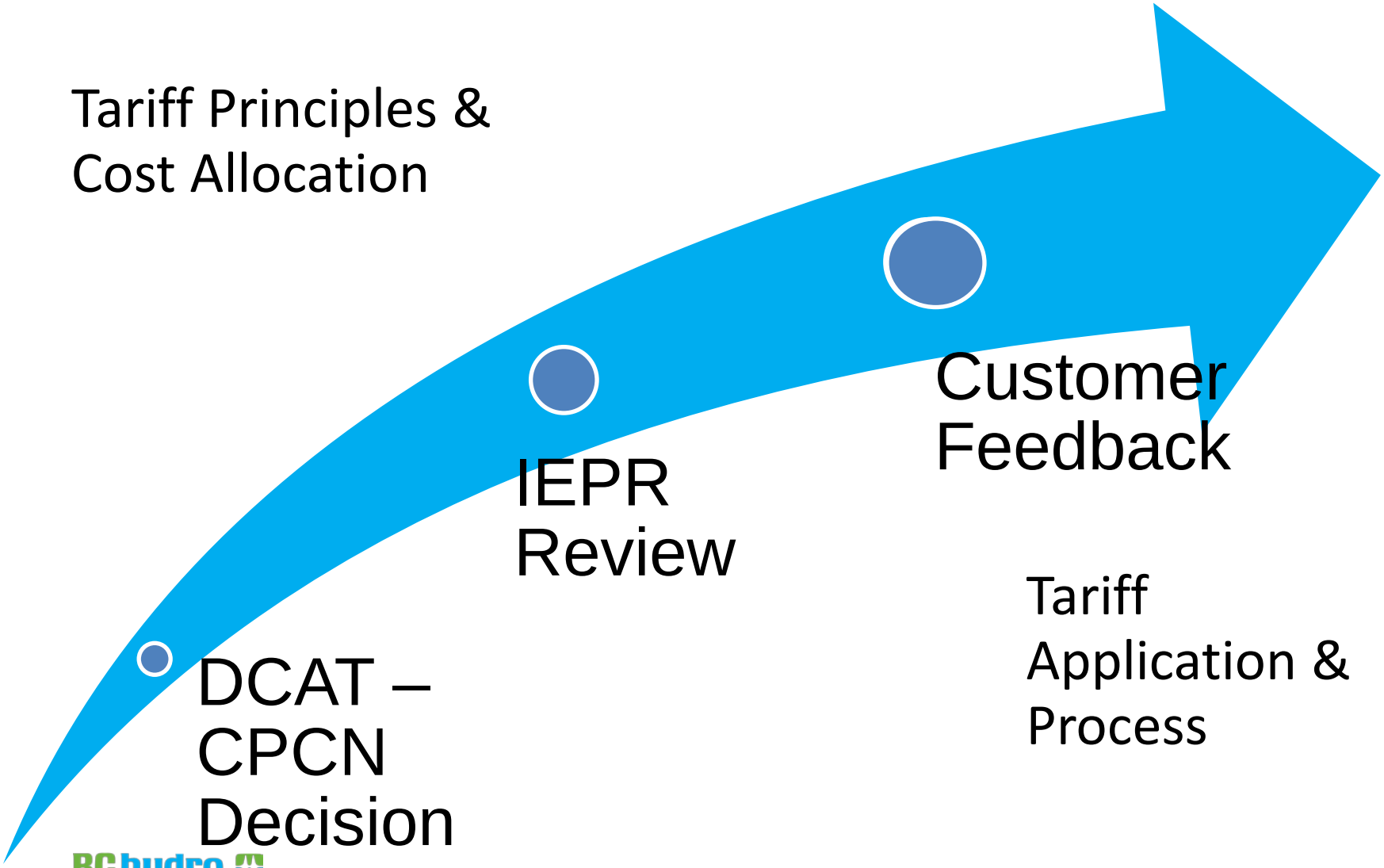
CONCEPTUAL ALLOCATION OF SYSTEM COSTS

Cost Considerations:

- System Reinforcement (Tx lines and substations)
- Generation
- Bulk transmission system (500 kV)



REVIEW CONTEXT



BC hydro
FOR GENERATIONS

REVIEW CONTEXT

IEPR Final Report – October 2013

Taskforce Recommendations	Government Response
The industrial tariff supplement, that sets out the terms and conditions (TS No. 6) is over 20 years old and should be reviewed in a Commission public process	A rate design review process will be launched to examine ways to provide industrial customers with more options to reduce electricity costs

BCUC: DCAT CPCN Decision – October 2012

"… this Panel recommends that the Commission should consider a review of TS 6 and invite all interested parties to participate in the review as this is a significant and urgent issue." (Decision Page 128)

PROPOSED SCOPE ITEMS FOR ENGAGEMENT

Overview

Tariff and process for interconnection of new customer load and self-generation to the BC Hydro transmission system:

1. **TS No. 6**
2. **Interconnection Process & Queue Management?**
3. **Related Terms & Conditions / Commercial Agreements?**

Tariff →

- **Electricity Supply Agreement (TS No. 5)**

Non-Tariff

Appetite to review non-tariff documents:

- **System Impact Study and Facilities Study Agreement?**
- **Credit Support Agreement (security for System Reinforcement)?**
- **Transmission Line Ownership Transfer Agreement?**

BC hydro
FOR GENERATIONS

TS NO. 6 – SCOPE ITEMS FOR ENGAGEMENT

- Summary of scope items consolidated from DCAT hearing and IEPR

Proposed Scope Items:

1. **Transmission service customer eligibility criteria**
2. **Definition of eligible “system costs” for allocation**
3. **Methodology/formula to allocate system costs**
4. **Examination of 150 MVA threshold**
5. **Treatment of “system reinforcement” vs “system extension”**
6. **Treatment of single loads, phased loads, regional load clusters**
7. **Treatment of load customers with self-generation**
8. **Commercial agreements / terms and conditions**
9. **Other?**

INTERCONNECTION PROCESS/QUEUE MANAGEMENT

What is the queue?

- Business practices for managing new load interconnections (request-to-energization).
- Based on “first-come, first-serve” principle.
- (1) Study order; (2) system “base-case”; (3) allocation of system/facilities costs.

How does it work?

- Load interconnection request is start point
- Queue position for load nomination
- Queue position for load reservation

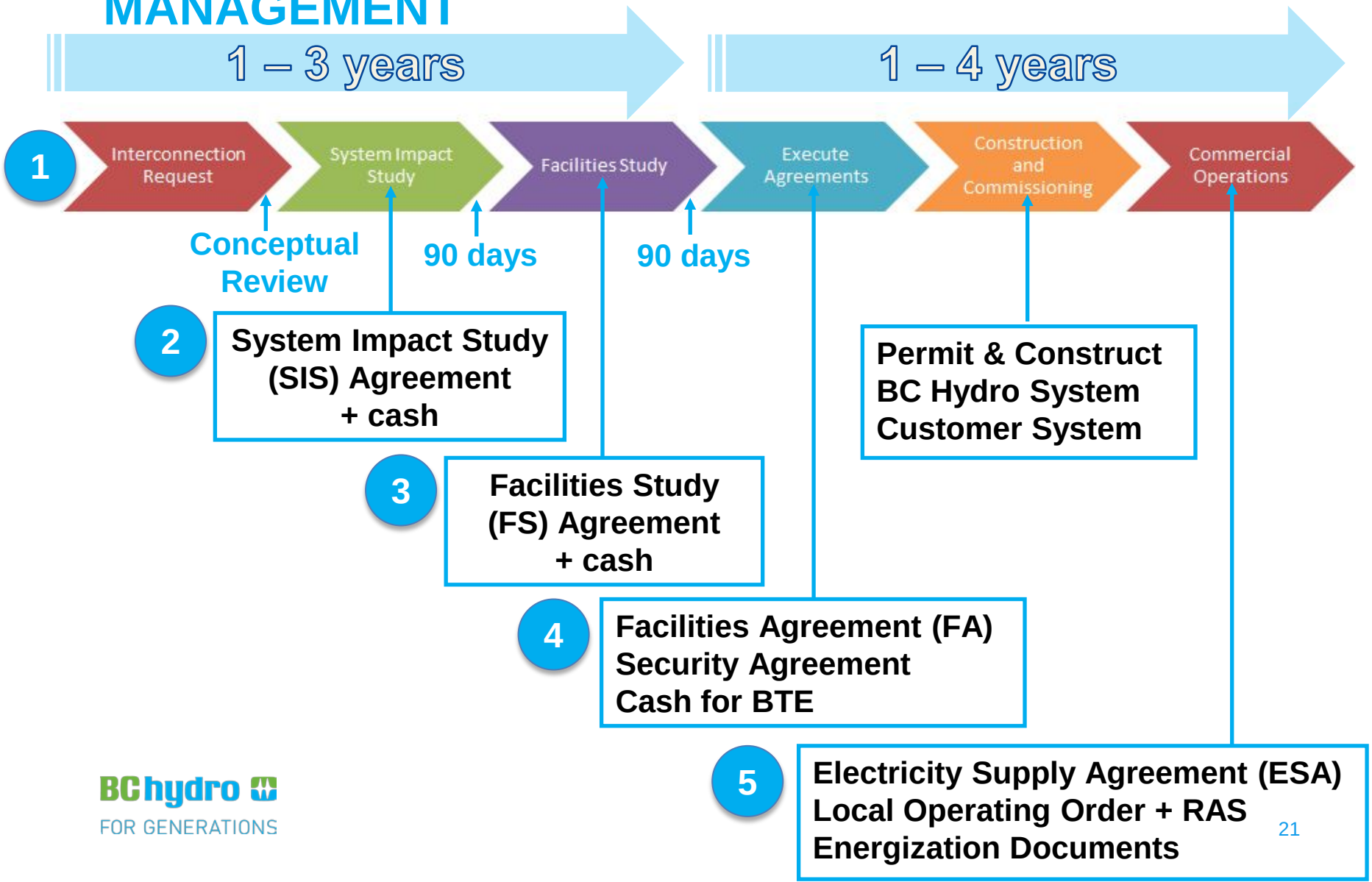
What are key issues?

- Cost and schedule for study completion
- Business practices not transparent
- Differentiation for “commercial readiness”, unique circumstances, etc.

BC hydro
FOR GENERATIONS

Concept is to maintain queue position from “commitment” to energization

INTERCONNECTION PROCESS / QUEUE MANAGEMENT



BC hydro
FOR GENERATIONS

PROPOSED NEXT STEPS

1. **Collect your comments and feedback today**
2. **3 week written comment period on scope items**
3. **Concrete proposals welcome at any time**
4. **Province-wide TSR customer workshops in late May**
5. **TS-6 topic-specific workshop in fall … intent is to come back with “straw man” proposals that reflect feedback and an updated jurisdictional assessment**

2015 RATE DESIGN APPLICATION

DISTRIBUTION EXTENSION POLICY & TERMS AND CONDITIONS

Presented by: Rena Messerschmidt, Manager - Customer Projects

BC hydro
FOR GENERATIONS

May 8, 2014

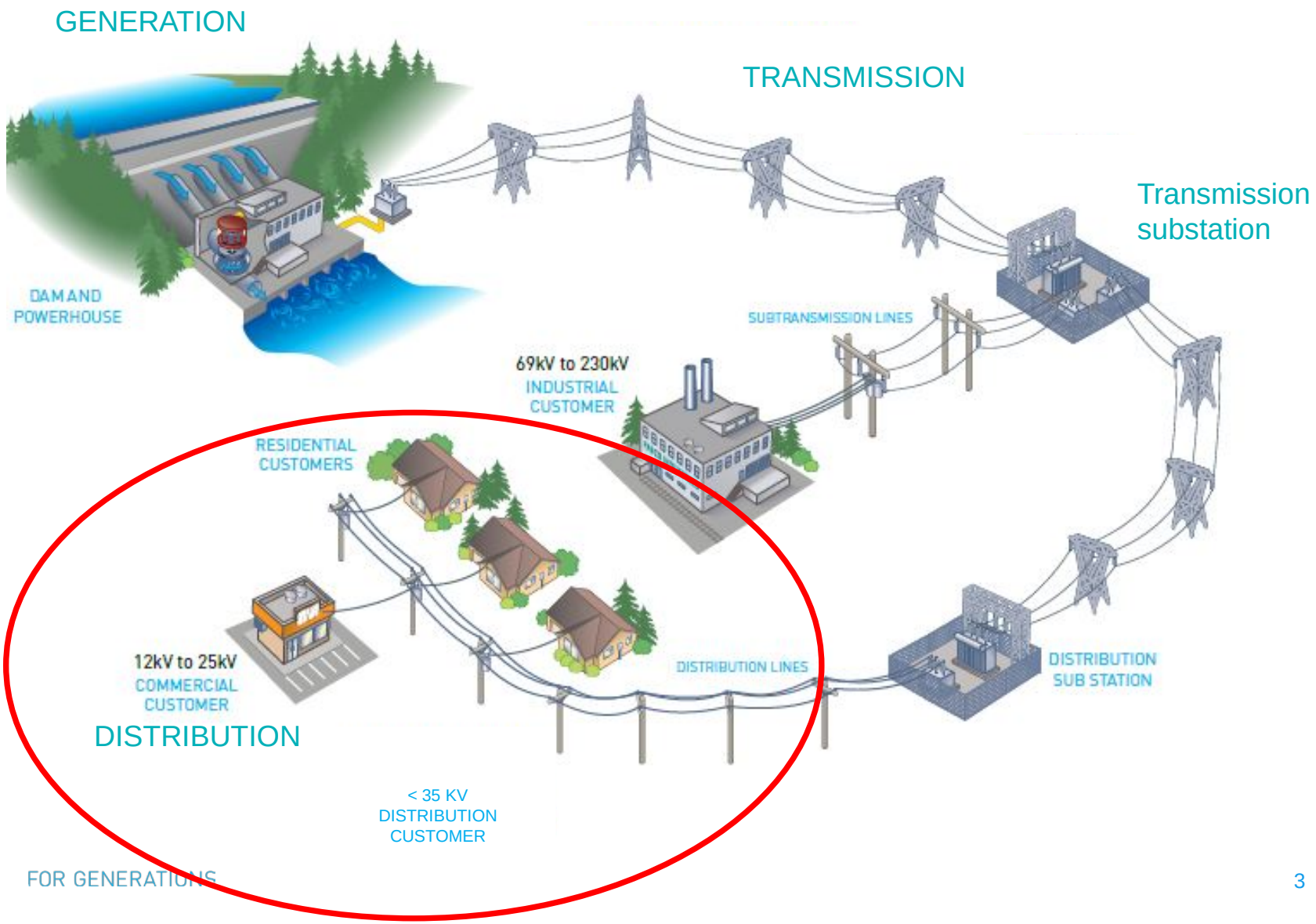
AGENDA

1. Distribution System
    - Overview
    - Customer Characteristics

2. Customer Extension Cost Allocation Issues
    - 2007 RDA Principles
    - Extensions – Illustrative
    - BC Hydro Maximum Contribution
    - Schedule & Cost Allocation issues
    - Extension Examples
    - Extension Fee Refunds
    - Terms and Conditions Updates for Specific Sections of the Electric Tariff

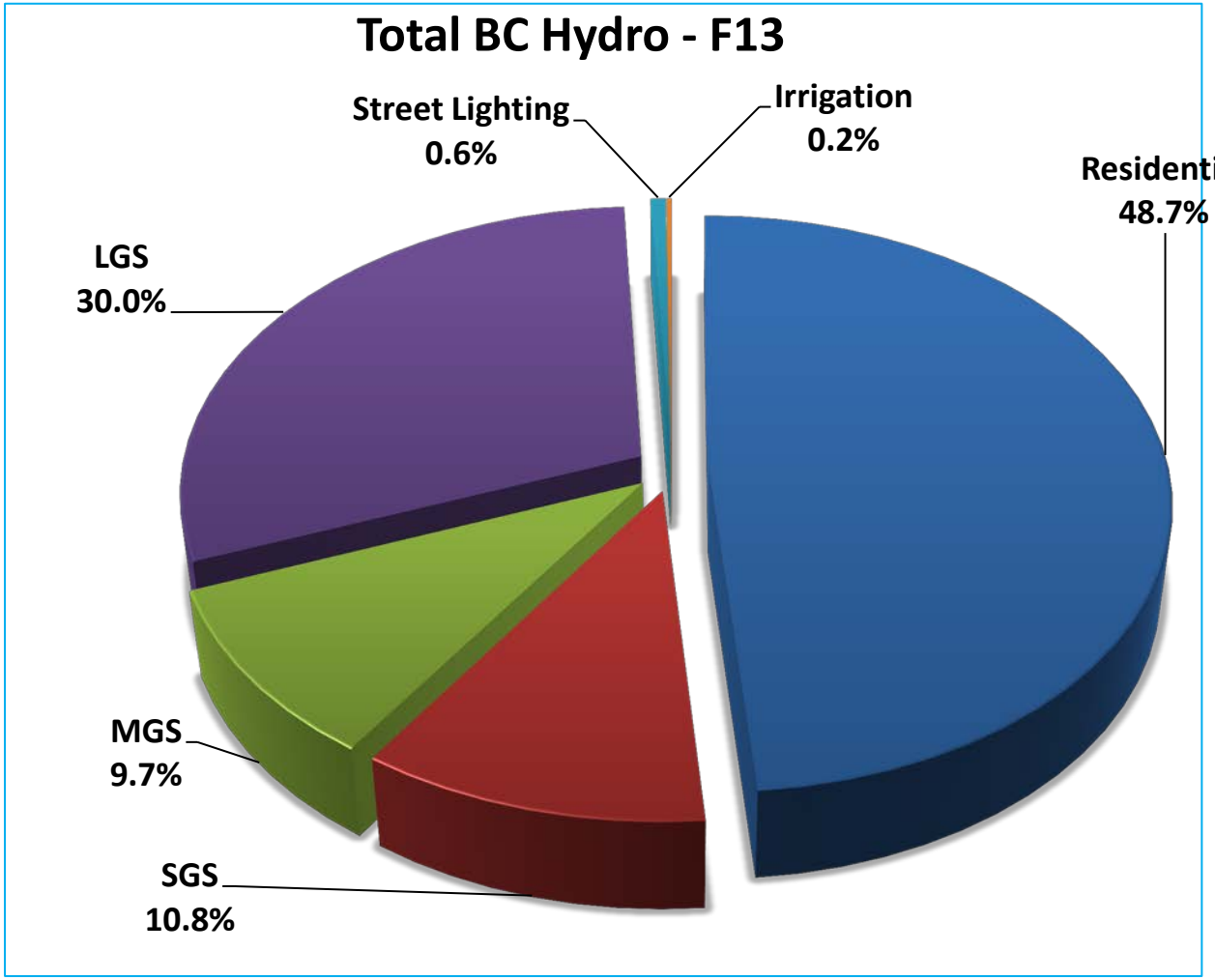
3. Questions & Comments

DISTRIBUTION SYSTEM



DISTRIBUTION CUSTOMER CHARACTERISTICS

Energy Consumption by Rate Classes



1.9M
customers

36,379
GWh

$3,086M
revenue

Source: BC Hydro F2013 FACOS Study

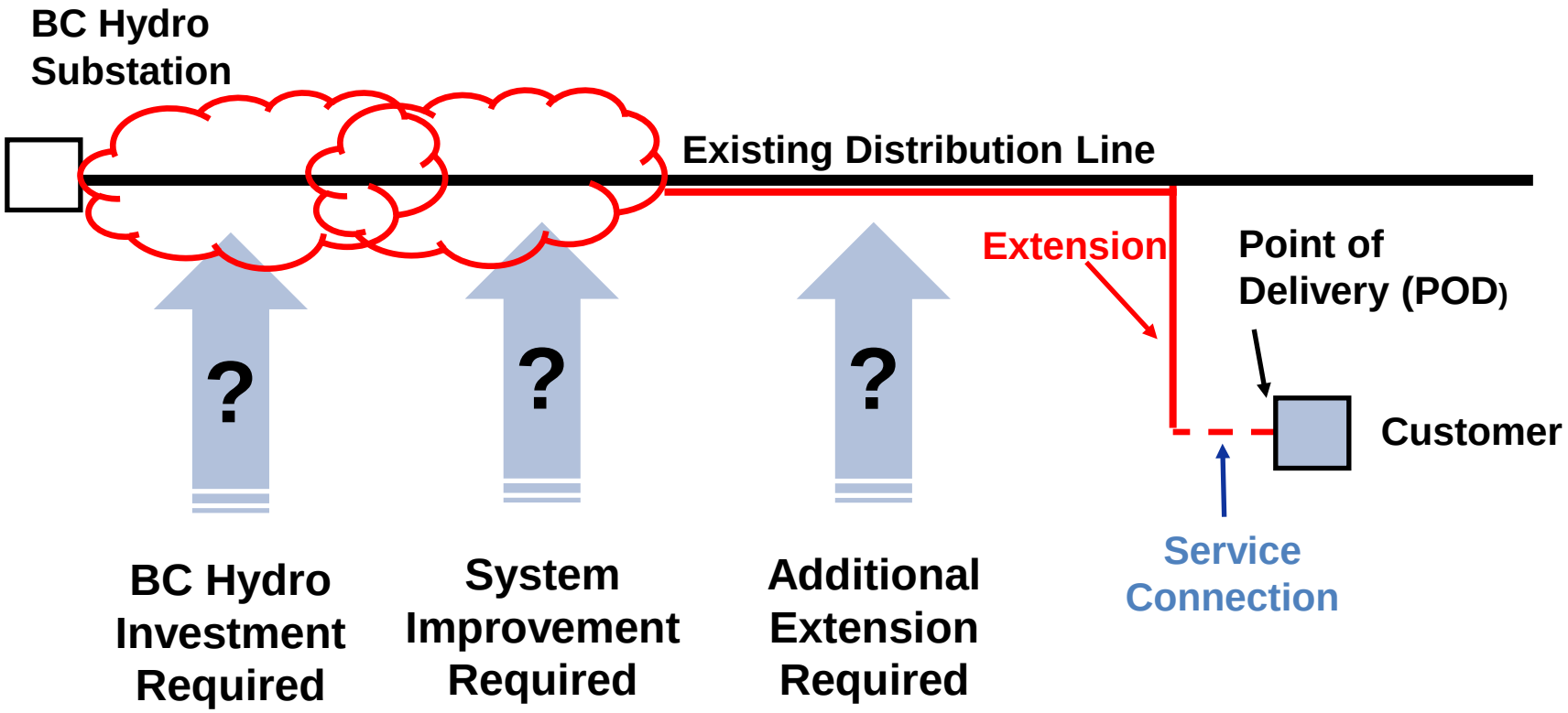
2007 RDA CONTEXT

2007 RDA Decision

- The BCUC highlighted recommendations # 1 & #5 from the 1996 SET Guidelines:
  - #1 (discounted cash flow evaluation of system extensions)
  - #5 (consideration of all incremental costs and benefits) but that, “events have taken place since 1996 that must be considered”. Most notable is Direction No. 7

- BCUC highlighted 3 variables (allocation factor, number of years of discount rate, and discount rate)

ILLUSTRATIVE DISTRIBUTION EXTENSION



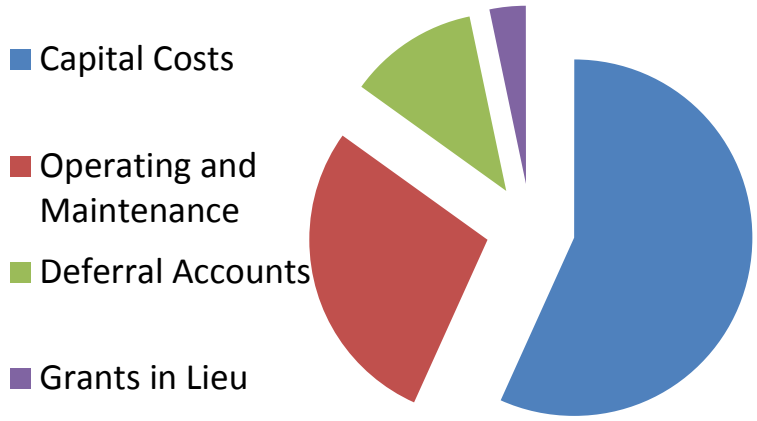
The extension provisions of the tariff are meant to provide a method of determining how a utility and a customer will share the costs of serving the new customer.

NOTE: Examples of some potential scenarios will be illustrated later in this presentation.

BC HYDRO MAXIMUM CONTRIBUTION

Distribution Revenue Requirements

Distribution Revenue Requirements



- Costs are used as a proxy for revenue
- Capital costs include depreciation, finance, and return on equity

Discount period: 20 yrs.

Discount Rate:

8% - 2007 RDA
(used to generate maximum BC Hydro contribution in table)

7% - Proposed

Customer Class	Maximum BC Hydro Contribution
Residential	$1475 per single family dwelling
General Service	$200 per kW of billing demand
Irrigation	$150 per kW of billing demand
Street Lighting	$150 per fixture

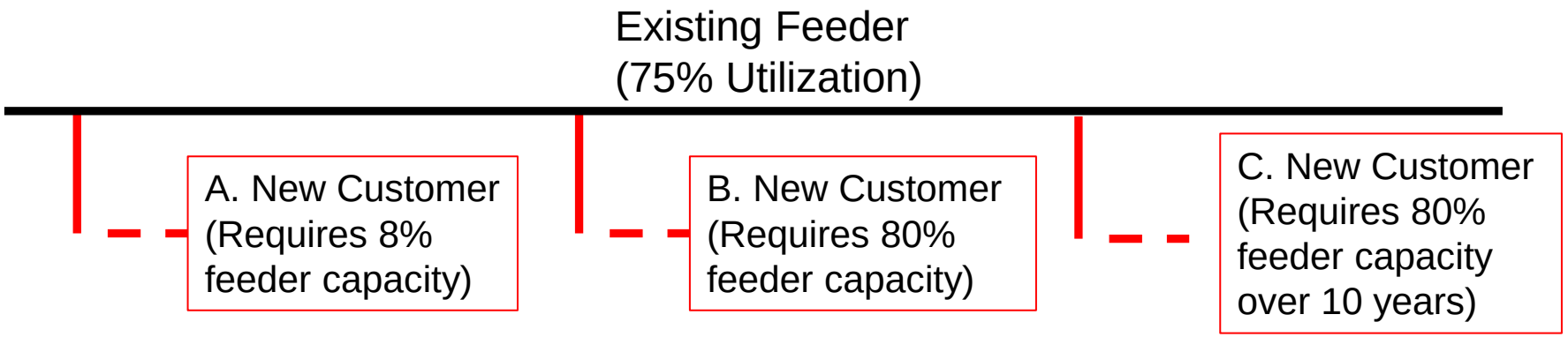
BC hydro
FOR GENERATIONS

ISSUE: SCHEDULE & COST ALLOCATION

With the BC Hydro Distribution system reaching full, or nearly full, capacity in most regions the key issues we are seeing are with:

- Larger Developments
  - Requires significant capacity necessitating costly upstream system improvements
- Developments Phased over Several Years
  - Developers looking to defer/spread costs evenly over development life
  - Electrical capacity is more of a step function requiring minimal costs in some phases and significant costs in other phases
- Densification vs. Green Field
  - Existing and aged distribution systems that need to be reconfigured to accommodate new development
- Extensions to Rural Communities
  - Communities connected via long radial lines looking to expand and are limited by existing infrastructure.

EXTENSION EXAMPLES



- Every new customer has some impact to the Distribution system which at some point will necessitate System Improvements.
- Sometimes those improvements can be deferred. Other times those improvements are required immediately to serve the load. Some multi-phase projects require capacity increases over time.
- For these examples under our current business practices:
  A. Would pay for their Extensions but would most likely not pay for System Improvement as no facilities would have to be constructed to accommodate.
  B. Would likely have some form of Extension/System Improvement as work upstream of the customer would need to be done to accommodate. (some costs may be offset by the BCH contribution).
  C. Is more complex as it resembles characteristics of example A) as well as B). Ultimately, the development needs are more aligned with B) but if possible, work is staged to try to align the schedule of Extension work with the developer. (as per phased developments discussed).

EXTENSION EXAMPLES

Long Single Phase Tap (at capacity)

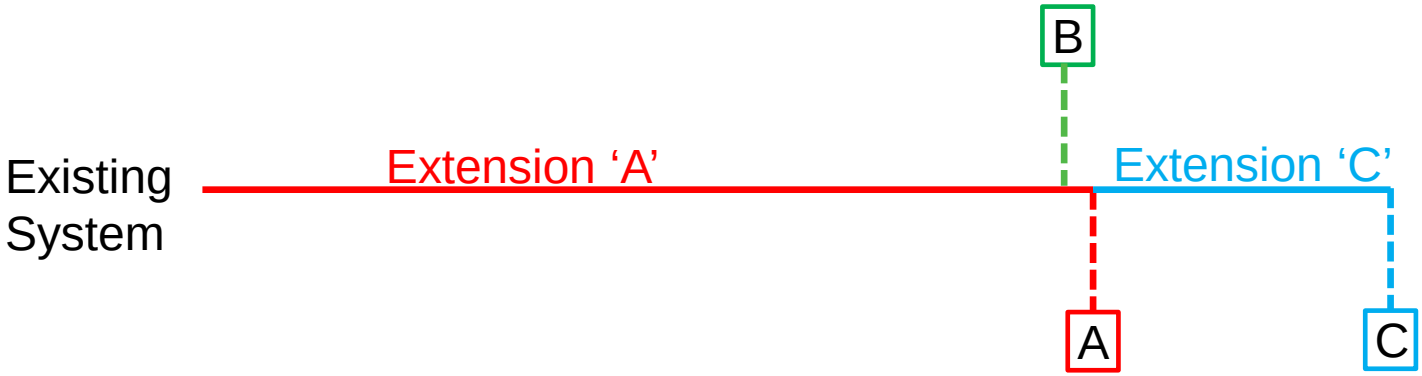
In this second example, a new customer requires a single phase extension, but due to the existing single phase line being at capacity additional work must occur to accommodate the customer's load.

- Should this customer pay more because their request came later when the system hit its capacity limit?
- Should BC Hydro pay to increase the system capacity?

Issues – Is this Equitable?

- Customer cannot connect unless upstream capacity restraint is resolved.
- Previous customers, with similar loads, were able to connect without requiring System Improvements.
- The new Customer is the "straw that broke the camel's back".
- **Should <u>every</u> customer contribute to upstream improvements whether they are constructed at the time of their extension?**
- How should BC Hydro fairly assess system impacts of individual customers. All new customer loads impact the upstream system?

EXTENSION FEE REFUNDS



Customer "A" (the "Pioneer") :

- Builds an extension and a service connection from BC Hydro's existing distribution system. The cost of the extension is offset by the BC Hydro Contribution.

Customer "B":

- Builds a service connection directly from Customer "A's" extension. No extension is required (i.e. their full BC Hydro Contribution is available as a refund to Customer A).

Customer "C":

- Builds a subsequent extension and service connection off of Customer "A's" extension. The cost of the extension is offset by the BC Hydro Contribution

When Customer "A" applies for an Extension Fee Refund, (within the next 5 years) they would be entitled to any of Customer "B" & "C's" unused contributions.

Current Issues for review / feedback:

- "Free – Riders" – new customers who do not contribute appropriately or at all to the extension.
- Refunds are limited to 5 years after an extension is energized.
- Complicated to evaluate non-radial extensions (i.e. offloading occurs to accommodate new extension)
- Completely manual / complex process

T&C UPDATES FOR SPECIFIC SECTIONS OF THE ELECTRIC TARIFF

- **BC Hydro proposes that a review of the Electric Tariff (Distribution) would focus mainly on Section 8 (Customer Extensions).**
- **BC Hydro proposes that the review also include all the Terms & Conditions sections to develop recommendations for increased clarification. For example, the "Definition" section will be reviewed to be revised, clarified or created with the outcome of the tariff recommendations.**
- **All Connection Charges will be discussed in the June workshop.**

NEXT STEPS

- **Three week comment period after this Workshop No. 1, (until May 30, 2014) on proposed scope and engagement process discussed at this workshop.**

  Please send feedback to:

  - **Mail: BC Hydro, BC Hydro Regulatory Group – "Attention 2015 RDA", 16th Floor, 333 Dunsmuir St., Vancouver, B.C. V6B-5R3**
  - **Fax: 604-623-4407, "Attention 2015 RDA"**
  - **Email: bchydroregulatorygroup@bchydro.com**
  - **Web: www.bchydro.com/about/planning_regulatory/regulatory.html**

- **Next proposed workshops:**

  - **Thursday June 19th - Review of consultant report on BC Hydro's COS methodology, BC Hydro's straw man response**
  - **Wednesday June 25th – Review initial modelling results for RIB, alternatives to the RIB and also Electric Tariff charges**