FEI 2016 Rate Design Application

Workshop 2 – COSA & Rate Design Proposals

Dave Perttula – Senior Manager, Rate Design and Projects Atul Toky – Manager, Rate Design and Tariffs Richard Gosselin – Manager, Cost of Service Rouzbeh Mehrazma – Regulatory Policy Manager Kevin Hodgins – Manager, Industrial Accounts Stephanie Salbach – Transportation Services Manager Colleen Gravel – Tariff, Rate Design and Projects Manager



March 9, 2017

Application Context



Services, Cost Allocation and Rate Design



FEI Rate Design History

BC Gas Phase A (1991) and Phase B (1993) Rate Design Proceedings

BC Gas 1996 Rate Design

2000 SCP Cost Allocation and 2001 Rate Design

2004 and 2007 Commodity Unbundling / Customer Choice

2012 Common Rates, Amalgamation & Rate Design Application (and 2013 Reconsideration)



Agenda

COSA	COSA Methodology						
	COSA Model Cost and Revenue Assumptions						
	COSA Model Adjustments & Supporting Studies						
	Functionalization, Classification and Allocation – Examples & Summary						
	COSA Results Before Rate Design Proposals – R:C Ratios						
Rate	FEI Residential, Commercial & Industrial Rate Design Proposals						
Design	Transportation Service Proposed Changes						
Proposals	Summary incl. Final COSA Results with Rebalancing and Bill Impacts						
	Approvals Sought – FEI						
	Fort Nelson Rate Design Proposed Changes and Approvals Sought						
Next Steps	Regulatory Timetable						
-							

COSA Results

PART I



Cost of Service Allocation Steps



How we split up our Revenue Requirement amongst our customers



What is Cost of Service Allocation (COSA)?



COSA Model: Cost and Revenue Assumptions

Test Year: Costs from 2016 Annual Review used in COSA

Delivery Costs

- Based on the forecast delivery costs approved in the 2016 Annual Review
- Pro forma adjustments to test year costs and revenue



Adjustments to Test Year



How do the adjustments Test Year affect the COSA model

Start with test year (2016 Annual Review)

Revenue = Cost

Make Adjustments

- Creates a mismatch in revenue and cost
- Difference between revenue and cost applied to all Rate
 Schedules as a change in revenue required
 - Apply the same percentage change to all RS
- Revenue = Cost
- Perform Cost Allocation



Adjustments to Test Year

- Adjustments made so that the COSA reflects what the Utility will look like in the near term
- Changes included:
 - Test Year O&M into an activity view
 - RS 22A Volume
 - Contract Revenue
 - Lower Mainland Intermediate Pipe System Upgrade Project (LMIPSU)
 - Coastal Transmission System (CTS)
 - Tilbury Expansion Project



Operating and Maintenance Costs

• Split O&M into an Activity view based on historical actuals

Category	Total (\$million)
Distribution	56.4
Transmission	24.3
LNG Plant	6.5
Meter Reading	11.8
Energy Supply and Resource Development	4.7
General Operations	41.1
Energy Solutions and External Relations	26.1
Customer Care	30.1
Business and IT Services	29.5
Administration and General	41.1
Total	271.6



RS 22A Volume Adjustment

- Adjusted the COSA for RS 22A revenue that was incorrectly classified in the 2016 Annual Review between firm and interruptible
- Result is a net decrease in revenue of \$1.3 million

Particulars	2016 Annual Review	Corrected for COSA	Difference
Firm Revenue (\$000s)	\$4,446	\$6,982	\$2,536
Interruptible Revenue (\$000s)	\$3,980	\$17 8	(\$3,802)
Firm Volume (TJ/Day)	20.483	29.721	9.238

Table 6-2: Correction to RS 22A Data in COSA Model



Reference: Application, Section 6.3.1.3, Page 6-7

Contract Revenue Adjustments

- Adjusted COSA for revenue and volume changes for two contract changes that were effective November 2016:
 - BC Hydro IG increased firm volume and rate
 - Burrard Thermal agreement expired

Particulars	2016 Annual Review	Updated in COSA	Difference
BC Hydro IG Firm Revenue (\$000s)	\$13,097	\$15,735	\$2,638
BC Hydro IG Firm Volume (TJ/Day)	40	45	5
Burrard Thermal Firm Revenue (\$000s)	\$8,314	\$0	(\$8,314)

Table 6-3: Changes to BC Hydro IG and Burrard Thermal in COSA Model



Reference: Application, Section 6.3.1.4, Page 6-8

Lower Mainland Intermediate Pipe System Upgrade Project and Coastal Transmission System Upgrade

Costs included in COSA

- Capital Costs included in Plant \$426 million
- Annual Cost of Service \$39 million

Forecast to be completed in 2018

Reference: Application, Section 6.3.2.1 & 6.3.2.2, Page 6-11



Tilbury Expansion Project

- Forecast to be completed in 2017
- Directly assigned Cost and Revenue to Rate Schedule 46 in COSA
- 10 year levelized net costs and revenues equal \$7 million
- Net difference between costs and revenues allocated to all other customers



Supporting Studies used in COSA

- Minimum System Study & Peak Load Carrying Capacity Adjustment
- Customer Weighting Factor Study



Segmentation

Minimum System Study

- 25,000 KM Distribution Mains Polyethylene (PE) and Steel
- Minimum Standard is 60 mm PE
- Value of Distribution Mains assuming 60 mm PE \$1,419 million
- Value of Distribution Mains at Weighted Cost \$4,686 million
- Minimum System equals \$1,419/\$4,686 = 30%
- 30% of Distribution Mains Costs classified as Customer related
- 70% as Demand Related



PLCC Adjustment

- Peak Load Carrying Capacity (PLCC)
- Recognizes that the minimum system (60 mm) still has a capacity component
- Calculate the GJ/Day per customer capacity that is included in 60 mm pipe
- Result equals 0.205 GJ/Day per Customer
- Used to reduce the Peak Day Demand when allocating costs of Distribution Plant Costs
- Example RS 1
 - 0.205 GJ/Day per Customer x 886,652 customers = 182 TJ/Day
 - RS 1 Peak Day Demand 636 TJ/Day
 - Peak Day Demand used to allocate Distribution Plant Demand related costs

= 453 TJ/Day (636 - 182)



Customer Weighting Factor Study

Weighting Factor for Meters and Services

- Used to weight the number of customers in a rate schedule for allocation of Distribution Meters & Services costs
- Weighting is relative to RS 1

RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS22 Firm	RS23	RS25	RS27
1.0	1.7	7.0	13.6	11.1	13.3	132.5	* 1400.7	10.3	17.6	46.2

* RS22 Firm factor is a blend of existing large industrial customers that would fall into RS22 Firm as discussed in Application Section 9.8.5.2

Weighting Factor for Administration and Billing

 Used to weight the number of customers in as rate schedule for allocation of Customer Service costs

RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 22	RS 23	RS 25	RS 27
1.0	1.0	1.2	0.9	43.0	43.0	43.0	75.0	75.0	75.0	75.0



Functionalization, Classification & Allocation – Plant and Rate Base



- \$4.5 billion in Rate Base to allocate
- Allocated Plant and Rate Base used to allocate Delivery Cost
 Rate Base Categorized



 Following slides show the allocations of some Rate Base Items

The examples include:

- Distribution Mains
 - Application of Minimum System Study (MSS)
 - Application of Peak Load Carrying Capacity (PLCC)
- Distribution Service Lines and Meters
 - Application of Weighting Factor for Service Lines and Meters
- Summary



Account	Plant Description	Amoui	nt (\$million)		Function	Classify	Allocate
475	Distribution Plant -	\$	1,123.4		Distribution	70/30 -	Demand - PLCC
	Mains					Demand/C	Adj Peak Day,
						ustomer	Customer - Avg
						from MSS	Customer
		Minim	ium System		Cost Allocation		
			Study				
	Customer		30%	\$	340.1		
	Demand		70%		783.3		
	Total		100%	¢	1 1 2 3 4		

Customer Cost

		ustomer cost
Customers	Precentage	Allocation
886,652	90.6% \$	308.0
84,737	8.7%	29.4
5,040	0.5%	1.8
18	0.0%	0.0
230	0.0%	0.1
15	0.0%	0.0
5	0.0%	0.0
7	0.0%	0.0
1,669	0.2%	0.6
566	0.1%	0.2
108	0.0%	0.0
979,047	100.0% \$	340.1
	Customers 886,652 84,737 5,040 18 230 15 5 7 1,669 566 108 979,047	Customers Precentage 886,652 90.6% \$ 84,737 8.7% \$ 5,040 0.5% \$ 18 0.0% \$ 230 0.0% \$ 15 0.0% \$ 15 0.0% \$ 108 0.2% \$ 979,047 100.0% \$



count	Plant De	escription	Amount (\$	million)	Fu	nction	Classify	Allocate
5	Distribu	ution Plant -	\$	1,123.4	Dist	ribution	70/30 -	Demand - PLCC
	IVIG1115						ustomor	Customor Ava
							from MSS	Customer - Avg
			Minimum	Victom	Cast	Allocation	11011110133	Customer
			Study	ystem v	COSL			
	Customo	,	Stuu	20%		2/0 1		
	Domand			50% , 70%	þ	702 2		
	Total			100%	<u>.</u>	1 1 72 /		
	TOTAT			10070	2	1,123.4		
				Peak Da	у			
		Peak Day		Deman	b		Den	nand Cost
Ra	ate Schedule	Demand	PLCC	adjuste	k	Precentag	ge /	Allocation
R	S 1	636	182		453	44.4	%\$	347.6
R	S 2	247	17		230	22.5	%	176.0
R	S 3	134	1		133	13.0	%	101.9
R	S 4	-	-		-	0.0	%	-
R	S 5	13	0		13	1.3	%	10.1
R	S 6	0	0		0	0.0	%	0.1
R	S 7	-	-		-	0.0	%	-
R	S 22 Firm	60	0		60	5.9	%	46.0
R	S 23	67	0		66	6.5	%	50.8
R	S 25	67	0		66	6.5	%	50.9
R	S 27	-	-		-	0.0	%	-
Тс	otal	1,223	201	1	,022	100.0	% \$	783.3
							F	FORTIS BC

Account	Plant Description	Amoun	t (\$million) Function	Classify	Allocate
473/478	Distribution Plant - Service Lines & Meters	\$	962.7	Distribution	Customer	Avg Customer adj by CWF- Meters & Services

		Weighting Factor for	Weighted		
Rate Schedule	Customers	Svcs & Meters	Customers	Precentage	Cost Allocation
RS 1	886,652	1.0	886,652	79.6%	\$ 766.0
RS 2	84,737	1.7	146,934	13.2%	126.9
RS 3	5,040	7.0	35,204	3.2%	30.4
RS 4	18	13.6	245	0.0%	0.2
RS 5	230	11.1	2,547	0.2%	2.2
RS 6	15	13.3	199	0.0%	0.2
RS 7	5	132.5	662	0.1%	0.6
RS 22 Firm	7	1,400.7	9,805	0.9%	8.5
RS 23	1,669	10.3	17,199	1.5%	14.9
RS 25	566	17.6	9,981	0.9%	8.6
RS 27	108	46.2	4,991	0.4%	4.3
Total	979,047		1,114,420	100.0%	\$ 962.7



Summary of Plant and Rate Base Allocation

• Both Plant and Rate Base are used to allocate Delivery Costs

Rate Schedule	Net Plant	Rate Base
RS 1	\$ 2,603	\$ 2,505
RS 2	738	714
RS 3	343	336
RS 4	0	0
RS 5	33	31
RS 6	1	1
RS 7	1	1
RS 22A	41	40
RS 22 Firm	144	137
RS 22B	16	15
RS 23	173	172
RS 25	162	155
RS 27	5	5
RS 46	406	399
Total	\$ 4,666	\$ 4,509

Rate Base & Plant Allocated

\$ million



Functionalization, Classification & Allocation – Delivery Costs



Delivery Cost Allocation

- \$790 million of Delivery Costs to be allocated
- Depreciation expense embedded in the delivery cost of service follows the same allocation as Plant

- Next Slides
 - Summary of key allocators
 - Details of the allocations
- Summary of Delivery Cost Allocation



Summary of Key Allocators

					Gross Plant	
					before General	
		Dist RB	Avg Customer	Dist RB	& Intangible	Avg Customer
	Peak Day	Classified as	adj by CWF-	Classified as	classifed as	adj by CWF-
	Demand	Customer	Admin & Billing	Demand	Demand	Services/Meters
Costs (\$million)	\$ 193.3	\$ 121.3	\$ 92.4	\$ 75.6	\$ 51.0	\$ 34.0
RS 1	50.3%	82.4%	76.1%	44.8%	48.0%	79.6%
RS 2	19.5%	11.9%	7.3%	22.3%	20.7%	13.2%
RS 3	10.6%	2.4%	0.5%	12.8%	11.6%	3.2%
RS 4	-	0.0%	0.0%	-	-	0.0%
RS 5	1.0%	0.2%	0.8%	1.3%	1.1%	0.2%
RS 6	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
RS 7	-	0.0%	0.0%	-	-	0.1%
RS 22A	2.4%	0.3%	0.1%	0.2%	1.4%	-
RS 22 Firm	4.7%	0.6%	0.0%	5.8%	5.1%	0.9%
RS 22B	0.9%	0.1%	0.0%	0.1%	0.5%	-
RS 23	5.3%	1.2%	10.7%	6.4%	5.8%	1.5%
RS 25	5.3%	0.6%	3.6%	6.4%	5.8%	0.9%
RS 27	-	0.3%	0.7%	-	-	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

- Above allocators are used to allocate total of \$568 million of Delivery Costs
- Total Delivery Costs allocated in COSA model equal \$790 million



Delivery Cost Allocation Peak Day Demand

Most costs from Transmission and Distribution

An (\$m	Amount Classifier Allocator (\$million)		Allocator	
\$	193.3	Demand	Peak Day Demand	
		Peak Day Demand	Precentage	Cost Allocation
RS 1		635.5	50.3%	\$ 97.2
RS 2		247.0	19.5%	37.8
RS 3		134.0	10.6%	20.5
RS 5		13.2	1.0%	2.0
RS 6		0.1	0.0%	0.0
RS 224	4	29.7	2.4%	4.5
RS 22	Firm	60.0	4.7%	9.2
RS 22E	3	11.5	0.9%	1.8
RS 23		66.6	5.3%	10.2
RS 25		66.6	5.3%	10.2
Total		1,264.2	100.0%	\$ 193.3



Delivery Cost Allocation Distribution Rate Base - Customer

Distribution related costs

Amount (\$million)		Classifier	Allocator
\$	121.3	Customer	Dist RB Classified as
			Customer

Distn RB	Classifed
----------	-----------

	as Customer		Precentage	Cost Allocation
RS 1	\$	1,220	82.4%	\$ 99.9
RS 2		176	11.9%	14.4
RS 3		36	2.4%	2.9
RS 4		0	0.0%	0.0
RS 5		3	0.2%	0.2
RS 6		0	0.0%	0.0
RS 7		1	0.0%	0.0
RS 22A		4	0.3%	0.3
RS 22 Firm		9	0.6%	0.8
RS 22B		1	0.1%	0.1
RS 23		17	1.2%	1.4
RS 25		9	0.6%	0.7
RS 27		4	0.3%	0.4
Total	\$	1,480	100.0%	\$ 121.3



Delivery Cost Allocation

Average Customer Adjusted for Customer Weighting factor -Admin & Billing

Most costs from Customer Accounting

Amount (\$million)		Classifier	Allocator	
\$	92.4	Customer	Avg Customer adj by	
			CWF-Admin & Billing	

	Weighting Factor for		Weighted		
	Customers	Admin & Billing	Customers	Precentage	Cost Allocation
RS 1	886,652	1.0	886,652	76.1%	\$ 70.3
RS 2	84,737	1.0	84,737	7.3%	6.7
RS 3	5,040	1.2	6,048	0.5%	0.5
RS 4	18	0.9	15	0.0%	0.0
RS 5	230	43.0	9,890	0.8%	0.8
RS 6	15	43.0	645	0.1%	0.1
RS 7	5	43.0	215	0.0%	0.0
RS 22A	9	75.0	675	0.1%	0.1
RS 22 Firm	7	75.0	525	0.0%	0.0
RS 22B	5	75.0	375	0.0%	0.0
RS 23	1,669	75.0	125,175	10.7%	9.9
RS 25	566	75.0	42,450	3.6%	3.4
RS 27	108	75.0	8,100	0.7%	0.6
Total	979,061		1,165,502	100.0%	\$ 92.4



Delivery Cost Allocation Distribution Rate Base – Demand

Distribution related costs

Amount (\$million)		Classifier	Allocator	
\$	75.6	Demand	Dist RB Classified as	
			Demand	

	 as Demand	Precentage	Cost Allocation
RS 1	\$ 452	44.8%	\$ 33.9
RS 2	225	22.3%	16.8
RS 3	130	12.8%	9.7
RS 4	-	-	-
RS 5	13	1.3%	1.0
RS 6	0	0.0%	0.0
RS 7	-	-	-
RS 22A	2	0.2%	0.1
RS 22 Firm	58	5.8%	4.4
RS 22B	1	0.1%	0.0
RS 23	65	6.4%	4.8
RS 25	65	6.4%	4.8
RS 27	 -	-	-
Total	\$ 1,010	100.0%	\$ 75.6



Delivery Cost Allocation

Gross Plant before General & Intangible - Demand

Distribution related costs

Amount (\$million)		Classifier	Allocator	
\$	51.0	Demand	Gross Plant before	
			General & Intangible	
			classifed as Demand	

	Gross Plant	Precentage	Cost Allocation
RS 1	\$ 1,601	48.0%	\$ 24.5
RS 2	691	20.7%	10.6
RS 3	385	11.6%	5.9
RS 4	-	-	-
RS 5	38	1.1%	0.6
RS 6	0	0.0%	0.0
RS 7	-	-	-
RS 22A	46	1.4%	0.7
RS 22 Firm	170	5.1%	2.6
RS 22B	18	0.5%	0.3
RS 23	192	5.8%	2.9
RS 25	192	5.8%	2.9
RS 27	-	-	-
Total	\$ 3,333	100.0%	\$ 51.0


Delivery Cost Allocation

Average Customers – Weighted for Service Lines/Meters

Distribution related costs

Amount (\$million)		Classifier	Allocator	
\$	34.0	Customer	Avg Customer adj by	
			CWF-Services/Meters	

		Weighting Factor for	Weighted		
	Customers	Services & Meters	Customers	Precentage	Cost Allocation
RS 1	886,652	1.0	886 <i>,</i> 652	79.6%	\$ 27.1
RS 2	84,737	1.7	146,934	13.2%	4.5
RS 3	5,040	7.0	35,204	3.2%	1.1
RS 4	18	13.6	245	0.0%	0.0
RS 5	230	11.1	2,547	0.2%	0.1
RS 6	15	13.3	199	0.0%	0.0
RS 7	5	132.5	662	0.1%	0.0
RS 22 Firm	7	1,400.7	9 <i>,</i> 805	0.9%	0.3
RS 23	1,669	10.3	17,199	1.5%	0.5
RS 25	566	17.6	9,981	0.9%	0.3
RS 27	108	46.2	4,991	0.4%	0.2
Total	979,047		1,114,420	100.0%	\$ 34.0



Summary of Delivery Cost Allocation

Allocation summary by Classification

\$ million

Rate Schedule	Energy	Demand	Customer	Total
RS 1	\$7	\$ 192	\$ 306	\$ 504
RS 2	2	83	41	127
RS 3	2	47	8	56
RS 4	0	(0)	0	0
RS 5	0	5	1	6
RS 6	0	0	0	0
RS 7	0	-	0	0
RS 22A	0	5	1	7
RS 22 Firm	0	19	2	21
RS 22B	0	2	0	3
RS 23	1	23	13	37
RS 25	0	23	5	28
RS 27	0	_	1	1
Total	\$ 12	\$ 400	\$ 378	\$ 790



Summary of COSA Results

Summary of Allocations



 Resulting Revenue to Cost Ratios and Margin to Cost ratios before proposals and rebalancing





Function, Classify, Allocate Summary (Delivery Cost of Service)

		Percentage of
Function	\$ million	Total
Gas Supply	2.0	0.3%
Storage	43.8	5.6%
Transmission	179.0	22.7%
Distribution	462.9	58.6%
Marketing	50.1	6.3%
Customer Accou	52.1	6.6%
Total	790.0	100.0%

		Percentage of
Classification	\$ million	Total
Energy	11.8	1.5%
Demand	399.7	50.6%
Customer	378.5	47.9%
Total	790.0	100.0%

		Percentage
Allocation	\$ million	of Total
RS 1	504.5	63.9%
RS 2	126.7	16.0%
RS 3	55.6	7.0%
RS 4	0.1	0.0%
RS 5	5.9	0.7%
RS 6	0.1	0.0%
RS 7	0.1	0.0%
RS 22A	6.6	0.8%
RS 22 Firm	21.4	2.7%
RS 22B	2.5	0.3%
RS 23	36.9	4.7%
RS 25	28.1	3.6%
RS 27	1.4	0.2%
Total	790.0	100.0%



Revenue to Cost Ratio before proposals

Rate Schedule	R:C	M:C
Rate Schedule 1	95.6%	93.1%
Residential Service	95.076	95.170
Rate Schedule 2	101 3%	102 5%
Small Commercial Service	101.5 %	102.5 %
Rate Schedule 3/23	101.6%	103 30/
Large Commercial Sales and Transportation Service	101.0%	105.5%
Rate Schedule 5/25	104.0%	110 00/
General Firm Sales and Transportation Service	104.9%	112.2%
Rate Schedule 6	121 20/	150 10/
Natural Gas Vehicle Service	131.2%	159.1%
Rate Schedule 22A	100 59/	100.00/
Transportation Service (Closed) Inland Service Area	109.5%	109.8%
Rate Schedule 22B	00.7%	00.7%
Transportation Service (Closed) Columbia Service Area	ອອ. <i>1</i> %	ອອ ./%

Rate Schedule	R:C	M:C
Rate Schedule 4	147 4%	550 0%
Seasonal Firm Gas Service	147.470	550.976
Rate Schedule 7/27	130.6%	710 30/
General Interruptible Sales and Transportation Service	139.0%	112.3%
Rate Schedule 22	1425 50/	1064 40/
Large Volume Transportation Service	1423.5%	1004.4%

Reference: Application, Section 6.5.2, Page 6-35 & 6-36



FORT NELSON COST OF SERVICE ALLOCATION (COSA)



COSA Model: Cost Assumptions

Test Year: 2018 costs from 2017/2018 Revenue Requirement

Delivery Costs

 Based on the 2018 forecast delivery costs approved in the 2017/2018 Revenue Requirement Application



Adjustments to Test Year





Adjustments to Test Year

- One RS 25 customer has moved to Rate 2.1
- Zero volume forecast for this customer
- Change in revenue from move based on difference in basic (minimum) charges

Table 13-6: Adjustment to 2018 Test Year from Movement of RS 25 Customer

	RS 25	Rate 2.1	Total
Revenue (\$000)	-\$24.3	+\$0.5	-\$23.8
Customers	-1	+1	0

- Load Factor used for RS 25 set at 40%
- RS 25 designed for customers with load factors >= 40%
- Allows allocation of costs based on the intended use of RS 25

Reference: Application, Sections 13.4.1.3 and 13.4.1.4



Adjustments - Operating and Maintenance Costs

- FEFN revenue requirement has a single line item (Shared Services) that represents all O&M costs allocated from FEI except Distribution O&M, which is directly forecast
- In the COSA Shared Services (\$532 thousand) line item split into parts based on FEI O&M percentages

Category	Total (\$thousands)
Transmission	61.5
Meter Reading	30.8
Energy Supply and Resource Development	12.3
General Operations	107.6
Energy Solutions and External Relations	68.3
Customer Care	78.9
Business and IT Services	77.2
Administration and General	95.4
Total	532.0



Reference: Application, Appendix 13-3

Supporting Studies used in COSA

- Minimum System Study & Peak Load Carrying Capacity Adjustment
- Customer Weighting Factor Study



Segmentation

Minimum System Study

- 116 KM Distribution Mains Polyethylene (PE) and Steel
- Minimum Standard is 60 mm PE
- Value of Distribution Mains assuming 60 mm PE \$5.3 million
- Value of Distribution Mains at Weighted Cost \$11.6 million
- Minimum System equals \$5.3/\$11.6 = 46%
- 46% of Distribution Mains Costs classified as Customer related
- 54% as Demand Related
- PLCC used is equal to FEI's



Reference: Application, Appendix 13-1

Customer Weighting Factor Study

Weighting Factor for Meters and Services

- Used to weight the number of customers in a rate schedule for allocation of Distribution Meters & Services costs
- Weighting is relative to RS 1

Rate 1	Rate 2.1	Rate 2.2	RS 25
1.0	1.6	5.7	191.5

Weighting Factor for Administration and Billing

 Used to weight the number of customers in as rate schedule for allocation of Customer Service costs

Rate 1	Rate 2.1	Rate 2.2	RS 25
1.0	1.0	1.2	75.0



Functionalization, Classification & Allocation – Plant and Rate Base



Summary of Plant and Rate Base Allocation

- \$11.2 million Rate Base to allocate (No Storage costs in Fort Nelson)
- Allocation methods are very similar to FEI

Summary of Plant and Rate Base allocations



Rate Base & Plant Allocated

\$000

Rate Schedule	Net Plant		Ra	ate Base
Rate 1	\$	6,192	\$	5 <i>,</i> 967
Rate 2.1	3,684			3 <i>,</i> 580
Rate 2.2	1,107			1,089
RS 25		618		591
Total	\$ 11,601		\$	11,228



Delivery Cost Allocation

- \$2,489 thousand Delivery Costs to be allocated
- Depreciation expense embedded in the delivery cost of service follows the same allocation as Plant
- Summary of Delivery Cost Allocation

6000

ŞUUU									
Rate	Energy	y	De	mand	Cus	tomer	•	Total	
Rate 1	-	10		625		776	\$	1,411	
Rate 2.1		6		497		240		743	
Rate 2.2		3		179		20		201	
RS 25		0		62		71		133	
Total	\$ 2	19	\$	1,363	\$	1,107	\$	2,489	



Summary of COSA Results

Summary of Allocations



 Resulting Revenue to Cost Ratios and Margin to Cost ratios before proposals and rebalancing





Function, Classify, Allocate Summary (Delivery Cost of Service)

		Percentage
Function	\$000	of Total
Gas Supply	8	0.3%
Transmission	831	33.4%
Distribution	1,491	59.9%
Marketing	94	3.8%
Customer Accounting	65	2.6%
Total	2,489	100.0%

		Percentage
Classification	\$000	of Total
Energy	19	0.8%
Demand	1,363	54.8%
Customer	1,107	44.5%
Total	2,489	100.0%

		Percentage
Allocation	\$000	of Total
Rate 1	1,411	56.7%
Rate 2.1	743	29.9%
Rate 2.2	201	8.1%
RS 25	133	5.4%
Total	2,489	100.0%



Revenue to Cost Ratio before proposals

Rate	R:C	M:C
Rate 1	81.9%	77 5%
Domestic (Residential) Service	01.070	11.570
Rate 2.1	110.0%	126.4%
General (Small Commercial) Service	110.070	120.470
Rate 2.2	1/12 3%	164 5%
General (Large Commercial) Service	172.070	104.070
Rate Schedule 25	110 10/	110 104
General Firm Transportation Service	112.170	112.170



Reference: Application, Section 13.4.3, Page 13-20

Rate Design Proposals

PART II



Residential Rate Design



Residential Customer Characteristics

Rate Schedule 1: *single family residences, separately metered single family townhouses, row houses and apartments*

	Amount	Percentage of FEI Total
Average Number of Customers	886,652	91%
Annual Consumption (PJ)	72.5	35%
Revenue (\$000s)	730,278	59%



Customer Mix

FORTIS BC^{**} -58-

End Use

Reference: Application, Section 7.2, Pages 1-3

Residential Customer Characteristics

2015 Residential Normalized Consumption Distribution





Reference: Application, Section 7.2, Page 6

Residential Customer Characteristics

FEI's Historical Residential Normalized Use Per Customer (UPC)





Reference: Application, Section 7.2, Page 7

Customer Research Survey

Survey Topic	Summary of Survey Results
Understanding of	FEI customers are fairly familiar with their respective current
current rates and	rates and bill components.
bill components	
Preferences	FEI customers consider that ease of understanding is a
regarding rate	critical rate design principle. Other rate design considerations
design	were rated to be less important than ease of understanding,
considerations	but all were rated approximately at the same level.
Assessment of rate	A flat rate is considered by FEI customers to be the easiest to
structures	understand and lead to more stable monthly bills. The
	respondents gave slightly higher scores to inclining block
	rates for promoting efficiency. The flat rate also received the
	highest score for economic fairness.

Detailed version of survey scope, methodology and results can be found in Appendix 4-5.

Reference: Application, Section 7.4.4, Pages 14-16



Flat Rate Structure is the Preferred Rate Structure



FEI believes that its existing flat rate structure provides the best balance of rate design considerations for residential customers and proposes to maintain the current flat rate structure

Reference: Application, Sections 7.4.2 & 7.4.3, Pages 10-13



Residential Fixed Costs and Fixed Charge Recoveries

Type of Cost	Unit Cost Based on COSA Results	Current Average Monthly Basic Charge	Difference
Customer-related cost	\$27.10 per month		
Demand-related cost	\$17.04 per month		
Total fixed costs	\$44.14 per month	\$11.84 per month	\$32.30 per month

Current Basic Charge recovers about 44% of the customerrelated costs allocated to the residential rate schedule

As approved starting in 2010, and in alignment with energy conservation policies, the Basic charge has been fixed at 2009 levels.

Reference: Application, Section 7.5.1, Pages 16-17



Impact of Holding the Basic Charge Flat Differs Depending on UPC

Impact of Delivery Rate Increases on Delivery Portion of Annual Bill



Based on rate design Principle 2 (fair apportionment of costs among customers), an increase in cost recovery through the Basic Charge is desirable.

Reference: Application, Section 7.5.1, Pages 17-18



Jurisdictional Comparison



The Jurisdictional comparison suggests that an increase to the residential Basic Charge would not be inconsistent with fixed cost recovery in other jurisdictions (detailed rates can be found in Appendix 7-2).

Reference: Application, Section 7.6, Pages 19-21



Other Basic Charge Considerations

Government energy conservation policies

• A high Basic Charge would discourage customers' engagement in energy saving initiatives

Rate stability and bill impact

• Rate design proposals should consider the bill impact to customers and should avoid rate shock to customers

Feedback received from stakeholders

Reference: Application, Sections 7.5.2 & 7.5.3, Pages 18-19



FEI's Proposal for Fixed and Volumetric Charges

A one-time 5% increase in the Basic Charge and an offsetting decrease in the volumetric Delivery Charge achieve a reasonable balance among competing rate design considerations

No rate shock: Zero bill impact for an average use customer

Government policy: Unlikely to discourage customers' engagement in energy conservation initiatives

Cost causation: Moves towards improving the alignment between fixed costs and fixed charges

Reference: Application, Section 7.8, Pages 22-25



Summary of Residential Rate Design Proposals



- Maintains the current flat rate structure with a fixed Basic Charge and a flat volumetric Delivery Charge
- Improves the alignment between the fixed costs allocated and the fixed charges recovered by a one-time 5% increase to the Basic Charge and an offsetting decrease in the volumetric Delivery Charge

Reference: Application, Section 7.8, Pages 22-25

Commercial Rate Design



Commercial Customer Characteristics

	Avg. # of Customers	% of FEI Total	Annual Demand (PJ)	% of FEI Total
RS 2 – Small Commercial	84,737	8.6%	28	13.5%
RS 3 – Large Commercial Sales	5,040	0.5%	18	8.7%
RS 23 – Large Commercial Transportation	1,669	0.2%	9	4.3%
Total Commercial	91,446	9.3%	55	26.5%

Customer Mix



FORTIS BC^{**} - 70-

End Use

Reference: Application, Section 8.2

Review of Existing Customer Segmentation

Customer Bill Frequency of Small & Large Commercial Customers



Small Commercial

Large Commercial



Reference: Application, Section 8.3.2.1

Review of Existing Customer Segmentation

Load Factor Distribution of Small & Large Commercial Customers



Small Commercial

Reference: Application, Section 8.3.2.2

Large Commercial
Review of Existing Customer Segmentation

Scatter Plot: Avg Commercial Customer Load Factor vs Annual Consumption





Reference: Application, Section 8.3.2.2

Economic Crossover Point between RS 2 and RS 3



FORTIS BCTM - 74 -

Reference: Application, Section 8.3.3.3

Rate Design Options Considered

Option A – Move Threshold between RS 2 and RS 3 to 1,000 GJ

- Results in significant customer disruption by moving customers
- Not supported by rate design principles of Rate and Revenue Stability

Option B – Move Threshold between RS2 and RS 3 to 1,400 GJ

- Still a material change in the customer movement thus causing customer disruption
- Leads to about \$600 thousand net revenue shift to RS 3 from RS 2

Option C – Maintain the existing threshold of 2,000 GJ but adjust the Basic and Delivery Charges

• No customer migration thus less customer disruption



Reference: Application, Section 8.6

Commercial Rate Design Proposal



FEI is proposing a commercial rate design that:

- Maintains the existing threshold of 2,000 GJ between Rate Schedules 2 and 3
- Adjusts Rate Schedule 2 and 3 charges to close the economic gap

Reference: Application, Section 8.6.3

Industrial Rate Design



Industrial Customers Characteristics

Rate Schedule	2016 Average Number of Customers	2016 Demand Forecast (PJ)	Percentage of Industrial Total
RS 4 – Seasonal	18	0.1	0.1%
RS 5 – General Firm Sales	230	2.2	3.1%
RS 25 – General Firm Transportation	566	13.5	19.4%
RS 7 – General Interruptible Sales	5	0.2	0.3%
RS 27 – General Interruptible Transportation	108	6.5	9.3%
RS 22 / 22A / 22B – Large Volume Transportation	40	27.6	39.6%
Large Industrial Contract	2	19.7	28.3%
Industrial Total	984	69.7	100.0%

Customer Mix



<u>End Use</u>





Reference: Application, Section 9.2 and 9.3

Industrial Rate Design

- RS 5/25
- RS 7/27
- RS 4
- RS 22/22A/22B & Large Contract Customers



General Firm Service (RS 5/25) – Customer Characteristics

Annual Bill Frequency for RS 5 and RS 25 Customers Combined



Reference: Application, Section 9.5.3.1, Page 9-11



RS 5/25 Rate Structure Review

2016 COSA Rates for RS 5 and RS 25

	RS 5	RS 25
Basic Charge \$ / Month	\$587.00	\$587.00
Demand Charge \$ / Month / GJ of Daily Demand	\$21.596	\$21.596
Delivery Charge \$/GJ	\$0.887	\$0.887
Administrative Charge \$ / Month	N/A	\$78.00



Reference: Application, Section 9.5.3.2, Page 9-11

RS 5/25: Existing Rate Design Review

Peak Daily Demand Methodology

The current method to estimate daily demand uses a formula and monthly consumption data.

Overestimates the peak day demand for the majority of RS5/25 customers.

Load Factor Price Signals

RS 5/25 is intended for higher load factor customers (40% or above).

Currently there is an economic incentive for lower load factor RS 3/23 (~ 35% Load Factor) customers to move to RS 5/25.



RS 5/25: Daily Demand Methods

Method 1: Current Formula

- Daily Demand is equal to 1.25 x greater of:
 - Customer's highest avg daily consumption of any month during the winter period, or
 - ½ Customer's highest avg daily consumption of any month during the summer period

Method 2:

• Current Formula with Adj. multiplier

Method 3:

• FEI System Max Day Send Out

Method 4:

• Avg. Consumption on 3 or 5 Coldest Days

Method 5:

• Modified Formula on 5 Coldest Days



RS 5/25 - Daily Demand Methods Evaluation

Method 2 – Current Formula with updated multiplier results in:

- Better alignment of coincident peak demand
- Customer understanding
- Information to determine Daily Demand is readily available to customers
- Reduces anomalous results
- Ease of implementation



RS 5/25 – Load Factor Price Signal Options

<u>Option 1 -</u> Change the Basic Charge	Mostly incents low volume customers to take service under RS 3/23, but would not target customers with a low load factor.
<u>Option 2 -</u> Change the Delivery Charge	Will affect all customers. Will encourage more customers with a high load factor to migrate to Large Commercial which is not the intent.
<u>Option 3 -</u> Remove the Demand Charge	Would remove the mechanism that rewards more efficient system utilization by higher load factor customers. RS 5/25 were designed to serve high load factor customers.
<u>Option 4 -</u> Change the Demand Charge	Raising the Demand Charge will more directly incent low load factor customers to take service under Large Commercial RS 3/23 instead of RS 5/25.



RS 5/25 Rate Design Proposal

FEI is proposing a rate design for RS 5/25 that:

- Maintains the current rate structure with a fixed Basic Charge, a Demand Charge and a flat volumetric Delivery Charge.
- Updates the multiplier from 1.25 to 1.10 that is used in the current method to determine the Daily Demand as an estimate of a customer's peak demand.
- Increases the Demand Charge by \$3.00 to continue the incentive for low load factor customers to take service under Large Commercial RS 3/23 rather than General Firm Service RS 5/25.



General Interruptible Service (RS 7/27) – Customer Characteristics

Annual Bill Frequency for RS 7/27 Customers Combined





Reference: Application, Section 9.6.2, Page 9-25

RS 7/27 Rate Structure Review

2016 COSA Rates for RS 7/27

	2016 COSA ¹ Based Rates					
Rate Schedule	Basic Charge/ Month	Administration Charge/Month	Delivery Charge/GJ	Commodity + Storage & Transport Charge/GJ		
RS 7 General Interruptible Sales Service	\$880.00	n/a	\$1.455	\$3.323		
RS 27 General Interruptible Transportation Service	\$880.00	\$78.00	\$1.455	n/a		

¹ The COSA rates shown are estimated based on 2016 approved rates plus known and measureable changes.



Reference: Application, Section 9.6.3.1, Page 9-26

RS 7/27 Rate Design Proposal

Update RS 7/27 from Proposed Changes to RS 5/25

Rate Schedule	Line No.		2016 COSA with 80% Load Factor Adjustment	2018 RS 7/27 Charges using 2001 Methodology	2018 Proposed with 90.9% Load Factor Adjustment ¹
RS 5/25	1	Demand Charge	\$21.596	\$24.596	\$24.596
Load Factor for Equivalent firm Demand Charge	2		80.0%	80.0%	90.9%
Load Factors for Interruptible Rate	3		NA	55.0%/80.0%	62.5%/90.9%
Effective Rate/GJ	4	Demand Charge	\$0.888	\$1.011	\$0.889
for an RS 5 firm service customer	5	Delivery Charge	\$0.887	\$0.887	\$0.887
	6	Total	\$1.775	\$1.898	\$1.776
RS 7 General Interruptible Sales Service	7	Delivery Charge	\$1.455	\$1.443 ²	\$1.443
Differential (per GJ) RS 5 – RS 7	8		\$0.320	\$0.455	\$0.334
Discount as a Percentage of Total Firm	9		18.0%	24.0%	18.8%

FORTIS BC^{**}

- 89 -

Reference: Application, Section 9.6.5, Page 9-32

RS 4 Rate Design Proposal

Update RS 4 from Proposed changes to RS 5/25 & RS 7/27

Row	RS 4	2016 COSA ¹ Based Rates	Proposed Rates
1	RS 5/25 Demand Charge equivalent at 100% Load Factor ²	\$0.391	\$0.505
2	RS 5/25 Delivery Charge (\$/GJ)	\$0.887	\$0.887
3	RS 4 Off-Peak Delivery Rate \$/GJ (Row 1 + Row 2)	\$1.278	\$1.392
		<i>.</i>	<u> </u>
4	RS 7/27 Delivery Charge (\$/GJ)	\$1.455	\$1.443
5	RS 4 Extension Period \$/GJ (Row 4 x 1.5)	\$2.183	\$2.165



Reference: Application, Section 9.7.5, Page 9-36

Large Volume Transportation – Customer Characteristics

Customers and Annual Demand (TJ)

Rate Schedule	Customers	Annual Demand (TJ)
RS 22	26	13,189
RS 22A	9	9,030
RS 22B	5	5,277
Subtotal	40	27,496
Joint Venture	1	4,758
BC Hydro IG	1	16,425
Total	42	48,679



Reference: Application, Section 9.8.1, Page 9-37

Large Volume Transportation & Contract Customers: Rate Design Considerations

Minimize regional differences

JV Agreement expires end of 2017 BC Hydro IG Agreement in effect until 2022

Need to review the Firm Rate methodology for RS 22 (Creative Energy) within this Rate Design Process as directed by the BCUC and other RS 22 customers have expressed interest in a Firm Rate



Large Volume Transportation & Contract Customers: Rate Design Options

Rate Schedule	Option 1	Option 2
22A	Grandfathered	Sama as Ontion 1
22B	Grandfathered	Same as Option 1
22	Currently Interruptible – Add a Firm Service Offering	Single RS 22
Joint Venture	Negotiated Rate (no change)	Including RS 22
BCH IG	Negotiated Rate (no change)	offerings, JV and BCH IG



Large Volume Transportation & Contract Customers: Rate Design Proposal

FEI is proposing a rate design for Large Volume Transportation customers that:

- Continues to grandfather RS 22A/22B as closed service offerings
- Creates a firm rate for RS 22, VIGJV and BC Hydro IG based on cost allocation
 - Tariff supplement G-21 for Creative energy would be terminated
 - BC Hydro IG could choose to become a RS 22 customer after their contract expires
 - Rates for RS 22 Firm are illustrated in the table below

Rate Schedule	Basic Charge /Month	Administration Charge /Month	Delivery Demand Charge /Month /GJ of Firm Daily Transportation Quantity (DTQ)	Delivery Charge /GJ of Firm Monthly Transportation Quantity (MTQ)	Delivery Charge /GJ of Interruptible Monthly Transportation Quantity (MTQ)
RS 22 Large Volume Transportation Service (including VIGJV)	\$3,664.00	\$78.00	\$25.00	\$0.15	\$0.972



Summary of Industrial Rate Design Proposals

RS 5/25 - General Firm Service

Maintain current formula with updated multiplier of 1.1 for daily demand calculation Raise the Demand Charge for RS 5/25 by \$3.00 per month per GJ of daily demand.

RS 7/27 - General Interruptible Service

Maintain existing rate structure for RS 7/27, but adjust the resulting rates and delivery charge calculations to reflect proposed changes to RS 5/25 to maintain RS 7/27 % discount to firm.

RS 4 - Seasonal Service

Maintain the existing rate setting methodologies for RS 4, but adjust the resulting rates due to changes to the RS 5/25 and RS 7/27.

RS 22/22A/22B & Contract Customers - Large Volume Transportation

Maintain RS22A and RS22B as closed and grandfathered for existing customers.

Calculate a single RS 22 firm rate based on the allocated costs in the COSA Model for RS 22,

VIGJV and BC Hydro IG together as a group.



Transportation Service Review



FEI Daily Load Balancing Function Overview



Overview of Transportation Business Model

BalancingCurrently, FEI has two balancing options for transportationProvisionsservice: Monthly & Daily balancing.

Balancing Currently, there are no daily balancing requirements applicable to monthly balanced customers whereas daily balanced transportation customers are held to a 20% tolerance level.

Balancing Charges

Currently, there is no charge when imbalances occur within the 20% tolerance level; balancing charges apply when imbalances exceed this level.



Balancing Provisions: Review of Options & Proposal

Option 1 – Status Quo

- Inequality
- Commission directive

Option 2 – Modify terms to monthly balancing

- Industry practice
- Commission directive

Option 3 – Move exclusively to Daily Balancing

- Satisfies the principle of fairness
- Industry practice
- FEI must balance daily with upstream pipelines



Balancing Tolerance and Charges: Review of Options & Proposal

Option 1 – Balancing Fee (service offering)

- Balancing charge per GJ to apply to all customers/marketers
- Will penalize customers/marketers who balance within tolerance

Option 2 – Tighten the threshold with charges

- FEI continues to balance the system as a whole
- Tighten the current threshold from 20% to 10%



Balancing Tolerance and Charges: Review of Options & Proposal

Transportation Balancing Incremental Variable Costs

Sumas Price (US\$/MMBtu)	NWP Com. Charge	NWP Fuel	Storage Fuel	Incremental Variable Costs (US\$/MMBtu)	Incremental Variable Costs (CAD\$/GJ)
\$2.50	\$0.06	\$0.07	\$0.04	\$0.16	\$0.20
\$3.00	\$0.06	\$0.08	\$0.04	\$0.19	\$0.23
\$3.50	\$0.06	\$0.10	\$0.05	\$0.21	\$0.25
\$4.00	\$0.06	\$0.11	\$0.06	\$0.23	\$0.28
\$4.50	\$0.06	\$0.12	\$0.07	\$0.25	\$0.31
\$5.00	\$0.06	\$0.14	\$0.07	\$0.27	\$0.33

Balancing Range and Proposed Charges

Tolerance Range	Winter Charge/GJ	Summer Charge/GJ
Tier 1: 0-10%	No fee	No fee
Tier 2: 10-20%	\$0.25	\$0.25
Tier 3: 20+%	\$1.10	\$0.30



Reference: Application, Section 10.7.6

Summary of Proposals for Transportation Service

Eliminate the existing monthly balancing provisions entirely for the transportation model and require all transportation customers in all service areas to balance daily.

Amend the balancing tolerance from 20% to 10%, and implement a tiered charge approach whereby charges increase as tolerance ranges are exceeded.



Rebalancing and Final COSA Results



Final COSA Results after Rebalancing

R:C and M:C Results after Rate Design Proposals and Rebalancing

Rate Schedule	COSA after Rate Design Proposals		Rebalance Amount (\$000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 1 Residential Service	96.4%	94.4%	61.7	0.0%	96.4%	94.4%
Rate Schedule 2 Small Commercial Service	102.2%	104.1%			102.2%	104.1%
Rate Schedule 3/23 Large Commercial Sales and Transportation Service	103.6%	107.6%			103.6%	107.6%
Rate Schedule 5/25 General Firm Sales and Transportation Service	106.3%	116.0%			106.3%	116.0%
Rate Schedule 6/6P Natural Gas Vehicle Service	131.7%	160.4%	(61.7)	-16.5%	110.0%	119.0%
Rate Schedule 22A Transportation Service (Closed) Inland Service Area	113.0%	113.4%			113.0%	113.4%
Rate Schedule 22B Transportation Service (Closed) Columbia Service Area	103.1%	103.1%			103.1%	103.1%
Rate Schedule 22 Large Volume Transportation Service	100.0%	100.0%			100.0%	100.0%

Rate Schedule (rates not set using allocated costs)	COSA after Rate Design Proposals		Rebalance Amount (\$000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 4 Seasonal Firm Gas Service	150.2%	578.3%			150.2%	578.3%
Rate Schedule 7/27 General Interruptible Sales and Transportation Service	139.3%	713.6%			139.3%	713.6%

Reference: Application, Section 12.3, Page 12-7



Summary of FEI Proposed Rate Changes

Rate Schedule	Estimated COSA-Based 2018 Rates ¹	Proposed Rate Changes	Estimated 2018 Rates After Proposed Changes
RS 1 – Residential			
Basic Charge (daily)	\$0.3890	\$0.0195	\$0.4085
Delivery Charge (\$/GJ)	\$4.821	(\$0.075)	\$4.746
RS 2 – Small Commercial			
Basic Charge (daily)	\$0.8161	\$0.1324	\$0.9485
Delivery Charge (\$/GJ)	3.850	(\$0.186)	3.664
RS 3/RS 23 – Large Commercial			
Basic Charge (daily)	\$4.3538	\$0.4357	\$4.7895
Delivery Charge (\$/GJ)	\$3.189	\$0.001	\$3.190
RS 4			
Basic Charge (Monthly)	\$439	Nil	\$439
Delivery Charge (\$/GJ) Off Peak	\$1.278	\$0.114	\$1.392
Delivery Charge (\$/GJ) Extended Period	\$2.183	(\$0.018)	\$2.165
RS 5/RS 25			
Basic Charge (Monthly)	\$587.00	Nil	\$587.00
Delivery Charge (\$/GJ)	\$0.887	Nil	\$0.887
Demand Charge (\$/Month/GJ)	\$21.596	\$3.00	\$24.596
RS 6/RS 26			
Basic Charge (Monthly)	\$61	Nil	\$61
Delivery Charge (\$/GJ)	\$4.873	(\$1.318)	\$3.555
RS 7/RS 27			
Basic Charge (Monthly)	\$880.00	Nil	\$880.00
Delivery Charge (\$/GJ)	\$1.455	(\$0.012)	\$1.443
RS 22			
Basic Charge (Monthly)	\$3,664.00	Nil	\$3.664.00
Firm Demand Charge (\$/Month/GJ)	n/a		\$25.000
Firm MTQ (\$/GJ)	n/a		\$0.150
Interruptible MTQ (\$/GJ)	\$1.060	(\$0.088)	\$0.972

Reference: Application, Section 12.4, Page 12-8



FEI Approvals Sought



Approvals Sought - FEI

Midstream Cost Allocation Methodology

Residential Rate Schedules

Commercial Rate Schedules

Industrial Rate Schedules

General Terms and Conditions



Fort Nelson Rate Design Proposal and Approvals Sought


Unbundling the Rates

Unbundling the rates for Fort Nelson refers to separating the gas cost recovery charges and the delivery charges in the tariff & customers' bills

Why Unbundle Residential & Commercial Rates?

- Consistent with other service areas of FEI unbundling of rates for FEI occurred in 1994
- Transparency of gas cost components and delivery cost components in customer rates
- Enables ability to participate in programs that require unbundled rates
- Industrial Service Rates 3.1, 3.2 & 3.3 are already unbundled

Residential customer survey shows support for change to unbundled rates - 21% supported bundled rates whereas 42% supported unbundled flat rate structure

FEI is proposing to unbundle Fort Nelson's rates



Declining Block Versus Flat Rate Structure

Current Declining Block Rate Structure					
Residential Commercial					
Minimum Charge	First 2 GJ	First 2 GJ			
1 ST Block	Next 28 GJ	Next 298 GJ			
2 ND Block	Excess of 30 GJ	Excess of 300 GJ			

FEI proposes a Flat Rate Structure for Fort Nelson customers

- Most common rate structure
- In line with Government policy
- Preferred rate structure from customer survey
- Lack of evidence of benefits from Declining Block rates
- Unstable minimum charge due to fluctuating gas cost changes



Existing Residential Rate Design

	Amount	% of Total
Number of Customers	1,961	80%
Annual Consumption (TJ)	260	46%
Revenue (\$000's)	\$1,423	45%

Fort Nelson Rate 1 Existing Rate Structure						
Item DescriptionMinimum daily chargeNext 28 GJ in any month (\$/GJ)Excess of 30 G any month (\$/GJ)						
Approved 2018 Delivery Charge	\$0.4588	\$3.557	\$3.455			
Gas Cost Recovery Charge	\$0.0850	\$1.294	\$1.294			
Bundled 2018 Rates	\$0.5438	\$4.851	\$4.749			



Proposed Residential Rate Design

Unbundle Residential Rates

Move to a Flat Rate Structure

Set the level of Basic Charge to achieve lowest dollar amount bill impact

Proposed charges for Rate 1 Before Rebalancing				
Item Description Rate				
Daily Basic Charge (\$/Day)	\$0.2783			
Delivery Charge (\$/GJ)	\$3.512			



Existing Commercial Rate Design

	2018 Avg # of	2018 Annual Demand	% of Total Commercial
Rates	Customers	Forecast (TJ)	Annual Demand
Rate 2.1 – General (Small Commercial)	479	203.7	78 %
Rate 2.2 – General (Large Commercial)	7	56.7	22 %
Total Commercial	486	260.4	100 %

Fort Nelson Rate 2.1 / 2.2 Existing Rate Structure					
Item Description	Minimum daily charge	Next 298 GJ in any month (\$/GJ)	Excess of 300 GJ in any month (\$/GJ)		
Approved 2018 Delivery	\$1.3487	\$4.042	\$3.916		
Gas Cost Recovery	\$0.0850	\$1.294	\$1.294		
Bundled 2018 Rates	\$1.4337	\$5.336	\$5.210		

Current threshold between small & large commercial customers is 6,000 GJ



Proposed Commercial Rate Design

Unbundle Commercial Rates

Move to a Flat Rate structure

Set threshold between small & large commercial customers at 2,000 GJ

Proposed Charges for Rates 2.1 & 2.2 Before Rebalancing					
Rate 2.1 Rate 2.2					
Basic Charge \$/Day	\$1.1296	\$1.8862			
Delivery Charge \$/GJ	\$4.057	\$3.919			



Industrial Rate Design

Charge	Rate 3.1	RS 25
Administration Charge (per Month)	n/a	\$202
Delivery Charge First 20 GJ/Month (\$/GJ)	\$4.552	\$4.552
Delivery Charge Next 260 GJ/Month (\$/GJ)	\$4.201	\$4.201
Delivery Charge Excess over 280 GJ/Month (\$/GJ)	\$3.450	\$3.450
Minimum Monthly Charge (\$/Month)	\$1,826	\$1,826
Gas Cost Recovery Charge (\$/GJ)	\$1.294	n/a

Proposed Industrial Rate Structure

Charge	Rate 3.1	RS 25
Basic Charge (per Month)	\$600.00	\$600.00
Demand Charge (per GJ per Month)	\$28.727	\$28.727
Delivery Charge (per GJ)	\$1.000	\$1.000
Administration Charge (per Month)	n/a	\$39.00
Commodity Cost Recovery Charge (per GJ)	\$1.275	n/a
Storage and Transport Charge (per GJ)	\$0.019	n/a

- Calculation of Daily Demand to which Demand Charge would apply same as for other FEI customers
- RSAM to be phased out



Revenue to Cost Ratios After Rebalancing

Rate Schedule	COSA after Rate Design Proposals R:C M:C		Rebalance Approximate Amount Annual Bill (\$000) Change		COSA after Rate Design Proposals and Rebalancing R:C M:C	
Rate 1						
Domestic (Residential) Service	82.1%	77.9%	131.0	9.9%	89.6%	87.1%
Rate 2.1	447 404	400.004	(74.0)	= 00/	440.00/	440.00/
General (Small Commercial) Service	117.1%	123.2%	(71.0)	-5.3%	110.0%	113.6%
Rate 2.2	445.00/	400 40/	(00.0)	4.4.00/	400.00/	400.00/
General (Large Commercial) Service	145.8%	162.4%	(0.00)	-14.3%	123.9%	132.0%
Rate Schedule 25	111 00/	111 00/			111 00/	111 00/
General Firm Transportation Service	111.0%	111.0%			111.0%	111.0%



Summary of Rate Proposals

Rate Component	Rate 1	Rate 2.1	Rate 2.2	Rate 3.1	RS 25
COSA Rates					
Minimum daily Charge incl. 1 st 2 GJ/month	\$0.5483	\$1.4337	\$1.4337		
Administration Charge (/month)					\$202
Next 28 GJ/month	\$4.885				
Excess over 30 GJ/month	\$4.782				
Next 298 GJ/ month		\$5.336	\$5.336		
Excess over 300 GJ/month		\$5.210	\$5.210		
Delivery Charge First 20 GJ/month				\$4.522	\$4.522
Delivery Charge Next 260 GJ/month				\$4.201	\$4.201
Excess over 280 GJ/month				\$3.450	\$3.450
Minimum Delivery Charge/month				\$1,826	\$1,826
Total Annual Bill:	\$742	\$2,433	\$28,546	n/a	\$148,664
Proposed Rates	RS 1	RS 2	RS 3	RS 5	RS 25
Basic Charge/Day	\$0.4591	\$1.0234	\$5.7284		
Basic Charge (/Month)				\$600.00	\$600.00
Administration Charge (/Month)					\$39.00
Demand Charge (/GJ/Month)				\$28.727	\$28.727
Delivery Charge (\$/GJ)	\$3.512	\$3.764	\$2.905	\$1.000	\$1.000
Commodity Cost Recovery Charge (\$/GJ)	\$1.275	\$1.275	\$1.275	\$1.275	
Storage and Transport Charge (\$/GJ)	\$0.019	\$0.020	\$0.017	\$0.019	
Total Annual Bill:	\$816	\$2,306	\$24,470	n/a	\$148,243
Reference: Application, Section 13.7.2				FORT	IS BC [™] - 117 -

Postage Stamp Rates Not Being Proposed

Summation of Effective Delivery Variance and Cost of Gas Variance \$/GJ

		Small	Large
	Residential	Commercial	Commercial
Effective Delivery Rate Difference	\$1.09	\$(0.17)	\$0.22
Cost of Gas Difference	\$0.97	\$0.98	\$0.82
Total Difference	\$2.06	\$0.81	\$1.04
Total Difference (%)	-23%	-11%	-16%

Major reason for the variance in the Fort Nelson rates compared to FEI rates is due to the Midstream cost recovery; approximately 2-3 cents/GJ versus approximately \$1/GJ for FEI

Delivery rate differences for commercial customers are modest but residential customers would see a \$1.09/GJ increase

FEI is not proposing to postage stamp Fort Nelson rates



Approvals Sought – Fort Nelson

Cancellation of Rates

Renaming of Rate Schedules

Unbundling of Rates

Billing System Changes Cost

Commodity Cost Recovery Charge & Storage and Transport Charge

Residential Rates

Commercial Rates

Industrial Rates

The Fort Nelson Gas Tariff



FEI General Terms and Conditions and Rate Schedules

Proposed Amendments



FEI General Terms and Conditions (GT&Cs) Summary of Proposed Amendments



FEI General Terms and Conditions

• General wording and housekeeping changes ¹

Standard Charges Schedule

- Proposed decrease to the Application Charge (Application Fee) from \$25 to \$15²
- Proposed decrease to the Return Payment Charge (Dishonoured Cheque Charge) from \$20 to \$8²

References: ¹ *Application. Section 11.*

¹ Application, Section 11, Pages 2-18, and Appendix 11-1 ² Application, Section 11, Pages 18-20, and Appendix 11-2



FEI Rate Schedules

Summary of Proposed Amendments

Rate Schedules 1 to 27

• General wording and housekeeping changes ¹

Rate Schedules 22 to 27

- New proposed daily balancing threshold of 10% and charge of \$0.25/GJ
- Proposed decrease to the Administration Charge per Month from \$78 to \$39²

Rate Schedules 6A and 40

• Proposed to cancel as there are not any customers taking service under these rate schedules

References:

¹ Application, Appendix 11-3 ² Application, Appendix 11-3, Pages 8-10 and Appendix 11-4





The Fort Nelson Gas Tariff

Proposed Amendments



The Fort Nelson Gas Tariff

Summary of Proposed Amendments

Rate Schedule 1 Residential Service

- Terms and conditions consistent with FEI Rate Schedule 1
- Table of Charges outlines different rate components (unbundled)

Rate Schedule 2 Small Commercial Service

- Terms and conditions consistent with FEI Rate Schedule 2
- Table of Charges outlines different rate components (unbundled)

Rate Schedule 3 Large Commercial Service

- Terms and conditions consistent with FEI Rate Schedule 3
- Table of Charges outlines different rate components (unbundled)

Rate Schedule 5 General Firm Service

• Terms and conditions consistent with FEI Rate Schedule 5

Rate Schedule 6 Natural Gas Vehicle Service

• Terms and conditions consistent with FEI Rate Schedule 6

Rate Schedule 25 General Firm Transportation Service

• Amended terms and conditions to be consistent with FEI Rate Schedule 25

Reference: Application, Section 13, Pages 46-47 and Appendix 13-6





Next Steps

PART III



Implementation of Approved Changes



- Provides sufficient time for review of RDA
- Provides sufficient time for FEI to implement changes
- Less complex than if combined with other changes (Delivery or Gas Cost); will enable clearer and simpler communications to customers



Regulatory Timetable

ACTION	DATE (2017)
Procedural Conference on the Rate Design Report key topics*	Wednesday, April 5, 9:00 a.m.
Elenchus' Cost of Service Allocation Report	Wednesday, April 26
Commission Information Request No. 1 to FortisBC Energy Inc. (FEI)	Thursday, May 4
Intervener Information Request No. 1 to FEI	Thursday, May 11
Information Request to Elenchus on COSA Report	Wednesday, May 24
Participant Assistance/Cost Award Budgets	Wednesday, May 24
FEI Response to Information Request No. 1	Friday, June 9
Elenchus Response to Information Request on COSA Report	Friday, June 9
Elenchus' Rate Design Report	Friday, June 23
Intervener Notice on Filing Intervener Evidence	Wednesday, June 28
Procedural Conference - on further process*	Wednesday, July 5, 9:00 a.m.
Further process	To be determined

* Location: Commission Hearing Room, 12th Floor, 1125 Howe Street, Vancouver





For further information, please contact:

Gas.Regulatory.Affairs@fortisbc.com

www.fortisbc.com/ratedesign

Find FortisBC at:

Fortisbc.com



604-576-7000

