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March 15, 2016

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Ms. Laurel Ross, Acting Commission Secretary and Director

Dear Ms. Ross:

Re: FortisBC Inc. (FBC)

Application for Approval of Treatment for Major Project Capital Expenditures under the Multi-Year Performance Based Ratemaking Plan for 2014-2019

Attached please find FBC's application seeking approval of treatment for major project capital expenditures.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

FORTIS BC™

FORTISBC INC.

Application for Treatment of Capital Expenditures for Major Projects under its Multi-Year Performance Based Ratemaking Plan for 2014 through 2019

Volume 1 - Application

March 15, 2016

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REGULATORY HISTORY AND APPROVALS SOUGHT

1. APPROVALS SOUGHT

Given the setting of the threshold for exclusion of capital projects from the PBR formula and the change to FBC's CPCN criteria approved by British Columbia Utilities Commission (the Commission) Order G-120-15, there is a need to determine the regulatory treatment of four major projects for which FBC plans to incur capital expenditures during the remaining term of the PBR Plan. These four projects are the Upper Bonnington Old Units Refurbishment, Ruckles Substation Upgrade, Grand Forks to Warfield Fibre, and Grand Forks Terminal Station Transformer Addition (the Projects). The Projects share these characteristics:

1. All of the Projects were clearly excluded from the 2013 Base Capital expenditure amount based on the expectation that they would be filed as CPCN projects;
2. All of the Projects are expected to require capital expenditures during the remaining PBR term.
3. None of the Projects meet the current $20 million threshold for exclusion from the PBR formula or the $20 million financial criterion required for a CPCN application.

The regulatory treatment of the Projects is unclear since the Projects fall below the threshold for exclusion from the PBR formula, but the expenditures on these Projects during PBR cannot be reasonably accommodated within FBC's existing Base Capital. FBC therefore believes it is necessary to determine the regulatory treatment of the Projects at this time. This will address the outcome of the Commission's decision in Order G-120-15 in the most efficient manner and allow the Projects to proceed as needed.

FBC is seeking approval in this Application to file the four capital projects for approval in future Annual Reviews (if they proceed during the remaining PBR term), and to flow through the actual capital expenditures for the Projects outside of the formula-driven capital and add them to rate base January 1 of the year following their in-service date. With this treatment, the Projects would not impact revenue requirements until they are complete and placed into service, ensuring that customers only pay for actual costs incurred for the Projects once approved. FBC is seeking approval that FBC is not required to file CPCNs for two of the Projects as CPCN filings had been previously directed by the Commission for these two projects.

A draft order is attached as Appendix A.

2. REGULATORY HISTORY

Commission Order G-139-14 and accompanying decision approved a Multi-Year Performance Based Ratemaking (PBR) Plan for FortisBC Inc. (FBC) for the years 2014 to 2019 (the PBR Decision). The PBR Decision approved a base level of capital expenditures for 2013 to which the PBR formula would be applied for the term of the PBR Plan (Base Capital). The PBR Decision was followed by a proceeding to review the criteria that would define which capital expenditures would be undertaken as part of the formula-driven capital expenditures and which projects would be flowed through outside of the PBR capital formula. FBC has filed one Certificate of Public Convenience and Necessity (CPCN) application since the PBR Decision which has also provided some guidance on which projects should be undertaken as part of the PBR capital formula. This Application is being filed to address the remaining unresolved issues from these three proceedings, specifically for four major capital projects.

2.1 *THE PBR DECISION*

The PBR Decision determined the level of Base Capital spending for 2013 to which the PBR formula would be applied for the term of the PBR Plan. The amount approved for 2013 was $48.616 million. This amount was based on the capital expenditures which had been approved for 2013; but adjusted to remove major projects (generally those approved by way of CPCN applications) and non-recurring projects. The major and non-recurring expenditures that were approved for 2013 but excluded from the 2013 base capital for the purpose of determining the capital formula were: PCB Environmental Compliance, Trail Office Lease/Purchase, Kelowna Bulk Transformer Capacity Addition, the Kootenay Long Term Facility, the Okanagan Long Term Solution and Advanced Metering Infrastructure (AMI) expenditures[1]. The treatment of these six projects that had expenditures approved for 2013 is not at issue in this Application.

In making the above adjustments for major projects and in its proposal for which capital expenditures would be excluded from the capital formula during the term of the PBR, FBC proposed separate ratemaking treatment for CPCN projects. Specifically, CPCN expenditures would be excluded from the formula and continue to be subject to the existing criteria to determine the need for a CPCN application. These CPCN projects would only be included in rate base after receiving CPCN approval from the Commission and as of January 1 of the year after being placed into service. For FBC at that time (in 2013 and 2014), a CPCN was required for projects in excess of $20 million and any other projects: 1) likely to generate significant public concerns; or 2) that FBC or the Commission wishes to handle through a CPCN; or 3) that a credible majority of stakeholders believes should involve a CPCN. At the time of filing its PBR

[1] The first two listed projects are now complete, the Kelowna Bulk Transformer Capacity Addition will not occur during the PBR term, the Kootenay Long Term Facility has been approved as a CPCN, the AMI expenditures are ongoing and are being flowed outside of the formula, and to the extent that the Okanagan Long Term Solution proceeds it is expected to have a capital cost greater than $20 million and will be the subject of a CPCN application.

proposal, FBC had listed the following proposed CPCN projects[2] that would be commencing during the originally proposed PBR term of 2014 to 2018 in Table 1 below. FBC has included the last three columns in the table to show current anticipated timing and capital costs.

[2] FBC Exhibit B-24 in the PBR proceeding, response to BCUC IR 2.45.1.

Table 1: Proposed FBC CPCN Projects

	2014-2018 PBR Application				Current		
Project	**Reason for CPCN Application**	**Est Start Date**	**Est In Service Date**	**Est Cost ($ million)**	**Est Start Date**	**Est In Service Date**	**Est Cost ($ million)**
Kelowna Bulk Transformer Capacity Addition	FBC committed to filing a CPCN application in its 2012-2013 Capital Expenditure Plan, at a cost then estimated to be $25.6 million, which exceeded the CPCN threshold	2017	2019	14.5	Deferred beyond PBR Term	—	—
Grand Forks Terminal Transformer Addition	G-110-12 directed FBC to file a CPCN	2017	2019	5.9	2018	2020	5.8
Ruckles Substation Upgrade	Potential for need to relocate the substation which would be expected to create significant stakeholder interest	2016	2019	5.9	2017	2020	9.2
Central Okanagan Substation	Exceeds the CPCN materiality threshold	2018	2019	24	Deferred beyond PBR Term	—	—
Grand Forks to Warfield Fibre	G-110-12 directed FBC to file a CPCN	2014	2015	4.8	2017	2018	6.3
Corra Linn Spillway Concrete and Spill Gate Rehabilitation	Exceeds the CPCN materiality threshold	2015	2033	21.6	CPCN to be filed	—	>50
Kootenay Long Term Facilities Strategy	Perceived interest by stakeholders and BCUC. Final project estimate at filing exceeded the CPCN materiality threshold	2014	2016	16.4	2016 (C-2-16)	2017	22.4

	2014-2018 PBR Application				Current		
Project	**Reason for CPCN Application**	**Est Start Date**	**Est In Service Date**	**Est Cost ($ million)**	**Est Start Date**	**Est In Service Date**	**Est Cost ($ million)**
Upper Bonnington Old Units Refurbishment	Exceeds the materiality threshold	2016	2019	21.0	2017	2020	26.8

Of the projects listed in Table 1 above, the Kootenay Long Term Facilities Strategy (now referred to as the Kootenay Operations Centre) has been recently approved on the basis of a CPCN application, and the Kelowna Bulk Transformer Capacity Addition and the Central Okanagan Substation are now projected to fall outside of the PBR term and are therefore not addressed in this Application. FBC intends to file a CPCN Application for the Corra Linn Concrete Rehabilitation project during 2016. Each of the other projects is discussed in section 3 of this Application.

In the PBR Decision, in reviewing FBC's proposal for capital to be excluded from the formula, the Commission made the following determinations:

1. The Commission Panel finds that it is appropriate to exclude some capital projects from the capital formula spending envelope[3].
2. The Panel finds that the current CPCN exclusion criteria as proposed are not appropriate[4].
3. Until such time as any further determination is made concerning capital exclusion, the Panel approves the current CPCN exemption threshold as the threshold for exclusion for both utilities as applied for[5].

The Panel invited further submissions on the matter, and set out a timetable for submissions on a number of issues that would determine a capital threshold for projects to be flowed outside of the PBR capital formula. The proceeding that addressed those issues is discussed below in section 2.2.

2.2 *CAPITAL EXCLUSION CRITERIA PROCEEDING*

On January 30, 2015, FBC filed its Capital Exclusion Criteria submission in response to the Commission's request for submissions as set out in the PBR Decision. In summary, FBC proposed that capital exclusions from the PBR formula should be based solely on a dollar threshold that would be aligned with the CPCN threshold. FBC proposed that the expenditure threshold for CPCN applications should be reset to $5 million, a value based on ten percent of FBC's 2013 approved Base Capital, and that the $5 million value should be used as the sole criterion for excluding capital projects from the PBR formula capital spending envelope. FBC proposed that all capital spending to be funded under the PBR capital formula spending envelope would be exempt from the requirement to obtain a separate CPCN, and that all capital projects excluded from the formula spending envelope should be approved by way of a CPCN application.

[3] PBR Decision Page 170.
[4] PBR Decision Page 174.
[5] PBR Decision Page 175.

Based on this proposal and the major capital projects expected at that time, FBC determined that no adjustments to the Base Capital amount subject to the PBR formula would be necessary.

FBC's conclusion that no adjustment to the level of Base Capital expenditures was necessary was premised on its proposed change in the materiality limit from $20 million to $5 million. All of the projects for which FBC expected to file a CPCN application at the outset of the PBR plan would have met both the existing and revised (proposed) criteria. That is, at the time, all of the major projects for which FBC had planned to file a CPCN exceeded $5 million.[6] No more and no fewer projects would have been excluded from the PBR formula or would have required a CPCN application; hence no change to the level of Base Capital was needed. Had FBC proposed a materiality limit of $20 million as the sole determinant for CPCN applications and capital exclusions from the PBR formula, with none of the previous non-financial criteria, FBC would have identified a need to address the regulatory recovery treatment of projects that would not meet the materiality threshold.

On July 22, 2015, the Commission issued Order G-120-15 and reasons for decision (the Capital Exclusion Decision). In summary, the Commission set a CPCN threshold and a PBR materiality threshold for capital at $20 million for FBC. This amount was significantly higher than had been proposed by FBC. The Commission also removed the non-financial criteria from consideration and added additional criteria around combining projects.[7] With a PBR materiality threshold based solely on $20 million, the Capital Exclusion Decision brought into question a number of projects that had previously been considered CPCNs and excluded from the formula capital base.

Since the Capital Exclusion Decision, FBC has received approval for one CPCN project, the Kootenay Operations Centre.

2.3 *KOOTENAY OPERATIONS CENTRE CPCN*

In the Kootenay Operations Centre (KOC) proceeding, questions were raised about issues that are relevant to the PBR Decision and the Capital Threshold Decision regarding the capital to be funded under the PBR capital formula. Specific issues were raised regarding the materiality level for excluding projects from the formula capital spending, and about combining projects. To

[6] FBC notes that at the time of the Capital Exclusion Submission, the Grand Forks to Warfield Fibre project was estimated to cost $6.5 million.

[7] Directive 3 of Order G-120-15 stated "For any capital project applications that exceed the PBR materiality threshold, FBC and FEI are directed to demonstrate to the Commission that the project applied for is not the result of combining smaller projects and that the actual costs fall above the PBR threshold."

address those issues, in its reply argument in that proceeding, FBC made the following submissions[8]:

> *FBC has provided its rationale for funding of the KOC Project outside of the PBR formula. The Company has identified the Project as a future CPCN consistently in its filings since 2011, including in the PBR application that set the base for the formula capital in the PBR. The Project (referred to at the time as the Kootenay Long Term Facilities Project) was not included in the base level of capital expenditures at that time.*
>
> *When the Application was filed, the Project met the CPCN and capital exclusion criteria in place. The Commission's July 22, 2015 decision accompanying Order G-120-15 (the Capital Exclusion Decision) removed non-financial criteria from FBC's capital exclusion threshold, which was maintained at the $20 million level. No adjustment was made to FBC's base capital. In that proceeding, FBC had sought a $5 million threshold with removal of non-financial criteria:*
>
> > *On January 30, 2015, FEI and FBC (the Companies) filed their compliance filing regarding the appropriate capital exclusion criteria under PBR. Under this proposal, the Companies proposed a $5 million capital exclusion threshold for FBC and a $15 million capital exclusion threshold for FEI, with no other criteria, and the same threshold to be applied to CPCN projects. In that filing, the Companies also discussed whether an adjustment to the capital formula base would be required based on their recommendations. Based on the recommendations of the Companies, no adjustments were put forward.*
> >
> > *On July 22, 2015, the Commission issued Order G-120-15 in which it accepted the Companies' proposal for FEI's capital exclusion and CPCN threshold, but set FBC's capital exclusion and CPCN threshold at $20 million, with no additional criteria. This was a departure from both FBC's capital exclusion threshold at the time of determining the formula capital base, and also from the proposal of the Companies in which they stated that no adjustment to the formula capital base would have been required had the Commission set FBC's threshold at $5 million.*
>
> *The KOC Project meets the $20 million PBR materiality threshold, but even if it did not, would still be appropriately excluded from formula capital for the following reasons:*
>
> *a) The recovery of the costs of the Project is not contemplated through FBC's formula capital envelope. FBC would be unable to maintain its existing plant and equipment and meet customer growth if the capital expenditures normally allocated for sustainment and growth capital were to be reduced by the cost of the Project.*

[8] FBC Reply Submission, starting at page 1

b) Projects in the nature of the KOC Project were not included in the determination of base capital under the PBR formula. Major and non-recurring types of capital, specifically including the KOC Project and other major buildings and facilities projects, were eliminated from historical expenditures when determining the level of base capital.

The Commission stated that the less inclusive approach to capital in the Capital Exclusion Decision was meant to "protect the interests of both the ratepayer and the shareholder". As the Commission previously noted in the PBR decision, factors in determining the appropriate materiality threshold include regulatory efficiency, allowing ratepayers the opportunity to realize the benefit of cost savings, and providing the Company with a reasonable opportunity to recover prudently incurred costs.

If the Commission approves the Project as a CPCN, FBC is entitled to recover its prudently incurred costs. Should the KOC Project not meet the PBR materiality threshold, the only reasonable alternative to funding the Project outside of formula capital would be to adjust the PBR formula to include Project costs as a result of the changes introduced by the Capital Exclusion Decision. This would have a significant impact as the KOC Project cost is over $20 million while the 2016 capital formula, for comparison purposes, is only $42.874 million. FBC anticipates that adjusting the PBR formula for Project costs would have negative impacts on customers because, based on the Project spending profile, customers would be adversely affected through a substantial reduction of earnings sharing returned to customers during the PBR term.

In response to ICG's submission that FBC should be required to prioritize competing demands for capital, FBC submits that it is already required to do so. FBC's PBR Plan limits the amount of capital the Company may spend each year, which provides challenges for FBC in meeting customer growth capital and sustaining capital requirements. ICG's statements regarding Celgar and Teck Cominco are irrelevant.

ICG argues that FBC has not established that the KOC Project is not a combination of smaller projects. FBC submits that the Project is for a single facility which realizes efficiencies through the reorganization and relocation of its component groups and facilities such as the EOC, Station Services group and Network Services group. As the analysis for Alternatives 2 and 3 illustrates, the total cost of separately addressing a limited number of the issues identified by FBC would be higher than that of the KOC Project.

FBC notes CEC's position that the Project should appropriately be excluded from base capital, and agrees with CEC's submission that the Project is appropriately classified as a CPCN and should be treated as such under PBR. In the alternative, if the Project

> *does not meet the materiality threshold, FBC requests that the Commission approve funding of the Project through an increase to the PBR formula capital.*

The arguments put forth in that submission are relevant to the Projects that FBC discusses in section 3.

On March 4, 2016, the Commission approved the CPCN for the Kootenay Operations Centre, and the flow through of the capital expenditures outside of the PBR capital formula. In making its determinations, the Commission confirmed that the Capital Exclusion Criteria decision:

> *…did not comment on the impact that the elimination of the non-financial criteria may have on capital projects that were identified by FBC in the PBR proceeding as being less than $20 million but still anticipated to be CPCNs based on the previously existing non-financial criteria*.[9]

Furthermore, the Commission stated:

> *Notwithstanding the fact that the KOC project exceeds the $20 million threshold, the Panel concludes that it would not be reasonable to consider the KOC project as included in the PBR cost base, because the KOC was specifically anticipated in the original PBR hearing (with an estimate of approximately $16 million) to be excluded from the PBR formula.*[10]

FBC believes the KOC Decision makes clear that those projects identified as CPCN projects in the PBR Decision should not be included in Base Capital expenditures regardless of whether they meet the $20 million threshold.

3. FOUR MAJOR CAPITAL PROJECTS

In this section, FBC describes the four major capital projects that had been identified in the PBR proceeding as being funded outside of the PBR capital formula and for which FBC currently plans to incur capital expenditures during the remaining term of the PBR Plan. These projects are the Upper Bonnington Old Units Refurbishment, Ruckles Substation Upgrade, Grand Forks to Warfield Fibre, and Grand Forks Terminal Station Transformer Addition projects.

Note that the following is a description of the high-level drivers which support the need for each of the Projects and is not intended to be a detailed justification for each project. For clarity, FBC is not seeking any approvals of the Projects at this time and instead proposes to file more detailed descriptions and justifications for each project during future PBR Annual Reviews.

[9] Order C-2-16 and Decision, page 23.
[10] Ibid., page 26.

3.1 *UPPER BONNINGTON OLD UNITS REFURBISHMENT PROJECT*

This project will see the refurbishment of four units at FBC's Upper Bonnington generating plant (UBO).

FBC's generation facilities consist of 15 hydroelectric generating units in four plants located on the Kootenay River between the cities of Castlegar and Nelson. Under the Canal Plant Agreement (CPA), FBC gives control of 12,800 cubic feet per second (cfs) of licensed water to BC Hydro, and in return BC Hydro supplies an entitlement of 470.2 GWh (and 62 MW) to FBC in respect of its four generating plants. In order to receive this entitlement, FBC is obligated to keep the generating units in good operating order and ensure that they are available to be dispatched within ten minutes. If the unit is not available to start within ten minutes of being needed, then the entitlement associated with the unit (a fixed amount calculated under the CPA) is not available to FBC, and FBC will be required to purchase replacement resources and/or reduce surplus sales, both of which will negatively impact power supply cost.

These hydroelectric generating plants, initially constructed between 1897 and 1932, are renewed by both major projects, which have included the 1998 to 2012 Upgrade and Life Extension (ULE) program, and additional capital sustaining projects, which are relatively small in scope and necessary to maintain safe and efficient operation of the plants. The scope of a ULE project is a "water to wires" refurbishment of each of the generating units' systems including, where economic, upgrades to the turbine runners. The ULE program encompassed eleven of the Company's fifteen generating units. Four of the six units at Upper Bonnington (UBO) were not part of the ULE program.

The UBO plant itself is comprised of six generating units. Units 1 through 4 were built as part of the first powerhouse in 1905 and are commonly referred to as the "Old Plant" or "Old Units". Two additional units were added to the UBO site in 1940. The dates of installation and MW rating of each unit are as follows:

- Unit 1 Installed 1913, rated at 5.7 MW;
- Unit 2 Installed 1905, rated at 5.7 MW;
- Unit 3 Installed 1908, rated at 5.7 MW;
- Unit 4 Installed 1916, rated at 5.7 MW.
- Unit 5 Installed 1940, rated at 18.4 MW (upgraded in 2004 to 22.6 MW); and
- Unit 6 Installed 1940, rated at 18.4 MW (life extended in 2004 to 18.7 MW).

In 1997, the "Kootenay River Hydroelectric Resource Optimization Study" was commissioned to help develop a 15-year life extension program for FBC's hydroelectric facilities. With respect to Upper Bonnington, two key findings arose:

- It was recommended that the larger Units 5 and 6 undergo ULEs given the energy entitlement increases expected from potential turbine runner upgrades; and
- Analysis showed that ULEs for Units 1-4 would result in only marginal increases in energy improvements for these units and ULEs were therefore not recommended.

Accordingly, the Old Plant was not scheduled to undergo ULE work and it was decided to continue to assess the ability of these four units to provide reliable service. Further engineering studies were conducted in 2000, 2003 and 2009 in which the need to upgrade the Old Plant was assessed on the basis of risk of failure and the potential rate impact as a result of undertaking an upgrade. The assessments demonstrated the need to maintain this generation resource, but also indicated that refurbishment of these units was not required due to continued satisfactory operating parameters, which have been maintained through low cost sustainment upgrades rather than complete refurbishments of the units.

In early 2013, UBO Unit 3 was dewatered for its annual inspection, which revealed damage around the lower turbine area as a result of failed supporting concrete, including a shaft which bent as a result of imbalance and excessive wear. FBC completed the necessary mechanical repairs to Unit 3 in order to return the unit to service. Following the Unit 3 failure it was concluded that annual low cost repairs did not result in improvements to safety and reliability and continued operation of the other units would likely lead to similar failures. In order to assure continued safe and reliable operation of these units, refurbishment is required. Under the CPA, FBC's entitlement would be reduced by 122 GWh and 22.3 MW if the four Old Units were to fail. The cost of this entitlement loss is estimated at approximately $5.6 million per year.

As explained above, FBC has historically not considered the Old Plant to be a component of the ULE program. Because of the smaller size of the units, their reduced operating time compared to FBC's other generating units and the practicality and economies of treating the four units as a single project[11], FBC considered these as related projects that should be the subject of a CPCN application for approval to refurbish the Old Plant as a whole. This expectation was set out in the PBR proceeding.

However, the Capital Exclusion Decision added as a requirement for capital project applications that exceed the PBR materiality threshold the need to "demonstrate to the Commission that the project applied for is not the result of combining smaller projects".[12]

FBC confirms that although the total cost to refurbish the Old Plant exceeds the materiality threshold, each of the Old Unit refurbishments can be justified on its own merits and should be treated as a stand-alone project. This is consistent with the treatment of each unit previously

[11] In FBC's 2012 Integrated System Plan, the project was referred to as the "Upper Bonnington Old Units Repowering" project.
[12] Capital Exclusion Decision Page 12

undergoing upgrades or life extensions, as shown in Table 2 below, which also demonstrates that more than half of the ULE projects completed between 1998 and 2012 were approved without the need for a CPCN application.

Table 2: History of Upgrade Life Extension Projects

Plant	Unit	Start Date	Capacity (MW)	Capital Cost	Order No[13]
Lower Bonnington	2	1998	16.3	$6.9 million	G-1-97
Corra Linn	3	1999	17.4	$8.5 million	C-3-99
South Slocan	2	2000	19.2	$10.0 million	C-12-00
Upper Bonnington	5	2004	22.6	$8.4 million	C-2-01
Upper Bonnington	6	2004	18.7	$9.9 million	C-17-03
Lower Bonnington	1	2005	16.3	$12.9 million	G-52-05
Lower Bonnington	3	2007	14.2	$14.6 million	G-52-05
South Slocan	3	2008	18.6	$12.8 million	G-52-05
South Slocan	1	2009	18.6	$15.6 million	G-8-06
Corra Linn	1	2010	17.4	$16.0 million	G-157-06
Corra Linn	2	2011	17.4	$18.7 million	C-5-09

Further guidance, which is relevant to the refurbishment of the Old Units, was given in the decision accompanying Order G-193-15 regarding FortisBC Energy Inc.'s (FEI) Annual Review for 2016 Rates. Concerning the issue of whether the Fraser Gate Intermediate Pressure (IP) and Coquitlam Gate IP projects should be regarded as a single CPCN, as filed in the Lower Mainland Intermediate Pressure System Upgrade CPCN application, FEI acknowledged that each of the two projects could be justified on its own merits. The Panel concluded that:

> *Whereas FEI has put forward a number of areas where costs can be reduced by managing the projects in parallel, we are not persuaded that these benefits arise from a common CPN as opposed to prudent management of two (arguably similar and/or related) discrete projects.*[14]

This history of FBC's ULE program demonstrates that the refurbishment of UBO Units 1 to 4 constitute separate projects, none of which individually meet the materiality threshold for CPCN Applications. Also, as identified in section 2.1, this scope of work was specifically excluded from Base Capital expenditures under the PBR Plan as it had been identified as being a future CPCN under the CPCN criteria that existed at the time, and should therefore be accorded flow-through treatment as described in more detail in section 4.

[13] "C" Orders denote CPCN approvals.
[14] Order G-193-15 and Decision, page 16.

The UBO project involves the replacement and refurbishment of all components of the Old Plant that are required to extend the life of Units 1-4. The scope of the project includes such items as:

- Refurbishment of the generator bearings, turbine shaft bearings and journals, turbine runners, governor column, and turbine (distributor) components for Units 1, 2, and 4;
- Installation of generator bearing lubrication and high pressure oil lift systems for Units 1, 2, and 4;
- Installation of high pressure governor and generator cooling systems for all Units;
- Replacement of the generator braking system and trash racks for all Units;
- Installation of new excitation and new unit protection and control systems for all Units;
- Rewinding of the stator and re-insulation of the field windings for Units 1, 3 and 4; and
- Structural improvements and concrete rehabilitation.

The current anticipated project schedule and cost estimate by unit follows.

Table 3: Schedule and Estimated Capital Cost in 2016 $ of UBO Old Units Refurbishment

Plant	Unit	Start Date	Completion Date	Capacity (MW)	Capital Cost ($ million)
Upper Bonnington	3	May 2017	Nov 2017	5.7	$4.8
Upper Bonnington	2	Jan 2018	Jul 2018	5.7	$5.2
Upper Bonnington	4	Oct 2018	Apr 2019	5.7	$6.8
Upper Bonnington	1	Jun 2019	Jan 2020	5.7	$6.7
Common Cost[15]					$3.3

3.2 *RUCKLES SUBSTATION UPGRADE*

FBC plans to upgrade the aged Ruckles Substation on the existing site in Grand Forks to address equipment condition and to meet current substation standards.

Ruckles Substation is a distribution wholesale supply point to the City of Grand Forks. The peak load delivered by the substation is approximately 16 MW and represents 100 percent of the load for Grand Forks. The substation has numerous condition issues related to aging equipment; in addition, it is located in a manmade depression and on several occasions has experienced increasingly severe flooding (up to 0.6 metres deep) during spring. Due to the then uncertain future of the substation, FBC did not include the substation in its 2007 application for its Distribution Substation Automation Project, the purpose of which was to apply a standard

[15] Common costs are those costs for common auxiliary systems for all four units which will be installed during the first year and the common cost associated with the final plant wrap-up in the last year.

package of protection, monitoring and data collection equipment to existing distribution substations on par with the Company's standards for new substation construction. This has left the equipment at the station below present-day standards and with limited availability of replacement parts should any of the protection or metering equipment fail.

In the PBR proceeding, the Company stated that it was investigating options to address the Ruckles Substation. A CPCN application was expected at that time because of the potential for relocation of the substation. FBC anticipated that the relocation of the substation would generate significant public concerns, as had been the case for several other greenfield substation projects in previous years. Significant public concern was one of the non-financial criteria in place in 2013 and 2014 that would have necessitated a CPCN application.

FBC has now completed its assessment of the options and intends to rebuild the Ruckles Substation on the existing site. Although the project cost does not exceed the materiality threshold, so that under the single criterion approved by Order G-120-15, no CPCN application is required, the scope of work for the Ruckles Substation was specifically excluded from Base Capital expenditures under the PBR Plan as it had been identified as being a future CPCN under the CPCN criteria that existed at the time, and should therefore be accorded flow-through treatment as described in more detail in section 4.

The project scope as it is envisioned at this time includes, but is not limited to, the following:

- Raising existing site above projected flood levels and rebuild existing station to current FBC standards;
- New 40 MVA, 69kV/13kV transformer and two new 5 MVA, 13kV/4.2kV step down transformers;
- New 69kV, 1200 Amp breaker and disconnects;
- Re-installing existing 13kV capacitor;
- New Control building, new underground conduit system, new standard metering and protection, and new station service equipment;
- Completion of a station grounding and geotechnical study; and
- New station ground grid.

The three-year project is forecast to begin in 2017 at an estimated cost of $9.2 million.

3.3 GRAND FORKS TO WARFIELD FIBRE PROJECT

The Grand Forks to Warfield Fibre project consists of the installation of a new fibre optic cable along FBC's existing 161 kV transmission line (11E Line) between the Grand Forks Terminal Station and the A.S. Mawdsley Terminal Station near Warfield.

FBC presently operates two high-capacity fibre-optic backbones, one in the Kootenays and one in the Okanagan, which carry critical operational traffic such as teleprotection signalling, remedial action scheme communications, SCADA (Supervisory Control and Data Acquisition) monitoring/control data, and voice and data communications circuits. The fibre backbones are also used to provide low-cost yet high-bandwidth data communications between offices and substations for corporate wide-area network purposes.

The gap between FBC's two fibre-optic systems (Grand Forks to Warfield) is mitigated by the use of communications links leased from TELUS (for general corporate communications) and a small number of data channels by the BC Hydro microwave system (for critical operational communications). The bandwidth offered by BC Hydro is barely sufficient for present operational circuits and there is no additional capacity to accommodate future growth. Extended length (2 hours or more) failures of the third-party communications system have occurred on a regular basis (multiple times per year). The Grand Forks to Warfield Fibre project is necessary to increase the reliability of the communications system (historical reliability of FBC's existing fibre-optic systems approaches 99.9999 percent), which is necessary for the continuation of critical operations to safely and reliably operate the interconnected system.

FBC first proposed this project in its 2011 Capital Expenditure Plan (CEP) application. In that application, approval for only engineering/estimating expenditures was sought, with a subsequent application to propose procurement and installation of the fibre cable. At the time, the Commission denied approval for the preliminary costs and directed that a CPCN be filed for the project. In its decision, the Commission identified a concern with the excess capacity of the cable and the potential for its utilization[16].

In 2011, FBC entered into a binding agreement with a third-party communications provider who committed to a long-term lease encompassing a significant number of fibres along this route. This represented a significant potential benefit to the ratepayer, and addressed some of the major questions the original decision from the 2011 CEP had raised. Consequently, FBC again sought approval for this fibre-optic cable between Grand Forks and Warfield in its 2012-2013 Revenue Requirements application, as part of the Grand Forks Transformer Addition project. The Commission re-iterated the need for a CPCN, in part, to allow a full vetting of intervener

[16] Order G-195-10, page 40.

concerns regarding investments in fibre optic communications compared to use of third party providers[17].

There are no fibre optic cables between Grand Forks and Warfield owned by third parties which are available to FBC and that would meet FBC's communications security and reliability needs; further, as discussed above the existing arrangement is subject to limitations. FBC's only option is therefore to construct and own its own fibre optic cable. However, FBC's intention to proceed with the project is subject to successfully negotiating contractual agreements to include some form of financial contributions with one or more third-party communications providers and other potential users for access to FBC's new fibre cable, such that the revenue requirement and rate impact would be zero, or near to zero, on a net present value basis. FBC believe the lack of any third-party option and a rate impact of zero, or near to zero, addresses the concerns of the Commission raised in the 2011 CEP proceeding.

FBC therefore believes that the concerns previously raised in regard to this project can be adequately addressed using the approval process requested in this Application, and that a CPCN application should not be required in order to approve this project. The project cost is well below the materiality threshold and this project was specifically excluded from Base Capital expenditures under the PBR Plan as identified in section 2.1. The project should therefore be accorded flow-through treatment as described in more detail in section 4.

The two-year project is forecast to begin in 2017 at an estimated cost of $6.3 million. The revenue requirements associated with this expenditure will be reduced to zero, or near zero, on an NPV basis through some form of financial contributions from third-party communications providers/users.

3.4 GRAND FORKS TERMINAL TRANSFORMER ADDITION

This project consists of the permanent installation of a spare 161/63 kV second transformer currently housed at the Grand Forks Terminal Station and the deactivation and removal of the 63 kV transmission lines 9 Line and 10 Line between Rossland and Christina Lake.

The East Boundary Distribution system is served by the Grand Forks Terminal (GFT) Station by way of the 161 kV 11E Line to the A.S. Mawdsley Terminal Station near Warfield and the 161 kV circuit 11W Line/48 Line to the Bentley Terminal Station near Oliver. GFT contains a single 161/63 kV transmission transformer (GFT T1). In the event of a forced outage to this transformer, supply to the Grand Forks area can only be re-established via the existing 63 kV 9 Line or 10 Line from the Warfield Terminal Station. During winter peak conditions, the Grand Forks load exceeds the capacity of either 9 Line or 10 Line, and thus both lines need to be

[17] 2012-2013 Revenue Requirements and Review of 2012 Integrated System Plan, Order G-110-12, page 95, and Final Submission of BC Municipal Electrical Utilities, page 21.

operated in parallel to prevent overloads. In addition, both transmission lines (originally constructed in 1918) are in relatively poor condition given their age, and experience frequent outages, especially during winter conditions due to snow unloading and tree contacts.

FBC first proposed the installation of a second 161/63 kV transformer at GFT and the salvage of 9 and 10 Lines in its 2012-2013 CEP. In that application, the transformer addition project was linked to the Grand Forks to Warfield Fibre Project (as described in section 3.3 above) as the infrastructure required to integrate the transformer into the substation is greatly reduced by the availability of secure fibre-optic communications links to the remote substations. At the time, FBC sought approval for expenditures related to the relocation and storage of a spare transformer at the GFT. The Commission endorsed the relocation of the spare transformer, but rejected the proposed expenditures related to the installation of the second transformer because the need for increased reliability was not apparent. The Commission also directed FBC to apply for a separate CPCN for approval.[18]

FBC has relocated the spare 161/63 kV transformer to the GFT site; nevertheless, in the event of a failure of GFT T1, replacement with the spare is expected to take approximately three to four weeks, assuming no major environmental mitigation or repairs to other station equipment were required as a result of the transformer failure. A consequent failure of either 9 Line or 10 Line which provide the backup 63 kV supply would leave the East Boundary area without supply for an extended period pending repairs. FBC believes that the permanent installation of the spare transformer would mitigate this supply risk, improve the transmission supply reliability for the Grand Forks area, and enable the decommissioning and removal of 9 and 10 Lines thereby avoiding the ongoing O&M and capital costs associated with maintaining these aging lines.

The project cost does not exceed the materiality threshold and this project was specifically excluded from Base Capital expenditures under the PBR Plan as identified in section 2.1. The project should therefore be accorded flow-through treatment as described in more detail in section 4.

This three-year project, currently scheduled to begin no earlier than 2018, is estimated at $5.8 million.

4. PROPOSED REGULATORY TREATMENT

Table 4 below shows the current forecast annual spending on each of the Projects identified in this Application and the anticipated in-service date. Although the timing and cost of the Projects is subject to change, these calculations show that for the remainder of the PBR term (2017 to 2019), annual forecast capital spending on the Projects is significant.

[18] Order G-110-12, page 95.

Table 4: Major Capital Projects During Remainder of PBR Term ($ millions)

Project	2017	2018	2019	2020	Total	Enters Rate Base Jan. 1:
UBO U3 Refurbishment	4.8	—	—	—	4.8	2018
UBO U2 Refurbishment		5.2	—	—	5.2	2019
UBO U4 Refurbishment	—	2.9	3.9	—	6.8	2020
UBO U1 Refurbishment	—	—	5.4	1.3	6.7	2020
Common Cost	2.8			0.5	3.3	2018[19]
Subtotal, UBO Old Units	**7.6**	**8.1**	**9.3**	**1.8**	**26.8**	
GFT Transformer Addition	—	2.5	2.2	1.1	5.8	2020
Ruckles Substation Upgrade	—	4.0	4.8	0.4	9.2	2020
Warfield to Grand Forks Fibre-Optic	3.2	3.1	—		6.3	2019
Total	**10.8**	**17.7**	**16.3**	**3.3**	**48.1**	

It is clear from the magnitude of the major project expenditures associated with the Projects that they cannot be accommodated within the formula capital spending envelope without significant adverse impact to FBC's capital program. In fact, the annual expenditures forecast for the Projects in the years 2017 through 2019 range from 22 percent to 36 percent of the 2013 Base Capital amount, and from over one-half to almost 90 percent of the total sustainment capital expenditures included in the Base Capital amount[20]. Expenditures on the Projects over the remaining term of the PBR Plan are $44.8 million[21], which compares to the $54.9 million for the six CPCN and major capital projects excluded from the 2013 approved capital expenditures in the calculation of the Base Capital amount.

For the reasons explained in the discussions of the Projects above and in consideration of the goal of efficiency that was considered in the setting of the $20 million capital threshold[22], FBC believes that CPCN applications should not be required for the Projects.

FBC has considered two alternatives for the capital recovery of the Projects – the first, FBC's proposed treatment, is to flow the capital costs outside of the capital formula, and the second is to increase the formula capital amount for the remainder of the PBR term.

[19] $0.5 million of the common cost will be in service in 2020.
[20] 2013 Base Capital was $48.6 million which included $20.0 million of sustainment capital expenditures.
[21] $48.1 million total less $3.3 million which falls outside of the PBR term.
[22] Page 5 of the Capital Exclusion Decision: The purpose of this proceeding is to further explore the level of capital inclusiveness which is most appropriate to maximize efficiencies and determine principles and process to manage it for the balance of the PBR Plans.

4.1 CAPITAL FLOW THROUGH TREATMENT

The first option is to flow the capital costs outside of the capital formula during the PBR term, subject to approval of the Projects in the Annual Review to set rates for the year in which the project begins. As would be the case had the Projects qualified as CPCN projects, FBC proposes to include the Projects in rate base January 1 of the year following the in-service date. Project expenditures will be recorded in Construction Work in Progress (CWIP) subject to AFUDC until entering rate base, ensuring that there is no revenue requirement impact associated with the Projects while under construction.

To allow the Commission an opportunity to review and approve the Projects, the Annual Review materials will include a business case for each proposed project. The business case will include the following:

- Project need, justification and alternatives considered;
- Project description for selected alternative including design and location options;
- Safety and reliability considerations;
- Cost estimates at a Class 4 degree of accuracy as defined in the AACE International Cost Estimate Classification System;
- Incremental O&M costs or savings, if any; and
- Associated revenue requirements and rate impact.

The Annual Review process provides for a round of Information Requests and a workshop, which FBC submits would be an appropriate process for the review of the Projects prior to their acceptance as flow-through items outside of the capital formula spending envelope. The flow-through nature of the treatment, and the entry into rate base on January 1 of the year after being placed in service, ensures that only actual expenditures are reflected in revenue requirements and eliminates any forecast risk to customers or the Company.

4.2 CAPITAL FORMULA ADJUSTMENT TREATMENT

The second option is to adjust the PBR capital formula starting in 2017 to accommodate the Projects. Based on the spending profile shown in Table 4 above, the capital formula would need to be increased by $14.9 million (the average forecast spending over the three year period of 2017 to 2019) in order to accommodate the Projects.

This treatment has the disadvantage of including the amount of the formula increase for the Projects in rate base during the PBR Term, because under the PBR Plan, all Base Capital expenditures are assumed to enter rate base during the year of expenditure. All else equal, this would increase the variability between formula and actual expenditures, due to the already-known annual variances as shown in Table 4, and for cost variances from estimate as well as

scheduling variances. As can be seen from Table 4 above, when compared to the average expenditure of $14.9 million in 2017 through 2019, the forecast expenditure profile would result in underspending of the (revised) formula in 2017 and in overspending in 2018 and 2019.

Further, the Commission would not have an opportunity for review of the Projects before they are undertaken, as they would be accommodated under FBC's existing capital formula.

4.3 *RECOMMENDED TREATMENT AND REGULATORY PROCESS*

In FBC's view, the uncertainties around costs and timing of the Projects and the potential revenue requirements implications of those uncertainties makes the alternative of adjusting the base capital expenditure level an inferior solution, compared to the flow-through treatment proposed. Under FBC's proposed flow-through treatment, the Commission would have the opportunity to review all of the Projects through the Annual Review process and only actual expenditures would be reflected in revenue requirements.

For the reasons discussed above, FBC recommends that the capital expenditures be flowed outside of the formula for the following projects during the PBR term:

- Upper Bonnington Old Units Refurbishment;
- Ruckles Substation Upgrade;
- Grand Forks to Warfield Fibre Optic; and
- Grand Forks Terminal Station Transformer Addition.

FBC requests that the Commission approve the proposed treatment of the Projects and submits that no public review of this Application is required, as no specific expenditure requests are being made at this time. The Annual Review process described above will provide an opportunity for review and approval of the Projects prior to any expenditures being made.

5. CONCLUSION

FBC has reviewed the PBR Decision, the Capital Threshold Decision, and its planned major capital projects over the PBR term, and proposed a treatment for recovery of the related capital costs. FBC recommends that the capital costs be flowed through in revenue requirements outside of the capital formula, subject to approval of the Projects in the respective Annual Reviews.

Appendix A
DRAFT ORDER

British Columbia Utilities Commission

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ORDER NUMBER
G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Inc.
Application for Approval of Treatment for Major Project Capital Expenditures
under the Multi-Year Performance Based Ratemaking Plan for 2014-2019

BEFORE:
Panel Chair/Commissioner
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On September 15, 2014, the British Columbia Utilities Commission (Commission) issued Order G-139-14 for FortisBC Inc. which set out the Performance Based Ratemaking Plan (PBR Plan) for 2014 through 2019 (FBC Decision);

B. On pages 174 and 175 of the FBC Decision, the Commission invited submissions from all parties on issues related to how certain capital projects would be excluded from the capital spending formulas in the PBR Plans (Capital Exclusion Criteria);

C. On July 22, 2015, the Commission issued Order G-120-15 (Capital Threshold Decision) which set FBC's PBR materiality threshold at $20 million, to be used to determine whether capital costs are eligible for exclusion from FBC's formula-driven capital spending, and which maintained FBC's CPCN dollar threshold at $20 million, but removed a number of non-financial criteria for filing a CPCN;

D. On March 15, 2016, FBC filed an Application for Treatment of Capital Expenditures for Major Projects. The major projects were defined as Upper Bonnington Old Units Refurbishment, Ruckles Substation Upgrade, Grand Forks to Warfield Fibre, and Grand Forks Terminal Station Transformer Addition (the Projects);

E. The Commission has reviewed and considered the Application and determines that the requested changes as outlined in the Application should be approved.

NOW THEREFORE the British Columbia Utilities Commission orders as follows with respect to the Projects:

1. FBC is directed to file for approval of the Projects in future Annual Reviews, if the Projects are identified by FBC as being required during the remaining term of the PBR. For clarity, this direction supersedes any previous directions of the Commission that any of the Projects be filed as a CPCN.

2. To the extent the Projects are approved in future Annual Reviews, the actual costs will be flowed through to revenue customers outside of the formula-driven capital, and the Projects will be added to rate bate base January 1 of the year following their in service date.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month 2016).

BY ORDER

(X. X. last name)
Commissioner