



SUNCOR

Bulk & Regional Tariff Design

Session 3 – November 5, 2020

Overview

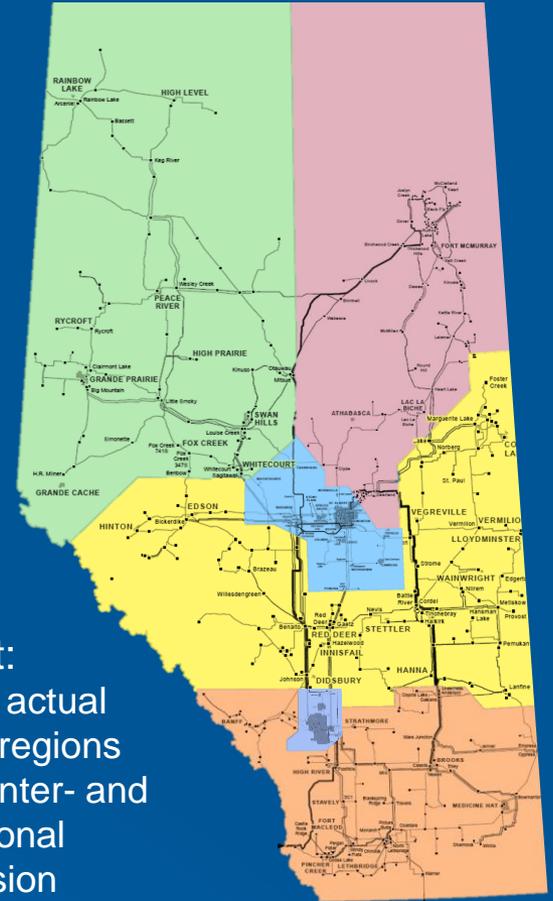
- Design Objective
- Bulk & Regional Transmission in Alberta
- Billing Determinant Principles
- Billing Determinants for
 - Point of Delivery (for Context)
 - Regional Transmission
 - Bulk Transmission
- Putting it all Together
- Note on the Frequency of Coincidence Measures
- Appendix
 - Responses to AESO questions
 - Comments regarding AESO rate design objectives
 - “Nice to Have” objectives
 - Assessment against “Nice to Have” objectives

Legislative Intent – *Electric Utilities Act (EUA)*

- Background: “the failure of an administrative decision-maker to take into account a highly relevant consideration is just as erroneous as the improper importation of an extraneous consideration” [SCC]

Purpose of the <i>EUA</i> : Promote an efficient market based on fair and open competition	[Section 5]	
Rates must reflect prudent costs that are reasonably attributable	[Section 30(2)]	
Rates cannot differ based on location	[Section 30(3)]	
Tariff must be just and reasonable	[Section 121(2)]	
Tariff cannot be unduly preferential, arbitrarily or unjustly discriminatory	[Section 121(2)]	
Tariff is not unjust or unreasonable because it provides efficiency incentives	[Section 121(3)]	
Rates must result in cost recovery	[Section 30(2)]	

Alberta Bulk & Regional Transmission System in the Tariff



Current Tariff:

- 12-CP for 240 kV or higher
- Billing Capacity everything else

Refinement:

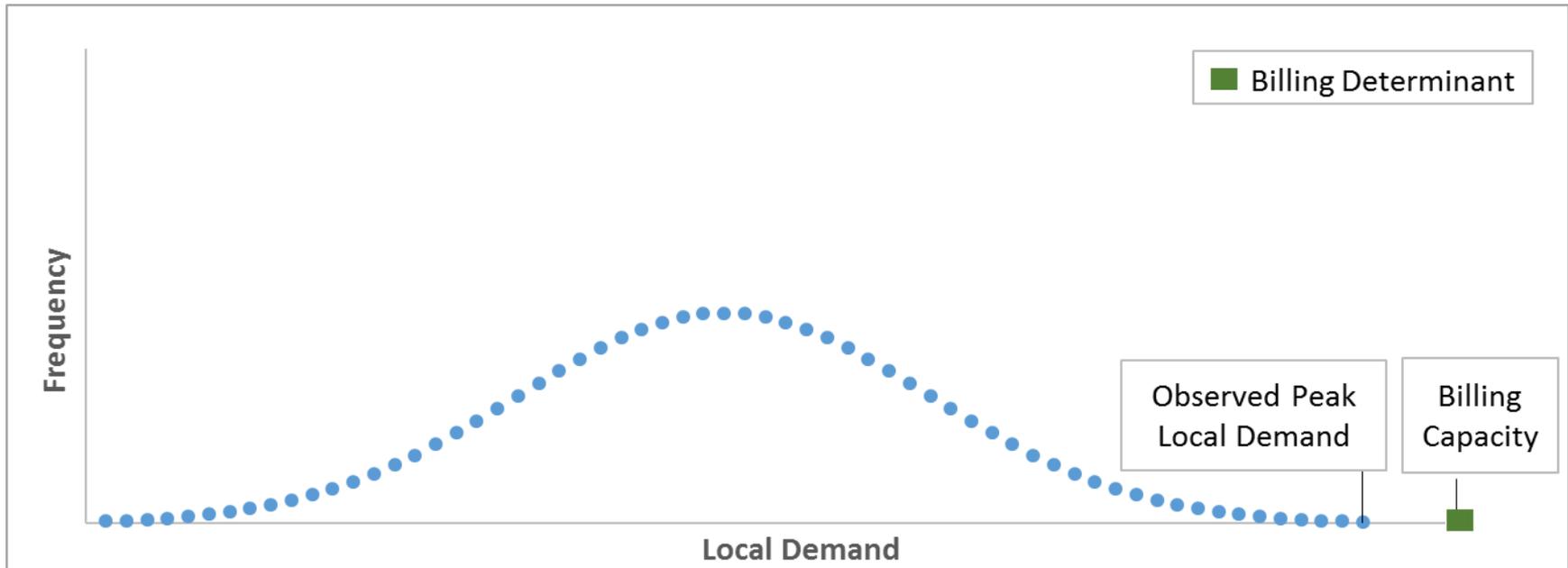
- Consider actual planning regions
- Analyze inter- and intra-regional transmission

Billing Determinant Principles

- Primary cost driver is some form of an observed coincident peak
 - Need for transmission facilities is driven by peak usage
 - The more customers are using a transmission facility, the more peak usage will be influenced by diversity
- Billing capacity can be a secondary cost driver
 - Risk of peak need exceeding observed peak usage
 - AESO might plan to mitigate against this risk through incremental transmission
 - Risk reduces with the number and diversity of customers
- (Total) energy is not a cost driver for transmission
 - Facility utilization outside of the peak hour is irrelevant
 - Energy could be a cost driver for other tariff components, e.g. Ancillary Services costs

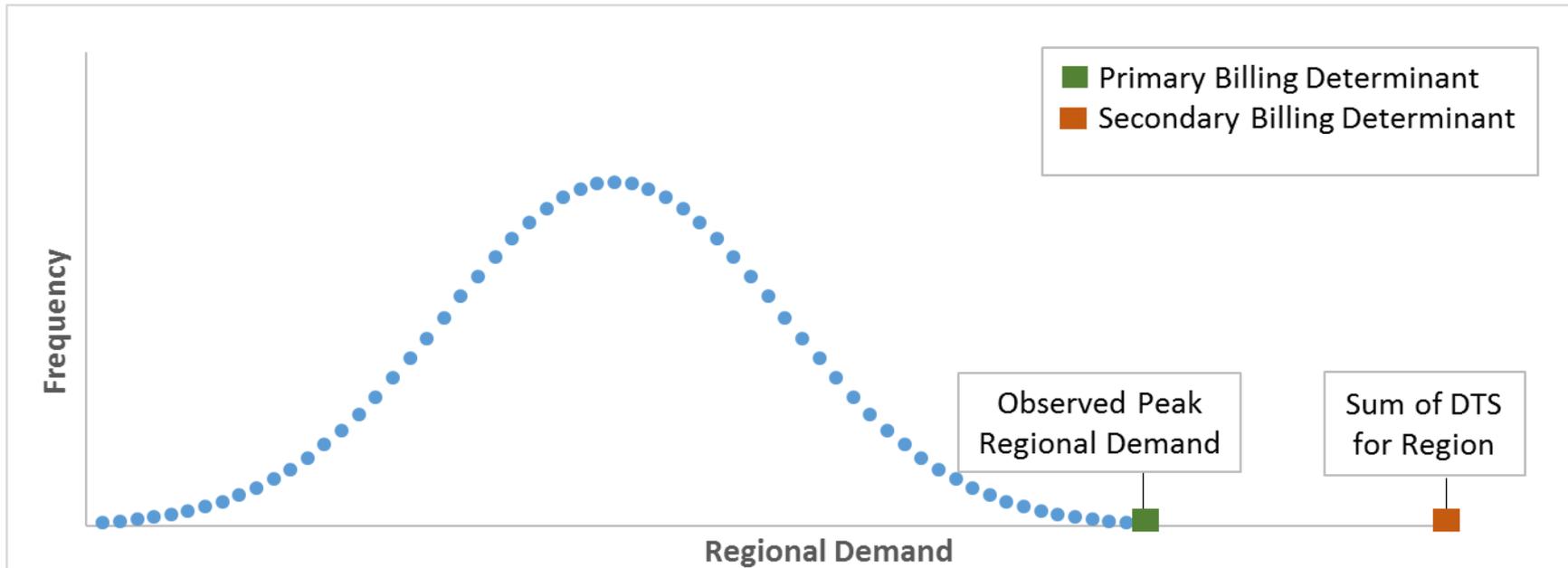
Point of Delivery (for Context)

- The need for local (POD) transmission facilities is driven by a customer's individual peak demand
 - Potentially less than its billing capacity
- High risk that transmission need is greater than indicated by the observed peak
 - Participant requested the AESO to plan for billing capacity through contracting
- Billing capacity is the cost driver, *i.e.* billing determinant



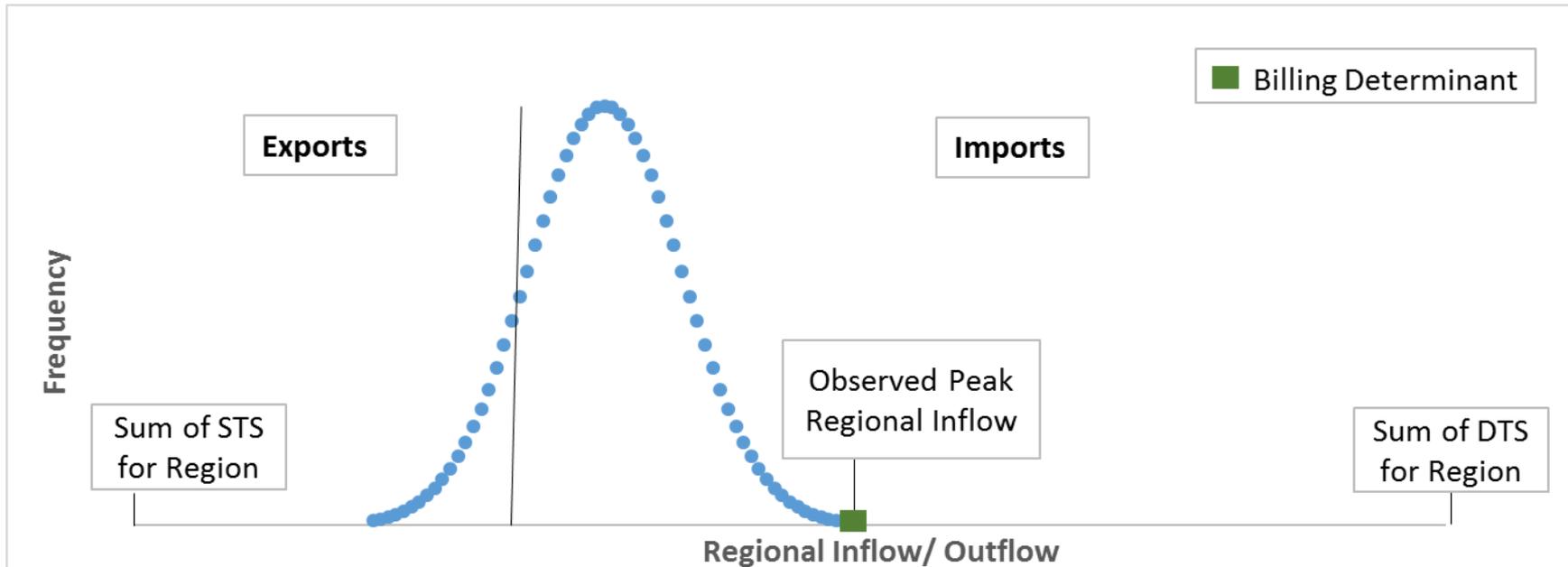
Regional Transmission

- The need for regional transmission facilities is driven by the peak demand in the region
 - Less than the sum of billing capacity
- Some risk that transmission need is greater than indicated by the observed peak
 - AESO should plan for some additional need but planning for the sum of DTS would be excessive
- Coincident regional peak demand (**CRPD**) is primary cost driver, *i.e.* primary billing determinant
- Billing capacity is secondary cost driver, *i.e.* secondary billing determinant



Bulk Transmission

- The need for bulk transmission facilities is driven by peak power inflows into regions
 - Power outflows could theoretically be used but that approach would not align with the requirement of loads paying for transmission
 - Significantly less than the sum of demand site billing capacity
- Low risk that transmission need is greater than indicated by the observed peak
 - Billing capacity does not provide a meaningful indication of need
- Coincident regional peak inflow (**CRPI**) is the cost driver, *i.e.* billing determinant



Putting it all Together

- For each billing determinant, the rate is equal to its marginal transmission cost impact
 - Goal is to estimate the cost impact as accurately as possible
 - If no better estimate is available, average cost could be used as a starting point for approximation
- Because of the mismatch between average cost and marginal cost, collected charges will not result in total costs recovery
 - Likely a shortfall but theoretically a surplus is possible
 - Section 30(2) of the *EUA* requires full recovery
- Since all causal relationships have been addressed, the remaining amount is independent of customer attributes or behaviour
 - Recovery has to therefore occur on a per customer connection basis
 - Other recovery mechanisms would send inefficient signals

Charge	Billing Determinant(s)
Point of Delivery	Billing Capacity
Regional	Coincident Peak Regional Demand Billing Capacity
Bulk	Coincident Peak Regional Inflow

Rate DTS Example Structure

Current: Level Based

Volume in Settlement Period	Charge
Bulk System Charge	
Coincident Peak Regional Inflow (CRPI)	I_b [/MW/month]
Connection	C_b [/month]
Regional System Charge	
Coincident Peak Regional Demand (CRPD)	D_r [/MW/month]
Billing Capacity	B_r [MW/month]
Connection	C_r [/month]
Point of Delivery Charge	
Billing Capacity	B_p [MW/month]
Connection	C_p [/month]

Potential: Billing Determinant Based

Volume in Settlement Period	Charge
Coincident Peak Regional Inflow (CRPI)	I_b [/MW/month]
Coincident Peak Regional Demand (CRPD)	D_r [/MW/month]
Billing Capacity	$(B_r + B_p)$ [MW/month]
Connection	$(C_b + C_r + C_p)$ [/month]

Note on the Frequency of Coincidence Measures

- Monthly assessment aligns with monthly billing
 - For CRPD, months with lower peaks could potentially be skipped
 - Different regions may have different peak profiles
 - For CRPI, all months should be used
 - Generation outages are generally placed in order to offset seasonal load patterns
- Annual assessment is an alternative that aligns with the tariff cycle
- For each assessment period, the peak hour should be used for the determination
 - Customers that want to respond, will respond in all similar hours due to uncertainty of the exact peak timing
 - Automatically results in responses for the top hours without arbitrarily cutting off relevant hours or including irrelevant hours
 - If the peak condition is not met in an assessment period, the billing determinant for all customers in the region is zero

SUNCOR

Appendix



Responses to AESO questions from the proposal template (1)

- What tradeoffs does your proposal create between the Rate Design Objectives? Why are those tradeoffs appropriate? Is one objective more important than another? Why or why not? (Mar. 19 and Oct. 1)
 - The proposal is aligned with the requirement to provide for an efficient electricity market through fair and open competition
- Why is your proposed rate design preferable to the current tariff structure and the AESO's rate design options? (Mar. 19)
 - Regional supply/demand imbalances are a better indicator for the need for bulk transmission, which makes 12-CRPI superior to 12 CP
 - The proposed AESO tariff structure has various flaws:
 - Billing capacity has no cost causal relationship with bulk transmission costs
 - The effect of billing capacity on regional transmission costs is overstated
 - The coincident regional peak is not a driver for bulk transmission but for regional transmission
 - Assessing coincidence factors over more than one hour per assessment period is inefficient

Responses to AESO questions from the proposal template (2)

- Why is this rate design best for all Albertans? (Oct. 1)
 - The fundamental purpose of deregulation has always been efficiency – achieving more for less to the benefit of Albertans. This proposal is to date the one best aligned with this objective
- How does your proposal incorporate energy storage and what are the implications of your rate design on energy storage resources? (Oct. 1)
 - Special treatment for storage is unnecessary since the billing determinants in the proposal send the efficient cost-causation signal. Storage facilities will therefore pay charges that are appropriate for the cost they are causing

Responses to AESO questions from the proposal template (3)

- Are rate classes included in your rate proposal? Why or why not? (Mar. 19 and Oct. 1)
 - When costs are properly attributed according to cost causation, rate classes seem unnecessary (See also the following two responses)
- Are any considerations made for certain resource types, for example standby, interruptible, or energy storage? Why or why not? (Mar. 19)
 - Proper billing determinants based on cost causation efficiently reflect costs caused by different resource types
 - Rates have to work holistically with rule requirements. Relative rule advantages/disadvantages for different resources need to be balanced through the tariff

Responses to AESO questions from the proposal template (4)

- Are there additional rate design options you considered but would not support/and decided against? Explain why (Mar. 19/Oct. 1)
 - Suncor evaluated the AESO's suggestion from March to allocate costs based on energy and the AESO's March & September proposals to allocate costs based on billing capacity. These proposals provide inefficient signals and create cross subsidies between market participants
 - Suncor supports the development of accessible opportunity rates to more efficiently utilize the transmission system. These rates should reflect the incremental costs attributable to them and should be made available via market based processes

Comments regarding the AESO's "rate design objectives"

- In the Mar. 19 guidelines, the AESO asked how the proposal meet each rate design objective and what are the tradeoffs relative to the rate design objectives. The listed objectives were:
 - Effective long term price signals
 - Facilitate innovation and flexibility
 - Reflect accurate costs of grid connection and services
 - Explore options within legislation and regulation
 - Path to change that is effective and minimally disruptive
- In the Oct. 1 guidelines, the same question was asked around similar, yet different objectives:
 - Reflect cost responsibility
 - Efficient price signals
 - Minimal disruption
 - Simplicity
 - Innovation and flexibility
- The Oct. 1 guidelines also states that the proposed rate design must fit within current legislation

“Nice to Have” Objectives

- As stated previously, the legislative objective is efficiency based on fair and open competition
- Any other objectives are at most “Nice to Have”
 - Evaluation can be informative
 - Evaluation can only impact the choice of design if the alternatives meet the legislative objective equally well
- For information only, the following slide shows how Suncor’s proposal fares with regard to the Oct. 1 “Nice to Have” objectives

Assessment against “Nice to Have” Objectives

“Objective”	AA	Comment
Reflect Cost Responsibility		The proposal reflects cost causation to the extent possible. Remaining cost recovery occurs equally from all customers connected to the system without sending inefficient signals
Efficient Price Signals		The proposal reflects cost causation to the extent possible. Remaining cost recovery occurs equally from all customers connected to the system without sending inefficient signals
Minimal Disruption		Since the 12-CPRI signal is a refinement of the 12-CP signal, customer tools and investments maintain their usefulness
Simplicity		While forecasting CRPI and CRPD requires more information, it is not necessarily more difficult. The AESO needs to provide additional information and customers need to change their analytics or contract for third party services
Innovation and Flexibility		Clear cost causation signals incentivize customers to look for efficient ways to lower costs. “Provide new avenues/incentive for both load and generation” For example, a consumer might contract with regional generators to align outages