

**Fred James**

Chief Regulatory Officer

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September 24, 2020

Ms. Marija Tresoglavic  
Acting Commission Secretary and Manager  
Regulatory Support  
British Columbia Utilities Commission  
Suite 410, 900 Howe Street  
Vancouver, BC V6Z 2N3

Dear Ms. Tresoglavic:

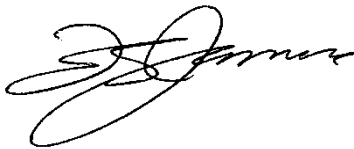
**RE: Project No. 1599102  
British Columbia Utilities Commission (BCUC or Commission)  
British Columbia Hydro and Power Authority (BC Hydro)  
2020 Transfer Pricing Agreement Application**

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BC Hydro writes further to its virtual Workshop held on September 22, 2020 to provide a copy of the Workshop Presentation.

For further information, please contact Chris Sandve at 604-974-4641 or by email at [bchydroregulatorygroup@bchydro.com](mailto:bchydroregulatorygroup@bchydro.com).

Yours sincerely,

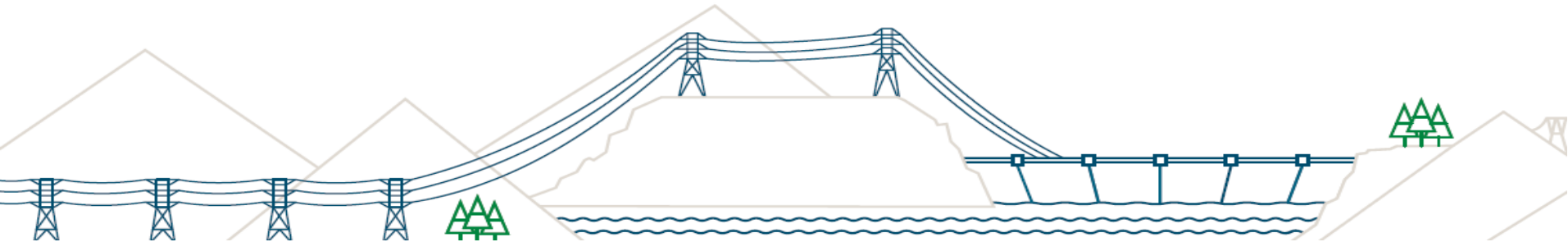


Fred James  
Chief Regulatory Officer

cs/af

Enclosure

# 2020 Transfer Pricing Agreement Application

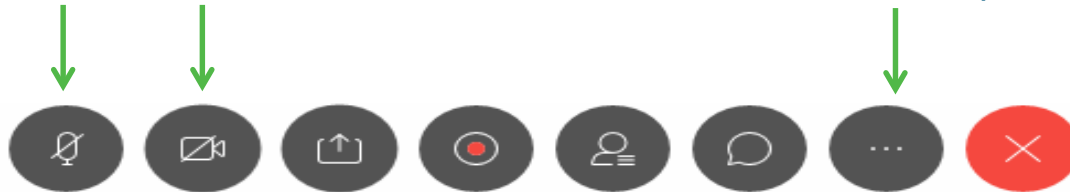


**Workshop**  
**September 22, 2020**

# Webex Reminders

We'll be using a few basic tools, which you can find if you hover your mouse over the bottom of the screen

**Mute/unmute your mic  
& turn your video on/off**



**Audio connection trouble?**  
See the alternative options here



**Raise your hand to ask a question  
at the end of each section**

# Workshop Agenda

Item	Time
Welcome and Introductions	9:00 – 9:15
Key Concepts	9:15 – 10:00
Powerex Regulatory and Business Overview	10:00 – 10:30
Break	10:30 – 10:45
Powerex Market Overview	10:45 – 11:15
Challenges with the 2003 TPA	11:15 – 11:45
Lunch	11:45 – 12:45
2020 TPA Terms – Part 1	12:45 – 1:45
Break	1:45 – 2:00
2020 TPA Terms – Part 2	2:00 – 2:45
Powerex's Perspective on the 2020 TPA	2:45 – 3:00

# Key Concepts

Delivered by:  
Chris Sandve (Senior Regulatory Manager, BC Hydro)

# What's the Same?

- **Roles and responsibilities between and within BC Hydro and Powerex**
- **Ratepayers continue to**
  - Receive surplus sales revenues
  - Receive Trade Income
  - Pay costs of electricity imports to meet deficits
- **Enabling Agreement**
  - Enables BC Hydro to cost-effectively meet its Domestic Requirements, and maximize the value of its Residual System Capability

# Operating tool, not a planning resource



# What's different?

## 2003 TPA

BC Hydro could set Threshold Sale Price or Threshold Purchase Price

One-day-at-a-time approach to allocation and transfer price

## 2020 TPA

Annual pricing approach to surplus and deficits

BC Hydro can submit Specified Quantity Requests



# BC Hydro's Revenue Requirement

Forecast Cost of Energy (BC Hydro)	Forecast Trade Income (Powerex)
<i>Energy Study</i>	

# BC Hydro's Revenue Requirement

Forecast Cost of Energy (BC Hydro)	Forecast Trade Income (Powerex)
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System Imports (Cost)	
System Exports (Offset to Cost)	

# BC Hydro's Revenue Requirement

Forecast Cost of Energy (BC Hydro)	Forecast Trade Income (Powerex)
<i>Energy Study</i>	<i>Rolling Five Year Average</i>
System Imports (Cost)	
System Exports (Offset to Cost)	

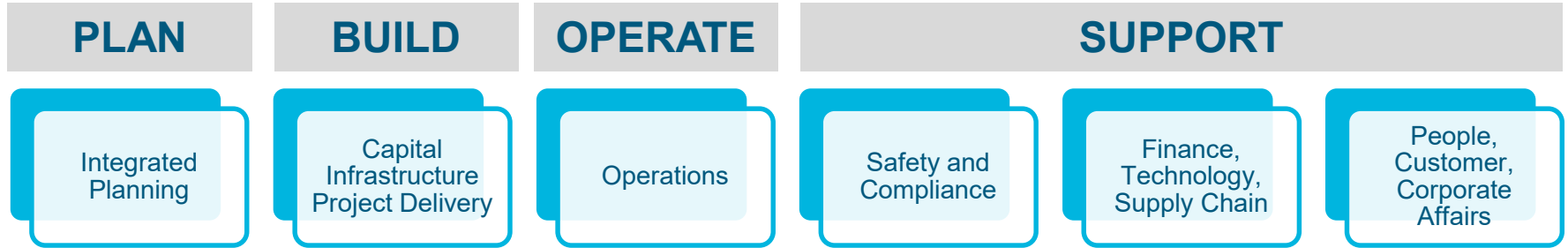
# BC Hydro's Revenue Requirement

Forecast Cost of Energy (BC Hydro)	Forecast Trade Income (Powerex)
<i>Energy Study</i>	<i>Rolling Five Year Average</i>
<p>System Imports (Cost)</p> <p>System Exports (Offset to Cost)</p>	<p><u>Using BC Hydro System</u></p> <p>Sell/Purchase at More Attractive Prices</p> <p>Offsetting Purchases/Sales Using Residual System Capability</p>

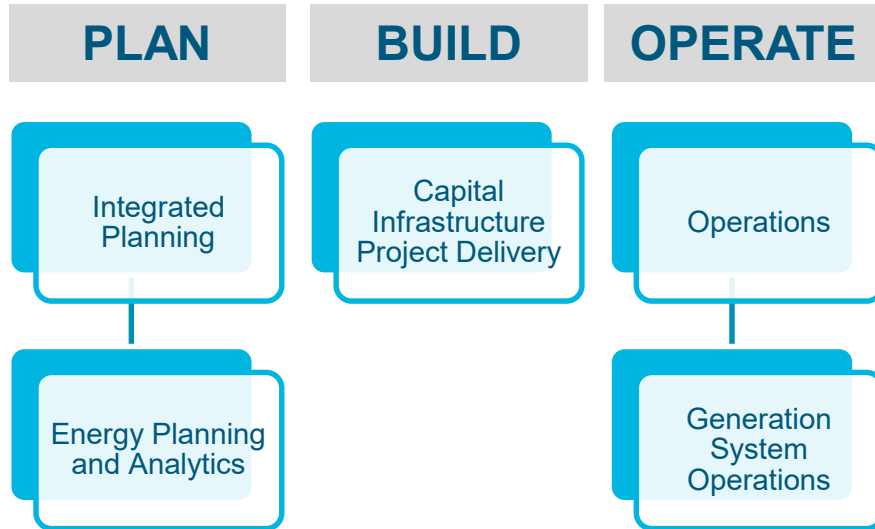
# BC Hydro's Revenue Requirement

Forecast Cost of Energy (BC Hydro)	Forecast Trade Income (Powerex)
<i>Energy Study</i>	<i>Rolling Five Year Average</i>
System Imports (Cost)	<u>Using BC Hydro System</u>
System Exports (Offset to Cost)	Sell/Purchase at More Attractive Prices Offsetting Purchases/Sales Using Residual System Capability
	<u>Unrelated to BC Hydro System</u>
	Electricity Natural Gas Environmental Products

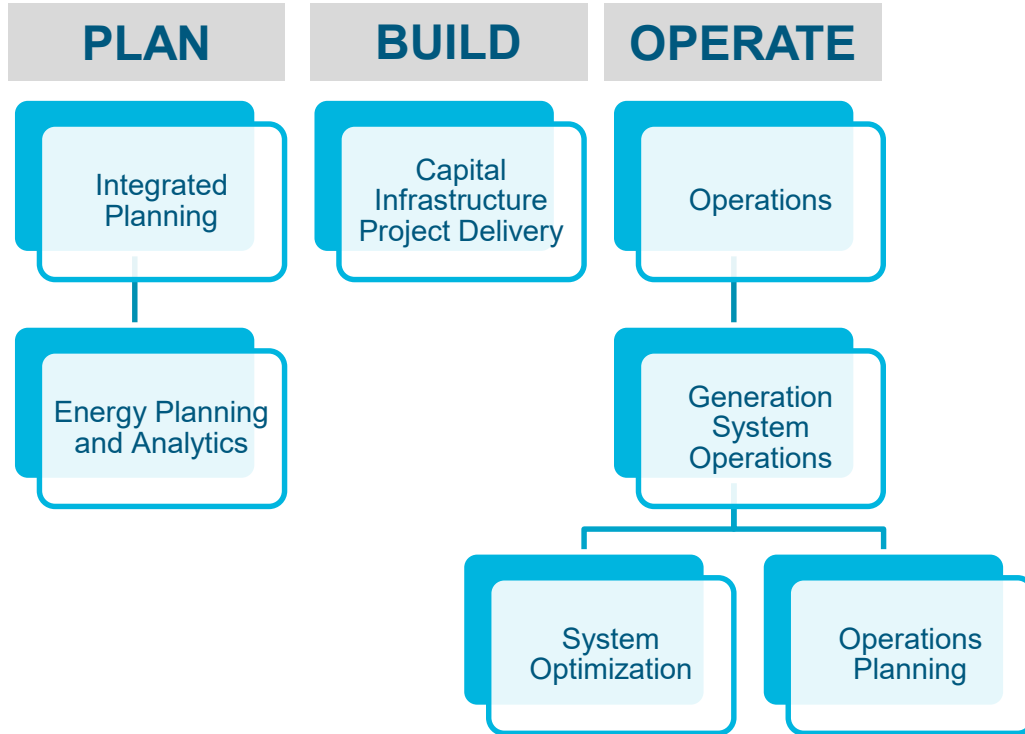
# Structure and Communications



# Structure and Communications

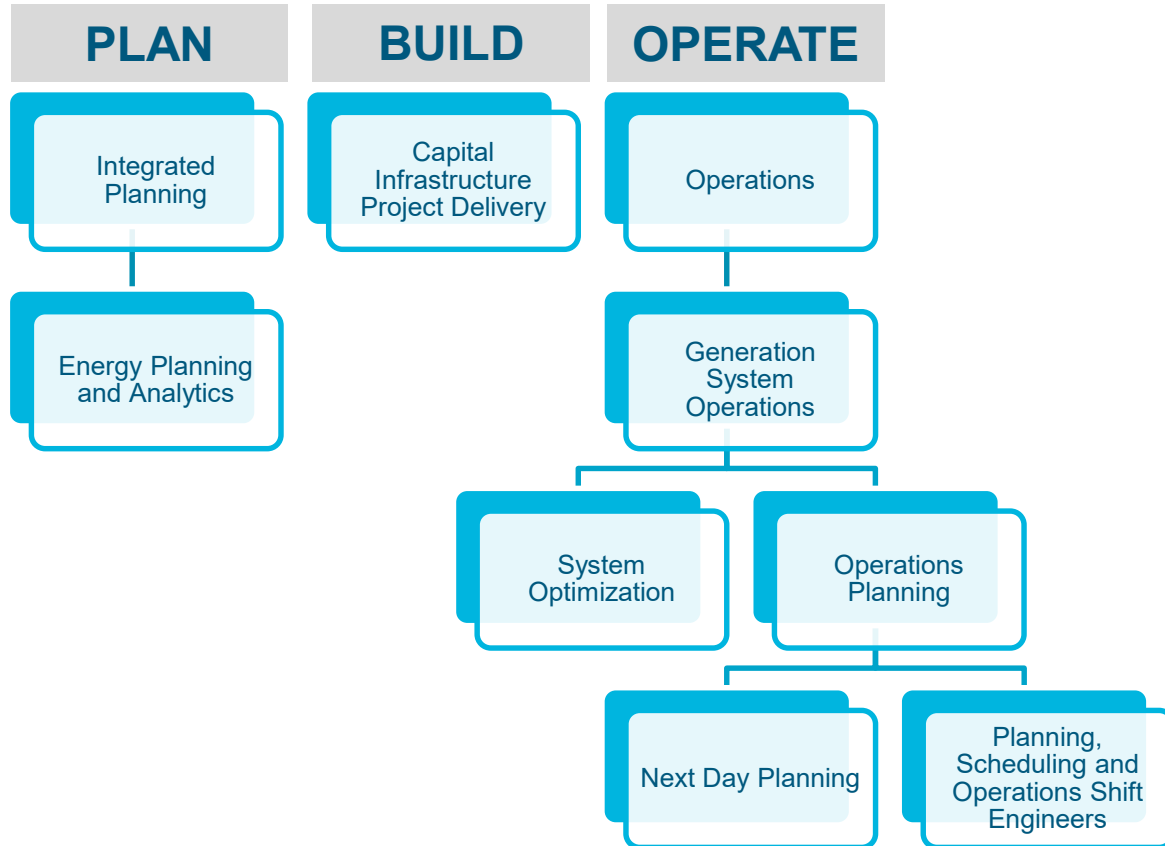


# Structure and Communications





# Structure and Communications



# BC Hydro & Powerex

- **Established Powerex in 1988 as a wholly-owned subsidiary of BC Hydro**
  - separate legal entity from BC Hydro
- **The Powerex Board is appointed by BC Hydro's Board of Directors**
  - The Powerex Board oversees the companies' strategic direction
  - BC Hydro Directors and BC Hydro senior management must always exceed 50% of Powerex Board membership
- **A separate and independent company engaging in US commercial activity provides regulatory and legal protection for BC Hydro**
  - BC Hydro is only regulated within Canada
  - BC Hydro is protected from US lawsuits so long as it does not engage in commercial activity in the US



September 22, 2020

Mike MacDougall  
VP Trade Policy & IT

# Powerex Regulatory & Business Overview

Supply. Flexibility. Commitment.

# Powerex Overview

## Relationship to BC Hydro

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- **Established in 1988, wholly-owned subsidiary of BC Hydro - separate legal entity from BC Hydro**
- **Powerex has an exclusive relationship with BC Hydro, under which it:**
  - Purchases electricity from BC Hydro that is surplus to domestic needs,
  - Sells electricity to BC Hydro to meet domestic needs,
  - Purchases electricity from and sells electricity to BC Hydro subject to availability of Residual System Capability, and
  - Sells natural gas to BC Hydro for its thermal facilities.
- **U.S. Foreign Sovereign Immunities Act also applies to Powerex**
  - Powerex is subject to U.S. litigation due to its engagement in commercial activities
  - However, has right for litigation to be conducted in Federal court vs State court

# Powerex Overview

What we do

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Electricity



Natural  
Gas



Environmental  
Products

- **Powerex operates as an energy marketing and trading company in competitive wholesale markets predominantly within the western U.S. and Alberta**
  - Includes activities wholly unrelated to the BC Hydro system.
  - Operates in highly competitive markets - prices are determined by the interaction of buyers and sellers.
  - Aims to maximize its annual net income, which is provided to BC Hydro where it is used to reduce the revenue requirement, helping to keep BC Hydro customer rates low.

# Powerex's Key Financial Numbers

(Millions of C\$)

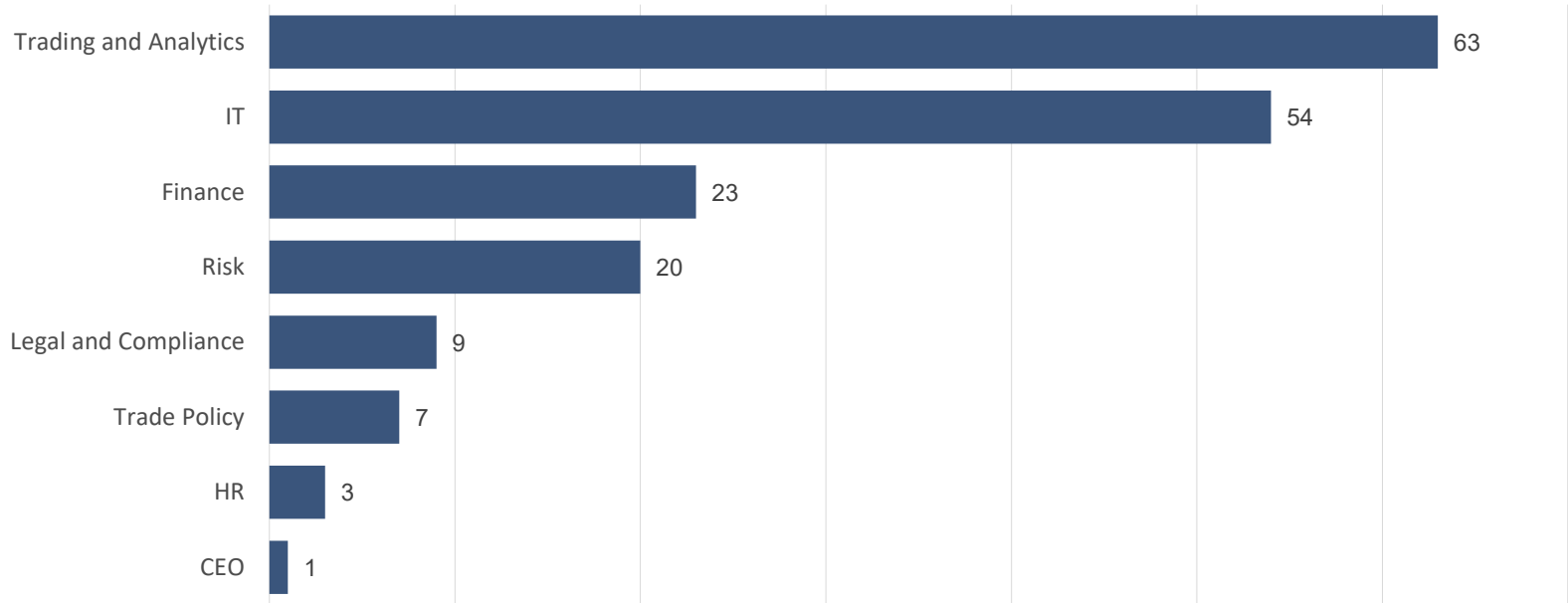
	F14 to F18 Average	F2019	F2020	Beneficiary
Payment for BC Hydro Surplus Energy <sup>1</sup>	\$97	\$115	\$1	Ratepayers
Payment for Canadian Entitlement <sup>2</sup>	\$128	\$202	\$119	B.C.Government
<b>Trade Income<sup>1</sup></b>	<b>\$123</b>	<b>\$441</b>	<b>\$188</b>	<b>Ratepayers</b>

**BC Hydro uses Trade Income to reduce revenue requirement**

# Powerex Staff

Knowledge and expertise are our greatest assets

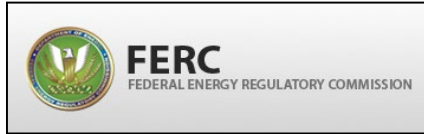
## 180 Employees



# Market & Other Regulators

Wholesale  
Electricity

Wholesale  
Natural Gas



Clean and Renewable



Other Agencies

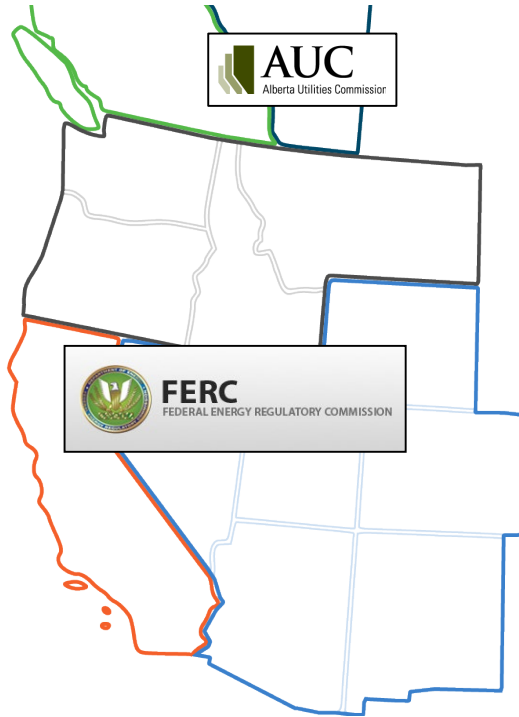


Canada Border Services Agency    Agence des services frontaliers du Canada





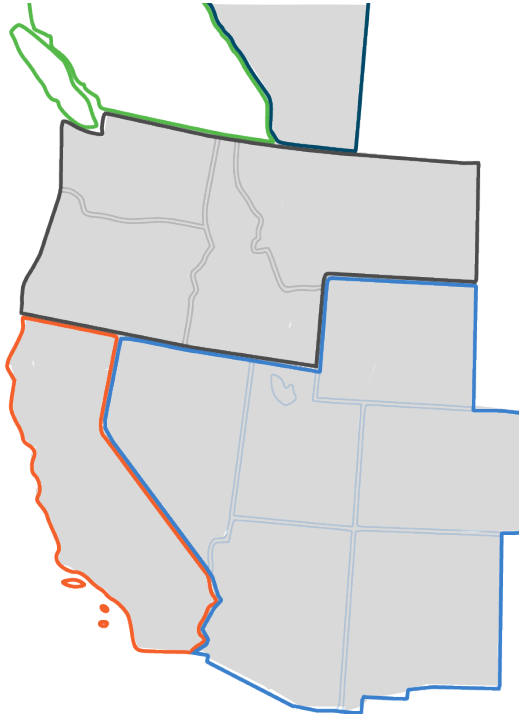
# Regulatory Framework – Outside B.C.



- **Powerex operates in competitive wholesale energy markets**
  - Prices are determined by the interaction of buyers and sellers.
- **Regulators establish the market framework and rules to ensure reliable, efficient and competitive market outcomes**
  - Regulators accept market determined prices as just and reasonable
  - They do not generally regulate or review individual transactions or the business of individual companies
    - Except where transactions/actions/behaviours are inconsistent with market rules and/or competitive behaviour
- **Success in these markets requires:**
  - Agility to capture opportunities ahead of competitors, and
  - Confidentiality to protect commercial strategies

# Regulatory Framework – Within B.C.

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- In 2003, BCUC determined oversight of Powerex should be limited to review of income statement (“Heritage Contract Proceeding”)
- In 2019, B.C. government excluded Powerex from Part 3 regulation under Utilities Commission Act
- **Powerex files with FERC all BCUC approved changes to the Terms and Conditions of BC Hydro’s Open Access Transmission Tariff**
  - Requirement for similar access to BC Hydro’s high voltage transmission system as Powerex receives from U.S. transmission providers
  - A condition of maintaining Powerex’s Market Based Rate authority
  - Does not apply to rates
  - Does not apply to retail tariff (not FERC’s jurisdiction in U.S.)

# Break



September 22, 2020

Mark Holman

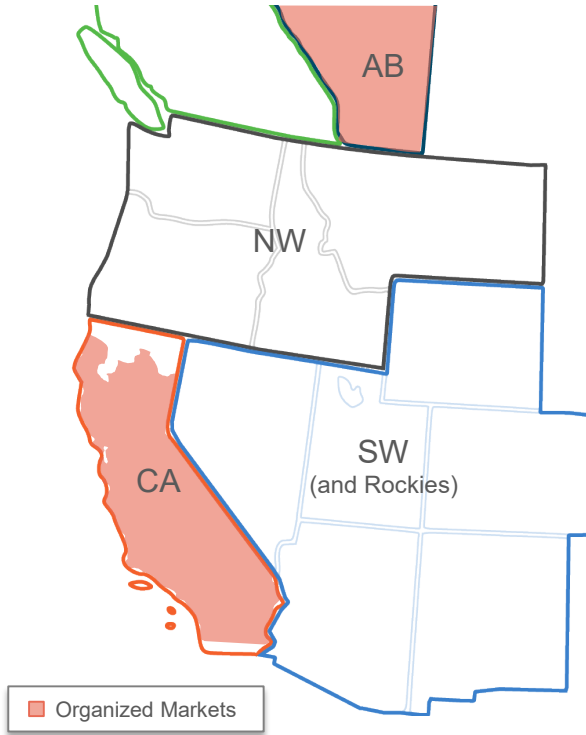
Managing Director

# Powerex Market Overview

Supply. Flexibility. Commitment.

# Wholesale Electricity

## Western Trading Regions



Wholesale electricity transacts in four regions in the West:

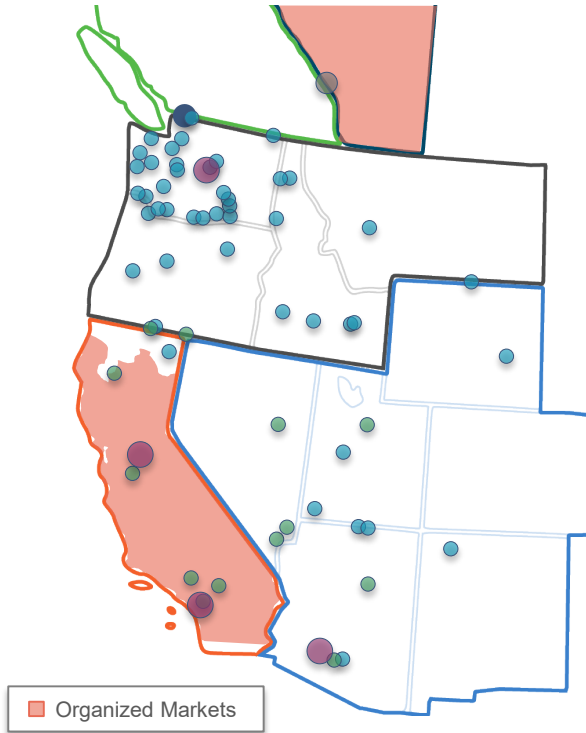
1. Alberta
2. Northwest
3. California
4. Southwest

Wholesale electricity transacts in two market structures:

1. **Bilateral Markets**
2. **Organized Markets**

# Wholesale Electricity Markets

Powerex's trading activity is dynamic and complex



- Powerex buys and sells electricity at over 80 locations across Western North America:
- In 2019, Powerex:
  - Executed 110,000 separate physical deliveries
  - Utilized 2,500 distinct transmission paths

# Wholesale Electricity Markets

## Powerex's Competition

### WHO?

- Banks & Hedge Funds
- Energy Service Providers
- International Energy Companies
- Utilities

Morgan Stanley



Constellation.



TransAlta™



Exelon



TENASKA®

### WHERE?

- Wholesale Electricity Products & Transmission
- Natural Gas Products & Transportation
- Environmental Products and Services

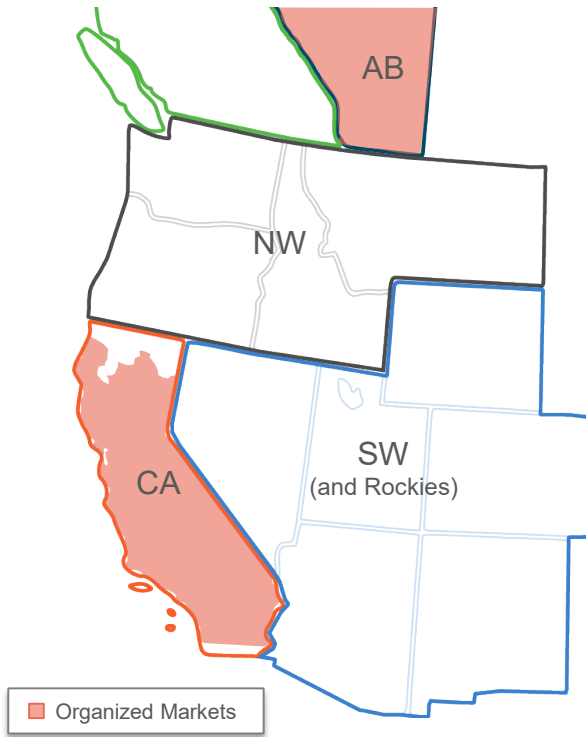
But also...

- Commercial Staff
- Market Design and Regulatory Forums

Powerex operates in a highly competitive commercial environment

# Wholesale Electricity

## Trading Timelines



### Wholesale electricity is transacted in three timeframes

	FORWARD	DAY-AHEAD	REAL-TIME (Intra-day)
Typical Duration of Sales	Balance-of-month Month Quarter Season Year(s)	Next day Next two days	Next hour Block of consecutive hours 15/5 minutes
Northwest	Bilateral (16/8 hour)	Bilateral (16/8 hour)	Bilateral (1+ hours) Western EIM (15/5 min)
Alberta	Limited	Limited	Alberta imports/exports (hourly)
California	Bilateral (16/8 hour)	Bilateral (16/8 hour) CAISO imports / exports (hourly)	Bilateral (1+ hours) CAISO imports / exports (hourly)
Southwest	Bilateral (16/8 hour)	Bilateral (16/8 hour)	Bilateral (1+ Hours) Western EIM (15/5 min)

Forward and Day-Ahead markets generally transact greater volumes

Resource Adequacy and Environmental Policy Objectives are increasing opportunities in the forward time frame



# Wholesale Electricity

## Expanding Opportunities In Forward Markets – Resource Adequacy

- Load-serving entities must secure sufficient capacity and/or forward firm energy supply to meet peak demand
- **California** currently has only Resource Adequacy program in the West
- **Northwest** entities may soon have their own Resource Adequacy program
- Market Implications:
  - 1) **Premium** in forward markets in summer/winter
  - 2) **Reduced** day ahead market liquidity

*“We also encourage LSEs to explore options for forward contracting of firm imported power with counterparties with available power to commit. We continue to have reservations about the GHG impacts of such contracting, such as whether the commitment could represent resource shuffling rather than incremental GHG-free production. But from the standpoint of reliability, firm forward contracting for clean imports will improve the reliability situation for California in the short term.”*

Source: **California Public Utilities Commission**  
Decision Requiring Electricity System Reliability  
Procurement For 2021-2023, November 7, 2019

# Wholesale Electricity

## Expanding Opportunities In Forward Markets – State Environmental Policy Objectives

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- State-level Environmental Policy Programs are **fragmented** and **constantly evolving**
- Generally creates **premium value** for clean / renewable supply delivered to applicable state
- **California** currently presents the largest sales opportunities
  1. Renewable Portfolio Standard
  2. GHG Cap & Trade Program
  3. Power Content Label
- Washington “Clean Energy Transformation Act” (CETA), Oregon program(s) also under development
- Most sale opportunities are in the **forward markets**

# Challenges with the 2003 TPA

Delivered by:

Heather Matthews (Director Generation System Operations, BC Hydro)

# 2003 TPA

## 2003 TPA relied on a one-day-at-a-time allocation and transfer price calculation

- Each hour imports / exports were allocated either as
  - BC Hydro's financial responsibility as (i) surplus sales, (ii) imports to meet deficits; or
  - Powerex's financial responsibility as (i) trade activity
- BC Hydro's only mechanism to sell or purchase larger volumes of energy was to change threshold sales or purchase price *prior to* day ahead market.

## Allocation mechanism, together with the applicable Day Ahead Mid-C index, created Transfer Price Risk for Powerex (until Day Ahead timeframe)

- Discouraged sales in Forward markets of BC Hydro surplus energy
- Discouraged purchases in Forward markets to meet BC Hydro energy deficits
- Discouraged maximizing the use of the Residual System Capability for trade

# Challenges With The 2003 TPA Emerged

Challenge 1: Volume in the Day-Ahead markets have been materially decreasing over time.

Figure 1 Mid-C Liquidity (Day-Ahead Peak from Fiscal Year 2011 to Fiscal 2018)<sup>26</sup>

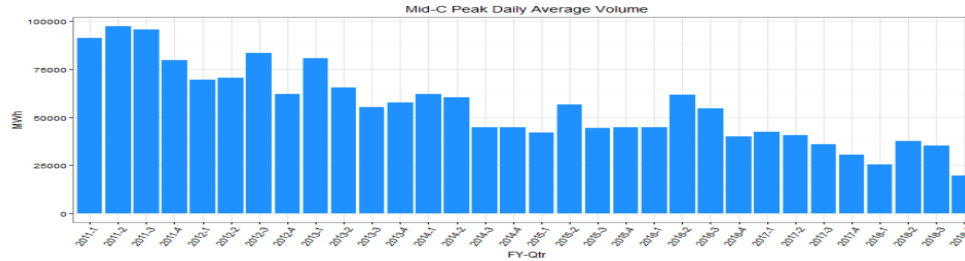
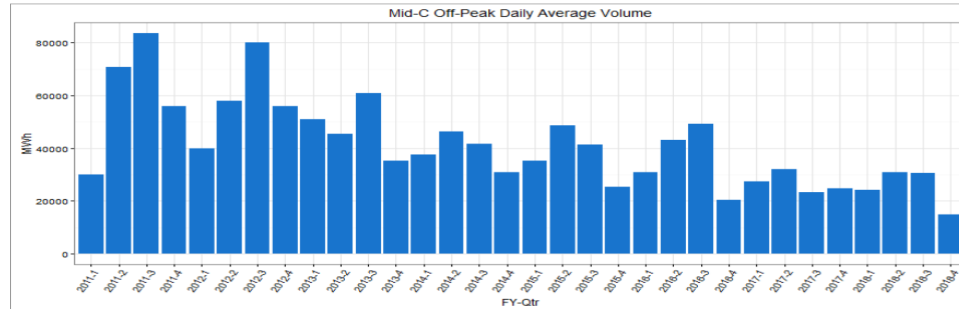


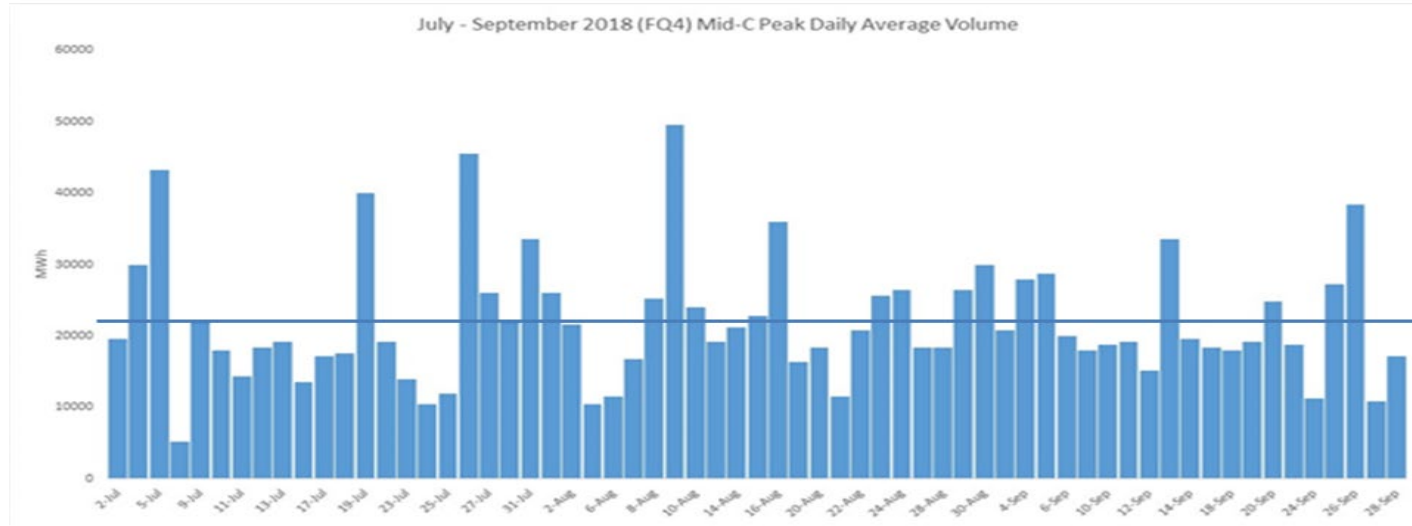
Figure 2 Mid-C Liquidity (Day-Ahead Off-Peak from Fiscal Year 2011 to Fiscal 2018)<sup>26</sup>



# Challenges With The 2003 TPA Emerged

Challenge 1: Volume in the Day-Ahead markets have been materially decreasing over time

Figure 3 Mid-C Volumes (Day-Ahead Peak from July 2018 to September 2018)<sup>28</sup>



# Challenges With The 2003 TPA Emerged

## Challenge 2: Potential For Greater Required Imports and Exports from the BC Hydro System

- The proportion of non dispatchable generation (e.g., run of the river hydro, wind) in BC Hydro's energy supply portfolio has increased, while
- The proportion of dispatchable generation (e.g., generation such as Burrard Thermal) has decreased.
- Typical variation in water inflows is +/- 7,000 GWh

## Challenge 3: Premium Prices in Forward Markets

- Some of the best sales opportunities are in the forward markets
  - Driven by Resource Adequacy and Environmental Policy Objectives
  - For surplus sales *and* using Residual System Capability

# 2020 TPA Is Better for Ratepayers

## BC Hydro can now stipulate volume of import/export needs over different time periods

- Provides greater certainty that sufficient demand or supply is available to manage surplus energy and energy deficits
- Improvement over 2018 and 2019 Letter Agreements
  - Similar to Letter Agreements, enables deficits to be met in forward markets
  - But also enables surplus to be sold in forward markets, and
  - The desired volumes can be easily adjusted as system conditions change

## Sufficiently Addresses Transfer Price Risk of 2003 TPA

- Removes one-day-at-a-time allocation and transfer pricing risk
  - BC Hydro surplus can be sold by Powerex in forward, day-ahead and/or real time markets
  - BC Hydro deficits can be met by purchases by Powerex in forward, day-ahead and/or real time markets
  - Powerex can maximize value of Residual System Capability in forward, day ahead and/or real time markets



# Lunch

# 2020 TPA Terms – Part 1

Delivered by:

Heather Matthews (Director Generation System Operations, BC Hydro)

# Non-Flexible Imports

## Typical Example:

- Imports required to serve demand on a cold winter day due to generator outages
- This is a capacity need, so import timing is not flexible

## 2020 TPA:

- BC Hydro stipulates needs for applicable day (on-peak or off-peak)
- Transfer Price for Non-Flexible Imports that meet this need is based on applicable Day-Ahead Mid-C Index Price
- Volume does not increase *Transfer Volume Account* balance

## 2003 TPA:

- BC Hydro stipulated needs for applicable day (on-peak or off-peak)
- Transfer Price for Imports allocated to Domestic to meet this need was based on applicable Day-Ahead Mid-C Index Price
- Threshold Purchase Price would be set to maximum for desired quantity
- Volume did not increase Trade Account balance
- Were not explicitly called “Non-Flexible” Imports

# Non-Flexible Exports

## Typical Example:

- Exports required in spring period when minimum generation greater than load
- Generation can not be reduced to utilize storage, so export timing is not flexible

## 2020 TPA:

- BC Hydro stipulates needs for applicable day (on-peak or off-peak)
- Transfer Price for Non-Flexible Exports that meet this need is based on applicable Day-Ahead Mid-C Index Price
- Volume does not decrease *Transfer Volume Account* balance

## 2003 TPA:

- BC Hydro stipulated needs for applicable day (on-peak or off-peak)
- Transfer Price for Exports allocated to Domestic to meet this need was based on applicable Day-Ahead Mid-C Index Price
- Threshold Sale Price would be set to minimum for desired quantity
- Volume did not decrease *Trade Account* balance
- Were not explicitly called “Non-Flexible Exports”

# Use of Residual System Capability

## Typical Example:

- Imports in one period offset by exports in another period to generate Trade Income

## 2020 TPA:

- Powerex activity, with BC Hydro determining
- Imports increase Transfer Volume Account balance
- Exports decrease Transfer Volume Account balance
- When the *TVA* balance is positive:
  - Exports priced using weighted average price
  - Imports priced using applicable Day-Ahead Mid-C Index Price
- ...and vice versa when Account is negative

## 2003 TPA:

- Powerex activity, with BC Hydro determining
- Imports increase Trade Account balance
- Exports Decrease Trade Account balance
- When the *Trade Account* balance is positive:
  - Exports priced using weighted average price
  - Imports priced using applicable Day-Ahead Mid-C Index Price
- ...and vice versa when Account is negative

# Summary

The transfer pricing approach for these three activities is generally the same under the 2020 TPA versus the 2003 TPA

1. Non-Flexible Imports
  - Applicable Day-Ahead Mid-C Index
2. Non-Flexible Exports
  - Applicable Day-Ahead Mid-C Index
3. Use Of Residual System Capability (to generate Trade Income)
  - Imports increase balance in the applicable account, while
  - Exports decrease balance in the applicable account
  - When the applicable account balance is positive:
    - Exports priced using weighted average price
    - Imports priced using applicable Day-Ahead Mid-C index
      - (with adjustment to weighted average price of new balance)
  - ...and vice versa when the Account balance is negative

# Flexible Imports

## Typical Example:

- Imports required over a defined time period to meet an energy deficit and/or to manage operational risk
- Through the use of system storage, there is flexibility to select which hours and days the imports occur

## 2003 TPA:

- Were not explicitly called “Flexible Imports”
- BC Hydro set Threshold Purchase Price at a level set to achieve the desired quantity of imports over time on the expected lower-priced days
- Transfer Price for Imports allocated to Domestic to meet this need was based on applicable Day-Ahead Mid-C Index Price
- Volumes to manage energy deficits or operational risk did not affect Trade Account balance
- BC Hydro’s Threshold Purchase Price and the prevailing Mid-C Index price largely determined which days and hours these imports occurred to meet Domestic needs
- This created Transfer Price Risk for Powerex until the Day-Ahead market

# Flexible Exports

## Typical Example:

- Exports required over a defined time period to sell surplus energy and/or to manage operational risk
- Through the use of system storage, there is flexibility to select which hours and days the exports occur

## 2003 TPA:

- Were not explicitly called “Flexible Exports”
- BC Hydro set Threshold Sale Price at a level set to achieve the desired quantity of exports over time on the expected higher-priced days
- Transfer Price for Exports allocated to Domestic to meet this need was based on applicable Day-Ahead Mid-C Index Price
- Volumes to sell surplus energy or manage operational risk did not affect Trade Account balance
- BC Hydro’s Threshold Sale Price and the prevailing Mid-C Index price largely determined which days and hours these imports occurred to meet Domestic needs
- This created Transfer Price Risk for Powerex until the Day-Ahead market



# Flexible Imports and Flexible Exports Under The 2020 TPA

- **Key components eliminated from 2003 TPA:**
  - One-day-at-a-time approach, Threshold Purchase Price, Threshold Sale Price
  - Transfer Price no longer based on the applicable Day-Ahead Mid-C Index
- **2020 TPA applies an annual pricing approach to surplus and deficits:**
  - Annual Flexible Surplus
    - Added To The Transfer Volume Account balance at Fiscal Year End
    - Price based on Annual Flat Mid-C Index x Surplus Multiplier
    - Adjusts The Weighted Average Price of the new TVA balance
  - Annual Flexible Deficit
    - Subtracted From The Transfer Volume Account balance at Fiscal Year End
    - Priced at Annual Flat Mid-C Index x Deficit Multiplier
    - Adjusts The Weighted Average Price of the new TVA balance

# Flexible Imports and Flexible Exports Under The 2020 TPA

- Flexible exports occur at the prevailing weighted average price of the Transfer Volume Account balance (when positive), both to sell BC Hydro surplus and to utilize the Residual System Capability to generate Trade Income
- Similarly, Flexible imports occur at the prevailing weighted average price of the Transfer Volume Account balance (when negative), both to purchase to meet a BC Hydro deficit and to utilize Residual System Capability to generate Trade Income

# Flexible Imports and Flexible Exports Under The 2020 TPA

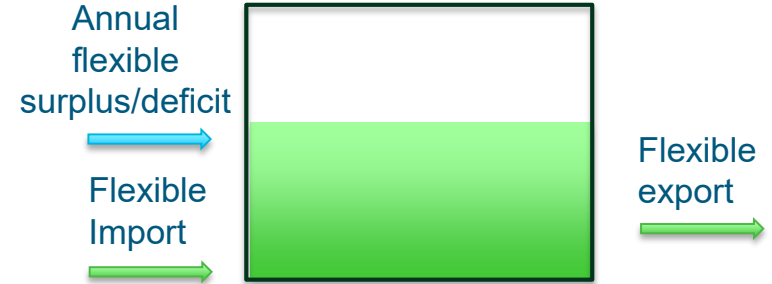
## 2003 TPA Trade Account:

Used for residual system capability



## 2020 TPA Transfer Volume Account:

Used for annual flexible surplus/deficit and residual system capability



# Break

# 2020 TPA Terms – Part 2

Delivered by:

Heather Matthews (Director Generation System Operations, BC Hydro)

# Specified Quantity Request

- Under 2020 TPA, BC Hydro can stipulate a volume of required import and export needs over any specified time period, and update it as conditions evolve, allowing Powerex to then transact across a range of time horizons and markets to meet those requirements.
- This Specified Quantity Request provides BC Hydro a more direct mechanism to achieve its desired import or export quantity over the specified time period (compared to the 2003 TPA).
- Powerex can now decide, subject to System Constraints (as determined by BC Hydro),:
  - Which markets (forward, day-ahead, real-time), and
  - Which specific delivery days and hours
- Provides the best opportunities to:
  1. Sell surplus energy (Flexible Exports)
  2. Purchase energy to meet Domestic needs (Flexible Imports)
  3. Use Residual System Capability to generate Trade Income (Flexible Imports and Flexible Exports)

# Residual System Capability

- Refers to the ability of the BC Hydro system to accommodate (after serving Domestic Load and meeting all other applicable requirements and constraints):
  - purchases of electricity products and services by BC Hydro from Powerex
  - sales of electricity products and services from BC Hydro to Powerex
- Powerex uses Residual System Capability to generate Trade Income, including purchasing energy in relatively lower priced periods, offset by energy sales in relatively higher priced periods
- BC Hydro determines the available Residual System Capability through its modelling efforts, operational tools and personnel
- BC Hydro re-evaluates its Residual System Capability continuously right up to until each hour
- BC Hydro and Powerex have ongoing dialogue on the Residual System Capability, as well as on system conditions (and market opportunities) more broadly
- BC Hydro's processes for determining the Residual System Capability are largely unchanged by the 2020 TPA

# Surplus and Deficit Multipliers

- Reflects the fair market value at which parties acting on an arms length basis would be willing to transact
- The allocation between BC Hydro and Powerex has no impact on ratepayers
- The Surplus (and Deficit) Multiplier, together with the Annual Flat Mid-C Index price:
  - Determine the price of the Annual Flexible Surplus (Deficit) when it is added (and blended into) the Transfer Volume Account
  - For surplus - this is the value BC Hydro ultimately receives from Powerex, over time, for sales of surplus energy, as Flexible Exports occur
  - For deficit - this is the value BC Hydro ultimately pays Powerex, over time, to meet the Deficit, as Flexible Imports occur
  - The Surplus Multiplier is initially set at 1.15 and the Deficit Multiplier is initially set at 0.85, generally consistent with the value received under the 2003 TPA



# Wear and Tear Procedure

- The 2020 TPA includes provisions for BC Hydro to charge (or pay) Powerex for the effects its import/export decisions may have on increasing or decreasing wear and tear on BC Hydro generating equipment
- This was included as an optional provision, to be applied in the future, ***if*** BC Hydro determines that the nature of Powerex's import and exports have changed significantly, and such changes are significantly increasing (or decreasing) the ramping (i.e. starting and stopping) of BC Hydro generating units causing measurable changes in wear and tear costs
- The purpose of this provision would be to send an improved price signal to Powerex associated with such activity
- Reflect the fair market value at which parties acting on an arms length basis would be willing to transact
- Wear and tear payment allocation between BC Hydro and Powerex has no impact on ratepayers

# 2020 TPA; Impact of Decisions

- BC Hydro's goal remains the same; to 'maximize consolidated net revenue from operations'
- The type of decisions and how BC Hydro makes those decisions does not change
- The 2020 TPA provides better incentives in making economic decisions and enables the BC Hydro surplus/deficit to be sold/purchased in different timeframes.
- This enables maximizing the value of the BC Hydro system with all the benefits going to ratepayers



September 22, 2020

Mark Holman

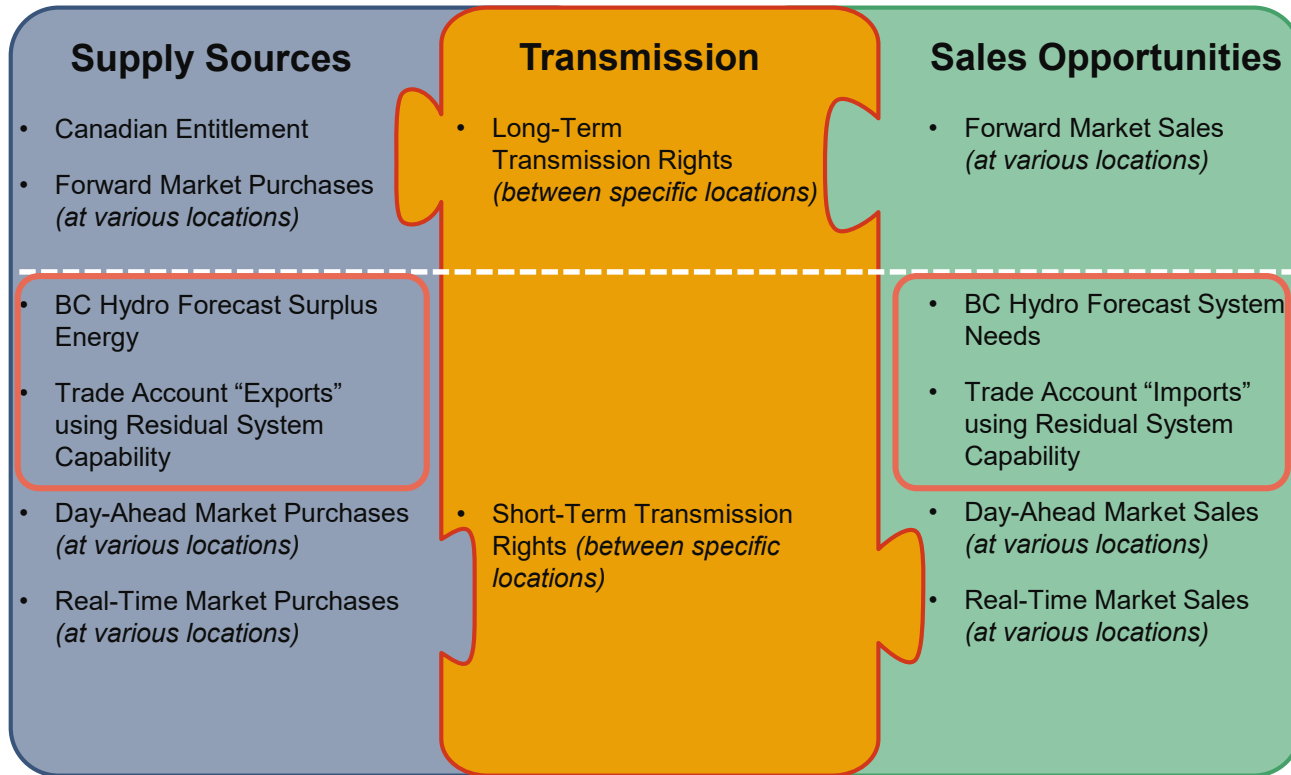
Managing Director

# Powerex's Perspective on the 2020 TPA

Supply. Flexibility. Commitment.

# Wholesale Electricity

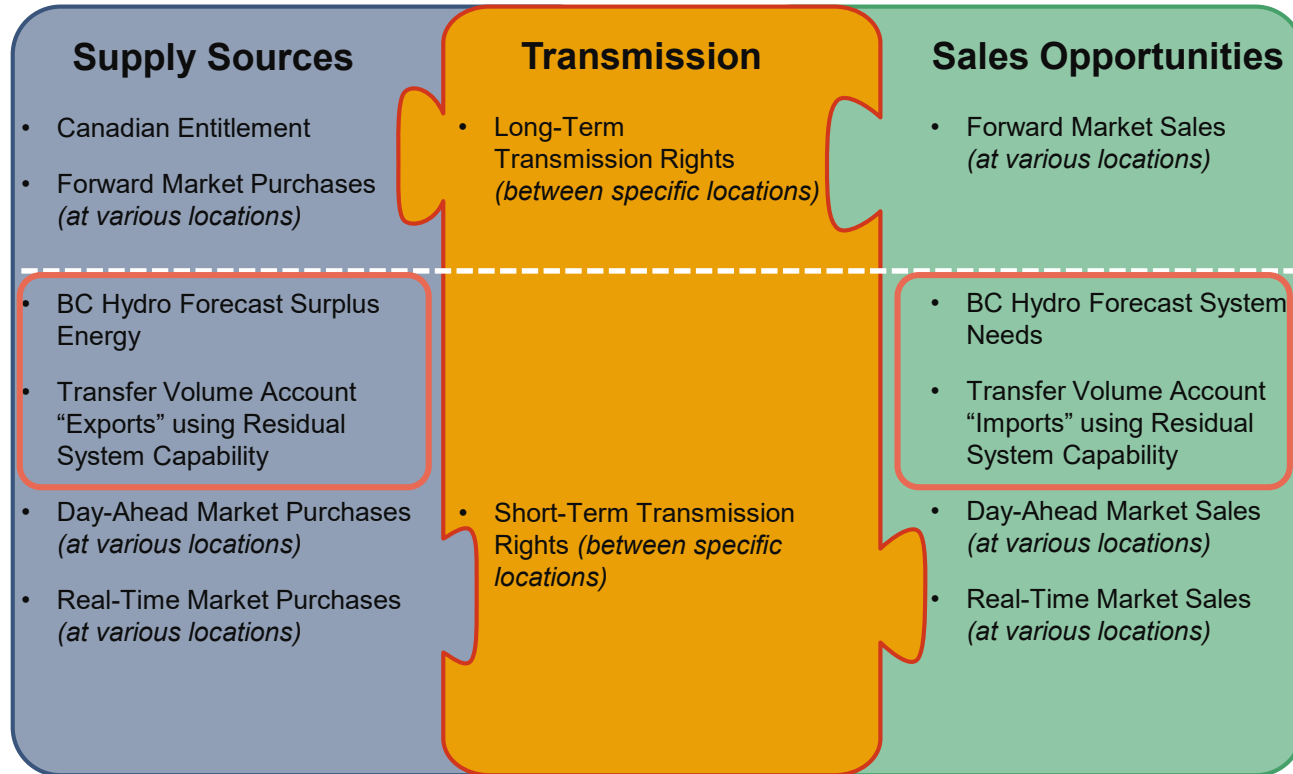
## 2003 TPA Presented a Barrier to Forward Market Transactions



**2003 TPA discouraged Powerex from committing these potential sources and opportunities prior to knowing the applicable Transfer Price each day**

# Wholesale Electricity

## 2020 TPA Unlocks Forward Market Opportunities



2020 TPA encourages Powerex to transact in the best available temporal markets to:

1. Sell BC Hydro Surplus Energy (Flexible)
2. Purchase to meet BC Hydro System needs (Flexible)
3. Use the Residual System Capability to make offsetting purchases and sales

# Wholesale Electricity

## 2020 TPA Better Aligns With Evolving Markets

From Powerex's perspective, the 2020 TPA better enables Powerex to:

1. Sell BC Hydro surplus energy
2. Purchase to meet BC Hydro energy deficits
3. Maximize Trade Income using Residual System Capability

It achieves this by eliminating the Transfer Price Risk inherent in the 2003 TPA, unlocking forward market liquidity and premium prices

FiscalYear	F2011	F2012	F2013	F2014	F2015	F2016	F2017	F2018	F2019	F2020	F2021
Transfer Pricing Agreement(s)	2003 TPA	2003 TPA	2003 TPA	2003 TPA	2003 TPA	2003 TPA	2003 TPA	2003 TPA	2003 TPA + Letter Agreement	2003 TPA + Letter Agreement	2020 TPA

Declining Day-Ahead Liquidity 

Expanding Forward Market Opportunities 



# Thank You

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