2016 Rate Design Application
FortisBC Energy Inc. (FEI)

Workshop 1 – Rate Design Information Session

Atul Toky – Manager, Rate Design and Tariffs
Rohit Pala, Resource Development Manager
Richard Gosselin – Manager, Cost of Service
Stephanie Salbach – Transportation Services Manager
Colleen Gravel – Tariff, Rate Design, and Projects Manager

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Purpose

To provide context and information in support of the 2016 FEI Rate Design Application

Physical system and assets used to move natural gas in BC

Services provided by FEI and the rate schedules that apply to these services

General rate design topics and concepts

Agenda

Part I: Gas Supply Fundamentals, Essential Services Model and Transportation Model Overview

- Introduction
  - *Atul Toky, Manager, Rate Design and Tariffs*
- Gas Supply Basics and Essential Services Model
  - *Rohit Pala, Resource Development Manager*
- Transportation Model Overview
  - *Stephanie Salbach, Transportation Services Manager*

Part II: Rate Design Fundamentals & Tariff Overview

- Cost of Service, Segmentation and Rate Design Concepts
  - *Richard Gosselin, Manager, Cost of Service*
- Tariff Rate Schedules and Services Overview
  - *Colleen Gravel, Tariff, Rate Design and Projects Manager*

Gas Supply Fundamentals, Essential Services Model and Transportation Model Overview

PART I

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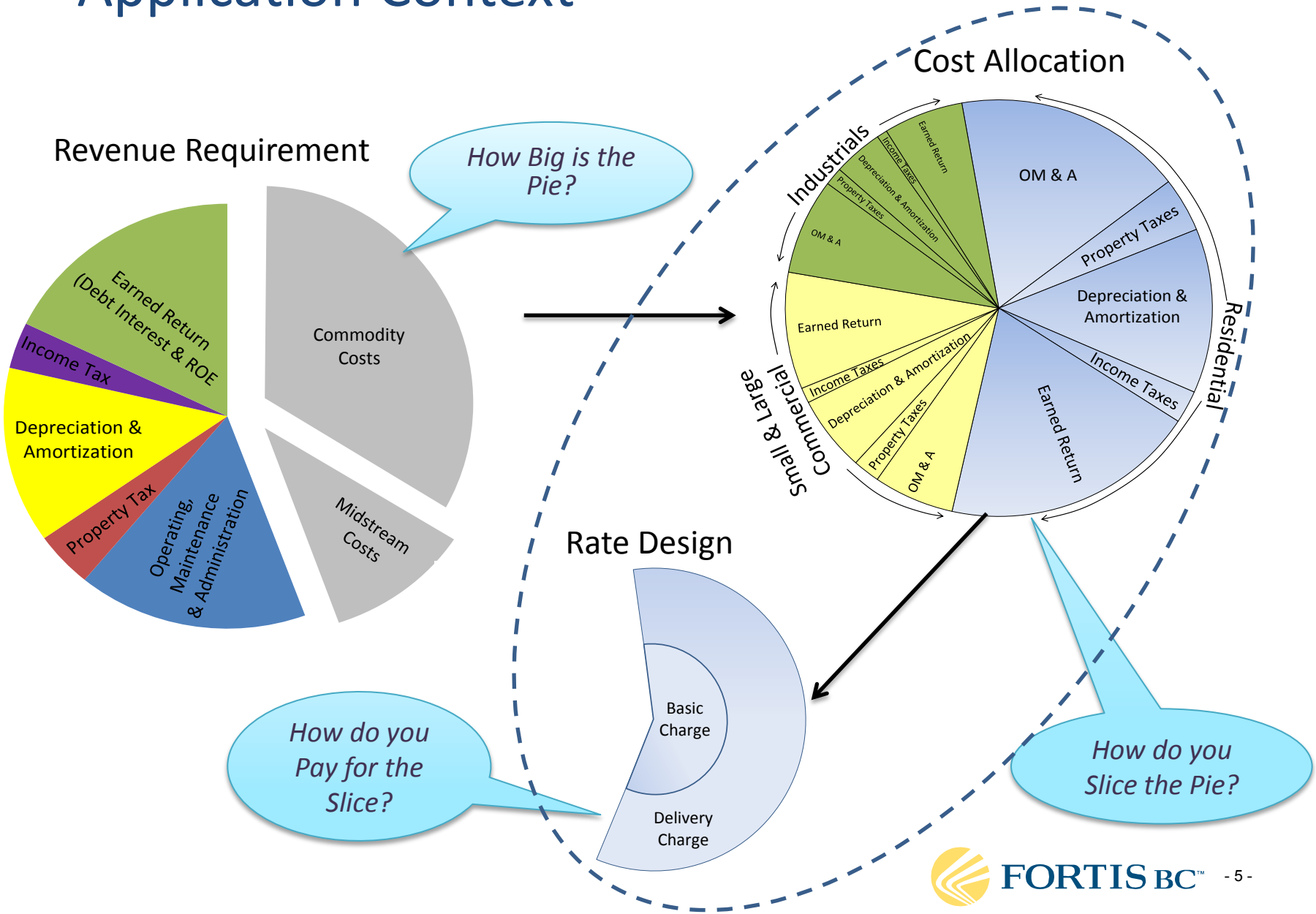
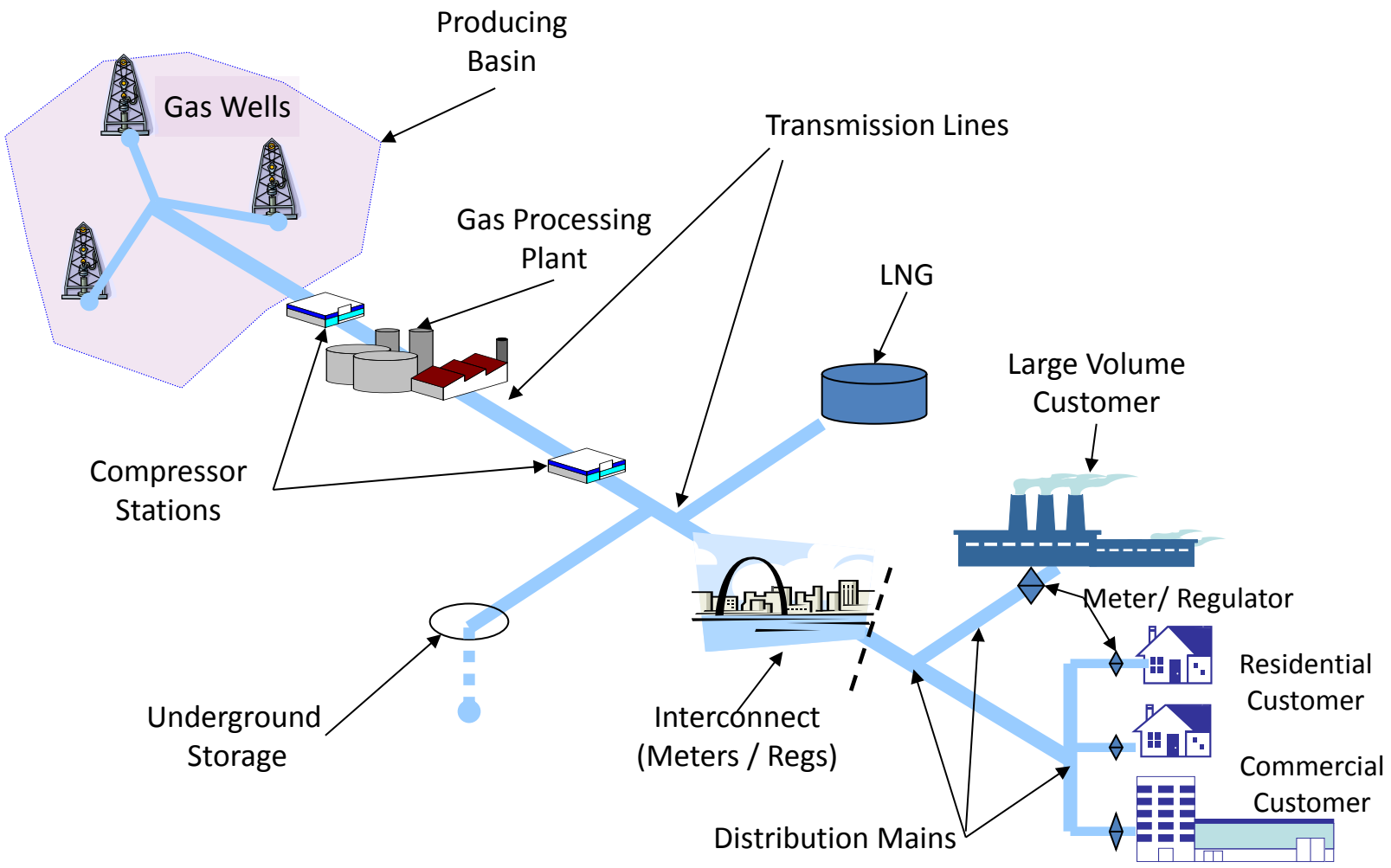
Application Context



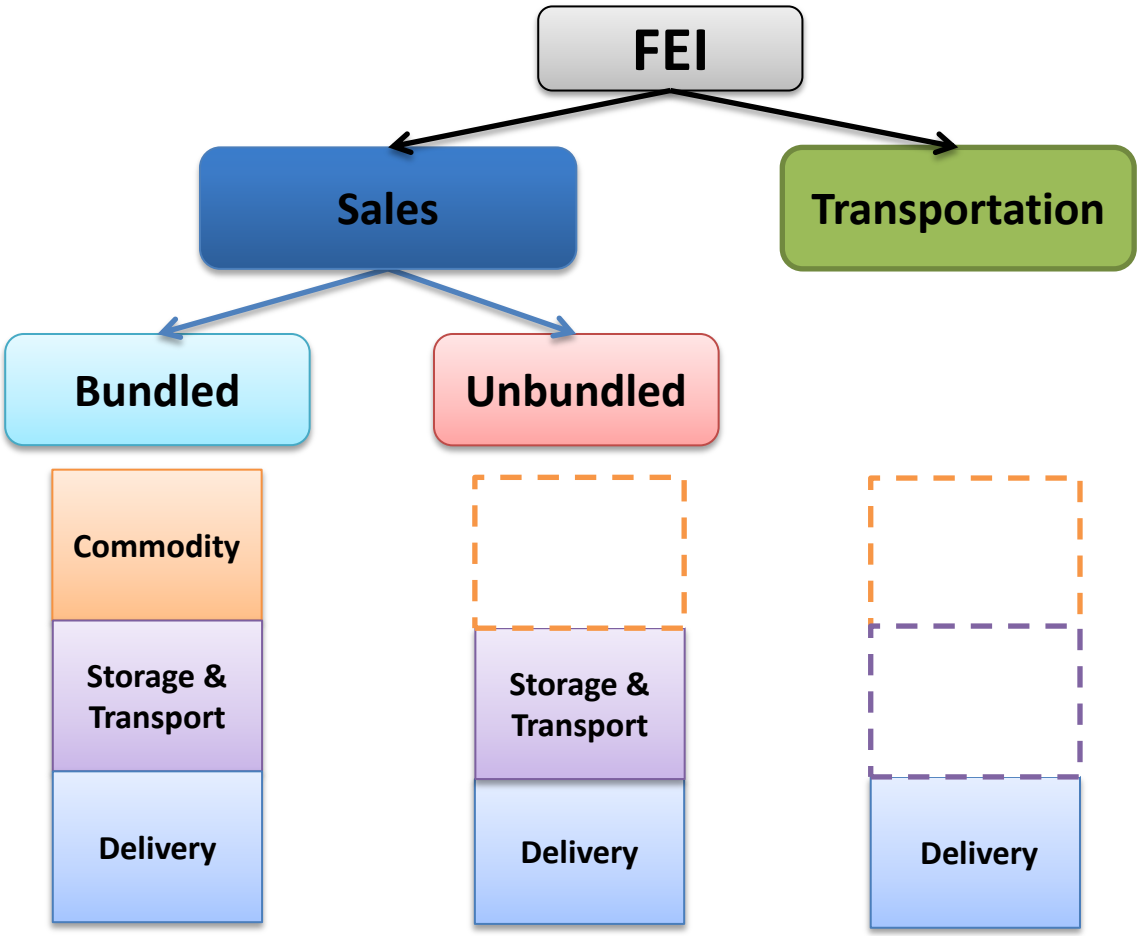
All Components Affect Rate Design

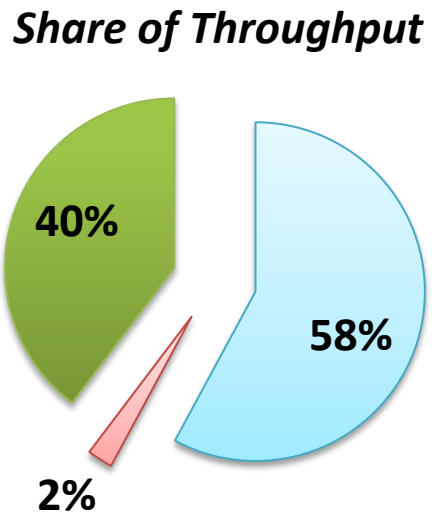


- **Sales service:** allows for provision of daily supply by FEI & Customer Choice Marketers sourced from trading hubs, while all other key midstream functions & contracted resources are managed by FEI. All aspects of the Sales service model operate within the business rules established in the Essential Services Model ("ESM")

- **Transportation service:** model allows customers / shipper agents to bring gas directly to the onset of FEI's system at specified interconnects with 3rd party pipelines after which FEI transports the supply to the customers' premises

Overview of FEI Service Models & Rate Components





"Storage and Transport" is also referred to as "Midstream"
1 PJ = 1,000 TJ = 1,000,000 GJ

Gas Supply Basics and Essential Services Model

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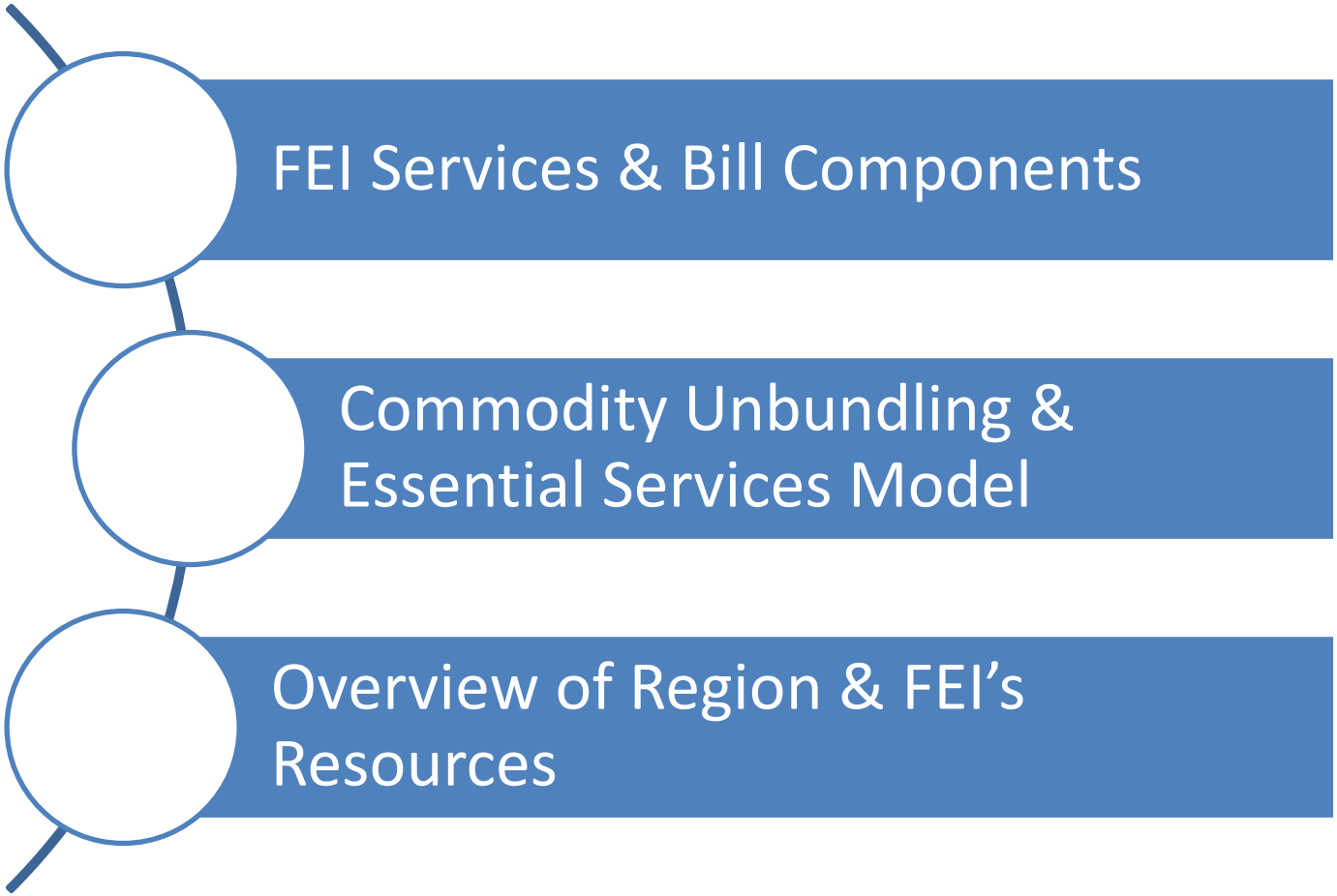
Overview


FEI Services & Bill Components
Commodity Unbundling & Essential Services Model
Overview of Region & FEI's Resources

FEI Services and Bill Components

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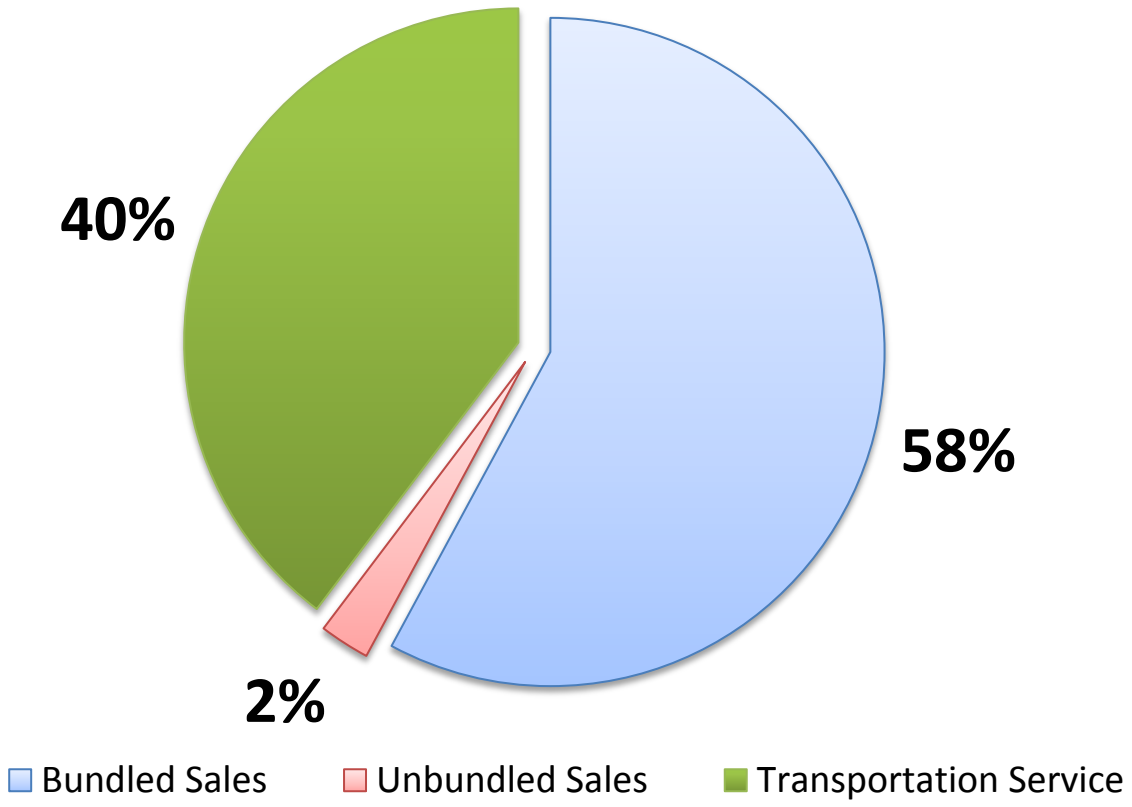
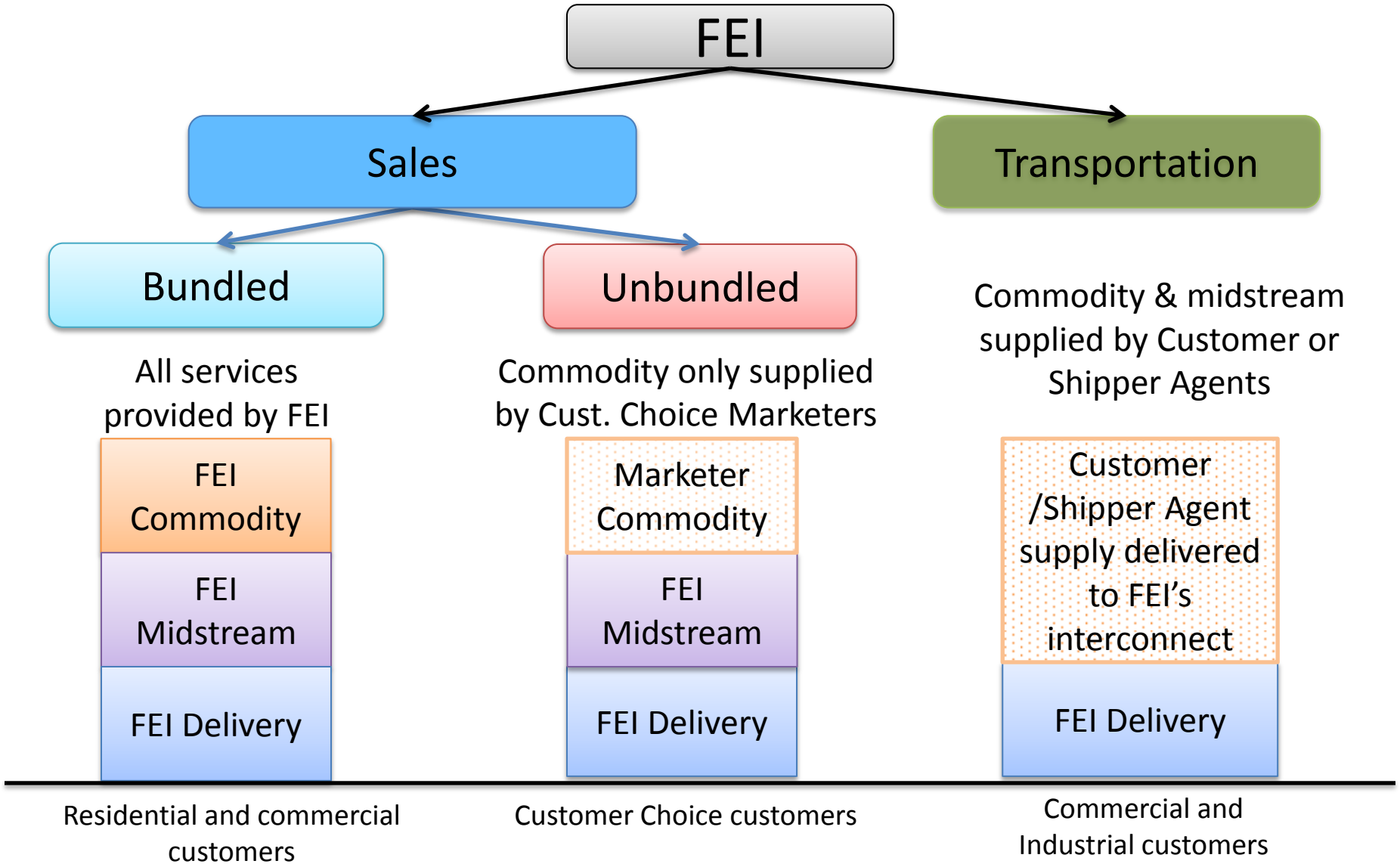
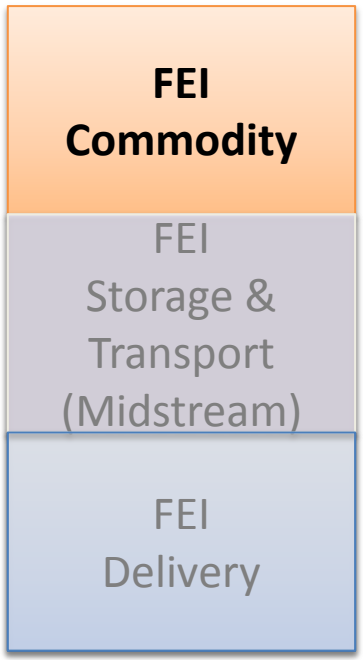
Breakdown of Annual Throughput Volumes by Sales and Transportation Services



Current FEI Business Model & Bill Components



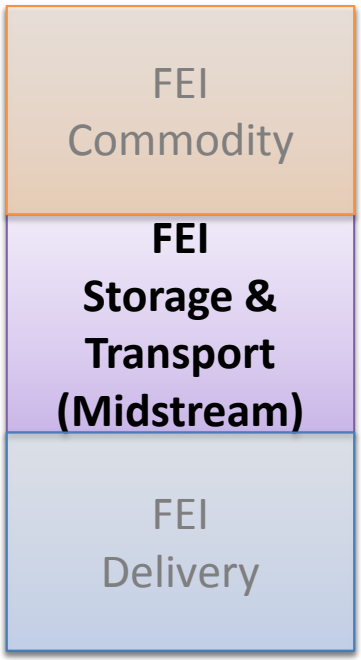
Bill Components – Commodity Rate



Consists of:

- Market based rate – flowthrough with no markup
- Annual baseload commodity purchases by FEI
- Station 2 and AECO/NIT supply
- Variable (market) rate offering to customer by FEI
- Reviewed quarterly & subject to quarterly resetting (per BCUC guidelines)

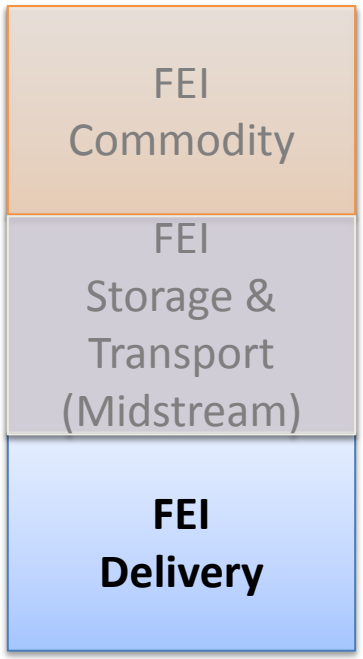
Bill Components – Storage & Transport (Midstream) Rate



Consists of:

- Market & Cost-based rate – flowthrough with no markup
- Shaped winter gas supply & seasonal storage
- Upstream pipeline capacity on external pipeline systems
- Shorter duration market area and on-system LNG storage
- Load balancing functions for entire system
- Backstopping functions
- Reviewed quarterly but normally reset annually

Bill Components – Delivery Rate



Consists of:

- Charges for FEI operations and delivering gas through FEI's system (based on FEI's rate base and delivery cost of service)
- Includes variable and fixed charges
- Generally determined by RRA and PBR
- Typically adjusted annually

Commodity Unbundling and Essential Services Model

Sales Service

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From Wellhead to Burnertip

Gas

Supply Hub

Customer Choice Marketer Commodity

FEI Commodity

"Commodity"

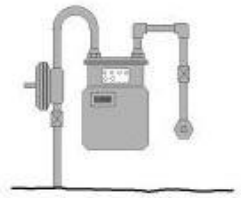
"Storage & Transport" or "Midstream"

Transport customer / shipper agent deliveries

FEI System Interconnect

Essential Services Model (ESM)

Customers

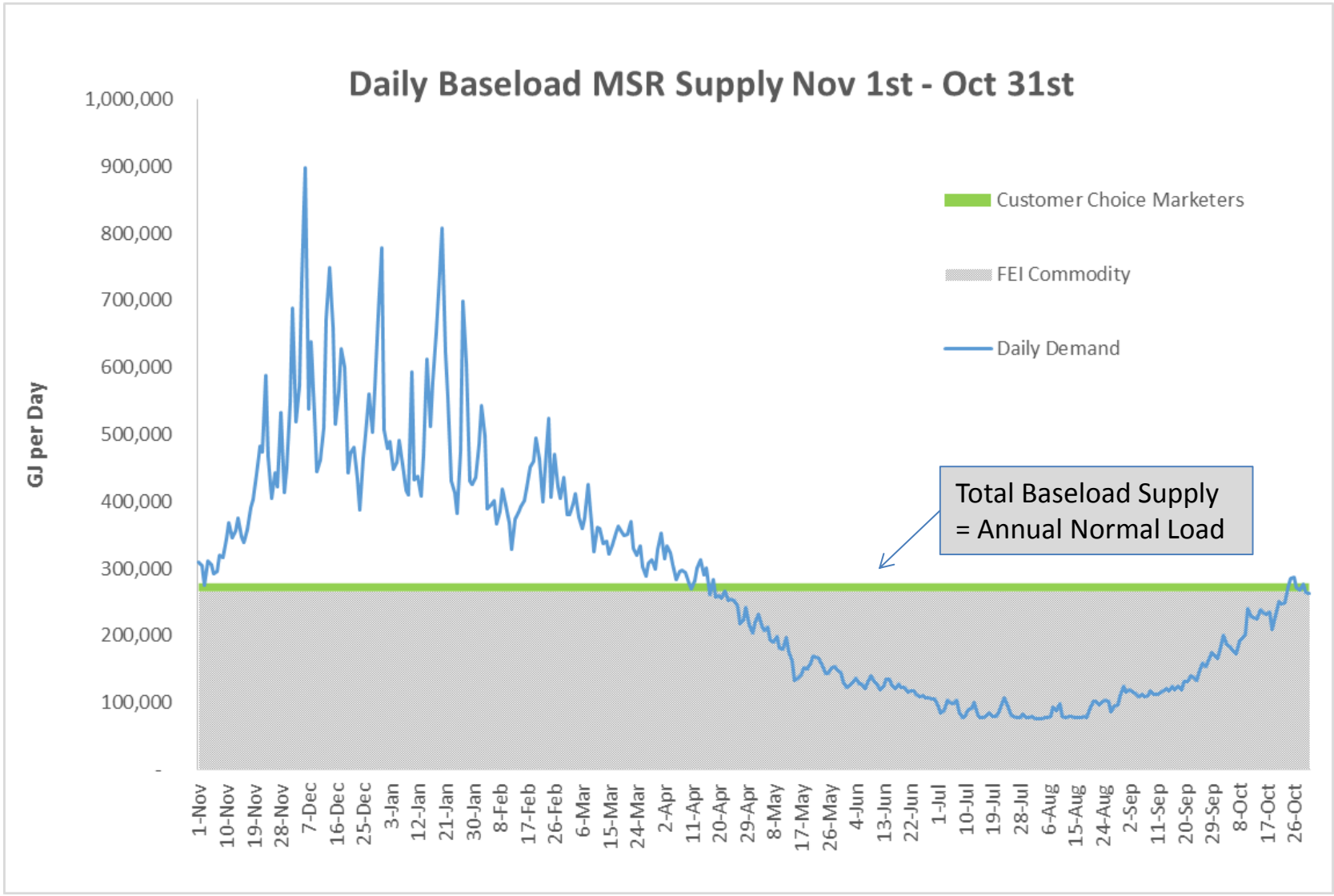


Customer Meter

FEI Delivery System

"Delivery"

ESM – Marketer Supply Requirement (MSR)



ESM – FEI's Responsibilities

Provide baseload commodity to sales customers choosing to stay with FEI for their daily supply

Contract & manage midstream resources including seasonal supply, external pipeline and storage capacity on behalf of all sales customers

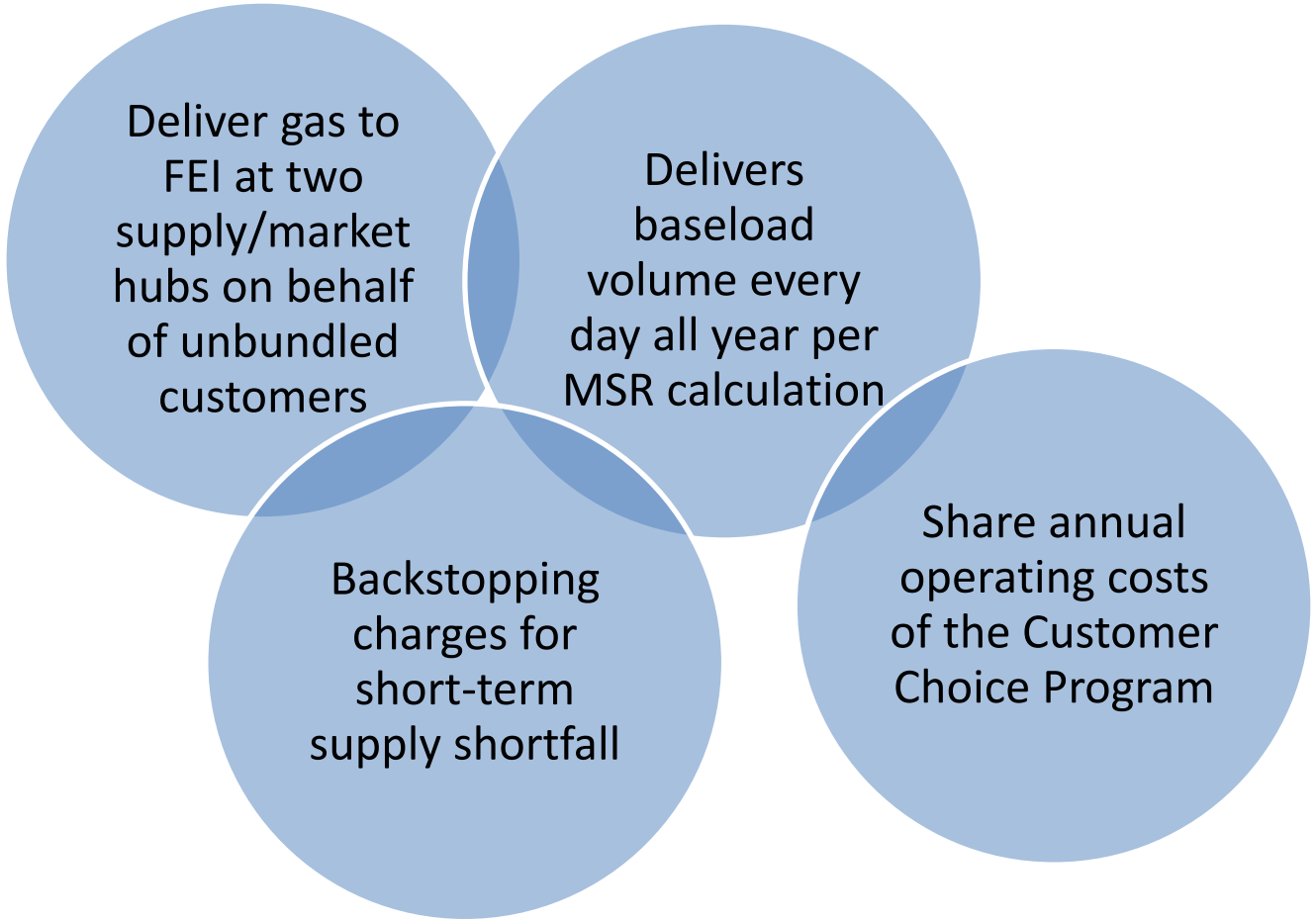
Provides load balancing each day, peaking gas services & manage all key support system functions

Infrastructure & resource planning, gas supply framework and emergency response

Supplier of Last Resort – FEI backstops any shortfall due to marketer supply failure

Billing and collection services for all Sales customers

ESM - Marketer Responsibilities



FEI's System and Resources

Background & Overview of Regional Infrastructure

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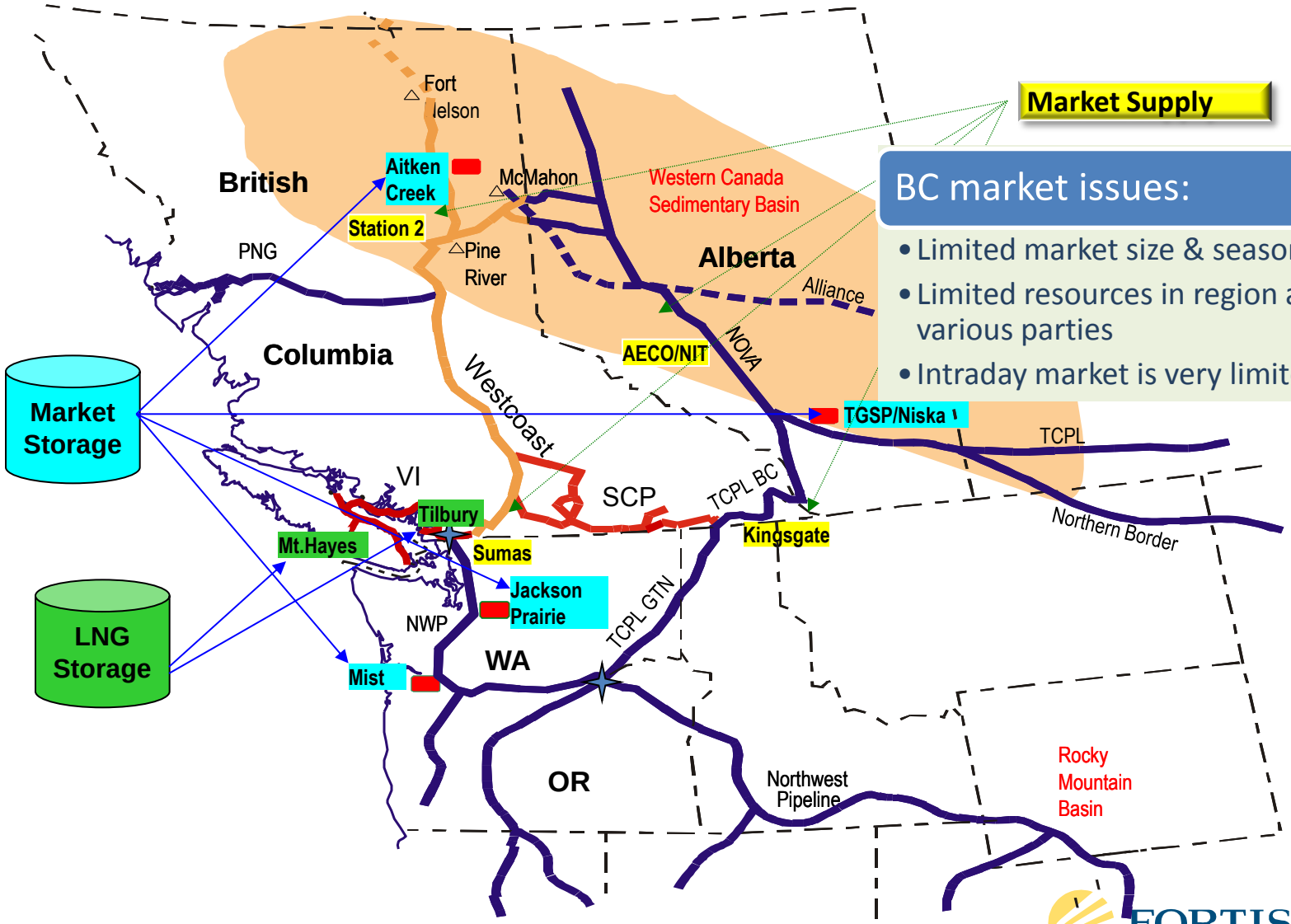
ESM Planning Objectives Fundamentals

The key component is the Annual Contracting Plan (ACP):

- *Security and reliability of daily gas supply*
- *Diversity of resources, pricing & counterparties*
- *Flexibility*
- *Cost minimization*

Regional Gas Market Resources

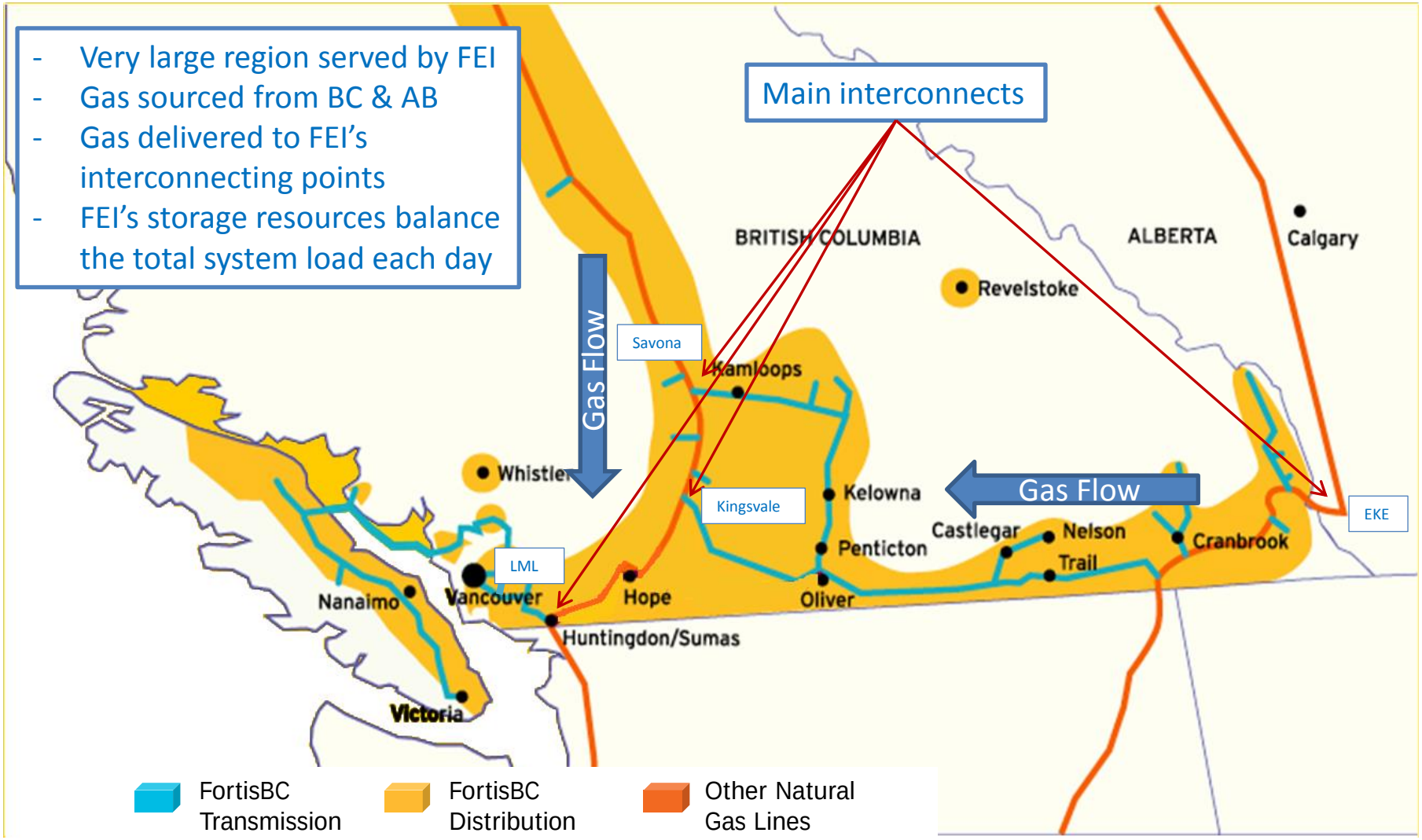


BC market issues:

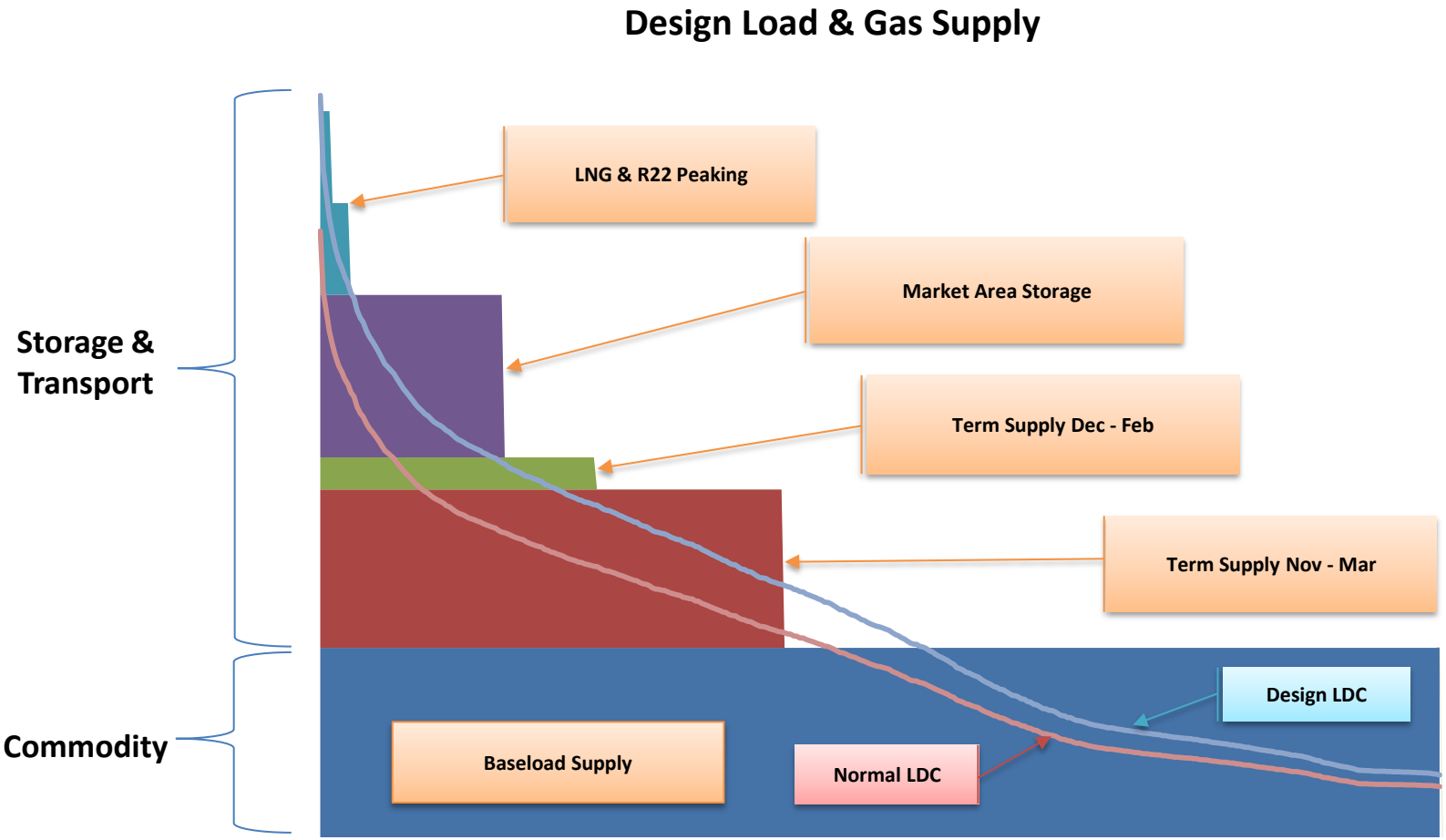
- Limited market size & seasonal demand
- Limited resources in region accessed by various parties
- Intraday market is very limited

FortisBC Gas System Regional Overview

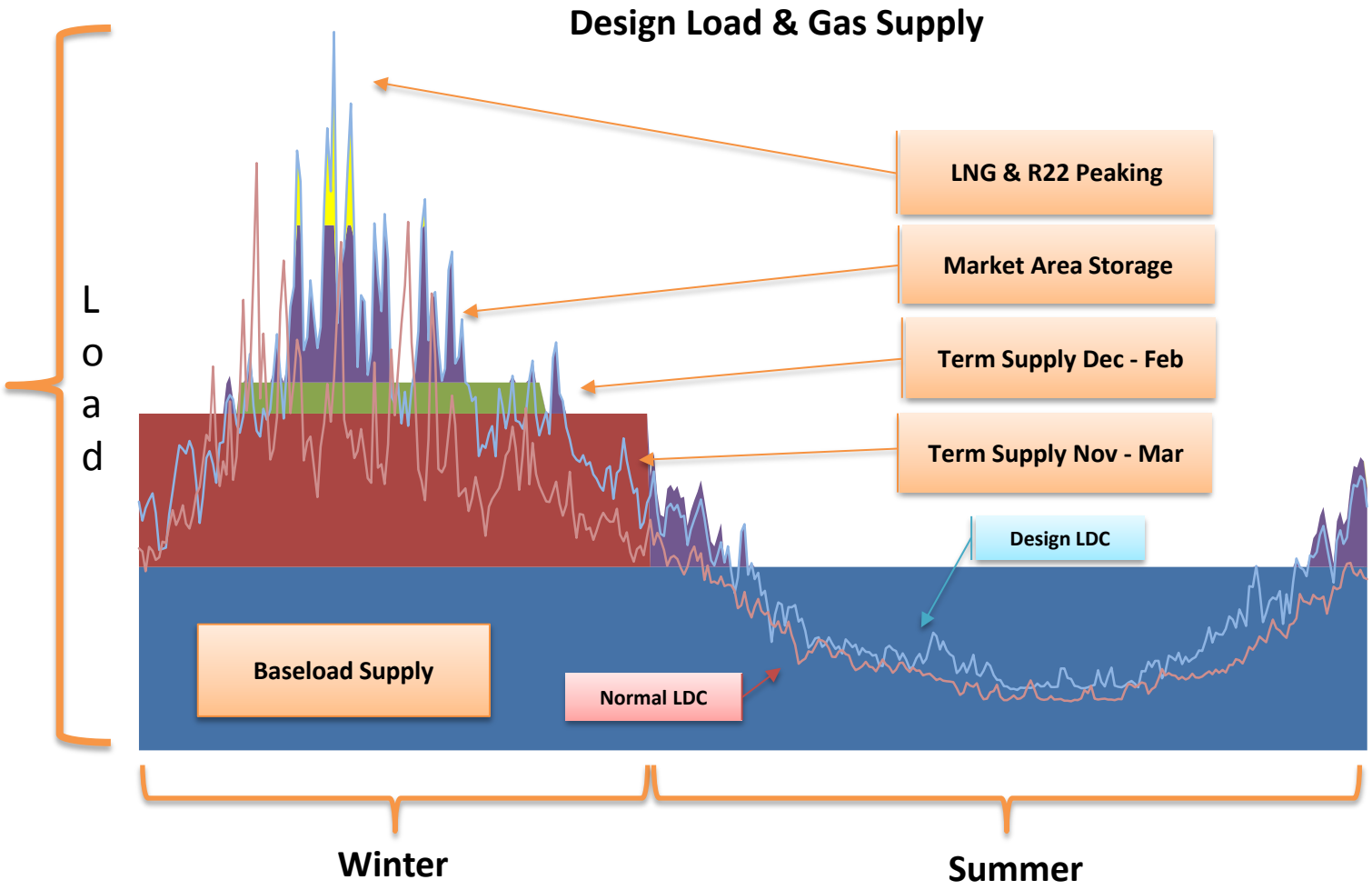
- Very large region served by FEI
- Gas sourced from BC & AB
- Gas delivered to FEI's interconnecting points
- FEI's storage resources balance the total system load each day



Diversity and Flexibility of Resource Portfolio



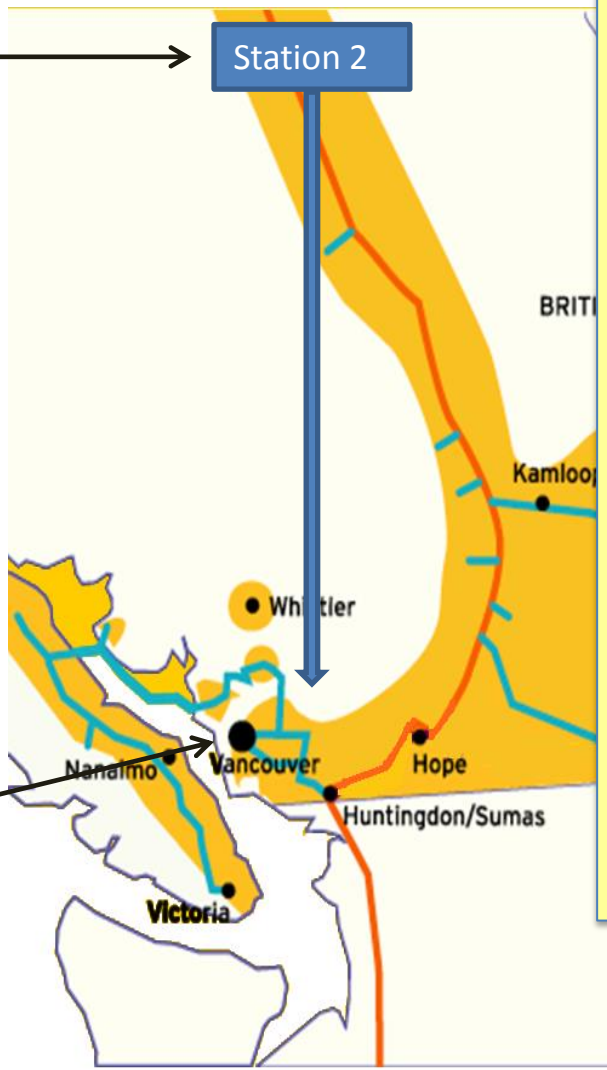
Load Duration Curve Based on Gas Year



Example – Daily Balancing Activity @ Lower Mainland

ESM supply sources:
- Baseload supply
- Seasonal supply
- Storage supply

Station 2



Demand dynamics:
- Change hourly / peaks
- Temperature fluctuations throughout the day
- Industrial customer consumption variances

Supply flow:
- Gas nominated day prior
- Intra-day supply scarce
- Upstream disruptions

Daily load balancing:
- Tight deadlines between final load forecast & placing nominations
- Midstream assets balance entire system on behalf of all customers

Demand =	700 TJ
Supply =	650 TJ
Short =	50 TJ

Supply: Transport customers delivery at LML

Summary

- Limited resources in the region accessed by many parties
- FEI has a separate model for each business segment
- FEI's pool of resources provides gas supply for all sales customers
- Each day total system load is balanced on the intraday by FEI's midstream resources
- FEI has a regional presence so that a diverse pool of resources is required in the portfolio

Transportation Model Overview

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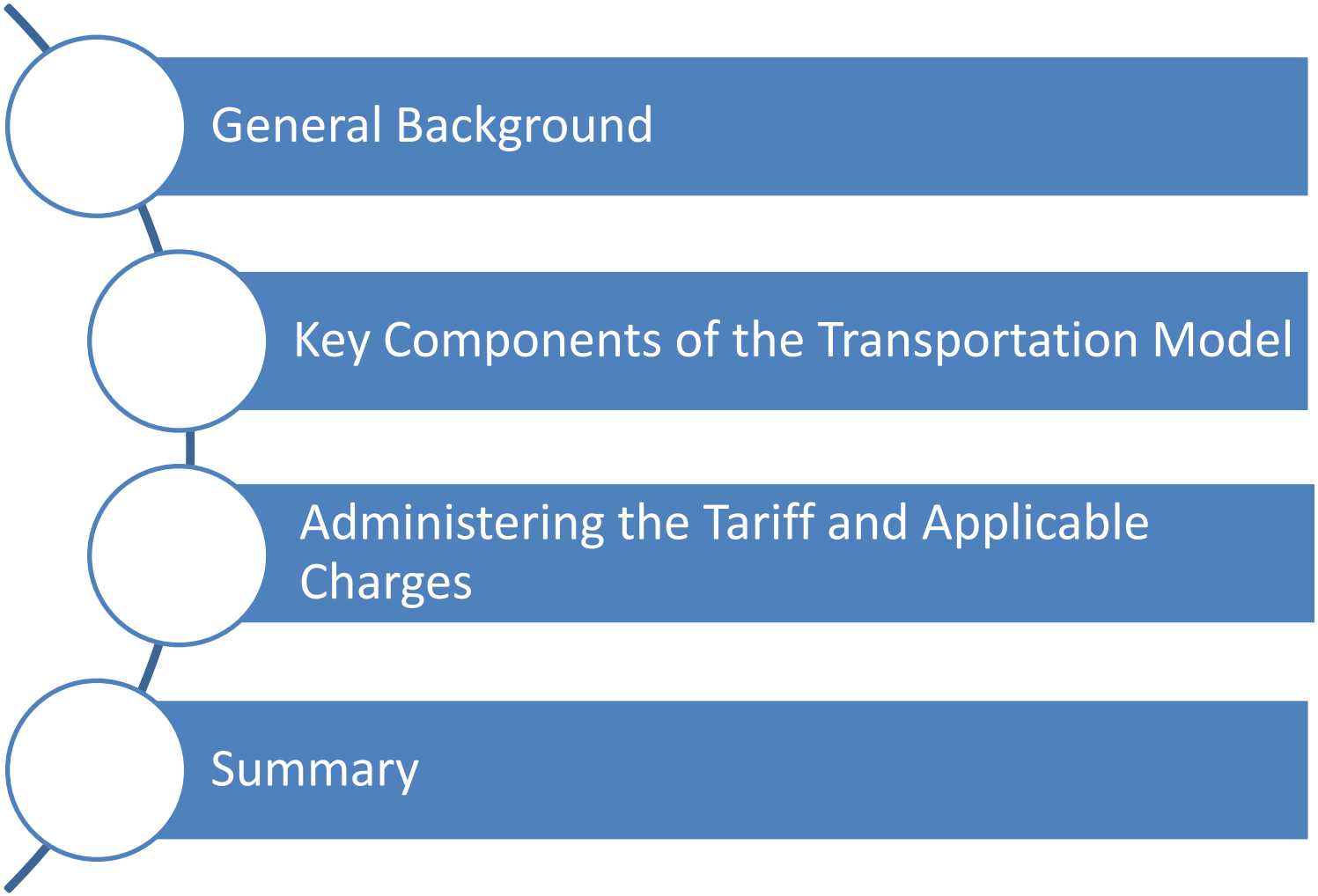
Transportation Model Overview



General Background

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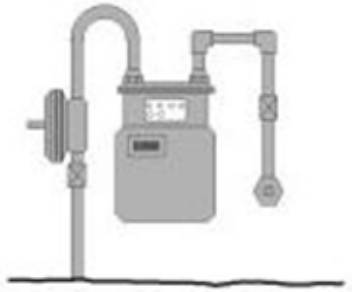
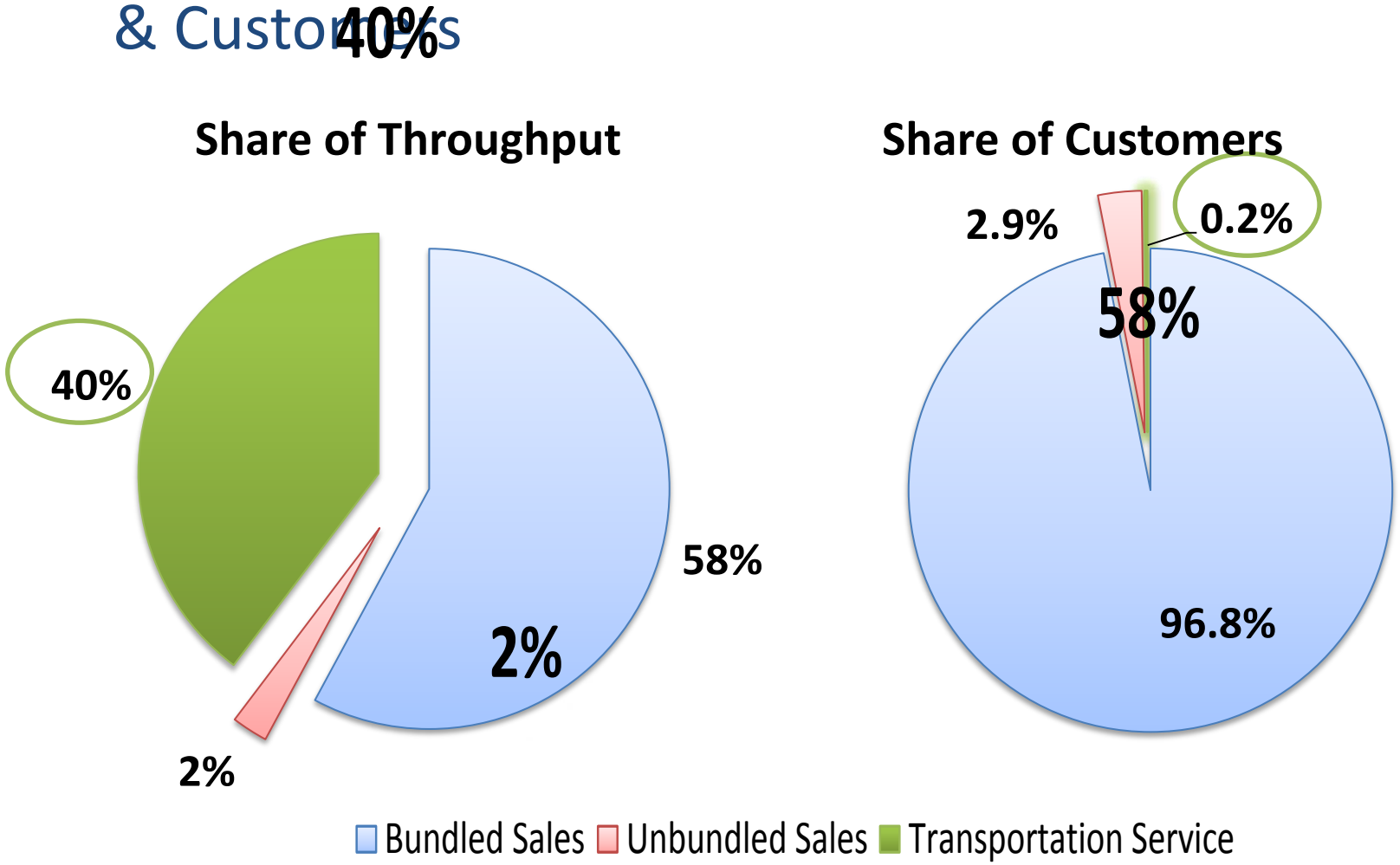
Highlights

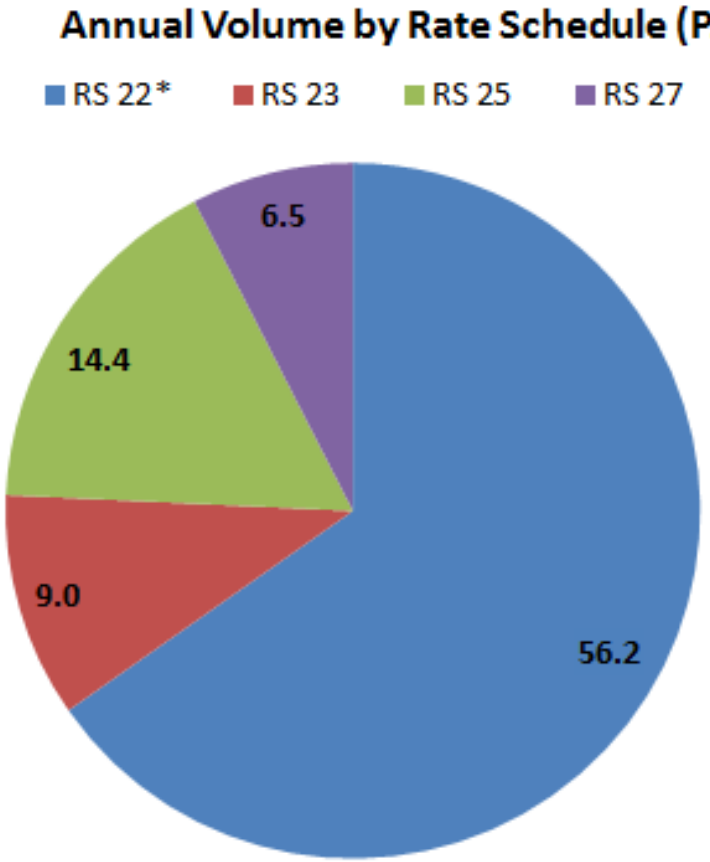
- Designed to give larger customers choice in who they procure their gas supply from
- Transportation service customers can make supply arrangements on their own behalf, or through Shipper Agents participating in the transportation model
- Natural gas supply is delivered to FEI at the interconnect and FEI transports and delivers it to the customer's premise
- Transportation Rate Schedules set terms and conditions of the service offering

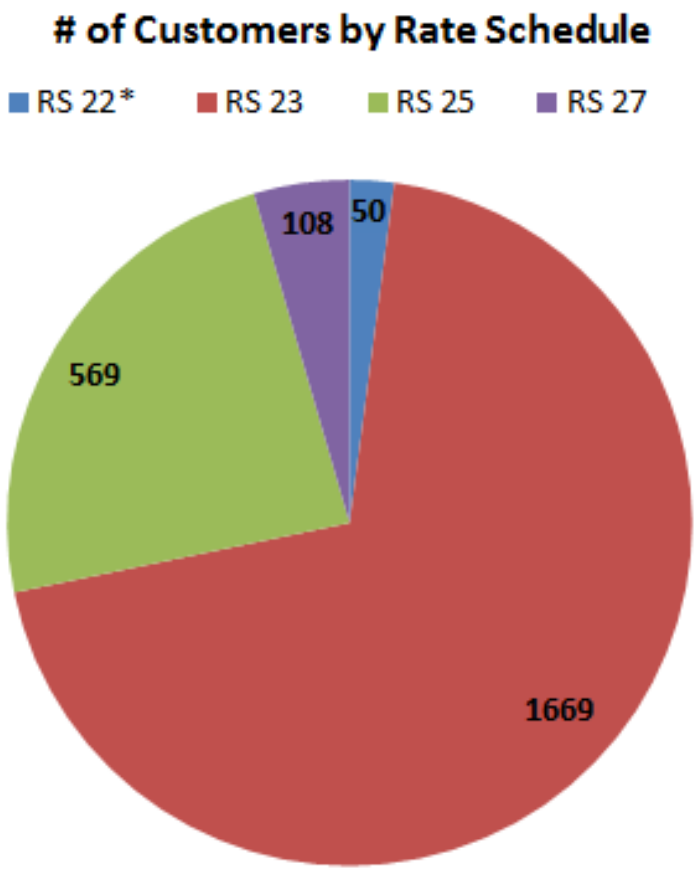


Business Models: Shares of System Throughput & Customers



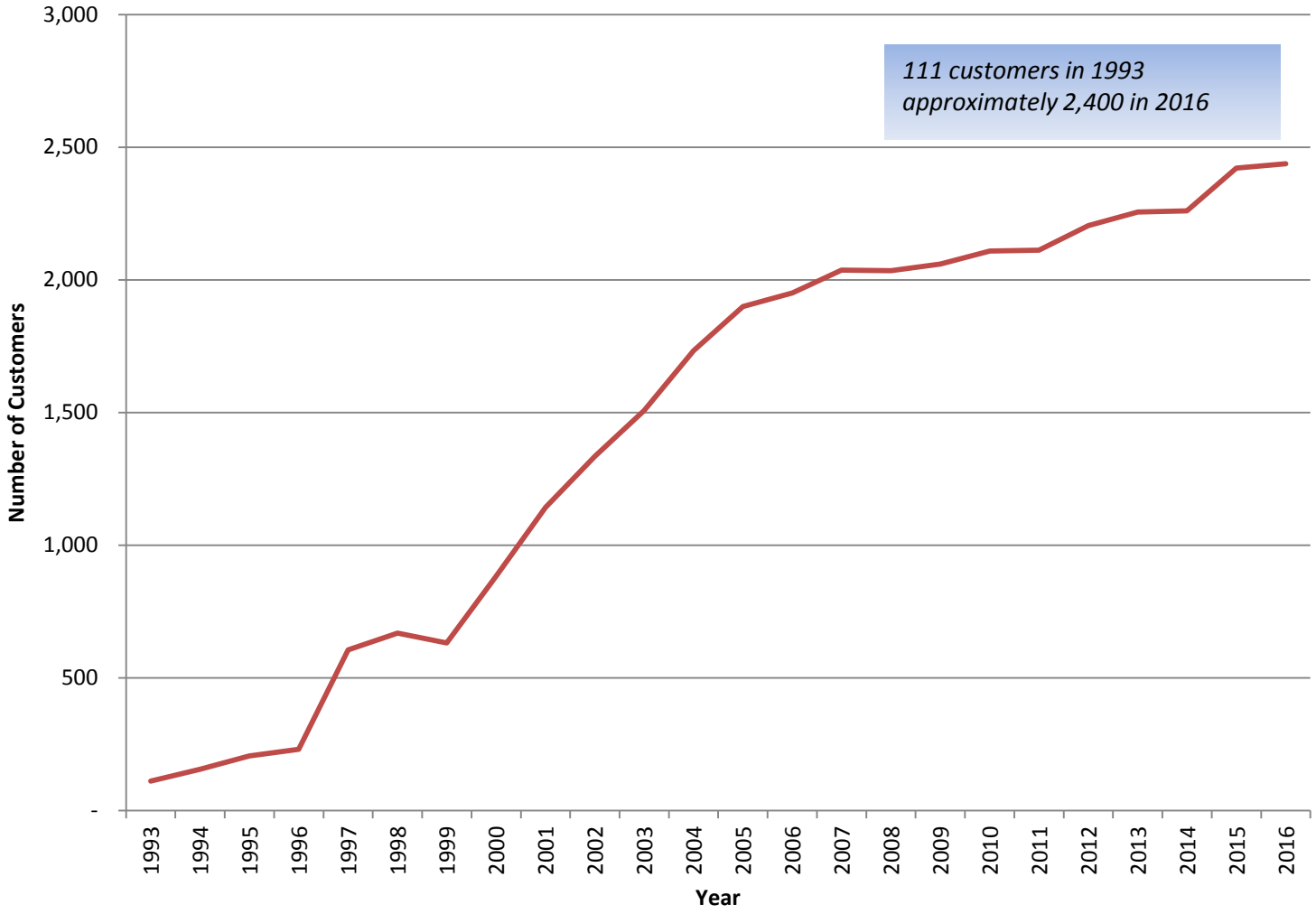
Transportation Throughput & Customers by Rate Schedule





* Includes RS22/22A/22B, VIGJV and BC Hydro IG

Historical Transportation Customer Growth



Gas Requirements

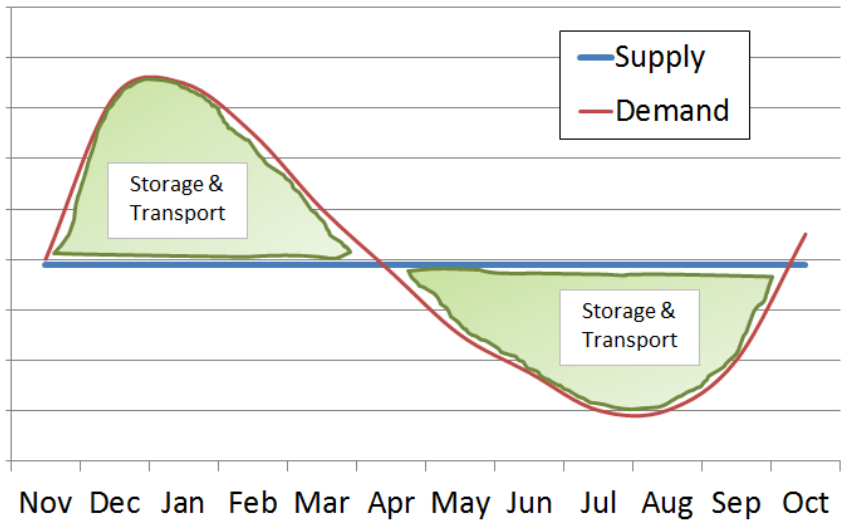
The role or responsibility of the shipper agent is to purchase and manage the gas supply needs on behalf of their customers

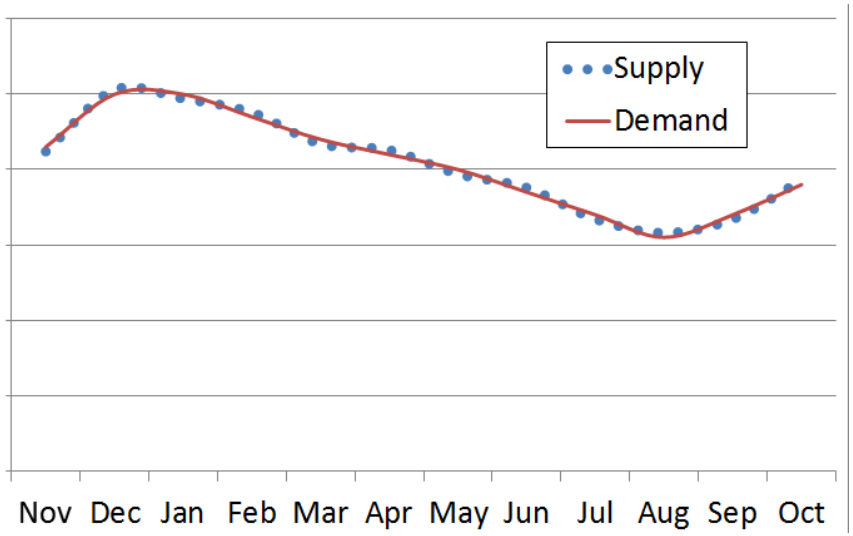
Shipper agents are expected to bring on sufficient supply to meet customer demand

Terms and conditions and potential charges when certain limits or tolerances are exceeded

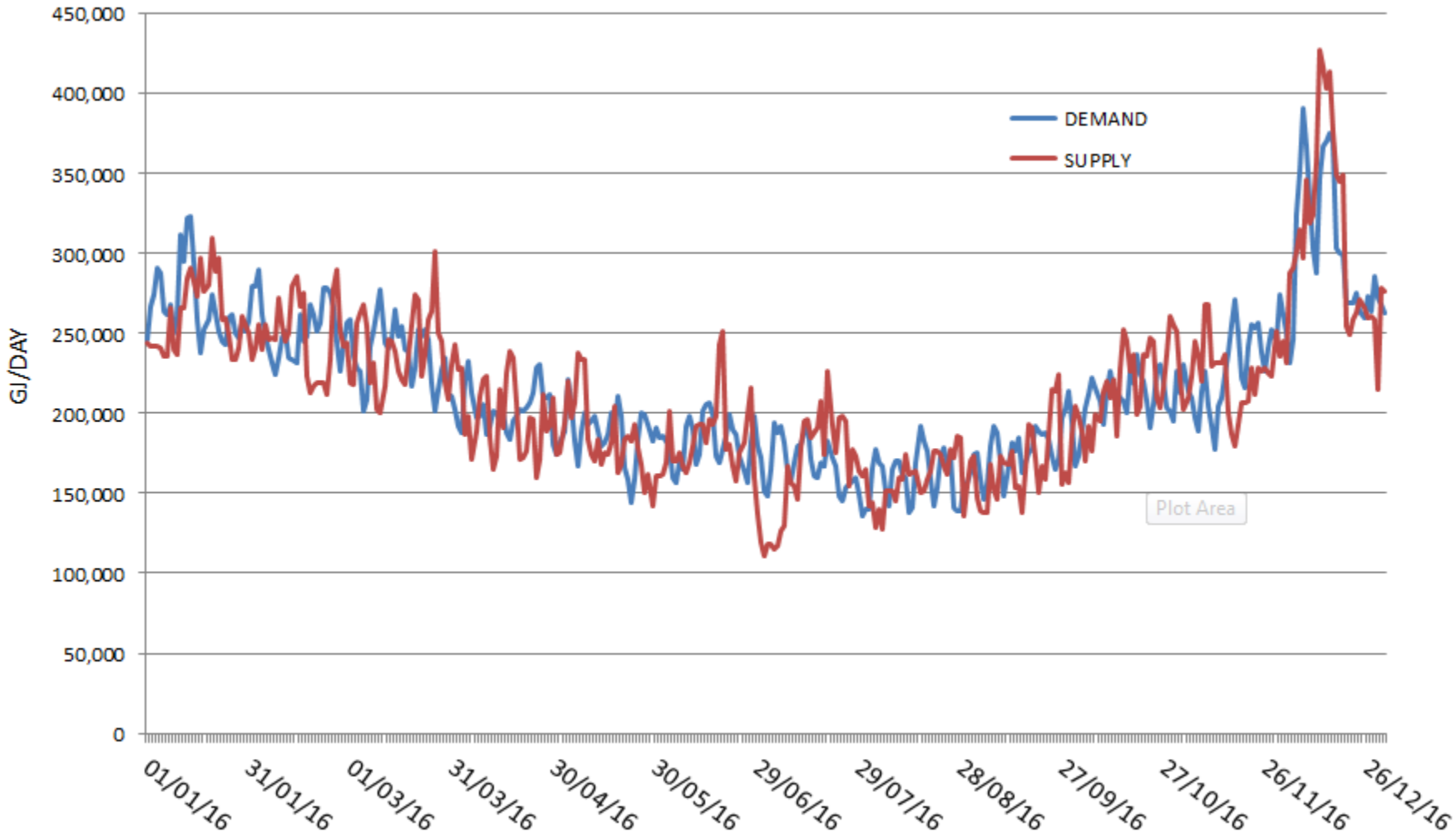
Model Comparison

Essential Services Model		Transportation Service Model
Bundled Service	Unbundled Service	Transportation Service





2016 Actual Transportation Supply and Demand



Key Components

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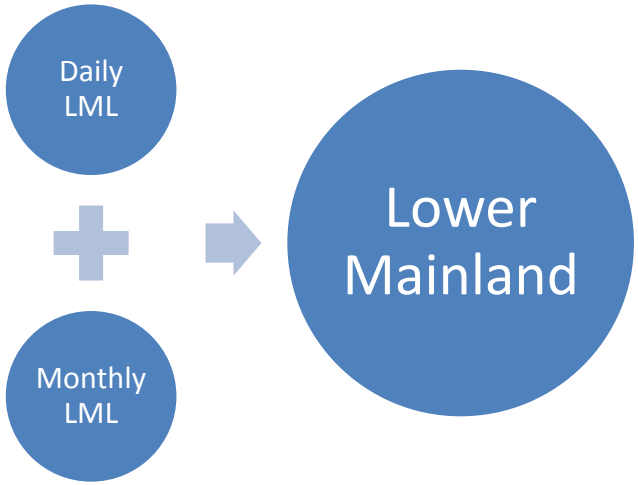
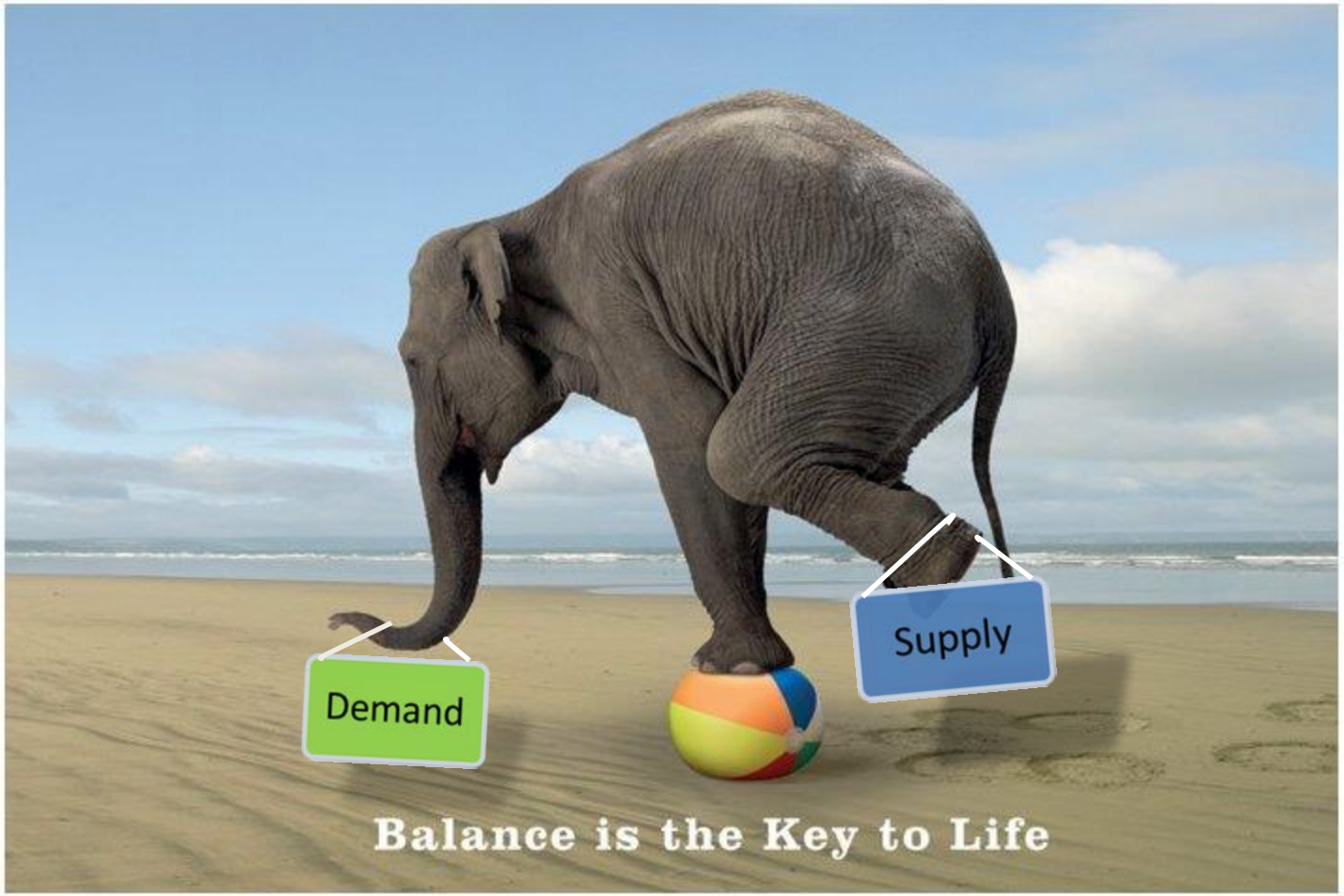
Pooled Groups

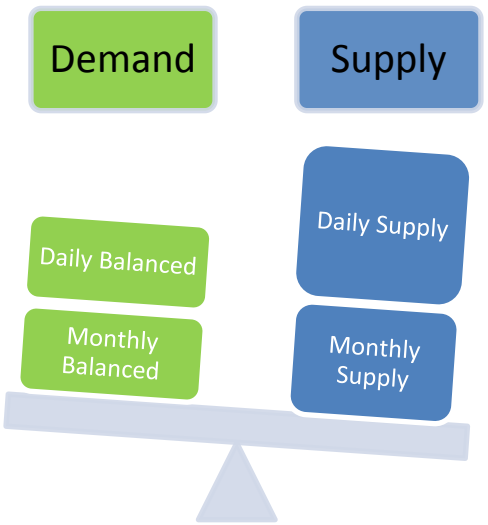


- Shipper agents may pool their customers in daily and monthly balanced groups
- 2,400+ customers
  - 16 Daily groups and 34 Monthly groups
  - 600 customers in Daily Balanced groups
  - 1,865 customers in Monthly Balanced groups

Transportation Service Balancing Requirements



Daily Balancing on FEI's system



Shipper agents can pool their customers in either a daily or monthly balanced group

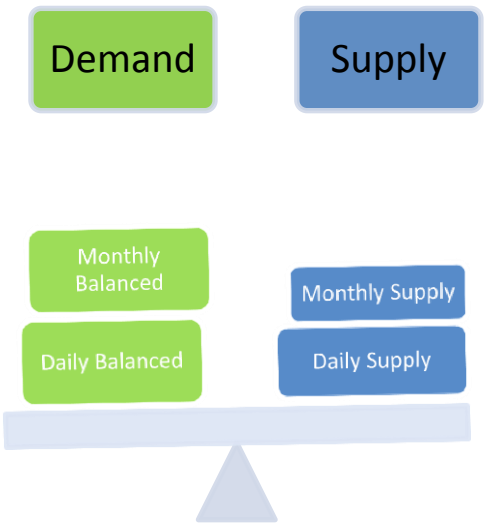
For daily groups, daily supply should meet daily demand

If under-deliveries on a given day, Fortis will "balance them" and sell daily balancing gas

If under-deliveries extend beyond a 20% tolerance, a balancing premium surcharge may apply

When over-deliveries occur, the shipper agent's gas is banked as inventory on FEI's system

Monthly Balancing on FEI's system

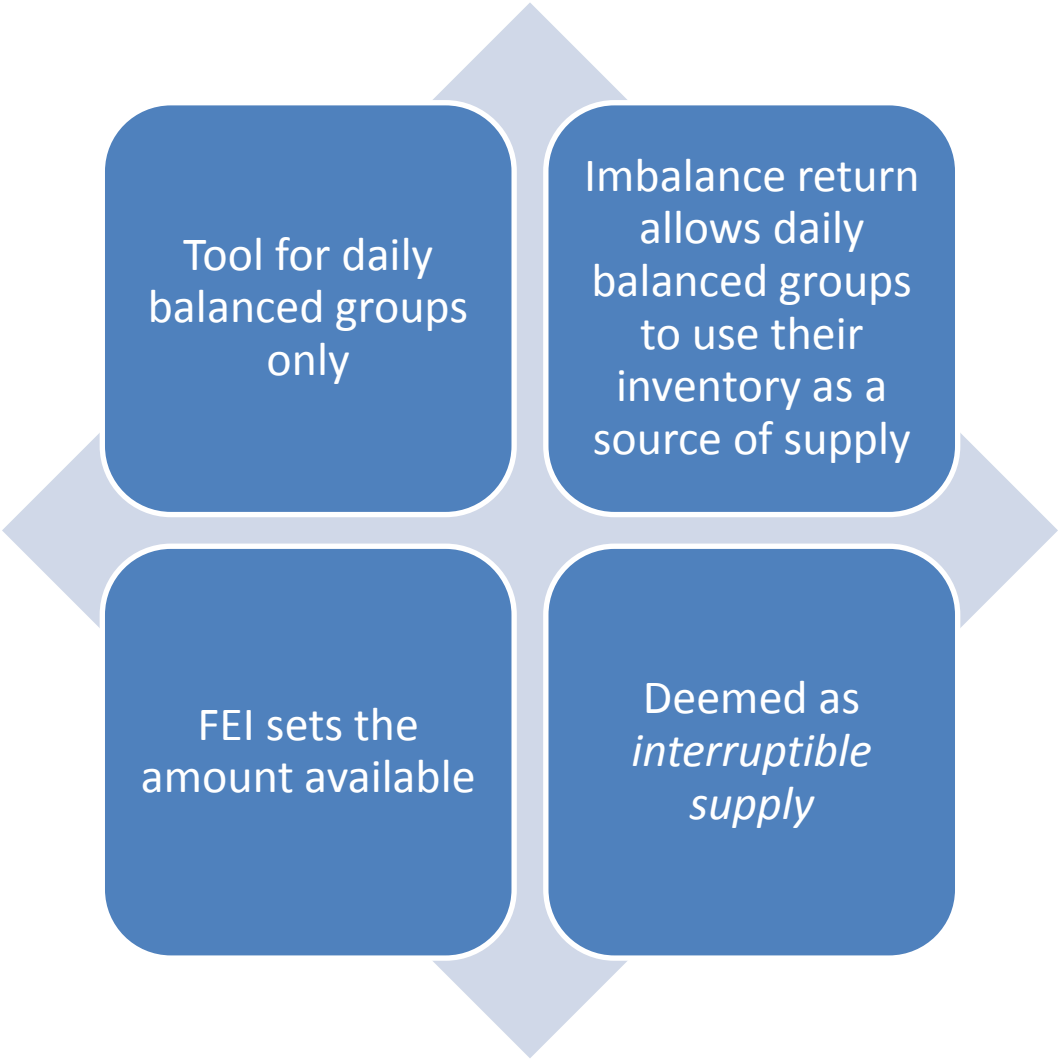


Monthly balanced groups are not required to balance on a daily basis but by month end

If at month end total supply is less than total demand, FEI will balance the group and sell monthly balancing gas

Shipper agents with a daily and monthly balanced group at the same location typically over deliver to their daily group and under-deliver to their monthly group – and net out at month end

Imbalance Return



Inventory Levels

- Responsibility of the shipper agent to manage inventory on FEI's system
- FEI business practice is to monitor and limit inventory to +/- 2-3 days
  Example:
  Avg burn = 5,000 Gjs/day
  Inventory= 15,000 Gjs
  Pack = 3 days
- Good working relationship
- FEI has tools to limit or reduce inventory as necessary

Administering the Tariff

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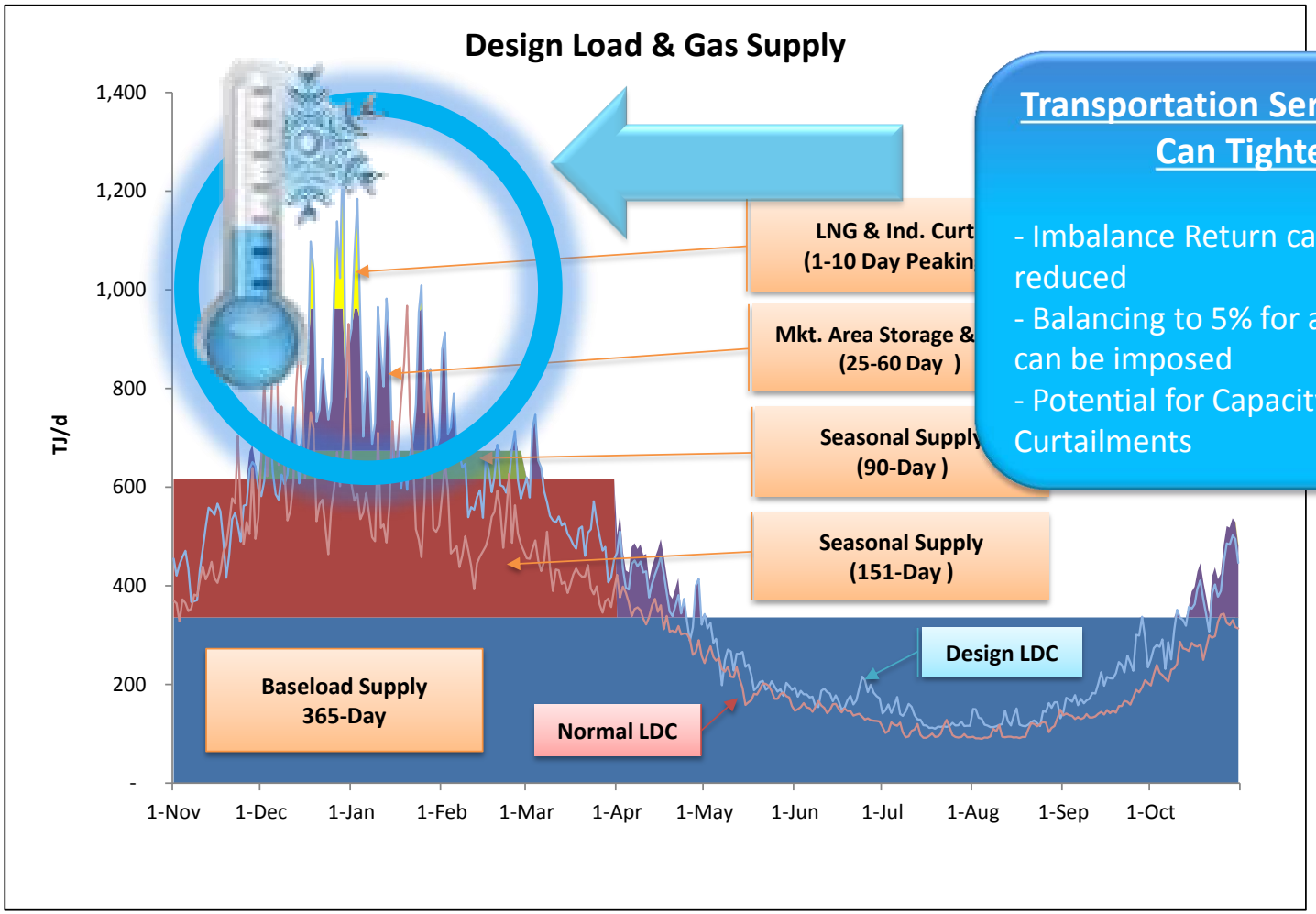
Imbalance Restrictions Tightened at Peak Times



Transportation Service Rules Can Tighten

- Imbalance Return can be reduced
- Balancing to 5% for all groups can be imposed
- Potential for Capacity Curtailments

Applicable Charges

- **Backstopping** (Sumas Gas Daily)
- **Daily and Monthly Balancing Gas sold** (Sumas Gas Daily)
- **Daily Balancing Premium Surcharge** ($1.10 in winter, $0.30 in summer per GJ)
- **Unauthorized over run (UOR)** – under and over 5% (Sumas Gas Daily and greater of 1.5 times Sumas Gas Daily or $20/GJ)
- **Replacement gas** (Sumas Daily plus 20%)
- **Demand Surcharge** ($17 x 12 x quantity)

Backstopping

Backstopping Example:

Nominated Quantity:	10,000	GJ
Delivered Quantity:	8,000	GJ
Backstopping sold	(2,000)	GJ

2,000 GJ of Backstopping incurred

Charged at the Sumas Gas Daily price

Daily Balancing Gas and Balancing Premium Surcharge

Daily Balancing Gas Example:

Nominated Quantity:	10,000	GJ
Delivered Quantity:	10,000	GJ
Customer Demand:	15,000	GJ
DIFFERENCE	(5,000)	GJ

5,000GJ of Daily Balancing gas incurred
Charged at the Sumas Gas Daily price

Balancing Premium Surcharge Example:

Nominated Quantity:	10,000	GJ
Delivered Quantity:	10,000	GJ
Greater of:		
10,000 x 1.2 =	12,000	GJ
10,000 + 100 =	10,100	GJ
REVISED Delivered Quantity:	12,000	GJ
Customer Demand:	15,000	GJ
DIFFERENCE	(3,000)	GJ

Surcharge Calculation:

Summer	3,000 x $0.30 =	$	900
Winter	3,000 x $1.10 =	$	3,300

Monthly Balancing Gas

Monthly Balancing Gas Example:

Sum of Delivered Quantities:	50,000	GJ
Sum of Customer Demand:	55,000	GJ
DIFFERENCE	(5,000)	GJ

5,000GJ of Monthly Balancing gas incurred
Charged at the Sumas Gas Daily price average for the month

Hold to Authorize/Supply Restriction

- Issued when sustained cold weather occurs or reach design day temperatures
- FEI can issue intra-day or day ahead
- Applies to all groups – daily and monthly at a specific location
- Shippers must bring on sufficient supply to meet or exceed group demand
- Balancing threshold changes from 20% to 5%
- Unauthorized over-run charges will apply if under-deliveries occur

Unauthorized Over-Run (Supply Restriction)

Unauthorized Over-run Example:

Nominated Quantity:	10,000	GJ
Delivered Quantity:	10,000	GJ
Customer Demand:	15,000	GJ
DIFFERENCE - UOR applied	(5,000)	GJ

First 5% of 10,000 = 500 >>> sold at Sumas Gas Daily

Over 5% = 4,500 >>>>> sold at the greater of
Sumas gas daily x 1.5
or $20 per GJ

Capacity Curtailment – Interruptible Customers

- Applies to specific Interruptible customers, typically either a RS 22/22A/22B or 7/27 at a specific location on our system
- Does not apply to the shipper agent
- Decision to curtail or limit a specific customer(s) is determined by FEI's Gas Control Department
- Customer may be required to reduce consumption or be curtailed completely
- If customer takes in excess of the curtailed quantity, Unauthorized Over-Run (UOR) and potentially Demand Surcharges may apply

Unauthorized Over-Run **(Capacity Curtailment)**

EXAMPLE:

Curtailment Quantity:	10,000	GJ
Customer Demand:	15,000	GJ
DIFFERENCE - UOR applied	(5,000)	GJ

First 5% of 10,000 = 500 >>> charged at Sumas Gas Daily

Over 5% = 4,500 >>>>> charged at the greater of
Sumas gas daily x 1.5
or $20 per GJ

Demand Surcharge **(Capacity Curtailment)**

If on three or more Days during a Contract Year, a Shipper does not comply with a "Notice of Curtailment"

Demand Surcharge Example:

Curtailment Quantity:		10,000	GJ
Customer Demand:		15,000	GJ
Greater of:			
10,000 x 110% =		**11,000**	**GJ**
10,000 + 100 =		10,100	GJ
Demand Surcharge applied		(4,000)	GJ
Demand Surcharge	$	17	GJ
times 12			
Demand Surcharge quantity		4,000	GJ
	$	816,000	

Transportation Summary

- Transportation service customers can make supply arrangements on their own behalf, or through shipper agents participating in the transportation model
- Natural gas supply is delivered to FEI at the interconnect and FEI transports and delivers it to the customer's premise
- FEI balances the system on an hourly and daily basis as a whole
- Transportation Model has been generally working well

Rate Design Fundamentals & Tariff Overview

PART II

FORTIS BC™

Cost of Service, Segmentation and Rate Design Concepts

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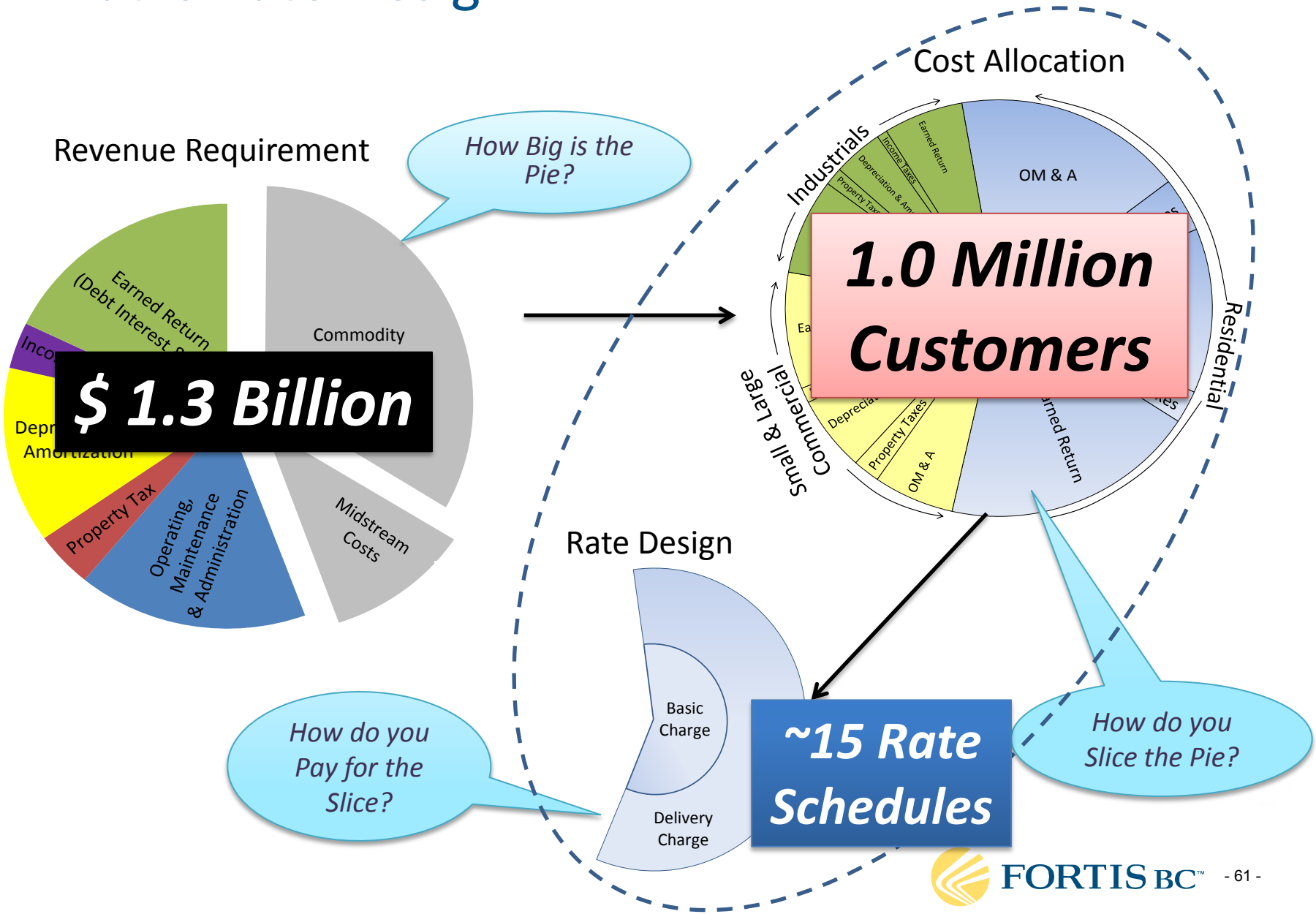
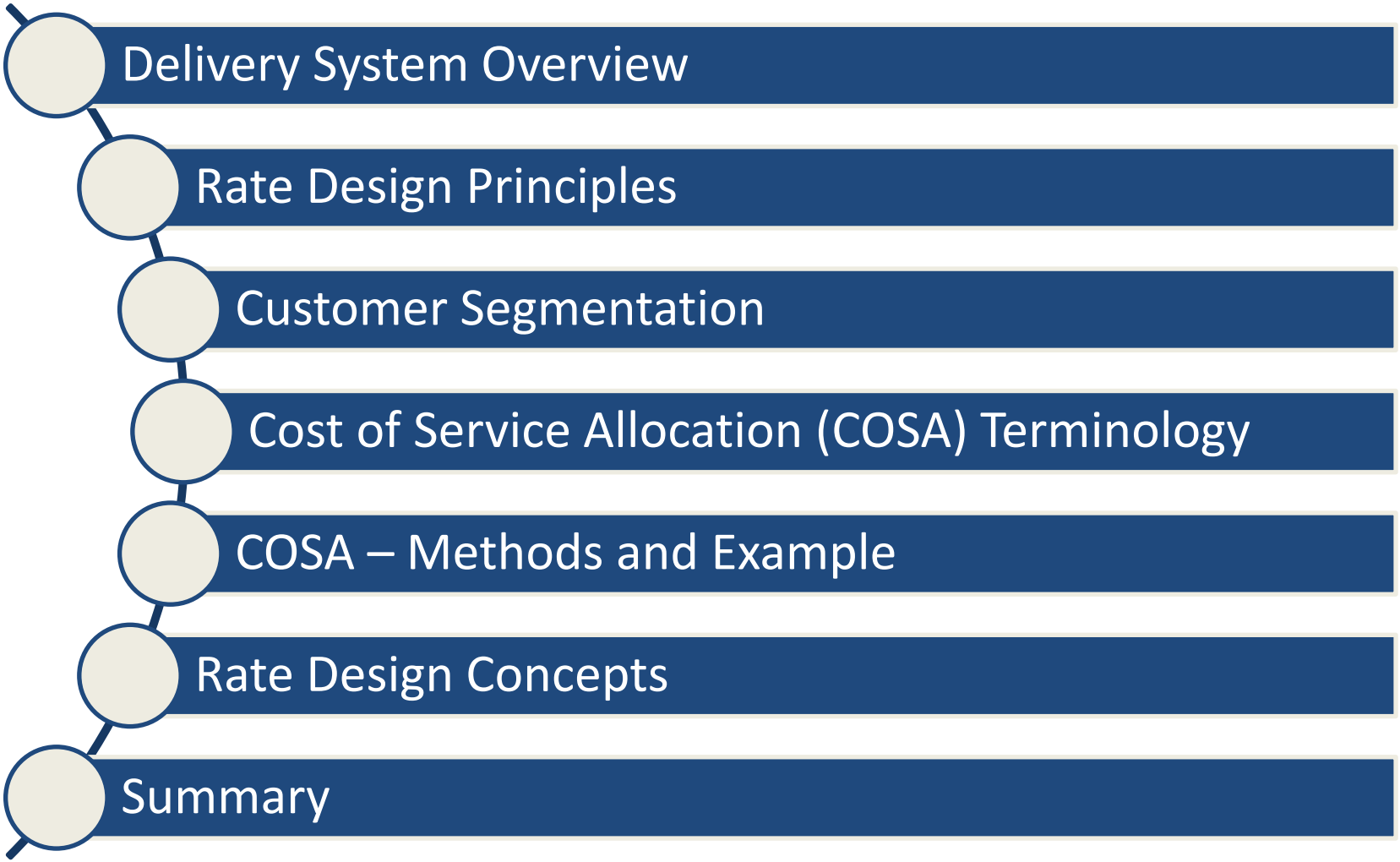
What is Rate Design



How we split up the Revenue Requirement amongst customers

How we design our customers rates

Overview


Delivery System Overview
Rate Design Principles
Customer Segmentation
Cost of Service Allocation (COSA) Terminology
COSA – Methods and Example
Rate Design Concepts
Summary

Delivery System Overview

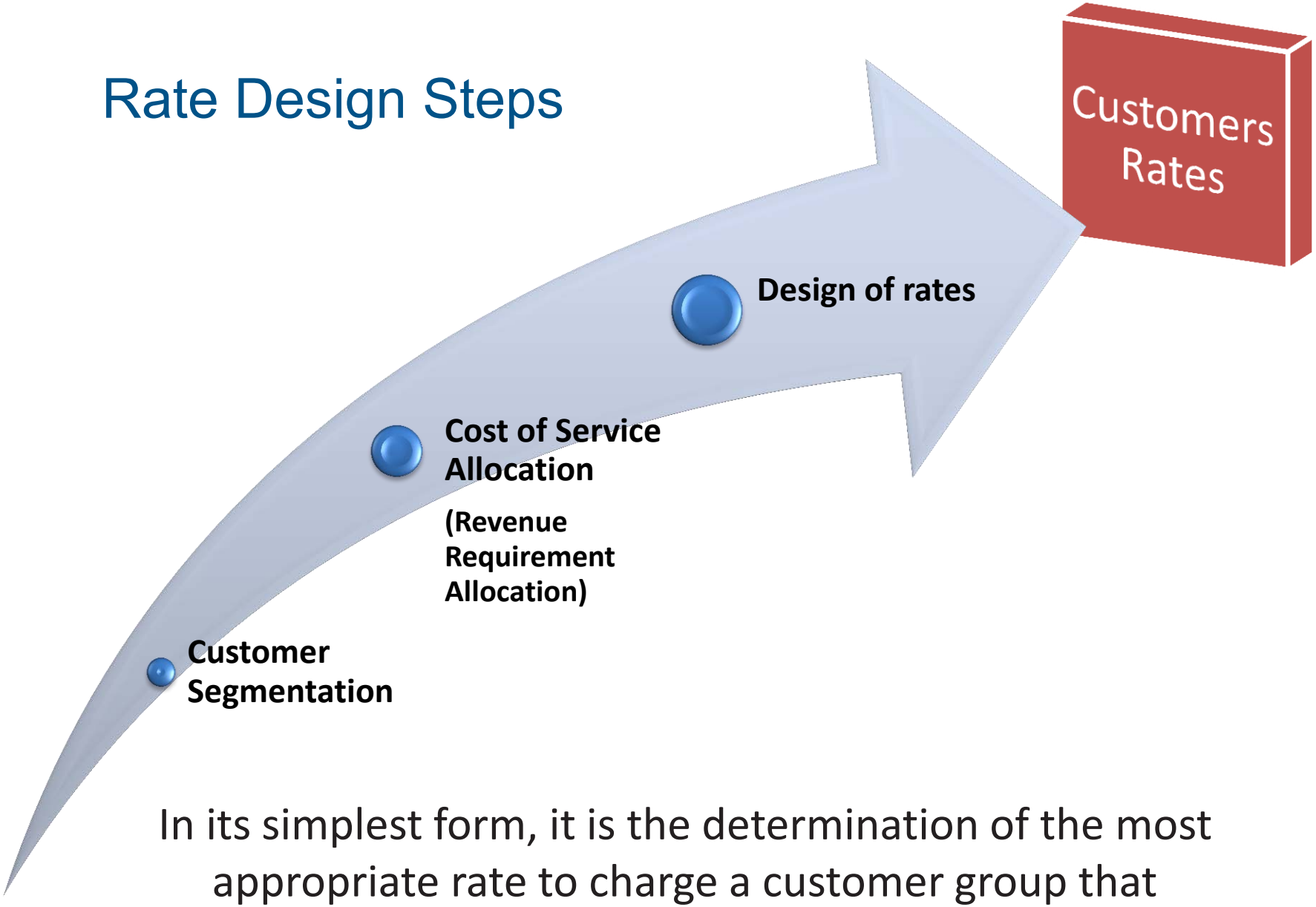
- Essential Services Model (ESM) in place to ensure Gas gets from supply hubs to our service territory
- Transportation Services Model allows customers to bring gas to the FEI system (Interconnect points) whereby we receive gas for delivery to customers
- Delivery System picks up the gas that ESM and Transport models deliver to Interconnect points and moves it to customers premises

FEI's Rate Design Principles

- Recovering the cost of service
- Fair appointment of costs among customers
- Price signals to encourage efficient use
- Customer understanding and acceptance
- Practical and cost effective to implement
- Rate stability
- Revenue Stability
- Avoidance of undue discrimination

The weight placed on each of these principles is not always equal

Rate Design Steps



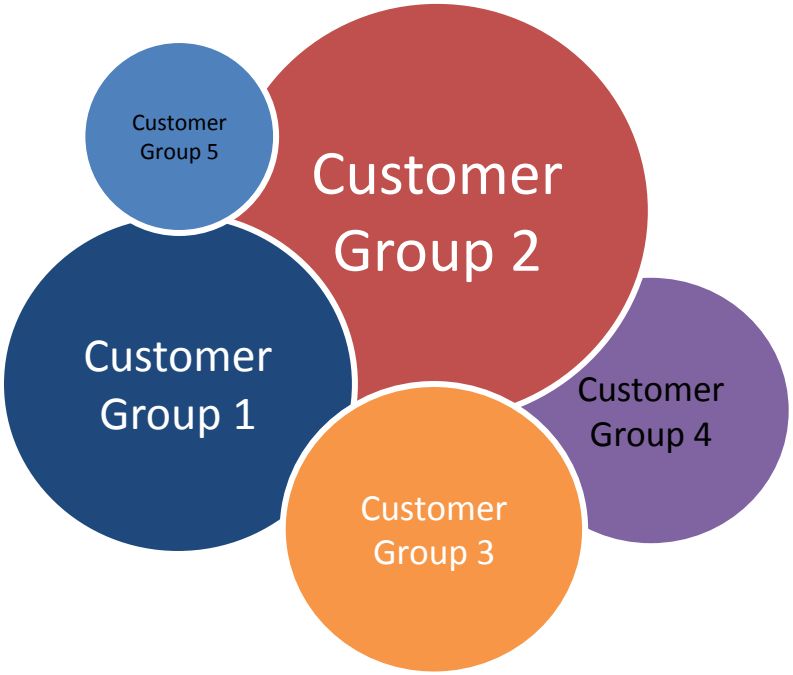
In its simplest form, it is the determination of the most appropriate rate to charge a customer group that recovers the costs of serving them

Customer Segmentation

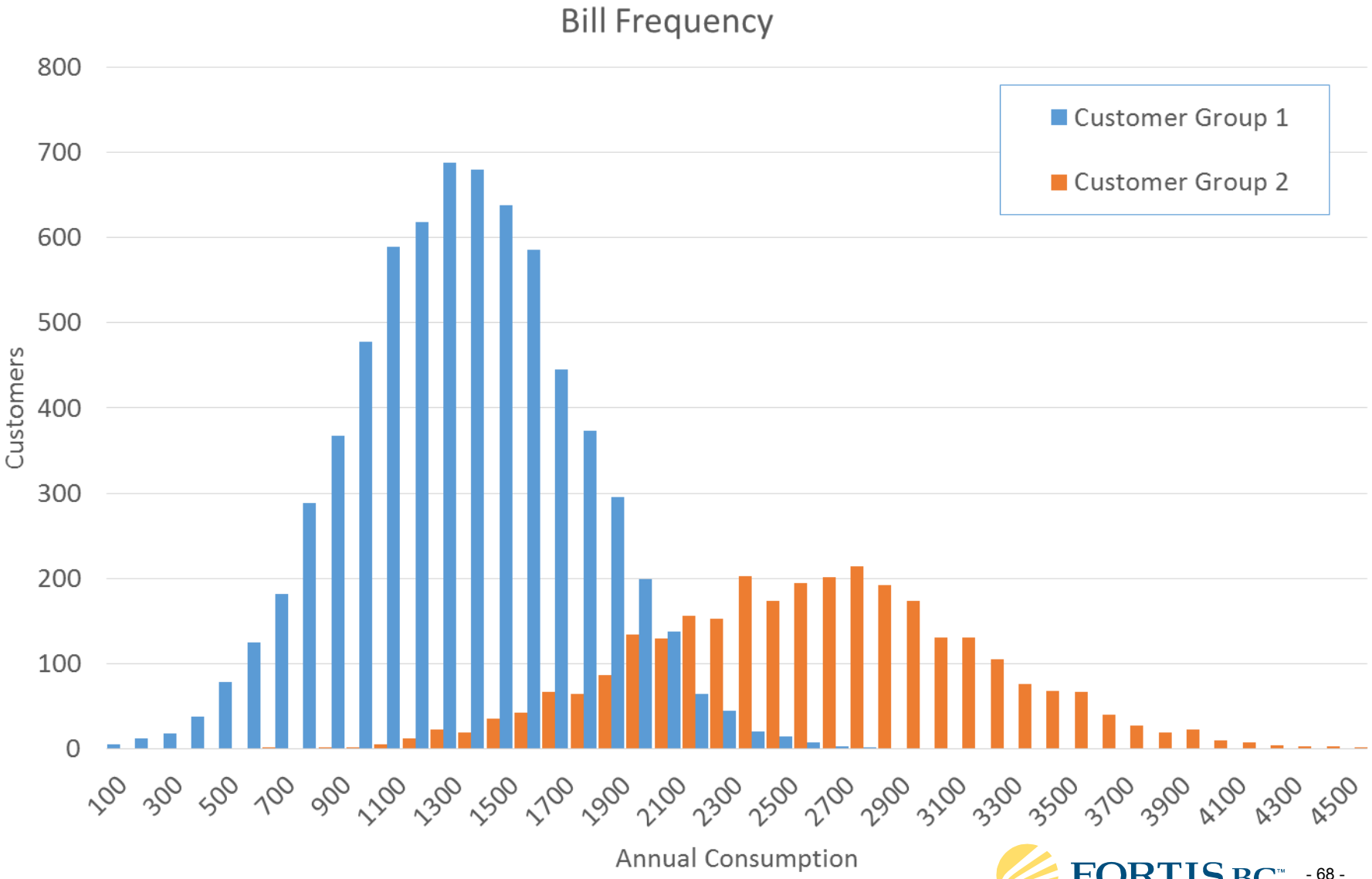
Analyzes customers to separate them into groups where the customers in a particular group use the system in a similar way

Segmentation tools used include:

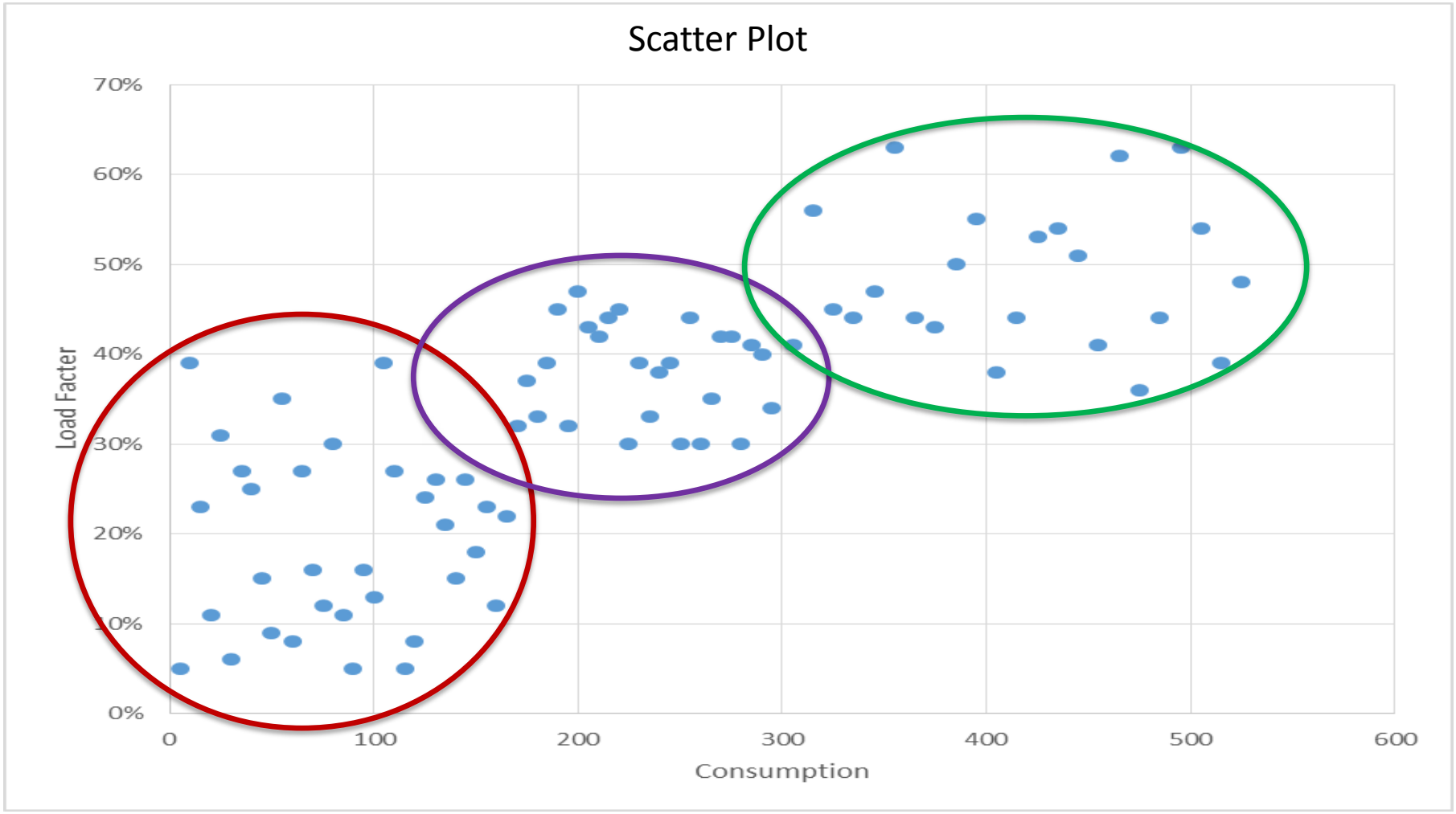
- Bill Frequency analysis
- Consumption patterns
- Load Factor and Consumption scatter plots
- Type of Customer



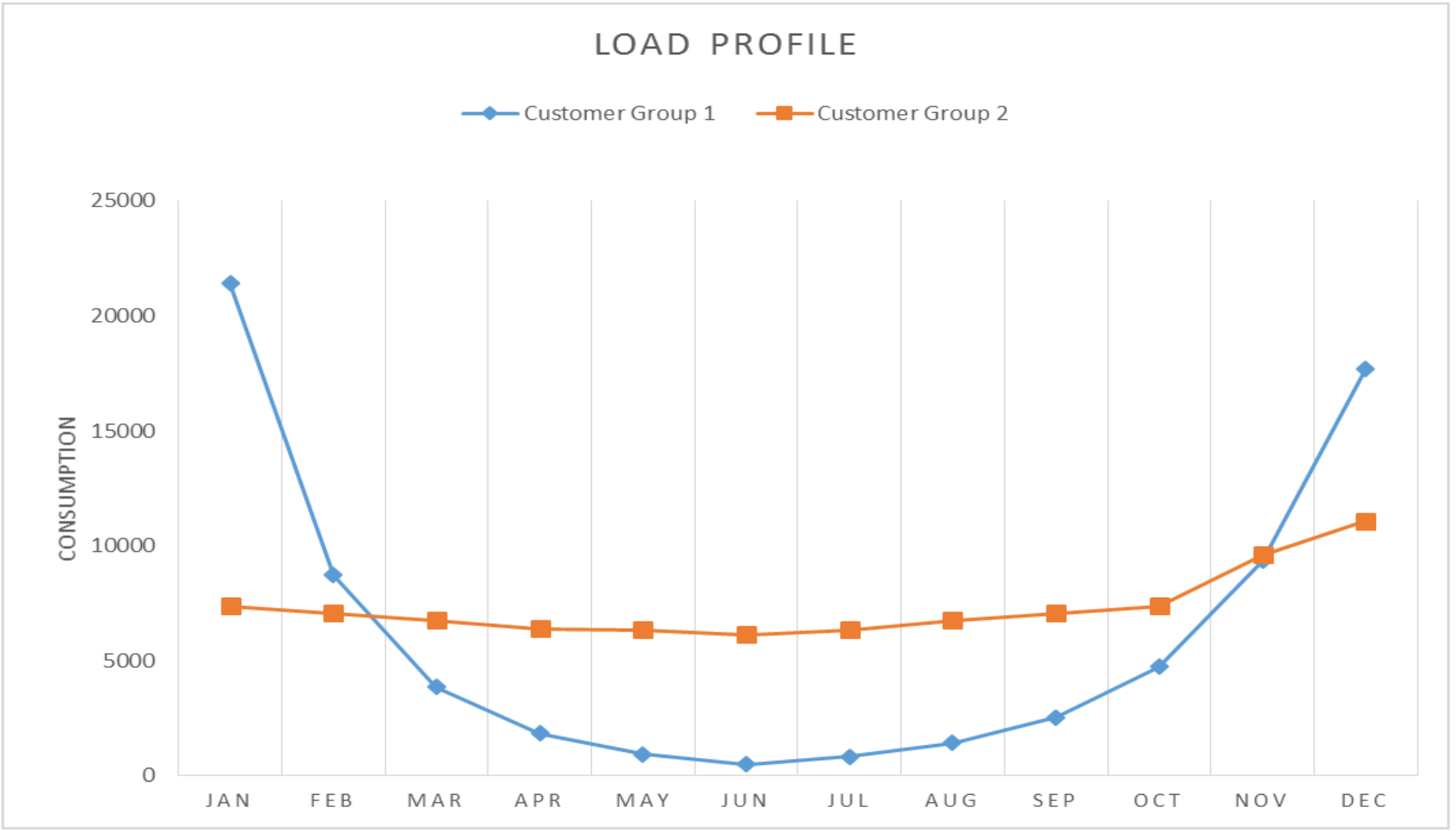
Customer Segmentation – Bill Frequency Distribution



Customer Segmentation – Load factor and Consumption



Customer Segmentation Example Approach



How is the Delivery System built?

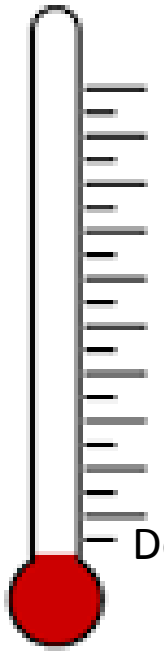
Design Day
- Our delivery system is built to be able to meet our customers' demand on the coldest day in 20 years (design day)

Pipeline
- To do this, we place pipe and other assets in service that are large enough to meet the design day load

Normal Day
- On a normal temperature day, customers will not fully use our system capacity

Use of System
- Customer groups use this system differently and as such some costs are allocated according to how each type of customer uses the system

Peak Day
- To do this we use Load Factor to derive a customer group's Peak Day (Design Day) demand



COSA Terminology - Load Factor

Load Factor is a measure of how a customer group uses the pipeline assets. Equal to average use / peak use.

<u>Customer Group 1</u>
1,000 GJ Consumption
30% Load Factor

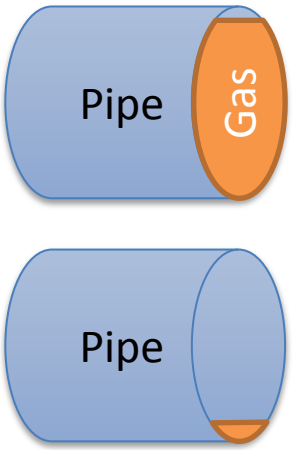
<u>Customer Group 2</u>
1,000 GJ Consumption
60% Load Factor

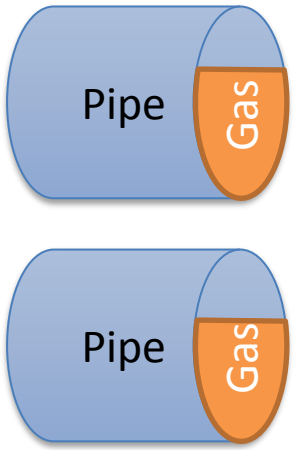
Space Heating

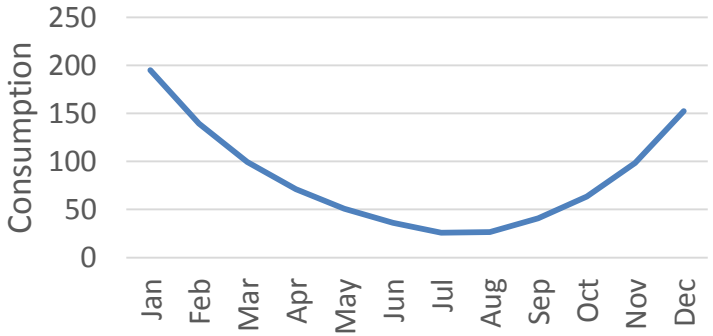
Hot Water load

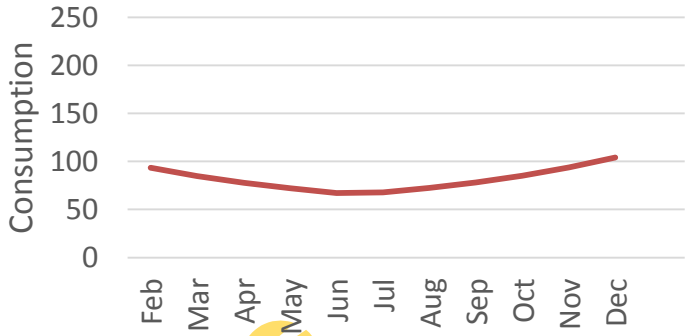
Winter

Summer









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COSA Terminology – Peak Day

- Peak Day
- Load factor adjusted volume

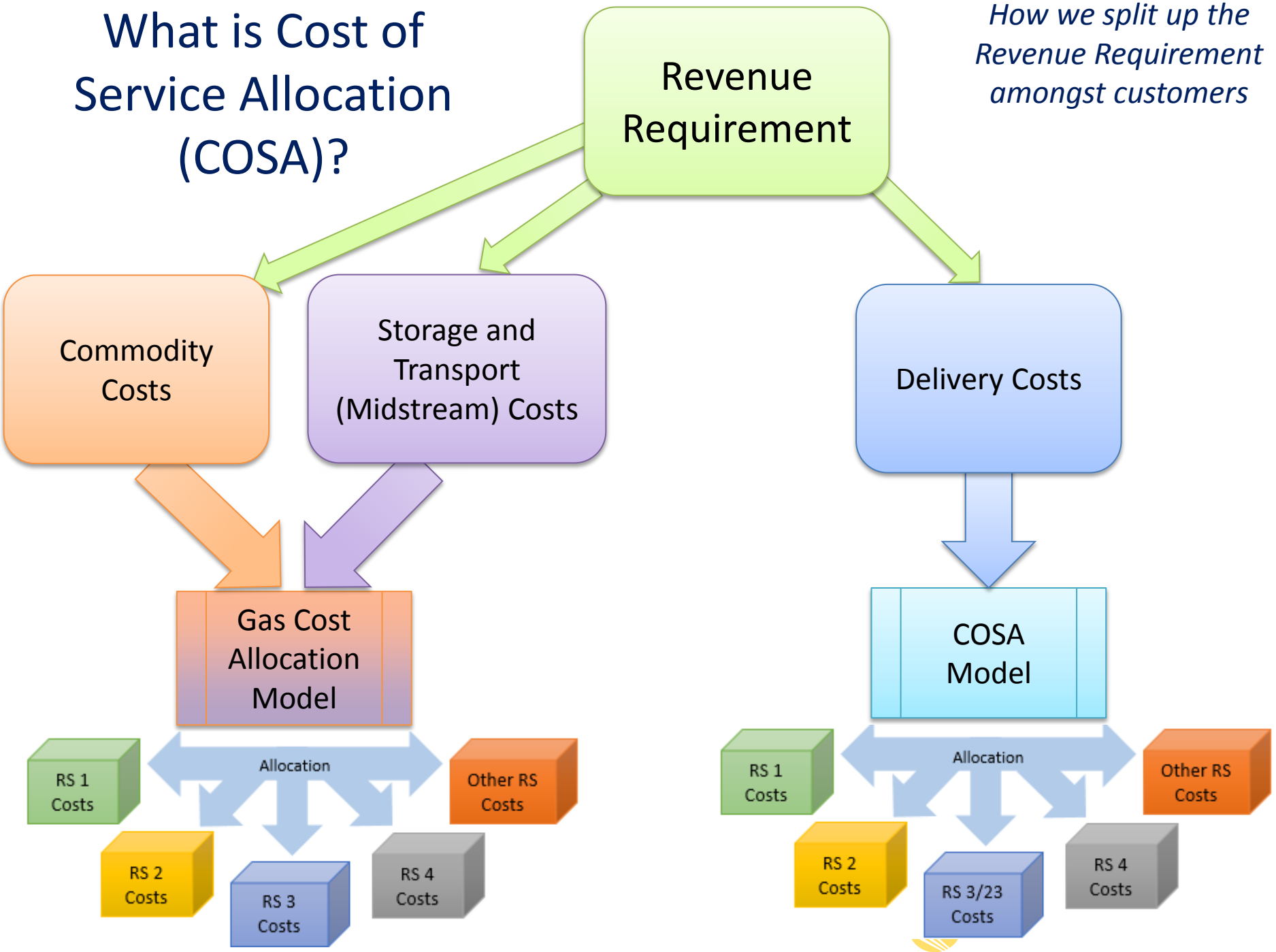
$$Peak\ Day = \frac{Annual\ Consumption}{Load\ Factor\ x\ 365}$$

	Customer Group 1	Customer Group 2
Load Factor	30%	60%
Annual Consumption (GJ)	1,000	1,000
Peak Day (GJ)	9.1	4.6
Peak Day Allocation %	67%	33%

		Customer Group 1	Customer Group 2
Cost to Allocate	$1,000		
Allocation using Peak Day (GJ)		$670	$330
Allocation using Consumption (GJ)		$500	$500

What is Cost of Service Allocation (COSA)?

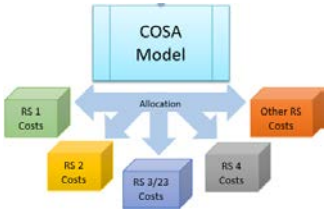
How we split up the Revenue Requirement amongst customers



Commodity and Storage and Transport Costs

- Commodity Costs include all costs to acquire gas and is allocated based on the total energy demand
  - All customers that purchase gas from FEI pay the same gas cost $/GJ
- Midstream Costs are those incurred to shape the load and are allocated based on load factor adjusted demand (peak demand)
  - Customers that purchase gas from FEI and unbundled customers pay midstream costs
- Transport Customers do not pay for Commodity or Midstream costs
- Gas costs are allocated to Fort Nelson and form part of the bundled rates applicable in Fort Nelson

Cost of Service Allocation (COSA)



Customer Segmentation

Functionalization | *Classification* | *Allocation*

Cost of Service (Revenue Requirement)

- Distribution
- Transmission
- Storage
- Customer Accounting
- Marketing
- Gas Supply

- Energy
- Demand
- Customer

- RS 1
- RS 2
- RS 3/23
- Others

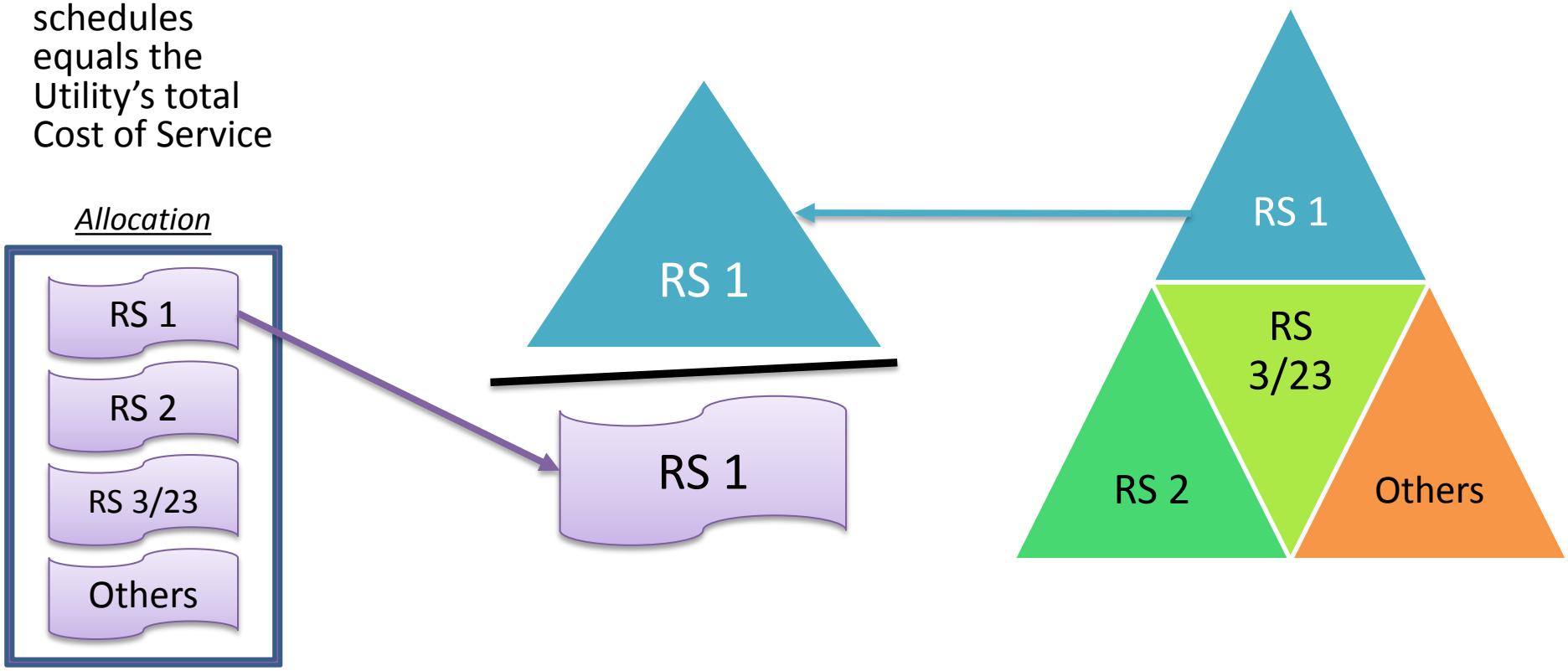
Supporting Studies

How we split up our Revenue Requirement amongst our customers

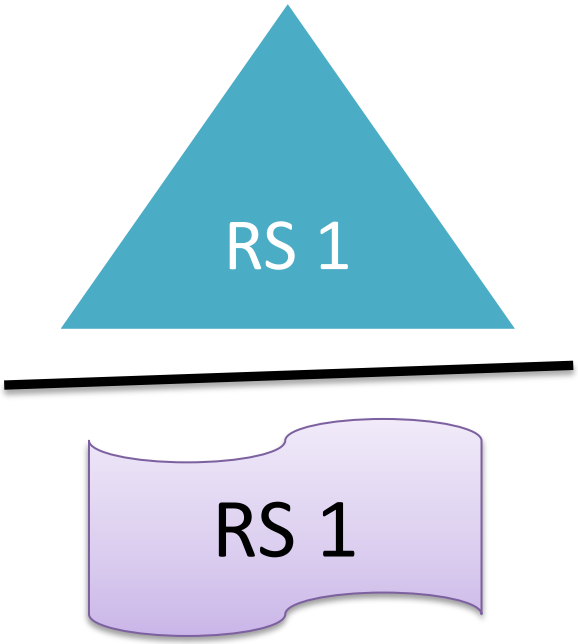
Revenue to Cost Ratio (R/C)

- Sum of all costs allocated to each of the rate schedules equals the Utility's total Cost of Service

- Total revenue collected by rate schedule



Revenue to Cost Ratio



- If a customer group's R/C ratio is within a range around unity, their rates are assumed to be fair and reasonable from a cost allocation perspective
- A range is appropriate given the subjective and short term nature of inputs, classifications and allocations
- Some times rebalancing may be required
  - Revenue shift recoveries between customer groups

    (Reduce one customer group's rates and increase another group's rates)

COSA Supporting Studies

Study	Description	Why Is It Required?
1) **Minimum System Study**	Classifies distribution costs into customer and demand components	Ensures appropriate allocation of costs to each rate schedule
2) **Customer Weighting Factors Study**	Assigns weighting factor to the average number of customers for each rate schedule	Ensures appropriate allocation of customer related costs to various rate schedules

COSA Minimum System Study (MSS)

- 25,000 KM of distribution mains
  - Diameter of 15 mm – 800 mm
  - Varying cost per meter
- Some portion of these mains are in place just to connect our customers to the system, this is the minimum system
- MSS basically prices 25,000 KM of pipe as if it were 60 mm
  - Generally all new pipe is no less than 60 mm PE pipe
- The value of the minimum system divided by the actual value of all the pipe is the percentage classified as ‘Customer’
- The balance is classified as ‘Demand’

COSA Customer Weighting Factor

- Study differentiates the cost to connect small customers and large customers
- Calculated as a ratio to the cost to connect a residential customer
- Ratio used to scale upwards the average number of customers in a customer group

- Distribution
- Transmission
- Storage
- Customer Accounting
- Marketing
- Gas Supply

COSA- Example- Functionalization

Assume a two cost system, with two functions and three customer groups

Distribution operations role is to connect customers and deliver gas through DP pipe. Transmission operations role is to ensure gas is brought to the distribution system through TP pipe at the right time, quantity and pressure.

Cost 1: Distribution Operating Costs	$2,000
Cost 2: Transmission Operating Costs	$4,000
Total	**$6,000**

	FUNCTION	
	Distribution Operations	Transmission Operations
Distribution Operating Costs	$2,000	
Transmission Operating Costs		$4,000

Classification

Energy

Demand

Customer

COSA- Example - Classification

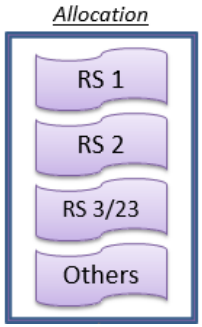
Distribution costs are incurred in part from customers joining the system and in part from the demand they place on the system

Minimum System Study quantifies the split of the Distribution system between Customer and Demand.

Assume 30% of Distribution system in place because a customer connects and 70% to serve them their demand.

Transmission system is 100% demand related.

	FUNCTION		CLASSIFICATION	
	Distribution Operations	Transmission Operations	Customer	Demand
Distribution Operating Costs	$2,000		$600	$1,400
Transmission Operating Costs		$4,000		$4,000



COSA – Example - Allocation

Allocation of costs requires an allocator that causes the cost to incur

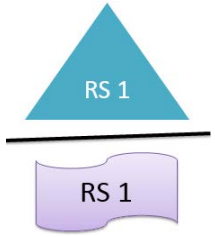
Number of Customers works well to allocate customer costs. Peak Day Demand works well for demand related costs

Customer Group	Peak Day Demand	Customers
Rate 1	700	1,100
Rate 2	200	300
Rate 3	100	100
Total	**1,000**	**1,500**

Rate 1	Rate 2	Rate 3/23
$1,400 x 700 / 1,000	$1,400 x 200 / 1,000	$1,400 x 100 / 1,000
$600 x 1,100 / 1,500	$600 x 300 / 1,500	$600 x 100 / 1,500
$4,000 x 700 / 1,000	$4,000 x 200 / 1,000	$4,000 x 100 / 1,000

	CLASSIFICATION	Allocation Amount	ALLOCATION Rate 1 Allocation	Rate 2 Allocation	Rate 3/23 Allocation	Total
Distribution Operating Costs	Demand	$1,400	$980	$280	$140	$1,400
	Customer	$600	$440	$120	$40	$600
Transmission Operating Costs	Demand	$4,000	$2,800	$800	$400	$4,000
Total		**$6,000**	**$4,220**	**$1,200**	**$580**	**$6,000**

COSA – Example – Revenue to Cost



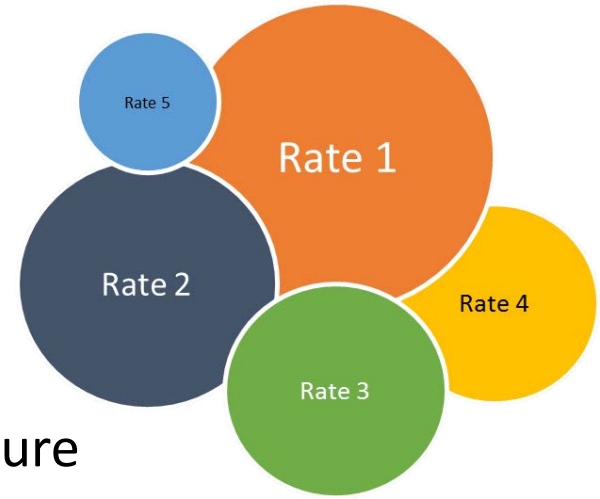
Once costs are allocated, revenue collected from each customer group is divided by the allocated cost to calculate the Revenue to Cost (R/C) ratio

	ALLOCATION			
	Rate 1 Allocation	Rate 2 Allocation	Rate 3/23 Allocation	Total
	$980	$280	$140	$1,400
	$440	$120	$40	$600
	$2,800	$800	$400	$4,000
Total Allocated Costs	**$4,220**	**$1,200**	**$580**	**$6,000**
Revenue at Existing Rates	**$4,150**	**$1,200**	**$650**	**$6,000**
R/C Ratio	**98.3%**	**100.0%**	**112.0%**	**100.0%**

If R/C ratios are far from 100%, rebalancing may be required

How we split up our Revenue Requirement amongst our customers

Designing Rates

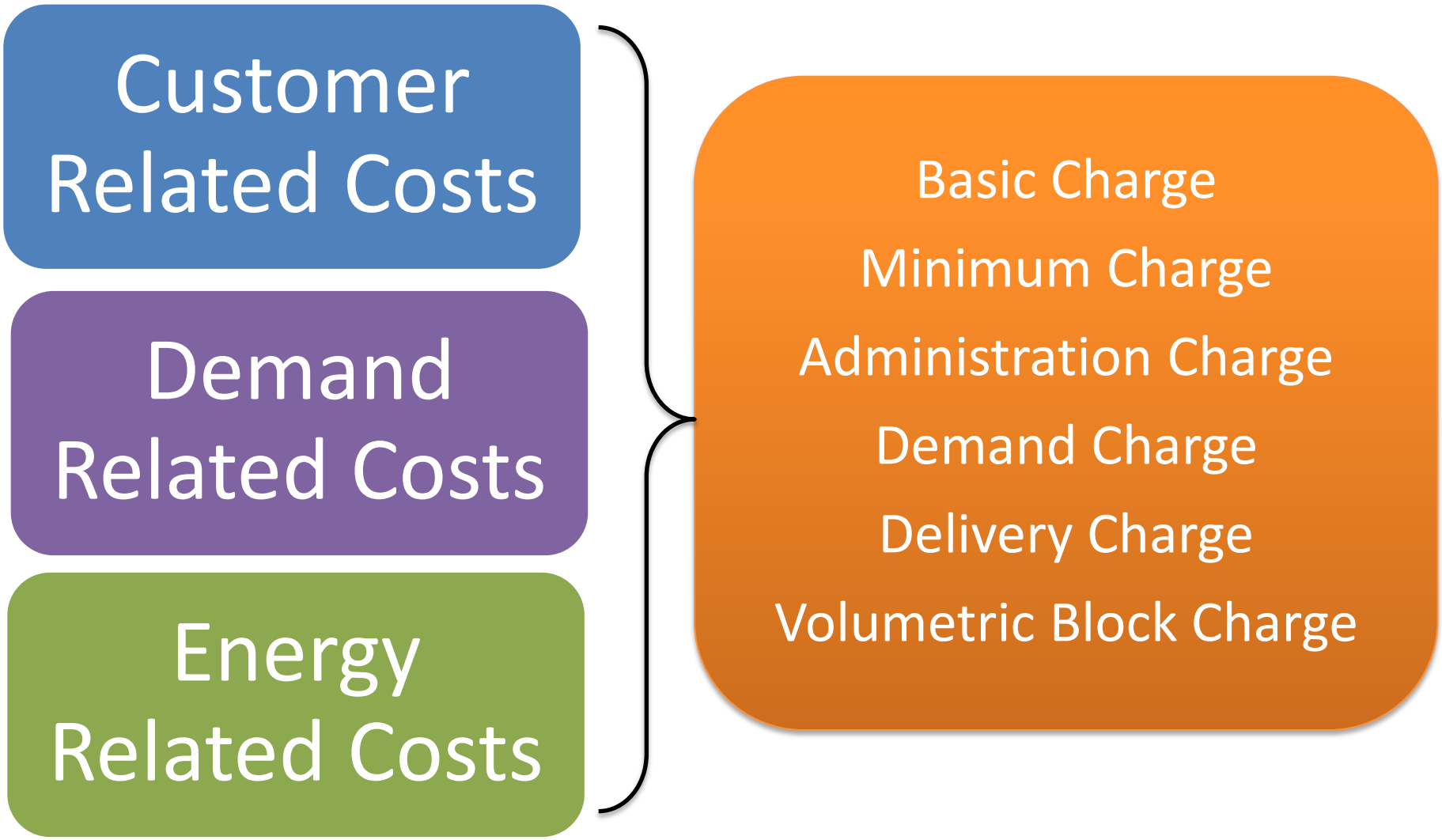


- Often premised on allocated costs
- Customer-related costs tend to be fixed in nature
- Demand-related costs are based on the demand a customer places on the system, however a great portion is also fixed (capital cost of infrastructure like pipe and compression)
- Energy related costs tend to be variable with total consumption
- Balance recovery of fixed costs through fixed charges with the customers' desire to control energy costs through consumption patterns

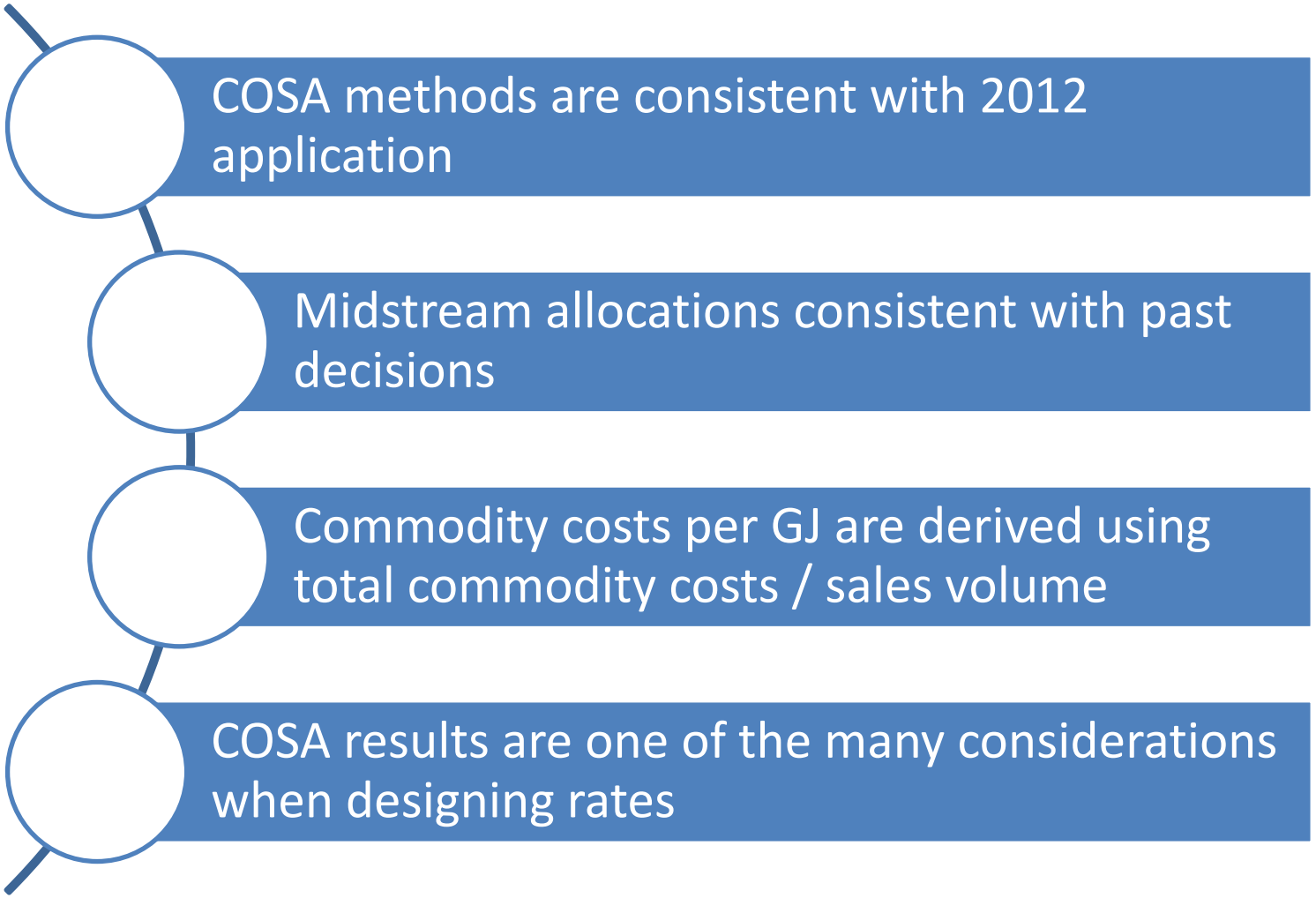
Rates should be understandable, stable, fair

and recover the cost of service

Designing Rates



Summary


COSA methods are consistent with 2012 application
Midstream allocations consistent with past decisions
Commodity costs per GJ are derived using total commodity costs / sales volume
COSA results are one of the many considerations when designing rates

Tariff Rate Schedules and Services Overview

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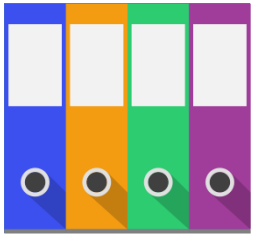
FEI Tariff Rate Schedules and Services

Overview



- **A Tariff is a BCUC approved rate schedule of rates that can be charged by a utility to its customers**
  - Includes Sales and Transportation rate schedules, in addition to other specific rate schedules that offer other services
- **The FEI General Terms and Conditions (GT&Cs) of Service**
  - Outline the terms and conditions under which FEI (including the Fort Nelson Service Area) operates
  - Includes the Standard Fees and Charges Schedule, which includes fees and charges such as:
    - *Application Fees*
    - *Reactivation Charges*

FEI Tariff Service Areas

FEI Tariff Service Areas

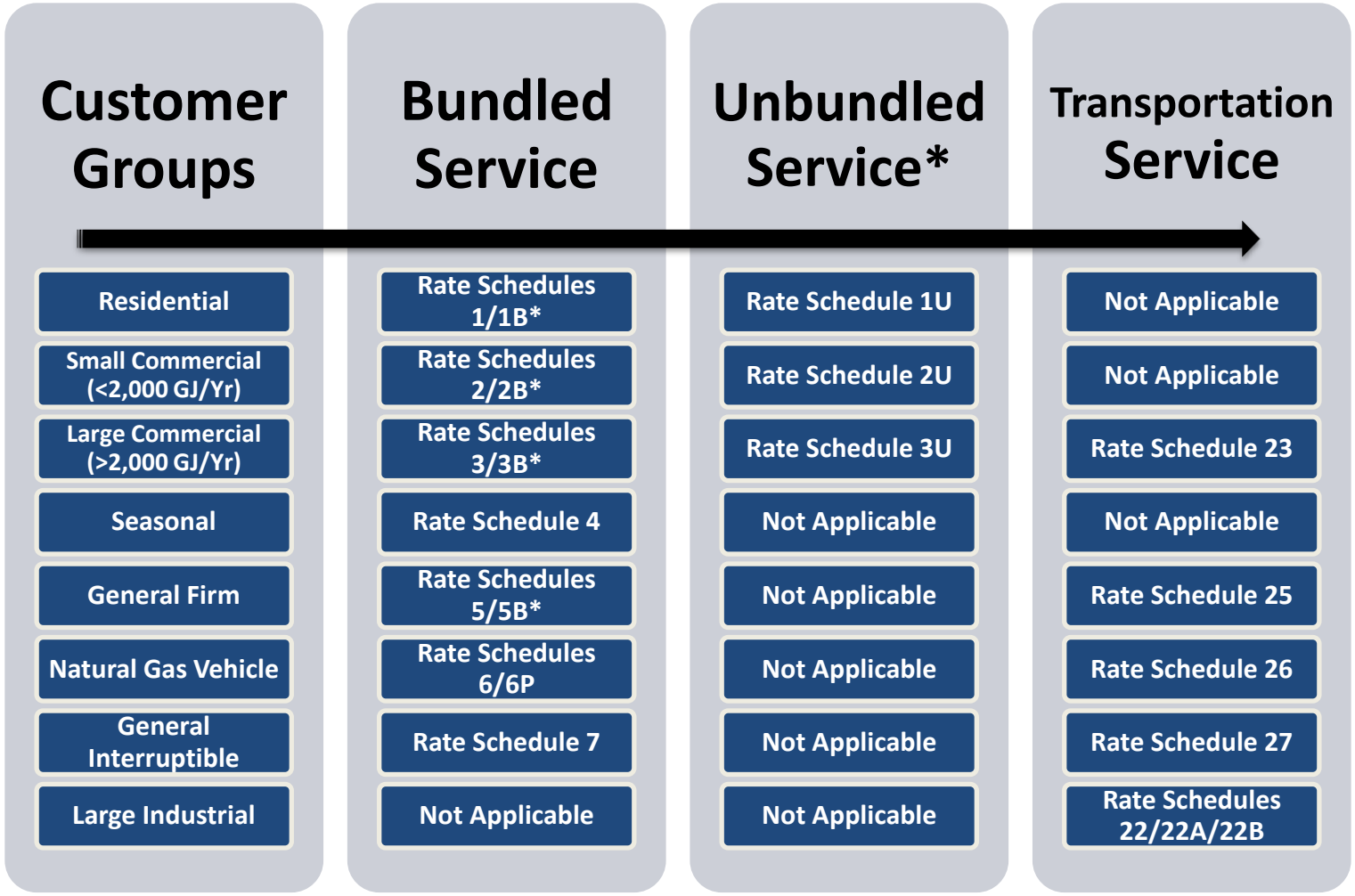
- Mainland (including Revelstoke)
- Vancouver Island
- Whistler
- Fort Nelson

Common Rates

Effective January 1, 2018 –>
removal of phase-in delivery rate riders for Mainland, Whistler and Vancouver Island

FEI Sales and Transportation Services

FEI Tariff Rate Schedules 1 to 27



The Renewable Natural Gas (Biomethane Service) and Customer Choice (Unbundling Service) Programs are voluntary

Sales and Transportation Services

Sales Services**

Bundled Service	Unbundled Service	Biomethane Service
Rate Schedules	**Rate Schedules**	**Rate Schedules**
1	1U	1B
2	2U	2B
3	3U	3B
4		5B
5		
6		
6A		
6P		
7		

Transportation Services

Interruptible Service*	**Firm** Service**	Combination of Firm and Interruptible Service
Rate Schedules	**Rate Schedules**	**Rate Schedules**
22 *(with option to negotiate some firm load)*	**23**	**22A (Closed)**
27	**25**	**22B (Closed)**
	26	**50**

***Interruptible Service – transportation service which may be interrupted or curtailed by FEI, pursuant to the applicable sections in the applicable rate schedule and the FEI GT&Cs.**

****Firm Service – sales and transportation service in which FEI is obligated to deliver gas, only subject to interruption or curtailment pursuant to sections Default/Bankruptcy and/or Force Majeure as per the applicable rate schedule and the FEI GT&Cs.**

Sales Service

FEI Tariff Rate Schedules 1 to 7

Description of Charges

Delivery Related Charges	**Basic Charge per Day or Month**	
	Demand Charge per Month per Gigajoule of Daily Demand	*Applicable to Rate Schedules 5 and 5B*
	Delivery Charge per Gigajoule	
Commodity Related Charges	**Storage and Transport per Gigajoule**	*The former Midstream charge*
	Commodity Cost Recovery Charge per Gigajoule	*Not Applicable to Commodity Unbundled Customers*
	Biomethane Energy Recovery Charge per Gigajoule	*Only Applicable to Rate Schedules 1B, 2B, 3B, and 5B*
	Rate Rider 1 per Gigajoule (Revelstoke only - Propane surcharge)	

Sales Rate Schedules

Bundled Service – FEI Rate Schedules 1 to 7

Rate Schedule 1/1B/1U	• Residential Service • ***2016 Forecast Average Number of Customers – 886,652***
Rate Schedule 2/2B/2U	• Small Commercial Service (<2,000 GJ) • ***2016 Forecast Average Number of Customers – 84,737***
Rate Schedule 3/3B/3U	• Large Commercial Service (>2,000 GJ) • ***2016 Forecast Average Number of Customers – 5,040***
Rate Schedule 4	• Seasonal Firm Service • ***2016 Forecast Average Number of Customers - 18***
Rate Schedule 5/5B	• General Firm Service • ***2016 Forecast Average Number of Customers – 230***
Rate Schedule 6*	• Natural Gas Vehicle Service • ***2016 Forecast Average Number of Customers – 15***
Rate Schedule 6P	• Natural Gas Refueling Service (Surrey Ops) • ***2016 Forecast Average Number of Customers – n/a***
Rate Schedule 7	• General Interruptible Service • ***2016 Forecast Average Number of Customers – 5***

Also includes Rate Schedule 6A – Natural Gas Refueling Service (Compression) – zero customers in this rate class

Transportation Service

FEI Tariff Rate Schedules 22, 22A, 22B, 23, 25, 26, and 27

Description of Charges

Delivery Related Charges	**Basic Charge per Month**	
	Administration Charge per Month	
	Demand Charge per Month per Gigajoule of Daily Demand	*Applicable to firm load* *Applicable to Rate Schedules 22A, 22B and 25*
	Delivery Charge per Gigajoule	
Transportation Service Related Charges	**Charge per Gigajoule of Balancing Gas Supplied**	
	Charge per Gigajoule for Backstopping Gas	
	Charge per Gigajoule of Replacement Gas	
	Charge per Gigajoule for Unauthorized Overrun Charges	

Transportation Rate Schedules

FEI Tariff Rate Schedules 22, 22A, 22B, 23, 25, 26, 27, and 50

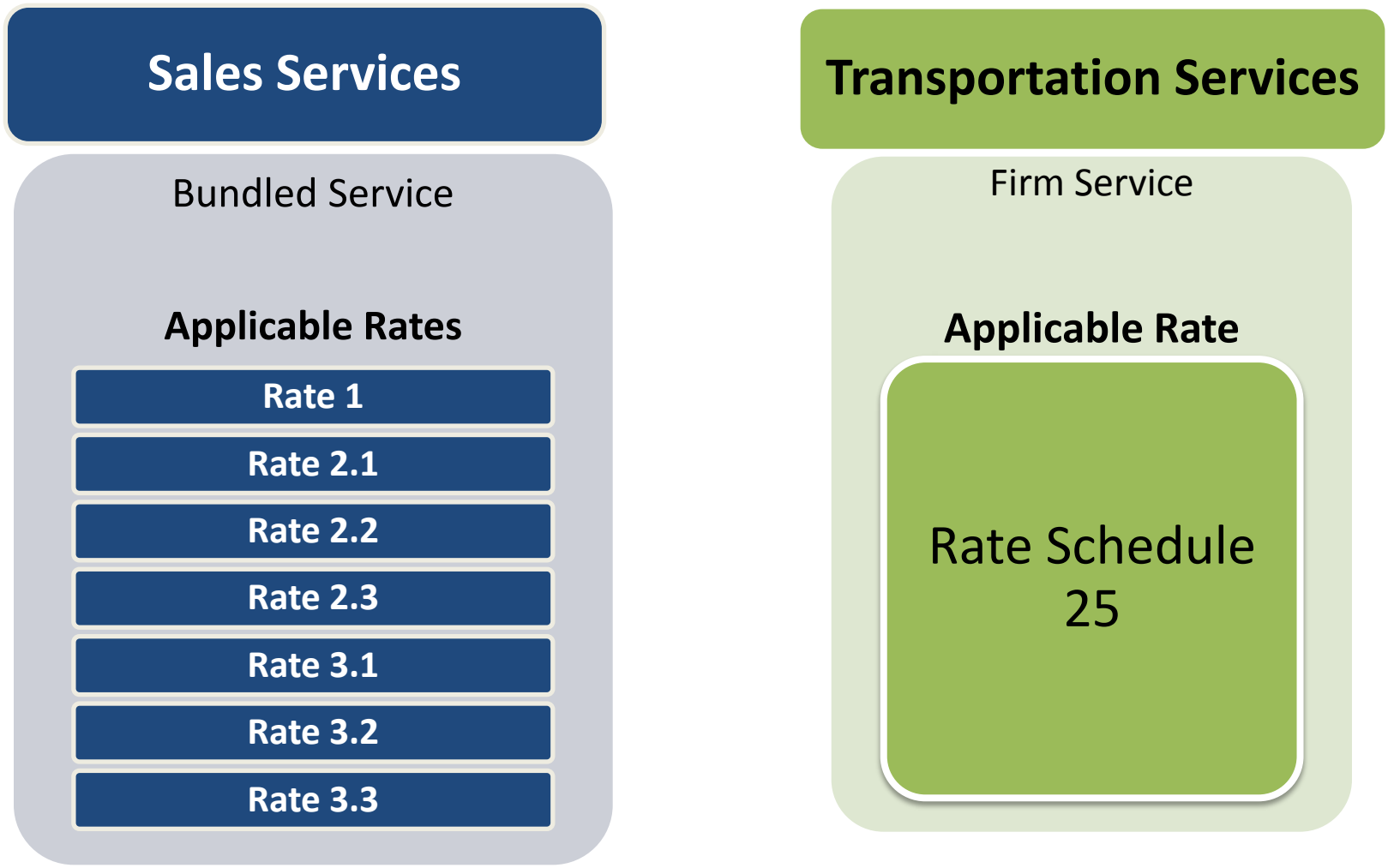
Rate Schedule 22	• Large Volume Transportation Service • *2016 Forecast Average Number of Customers – 26*
Rate Schedule 22A	• Transportation Service - Inland Service Area (Closed) • *2016 Forecast Average Number of Customers – 9*
Rate Schedule 22B	• Transportation Service - Columbia Service Area (Closed) • *2016 Forecast Average Number of Customers – 5*
Rate Schedule 23	• Commercial Transportation Service (>2,000 GJ) • *2016 Forecast Average Number of Customers – 1,669*
Rate Schedule 25	• General Firm Transportation Service • *2016 Forecast Average Number of Customers – 566*
Rate Schedule 26	• Natural Gas Vehicle Transportation Service • *2016 Forecast Average Number of Customers – nil*
Rate Schedule 27	• General Interruptible Transportation Service • *2016 Forecast Average Number of Customers – 108*
Rate Schedule 50	• Large Volume Industrial Transportation Service • *2016 Forecast Average Number of Customers – nil*

Other Services and Rate Schedules

FEI Tariff Rate Schedules 11B, 14A, 36, 40, and 46

Rate Schedule 11B	• Biomethane Large Volume Interruptible Sales
Rate Schedule 14A	• Term and Spot Gas Sales
Rate Schedule 36	• Commodity Unbundling Service (Terms and Conditions)
Rate Schedule 40	• West to East Southern Crossing Pipeline Transportation Service
Rate Schedule 46	• LNG Sales, Dispensing and Transportation Service

Fort Nelson Service Area



Fort Nelson Service Area Sales Service

Fort Nelson Rates 1, 2.1, 2.2, and 2.3

Description of Charges

Rates 1, 2.1, 2.2, and 2.3

Rate 1 used as an example

- **Minimum Daily Charge, which includes the first 2 Gigajoules per month prorated on a daily basis**
- **Variable Charge for the next 28 Gigajoules in the month**
- **Variable Charge for excess of 30 Gigajoules in the month**

- **The Minimum Daily Charge and the Variable Charges are inclusive of:**
  - ***Delivery Charge per day/Gigajoule***
  - ***Revenue Stabilization Adjustment Amount per Day/Gigajoule (Rate Rider 5)***
  - ***Gas Cost Recovery Charge per Day/Gigajoule***

Fort Nelson Service Area Sales Rates

Fort Nelson Rates 1, 2.1, 2.2, 2.3, 3.1, 3.2, and 3.3

Rate 1	• Domestic Service • ***2016 Forecast Average Number of Customers – 1,980***
Rate 2.1	• General Service (<6,000 GJ) • ***2016 Forecast Average Number of Customers – 468***
Rate 2.2	• General Service (=or>6,000 GJ) • ***2016 Forecast Average Number of Customers – 34***
Rate 2.3*	• Natural Gas Vehicle Fuel Service • ***2016 Forecast Average Number of Customers – nil***
Rate 3.1	• Industrial Service (<96,000 GJ) • ***2016 Forecast Average Number of Customers – nil***
Rate 3.2	• Industrial Service (=or>96,000 GJ< 360,000 GJ) • ***2016 Forecast Average Number of Customers – nil***
Rate 3.3	• Industrial Service (=or>360,000 GJ) • ***2016 Forecast Average Number of Customers – nil***

Rate 2.4 provides Compression/Dispensing Service (Rates to be filed with BCUC for approval) – zero customers in this rate class

Fort Nelson Service Area

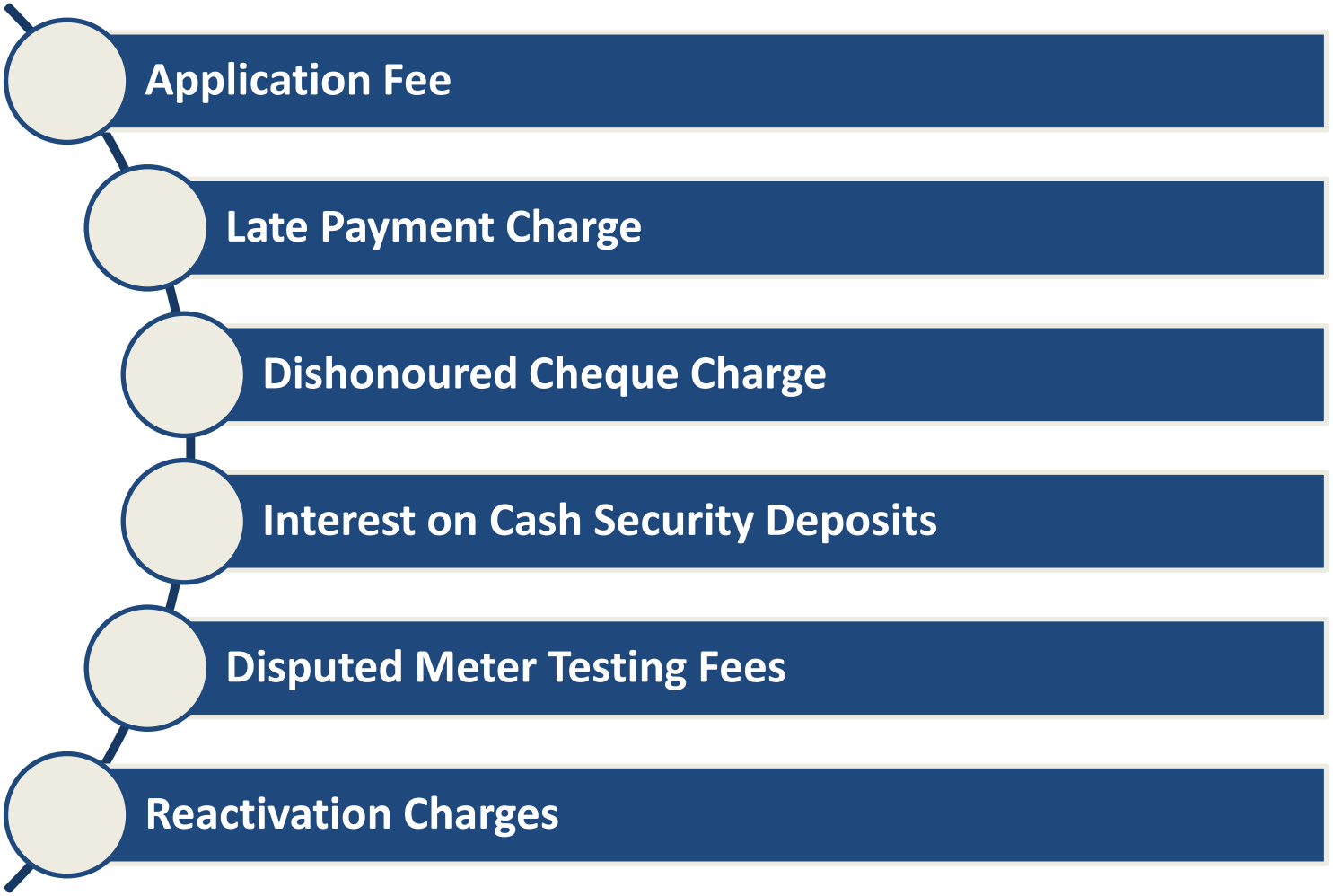
Rate Schedule 25 General Firm Transportation Service – 1 Customer

Description of Charges

Delivery Related Charges	**Delivery Charge per Gigajoule of Monthly Transportation Quantity**	*Delivery Charge for first 20 GJ* *Next 260 GJ* *Excess of 280 GJ*
	Minimum Delivery Charge per Month	
	Administration Charge per Month	
	Revenue Stabilization Adjustment Charge per Gigajoule	*Rate Rider 5*
Transportation Service Related Charges	**Charge per Gigajoule of Authorized Overrun Gas**	
	Charges for Unauthorized Overrun Gas	

Applicable Customer Fees and Charges

FEI Standard Fees and Charges Schedule



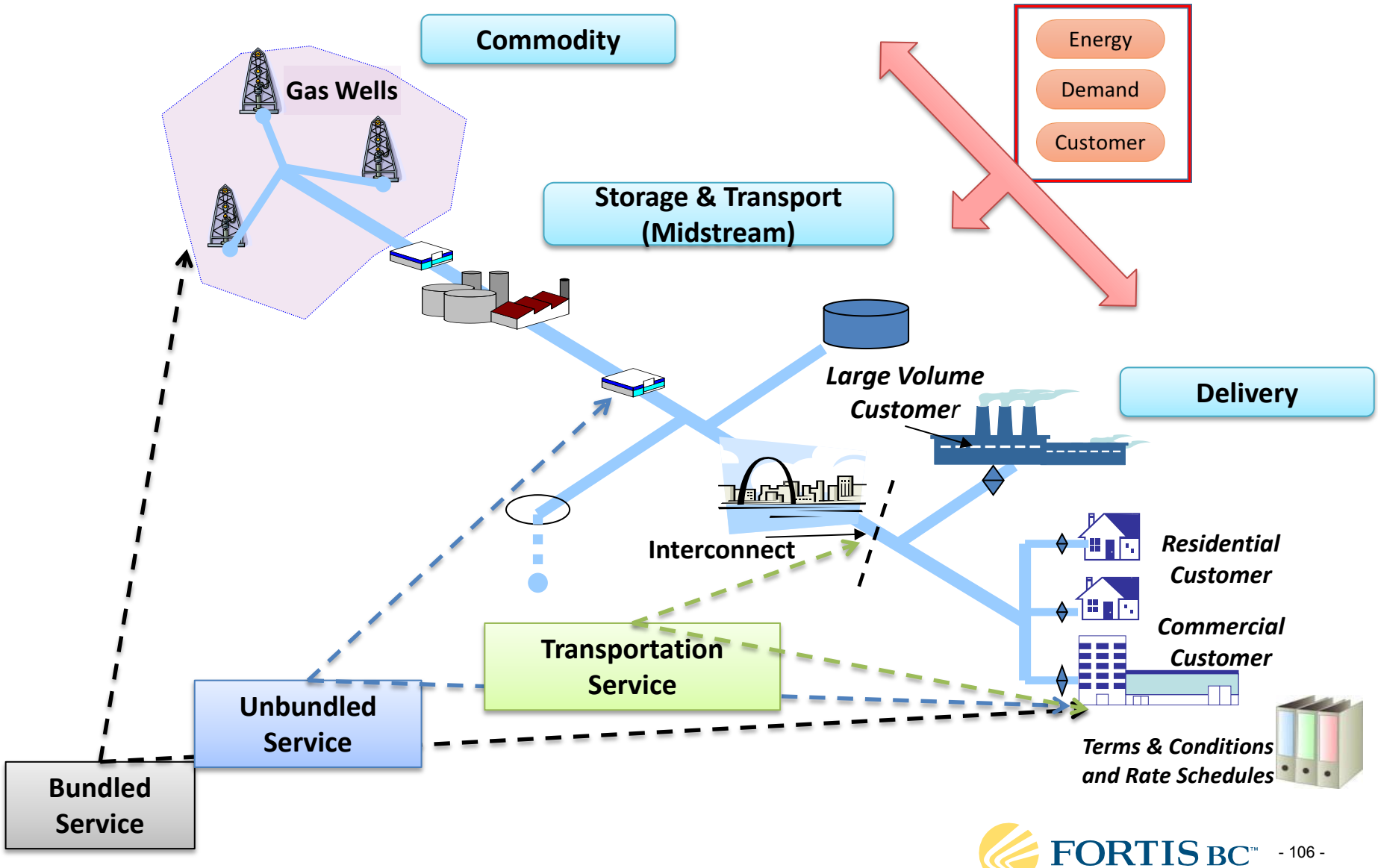
Summary

The FEI GT&Cs, including the Standard Fees and Charges Schedule	• *Have been reviewed with proposed amendments in the Rate Design Application*
Current Rate Schedules	• *Working well for FEI and customers* • *Have been reviewed with proposed amendments in the Rate Design Application*
Website Link	• https://www.fortisbc.com/About/RegulatoryAffairs/GasUtility/NatGasTariffs/FortisBCEnergyInc/Pages/default.aspx

Concluding remarks

FORTIS BC™

Services, Cost Allocation and Rate Design



Next Steps

	March 9, 2017
Workshop 2	Focus on results from COSA study
	Present Rate Design proposals and approvals sought as filed in the FEI 2016 RDA

For further information, please contact:

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