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August 7, 2008

Via Email
Original via Courier

Ms. Erica M. Hamilton
Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: An Application for a CPCN for the Copper Conductor Replacment Project No. 3698518

Please find enclosed FortisBC Inc.'s responses to Information Request No.1 from the BC Utilities Commission. Twenty copies will be couriered to the Commission.

Sincerely,

David Bennett
Vice President, Regulatory Affairs
and General Counsel

cc: Registered Intervenors

1.0 Reference: CCR Project
Exhibit No. B-1, Executive Summary, p. 4
Conductor Failure

"Over the past five years, there have been approximately 350 incidents of distribution conductor failure of which approximately 200 or 57 percent involved legacy copper even though the legacy copper comprises only 10 percent of all conductor in service."

Q1.1 For the past five years, please provide the O&M and capital cost of the 350 incidents of distribution (i.e., emergency response, outage restoration, electrical loss and urgent capital repair) conductor failure by year, account and resource.

A1.1 The Company does not track the costs associated with restoration or repair for specific incidents. A simplistic estimate, based on the assumption that a simple repair would require three power line technicians and two trucks for three hours indicate that the cost per unit (in 2008 dollars) is approximately $850. Based on this, the cost of the 350 incidents would be approximately $0.3 million. Depending on the nature of the repair, the costs may be either capital or expense in nature. FortisBC estimates that approximately 80 percent of the repairs are charged to capital repair. Therefore, the estimated annual capital cost is $47,600 ($297,500 x 80 percent / 5 years) and the estimated annual operating cost is $11,900 ($297,500 x 20 percent / 5 years).

Q1.2 Have any of the 350 distribution conductor failure incidents resulted in compensation to a customer for damages? If yes please provide the amount and year that the damages were paid.

A1.2 None of the 350 distribution conductor failure incidents has resulted in

compensation to any customers.

"FortisBC records show that between August 2004 and April 2008 there were 12 incidents where downed copper conductor remained energized on the ground, creating a public and employee electrocution risk and a fire hazard."

Q1.3 For the 12 incidents where downed copper conductor remained energized on the ground, please provide the O&M and capital cost of the incidents (i.e., emergency response, outage restoration, electrical loss and urgent capital repair) by year, account and resource.

A1.3 Please see the response to BCUC IR No. 1 Q1.1. Using the same means of estimating, total repair cost for the 12 incidents is $10,200, or $8,160 in capital cost and $2,040 in operating and maintenance expense over the five year period.

"Although the incidents have been isolated, a study of the situation was deemed necessary to determine the cause of such failures, and to initiate remedial action to prevent as far as practicable, similar incidents in the future."

Q1.4 For the past five years, please provide the cost of remedial action to prevent, as far as practicable, incidents of distribution conductor failure by year, account and resource.

A1.4 On an annual basis, the Company undertakes Distribution Rebuild projects involving deteriorated plant including poles and conductor. These rebuilds assist in the prevention of incidents of distribution conductor failure. The following Table A1.4 shows the expenditures for this project since 2005.

Table A1.4
Distribution Line Rebuilds

Year	2005	2006	2007	2008F
Cost ($000s)	1,230	3,847	1,470	1,972

During the past five years the Company has also implemented an infrared scanning process to assist with identifying potential problems. The Company does not track the cost of this process as a separate account.

2.0 Reference: CCR Project

Exhibit No. B-1, Executive Summary, pp. 5-6

Project Benefits

"The primary driver for this project is safety; however, the project will also result in other benefits, namely:

- **improved reliability;**
- **reduced electrical loss savings;**
- **enhanced distribution network capacity;**
- **reductions in urgent capital repair cost; and**
- **reduction in future expenditures for the Distribution Rehabilitation and Rebuild programs."**

Q2.1 For 2010-2018, please provide the savings due to improved reliability and enhanced distribution network capacity by year and type of savings.

A2.1 FortisBC has not tracked or calculated any operating or maintenance cost changes that may be associated with changes in reliability. The estimates provided in the response to BCUC IR No. 1 Q1.1 above give an indication of the cost of repairs. With respect to enhanced distribution network capacity, it is anticipated that as a result of the enhanced distribution network capacity associated with the installation of larger conductor, there will be a reduction in the requirement for future capital projects similar to the Christina Lake Feeder 1 Capacity Upgrade project included in the 2009-2010 Capital Plan.

Q2.2 Did FortisBC use Life-Cycle Costing to calculate the Annual Savings? If yes, please provide the calculation.

A2.2 Please see the response to BCUC IR No. 1 Q2.1 above.

Q2.3 Does FortisBC intend to reduce the O&M component (i.e., emergency response and outage restoration) of its revenue requirements by the full amount of any operational and maintenance savings that result from the CCR project?

A2.3 FortisBC's estimate of potential O&M savings is provided in the response to Q1.1 above. The full $11,900 (before tax) in estimated annual savings will not be achieved until the Project is completed in 2018. Under FortisBC's existing Performance Based Rates (PBR) Plan, such savings (which would be very small in the initial years of the Program) are shared equally (net of income tax) with customers. The very small magnitude of savings does not warrant a change to the formula-based O&M component of Revenue Requirements at this time.

3.0 Reference: CCR Project
Exhibit No. B-1, Executive Summary, p. 6
Implementation Plans

"FortisBC evaluated three implementation plans involving 10 year, 13 year and 15 year schedules."

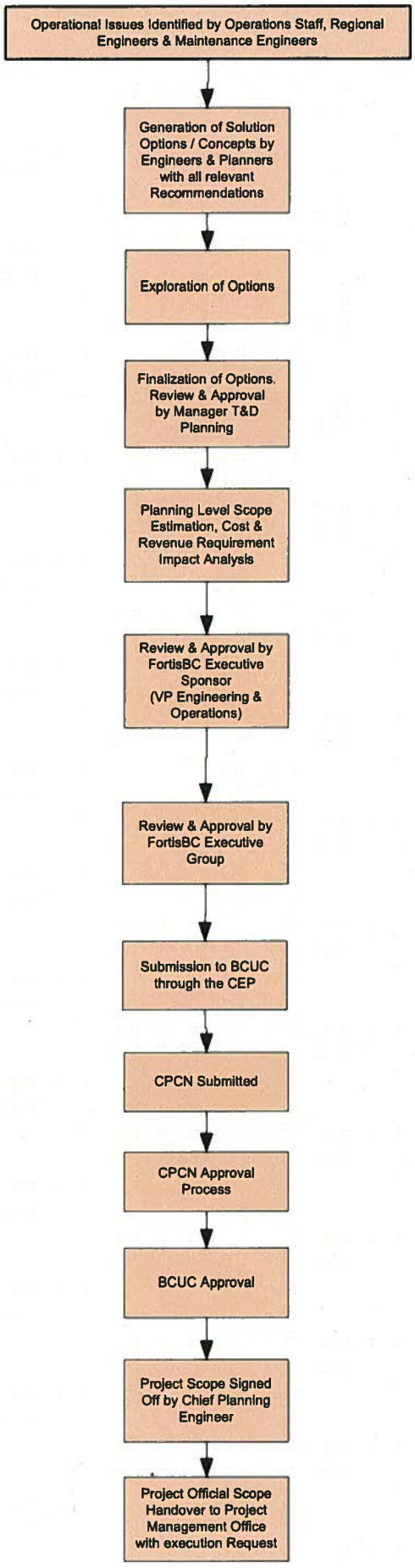
Q3.1 Please describe internal project approval process and identify the executive sponsor for this project.

A3.1 The project planning and approval sequence is depicted in Attachment A3.1 below. The Executive Sponsor for this Program is the Vice President, Engineering and Operations.

PLANNING STAGE:

APPROVAL STAGE:

EXECUTION STAGE



Q3.2 Please provide the business case for the CCR project. If a business case was not prepared, please explain why.

A3.2 The business case for the project was developed in conjunction with the CPCN application and forms part of the application.

Q3.3 Report the current status of internal approval for this project.

A3.3 The project received internal approval prior to submission to the BCUC for a CPCN.

4.0 Reference: CCR Project

Exhibit No. B-1, 1, The Application, p. 7

Capital Expenditure

Q4.1 Please provide the current accuracy for the estimate of $102 million.

A4.1 As noted in the CPCN Application (Exhibit B-1) page 7, lines 10-13, "The estimate for the first two years has a +/- 20 percent level of accuracy, however due to the length of the project and the volatility of cost in the utility industry, the Company cannot determine with certainty the level of accuracy of the estimates for the future years."

Note: Revised Project estimate is $103 million. Please see Errata No. 1 dated August 7, 2008, Item 1.

Q4.2 Please complete the following table,

Description	Cost	Accuracy	Comment
Replacement of all No. 8, No. 6 and 90 MCM Copper Distribution Conductors with Aluminum Conductor Steel Reinforced (ACSR) Conductor			
Assessment of poles for age and safety and replacement subject to the assessment result			
Updates to GIS (Geographic Information Systems) Database			
Standardization as per FortisBC existing standards for distribution lines			
Disposal of the replaced copper conductors through sale			
Total	$11.7 M		

A4.2 The Company based its estimates on a cost per kilometre. It does not have sufficient information to complete the requested table.

5.0 Reference: CCR Project
Exhibit No. B-1, 4.1 General Action Plan, p. 26
Project Scope

FortisBC intended to replace 85% of its 960 kM or 819 kM of copper conductors and approximately 3,900 distribution poles.

Q5.1 Using a table format, would FortisBC clearly outline the scope of the project to 2010? See table below.

SI No.	Project Name	General Area	Conductor Type Replaced	New Conductor Used	Conductor Length	Circuit Length	Type of Sensitivity Zone	Number of Poles Replaced	Cost +/- 20%
Total									$11.7M

A5.1 The following table provides the information requested based on a best effort basis. As noted in the CPCN Application on page 48, lines 19 to 23, "The estimate is based on an average cost per kilometre multiplied by the length of the distribution line being replaced. This level of estimating is being provided ahead of any detailed engineering and specific customer requirements due to the significant number of locations that require attention and avoidance of a high pre-approval cost that would be required to refine the estimates." (Exhibit B-1) The information contained in the table is based on desktop calculations, using AM/FM maps to estimate the length of the conductor, and the cost per kilometre as outlined in response to BCUC IR No. 1 Q15.5. The number of poles to be replaced is based on an estimate of 9 poles per kilometre which is approximately 65 percent of the number of poles in a one kilometre segment of line which has an average span length of 70 meters.

Table A5.1
Project Plan (2009-2010)

	Project Name	General Area	Conductor Type Replaced	New Conductor Used	Circuit length (km)	Number of Phases	Conductor Length (km)	Zone	Number of poles	Cost +/- 20% ($000s)
1	Bell Clarissa	Kelowna	No. 8	No. 2 ACSR	0.2	1	0.2	Park	1	20
2	McBride	Kelowna	No. 8	No. 2 ACSR	0.4	1	0.4	Park	3	47
3	KLO Pandosy	Kelowna	No. 6	No. 2 ACSR	0.2	1	0.2	School	2	22
4	Mallach Rd	Kelowna	No. 6	No. 2 ACSR	0.1	1	0.1	School	0	7
5	Mayer Rd.	Kelowna	No. 6	No. 2 ACSR	0.5	1	0.5	School	5	65
6	Union Rd	Kelowna	No. 6	No. 2 ACSR	1.2	1	1.2	School	11	156
7	Valley Rd	Kelowna	No. 6	No. 2 ACSR	1.0	1	1.0	School	9	130
8	Gordon Dr	Kelowna	No. 6	No. 2 ACSR	0.3	1	0.3	School	3	40
9	Ponderosa Ave	Kaleden	No. 90	No. 477 MCM	1.6	3	4.7	School	14	454
10	356 Ave	Oliver	No. 90	No. 477 MCM	0.6	3	1.7	School	5	163
11	HWY 3A	Keremeos	No. 90	No. 477 MCM	1.8	3	5.4	School	16	519
12	107th Street	Oliver	No. 6	No. 2 ACSR	0.4	1	0.4	School	3	50
13	356 Ave	Oliver	No. 6	No. 2 ACSR	0.1	1	0.1	School	1	9
14	Sparks Dr	Keremeos	No. 6	No. 2 ACSR	0.5	1	0.5	School	5	65
15	10th Ave	Keremeos	No. 6	No. 2 ACSR	0.9	1	0.9	School	8	122
16	352nd Ave	Oliver	No. 6	No. 2 ACSR	0.5	2	0.9	School	4	70
17	Ponderosa Ave	Kaleden	No. 6	No. 477 MCM	0.9	3	2.7	School	8	265
18	Linden Ave	Kaleden	No. 6	No. 477 MCM	0.5	3	1.5	School	5	145
19	FrankBeinder Way	Castlegar	No. 8	No. 2 ACSR	0.4	1	0.4	School	4	56
20	7th Ave / 4th St	Castlegar	No. 8	No. 2 ACSR	0.2	1	0.2	School	2	26
21	Macphee Rd	Castlegar	No. 8	No. 2 ACSR	1.2	1	1.2	Park	11	156
22	8th Ave	Castlegar	No. 8	No. 2 ACSR	0.1	1	0.1	Park	1	18
23	1st Avenue	Castlegar	No. 8	No. 2 ACSR	0.5	1	0.5	Park	5	65

1 **Table A5.1 cont'd**

	Project Name	General Area	Conductor Type Replaced	New Conductor Used	Circuit length (km)	Number of Phases	Conductor Length (km)	Zone	Number of poles	Cost +/- 20% ($000s)
24	8th Street	Creston	No. 8	No. 2 ACSR	2.0	1	2.0	School	18	260
25	Cedar St	Creston	No. 8	No. 2 ACSR	0.4	1	0.4	Park	3	46
26	Murray St	Midway	No. 8	No. 2 ACSR	0.6	1	0.6	Park	5	76
27	West Lake Rd	Christina Lake	No. 8	No. 2 ACSR	1.0	1	1.0	School	9	130
28	Hilliview Rd	Grand Forks	No. 8	No. 3/0 Al.	0.5	3	1.4	Park	4	109
29	Koftinkoff	Grand Forks	No. 8	No. 3/0 Al.	0.2	3	0.6	Park	2	49
30	Carnation Dr	Trail	No. 8	No. 3/0 Al.	0.6	3	1.8	Park	5	143
31	Cole St	Fruitvale	No. 8	No. 3/0 Al.	0.1	3	0.2	School	1	17
32	Old Salmo	Fruitvale	No. 8	No. 3/0 Al.	0.1	3	0.3	Park	1	25
33	Wilmes Lane	Trail	No. 8	No. 3/0 Al.	0.2	3	0.6	Park	2	51
34	Adam Robertson School	Creston	No. 6	No. 2 ACSR	1.0	1	1.0	School	9	130
35	Canyon Lista Elementary	Creston	No. 6	No. 3/0 Al.	0.2	3	0.6	School	2	48
36	Gretrude Ave	Midway	No. 6	No. 3/0 Al.	1.5	3	4.5	School	14	356
37	Capitalized and Direct Overheads									689
38	**2009 Total**				**22.2**		**39.9**		**199**	**4,798**
39	Hwy 97 Bulman Rd	Kelowna	No. 90	No. 477MCM	1.2	3	3.6	Park	11	367
40	KLO_Cedar Ave	Kelowna	No. 8	No. 2 ACSR	0.1	1	0.1	Park	1	14
41	Finns Rd.	Kelowna	No. 6	No 477 MCM	0.3	3	1.0	Park	3	101
42	Eldorado Rd	Kelowna	No. 6	No 477 MCM	0.7	3	2.1	Park	6	214
43	Rutland Rd N	Kelowna	No. 6	No 477 MCM	0.1	3	0.3	Park	1	35
44	Hart Rd	Kelowna	No. 6	No. 3/0	0.8	3	2.4	Park	7	200
45	Barkley Walker	Kelowna	No. 6	No. 2 ACSR	0.5	2	1.0	Park	5	85
46	Bell Rd.	Kelowna	No. 6	No. 2 ACSR	0.2	1	0.2	Park	2	27
47	Mcintosh Rd	Kelowna	No. 6	No. 2 ACSR	0.3	1	0.3	Park	2	36

1 **Table A5.1 cont'd**

	Project Name	General Area	Conductor Type Replaced	New Conductor Used	Circuit length (km)	Number of Phases	Conductor Length (km)	Zone	Number of poles	Cost +/- 20% ($000s)
48	Franklyn Rd	Kelowna	No. 6	No. 2 ACSR	0.4	1	0.4	Park	3	48
49	Swordy_Scott	Kelowna	No. 6	No. 2 ACSR	0.7	1	0.7	Park	6	89
50	Ethel-Grenfell Rd	Kelowna	No. 6	No. 2 ACSR	0.9	1	0.9	Park	8	118
51	Lakeshore Dr	Osoyoos	No. 90	No. 477 MCM	2.6	3	7.8	Park	23	794
52	Main St/Finch Cres	Osoyoos	No. 6	No. 2 ACSR	0.1	1	0.1	Park	1	15
53	Tuc-el-nuit Dr	Oliver	No. 6	No. 2 ACSR	0.4	2	0.8	Park	4	65
54	83rd Street	Osoyoos	No. 6	No. 3/0	0.7	3	2.0	Park	6	167
55	16th Ave/Lakeshore	Osoyoos	No. 6	No. 477 MCM	1.1	3	3.3	Park	10	336
56	378 Avenue	Osoyoos	No. 6	No. 3/0	1.3	3	4.0	Park	12	335
57	18th Street	Castlegar	No. 8	No. 2 ACSR	0.2	1	0.2	Commercial	2	27
58	Soreson Rd	Castlegar	No. 8	No. 2 ACSR	0.5	1	0.5	Residential	5	70
59	4th Avenue	Castlegar	No. 8	No. 2 ACSR	0.7	1	0.7	Residential	6	96
60	6th Ave/4th St	Castlegar	No. 8	No. 2 ACSR	0.2	1	0.2	Residential	1	20
61	Columbia Rd	Castlegar	No. 8	No. 2 ACSR	0.5	1	0.5	Residential	5	68
62	Raspberry	Castlegar	No. 8	No. 2 ACSR	0.7	1	0.7	Residential	6	96
63	Upper Level	Castlegar	No. 8	No. 2 ACSR	1.5	1	1.5	Residential	14	205
64	12th Ave	Creston	No. 8	No. 2 ACSR	0.2	1	0.2	Residential	1	20
65	15th Ave	Creston	No. 8	No. 2 ACSR	0.2	1	0.2	Commercial	2	27
66	40th-Samuels	Creston	No. 8	No. 2 ACSR	2.5	1	2.5	Residential	23	342
67	51 & 52nd St	Creston	No. 8	No. 2 ACSR	2.0	1	2.0	Commercial	18	273
68	Hilton St	Creston	No. 8	No. 2 ACSR	0.5	1	0.5	Residential	5	68
69	Masuch Rd	Creston	No. 8	No. 2 ACSR	0.2	1	0.2	Residential	2	30
70	Andros	Grand Forks	No. 8	No. 2 ACSR	0.2	1	0.2	Residential	2	25

1 **Table A5.1 cont'd**

	Project Name	General Area	Conductor Type Replaced	New Conductor Used	Circuit length (km)	Number of Phases	Conductor Length (km)	Zone	Number of poles	Cost +/- 20% ($000s)
71	College Rd	Grand Forks	No. 8	No. 2 ACSR	1.3	1	1.3	Residential	12	178
72	Danville Hw	Grand Forks	No. 8	No. 2 ACSR	0.5	1	0.5	Residential	5	68
73	Aspen St	Trail	No. 8	No. 3/0	0.6	3	1.9	Residential	6	155
74	Dahlia Cr	Trail	No. 8	No. 3/0	0.3	3	0.9	Residential	3	75
75	Iris Cr	Trail	No. 8	No. 3/0	0.2	3	0.6	Residential	2	50
76	Marinna Cr	Trail	No. 8	No. 3/0	0.6	3	1.8	Residential	5	150
77	Regan Cres	Trail	No. 8	No. 3/0	0.3	3	0.9	Residential	3	79
78	Webster Rd	Fruitvale	No. 8	No. 3/0	1.4	3	4.2	Commercial	13	350
79	Beam Road	Creston	No. 6	No. 2 ACSR	1.3	1	1.3	Park	11	171
80	Capitalized and Direct Overheads									897
81	**2010 Total**				**28.8**		**54.3**		**259**	**6,585**

Note: Difference in cost due to rounding.

6.0 Reference: CCR Project
Exhibit No. B-1, 4.1 General Action Plan, p. 26
Capital Expenditure Plan

FortisBC states the remaining 15% of the conductor is anticipated to be replaced by normal system growth requirements which will be covered under regular Distribution Growth / Sustaining Projects identified in the Capital Expenditure Plan (Capital Plan) during the life of the project.

Q6.1 Would FortisBC please list in table format the elements and associated costs related to CCR Project that are currently included in the Capital Plan?

A6.1 Table A6.1 below lists the normal system growth and sustaining projects from the 2009/10 Capital Plan where copper may be replaced as part of an overall project. FortisBC anticipates that over the next ten years 15 percent of the legacy copper will be replaced as part of these projects.

Table A6.1
2009-2010 Capital Plan Project Copper Conductor Replacement Costs

	Project	2009	2010	Accuracy Level
		$000s		%
1	New Connects	9,788	10,670	+/-20
2	Christina Lake Feeder 1 Upgrade	608	489	+/-10
3	Beaver Park - Fruitvale Tie		1,227	+/-10
4	Unplanned Growth	974	994	+/-20
5	Forced Upgrades and Line Moves	1,255	1,461	+/-20
6	Distribution Urgent Repairs	1,911	1,805	+/-20

Q6.2 Would FortisBC please provide a level of accuracy for those costs in the Capital Plan?

A6.2 The levels of accuracy are included in Table A6.1 above.

7.0 Reference: CCR Project
Exhibit No. B-1, 4.1 General Action Plan, pp. 26-27
Destructive Testing

Q7.1 Has FortisBC performed any sample destruction testing of existing recovered distribution power poles to confirm the assumed need to replace the 4500 legacy poles?

A7.1 No, FortisBC has not performed any sample destructive testing of existing salvaged distribution power poles.

Q7.2 Will FortisBC be submitting the results of their sample destruction testing of the recovered distribution power poles to confirm the assumed need to replace the 4500 legacy poles?

A7.2 Yes, FortisBC will submit the results of sample destructive testing of the recovered distribution power poles as part of the Company's next Capital Expenditure Plan Application to be filed in 2010.

8.0 Reference: CCR Project
Exhibit No. B-1, 3.2 Copper Conductor Failure, pp. 13-14
Table 2

Q8.1 Would FortisBC please provide the cost of energy not served by year for Table 2?

A8.1 FortisBC estimates the total cost of energy not served for Table 2 is approximately $3,200, or approximately $640 per year. This is based on 47,204 customer hours at an average load of 2.5 kW per customer and using a cost of $0.0275 per kWh.

Q8.2 Will FortisBC introduce compensation to customers for interruption of electric power during pole replacement?

A8.2 No. The execution of this project will proceed in the same manner as all of FortisBC's planned capital and maintenance activities. As outlined in FortisBC's approved Electrical Tariff, the Company maintains the right to temporarily suspend the supply of electricity to make repairs or improvements to the electrical system.

9.0 Reference: CCR Project

Exhibit No. B-1, 3.3 Copper Conductor Failures in Sensitive Areas, p. 15

Table 3

Q9.1 Would FortisBC please add the number of failures and the duration of the outage to Table 3?

A9.1 Please see Revised Table 3 below which includes the number of failures and the duration of the outage.

Revised Table 3
Copper Conductor Failures Sensitive Areas (August 2004 – April 2008)

	Location	Conductor Type	Date	Remarks	Number Of Failures	Duration of outage (hours)
1	Osoyoos	6C	29/10/2004	Commercial area	1	2.0
2	OK Falls	6C	25/01/2005	Residential area	1	4.5
3	Kelowna	4C	01/07/2005	Residential area	1	5.0
4	OK Falls	6C	25//01/2006	School Zone and Public Park	1	2.25
5	Keremeos	4C	17/05/2006	School Zone	1	2.5
6	Castlegar	8C	02/09/2006	Residential area	1	2.5
7	Fruitvale	8C	06/09/2006	Residential area	1	3.0
8	Castlegar	90C	04/07/2007	School Zone	1	2.0
9	Creston	8C	24/08/2007	Public Park and High Density Residential	1	1.75
10	Castlegar	8C	04/03/2008	Residential area	1	3.25
11	Kelowna	3C	19/04/2008	Residential area	1	2.0
12	Castlegar	3C	22/04/2008	Residential area	1	2.5

Note: The failure of No. 3 and No. 4 Copper Conductors is not attributable to the conductors itself, but to the Hot Tap Connectors, which are directly applied on to the conductor without the use of the Stirrups. Hence, it will be kept outside of the scope of the Project.

10.0 Reference: CCR Project
Exhibit No. B-1, 3.5 Employee Safety Issues, pp. 16-17
Safety Incidents

Q10.1 Would FortisBC please provide a table showing the number of safety related incidents reported by year while working on copper conductors?

A10.1 FortisBC has no record of any incidents reported by staff while working on copper conductors. As a proactive measure to avoid such incidents, the Company introduced a standard operating practice as noted in the CPCN on page 16, lines 19-21 (Exhibit B-1).

11.0 Reference: CCR Project
Exhibit No. B-1, 3.7 Failure Probability of Copper Conductors, pp. 18-19
Useful Life

Q11.1 Would FortisBC please provide a table to indicate the amount of copper conductor both circuit kilometres and conductor kilometres in their distribution system by age (0-10 yrs., 11-20 yrs., 21-30 yrs, 31-40 yrs., 41-50 yrs)?

A11.1 All No. 8, No. 6, and 90 MCM copper conductor in FortisBC's distribution system is older than 50 years.

Q11.2 Why did FortisBC in Table 1 only consider 85% of the total copper conductor length when the table indicates that 100% of the copper conductor is beyond its useful life?

A11.2 Please see the response to BCUC IR No. 1 Q6.1.

Q11.3 Would FortisBC consider that the total cost of this project is at a minimum $102 million/ 0.85 or $120 million?

A11.3 No. The estimated total Project cost is $103 million (please see Errata No. 1 dated August 7, 2008, Item 1), based on the information available to FortisBC at the time of filing and taking into account the level of accuracy noted in the Application. For this reason, FortisBC will re-estimate and seek approval for costs beyond 2010 as part of future Capital Expenditure Plan applications.

Q11.4 What is the expected useful life of the ACSR used to replace the copper conductor?

A11.4 Bare ACSR conductor has an expected useful life of 50+ years.

12.0 Reference: CCR Project
Exhibit No. B-1, 3.11 Legacy Pole Replacement, pp. 22-24
Condition Assessment

FortisBC states that "As part of the conductor replacement initiative it would be prudent to replace poles that are 50 years or older at the same time the legacy copper is replaced in order to avoid a duplication of the effort noted above. This is based on the assumption that the 50 year old poles have a high probability of failing the next condition assessment testing process".

Q12.1 Would FortisBC agree that the proposed replacement of 4500 poles is based on an assumption and not on a condition assessment testing report?

A12.1 Yes, the proposed replacement is based on the Company's general experience with past condition assessments and ongoing rehabilitation work. The Company expects to replace 3,900 poles as part of the Project. It is anticipated that the remaining 600 poles will be replaced through other ongoing projects.

FortisBC will determine during Project execution whether more or fewer pole replacements are required for either condition or economic related reasons. Experience in the first two years of the Program may result in changes to the Program estimates in future Capital Expenditure Plan applications.

Q12.2 Would FortisBC please elaborate on the risk of using this approach?

A12.2 FortisBC does not believe that the approach described in response to BCUC IR No. 1 Q12.1 above is associated with any risk, whether safety, reliability, or economic related.

13.0 Reference: CCR Project
Exhibit No. B-1, 4.3.2 Improved Service Reliability, pp. 39-41
Figures 4 & 5

Q13.1 Would FortisBC provide the SAIDI and SAIFI values in table format for the years 2006 through 2018?

A13.1 FortisBC did not calculate the SAIDI and SAIFI values for the years 2006 through 2018. The values assigned to 2018 were based on an assumption that the Copper Conductor Replacement Project would result in a 70 percent drop in SAIDI and SAIFI values associated with copper conductor failure incidents.

Q13.2 Would FortisBC please comment on how these Key Performance Indicators could be adjusted in the upcoming Revenue Requirements Application? Please discuss the impact.

A13.2 The pre-arranged outages necessary to complete the project will negatively impact SAIDI and SAIFI values over the duration of the Project. FortisBC may propose that the impact of these outages be tracked and excluded from the Key Performance Indicators for future Revenue Requirements applications. Any such proposal, under the existing PBR Plan is subject to negotiation with stakeholders and Commission approval.

14.0 Reference: CCR Project
Exhibit No. B-1, 4.3.5 Distribution Urgent Capital Repair Cost Reduction, pp. 39-41 Repair Costs

Q14.1 What is the repair cost for a copper conductor failure?

A14.1 The estimated cost of repair is discussed in response to BCUC IR No. 1 Q1.1 above.

Q14.2 What is the repair cost for a hot tap failure?

A14.2 A hot tap failure usually results in a conductor failure. The Company does not track the cost associated with specific incidents. The estimated cost of repair is discussed in response to BCUC IR No. 1 Q1.1 above.

Q14.3 What is the repair cost for a legacy pole failure?

A14.3 The average cost to replace a simple 3 phase tangent structure is estimated to be approximately $5,300 (in 2008 dollars). More complex structures have a higher cost.

Q14.4 What is the average number of failures/year for each type above over the last five years?

A14.4 The average number of conductor failures involving legacy copper conductor in the last five years is approximately 40 per year. The hot tap failures are included with the conductor failures. The Company's records do not distinguish between these items.

FortisBC has approximately 82,000 distribution poles in service of which approximately 65,000 are older than 15 years. The poles older than 15 years

are tested on an eight year cycle as part of the condition assessment process. On average approximately 2 percent of the poles tested need to be replaced. This represents approximately 130 per year.

15.0 Reference: CCR Project
Exhibit No. B-1, 4.3.4 Increased Circuit Capacity, pp. 43-44
Benchmarking Data

Q15.1 Would FortisBC please provide benchmarking estimating data to confirm their costs?

A15.1 FortisBC does not have external benchmarking estimating data for this project.

Q15.2 Would FortisBC please provide benchmarking estimating data from other Canadian utilities including BC Hydro, Fortis Alberta and Newfoundland Power to confirm their costs?

A15.2 Please see the response to BCUC IR No. 1 Q15.1 above.

Q15.3 What is FortisBC's estimated cost per circuit kM and cost per pole replacement used on page 29?

A15.3 Please see the response to BCUC IR No. 1 Q15.5 below.

Q15.4 Can FortisBC increase the span between poles when using ACSR thus reducing the number of pole replacements?

A15.4 As part of the implementation phase, FortisBC will complete a detailed engineering design for each location based on current distribution design standards, taking into account existing imposed restrictions like street lines and lot boundaries, at which time the individual span lengths may be altered.

1 **Q15.5 Would FortisBC please complete the table below?**

	Circuit kM	Pole Span in M	Cost per Circuit kM	Cost per Pole per Circuit kM
Single and Two Phase No. 8 Copper 13 kV Distribution Lines with No. 2 ACSR				
Three Phase No. 8 Copper 13 kV Distribution Lines with No. 3/0 or 477 ACSR				
Single and Two Phase No. 6 Copper 13 kV Distribution Lines with No. 2 ACSR				
Three Phase No. 6 Copper 13 kV Distribution Lines with No. 3/0 or 477 ACS				
Single and Two Phase 90 MCM Copper 13 kV Distribution Lines with No. 3/0 ACS				
Three Phase No. 90 MCM Copper 13 kV Distribution Lines with No. 3/0 or 477 ACS				

A15.5 The following table provides the information requested. The cost per kilometre is an unloaded cost in 2009 dollars.

Table A15.5
Copper Conductor Replacement Costs

		Circuit Length	Pole Span[1]	Cost per Circuit km	Cost Per Pole Per Circuit km[2]
		km	m	($000s)	
1	Single phase No. 8 to No. 2 ACSR	62.8	70	130.1	Note 2
2	Two phase No. 8 to No. 2 ACSR	9.4	70	155.8	Note 2
3	Three phase No. 8 to No. 3/0 ACSR	14.1	70	237.8	Note 2
4	Three phase No. 8 to 477 ACSR	6.0	70	290.9	Note 2
5	Single phase No. 6 to No. 2 ACSR	143.6	70	130.1	Note 2
6	Two phase No. 6 to No. 2 ACSR	31.2	70	155.8	Note 2
7	Three phase No. 6 to No. 3/0 ACSR	67.1	70	237.8	Note 2
8	Three phase No. 6 to 477 ACSR	28.7	70	290.9	Note 2
9	Three phase 90 MCM to No. 3/0 ACSR	29.0	70	237.8	Note 2
10	Three phase 90 MCM to 477 ACSR	29.0	70	290.9	Note 2

[1]The estimate is based on a typical span of 70 meters.

[2]The estimate is based on an average of 9 pole replacements per kilometre, and has been included in the total cost per kilometre.

16.0 Reference: CCR Project

Exhibit No. B-1, 4.2.2 Project Plan for the First Three Years (2009-2011), p. 29

Estimating Data

As the summary indicates that 117 circuit kilometres of copper conductor is proposed to be replaced for $11.7 million, the cost per circuit kilometre is $100.000.

Q16.1 Would FortisBC please provide the estimating documentation to support $100,000 per circuit kilometre for ACSR conductor?

A16.1 The calculation of $100,000 noted in the question cannot be confirmed by FortisBC. It is based on the three year conductor replacement quantity but uses only two years of cost. The actual cost per kilometre in 2009 dollars is provided in the response to BCUC IR No. 1 Q15.5. Table A16.1 below estimates the replacement cost of single phase No. 6 copper with No. 2 ACSR and is typical of the estimating documentation used.

Table A16.1
Cost per Kilometre for Single Phase No. 6 to No. 2 ACSR

Estimating Documentation Used to Calculate Expenditures.	
Cost Per Kilometer For Single Phase #6 to # 2 ACSR	**$000s**
Labor	**52.1**
The labour cost include: Three man crews and trucks, to complete the assembly, framing and setting. The travel, setup, safety planning and grounding time for the crews based on the assumption that crews are based in local districts. A person in charge (PIC) to complete necessary switching, setting up the generator sets, etc.	
Materials	**35.1**
The Material and transportation cost include : The #2 ACSR Conductor and Accessories assuming 1 phase and 1 neutral. Nine 45 foot class three poles Framing material assuming 70 % tangent and 30 % angle or deadend structures	
Engineering	**3.8**
The Engineering include: Preliminary Engineering- planning and estimates Field Reviews - Including routing, staking & survey review, Detail Design, documentation, drawings, material specifications and , Construction packages Administration and Clerical Support for tenders and contracts	
Project Management	**3.9**
Other Costs	**19.6**
The other cost include : Traffic control based on the assumption that the work will be in populated areas and flag persons will be required Cost of on site generation for longer outages. Acquisition of land for new rights of ways and anchors	
SUBTOTAL	**114.5**
Contingency	**15.6**
Total	**130.1**

17.0 Reference: CCR Project
Exhibit No. B-1, 5.1 Environmental Management Plan, p. 46
Landowner Impacts

FortisBC states that individual landowner impacts / due to shift in pole locations or new anchor positions/ will be mitigated on a case by case basis at the time of execution of the project.

Q17.1 Is there an allowance in the estimate of $11.7 million for the mitigation of these impacts?

A17.1 Yes, there is an allowance in the estimate of $11.7 million for the mitigation of these impacts.

Q17.1.1 If not, what is FortisBC's estimate of cost for these impacts?

A17.1.1 No response required.

18.0 Reference: CCR Project

Exhibit No. B-1, 5.2 Health and Safety, p. 46

Outsourcing

FortisBC states that …are well integrated into the planning, tendering and audit protocols for the Project.

Q18.1 Does FortisBC expect to tender this work?

A18.1 FortisBC has not completed the detailed implementation plans. The Company anticipates that a portion of this work will be tendered and completed by external contractors.

19.0 Reference:CCR Project
Exhibit No. B-1, 5.3 Public Consultation, p. 46
Environment and Social Impact

"Public consultation will be an important aspect in this project. FortisBC regards its responsibility to engage all stakeholders in a meaningful and comprehensive consultation process as a key consideration in the development and execution of the Project to provide electrical service that is safe, reliable, and cost effective."

Q19.1 Please provide the public consultation process for individual landowners impacted by the existing and new CCR distribution line corridors.

A19.1 As noted in the CPCN Application (Exhibit B-1), page 47, lines 3-4 "The second tier of consultation will involve communication with the general public and will also be carried out on an annual basis." For example where there are many jobs in a particular area, an open house will be held in that region or town, depending on the job plan for the period. The location of particular jobs will be identified and landowners in these areas will be invited to attend. The purpose of the open house will be to communicate FortisBC's plans for the Copper Conductor Replacement Project to the general public and obtain feedback on the Project execution.

In addition to such an open house to discuss the overall jobs within a particular town, for specific jobs where pole and anchor location need to be changed the new location will be staked and where possible relocated to a property line. The Company will discuss with the individual landowners how any shift in pole location or new anchor positions may affect them.

20.0 Reference: CCR Project
Exhibit No. B-1, 5.3 Public Consultation, pp. 46-47
Landowner Impacts & Generators

Q20.1 Will FortisBC discuss with the individual landowners the impacts due to shift in pole locations or new anchor positions and how it will affect them?

A20.1 Yes. The Company will discuss with the individual landowners how any shift in pole locations or new anchor positions may affect them.

Q20.2 As FortisBC may consider using mobile generators for limited power restoration in cases of interruptions exceeding six hours or for multiple interruptions within a short period of time, what does FortisBC propose to do in cases of interruptions less than six hours or for multiple interruptions within a short period of time?

A20.2 FortisBC will notify customers in advance of a planned outage using one or more of the following methods: phone call, delivered flyer, local signage, radio ad, personal visit. The method used will depend on the number of customers, the time of year and proposed time and duration of outage. FortisBC will minimize the outage impact by adjusting resources where possible and/or modifying construction techniques which under certain circumstances could include using approved hot line procedures.

Q20.3 Will FortisBC be posting the first tier consultation that includes local government and key stakeholders to discuss the Project on their website?

A20.3 FortisBC does not expect to post this information on the Company website. The purpose of consultation at this stage of the Project (post Commission

approval) is to inform individuals and communities with regard to the details of the Project's execution and to incorporate feedback, if any, into the execution plan.

Final execution plan for each area will be posted on the Company's website as well as disseminated by other means, as described in response to BCUC IR No. 1 Q20.2 above.

Q20.4 Would FortisBC please explain their statement "These meetings will provide an opportunity for feedback and may assist in streamlining the regional job plans" considering the request for $11.7 million for this Application?

A20.4 Local concerns about project timing, pole locations or line routing by individuals or groups may be initially identified at these meetings. The Project schedules and designs would be reviewed by FortisBC in an attempt to address these concerns.

Q20.5 Will FortisBC be posting the public exit surveys and a summary of the results on their website?

A20.5 Please see the response to BCUC IR No. 1 Q20.3 above.

21.0 Reference:CCR Project
Exhibit No. B-1, 6. Project Cost, p. 48
Capital Expenditures

"The work is intended to be constructed in snow free conditions. Most of the rebuilds are expected to be done in urban areas with at least some public exposure."

Q21.1 Please provide the estimated average cost per kilometre under snow conditions.

"This level of estimating is being provided ahead of any detailed engineering and specific customer requirements due to the significant number of locations that require attention and avoidance of a high pre-approval cost that would be required to refine the estimates."

A21.1 The estimated average cost per kilometre under snow conditions is expected to increase by 15 percent above non-snow conditions. Table A21.1 below shows the average cost per kilometre under snow conditions.

Table A21.1
Average Cost Under Snow Conditions

		Cost per Circuit Kilometre ($000s)
1	Three phase 90MCM to No. 3/0 ACSR	273
2	Three phase 90MCM to 477 ACSR	335
3	Single phase No. 8 to No. 2 ACSR	150
4	Two phase No. 8 to No. 2 ACSR	179
5	Three phase No. 8 to No. 3/0 ACSR	273
6	Three phase No. 8 to 477 ACSR	335
7	Single phase No. 6 to No. 2 ACSR	150
8	Two phase No. 6 to No. 2 ACSR	179
9	Three phase No. 6 to No. 3/0 ACSR	273
10	Three phase No. 6 to 477 ACSR	335

Q21.2 Please provide an estimate of the "high pre-approval cost that would be required to refine the estimates".

A21.2 The "pre-approval cost" refers to the incremental engineering and design costs that would be required, prior to Commission approval of the Project, to conduct either condition assessments to refine the percentage of poles to be replaced, or the percentage of angle or deadend structures. Please also see the response to BCUC IR No. 1 Q12.1 above. The estimated engineering cost for the Project is approximately $2.5 million. Please also see the response to BCUC IR No. 1 Q23.1, Revised Table 6, line 3.

Q21.3 Please provide a summary of the planning, tendering and audit protocols for the Project.

A21.3 The Project plan will be determined for individual projects the year before the Project is scheduled for completion. Projects for the first 3 years have been determined. The design for some of the proposed projects will begin in the year prior to the year when construction is planned. Construction activities will be spread over most months of the year in order to reduce the impact on construction resources and allow for more competitive pricing.

The use of internal resources will be determined based on availability and complexity of the specific jobs.

External construction resources will generally be secured prior to the construction season by either a bid for unit cost or hourly cost contracts. Fixed contracts will be used if the parameters of the specific job can be well defined and if the Company determines that a fixed price competitive bid process will be the most cost effective choice overall. Please also see the response to BCUC IR No. 1 Q25.1 above and Q25.3 below.

Internal construction resources are audited by field inspections for safety and work quality by their peers and by FortisBC's Safety department.

External construction resources are audited by field inspections for safety and work quality by FortisBC representatives.

22.0 Reference: CCR Project
Exhibit No. B-1, 6. Project Cost, p. 48
Estimate Methodology

Fortis BC states that "Due to the circuit configurations and space limitations, the structures will be replaced with single pole structures with a typical ruling span of 70 meters. It is assumed that 85 percent of the old circuits will require pole replacements and full rebuilding including anchoring. For costing purposes it is assumed that 70 percent of structures are tangents and 30 percent are either angles or deadends. The estimate is based on an average cost per kilometre multiplied by the length of the distribution line being replaced. This level of estimating is being provided ahead of any detailed engineering and specific customer requirements due to the significant number of locations that require attention and avoidance of a high pre-approval cost that would be required to refine the estimates".

Q22.1 Given the lack of engineering, the contingency of only 9.3% and average cost per circuit kilometre, does FortisBC consider the estimate of cost to be on the high side and by how much?

A22.1 No, FortisBC does not consider the estimate of cost to be on the high side. The Project cost is the Company's best estimate at this time. The estimate for the first two years, and for which the Company is seeking expenditure approval, has a +/- 20 percent level of accuracyWho reviewed the estimate of $11.7 million?

A22.2 This project followed the review process set out in response to BCUC IR No. 1 Q3.1.

Q22.2 Who reviewed the estimate of $102 million?

A22.3 This project followed the review process set out in response to BCUC IR No. 1 Q3.1. Note: Revised Project estimate is $103 million. Please see Errata No. 1 dated August 7, 2008, Item 1.

23.0 Reference: CCR Project

Exhibit No. B-1, 6. Project Cost, p. 49

Table 6

Q23.1 Please revise Table 6 to include a Total Cost column for each Scope Item.

A23.1 Please see Revised Table 6 below.

Revised Table 6
Project Cost 2008/09/10

	SCOPE ITEM	2007/08	2009	2010	Total 2007-10	Total 2007-18
		($000s)				
1	Labour - Assembly, Framing, Setting, Stringing, etc	0	1,523	2,119	3,642	34,296
2	Materials	0	1,028	1,430	2,458	23,150
3	Engineering	0	114	159	273	2,572
4	Other Costs including Traffic Control, Temporary Generation, etc.	0	571	795	1,366	12,861
5	Project Management	0	114	159	273	2,572
6	Planning and Pre-Engineering	150	0	0	150	150
7	Regulatory Cost	150	0	0	150	150
8	Annual Public Consultation Cost	0	75	77	152	821
9	Capitalized and Direct Overheads (AFUDC=0)	0	689	897	1,586	13,035
10	Cost of Removals	0	226	315	541	5,076
11	Contingency	0	457	636	1,093	10,289
12	Credit from sale of Copper		(70)	(93)	(163)	(1,431)
13	**Total Capital Cost**	**300**	**4,728**	**6,492**	**11,520**	**103,241**

Note: Please see Errata No. 1 dated August 7, 2008, Item 1 regarding revised Project Cost.

Q23.2 For each Scope Item in Table 6, please explain how each item is calculated and provide a breakdown of the costs by activity and resource.

A23.2 Please see the response to BCUC IR No. 1 Q16.1.

Q23.3 Does the Scope Item "Other Costs including Traffic Control, Temporary Generation, etc." include the cost of securing material and equipment from theft and vandalism? If yes, please provide the costs by year. If not, why not?

A23.3 No, the cost of securing material and equipment is embedded in the labour and material cost, however it has not been specified as such and cannot be provided. FortisBC's standard practice is to secure all materials and equipment.

Q23.4 Would FortisBC please add Credit form Sale of Copper to Table 6?

A23.4 Please see the response to BCUC IR No. 1 Q23.1, Revised Table 6, line 12.

24.0 Reference: CCR Project
Exhibit No. B-1, 6. Project Cost, p. 50
Table 7

Q24.1 Please revise Table 7 to include a Total Capital Expenditures row summarizing the capital expenditures by year.

A24.1 Please see Revised Table 7 below. Please see Errata No. 1 dated August 7, 2008, Item 1 regarding revised Project cost.

Revised Table 7
Summary of Costs

	Yearly Cash Flow During the Project Life ($000s)											
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Project Cost (Unloaded & Inflation Corrected) without COR	**0**	**3,808**	**5,297**	**12,989**	**8,521**	**8,691**	**8,865**	**9,042**	**9,223**	**9,408**	**9,596**	**85,440**
Planning & Pre-Engineering	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**150**
Regulatory Cost (Oral Hearing)	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**150**
Yearly Public Consultation Cost	**0**	**75**	**77**	**78**	**80**	**81**	**83**	**84**	**86**	**88**	**90**	**821**
Capitalized & Direct Overheads (AFUDC = 0)	**0**	**689**	**897**	**1,948**	**1,278**	**1,304**	**1,330**	**1,356**	**1,383**	**1,411**	**1,439**	**13,035**
Credit from Sale of Copper	**0**	**(70)**	**(93)**	**(218)**	**(143)**	**(146)**	**(149)**	**(152)**	**(155)**	**(158)**	**(148)**	**(1,431)**
Cost of Removals (without adjusting for sale of Copper)	**0**	**226**	**315**	**772**	**506**	**516**	**527**	**537**	**548**	**559**	**570**	**5,076**
Total Capital Expenditure	**300**	**4,728**	**6,493**	**15,569**	**10,242**	**10,446**	**10,656**	**10,867**	**11,085**	**11,308**	**11,547**	**103,241**
Electrical Loss Savings	**0**	**(31)**	**(72)**	**(172)**	**(233)**	**(294)**	**(356)**	**(418)**	**(482)**	**(546)**	**(611)**	**(3,215)**
	Project Financial Parameters											
Project Capital Cost ($millions)	**103.24**											
Net Present Value ($millions)	**59.38**											
NPV of Rate Impact	**0.15%**											
Max. One Time Rate Impact	**0.56%**											

Q24.2 Please provide any cost escalation factors, beyond inflation that are included in the costs and savings in Table 7.

A24.2 A total escalation factor of 5 percent plus 2 percent has been applied to 2010. A total escalation factor of 4 percent plus 2 percent has been applied to subsequent years.

Q24.3 Are any of the costs in Table 7 subject to foreign exchange risk? If yes, how does FortisBC address this risk?

A24.3 No, the costs in Table 7 are not subject to foreign exchange risk. All labour and materials are expected to be procured from Canadian sources.

25.0 Reference: CCR Project
Exhibit No. B-1, 7.1 Project Management, p. 51
Resources

"A combination of consultant, contractor and internal resources will be used for all major assessment, design and construction…"

Q25.1 Has FortisBC evaluated the benefits of using fixed price contracts and outsourcing the major assessment, design and construction of the CCR to a contractor(s)? If yes, please provide the evaluation. If not, why not?

A25.1 FortisBC has not evaluated the use of fixed price contracts and outsourcing of the major assessment, design and construction of the CCR to a contractor(s). The Company has reviewed the use of fixed price contracts for other work. FortisBC has found that fixed price contracts are viewed as higher risk by the supplier and in the current tight labour market they are generally priced higher than other contracts. FortisBC plans to use lower cost internal resources as well as securing external contractor resources with unit cost or hourly cost contracts for construction. Fixed price contracts may be used if the current labour resource environment changes. Please also see the response to Q21.3 above.

Q25.2 Please explain how FortisBC proposes to ensure that the most cost effective mix of resources are utilized for the CCR project (fixed price contracts, competitive bidding).

A25.2 In the design phase, each individual project will be evaluated by the Project Manager, Construction Manager and the Design Lead. Using criteria such as location, size, complexity and resource availability at the construction phase, this team will decide whether to complete the work using internal or external

crews working on a unit or hourly cost basis. The team may use fixed price contracts if the current resource environment changes.

26.0 Reference: CCR Project
Exhibit No. B-1, 8.4 Economic Comparison of the Implementation Plans, p. 58
Table 10

Q26.1 Please show the calculation of the Corporate Loadings (No AFUDC) by year and resource for each implementation plan

A26.1 Please see Table A26.1 below detailing the calculation of the Corporate Loadings by year for each implementation Plan.

Table A26.1
Corporate Loadings by Year

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOTAL
	($ million)																
Plan-1 Unloaded Cost	0.30	3.88	5.37	13.07	8.60	8.77	8.95	9.13	9.31	9.50	9.69						86.56
Plan-1 Corporate Loadings		0.69	0.90	1.95	1.28	1.30	1.33	1.36	1.38	1.41	1.44						13.04
% Corporate Load		18%	17%	15%	15%	15%	15%	15%	15%	15%	15%						
Plan-2 Unloaded Cost	0.30	6.02	6.44	6.83	6.95	7.37	7.81	8.28	8.78	9.31	9.87	10.47	11.10	11.78			111.31
Plan-2 Corporate Loadings		1.07	1.08	1.01	1.03	1.09	1.16	1.23	1.30	1.38	1.47	1.56	1.65	1.75			16.79
% Corporate Load		18%	17%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%			
Plan-3 Unloaded Cost	0.30	5.06	5.42	5.74	6.09	6.46	6.85	7.26	7.70	8.16	8.65	9.18	9.73	10.32	10.94	11.60	119.45
Plan-3 Corporate Loadings		0.90	0.90	0.85	0.90	0.96	1.01	1.08	1.14	1.21	1.28	1.36	1.45	1.53	1.63	1.73	17.94
% Corporate Load		18%	17%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	

Q26.2 Please provide breakdowns of the Cost of Removals without adjusting for Copper Salvage by activity and resource for each implementation plan.

A26.2 Please see Table A26.2 below showing the Cost of Removals by year in as spent dollars without adjusting for the copper salvage by plan.

The cost of removal involves the labour to remove the old wire, dismantle the old structures, remove the poles and cleanup the sites. The annual amount is based on the percentage completion of the Project. Detailed activities in each year will be assessed at the time of finalizing engineering estimates.

Table A26.2
Cost of Removals

PLAN / YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017
	As Spent ($000s)								
Plan-1 Cost of Removal	226.2	314.7	771.7	506.2	516.3	526.7	537.2	547.9	558.9
Plan-2 Cost of Removal	353.0	378.0	401.0	408.0	432.8	459.1	487.0	516.6	548.0
Plan-3 Cost of Removal	296.3	317.3	336.6	357.1	378.8	401.8	426.2	452.1	479.6

Table A26.2 cont'd

PLAN / YEAR	2018	2019	2020	2021	2022	2023	Total
	As Spent ($000s)						
Plan-1 Cost of Removal	570.1						**5,075.9**
Plan-2 Cost of Removal	581.3	616.7	654.2	693.9			**6,529.6**
Plan-3 Cost of Removal	508.8	539.7	572.5	607.3	644.3	683.5	**7,001.9**

Q26.3 Please show the calculation of the Credit from Sale of Copper for each implementation plan (quantity, price).

A26.3 Please see Table A26.3a below showing the calculation of the overall credit from sale of copper in 2008 dollars. The credit from the sale of copper for each implementation plan is shown in Table A26.3b.

Table A26.3a
Credit from Sale of Copper

Parameters / Conductor Type	6C (KM)			8C (KM)			90 MCM (KM)		
	1-Phase	2-Phase	3-Phase	1-Phase	2-Phase	3-Phase	1-Phase	2-Phase	3-Phase
Conductor Length (km)	168.94	36.73	112.72	73.91	11.09	23.68	5.77	2.73	68.25
	($000s)								
Estimated Unit Credit / km	1.3	2.0	2.6	0.8	1.2	1.7	4.6	8.0	11.4
Total Credit	223.3	72.8	298.0	61.4	13.8	39.3	26.6	21.8	776.7
Total Credit	**1,533.7**								
Estimated Conversion %	**85%**								
Credit from Sale of Copper	**$1,303.7**								

The total amount of $1.3 million for 428 circuit kilometres of conductor listed in Table 26.3a creates a blended rate of $3,044 per kilometre. This blended rate was used in conjunction with the percent of project completion to allocate the total amount on an annual basis. The annual amounts were inflated to actual dollars as indicated in Table A26.3b below.

Table A26.3b
Estimate Copper Salvage Quantity by Plan

Plan-1	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
	($000s)											
Estimated Credit 2008$	70.3	91.3	209.5	134.7	134.7	134.7	134.7	134.7	134.7	124.1	**Total**	**1,303.7**
Estimated Credit in actual $$	70.3	93.1	218.0	143.0	145.8	148.8	151.7	154.8	157.9	148.4	**Total**	**1,431.7**
	km											
Salvaged Copper	23	30	69	44	44	44	44	44	44	41	**Total**	**428**

Plan-2	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
	($000s)														
Estimated Credit 2008$	103.6	103.6	103.6	99.3	99.3	99.3	99.3	99.3	99.3	99.3	9.3	99.3	99.3	**Total**	**1,303.7**
Estimated Credit in actual $$	103.6	10.6	107.7	105.4	107.5	109.6	111.8	114.1	116.3	118.7	121.1	123.5	125.9	**Total**	**1,470.8**
	km														
Salvaged Copper	34	34	34	33	33	33	33	33	33	33	33	33	33	**Total**	**428**

Plan-3	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
	($000s)																
Estimated Credit 2008$	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	**Total**	**1,303.7**
Estimated Credit in actual $$	86.9	88.7	90.4	92.2	94.1	96.0	97.9	99.8	101.8	103.9	105.9	108.1	110.2	112.4	114.7	**Total**	**1,503.0**
	km																
Salvaged Copper	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	**Total**	**428**

27.0 Reference: CCR Project
Exhibit No. B-1, 9. Proposed Regulatory Process, p. 60
Draft Order

Q27.1 As the CCR Project has an overall cost of $102 million over a ten year project schedule, would FortisBC consider this Phase 1 of a multiphase CPCN with Phase 1 being over three years and costing $11.7 million?

A27.1 No. FortisBC is seeking a determination that the CCR Project as a whole is necessary and is in the public interest, and seeks funding only for the 2009/2010 period. Approval of future Project expenditures will be subject to Commission review of expenditures for each period corresponding with FortisBC's Capital Expenditure Plan Applications. Based on the safety impacts described in the Application, the Company believes that it has clearly shown that the entire project is necessary and in the public interest and that a re-establishment of this fact is not required. The Commission has an opportunity with each Capital Plan to examine the forecast expenditures. This approach is similar to the multi-year PCB program approved in the 2005 Capital Plan, for which expenditures are approved in subsequent Capital Plan decisions.

Q27.2 Would FortisBC consider applying for a CPCN for the next phases instead of sourcing funds through the future Capital Expenditure Plans? Please explain.

A27.2 Please see the response to BCUC IR No. 1 Q27.1.

28.0 Reference: CCR Project
Exhibit No. B-1, 7.2 Other Applications and Approvals, p. 53
Other Costs

Q28.1 Are there any other costs that are not included in the $11.7 million, the contingency, or the $102 million?

A28.1 No, there are no other known costs that are not included in the $11.7 million, the contingency, or the $103.2 million. Please see Revised Table 6, line 13 in response to BCUC IR No. 1 Q23.1, as well as Errata No. 1 dated August 7, 2008, Item 1 regarding the revised Project cost. .

29.0 Reference: CCR Project
FortisBC 2009/10 Capital Expenditure Plan ("Capital Plan"), 4. Distribution Sustaining Programs and Projects, pp. 86, 88 and 96
Project Benefits

"The distribution line assessment program is based on an eight-year cycle of patrolling and testing all FortisBC distribution line facilities. In overhead systems, the program consists of a pole testing program involving drilling test holes in each pole to confirm the condition of the pole, in addition to a pole treatment to reduce internal rot in the pole, and placement of a pole wrap to reduce surface rot on the pole at ground line." (Ref. Capital Plan, Distribution Line Condition Assessment, p. 86)

"The specific rehabilitation work for the various distribution lines involve expenditures for stubbing poles, replacing poles, replacing crossarms, guy wires, hot tap connectors, and other defects identified for rehabilitation in previous years assessments." (Ref. Capital Plan, Distribution Line Rehabilitation, p. 88)

"Each year operational and safety concerns on the distribution system including storm damage, clearance problems and aging equipment are identified by field staff outside of the normal assessment cycle. Repairs to address these concerns are required to maintain a safe and reliable distribution system." (Ref. Capital Plan, Small Planned Capital, p. 96)

Q29.1 Please explain why there are no capital cost reductions in the Distribution Line Condition Assessment, Distribution Line Rehabilitation, Small Planned Capital and other Capital Plan projects due to the CCR.

A29.1 The capital cost of two projects (Distribution Rebuilds and Distribution Urgent Repairs) directly affected by the CCR Project have been reduced. The Company did not reduce the forecast expenditures for the Distribution Rehabilitation, Condition Assessment, or Small Planned Capital Projects for 2009 and 2010 because it does not have sufficient experience with the CCR Project to determine the impact. If the CCR Project is shown to have a positive impact on these projects, the cost reductions will be included in future Capital Plan applications.

30.0 Reference: CCR Project
Exhibit No. B-1, Appendix A, Failure Investigation of Copper Conductor and Material Properties Assessment

Q30.1 Please provide the cost of the "Failure Investigation of Copper Conductor and Material Properties Assessment" report.

A30.1 The cost of "Failure Investigation of Copper Conductor and Material Properties Assessment" was $9,200.

Q30.1.1 Is the cost of the report included in the CCR project costs? If not, why not?

A30.1.1 Yes, the cost is included in the CCR project cost.

31.0 Reference:CCR Project
Exhibit No. B-1, Appendix B, Net Present Value of Revenue Requirements Analysis pp. 1-9
Net Present Value Analysis

Q31.1 For the Net Present Value of Revenue Requirements Analysis of Implementation Plans 1-3, please provide a functional MS Excel spreadsheet for each Plan.

A31.1 The requested documents have been included as an electronic attachment. A hard copy of the requested documents is attached in Errata No. 1 dated August 7, 2008, Item 5.

Q31.2 Given the ten-year life of the CCR project, please explain why the nominal analysis and discount rate of 10% was used instead of an analysis based "real" costs.

A31.2 In theory, a nominal versus a real dollar analysis will produce similar results. The Company normally performs a nominal dollar analysis in order to estimate the potential rate impact of any given project.

Q31.3 Please provide a breakdown of the 2.18% composite Depreciation Rate by account.

A31.3 The assessment of the 2.18 percent composite Depreciation Rate by account is provided in Table A31.3 below. The effective life of newly installed electrical distribution lines is estimated to be 45 years.

Table A31.3
Depreciation Rate by Account

	Asset Account	Asset Type	Expected Life (Yrs)	Depreciation Rate (Revised)	Asset Percentage (Estimated)	Depreciation Rate
				%		
1	350.1 & 360.1	Land Rights-Clearing (T&D)		1.80	10.00	0.18
2	364	Poles Towers & Fixtures	45	2.22	45.00	1.00
3	365	Conductors & Devices	45	2.22	45.00	1.00
Net Depreciation Rate for CCR Project						**2.18%**

Q31.4 Will the CCR capital additions have an impact on FortisBC's depreciation rates? If yes, please provide the impact by account. If not, why not.

A31.4 The CCR capital additions will not have an immediate impact on the Company's depreciation rates. FortisBC's depreciation rates were approved by Commission Order G-58-06. There is no indication at this time that the rates are inappropriate. The CCR capital additions will be reflected in the Company's future depreciation studies and related applications and may or may not impact future depreciation rates.

32.0 Reference:CCR Project
Exhibit No. B-1, Appendix B, p. 2
Net Present Value of Revenue Requirements Analysis;
Exhibit No. B-1, Project Cost, p. 49
Table 7

Q32.1 For 2009 and 2010 please reconcile Appendix B, page 2, line 43, Total Construction Costs in Year to the F2009 and F2010, Table 7, Summary of Costs, Capital Expenditures, page 50.

A32.1 Please see Table A32.1 below which provides the reconciliation between the Application (Exhibit B-1) Appendix B, Page 2, Line 43 and Table 7, Summary of Cost.

Table A32.1
Summary of Costs (Table 7 and Appendix B Reconciled)

Capital Expenditures	Yearly Cash Flow During the Project Life ($000s)											
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Project Cost (Unloaded & Inflation Corrected) without COR	0	3,808	5,297	12,989	8,521	8,691	8,865	9,042	9,223	9,408	9,596	85,440
Planning & Pre-Engineering	150	0	0	0	0	0	0	0	0	0	0	150
Regulatory Cost	150	0	0	0	0	0	0	0	0	0	0	150
Yearly Public Consultation Cost	0	75	77	78	80	81	83	84	86	88	90	821
Capitalized & Direct Overheads (AFUDC = 0)	0	689	897	1,948	1,278	1,304	1,330	1,356	1,383	1,411	1,439	13,035
Credit from Sale of Copper	0	(70)	(93)	(218)	(143)	(146)	(149)	(152)	(155)	(158)	(148)	(1,431)
Cost of Removals (without adjusting for sale of Copper)	0	226	315	772	506	516	527	537	548	559	570	5,076
Total Capital Expenditure	300	4,728	6,493	15,569	10,242	10,446	10,656	10,867	11,085	11,308	11,547	103,241
Appendix B Page 2, Line 35, Yearly Capital Cost Saving (Note 1)	0	(5)	(11)	(27)	(38)	(48)	(59)	(71)	Note 2	Note 2	Note 2	Note 2
Total Capital Expenditures Including Capital Cost Saving	300	4,723	6,482	15,542	10,204	10,398	10,597	10,796				
Appendix B Page 2, Line 43, Total Construction Cost in Year (Note 2)	0	4,723	6,481	15,542	10,204	10,398	10,596	10,798	Note 2	Note 2	Note 2	Note 2
Difference (Note 3)		0	1	0	0	0	1	(2)	Note 2	Note 2	Note 2	Note 2

Please see Errata No. 1 dated August 7, 2008 regarding revised Project Cost.

Note 1 – The Urgent Repair Project was reduced to reflect this.

Note 2 – Line 43, Total Construction Cost in Year Jumps from 2015 to 2020

Note 3 – Difference is due to rounding.

33.0 Reference: CCR Project
Exhibit No. B-1, Appendix B, p. 3
Net Present Value of Revenue Requirements Analysis

Q33.1 Please explain why the Total Carrying Costs in Appendix B, page 3, line 64 is calculated using Average NBV instead of the mid-year NBV?

A33.1 The Carrying Costs are calculated using the average NBV based on the assumption that the project spending will be even throughout the year, or at least symmetrical around the mid-year. Hence the mid-year NBV and the average NBV will be the same value. When calculating forecast revenue requirements for rate setting purposes, the Company adjusts rate base for capital additions in the year by adjusting the forecasted average rate base by the weighted additions in the year.

Q33.2 Is FortisBC's Return on Capital based on based on FortisBC's mid-year Rate Base?

A33.2 Yes, for rate setting purposes FortisBC's Return on Capital is based on mid-year Rate Base.

Q33.3 For 2009 and 2010, please provide a breakdown of the Combined Income Tax Rate in Appendix B, page 3, line 66.

A33.3 Please see Table A33.3 below

Table A33.3
Income Tax Rates

Income Tax Rates	2009	2010
	%	
Federal rate[1]	19.00	18.00
BC rate	12.00	12.00
Reduction in provincial rate[2]	-1.0	-1.0
Revised BC provincial rate	11.00	11.00
Combined Income Tax Rate	**30.00%**	**29.00%**

[1] As per October 2008 Federal Budget announcement, confirmed on Canadian Revenue Agency website.

[2] BC rate reduction of 1% is effective 2008 and has been substantially enacted as per February 19, 2008 BC Budget re Climate Change and confirmed by Ernst and Young.