

# **BC HYDRO UNDERTAKING**

## **BC HYDRO REVENUE REQUIREMENT HEARING 2004/05 AND 2005/06**

### **HEARING DATE**

**June 1, 2004**

### **TRANSCRIPT REFERENCE**

**Volume 14, Pages 2216 – 2222 and 2244 - 2247**

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**REQUESTOR: BCUC Counsel**

### **QUESTION**

**Please file a table reconciling REAP Table 1 with Chapter 11 of the Application.**

### **RESPONSE**

**A revised REAP Table 1 is attached below. The capital expenditure forecast and project listings stated in the table have been revised for the following changes:**

- **BC Hydro reduced computer expenditures as reflected in Updated Table 11-2 Undertaking.**
- **Addition of Revelstoke Unit 5/Mica Unit 5 and Site C projects included in the REAP but previously not reflected in REAP Table 1.**

**A reconciliation of the changes from Table 11-2 of the Application to REAP Table 1, as filed, and the attached revised REAP Table 1 is included on page 5 of the attachment.**

REAP

**Table 1. Capital Expenditure Forecast, F2005 and F2006**

Expenditure Category/ Project Name (\$ millions)	F2005			F2006			Total Project Cost <sup>1</sup>
	S	G	Total	S	G	Total	
<b>Generation Hydro</b>							
GM Shrum Turbine Runner Replacement G6 to G8		7.3	7.3		-	-	27.2
GM Shrum Generator Transformers Replacement	1.2		1.2		-	-	23.7
GM Shrum Exciter Replacement G1 to G8	0.8		0.8		-	-	13.1
Peace Canyon Generator Deficiency Project	0.8		0.8	10.6		10.6	46.0
GM Shrum Unit Transformers & Generators Protection	1.1		1.1	2.3		2.3	8.9
GM Shrum Unit 8 Capacity Increase	0.4		0.4	2.1		2.1	4.3
Fire Risk Reduction Program (F1995-F2009)	4.1		4.1	2.6		2.6	31.3
John Hart Penstock 1 Replacement & PRV	0.5		0.5	13.7		13.7	15.1
Cheakamus Units 1 and 2 Upgrade		3.4	3.4		0.6	0.6	8.3
Ruskin Dam Right Abutment Seepage	0.6		0.6	4.0		4.0	4.7
Strathcona T1 Replacement	0.4		0.4	0.6		0.6	2.2
Water Use Programs	1.3		1.3	0.3		0.3	27.1
Coquitlam Dam Seismic Improvements	3.0		3.0	8.8		8.8	40.0
Elsie Lake Dam Seismic Improvements	5.8		5.8			-	17.9
Ruskin Dam Strengthening of Concrete Dam	0.7		0.7	15.0		15.0	30.8
Stave Falls (Blind Slough Dam) Seismic Strengthening	2.0		2.0	5.0		5.0	7.5
LaJoie Dam Safety Improvements	1.8		1.8	4.0		4.0	6.3
Strathcona Embankment Dam Improvements	0.2		0.2	3.0		3.0	7.2
Aberfeldie Redevelopment		1.0	1.0		1.5	1.5	51.6
Aberfeldie Woodstave Pipeline Replacement	0.1		0.1	6.2		6.2	6.3
Mica Replace Unit 4 Stator	0.4		0.4	2.7		2.7	12.8
Revelstoke Slope Stability Improvements	1.3		1.3			-	2.9
Seven Mile Dam Safety Improvements	24.0		24.0	2.3		2.3	73.4
Cheakamus Units 1 and 2 Governor Replacement	1.4		1.4			-	2.4
Bridge River 2 T5/T6/T7 Transformer Replacement	0.4		0.4	0.2		0.2	6.4
Security Measures	2.6		2.6	1.7		1.7	6.1
Other projects	41.1	1.3	42.4	37.9	9.9	47.8	
<b>Generation Hydro Forecast as stated in Application</b>	96	13	109	123	12	135	
<u>Add'l Projects included in REAP not in Application</u>							
Revelstoke Unit 5 OR Mica Unit 5 <sup>2</sup>		1.2	1.2		6.5	6.5	130.0
Site C <sup>2,3</sup>		1.9	1.9		5.5	5.5	32.4
<b>Revised Generation Hydro Forecast</b>	96	16	112	123	24	147	
<b>Generation Thermal</b>							
Burrard Asbestos Program	1.3		1.3	1.2		1.2	7.5
Other projects	1.9		1.9	1.8		1.8	
	3	0	3	3	0	3	

REAP

**Table 1. Capital Expenditure Forecast, F2005 and F2006**

Expenditure Category/ Project Name (\$ millions)	F2005			F2006			Total Project Cost <sup>1</sup>
	S	G	Total	S	G	Total	
<b>Transmission - Lines</b>							
2L03/49 Second Narrows Crossing Towers - Seismic Upgrade	0.3		0.3	1.8		1.8	2.1
2L32 (Horne Payne to Murrin #2) - Seismic Upgrade	0.1		0.1	2.8		2.8	6.6
2L55/2L56 (Ingledow to Camosun) - Cable Upgrading	0.4		0.4	4.8		4.8	6.9
500 kV Cable - Shore Cooling System Upgrades	0.8		0.8	0.8		0.8	2.4
500 kV Line Protection Replacement - Stage 5	0.0		0.0	2.6		2.6	3.6
5L77/79/91/92/30 - Line Protection Replacement	0.8		0.8	-		-	4.5
COB Clamp-Top Insulator Replacements	3.0		3.0	3.8		3.8	8.3
COB Suspension Insulator Replacements	3.0		3.0	3.5		3.5	7.5
Como Lake - 2L39 Loop		1.6	1.6		3.5	3.5	5.1
Diesel Generator - Control Panel Replacement	1.1		1.1	1.2		1.2	2.3
HVDC Pole 2 - Cable #5 Section Replacement	2.2		2.2	-		-	7.8
HVDC Pole 2 - Cable #9 Replacement	-		-	-		-	2.5
Line Protection Replacement - 500 kV, Stage 4	3.5		3.5	2.2		2.2	5.8
Line Protection Replacements - Under 500 kV, Stage 4	-		-	-		-	4.2
Line Protection Replacements - Under 500 kV, Stage 5	4.2		4.2	0.2		0.2	5.3
Line Protection Replacements - Under 500 kV, Stage 6	0.0		0.0	4.9		4.9	43.0
Metro 230 kV Supply - Horne Payne to Downtown Vancouver	2.1		2.1	-		-	43.7
Microwave System Replacement - LM/VIS	-		-	-		-	15.8
Microwave System Replacement - Peace/Skeena Northern Region	7.0		7.0	2.9		2.9	23.7
NITS - 5L83 - Nicola to Meridian		2.0	2.0		4.3	4.3	257.4
NITS - Vancouver Island 230 kV Supply		4.3	4.3		3.8	3.8	199.2
Oil Stop Joint Replacement Program	1.0		1.0	-		-	2.3
Power Line Carrier Replacements - 2002/03	3.5		3.5	-		-	3.5
Power Line Carrier Replacements - 2003/04	-		-	3.5		3.5	3.5
South Surrey Area - Supply Reinforcement		0.0	0.0		0.0	0.0	18.5
Transmission Recurring Capital - 2003/04	-		-	-		-	3.7
Water Crossing Towers - Kidd 1 sheet pile wall	1.0		1.0	3.1		3.1	4.3
Other Projects	7.0	1.0	8.0	6.0		6.0	
	41	9	50	44	12	56	

**Table 1. Capital Expenditure Forecast, F2005 and F2006**

Expenditure Category/ Project Name (\$ millions)	F2005			F2006			Total Project Cost <sup>1</sup>
	S	G	Total	S	G	Total	
<b>Substations</b>			-			-	
500 kV Circuit Breaker Replacements - Future	1.0		1.0	2.0		2.0	2.9
500/230 kV Circuit Switcher Replacement Program	1.8		1.8	-		-	4.8
Cathedral Square - 230/12 kV Transformer Addition	2.0		2.0	6.1		6.1	8.7
Cathedral Square - Relocation of 2L31/32 Line Terminations	1.9		1.9	1.6		1.6	3.5
Circuit Breaker Replacements - 2004/05 Program	6.7		6.7	-		-	6.7
Circuit Breaker Replacements - 2005/06 Program	0.0		0.0	6.8		6.8	6.9
Clayburn - 25 kV Feeder Additions		2.6	2.6		-	-	2.6
Como Lake - 230/69 kV Transformer Addition		1.4	1.4		2.6	2.6	4.0
Como Lake - 25 kV Feeder Section Addition		1.2	1.2		2.4	2.4	3.6
Douglas Street - 138/25 kV Transformer Addition		1.7	1.7		1.7	1.7	3.6
Fort St. John - 138/25 kV Substation		0.7	0.7		2.7	2.7	16.0
Gap Type Surge Arrester Retrofit/Replacement - 2003/04	0.8		0.8	0.8		0.8	2.4
Guichon - Capacitor Station		0.0	0.0		-	-	15.0
Hope - 25 kV Conversion		5.0	5.0		-	-	5.0
IPP Interconnections - Green Power Generation 2002/03 Program		7.8	7.8		23.5	23.5	78.4
Langley Area - System Reinforcement		1.6	1.6		4.3	4.3	21.6
Mainwaring - 230/12 kV Transformers Replacement		0.7	0.7		3.4	3.4	9.1
McLeese - Capacitor Banks Refurbishment		-	-		-	-	13.5
Meridian - 230 kV Mechanically Switched Capacitors		3.1	3.1		-	-	4.0
Minette - 230 kV Circuit Breaker Additions	0.7		0.7	1.6		1.6	2.3
Mission and Matsqui Area - 69 kV Reinforcement		10.0	10.0		7.3	7.3	33.1
Mt. Pleasant Area Supply		2.7	2.7		6.3	6.3	26.4
Newell - Big Bend Area Supply		-	-		-	-	14.7
Nicola - Station Reconfiguration		1.2	1.2		1.3	1.3	10.6
NITS - 5L91/98 Series Compensation/CB replacements		9.5	9.5		41.4	41.4	94.2
NITS - ING 500 kV Capacitor Bank		0.4	0.4		1.9	1.9	12.1
NITS - ING Shunt Reactor		0.5	0.5		2.5	2.5	4.6
NITS - Ingledow SVC		1.4	1.4		2.8	2.8	38.0
NITS - Meridian 500 kV Capacitor Bank		1.1	1.1		5.3	5.3	9.8
NITS - Nicola Shunt Reactor		0.7	0.7		3.4	3.4	6.2
NITS - Selkirk Shunt Reactor		0.7	0.7		3.4	3.4	6.2
NITS - Selkirk Transformers (T2, T3)		2.7	2.7		11.2	11.2	27.3
Pender Harbour - 138/25 kV Transformer Replacement		3.9	3.9		-	-	4.1
Pike Lake - 230 kV Reactor Addition		0.2	0.2		-	-	3.3
Pin & Cap Type Insulator Replacements	2.1		2.1	0.0		0.0	2.5
Pin & Cap Type Insulator Replacements	-		-	2.3		2.3	2.3
Rainbow - 25 kV Feeder Section Addition		1.3	1.3		3.0	3.0	8.4
SCADA RTU Replacements - 2002 to 2004	3.0		3.0	-		-	3.6
SCADA RTU Replacements - 2003 to 2005	2.7		2.7	0.9		0.9	3.6
SCADA RTU Replacements - 2004 to 2006	0.1		0.1	3.1		3.1	3.7
SCADA RTU Replacements - Stage 1	0.1		0.1	-		-	4.0
Selkirk and Kootenay Canal G.S. - P&C and RAS Modifications		0.0	0.0		-	-	2.4
Shunt Reactors - 500 kV, 230 kV and 12 kV Spares Acquisition	-		-	-		-	4.1
South Interior Mobile Substation		1.2	1.2		1.3	1.3	2.6
Stations Seismic Structural Upgrade - Phase 3	1.5		1.5	-		-	2.2
Strawberry Hill - 25 kV Feeder Section Addition		3.4	3.4		0.0	0.0	3.7
Transformer and Reactor Fall Protection - 2002 and 2003	1.0		1.0	0.0		0.0	3.1
Transformer Protection replacements 2004/05	1.4		1.4	1.2		1.2	2.5
Vaseux Terminal Station Interconnection		5.7	5.7		4.4	4.4	11.0
Other Projects	18.4	7.4	25.8	27.0	14.0	41.0	
	45	80	125	53	150	203	
<b>Distribution</b>	84	123	207	86	130	216	

**Table 1. Capital Expenditure Forecast, F2005 and F2006**

Expenditure Category/ Project Name (\$ millions)	F2005			F2006			Total Project Cost <sup>1</sup>
	S	G	Total	S	G	Total	
<b>Computers<sup>4</sup></b>							
CDS Desktop Software Refresh	2.5		2.5	0.5		0.5	3.0
Knowledge Management	0.4		0.4	1.7		1.7	2.1
Peoplesoft Financials Upgrade	0.6		0.6	2.9		2.9	3.5
PeopleSoft PAHR/TAL migration to Unix	-		0.0	2.0		2.0	2.0
Peoplesoft PAHR/TAL Upgrade & enhancements	0.6		0.6	3.0		3.0	3.6
Resource Scheduling - Phase II	-		0.0	2.0		2.0	2.0
Enterprise Geographic Information System (EGIS)	3.1		3.1	3.4		3.4	17.9
Other Projects	34.0	2.0	36.0	35.0	4.0	39.0	
	41	2	43	50	4	54	
<b>Land &amp; Buildings</b>	8		8	6	0	6	
<b>Surveys &amp; Investigations (incl Aboriginal Negotiations)</b>							
First Nations Negotiations	6.8		6.8	3.6		3.6	40.8
Other projects	2.9		2.9	1.3		1.3	
	10	0	10	5	0	5	
<b>Vehicles</b>	17		17	19	0	19	
<b>Power Smart</b>		105	105	0	94	94	
<b>Other</b>							
Other projects	18.4		18.4	4.5		4.5	
	18	0	18	5	0	5	
Gross Expenditures	363	335	698	394	414	808	
CIA - Specific <sup>1</sup>		-8	-8	0	-9	-9	
CIA - Recurring	-4	-38	-42	-4	-41	-45	
Net Expenditures incl BCTC	359	289	648	390	364	754	

REAP

**Table 1. Capital Expenditure Forecast, F2005 and F2006**

Expenditure Category/ Project Name (\$ millions)	F2005			F2006			Total Project Cost <sup>1</sup>
	S	G	Total	S	G	Total	

Reconciliation to Capital Expenditure Forecast included in Application Table 11-2 and REAP Table 1

	F2005			F2006		
	S	G	Total	S	G	Total
Gross Capital Expenditures as Stated in Table 11-2 (Revision 2)	429	392	821	394	595	989
Exclude VIGP and GSX (Generation Thermal)		(58)	(58)		(193)	(193)
Exclude BCTC Capital Expenditures for BCTC owned assets	(47)		(47)			
<b>Gross Capital expenditures as stated in REAP Table 1</b>	<b>382</b>	<b>334</b>	<b>716</b>	<b>394</b>	<b>402</b>	<b>796</b>
BC Hydro reduction of Computer Expenditures	(19)	(2)	(21)			
Add'l Generation Hydro projects <sup>5</sup>	-	3	3	-	12	12
<b>Revised Gross Capital Expenditures</b>	<b>363</b>	<b>335</b>	<b>698</b>	<b>394</b>	<b>414</b>	<b>808</b>

Notes:

The threshold for including projects is the same as the thresholds used in Chapter 11 of the Application (for BC Hydro-managed projects) and Chapter 6 of the Application (for BCTC-managed projects). The threshold for BC Hydro-managed projects was all projects with aggregate expenditures of \$2 million or more in the three fiscal years F2004 to F2006. The threshold for BCTC-managed projects was any project with expenditures in the test years that had total project costs of \$2 million or greater.

Note 1: Total project costs relate to the total costs of the project to completion.

Note 2: See Hearing Transcript Volume 14, page 2216, lines 22-26.

Note 3: Includes definition and regulatory approvals. Excludes design, procurement and construction costs.

Note 4: Revised per Exhibit B1-96..

Note 5: There is no impact to the revenue requirements in the test years for these additional Generation Hydro projects as these projects will not be completed and placed in-service during the test period.