

**REQUESTOR NAME:** Joint Industry Electricity Steering Committee  
**INFORMATION REQUEST ROUND NO:** 3  
**TO:** BRITISH COLUMBIA HYDRO & POWER AUTHORITY  
**DATE:** May 31, 2007  
**PROJECT NO:** 3698455  
**APPLICATION NAME:** BCH – F2007 [COSA/] Rate Design

**16.0 Reference: Exhibit B-3, JIESC IR 1.4.4, 1.4.5; Exhibit B-3-1, JIESC IR 1.4.2, 1.4.3; Exhibit B-3-2, JIESC IR 1.4.3;**

**Explanation:** BC Hydro has provided a breakdown by type of customer for various peak day allocation methodologies. BC Hydro has also given an explanation of how the volatility of results can be affected as the size of a customer group decreases.

BC Hydro COSA/RDA Summary of R/C Analysis & Statistics								
	Reference	Load Factor Exh B-3 1.4.4	Revenue-Cost Ratio					Energy
			1CP	3CP	4CP	12CP	4W/8NW	
			Exh B-3-1, 1.4.2, 1.4.3; Exh B-3-2, 1.4.3					
Exempt	Exh B-3-1 1.4.2		94.6%	95.3%	95.7%	95.3%	95.3%	98.5%
Non-Exempt	Exh B-3-2 1.4.3		107.8%	107.7%	107.2%	102.4%	103.5%	95.5%
Chemicals Consol		84%	105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
Chemical			105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
ElectroChem			103.8%	103.3%	102.9%	97.4%	98.8%	91.4%
Coal Mine		61%	110.8%	109.0%	108.6%	102.1%	103.7%	96.6%
Commercial			101.8%	103.9%	103.8%	97.2%	98.8%	95.8%
Universities		67%						
Government			102.9%	103.5%	102.3%	99.2%	99.9%	99.1%
Gov (Defence)		57%						
Metal Mine		62%	105.5%	106.7%	105.7%	101.4%	102.4%	93.2%
Pulp & Paper		60%	109.0%	109.0%	108.7%	103.9%	105.0%	96.2%
Remaining			108.1%	106.7%	107.0%	101.5%	102.9%	95.2%
Trade			137.5%	134.4%	132.0%	131.9%	131.8%	136.2%
Transport Comm			116.6%	112.4%	112.9%	109.5%	110.3%	105.4%
Oil & Gas, Cement		64%						
Steel		26%						
Docks, Terminals & Airports		46%						
Wood Products		56%	103.9%	103.2%	102.1%	99.0%	99.7%	98.6%
Wholesale			92.6%	93.0%	93.5%	94.7%	94.3%	99.5%
Transmission			106.3%	106.3%	106.0%	101.6%	102.7%	95.8%

Note 1: Missing or non-corresponding data shown in yellow (shaded).  
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The revenue-cost (R/C) ratio results provided appear to be counter-intuitive and do not reflect the load factor, nature of the load and peak demand. As would be expected, the trend in the R/C ratio for Exempt customers with lower load factors increases as the peak demand allocator moves away from 1CP towards

an average demand and the R/C ratio for non-Exempt customers with a higher capacity factor increases as the demand allocator moves from an average demand to 1CP.

The R/C ratios between types of customers do not appear to relate in the manner expected. Customer groups with lower load factors generally have a higher R/C ratio than customers with a high load factor. While this may be expected to occur due to unusual load characteristics or anomalies, it would not be expected to be a trend.

The descriptions used in the load factor statistics and the revenue-cost results do not correspond and the statistics are not complete and may not be comparable.

**Request:**

- 16.1 Describe the nature of the operations or business activities of the five customers shown in the graph in response to JIESC IR 1.4.5 with a load factor between 90-100%.
- 16.2 Explain why the revenue-cost ratios for Chemicals consolidated and Chemicals with Electrochemicals shown separately is the same.
- 16.3 Provide the statistical data for load factor and R/C ratios for the missing data indicated by the yellow (shaded) areas.
- 16.4 Explain why as a general trend lower load factor customers have a higher revenue to cost ratio than higher load factor customers.

<b>JIESC</b> Information Request No. <b>3.16.1</b> Dated: <b>May 31, 2007</b> British Columbia Hydro & Power Authority Response issued <b>June 8, 2007</b>	Page 1 of 2
British Columbia Hydro & Power Authority <b>BC Hydro 2007 Rate Design Application</b>	<b>Exhibit:</b> <b>B-9-1</b>

**16.0 Reference: Exhibit B-3, JIESC IR 1.4.4, 1.4.5; Exhibit B-3-1, JIESC IR 1.4.2, 1.4.3; Exhibit B-3-2, JIESC IR 1.4.3;**

**Explanation: BC Hydro has provided a breakdown by type of customer for various peak day allocation methodologies. BC Hydro has also given an explanation of how the volatility of results can be affected as the size of a customer group decreases.**

**The revenue-cost (R/C) ratio results provided appear to be counter-intuitive and do not reflect the load factor, nature of the load and peak demand. As would be expected, the trend in the R/C ratio for Exempt customers with lower load factors increases as the peak demand allocator moves away from 1CP towards an average demand and the R/C ratio for non-Exempt customers with a higher capacity factor increases as the demand allocator moves from an average demand to 1CP.**

**The R/C ratios between types of customers do not appear to relate in the manner expected. Customer groups with lower load factors generally have a higher R/C ratio than customers with a high load factor. While this may be expected to occur due to unusual load characteristics or anomalies, it would not be expected to be a trend.**

**The descriptions used in the load factor statistics and the revenue-cost results do not correspond and the statistics are not complete and may not be comparable.**

BC Hydro COSA/RDA Summary of R/C Analysis & Statistics									
	Reference	Load Factor Exh B-3 1.4.4	Revenue-Cost Ratio					Energy	
			1CP	3CP	4CP	12CP	4W/8NW		
			Exh B-3-1, 1.4.2, 1.4.3; Exh B-3-2, 1.4.3						
Exempt	Exh B-3-1	1.4.2		94.6%	95.3%	95.7%	95.3%	95.3%	98.5%
Non-Exempt	Exh B-3-2	1.4.3		107.8%	107.7%	107.2%	102.4%	103.5%	95.5%
Chemicals Consol		84%		105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
Chemical				105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
ElectroChem				103.8%	103.3%	102.9%	97.4%	98.8%	91.4%
Coal Mine		61%		110.8%	109.0%	108.6%	102.1%	103.7%	96.6%
Commercial				101.8%	103.9%	103.8%	97.2%	98.8%	95.8%
Universities		67%							
Government				102.9%	103.5%	102.3%	99.2%	99.9%	99.1%
Gov (Defence)		57%							
Metal Mine		62%		105.5%	106.7%	105.7%	101.4%	102.4%	93.2%
Pulp & Paper		60%		109.0%	109.0%	108.7%	103.9%	105.0%	96.2%
Remaining				108.1%	106.7%	107.0%	101.5%	102.9%	95.2%
Trade				137.5%	134.4%	132.0%	131.9%	131.8%	136.2%
Transport Comm				116.6%	112.4%	112.9%	109.5%	110.3%	105.4%
Oil & Gas, Cement		64%							
Steel		26%							
Docks, Terminals & Airports		46%							
Wood Products		56%		103.9%	103.2%	102.1%	99.0%	99.7%	98.6%
Wholesale				92.6%	93.0%	93.5%	94.7%	94.3%	99.5%
Transmission				106.3%	106.3%	106.0%	101.6%	102.7%	95.8%

Note 1: Missing or non-corresponding data shown in yellow (shaded).  
 Note 2: Data that appears to be duplicated is shown in blue (shaded).

3.16.1 Describe the nature of the operations or business activities of the five customers shown in the graph in response to JIESC IR 1.4.5 with a load factor between 90-100%.

**RESPONSE:**

The five customers with load factors greater than or equal to 90 per cent included four customers in the Chemicals NAICS group and one customer in the Pulp and Paper NAICS group.

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**16.0 Reference: Exhibit B-3, JIESC IR 1.4.4, 1.4.5; Exhibit B-3-1, JIESC IR 1.4.2, 1.4.3; Exhibit B-3-2, JIESC IR 1.4.3;**

**Explanation: BC Hydro has provided a breakdown by type of customer for various peak day allocation methodologies. BC Hydro has also given an explanation of how the volatility of results can be affected as the size of a customer group decreases.**

**The revenue-cost (R/C) ratio results provided appear to be counter-intuitive and do not reflect the load factor, nature of the load and peak demand. As would be expected, the trend in the R/C ratio for Exempt customers with lower load factors increases as the peak demand allocator moves away from 1CP towards an average demand and the R/C ratio for non-Exempt customers with a higher capacity factor increases as the demand allocator moves from an average demand to 1CP.**

**The R/C ratios between types of customers do not appear to relate in the manner expected. Customer groups with lower load factors generally have a higher R/C ratio than customers with a high load factor. While this may be expected to occur due to unusual load characteristics or anomalies, it would not be expected to be a trend.**

**The descriptions used in the load factor statistics and the revenue-cost results do not correspond and the statistics are not complete and may not be comparable.**

BC Hydro COSA/RDA Summary of R/C Analysis & Statistics									
	Reference		Load Factor Exh B-3 1.4.4	Revenue-Cost Ratio					Energy
				1CP	3CP	4CP	12CP	4W/8NW	
				Exh B-3-1, 1.4.2, 1.4.3; Exh B-3-2, 1.4.3					
Exempt	Exh B-3-1	1.4.2		94.6%	95.3%	95.7%	95.3%	95.3%	98.5%
Non-Exempt	Exh B-3-2	1.4.3		107.8%	107.7%	107.2%	102.4%	103.5%	95.5%
Chemicals Consol			84%	105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
Chemical				105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
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Coal Mine			61%	110.8%	109.0%	108.6%	102.1%	103.7%	96.6%
Commercial				101.8%	103.9%	103.8%	97.2%	98.8%	95.8%
Universities			67%						
Government				102.9%	103.5%	102.3%	99.2%	99.9%	99.1%
Gov (Defence)			57%						
Metal Mine			62%	105.5%	106.7%	105.7%	101.4%	102.4%	93.2%
Pulp & Paper			60%	109.0%	109.0%	108.7%	103.9%	105.0%	96.2%
Remaining				108.1%	106.7%	107.0%	101.5%	102.9%	95.2%
Trade				137.5%	134.4%	132.0%	131.9%	131.8%	136.2%
Transport Comm				116.6%	112.4%	112.9%	109.5%	110.3%	105.4%
Oil & Gas, Cement			64%						
Steel			26%						
Docks, Terminals & Airports			46%						
Wood Products			56%	103.9%	103.2%	102.1%	99.0%	99.7%	98.6%
Wholesale				92.6%	93.0%	93.5%	94.7%	94.3%	99.5%
Transmission				106.3%	106.3%	106.0%	101.6%	102.7%	95.8%

Note 1: Missing or non-corresponding data shown in yellow (shaded).  
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3.16.2 Explain why the revenue-cost ratios for Chemicals consolidated and Chemicals with Electro-chemicals shown separately is the same.

**RESPONSE:**

The terms “Chemicals”, “Chemicals consolidated” and “Chemicals with Electro-chemicals” all refer to the same group of customers. The “Electro-Chemicals” group is a subset of the Chemicals group. No cost of service model was completed for the Chemicals group excluding the Electro-Chemicals subgroup.

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**16.0 Reference: Exhibit B-3, JIESC IR 1.4.4, 1.4.5; Exhibit B-3-1, JIESC IR 1.4.2, 1.4.3; Exhibit B-3-2, JIESC IR 1.4.3;**

**Explanation: BC Hydro has provided a breakdown by type of customer for various peak day allocation methodologies. BC Hydro has also given an explanation of how the volatility of results can be affected as the size of a customer group decreases.**

**The revenue-cost (R/C) ratio results provided appear to be counter-intuitive and do not reflect the load factor, nature of the load and peak demand. As would be expected, the trend in the R/C ratio for Exempt customers with lower load factors increases as the peak demand allocator moves away from 1CP towards an average demand and the R/C ratio for non-Exempt customers with a higher capacity factor increases as the demand allocator moves from an average demand to 1CP.**

**The R/C ratios between types of customers do not appear to relate in the manner expected. Customer groups with lower load factors generally have a higher R/C ratio than customers with a high load factor. While this may be expected to occur due to unusual load characteristics or anomalies, it would not be expected to be a trend.**

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<b>JIESC</b> Information Request No. <b>3.16.3</b> Dated: <b>May 31, 2007</b> British Columbia Hydro & Power Authority Response issued <b>June 8, 2007</b>	Page 2 of 2
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BC Hydro COSA/RDA Summary of R/C Analysis & Statistics									
	Reference	Load Factor Exh B-3 1.4.4	Revenue-Cost Ratio					Energy	
			1CP	3CP	4CP	12CP	4W/8NW		
			Exh B-3-1, 1.4.2, 1.4.3; Exh B-3-2, 1.4.3						
Exempt	Exh B-3-1	1.4.2		94.6%	95.3%	95.7%	95.3%	95.3%	98.5%
Non-Exempt	Exh B-3-2	1.4.3		107.8%	107.7%	107.2%	102.4%	103.5%	95.5%
Chemicals Consol		84%		105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
Chemical				105.1%	104.8%	104.6%	97.7%	99.4%	91.6%
ElectroChem				103.8%	103.3%	102.9%	97.4%	98.8%	91.4%
Coal Mine		61%		110.8%	109.0%	108.6%	102.1%	103.7%	96.6%
Commercial				101.8%	103.9%	103.8%	97.2%	98.8%	95.8%
Universities		67%							
Government				102.9%	103.5%	102.3%	99.2%	99.9%	99.1%
Gov (Defence)		57%							
Metal Mine		62%		105.5%	106.7%	105.7%	101.4%	102.4%	93.2%
Pulp & Paper		60%		109.0%	109.0%	108.7%	103.9%	105.0%	96.2%
Remaining				108.1%	106.7%	107.0%	101.5%	102.9%	95.2%
Trade				137.5%	134.4%	132.0%	131.9%	131.8%	136.2%
Transport Comm				116.6%	112.4%	112.9%	109.5%	110.3%	105.4%
Oil & Gas, Cement		64%							
Steel		26%							
Docks, Terminals & Airports		46%							
Wood Products		56%		103.9%	103.2%	102.1%	99.0%	99.7%	98.6%
Wholesale				92.6%	93.0%	93.5%	94.7%	94.3%	99.5%
Transmission				106.3%	106.3%	106.0%	101.6%	102.7%	95.8%

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3.16.3 Provide the statistical data for load factor and R/C ratios for the missing data indicated by the yellow (shaded) areas.

**RESPONSE:**

The prior information responses used different terms to describe the same NAICS code. The attached table JIESC IR 3.16.3 Attachment 1 provides the terms that were used to describe the each NAICS code as well as the average load factors for all groups.

**JIESC IR 3.16.3 Attachment 1**

Description	Alternate Description	Average Ld Factor	12 CP	1 CP	3 CP	4 CP	4W/8NW	Energy
Exempt	Not a separate NAICS Code	65%	95.3%	94.6%	95.3%	95.7%	95.3%	98.5%
Non-Exempt	Not a separate NAICS Code	59%	102.4%	107.8%	107.7%	107.2%	103.5%	95.5%
Chemicals		84%	97.7%	105.1%	104.8%	104.6%	99.4%	91.6%
Electro Chemical	Not a separate NAICS Code	93%	97.4%	103.8%	103.3%	102.9%	98.8%	91.4%
Coal Mine		61%	102.1%	110.8%	109.0%	108.6%	103.7%	96.6%
Universities	Commercial	67%	97.2%	101.8%	103.9%	103.8%	98.8%	95.8%
Gov (Defence)	Government	57%	99.2%	102.9%	103.5%	102.3%	99.9%	99.1%
Metal Mine		62%	101.4%	105.5%	106.7%	105.7%	102.4%	93.2%
Pulp and Paper		60%	103.9%	109.0%	109.0%	108.7%	105.0%	96.2%
Oil and Gas, Cement	Remaining	64%	101.5%	108.1%	106.7%	107.0%	102.9%	95.2%
Steel	Trade	26%	131.9%	137.5%	134.4%	132.0%	131.8%	136.2%
Docks, Terminals and Airports	Transportation, Comm	46%	109.5%	116.6%	112.4%	112.9%	110.3%	105.4%
Wood	Wood Products	56%	99.0%	103.9%	103.2%	102.1%	99.7%	98.6%
Wholesale	Not a separate NAICS Code	55%	94.7%	92.6%	93.0%	93.5%	94.3%	99.5%

<b>JIESC</b> Information Request No. <b>3.16.4</b> Dated: <b>May 31, 2007</b> British Columbia Hydro & Power Authority Response issued <b>June 8, 2007</b>	Page 1 of 2
British Columbia Hydro & Power Authority <b>BC Hydro 2007 Rate Design Application</b>	<b>Exhibit:</b> <b>B-9-1</b>

**16.0 Reference: Exhibit B-3, JIESC IR 1.4.4, 1.4.5; Exhibit B-3-1, JIESC IR 1.4.2, 1.4.3; Exhibit B-3-2, JIESC IR 1.4.3;**

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Pulp & Paper		60%		109.0%	109.0%	108.7%	103.9%	105.0%	96.2%
Remaining				108.1%	106.7%	107.0%	101.5%	102.9%	95.2%
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3.16.4 Explain why as a general trend lower load factor customers have a higher revenue to cost ratio than higher load factor customers.

**RESPONSE:**

The Revenue/Cost ratios are affected by a number of factors. While revenue is a function of the maximum demand of the customer (through demand charges), the cost is a function of the customers demand at the time of the monthly system peaks. If a NAICS group has high billing demands but low demands at the time of the monthly system peaks, the NAICS group will have a high Revenue/Cost ratio. This example occurs in the Steel group as shown in JIESC IR 3.16.3 Attachment 1. In this case, the load factor is very low at 26 per cent, and the group sets high billing demands, as can be expected for a customer with a low load factor. This group has a billing demand that is almost 3 times higher than the group's contribution to system peak demand, resulting in high revenue and low cost. Thus the Revenue/Cost ratio is high even though this NAICS group has the lowest load factor of all the groups shown in the table.