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September 16, 2019

Industrial Customers Group  
c/o #301 – 2298 McBain Avenue  
Vancouver, BC V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

**Re: FortisBC Energy Inc. and FortisBC Inc. (collectively FortisBC)**

**Project No. 1598996**

**Application for Approval of a Multi-Year Rate Plan for 2020 through 2024  
(Application)**

**Response to the Industrial Customers Group (ICG) Information Request (IR) No.  
2**

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On March 11, 2019, FortisBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-156-19 setting out the Regulatory Timetable for review of the Application, FortisBC respectfully submits the attached response to ICG IR No. 2.

If further information is required, please contact the undersigned.

Sincerely,

**FORTISBC INC.**

***Original signed:***

Doug Slater

Attachments

cc (email only): Commission Secretary  
Registered Parties

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**1.0 Reference: Exhibit B-1, Section 5.3.2, page D-44**

“[T]he functional areas of FI used to provide corporate services include the board of directors, executive, financial reporting, treasury and taxation, legal, planning and forecasting, internal audit, insurance/risk management, investor relations, human resources, communications and corporate affairs, information systems and cybersecurity”.

1.1 Please provide an analysis of the \$8,382,508 allocation of 2018 forecast to FHI (per Exhibit B-1-1, Appendix D5, Table 5.5) by these functional areas.

**Response:**

The allocation of FI's forecast 2018 management fee to FHI shown in Table 5.5 has not been prepared by functional area and therefore cannot be segregated by the five functions described in Table 5.2. The nature of the \$8.383 million is representative of the corporate services described in Exhibit B-1, Section D5.3.2, page D-44 which provide benefits to Fortis' subsidiaries including FEI and FBC.

1.2 Please provide a table of the percentages charged to Fortis Inc other subsidiaries, as listed in note 1 to Figure 4.1 of Appendix D5.

**Response:**

The corporate service cost allocation rates by individual subsidiary of FI are not available to FortisBC. However, the total amount allocated by FI to the other subsidiaries listed in note 1 to Figure 4.1 of Appendix D5 is 78.6 percent.

1.3 Please demonstrate that the most recent acquisitions of US based utilities have not caused the allocation to BC based subsidiaries to increase.

**Response:**

Recent acquisitions of US based utilities have not caused an increase in FI's corporate service cost allocation to FortisBC subsidiaries; the opposite would be expected as any fixed costs are spread over more utilities.

For example, the acquisition of ITC Holdings Corp in 2016 is FI's most recent acquisition of a US based utility. ITC was included in FI's corporate service cost allocations starting in 2017.

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1 The table below shows the portion of FI's corporate services which were actually allocated to  
 2 the FortisBC regulated entities from 2016 to 2018, and demonstrates a lower FI corporate  
 3 service cost allocation to FortisBC after the acquisition of ITC.

4 **Table 1: Portion of FI Corporate Services Allocated to FortisBC regulated entities After US Utility**  
 5 **Acquisition**

	2016 ('000)	2017	2018
FI Corporate Services charged to FEI	5,182	5,026	5,204
FI Corporate Services charged to FBC	2,051	1,687	1,615
	<b>7,233</b>	<b>6,713</b>	<b>6,819</b>

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1    **2.0    Reference:    Exhibit B-1, Table C2-16**

2            2.1    Please confirm that all the activities listed in Table C2-16 are currently being  
3                   performed by FBC, and that the proposed increase in 2019 Base O&M for these  
4                   activities is to recover “incremental” costs of these activities?  
5

6    **Response:**

7    All activities listed except for Data Analytics are currently being performed, as evidenced by the  
8    historical expenditures noted for each of the activities.

9    Table C2-16 provides a summary of FBC’s proposed O&M funding requests related to System  
10   Operations, Integrity and Security. Historical expenditures since the start of the Current PBR  
11   Plan in 2014 are provided for context along with the available funding in 2019. The proposed  
12   incremental funding represents the additional funds to be added to the 2019 Base O&M to  
13   recover the “incremental costs” of increasing requirements and additional activities during the  
14   MRP term.

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**3.0 Reference: Exhibit B-1, C-55 and Exhibit B-10, BCUC IR 1.60.4, Table 2**

“Major Projects are capital expenditures that do not form part of Regular capital spending as they are approved through a separate process, usually CPCN applications.”

3.1 Please confirm that the Capital Exclusion Criteria (established to exclude certain projects under the Current PBR Plan from the PBR Base Capital) are proposed to be used to distinguish Major Projects from Regular Capital Expenditures?

**Response:**

Not confirmed. As explained in the response to BCUC IR 1.50.2, FBC’s Regular capital expenditures are set on a cost of service basis and there is no formula capital envelope to which the exclusion criteria (materiality threshold) might be applied.

FortisBC has proposed to retain the existing CPCN thresholds, which were also determined in the Capital Exclusion Criteria proceeding, for the term of the proposed MRP. In its Reasons for Decision accompanying Order G-120-15,

The Panel agrees with CEC and BCOAPO that the CPCN criteria and the PBR capital exclusion criteria are not linked and their purposes are distinctly different...

...

Accordingly, the Panel accepts FortisBC's argument that alignment of the two thresholds makes practical sense and will enable the companies to manage their capital spending under the PBR as intended and finds that aligning the financial threshold for CPCNs with the PBR materiality threshold is appropriate.

3.2 Please identify any differences relevant to the inclusion of projects or the recovery of project costs in PBR Base Capital under the Current PBR Plan and in Regular Capital Expenditures under the MRP Plan?

**Response:**

There is no difference in the criteria for inclusion of projects in Regular Capital expenditures under the Current PBR Plan or the proposed MRP. As per the response to ICG IR 2.3.1, the threshold for exclusion of capital projects from PBR Base Capital and the CPCN threshold were aligned at \$20 million. Both the Current PBR Plan and the proposed MRP provide for exogenous factor approval of capital expenditures within Regular Capital.

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The plans have different implications for cost recovery of expenditure variances, however. In the Current PBR Plan, variances within the 10 percent dead band remain outside of rate base until the termination of the plan, and the related depreciation, interest and income tax variances flow through to customers. Under the proposed MRP, expenditure variances from plan are also outside of rate base until the termination of the plan, but the related depreciation along with interest and income tax volume variances flow to earned return and are included in the earnings sharing mechanism.

3.3 Please confirm that the cost of projects that have not yet been identified may be included with Regular Capital Expenditures?

**Response:**

Confirmed. FortisBC is requesting approval for the level of capital expenditures to be incorporated in rates over the term of the MRP. For the most part, FortisBC expects the capital plans to be executed as submitted; however, changing circumstances, including changes in equipment condition and changes in load growth from current expectations have led and will continue to lead to newly identified, advanced or deferred capital projects. FortisBC has also proposed to update its capital plans for the final two years of the MRP if warranted.

3.4 Please confirm that the response to BCUC IR 1.60.4, Table 2, provided a list of all capital projects to be included in Major Projects during the MRP Plan?

**Response:**

Not confirmed.

The response to BCUC IR 1.60.4 does not contain a table listing Major Projects. The question and response are repeated below.

60.4 Please clarify if the list of Major Projects identified on pages C-107 and C-108 of the Application represent all of FBC's anticipated Major Projects for the proposed MRP term.

**Response:**

Not confirmed. The Major Projects identified in the Application are examples of projects that may arise during the term of the proposed MRP. FBC has identified, and is investigating, other projects that may be brought forward during

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1 the MRP term. At the current preliminary stage of investigation, FBC believes it  
2 is premature to identify or discuss projects that may not proceed, and they do not  
3 affect the approvals sought in this Application.

4  
5  
6  
7 3.5 Does FBC propose flow-through treatment of the variances between forecast and  
8 actual costs of Major Projects? If so, please explain why the risk of such  
9 variances should be borne by ratepayers?

10  
11 **Response:**

12 FortisBC confirms that it will continue the practice of flowing through the variances for Major  
13 Projects, which stems from the utility's right under Section 59 of the *Utilities Commission Act* for  
14 rates to be set so that it has an opportunity to earn a fair return on its prudently invested capital.  
15

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**4.0 Reference: Exhibit B-1-1, Appendix D5, Section 5.4**

KPMG states “Following a review conducted by an external consultant in 2017, Fortis uses controllable operating costs as well as total assets (excluding goodwill) to determine the allocation of the general cost pool”.

4.1 Please provide a copy of the referenced consultant’s report.

**Response:**

The statement in KPMG’s Corporate Services Study, included in Appendix D5 of the Application, was intended to refer to Fortis consulting with one of its external advisors around cost allocators for corporate service costs. It did not reference a formal consultant’s report, nor was any report provided to KPMG or FortisBC management. Accordingly, there is no available copy of a consultant’s report to provide as requested in this IR.

However, the reference to an external consultant review is in the context of determining cost allocators for corporate service costs and KPMG corroborated the appropriateness of those allocators as part of Section 5.4 of its study in Appendix D5 with the following:

The use of multiple factors for general cost allocation is a balanced methodology. The methodology is consistent with the approach used by many utilities, and based on our research is favoured by many regulators. Using multiple factors also recognizes that there is no one perfect allocator, and mitigates the inherent risk associated with using one measure for calculating general cost allocations.

As well as in Section 7.4 of Appendix D5 with the following:

KPMG is of the view that the corporate services cost pools and the cost allocators proposed for use in the FI and FHI corporate services cost allocation models form a reasonable and objective basis of the corporate services cost allocation.

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**5.0 Reference: Exhibit B-1-1, Appendix D6-2, KPMG Overhead Capitalization Methodology Review**

KPMG states “Following a review conducted by an external consultant in 2017, Fortis uses controllable operating costs as well as total assets (excluding goodwill) to determine the allocation of the general cost pool”.

5.1 For the periods 2014-2018 and for the test period please provide:

Unloaded gross capex (\$000)

Direct Overhead capitalized (\$000) and

Capitalized overhead (\$000)

**Response:**

The requested information for FBC is provided in the table below:

**(\$000s)**

	2014 <sup>2</sup>	2015	2016	2017	2018
<b>Unloaded Capex<sup>1</sup></b>	48,867	51,905	45,624	60,873	59,430
<b>Direct Overhead</b>	4,075	4,847	4,784	4,709	5,131
<b>Capitalized Overhead</b>	9,106	8,864	8,547	8,632	8,789

**Notes:**

<sup>1</sup> Unloaded capex is based on the actual regular capex provided in Revised Table C3-20 in the response to BCUC IR 1.51.1, excluding Direct Overhead.

<sup>2</sup> 2014 unloaded capex also excludes certain capex carried over from the pre-PBR period.

5.2 Please express both direct overhead capitalized and capitalized overhead as percentages of unloaded gross capex.

**Response:**

The information requested is provided in the table below for FBC and is based on the Unloaded Gross Capex shown in the response to ICG 2.5.1.

	2014	2015	2016	2017	2018
<b>Direct Overhead as Percentage of Unloaded Gross Capex</b>	8%	9%	10%	8%	9%
<b>Capitalized Overhead as Percentage of Unloaded Gross Capex</b>	19%	17%	19%	14%	15%

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5.3 Please describe how FBC treats direct overhead and overhead capitalized for tax purposes. If the methods differ, please provide rationale.

**Response:**

FBC treats direct overhead as part of the capital expenditure costs which are added to Unamortized Capital Cost (UCC) pools for tax purposes. As discussed in Section 4.2 of Appendix D6-2 (page 8) and Section 6.2 of Appendix D6-2 of the Application (pages 14 through 16), direct overhead are costs that are directly attributable, meaning that the costs associated with the work performed are directly related to specific projects and could be directly charged to capital projects in accordance with US GAAP. However, for administrative efficiency purposes, FBC includes these costs in a direct overhead allocation instead of charging these individual costs to specific projects. Due to the costs qualifying as directly attributable pursuant to accounting principles, FBC treats the direct overhead consistent with other capital expenditures costs which are added to UCC pools for tax purposes.

For capitalized overhead, FBC deducts such expenditures in arriving at taxable income. As discussed in Section 4.2 of Appendix D6-2 (page 8) and Section 4.3 of Appendix D6-2 of the Application (page 9), capitalized overheads are costs that are required to be incurred to support and execute on capital projects and are capitalized in accordance the BCUC Uniform System of Account and US GAAP ASC 980 Rate Regulated Operations. However, due to their indirect nature, FBC treats capitalized overheads as a period deduction for tax purposes.

5.4 Appendix D6-2, Section 7.2.1, Table 2 calculates the capitalization rate of Market Development and External Relations function to be 22%. Please describe the full range of services provided by this function and explain how more than 20% of its efforts support capital projects.

**Response:**

Please refer to the response to BCUC IR 2.260.1 which explains the capital activities of various departments, including FBC's Market Development and External Relations function.

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5.5 Appendix D6-2, Section 7.2.1, Table 2 KPMG calculates the capitalization rate of Finance and Corporate function to be 17%. Please describe the full range of services provided by this function and explain how almost 20% of its efforts support capital projects.

**Response:**

The Finance & Corporate function consists primarily of Financial Accounting, Capital Asset Accounting, Financial Reporting, Corporate Finance, Internal Audit, Board of Directors, FI Corporate Services and Executive, of which all play a significant role in supporting the investment in infrastructure to continue to provide safe, reliable services. Consistent with the 17 percent capitalization rate for Finance & Corporate included in the previously approved 2013 FBC Corporate Overhead Study, this function includes the following activities that are incurred to support FBC's capital expenditure program.

1. Managing the financial processes related to preparing and updating monthly, quarterly and annual forecasting and budgeting of capital projects;
2. Accounting for capital expenditures within the capital asset module within SAP by a dedicated group of capital asset analysts, including setting up new capital orders, tracking by cost element, coordinating the retirement of assets, accounting for cost of removal, updating and implementing depreciation rates;
3. Preparing the external financial reporting for capital expenditures to meet recognition, presentation and disclosure requirements pursuant to accounting principles;
4. Preparation of accounting analyses relating to capital expenditures in accordance with generally accepted accounting principles,
5. Providing analysis and review of certain CPCN applications and capital forecasts in annual rate filing;
6. Providing tax planning opportunities and support around capital expenditures, such as accelerated capital cost allowance, and ensuring compliance with tax regulations for corporate income tax and commodity tax related specifically to capital projects,
7. Testing and evaluation of controls and accounting processes around capital projects by both Internal Audit and the capital asset accounting group,
8. Testing and evaluation of Internal Controls for Financial Reporting (ICFR) specific to the property, plant and equipment processes, which represents a significant portion of the audit conducted by the external auditors, but also requires equal time and effort by the accounting department;

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9. Accounting for defined benefit pension plan and other post-employment benefit expenses that support employees who work on capital projects by both the financial accounting function and external actuary;
10. Processing accounts payable transactions, of which a significant amount relate to invoices and purchase orders related to capital projects;
11. Managing cash requirements to maintain liquidity and ensure timely payment of invoices to capital asset contractors, vendors and materials;
12. Arranging debt financing for the Company's capital projects, either through its operating credit facility agreements or debt offerings;
13. Coordinating with credit rating agencies on assessments of FortisBC's current and projected capital expenditures and the evaluation of credit metrics;
14. Oversight of all the above mentioned capital related activities by FortisBC and FI's Executive and Board of Directors by providing stewardship, governance, capital budget approvals and strategic direction;
15. Arranging equity financing of FortisBC's capital expenditures through the FI corporate service costs, as described in Section D5.3.2, on page D-44 of the Application, by raising equity through the Canadian and US public markets;
16. Sharing of best practices amongst the group of FI companies relating to various functional areas which support capital projects, such as joint procurement activities, which are provided by way of the FI corporate services; and
17. Benefiting from the FI administered company-wide group insurance program which supports FortisBC's capital projects.

During the term of the Current PBR Plan, FortisBC's capital program drew upon all the above-mentioned Finance and Corporate functions and this will continue during the term of the MRP. Should there be an increase in the level or complexity of capital expenditures incurred in the future, it is expected that either the overall O&M for Finance & Corporate to support capital expenditures would increase, or the proportion of activities incurred by this function would increase beyond the current capitalization rate of 17 percent.

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**6.0 Reference: Exhibit A-7, BCUC IR 2.161.3.2**

“... please perform the analysis described on page 53 of the FEI PBR Application for each of FEI and FBC to support each utility’s 0 percent X-Factor proposal.”

6.1 Please provide the cost of service model in excel format that was used to perform the above analysis requested by the BCUC?

**Response:**

Please refer to the response to BCUC IR 2.161.3.

6.2 Please provide sufficient evidence so that at the conclusion of this proceeding the Commission could determine rates based on the same cost of service model?

**Response:**

Please refer to the responses to BCUC IR 2.161.3 and ICG IR 2.8.1.

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1     **7.0     Reference:     Exhibit A-7, BCUC IR 2.162.2**

2             “Please explain how the quantified cost pressures for the departments of FEI and FBC  
3             that are quantified to be the same could be the same, given the significant operating and  
4             capital cost differences of FEI and FBC?”

5             **Reference:     Exhibit A-7, BCUC IR 2.164.5**

6             “Please explain to what extent the declining savings in the latter years of the Current  
7             PBR Plans are attributable to the design of the Current PBR Plans’ ECM as opposed to  
8             FEI and FBC exhausting opportunities for O&M cost reductions.”

9             7.1     Please confirm that in the early years of the Current PBR Plans FBC did not  
10            identify savings initiatives relevant to the design of the Current PBR Plans.

11  
12     **Response:**

13     Not confirmed.

14     While FBC did not identify specific major productivity initiatives similar to FEI’s in the early years  
15     (i.e., 2014, 2015), FBC’s approach was instead to rely more on a broad based focus on  
16     productivity to achieve its efficiencies and savings. FBC did start work on the initiative “Sharing  
17     of Gas and Electric Contact Centre Staff” in 2015/2016, leveraging gas and electric contact  
18     centre staff, resulting in efficiencies and cost savings. Since then, other initiatives have been  
19     identified such as the SAP Integration and Advanced Distribution Management System. These  
20     initiatives were discussed recently in the FBC Annual Review for 2019 Rates.

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**8.0 Reference: Exhibit A-7, BCUC IR 2.169.3 and Exhibit B-8, ICG IR 1.2**

“In the same format of the above tables, for each of FEI and FBC, please provide a departmental breakdown of the Forecast 2020 O&M under a cost of service-based rate-setting approach.”

“The materials on the record in this proceeding are not sufficient to approve rates on a cost of service basis for 2020.”

8.1 Please file sufficient materials for the Commission to approve rates on a cost of service basis for 2020?

**Response:**

FortisBC’s response to BCUC IR 2.161.3 provides a three-year summary of (indicative) revenue requirements and rate changes for FEI and FBC. FortisBC also explains in that response that it believes its 2020 rates will be the same, whether based on its proposed MRPs or a cost of service approach. However, FortisBC respectfully declines to provide further cost of service information. FortisBC discusses the reasons for this below.

First, FortisBC does not have the requested forecast cost of service information. FortisBC is in the process of developing FEI’s and FBC’s cost of service forecast for 2020 for those elements of its revenue requirements not subject to a formula in the proposed MRPs. FortisBC will be filing this information in support of its application for interim rates for 2020, but it is not available at this time. For those elements subject to a formula under the proposed MRPs (formula O&M and FEI’s Growth Capital), FortisBC’s cost of service forecasts for 2020 would be the same as the results of the formulas proposed in the Application. However, FortisBC has not developed, and is not in the process of developing, cost of service forecasts for 2021 or beyond for any elements of its revenue requirements.

Second, in this proceeding FortisBC is not requesting that rates be set for 2020, but that the BCUC approve its proposed MRPs, which are a framework for a five-year multi-year rate plan. If interveners believe that a pure cost of service approach is preferable, interveners are free to take the position that the BCUC should deny FortisBC’s Application. Whether the BCUC approves or denies FortisBC’s Application, a further proceeding will be required to set rates for 2020. If the BCUC denies the use of a formulaic approach to elements of FortisBC’s revenue requirements, then FortisBC will need to file cost of service forecast for those elements for the purpose of setting rates.

Third, cost of service forecasts are not required for interveners to explore alternative rate setting approaches. As stated by the BCUC in Order G-156-19, “the examination of alternative rate-setting approaches, including cost of service, is an issue which can, and is, being explored in the current proceeding.” A multitude of IRs in this proceeding have already explored this issue. Cost of service forecasts are not required to explore this issue further. As noted in response to BCUC IR 2.161.3, FortisBC believes that its rates for 2020 would be the same whether under

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cost of service or the proposed MRPs, and for the remaining years of the MRP term, the five year cost of service forecasts would be higher than the formula amounts, although FortisBC cannot accurately forecast by how much. However, the debate between cost of service and FortisBC's proposed MRPs does not turn on the forecast costs, but, fundamentally, on the benefits of a multi-year ratemaking approach, which FortisBC has demonstrated through the evidence filed in this proceeding.

In summary, FortisBC has provided the cost of service information that it has available, but does not believe it is reasonable to request it to develop cost of service forecasts at this time. Such forecasts are not available and are not needed to test FortisBC's proposed MRPs, or to examine alternative rate setting approaches.

8.2 Please calculate 2020 rates for FBC based on the same Forecast 2020 O&M requested in the above reference information request (Forecast 2020 O&M by department), including an explanation of the assumptions made to complete the 2020 rate calculations?

**Response:**

Please refer to the response to BCUC IR 2.161.3.

8.3 Please calculate the 2020 Base O&M that would result in the same rates as calculated in the previous information request?

**Response:**

Please refer to the responses to BCUC IR 2.161.3 and ICG IR 2.8.1.

8.4 Please confirm that all FBC capital costs are based on cost of service forecasts and not based on formulas. If confirmed, please comment on whether FBC is willing to have periodic reviews of the cost of service capital forecasts during the term of the MRP Plan?

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1 **Response:**

2 Confirmed. FBC's capital expenditures forecast is based on cost of service, not formula.  
3 Please also refer to the response to BCUC IR 2.166.11.

4  
5

6  
7 8.5 Please confirm that the above comment "materials on the record in this  
8 proceeding are not sufficient to approve rates on a cost of service basis for 2020"  
9 only applies to O&M expenditures, and that all other costs, including capital  
10 expenditures are based on cost of service forecasts? If confirmed, please file  
11 O&M expenditures based on cost of service forecasts? If confirmed, please  
12 comment on whether FBC is willing to file materials on the record in this  
13 proceeding that are sufficient for the Commission to approve rates on a cost of  
14 service basis for 2020? If not confirmed, please identify all evidence, if any, that  
15 FBC does not intend to file so that the record would be sufficient to approve rates  
16 on a cost of service basis for 2020?

17

18 **Response:**

19 Not confirmed. The Utilities are not seeking approval of rates for 2020 in this Application.  
20 Rather, this Application is seeking approval of the framework under which rates will be set for  
21 the proposed MRP term. Further, the only cost components included in the Application are  
22 capital expenditures (with the exception of FEI's Growth Capital), which are forecast on a cost of  
23 service basis for the term of the proposed MRPs. No other revenue requirements components  
24 are on the record in this proceeding. FortisBC intends to file applications for 2020 rates  
25 following a decision on the Application, when the parameters of the MRPs will have been  
26 determined.

27 Please also refer to the responses to ICG IR 2.8.1 and BCUC IR 1.161.3.

28

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**9.0 Reference: Exhibit B-4, BCMEU IR 17.1, and Exhibit B-1, Table C9-2**

"FBC expects that the 2020 rate increase would not be materially different under cost of service."

9.1 Please provide the calculation in an excel spreadsheet of the estimates of the 2020 rate increase under cost of service?

**Response:**

Please refer to the response to BCUC IR 2.161.3.

9.2 Please provide a detailed calculation of each line item in Table C9-2?

**Response:**

Table C9-2 provides an indicative 2020 rate impact only; therefore, FBC has not calculated each of the line items in detail. FBC provides information on the resetting of rate base and O&M expense from the Current PBR Plan to the proposed MRP in the table below. The impacts of the various studies are as set out in the Application. The line items identified in Projected Revenue Requirements were based on early estimates and have been updated along with the indicative rate impact in the response to BCUC IR 2.161.3. FBC notes that the O&M adjustment should have been labelled "Resetting Base O&M".

**Resetting Rate Base**

True-up for Cumulative Capital Expenditures within Deadband	\$ 16.8 million
True-up for Accumulated Depreciation	(0.9)
Net Rate Base Impact	15.85
Cost of Equity (40% x 9.15%)	3.66%
Earned Return	0.58

**Resetting Base O&M**

2018 O&M Savings (excluding temporary savings)	(0.40)
AMI Net Savings	(1.16)
Mandatory Reliability Standards	1.54
Employer Health Tax/ MSP Premiums	0.41
BCUC Levies	(0.23)
New Funding for MRP Term	0.76
	0.92

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9.3 Please identify the line items in Table C9-2 that would be incurred under cost of service.

**Response:**

FortisBC confirms that all of the line items in Table C9-2 would be incurred under cost of service. The resetting of rate base and O&M expense is required at the end of the Current PBR Plan term regardless of whether 2020 rates are set under a MRP or a cost-of-service framework. Similarly, the Depreciation Study, Shared Services Study and Corporate Services Study would be included in either approach. All of the projected revenue requirements line items are cost of service based, with the exception of Net O&M, which FortisBC has concluded that 2020 O&M Expense would not vary materially from the MRP proposal under cost of service (please refer to the responses to BCUC IRs 2.162.1 and 2.169.3).

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1    **10.0    Reference:    Exhibit B-6, BCSEA IR 1.21.5**

2            "...a denial of the Innovation Fund would be a failure to address the essential need to  
3            invest to accelerate innovation and adoption of new technologies to meet policy  
4            objectives."

5            10.1    Please comment on whether invests in new technologies could be considered by  
6            the Commission on a forward basis, and then recovered with forecast costs?

7

8    **Response:**

9    Please refer to the responses to BCUC IRs 1.79.2 and 1.79.2.1.

10

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**11.0 Reference: Exhibit B-7, CEC IR 1.6.6**

“The situation described in the question is one where ratepayers would always pay actual costs incurred, and bear the risk of both over and under performance in achieving the ROE, and the utilities would receive no incremental incentives.”

11.1 Please respond to CEC IR 1.6.6 assuming the situation described in the question is one where the risks and benefits of variances from the forecast costs of service are borne by shareholders.

**Response:**

The characteristics of cost of service rate-setting would remain in both scenarios; whether the Utilities earned their exact allowed return and the ratepayers always pay actual costs incurred or the risks and benefits of variances from the forecast costs of service are borne by shareholders.

In the scenario described in the question above, and as compared to multi-year rate plans, weaker incentive for cost control exists (although to a lesser extent than the scenario in which utility would earn its exact allowed return) as the short period of time between revenue requirement applications will reduce the amount of incentives available to the utility. Further, the assumed scenario would continue to incent less efficient allocation of resources, lower incentives for innovation and lower regulatory efficiency.

11.2 Please confirm that the risks and benefits of variances from the forecast costs of service are borne by shareholders under cost of service regulation, in the absence of deferral accounts.

**Response:**

Confirmed. In the absence of a true-up mechanism, all the risks and benefits related to variance between forecast and actual costs are borne by the utility until the next rate setting period.

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**12.0 Reference: Exhibit B-8, ICG IR 1.2.5 and Exhibit B-7, CEC IR 1.5.3**

“Please update and file the table provided in ICG IR 1.13.1 Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 proceeding, Exhibit B-15.”

“The quantitative benefit earned by each utility is the difference between the ROE achieved before and after earnings shared with customers.”

12.1 Please confirm that the response to ICG IR 1.2.5 does not update the table referenced in the IR. If confirmed, please update the table referenced in the IR 1.2.5 showing the actual ROE (after ESM), approved ROE (from the applicable cost of capital decision), and variances for the period from 2003-2018? Please add an additional column to the referenced table with the value of the variances between the actual and approved ROEs, expressed in dollars.

**Response:**

FortisBC provides the requested table below for FBC only.

	ROE			Equity \$		
	Allowed	Actual Post-ESM	Variance (c) = (b) - (a)	Allowed Equity (\$000s)	Actual After- Sharing Equity (\$000s)	Variance (f) = (e) - (d)
	(a)	(b)	(c) = (b) - (a)	(d)	(e)	(f) = (e) - (d)
2003	9.82%	10.88%	1.06%	\$ 17,300	\$ 20,250	\$ 2,950
2004	9.55%	10.70%	1.15%	\$ 19,638	\$ 23,585	\$ 3,947
2005	9.43%	9.88%	0.45%	\$ 22,544	\$ 24,380	\$ 1,836
2006	9.20%	9.94%	0.74%	\$ 24,873	\$ 26,684	\$ 1,811
2007	8.85%	9.23%	0.38%	\$ 26,212	\$ 28,143	\$ 1,931
2008	9.02%	9.28%	0.26%	\$ 29,688	\$ 31,001	\$ 1,313
2009	8.87%	9.41%	0.54%	\$ 32,215	\$ 34,499	\$ 2,284
2010	9.90%	9.65%	-0.25%	\$ 38,615	\$ 38,293	\$ (322)
2011	9.90%	10.67%	0.77%	\$ 43,292	\$ 46,268	\$ 2,976
2012	9.90%	10.52%	0.62%	\$ 44,047	\$ 48,510	\$ 4,463
2013	9.15%	10.21%	1.06%	\$ 44,054	\$ 48,454	\$ 4,400
2014	9.15%	9.22%	0.07%	\$ 44,065	\$ 44,457	\$ 392
2015	9.15%	9.26%	0.11%	\$ 45,713	\$ 46,336	\$ 623
2016	9.15%	9.38%	0.23%	\$ 47,060	\$ 48,093	\$ 1,033
2017	9.15%	9.31%	0.16%	\$ 47,046	\$ 48,072	\$ 1,026
2018	9.15%	9.29%	0.14%	\$ 48,357	\$ 49,121	\$ 764

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1 Note there was an error in the 2007 allowed ROE that was provided in the response to ICG IR  
2 1.13.1 from the 2014-2018 PBR Application proceeding, which has been corrected in the table  
3 above.

4  
5  
6  
7 12.2 Please identify the column in the Move-Up IR 1.4.1 table for FBC that FBC  
8 believes is the approved ROE for FBC?

9  
10 **Response:**

11 Please refer to the response to ICG IR 2.12.1 which includes the requested information.

12  
13  
14  
15 12.3 Please identify and explain the difference, if any, between the ROE achieved  
16 after application of the ESM and the ROE approved in the applicable cost of  
17 capital decision for each year of the Current PBR Plan?

18  
19 **Response:**

20 For each year of the PBR plan, variances between the achieved ROE (after sharing) and the  
21 approved ROE are the result of variances in O&M expenditures and capital expenditures. All  
22 other variances in the cost of service are included in deferral accounts.

23

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**13.0 Reference: Exhibit B-8, ICG IR 2.3, Attachment 2.3 (live spreadsheet); ICG IR 2.4**

13.1 Please explain why the table in the response to ICG IR 2.4 appears to show that the FBC rate changes were lower than the BCH rate changes in both 2015 and 2016, yet in the Attachment 2.3 spreadsheet to ICG IR 2.3, the percentage difference between FBC bills and BC Hydro bills increased (with FBC being higher) between 2015 and 2016.

**Response:**

The response to ICG IR 1.2.4 sets out FBC's general rate increases based on annual revenue requirements and revenue deficiency, while the bill analysis in Attachment 2.3 provided in the response to ICG IR 1.2.3 is based on the actual tariff rates that also included changes due to rate rebalancing in FBC calendar years 2014 and 2015 (BCH Fiscal Years 2015 and 2016).

FBC also notes that in some cases the percentage differences between FBC and BC Hydro bills decreased depending on the customer class and consumption level.

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1    **14.0    Reference:    Annual Review of 2015 Rates, Exhibit B-8, ICG IR 1.4.1 and 1.4.2**

2            14.1    Please file the above referenced IRs and responses.

3

4    **Response:**

5    Please refer to Attachment 14.1.

6

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1    **15.0    Reference:    Annual Review of 2016 Rates, Exhibit B-8, ICG IR 1.20, 1.21, 1.22**

2            15.1    Please file the above referenced IRs and responses.

3

4    **Response:**

5    Please refer to Attachment 15.1.

6

**16.0 Reference: Exhibit B-8, ICG IR 1.4.1, Table 1, Engineering Services and Project Management (\$thousands)**

16.1 Please revise Table 1 so as to provide a row for FTEs and total capital expenditures for each year from 2007 to 2018?

**Response:**

Provided below is a revised Table 1 that includes actual FTEs, total capital expenditures for FBC and direct overhead costs (as requested in ICG IR 2.16.3) incurred by Engineering Services and Project Management from 2007 to 2018. This response also addresses ICG IRs 2.16.3 and 2.16.6.

Revised Table 1: Engineering Services and Project Management (\$ thousands)														
	2007	2008	2009	2010	2011	2012	2013	2013	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Projection	Approved	Actual	Actual	Actual	Actual	Actual
Labour	\$ 651	\$ 823	\$ 823	\$ 928	\$ 1,789	\$ 1,951	\$ 1,872	\$ 1,974	\$ 2,127	\$ 2,778	\$ 2,829	\$ 2,754	\$ 2,896	\$ 3,786
Non-Labour	322	361	320	314	574	664	865	848	664	987	1,198	1,319	1,246	1,513
<b>Total O&amp;M</b>	<b>\$ 973</b>	<b>\$ 1,184</b>	<b>\$ 1,143</b>	<b>\$ 1,242</b>	<b>\$ 2,363</b>	<b>\$ 2,615</b>	<b>\$ 2,737</b>	<b>\$ 2,822</b>	<b>\$ 2,791</b>	<b>\$ 3,765</b>	<b>\$ 4,027</b>	<b>\$ 4,073</b>	<b>\$ 4,142</b>	<b>\$ 5,299</b>
<b>Total FTEs *</b>	<b>58</b>	<b>53</b>	<b>57</b>	<b>56</b>	<b>58</b>	<b>70</b>	<b>67</b>	<b>n/a</b>	<b>n/a</b>	<b>65</b>	<b>67</b>	<b>66</b>	<b>66</b>	<b>71</b>
<b>Total Capital Expenditures</b>	<b>\$ 131,917</b>	<b>\$ 99,508</b>	<b>\$ 116,916</b>	<b>\$ 153,154</b>	<b>\$ 80,897</b>	<b>\$ 74,445</b>	<b>\$ 114,830</b>	<b>n/a</b>	<b>n/a</b>	<b>\$ 80,872</b>	<b>\$ 73,447</b>	<b>\$ 52,732</b>	<b>\$ 78,675</b>	<b>\$ 74,255</b>
<b>Direct Overheads</b>	<b>\$ 2,150</b>	<b>\$ 1,176</b>	<b>\$ 1,063</b>	<b>\$ 1,219</b>	<b>\$ 1,123</b>	<b>\$ 1,147</b>	<b>\$ 719</b>	<b>n/a</b>	<b>n/a</b>	<b>\$ 936</b>	<b>\$ 1,181</b>	<b>\$ 1,216</b>	<b>\$ 1,080</b>	<b>\$ 1,204</b>

\* 2007 - 2012 FTEs represent as at end of December while 2013 - 2018 FTEs represent average FTEs

The total O&M Expense shown in the table is Gross O&M. FBC does not allocate capitalized overheads by department. Rather the capitalized overhead, which is 15 percent of total Gross O&M, is applied as a credit at the aggregate level. Therefore, there is no value of capitalized overhead specifically associated with Engineering Services and Project Management. The direct overheads shown in the table are not included in Gross O&M as they are charged directly to the allocation pool and allocated to capital.

In general terms, the components of direct overheads and capitalized overheads include labour, consulting and contracting fees, employee travel and other expenses, and materials and supplies used in the support of capital construction.

16.2 Does "Labour" include contract labour such as engineering consultants? If so, please breakdown labour between FBC employees and contract labour?

**Response:**

No, the labour costs reported in Table 1, Engineering Services and Project Management include internal labour only and do not include contract labour costs such as engineering consultants.

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16.3 Please add to Table 1 a row for direct assigned capital costs (costs incurred by this department other than capitalized overhead costs), if any?

**Response:**

Please refer to the response to ICG IR 2.16.1.

16.4 Please identify any costs captured in Table 1 that are allocated from an affiliate utility?

**Response:**

The following are the Engineering & Project Management O&M costs captured in Table 1 that are allocated from FEI. These costs were primarily related to support for the Mandatory Reliability Standards group from Information Systems, Training and Security (part of Environment, Health & Safety) departments in FEI. The Information Systems and Security departments provided support for the Critical Infrastructure and Protection Standards (CIP) and the Training department provided support to the System Operator training program in development and for its continued improvement.

\$000's				
2014	2015	2016	2017	2018
Actual	Actual	Actual	Actual	Actual
17	106	107	42	53

16.5 Please identify the cost drivers of the six-fold increase in Engineering Services and Project Management identified in Table 1.

**Response:**

The increase in Engineering Services O&M costs from 2007 to 2018 was primarily due to O&M costs incurred by the Mandatory Reliability Standards (MRS) department which is responsible

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1 for ensuring corporate compliance with the BC Mandatory Reliability Standards. In addition, the  
2 Engineering department incurred incremental O&M costs related to the implementation of the  
3 Advanced Metering Infrastructure (AMI) project. The MRS and AMI Engineering O&M costs  
4 included in Table 1 were approved by the BCUC in previous regulatory processes.

5  
6  
7  
8 16.6 Please identify the components of direct charges and capitalized overhead  
9 charges in both the Labour and Non-Labour components of Table 1.

10  
11 **Response:**

12 Please refer to the response to ICG IR 2.16.1.  
13

1 **17.0 Reference: Exhibit B-8, ICG IR 1.4.1 and Exhibit B-10, BCUC IR 1.10.1**

2 “As a result, no meaningful analysis of the variances to such hypothetical formula  
3 amounts can be made. FEI’s and FBC’s actual expenditures from 2014 to 2018 and  
4 projected expenditures in 2019 are the only available reference points from these years  
5 for reviewing the respective 2020-2024 capital expenditures forecasts.”

6 17.1 Please provide the 2020 and 2021 department budgets for all FBC departments  
7 with the individual departmental analysis requested in Exhibit A-7, BCUC IR  
8 2.162.2.  
9

10 **Response:**

11 FBC notes that the reference in the question to BCUC IR 2.162.2 is likely incorrect and instead  
12 should be referencing BCUC IR 2.162.1 where the BCUC asks “Please provide an individual  
13 departmental analysis for each of FEI and FBC’s O&M expenses...”. BCUC IR 2.162.2 asks to  
14 “Please explain whether any of the cost pressures identified ...”.

15 Please refer to the response to BCUC IR 2.162.1 providing FEI’s and FBC’s 2020 O&M  
16 Expense by department developed under the index-based approach in the proposed MRPs.

17  
18

19  
20 17.2 Please provide a line-by-line breakdown used for budget purposes (if there is no  
21 line-by-line breakdown for budgeting, please use plant in service accounts) of the  
22 capital expenditures set forth in Exhibit B-1, Section 3.4.1, Table C3-21, and  
23 specifically identify any projects exceeding costs of \$100,000?  
24

25 **Response:**

26 Please refer to the table below.

27 **FBC Regular Capital Projects over \$0.100 Million 2020 – 2024 (\$ millions)**

	2020	2021	2022	2023	2024
Growth Capital					
Transmission Growth					
Sexsmith 2nd Transformer Addition	\$ 4.633	\$ -	\$ -	\$ -	\$ -
Summerland Transformer Replacement	0.539	2.063	-	-	-
Beaver Park Substation Upgrade	-	-	2.740	5.195	-
DG Bell 2nd Transformer Addition	-	-	-	-	1.086
Subtotal Transmission Growth	5.172	2.063	2.740	5.195	1.086
Distribution Growth					

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	2020	2021	2022	2023	2024
Small Growth Projects	1.040	1.070	1.102	1.122	1.137
Unplanned Growth Projects	0.707	0.805	0.704	0.777	0.784
DG Bell Feeder 4 Addition	1.970	-	-	-	-
Subtotal Distribution Growth	3.716	1.876	1.807	1.899	1.921
New Connects	18.141	19.104	19.792	19.188	20.163
Total Growth Capital	27.029	23.042	24.339	26.283	23.170
<b>Sustainment Capital</b>					
<b>Generation Sustainment</b>					
Concrete Structures Rehabilitation	0.685	0.821	0.979	1.128	1.019
LBO Spillway Gates Refurbishment	1.467	1.396	-	-	-
UBO Spillway Gates	-	-	-	-	0.128
All Plants Gates Upgrades	0.227	0.100	0.414	0.241	0.418
UBO Headgate Hoist Upgrade	0.197	-	-	-	-
Dam Safety Instrumentation	0.715	0.765	-	-	0.806
Guarding of Rotating Parts	0.194	0.324	0.458	0.295	0.287
All Plants Dam Safety Stability Anchors	0.128	0.058	0.058	0.058	-
All Plants Forebay Well Upgrades	0.233	0.233	0.233	0.233	-
LBO Superstructure Anchor Bolts	0.174	-	-	-	-
UBO Unit 6 Turbine Runner Replacement	-	0.035	0.582	2.035	-
All Plants Control System Upgrade	-	0.038	0.265	0.556	-
Generator Thrust Bearing Cooling System	0.198	0.198	0.198	0.198	0.198
All Plants Generator Cooler Outlet Valve Env Mitigation	0.049	0.073	0.098	-	-
All Plants Kidney Loop Filtration	0.116	0.136	0.136	-	0.136
All Plants Exciter Control Upgrade	-	0.029	0.291	-	-
All Plants Generator Vibration Monitoring	0.041	0.093	0.093	0.093	0.093
All Plants Critical Spare Purchasing	0.233	0.116	0.058	0.058	0.058
All Plants Generator Condensation Mitigation	0.105	0.116	0.116	0.116	0.116
All Plants Governor 2nd Stage Oil Filtration	0.062	0.091	0.091	-	0.091
All Plants - HMI Upgrade	0.047	0.070	0.047	0.047	-
All Plants Minor Sustaining Repairs	0.174	0.174	0.174	0.174	0.174
Dewatering and Drainage Systems	0.116	0.349	0.349	0.349	0.349
All Plants Surveillance and Security	0.174	0.174	0.174	0.174	0.174

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	2020	2021	2022	2023	2024
All Plants Lighting Upgrade	0.012	0.036	0.035	0.035	0.049
All Plants DC Crane Control Upgrades	0.331	-	-	-	-
All Plants 120/240V Panel Remediation	0.172	-	-	-	-
All Plants Station Service Upgrades	-	-	0.077	0.077	0.077
UBO LBO Station Service Transformer Upgrades	0.113	0.285	-	-	-
All Plants Ground Fault Protection and Safety Upgrades	0.017	0.174	0.174	0.174	0.174
Remaining Powerhouse Window Replacement	-	0.029	0.265	-	-
All Plants Security Signage and Fencing	0.102	0.097	0.105	-	-
COR Annex Building Replacement	-	-	-	0.198	1.606
Floor Covers Replacement	0.349	0.116	0.116	0.349	0.116
Roof Replacements	0.062	0.291	0.233	0.233	0.233
LBO Tailrace Vent Cover Screens Upgrade	-	0.084	0.167	-	-
Guarding of Rotating Parts within Powerhouses	0.023	0.116	0.116	0.116	0.116
Projects Under \$0.100 million	0.181	0.148	0.207	0.071	0.095
Subtotal Generation Sustainment	6.697	6.766	6.309	7.008	6.514
Transmission Sustainment					
Transmission Line Condition Assessment	0.740	0.426	0.632	0.502	0.594
30 Line Rehabilitation	1.100	-	-	-	-
Other Transmission Line Rehabilitation	4.913	4.332	3.354	5.819	5.290
Transmission Urgent Repairs	0.501	0.525	0.591	0.502	0.570
30, 32, 19 Lines Rights of Way	0.647	0.651	0.658	0.656	0.652
Other Transmission Rights of Way	0.453	0.453	0.464	0.471	0.484
Subtotal Transmission Sustainment	8.353	6.387	5.698	7.951	7.591
Stations Sustainment					
Station Urgent Repairs	0.574	0.594	0.687	0.614	0.655
Station Assessment/Minor Planned	1.317	1.354	1.394	1.419	1.438
AS Mawdsley Transformer Replacement	-	-	-	-	3.802
Trout Creek Transformer Replacement	2.263	-	-	-	-
Kaleden Transformer Replacement	-	-	-	-	2.716
Salmo Station Upgrade	3.718	7.154	-	-	-
Fruitvale Station Upgrade	-	-	-	-	3.802
Generating Stations Assets	1.088	0.445	0.175	0.109	0.109

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	2020	2021	2022	2023	2024
Ground Grid Upgrades	0.698	-	0.570	-	0.565
Minimum Oil Circuit Breaker Replacement	1.055	1.085	1.117	1.137	1.152
Bulk Oil Breaker Replacement	0.619	0.641	-	-	-
Station Oil Containment	0.700	0.326	0.274	0.273	0.380
13kV Switchgear Replacement	1.000	-	-	-	1.054
Outdoor Isolating Switch Replacement	-	0.543	0.548	-	-
Minor Transformer Replacements	0.128	0.258	-	-	-
Animal Protection Cover-Up	0.378	0.423	0.514	0.241	0.300
DG Bell 138 kV Breaker and Voltage Transformer Addition	-	0.801	-	-	-
Subtotal Stations Sustainment	13.538	13.624	5.279	3.793	15.971
Distribution Sustainment					
Distribution Line Condition Assessment	1.645	1.691	1.632	1.713	1.864
Distribution Line Rehabilitation	2.802	3.148	2.872	2.680	3.150
Distribution Line Rebuilds	2.183	2.244	1.942	1.938	1.925
Distribution Urgent Repairs	2.620	2.748	2.732	2.823	2.865
Distribution Small Planned Capital	1.034	1.105	1.210	1.247	1.407
Forced Upgrades and Line Moves	2.578	2.564	2.656	2.570	2.758
PCB Environmental Compliance	2.677	2.721	2.663	3.124	2.444
Porcelain Cutouts Replacement	3.233	3.322	3.421	3.483	3.527
Meter Exchanges	0.127	0.130	0.140	0.140	0.141
LED Street Light Retrofits	0.787	-	-	-	-
Underground Cable/Switcher Replacement	0.482	0.493	0.274	0.273	0.272
Fault Indicator Installation	0.170	0.172	-	-	-
Subtotal Distribution Sustainment	20.337	20.338	19.542	19.990	20.353
Telecommunications Sustainment					
Communication Upgrades	0.367	0.379	0.390	0.397	0.402
Station Smart Device Upgrades	0.323	0.380	0.329	0.328	0.326
Backbone Transport Technology Migration	-	-	0.937	0.953	-
SCADA System Replacement	-	1.086	2.192	2.188	1.086
SCADA Systems Sustainment	0.937	0.945	1.685	0.970	1.451
VHF Radio System Replacement	-	-	0.548	0.875	-
Other Telecommunications	0.190	0.194	0.200	0.204	0.206

	2020	2021	2022	2023	2024
Subtotal Telecommunications Sustainment	1.818	2.983	6.280	5.915	3.472
Total Sustainment Capital	50.743	50.098	43.110	44.657	53.901
Other Capital					
Equipment					
Vehicles	2.700	2.770	2.695	3.090	2.785
Tools and Equipment	0.707	0.568	0.579	0.591	0.603
Subtotal Equipment	3.407	3.338	3.274	3.681	3.388
Facilities					
Buildings	3.060	2.040	2.040	2.040	2.040
Furniture and Fixtures	0.204	0.306	0.306	0.306	0.306
Subtotal Facilities	3.264	2.346	2.346	2.346	2.346
Information Systems					
Infrastructure Sustainment	1.050	1.071	1.092	1.114	1.136
Desktop Infrastructure Sustainment	1.200	1.224	1.248	1.273	1.298
Cyber Infrastructure	0.950	0.969	0.988	1.008	1.028
Application Enhancements	1.100	1.122	1.144	1.167	1.190
Application Sustainment	1.381	1.242	1.264	1.292	1.348
Business Technology Applications	3.400	3.400	3.400	3.400	3.400
Subtotal Information Systems	9.081	9.028	9.136	9.254	9.400
Total, Other Capital	15.752	14.712	14.756	15.281	15.134
Total Regular Capital	\$93.524	\$87.853	\$82.205	\$86.220	\$92.204

17.3 Please comment on whether FBC utilized a budget process for forecasting capital expenditures during the MRP Plan, or did FBC use actual expenditures from 2014 to 2018 and projected expenditures in 2019 for forecasting capital expenditures during the MRP Plan. If the latter, please provide in an excel spreadsheet the calculation of the capital expenditures Section 3.4.1, Table 3-21

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from the actual expenditures from 2014 to 2018 and projected expenditures in 2019.

**Response:**

FBC utilized both top-down and bottom-up processes for forecasting capital expenditures over the MRP term depending on the type of expenditure. The top-down process included an analysis of the actual expenditure history to calculate a rolling average that was adjusted by inflation and other known requirements. Some of the expenditures that were forecast using this method included Transmission, Distribution and Station Urgent Repairs, New Connects and Forced Upgrades. For example, the calculation for Small Growth Projects is provided in response to BCUC IR 2.202.4. The remaining expenditures followed the bottom-up process, in which the project scope and estimate of the individual projects were completed using a zero-based process.

17.4 Please comment on whether FBC believes it used a top-down or bottom-up approach to determine the capital expenditures set forth in Exhibit B-1, Section 3.4.1, Table C3-21?

**Response:**

Please refer to the response to ICG IR 2.17.3.

17.5 Please file FBC internal documents that describe the capital budgeting process and the assignment of capital expenditure priorities by management?

**Response:**

Please refer to Attachment 17.5 for a copy of FBC's capital budgeting process.

The process of capital prioritization at FBC is described beginning on Page 6 of Appendix B8-3 of the Application.

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**18.0 Reference: Exhibit B-8, ICG IR 5.1, Attachment 5.1; ICG IR 5.3**

18.1 Please provide the condition assessment report for the runner weld repairs performed on UBO Unit 6 turbine runner in 2014?

**Response:**

FBC did not complete a condition assessment report at the time of the weld repair in 2014; however, maintenance staff took a number of pre-weld and post-weld photographs, which are provided in Attachment 18.1. The runner welding repairs, which FBC undertook in 2014 and 2017 were temporary measures which could not ensure the long term operation of Unit 6.

18.2 Attachment 5.1 contains two dates, March 14, 2017 and February 10, 2016. Please confirm the date of the weld repairs shown in Attachment 5.1. Please confirm that the cavitation shown in Attachment 5.1 was caused during the limited running hours provided in the response to ICG IR 5.3 since the 2014 turbine runner weld repair.

**Response:**

February 10, 2016 is the date when the Runner Inspection Form (Attachment 5.1 provided in the response to ICG IR 1.5.3) was updated. The most recent weld repair took place during the annual planned outage for UBO U6 in March of 2017.

The cavitation issue inherent in the design and manufacture of this runner and cavitation has resulted despite the limited running hours.

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1    **19.0    Reference:    Exhibit B-8, ICG IR 6.1**

2            “Planning will take corrective action, when for the predicted loading, the distribution  
3            system is not capable of meeting this backup criteria with the following exceptions:

- 4                    - Rural substations with feeders that extend long distances with open points  
5                    >5km from both sources at 12.5kV will be reviewed on a case by case basis to  
6                    determine whether or not it is reasonable and practical to meet this criterion.  
7                    Attention should be given to costs of upgrades required, # of customers  
8                    affected, and risk of an outage.”

9            19.1    The distribution planning criteria state that “Attention should be given to costs of  
10            upgrades required, # of customers affected, and risk of an outage.” Please  
11            describe how this has been considered in this proposed project, and identify the  
12            number of customers that are beyond the exception distances in the quote  
13            above.

14  
15    **Response:**

16    Substations in rural areas are reviewed on a case-by-case basis. The >5km distance in the  
17    preamble pertains to the location of normal open points and does not refer to the number of  
18    customers >5km from the substation.

19    For the Salmo substation, in the event of a transformer outage under peak load conditions,  
20    there would be 1,122 Salmo area customers out of service (84 percent; a small number can be  
21    supplied from the Hearns substation) until a mobile transformer could be installed. This includes  
22    a single industrial customer. It can take up to 24 hours to install the mobile transformer in an  
23    emergency. By adding a second transformer, no customer outages would be experienced  
24    during an outage to one of the two transformers.

25  
26

27  
28            19.2    Please identify the other locations in the FBC system where the distribution  
29            service to rural customers is not capable of meeting the quoted backup criteria.  
30            How many such rural customers are there?

31

32    **Response:**

33    There are nine substations in rural areas that do not meet the backup criteria. These include  
34    Salmo, Ymir, Fruitvale, Christina Lake, Kaslo, Passmore, Playmor, Kaleden, and OK Falls.  
35    These substations are reviewed on a case by case basis. In some cases, it is not reasonable or  
36    practical for substations in rural areas to meet these criteria given the cost of upgrades required,  
37    number of customers affected, and risk of an outage. At this point, the substations that do not

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1 meet these criteria and have been identified for corrective action in the MRP application are  
2 Salmo, Ymir, and Fruitvale.

3  
4  
5  
6 19.3 The response references new large load requests in the Salmo area. Should the  
7 large new loads contribute to the cost of the supply capacity increase, and if not,  
8 why not?  
9

10 **Response:**

11 Where the FBC distribution system must be extended, or existing facilities substantially  
12 upgraded in order to serve a new or increasing load, customers may be required to provide a  
13 contribution towards the associated costs in accordance with the FBC tariff, particularly sections  
14 4.5 (Customer Contributions) and 16 (Extensions).

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**20.0 Reference: Exhibit B-8, ICG IR 1.9.1, Table 1 and Table 2**

20.1 Please confirm that the Table 1 “Total Expenses” covered by flowthrough or specific deferrals of 87.1% and the Table 2 “Total Expenses” covered by flowthrough or specific deferrals of 61.0% are not comparable because of input and assumption differences?

**Response:**

Not confirmed.

The two tables provided in the response to ICG IR 1.9.1 are comparable. Both tables use the 2019 approved revenue requirements as the basis for comparison.

Table 1 separates out the various revenue requirement components based on whether variances between actual and forecasted amounts are fully refundable to/recovered from customers through the flow-through or other deferral mechanism or shared with customers through the earnings sharing deferral, the existing mechanisms used during the current PBR.

Table 2 separates out the various revenue requirement components based on whether variances between actual and forecasted amounts are fully refundable to/recovered from customers through the flow-through or other deferral mechanism or shared with customers through the proposed MRP incentives deferral, the proposed mechanisms to be used during the MRP.

20.2 If confirmed, please either: 1) revise Table 2 using the same inputs and assumptions of Table 1 so that it is possible to compare the scope of Current PBR Plan deferral account treatment with the scope of Proposed MRP deferral account treatment or 2) confirm that the scope of Proposed MRP deferral account treatment is not materially different than the scope of Current PBR Plan deferral account treatment?

**Response:**

Please refer to the response to ICG IR 2.20.1.

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1    **21.0    Reference:    Exhibit B-8, ICG IR 1.13.1**

2            21.1    Please provide the Measurement Canada standards for non-revenue meter  
3                    applications.

4  
5    **Response:**

6    In the response to ICG IR 1.13.1, FBC intended to convey that station metering should be  
7    designed to revenue-accuracy requirements, consistent with the existing metering installations  
8    at other energy supply points (generators and transmission tie-lines) and energy delivery points  
9    (customer meters). This implies the use of revenue-accuracy meters and instrument  
10   transformers; however, FBC acknowledges that Measurement Canada does not mandate  
11   standards for metering in non-revenue applications.

12

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**22.0 Reference: Exhibit B-10, BCUC IR 1.2.5 and BCUC IR 1.2.5.1**

“FBC’s intention at this time is to continue to invest in direct-current fast charging stations to support transportation corridors, and also to develop programs to provide incentive funding to customers for EV charging at home (single-family and multi-unit dwellings) to help manage the impact of the associated increased load on FBC’s system.”

22.1 Please explain in more detail FBC plans “develop programs to provide incentive funding to customers for EV charging at home.” Is FBC seeking approval for such incentive funding in this Application or does FBC plan to seek approval after program for incentive funding to customers for EV charging at home?

**Response:**

FBC notes that there are a number of ways FBC can support EV charging including through direct investment as well as through incentives for certain technologies that provide a capacity-savings benefit. FBC is currently awaiting the B.C. Government’s response to the BCUC’s recommendations contained in its Phase Two Report of the Inquiry into the Regulation of Electric Vehicle Charging Service and understands that the B.C. Government may be contemplating new regulation relating to EV charging services which are expected to clarify FBC’s role in supporting EVs.

This Application sets out a framework for rate setting for the years 2020 to 2024 and does not seek funding for specific programs (other than the approval of regular capital expenditures for the upcoming MRP term). As part of that rate-setting framework, FBC has proposed that its investments in a clean growth future, including investments in EV charging stations, will be annually forecast and presented at the Annual Review of Rates as discussed in Section C4.4.2 of the Application.

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1    **23.0    Reference:    Exhibit B-10, BCUC IR 1.74.3**

2            “The wood-waste process is currently under development and not commercially  
3            available, although it has the potential to increase RNG generation in BC to about 90 PJ  
4            annually according to the Hallbar study. Figure 2 from the study shows the relative  
5            potential in BC when considering wood-waste feedstock (see “Achievable (long-term  
6            with tech)”.)”

7            23.1    Please describe what consultations, if any, FortisBC has conducted with  
8            members of the ICG regarding the potential for RNG generation?  
9

10    **Response:**

11    FortisBC is not aware of what specific entities are members of the ICG. Regardless, FortisBC  
12    would not likely be able to comment specifically due to confidentiality. FortisBC can confirm that  
13    it has consulted with some of its industrial customers on RNG generation. Please refer to the  
14    response to BCUC IR 2.222.4 which provides a description of consultation with the pulp and  
15    paper industry and government on one of the aspects of this opportunity.

16

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**24.0 Reference: Exhibit B-10, BCUC IR 1.94.2.1**

“Momentary outages were not tracked historically since often these outages went unreported by customers. With the implementation of the AMI and the ADMS systems, FBC now has the ability to track and report on these outages without relying on customer feedback.

Since the overall impact is somewhat unknown and provides limited value, FBC does not believe a change in reporting is appropriate.”

24.1 The effect of momentary outages to one of the ICG members can be measured in the hundreds of thousands of dollars. What consultation has FBC performed to conclude that the overall impact provides limited value?

**Response:**

FBC did not perform any consultation to conclude that tracking of momentary outages provides limited value. However, FBC adds that momentary outages are frequently caused by transient events that make it difficult to determine a cause. Examples of this would be lightning, snow unloading, a falling tree or branch, animal contacts, or wind causing conductor contacts to ground or other conductors. Currently, the lack of automation to field protective devices beyond the substation makes it difficult to perform detailed analysis of momentary outages on the distribution system, other than tracking the number and the predicted location of the momentary outages with the ADMS system.

However, on the transmission system where the protection systems are much more intelligent, FBC proactively analyzes every event, including momentary outages to ensure that the interruption was caused by a true fault and that the protection systems responded appropriately.

24.2 The impact of an outage, even one that is momentary, can be significantly more serious for a large industrial customer than for a residential or commercial customer. Yet the contribution to SAIDI and SAIFI statistics of an outage to a 50MW industrial customer has the same impact as an outage to a 10 kW residential customer. Please confirm that an outage to a rural substation with 1000 residential customers would have 1000 times the impact on SAIDI and SAIFI statistics as an outage to a 100 MW industrial customer.

**Response:**

FBC confirms that an outage affecting 1,000 customers has 1,000 times the impact on SAIDI and SAIFI versus an outage to a single customer. SAIDI and SAIFI are measured on a per

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customer basis and do not consider other factors such as customer type (residential, commercial, industrial) or magnitude of load lost.

It is worth noting in this scenario that a 100 MW industrial customer would require transmission service, which comes with a higher level of reliability than distribution service. Compared to distribution service, transmission lines have more redundancy, remote switching capabilities, wider right of ways and less exposure to faults.

24.3 Please describe any other service quality indicators used by other utilities or in other jurisdictions that provide a weighting based on the consequence of the loss of electrical supply.

**Response:**

FBC is unclear of the meaning of the reference to "... a weighting based on the consequences of the loss of electrical supply". In providing this response, FBC assumes that the reference is to service quality indicators that weight outage incidents by their consequence of the loss of electrical supply. However, in general the consequence of a transmission level outage is higher than a distribution level outage due to the potential number of customers and size of customers that can be impacted by an outage.

FBC is unaware of a distribution reliability metric based on the weighting of the consequence of the loss of electrical supply being used by Canadian electric distribution utilities. FBC comments that should such a reliability metric be designed to report system interruptions based on the consequence of the loss of electrical supply, work will be required to develop a definition to use to measure the "consequence of the loss of electrical supply". Consequence (i.e., size of load lost) can mean different things depending upon the circumstances and the customers impacted.

In its research, FBC reviewed the industry standard reliability metrics tracked and reported by the Canadian Electricity Association (CEA) and did not find the use of the specific metric suggested in this question. Some industry standard reliability metrics measuring interruption and frequency reported by the CEA include:

- System Average Interruption Frequency Index (SAIFI);
- System Average Interruption Duration Index (SAIDI);
- Customer Average Interruption Duration Index (CAIDI);
- Index of Reliability (IOR);
- Customer Interruptions per Kilometre (CIKM); and

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- Customer Hours per Kilometre (CHIKM).

In addition, FBC reviewed the jurisdictions of Alberta and Ontario. Alberta's distribution reliability metrics as outlined in Rule AUC 002 for Service Quality and Reliability Performance Monitoring and Reporting for Owners of Electric Distribution Systems include SAIDI, SAIFI and CAIDI. In Ontario, as part of the OEB's Scorecard approach to Performance Measurement for Electricity Distributors, system reliability metrics reported include Average Number of Hours that Power to a Customer is interrupted (SAIDI) and Average Number of Times that Power to a Customer is Interrupted (SAIFI).

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**25.0 Reference: Exhibit B-10, BCUC IR 1.96.1 and BCUC IR 1.96.2**

“The Targeted Incentives listed in Table C8-1 of the Application are not being compensated by the approved rate of return.”

“The appropriateness of FEI and FBC’s authorized ROE and capital structures is not addressed in this Application.”

25.1 Please provide criteria or otherwise explain how activities compensated by the approved rate of return can be distinguished from activities not compensated by the approved rate of return?

**Response:**

As discussed in the responses to BCUC IRs 1.96.1 and 1.96.2, targeted incentives are a form of performance or incentive ratemaking. The associated reward provides an incentive to achieve a desirable outcome. Whereas, the return on equity is compensation that investors receive for the opportunity cost on their investment represented by the rate of return investors could expect to earn elsewhere without bearing more risk.

25.2 Please comment on when the appropriateness of FEI and FBC’s authorized ROE and capital structures should be considered in a cost of capital proceeding?

**Response:**

FortisBC assumes the question is asking when the Utilities are planning to file their next cost of capital applications.

In the 2016 cost of capital decision, the BCUC determined that FEI’s authorized return on equity (ROE) and capital structure shall serve as the benchmark cost of capital for any other utility in BC that uses the benchmark to set rates and that the approved ROE and equity thickness shall remain in effect until otherwise determined by the BCUC.

The decision to file a cost of capital application will depend on capital market conditions and a utility’s financial and business risk profiles. Considering the recent uncertainties in global debt and equity markets, FEI cannot provide a definitive answer to this question; however, it will continue to monitor its risk profile as well as capital market conditions and will file an application when deemed necessary.

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25.3 Please comment on whether the approval of Targeted Incentives are relevant to the cost of capital?

**Response:**

In the response to BCUC IR 1.96.1, FortisBC explains that targeted incentives and the return on equity are conceptually separate and serve different functions.

However, and as explained in the response to BCUC IR 1.96.2, changes to the Utilities' rate making structure (including the potential approval or denial of targeted incentives) is considered as part of the regulatory risk assessment (usually filed as part of the business risk appendix in cost of capital applications) and is used, along with a multitude of other items, to inform the BCUC regarding the Utilities' overall business risk profile.

25.4 Please comment on whether the approval of deferral accounts are relevant to the cost of capital?

**Response:**

Please refer to the responses to BCUC IR 2.166.4.1 and BCSEA IR 2.30.4.

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1   **26.0   Reference:   Exhibit B-10, BCUC IR 1.152.1**

2           26.1   The response references an additional FTE in System Control. Was this  
3                   additional FTE identified in the Kootenay Operations Center CPCN Application?  
4                   Please describe the additional effort required in 2018 to support the overall T&D  
5                   capital portfolio as compared to the effort required in 2013. What has changed?  
6

7   **Response:**

8   The additional FTE in System Control was not identified in the Kootenay Operations Center  
9   CPCN application, which was filed in July 2015. It should be noted that 2013 actual  
10   expenditures were significantly lower than average due to the IBEW labour disruption and Direct  
11   Overhead Costs related to System Control are not truly reflective of actual business  
12   requirements. Direct Overhead spending for System Controls should generally be in the \$0.600  
13   million to \$0.700 million range, consistent with 2018 actual expenditures.

14   The additional FTE to support the overall T&D capital portfolio is related to the Load Desk  
15   Operator (LDO) position, which was introduced to the Control Center starting in 2015. The LDO  
16   position overlooks the entire Distribution System, and supports work related to new customer  
17   extensions as well as distribution line rehabilitations and distribution rebuilds. A portion of their  
18   time is capitalized to Direct Capital Overhead in support of these activities.

19

**Attachment 14.1**

---



<p>FortisBC Inc. (FBC or the Company)</p> <p>Application for Approval of 2015 Delivery Rates pursuant to the Multi-Year Performance Based Ratemaking Plan (the PBR Plan) approved for 2014 through 2019 by Order G-139-14 (the Application)</p>	<p>Submission Date: March 25, 2015</p>
<p>Response to Industrial Customers Group (ICG) Information Request (IR) No. 1</p>	<p>Page 7</p>

1    **4.0    Reference:    Exhibit B-1, section 1.5, p. 5, lines 12-13**

2            "... the Company now has the regulatory certainty it requires to pursue and implement  
3            customer service and productivity related *initiatives* in the future." (emphasis added)

4            4.1    Please fully explain how the Company expects to pursue and implement  
5            customer service and productivity related initiatives in the future?

6  
7    **Response:**

8    FBC intends to focus its efforts on finding opportunities for improving internal processes that  
9    simplify and improve customer facing processes and that may lead to increased productivity and  
10   efficiency. FBC does not consider productivity to be short-term cost cutting measures. Rather,  
11   FBC's goal is to create sustainable, long-term savings. Long-term, sustainable savings may be  
12   accomplished, for example, through the enablement of technology or the re-engineering of the  
13   type of work FBC does, how the work is done and how the Company engages with its  
14   customers.

15  
16

17  
18            4.2    Please identify all such initiatives and provide a full benefit cost analysis of two or  
19            three of such initiatives?

20  
21    **Response:**

22    FBC does not have any such initiatives at this time.

23





<p>FortisBC Inc. (FBC or the Company)</p> <p>Multi-Year Performance Based Ratemaking Plan for 2014 through 2019</p> <p>Annual Review for 2016 Rates (the Application)</p>	<p>Submission Date:</p> <p>October 13, 2015</p>
<p>Response to Industrial Customers Group (ICG) Information Request (IR) No. 1</p>	<p>Page 9</p>

1 **Reference: Exhibit B-1-1, p. 1**

2 The PBR Plan approved by the Decision attached to Order G-139-14 (PBR Decision)

3 increases FBC's incentives to seek out savings while maintaining service quality.

4 Pursuant to the earnings sharing approved by the Commission, any PBR-related savings

5 achieved by the Company are shared equally with customers as discussed in Section 10

6 of the Application.

7 19) Please comment on whether FBC can distinguish "PBR-related savings

8 achieved" from reduced "O&M expenses" attributed to staff vacancies and timing

9 of spending?

10

11 **Response:**

12 Under the approved PBR Plan, all O&M savings are measured in comparison to that allowed

13 under the formulaic O&M and are shared equally between ratepayers and the Company.

14 Please refer to the response to CEC IR 1.1.1 for further discussion.

15

16

17

18 20) Please identify any "PBR-related savings achieved" in 2015 resulting from

19 "incentives to seek out savings while maintaining service quality."

20

21 **Response:**

22 Please refer to the response to ICG IR 1.19.

23

24

25

26 21) Please provide any and all evidence available, including evidence of any and all

27 initiatives by FBC, to support the contention that savings were achieved in 2015

28 due to efficiency improvements?

29

30 **Response:**

31 Please refer the response to ICG IR 1.19.

32

33

34



<p style="text-align: center;">FortisBC Inc. (FBC or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2016 Rates (the Application)</p>	<p>Submission Date: October 13, 2015</p>
<p style="text-align: center;">Response to Industrial Customers Group (ICG) Information Request (IR) No. 1</p>	<p style="text-align: center;">Page 10</p>

- 1           22)   Please identify any initiatives to date under the current PBR Plan that have been  
2                   implemented to achieve productivity improvements?   Please provide the cost  
3                   benefit analysis for each such initiative, if any?  
4

5   **Response:**

- 6   Please refer to the response to ICG IR 1.19. As stated on page 4 of the Application, the  
7   projected O&M savings for 2015 are a result of the Company's broad based focus on  
8   productivity. FBC is continuing to explore opportunities for major productivity initiatives but has  
9   not implemented any initiatives to date.

**Attachment 17.5**

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# INTEGRATED PLANNING PROCESS

# PROCESS GUIDEBOOK

# May 2015

# Glossary

## **Asset Investment Planning (AIP)**

Department responsible for the development of the long term plan and budget related to asset investments, sustainment and maintenance

## **Asset Need**

Identified issues associated with an asset that need to be addressed in order to mitigate risk or achieve benefits. The optimal solution to an asset need or a group of asset needs will address broader business needs.

## **Asset Risk**

Risk associated with current and future assets that may hamper service and performance level

## **Budget**

Short term, two year spending authority to proceed with the long term plan, project or program as approved

## **Business Need**

Identified business issue that needs to be addressed in order to mitigate risk or achieve benefits. A business need may or may not be tied to a specific asset

## **Project Management Office**

The department responsible for delivering the proposed solution in the field. PMO (gas) and PMO (electric).

## **Asset Planner**

Member of the Asset Investment Planning department responsible for developing an asset need into a proposed solution. This can be a Regional or Asset Engineer.

## **Integrated Planning Process**

The sum of cross-functional processes and procedures that captures asset needs and addresses these through optimized, time-phased, scoped and budgeted solutions

## **Long term plan**

Forecast over a twenty year timeframe of required asset investments based on statistical information and estimates of large projects

## **Planning Window**

Minimum required timeframe between the target completion (in service) date and start of analysis

## **Project Charter**

Definition of project or program in terms of scope, budget and timeline. It includes scope (define for the prefer option), high level schedule, Class 3 Cost Estimate in accordance

with FBC Cost Estimate Classification Guidelines, Record Acceptance Form, Project Acceptance Form . The level of detail included should be adequate for the complexity of the project or program.

**Project Risk**

Risk associated with completing the project

**Regional or Asset Engineer**

Engineer that maintains close ties to Asset Investment Planning or reports up to Asset Investment Planning and works with operations on a daily basis. The engineer has either a region focus or an asset class focus.

**Risk**

For asset and business needs, this is the combination of probability and consequence thereby providing an indication of urgency.

**Solution**

An engineered option that will address one or more asset needs through a project or program

**Solution constraint**

An internal or external factor that limits the scheduling options of a solution, including equipment lead times, resource availability, permits, city events, etc. This may have an impact on project risk.

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# 1 Integrated Planning Process Objective

The integrated planning process has two objectives. First it aims to develop a credible long term plan that addresses the business needs. Second, it aims to translate the long term plan into an optimized and achievable short term plan and budget.

The integrated planning process should increase the accuracy and hence credibility of the long term plan as well as streamline the process of developing it. To deliver a credible long term plan a number of different business components need to be integrated successfully: Maintenance, Sustainment, Growth, Major Projects, Corporate projects and Marketing. Additional sources of business needs such as Energy Conservation and Alternative Energy can be integrated into the planning process as well. An important challenge that the process has to overcome is the different levels of long term visibility in each of the six components as well as different sense of urgency and client visibility.

Translating a long term plan into an action requires the Board and BCUC to authorize a budget. This authorization provides Asset Investment Planning, execution team and finance with boundaries of approval within which to deliver the plan. The budget is an approval to proceed with specific solutions in a two year timeframe. The long term plan drives the selection of short term solutions to be implemented through analysis and prioritization. Delivering an achievable or executable, accepted budget is the second objective of the integrated planning process.

Delivering these two objectives is important for reasons internal to the company and to stakeholders outside FortisBC. Internally, a long term plan is necessary to develop the business plan and ensure sustainability. Externally, delivering on the plan builds trust and ensures that rate payers receive value for money in the delivery of gas and power. Delivering the solutions compiled on scope, budget and timeline addresses the business needs in an optimal manner. The planning process supports the completion by setting the stage through well-defined project charters.

## 1.1 FortisBC Asset Management Principles

The integrated planning process at FortisBC is part of the asset management function. As such it is rooted in four core principles selected by the senior leadership:

- Integrated partnership model
- Accountability within the Integrated Planning Process
- Consistent and defensible decisions using a transparent process
- Optimized decisions that effectively balance risk, cost and performance trade-off

The leadership team selected these principles as the core of the development of asset management in 2013. The four principles stand to make the delivery of services by FortisBC more effective and efficient.

## 1.2 Asset Management Initiatives

The four principles were translated in a number of strategic initiatives. The six initiatives listed below target the gap between the current capability and the asset management vision. The integrated planning process, which draws on a project ranking tool and a common risk framework, is amongst these initiatives.

- Integrated Planning Process
- Single Project Ranking Tool (*currently under development as part of the Risk Framework and Project Prioritization Tool*)
- Organizational Structure Improvements
- Common Framework for Quantifying Risk (*currently under development*)

- Define Asset Management Guidelines by Asset Class (*planned for future consideration*)
- Integrated Asset Management Systems (*currently in progress*)

## 1.3 Integrated Planning Process

### 1.3.1 Scope

The integrated planning process includes all stages from identifying an asset need up to the inclusion of an appropriate solution in a long term plan and an achievable budget. Asset Investment Planning will also prepare project or program charters insofar as to support completion. The completion itself is the responsibility of the execution team, which delivers the solution according to scope, schedule and budget. The completion phase is a key part of the integrated planning process and provides feedback to Asset Investment Planning on the status of work, deficiencies and general suitability of project / program closure. Project closures will be reviewed and signed off by Asset Investment Planning.

### 1.3.2 Supporting the principles

The planning process builds on all four asset management principles. It will thus be an excellent pilot project to demonstrate how these translate into day-to-day operations. First of all, it is the primary link between a business need and the implemented solution. All stakeholders should be able to understand the link between the solution and the need. This clear transparency improves the credibility of the plan. In turn, higher credibility of the plan will increase confidence of the stakeholders in the soundness of the plan.

When stakeholders identify needs and understand why and how they are addressed, the feeling of asset ownership will increase. Also, stakeholders should feel more engaged throughout the process through regular contact points, both personal and automated. A credible plan requires input from numerous sources within the organization and frequent two-way communications will support this objective.

A credible planning process has to take into account the conflicting priorities between different business needs and the limited financial and physical resources of the organization. The process will build on a common risk framework and a prioritization mechanism to identify the most pressing business needs and valuable solutions. These initiatives are in progress. By properly balancing risk, cost and performance, the planning process will support FortisBC in achieving its business objectives.

Delivering these objectives will require dedication and team effort. Additionally, aligning the risk assessment, prioritization and planning process across both the electric and gas divisions will require integrated team efforts. The partnership model will be further developed as a result of closer ties between planning and execution as well as planning and the business need identifiers.

## 2 Principles in Integrated Planning

Five principles underpin the integrated planning process. In summary; the long term plan is a guide for future investment requirements and the planning window optimally allocates planning resources to business needs. A rolling window will be used to increase oversight and planning rigor, supported by a standardized risk framework. Finally, the planning process is driven by the need for value delivery, internal oversight and control.

### 2.1 Long term planning – Providing guidance

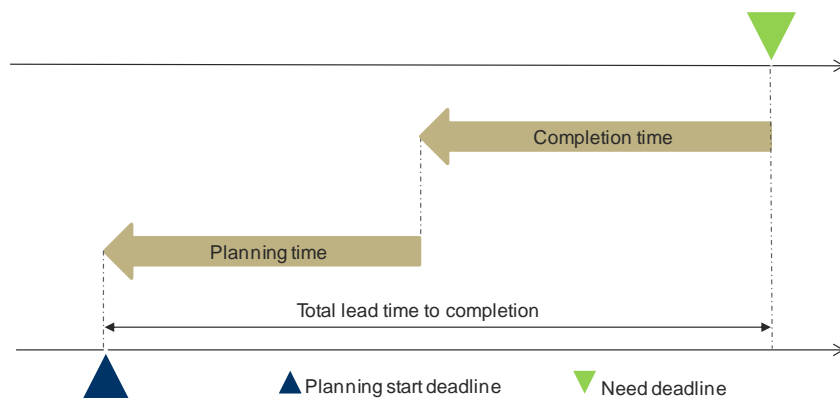
A long term plan provides guidance for the senior executives, the board, regulators and the rate payers to understand the future investment needs. These needs include both the sustained, safe delivery of power and gas services to customers and accommodation for growth. Covering a time span of twenty years, the long term plan does not aim to be exact, but rather to be a guide. The plan comprises major identified projects, statistical replacement predictions, corporate initiatives, compliance requirements, etc.

The long term plan indicates if investments will need to ramp up, remain stable or even slow down. Knowing such requirements beforehand on a region by region basis with an overview of the Company (Gas or Electric) as a whole allows the company to mitigate high waves of investments and resource requirements and balance them with periods of lower investment. Overall, a credible long term plan will aid in abating rate pressure and achieving sustainable services.

### 2.2 Planning window – Lead time to completion

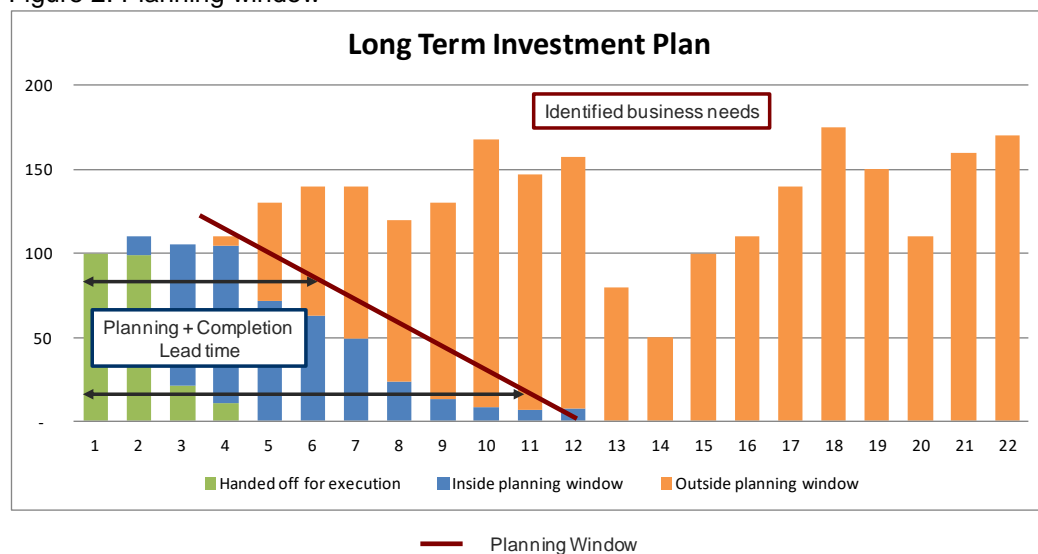
The principle used in the planning process is to work backwards from the required in service date. When an asset need is identified, it is assigned a date when this need will have to be addressed by a proper solution. This date represents the completion deadline. The lead time in planning and completion determine the latest moment when planning should start to facilitate timely implementation.

Figure 1: Planning start deadline and business need deadline



When the total time from planning through to completion of execution is equal to the remaining time until the solution is required, the business need has entered the planning window. The planning window is thus a concept that aids in identifying business needs for analysis and solution development.

Figure 2: Planning window



## 2.3 Rolling window – Increasing oversight

The planning process uses a rolling window, in such that the plans developed will overlap each other in time. The long term plan covers a twenty year time span, but will be refreshed every five years or earlier. The budget covers a two year period and will be approved on an annual basis. The benefit in this approach lies in the requirement to plan ahead further than the approved time frame.

As all budgets will in effect be internally approved two years ahead and will be re-confirmed in the next year, this increases the scrutiny applied to each approved project and program. Also, Asset Investment Planning will need to appropriately develop the details for the budget two years out, which will increase the proportion of execution-ready projects before hand-off. As the team becomes more familiar with the process and projects they will also become more efficient and effective.

## 2.4 Improved Consistency – Standardized Risk Framework

The planning process will be supported by a risk framework to standardize the assessment of business needs. A business need is equivalent to a positive or negative risk linked to the assets. As the sources of business needs vary widely in terms of impact and probability, the standardized risk assessment will provide a unified scale on which to measure the importance of a business need. The risk score will subsequently trigger the priority of addressing this need in the planning process once it enters the planning window.

Standardized risk scoring supports ranking solutions as individual projects and within programs. Based on the ratio of risk reduction to budget required, the planning team will select those projects and programs that provide the greatest business value within the constraints of the available resources and funding.

## 2.5 Internal approval process – Ahead of the curve

Asset Investment Planning is in the best position to select solutions and address business needs, with oversight and approval by the board and regulator. Therefore, the planning process relies on a credible long term plan to communicate the business needs as an investment plan demonstrating the risk and value of these investments. The planning process has been designed around an internal approval process, with review and acceptance meetings creating crucial internal alignment and with organizational readiness to adapt to the regulator's feedback.

The long term plan will compile various business needs from diverse sources internal and external to the organization. The risk framework supports Asset Investment Planning in identifying high and low priority needs and the planning window determines the timeframe upon which these need to be addressed. During the planning, competing interests such as rates, reliability, safety and efficiency will be considered in the prioritization process. The objective of these two steps is to develop a long term plan and budget that will

present optimized solutions that maximize the value to the company and the external stakeholders. Hence, with proper planning, the presented plan and budget should receive the regulator's approval.

This approach allows Asset Investment Planning to hand-off projects for execution once solutions have been approved, as far as two years in advance. Project and program charters can be developed, critical components can be procured and resources can be lined up. The Executive however, retains the final approval of the plan. The planning process foresees an adjustment procedure to address required changes to budgets and plans. It does so in a manner that will re-prioritize solutions and properly address the scope, budget and schedule of the affected solutions.

## 3 Process description

A five step process will translate business needs into executable solutions. Asset Planners interact with numerous stakeholders internally to develop the plan and budget throughout the entire process. Proper allocation of accountability supports integrated team effort and plan development.

The planning process consists of five steps:

- Identify business needs
- Analyze needs and develop solutions
- Prioritize solutions
- Approve a long term plan and budget
- Prepare for completion

The five steps are separated to ensure that each step is given proper attention. It further requires all team members to assess, communicate and document the progress and decisions made.

### 3.1 Identify business needs

#### 3.1.1 Purpose – Develop overview of what's needed

This process step aims to capture all asset needs within scope of Asset Investment Planning. Integrated planning requires oversight over all asset needs, both large and small and long term as well as short term. Asset Investment Planning will develop appropriate solutions more effectively if it understands all business needs.

#### 3.1.2 Tasks – Document and communicate

Various departments within FortisBC identify opportunities and risks related to the current or future assets needs. In collaboration with a Regional or Asset Engineer, these needs are documented in a unified needs registry. It is recognized that both the gas and electric operations currently have separate needs registries

If an asset need changes, it is upon the requester to notify the Regional or Asset Engineer and ensure that the re-assessed need is updated and documented properly. Subsequent stages in the planning process will capture needs that can be deferred, but is unable to identify needs that should be brought forward or that have increased in importance unless notified by the requester.

To facilitate the future steps in the planning process, an identified need requires at a minimum the following information provided by the requestor:

- Timeframe – Latest date this need has to be addressed with an adequate solution at initial request
- Probability – likelihood that the need will materialize, scored using the risk framework
- Impact – effect on the business goals when the need materializes, scored using the risk framework
- Requestor – The person who identifies the need
- Location or asset identifier – To trace asset need to specific assets and location
- Technical information – Technical description of the asset need, engineering perspective

The first four components above are instrumental in the process of the planning, whereas the technical aspects are vital to develop an appropriate solution. The Asset Planner will review incoming needs for information completeness and accuracy and will discuss the status of those needs with the requestor.

If an approved program exists to cover the identified need, the analyze step will be skipped and the need will be prioritized immediately. This category will cover most emergency actions, as these typically have allowances with a general budget. In a sustainment environment, emergencies are unpredictable on an asset level, but can be predicted using statistical information on a system level which makes them prime candidates for a program treatment.

A business need that falls outside the planning window and does not fit within a pre-approved program will be covered under the normal analyze procedure. Sustainment projects that require additional detail from engineering and planning that cannot be covered in programs will be treated in this category. Additionally, the majority of external requests, growth projects, corporate initiatives and similar needs which require longer planning time frames should fall in this category.

A business need that falls within the planning window and does not fit within a pre-approved program will be covered under an exception procedure. The number of these occurrences should be limited as it indicates that the need cannot be addressed properly using the normal procedure. This category should mainly be used only for unforeseen events. The exception procedure consists of the stages analyze, approve and prepare which will be completed on an accelerated timeframe to meet the business need requirements.

### 3.1.3 Roles

#### **Requester**

Responsible for proactively identifying asset needs within his or her field, asset class or department and raising these with Asset Investment Planning. Accountable for the completeness and accuracy of identified needs.

Responsible for communicating updated need information to the regional or asset engineer when changes to the impact, probability or timeline become apparent.

The Requester is responsible for providing accurate, timely and complete information within his domain.

#### **Regional or Asset Engineer**

Responsible for the usability of the information in the needs registry and will interact with the Requester to collect additional information as required.

Responsible for initiating immediate action if required by the risk score and time frame.

### 3.1.4 Timing

Identification of needs and planning are carried out on a continuous basis with the primary timing issue being submission and approval of a two year plan

## 3.2 Analyze risks and develop solutions

### 3.2.1 Purpose – Group needs and develop solution

Developing appropriate solutions is arguably the most important component of planning. Using the overview of all asset needs, the planning team will develop solutions that address the combination of long term and short term, important and optional asset needs in an optimum manner. Starting from the highest risk score, the team can decide to add or remove asset needs from a single solution. Using asset management principles, the planning team selects an optimum solution balancing risk, cost and performance.

### 3.2.2 Tasks – Develop the solution

On a regular basis, Asset Investment Planning will sort the needs registry and bundle them so that they can be effectively addressed. At that time, a planner will be assigned and will be accountable for determining a

solution for the asset needs. This accountability stops once the solution has been approved, budgeted and handed over for completion.

The asset planner first will scan the needs registry to identify needs that are related to the one at hand. This can include lower ranked needs or longer term needs that relate to the same assets. Alternatively, it could include similar needs at different assets that could be grouped into a program. It is left to the planner's professional expertise and knowledge to identify solutions that will address the business needs optimally. It is worth noting that the optimum solution can also consist of actions other than maintenance, investment or replacement such as procedural changes, demand management etc.

To deal with the large volume of requests, Asset Investment Planning will set up standard solutions for frequently identified asset needs. Applying standard costs, timeframes and scopes to standard needs will reduce the workload of the team and free up resources to address complex needs. These standard solutions should be accepted by engineering and operations prior to use.

Once a suitable solution has been identified, this will be added to the draft investment plan. At a minimum, the following information will be required:

- Scope – High level description of the scope of the solution
- Timeframe – Latest date this need has to be addressed with an adequate solution
- Risk score – the combined score of impact and probability that is being addressed by this solution
- Estimated cost – The estimated cost to implement this solution
- Constraints – Limitations related to resources, materials, permits, etc.
- Business needs – The references to the business needs being addressed

The level of detail contained in the solution documentation will be dependent on the complexity of the asset need and the timeframe of the solution; please refer to the FortisBC Cost Estimate Categorization Guidelines. For large projects it is expected that a stage gate approach, whereby the solution passes the approval stage multiple times, is expected. Solutions can also consist of multiple options, each with a different combination of business needs, risk score and cost. After approval, the preferred option will then be further developed in another analysis round.

The asset planner will notify the requester (s) once a solution has been developed and added to the draft investment plan. The feedback will include the minimum information listed above such that the need owner can understand why the proposed solution is put forward and on what timeframe.

### 3.2.3 Roles

#### Head of Asset Investment Planning

Accountable for assigning asset planners to business needs above agreed threshold that enter the planning window.

Responsible for ensuring templates for solutions exist that have been approved by engineering and the execution team(s).

#### Asset planner

Responsible for proactively exploring options when considering solutions to asset needs including long and short term combinations, additional business needs and non-asset related solutions. The planner has the discretion to use pre-approved templates to deal with large volumes of standard needs.

Responsible for consulting with internal and external stakeholders to incorporate feedback on the proposed solution and capture

constraints regarding the solution. Responsible for notifying Requesters on the status of their asset need.

Accountable for the accuracy of the scope, schedule and budget of the proposed solution.

Responsible for adding a proposed solution with one or more options to the draft investment list with the required information.

### **Engineering**

Responsible for providing adequately developed solutions (single line drawing, cost estimates within x%, etc... Accountable for the accuracy of information provided according to cost estimation checklists.

### **Execution team Other internal departments**

Accountable for providing timely and accurate solicited feedback for presented solutions concerning constraints as well as solution scope, budget and schedule.

## **3.2.4 Timing**

Analysis of risk and development of solutions are carried out on a continuous basis with the primary timing issue being submission and approval of a two year plan

## **3.3 Prioritize solutions**

### **3.3.1 Purpose – Achieve value for our customers and shareholders**

The prioritize step aims to select those solutions that will provide the highest added value. As resources are limited, improving the selection of solutions for completion will ensure that money, labor and materials are allocated optimally.

### **3.3.2 Tasks**

The planner will evaluate the solution using the prioritization tool. Solutions developed as projects will be compared relative to each other comparing the mitigated risk and the project cost. For programs, the individual components will be scored and ranked such that those with the highest importance will be completed first.

Based on the first round of prioritization, the planners will consult with other stakeholders to incorporate resource limitations, component lead times and other constraints. On a simplified level, solutions that have a higher priority score based on mitigated risk and cost will be planned earlier. The constraints will impose some high priority projects to move to a later date, allowing other solutions to be moved forward. In this exercise Asset Investment Planning will maximize the utilization of resources and general effectiveness to the extent possible. As the capability of the team develops, more advanced optimization mechanisms can be employed.

Developing the plan is a collaborative effort between the planning team and other departments such as PMO, operations, engineering, purchasing, permitting, etc. The joint group will hold a review and validation meeting to discuss the outcome and identify any potential issues with the feasibility and soundness of the proposed plan. By the end of the validation meeting, all involved parties will sign off on the feasibility and commit to delivering the plan if it is approved as such. This also requires AIP to accept feedback and properly incorporate concerns and suggestions into the prioritized solution list. Subsequently, Asset Investment Planning translates the validated prioritized solutions into a two year budget for Executive approval.

If the Executive's or regulator's decision requires revisiting the budget and plan, the team will reassess the prioritization. This iteration will reflect changed priorities and budget constraints imposed to shift solutions and adjust appropriately.

### 3.3.3 Roles

**Asset Investment Planning** Responsible for collectively, amongst the Asset Planners and Head of Asset Investment Planning, prioritizing solutions using the prioritization tool. Responsible for making adjustments to suit the identified constraints.

Responsible for finalizing the long term plan and budget.

Investment planners are encouraged to update asset need owners on the progress of the solutions they are responsible for.

**Vice Presidents** Responsible for ensuring the long term plan and budget align with the organizational objectives.

**Finance  
Regulatory** Responsible for collaboratively adjusting the presented plan and budget upon request of Asset Investment Planning.

**Execution team  
Engineering  
Other departments** Responsible for collaboratively adjusting the presented plan and budget upon request of Asset Investment Planning. Have to accept and sign-off on the feasibility of the presented plan and budget and will be accountable in the completion stage to deliver the approved solutions according to the agreed scope, schedule and budget.

### 3.3.4 Timing

Prioritization will be carried out once the project or programs are created twice a year

## 3.4 Acceptance of long term plan and 2 year budget

### 3.4.1 Purpose – Receive spending authority for execution

The acceptance of the long term plan indicates agreement with the overall investment plan. For the regulator, the long term plan and five year rate application will serve as a control over the expenditure. The 2 year budget approval allows the Asset Investment Planning team to proceed to the next stage in completion of the solutions.

### 3.4.2 Tasks – Demonstrate value and obtain sign-off

Asset Investment Planning will submit the proposed expenditure plan to the Directors for approval on an annual timeframe. The long term plan will be submitted on a less frequent basis.

Once approved, the planning team will assess each solution contained in the plan and develop these appropriately for the next stage. If the approved solution requires a CPCN application to the BCUC, it will be branched off to a separate workflow to address the level of detailed preparation and regulatory involvement. If the solution was only approved to proceed to a next level of refinement, the asset planner will continue with the detailed development in the analysis phase of the planning process. The planning team will proceed to the prepare phase for those solutions that can be handed off for completion within the two year timeframe.

The finance department is responsible for setting up the approved budgets for release of funds and reporting during the completion phase.

### 3.4.3 Roles

<b>Board</b>	Accountable for ensuring the long term plan and budget align with the organizational objectives. Responsible for approving the budget.
<b>Asset Planners</b>	Responsible for providing documentation and clarification for the proposed long term plan and budget. Responsible for applying adjustments and notifying internal stakeholders as appropriate.
<b>Finance</b>	Responsible for supporting the execution team and Asset Investment Planning on establishing reporting structures aligned to the approved budget.

### 3.4.4 Timing

Will be done annually or before a submission to BCUC

## 3.5 Prepare for execution

### 3.5.1 Purpose – Set the boundaries for execution

This step centers on adequately outlining the budget, scope and timeline for each solution. It thus sets the stage for a successful completion. Proper definition of these three aspects allows finance and planning to have oversight over completion whilst allowing the execution team to progress and manage autonomously within clearly defined boundaries.

### 3.5.2 Tasks – Develop and accept project charters

The project charter is the governing document in the completion phase to manage the execution. It contains the boundaries and requirements in terms of scope, schedule and budget within which the execution team can work. It is therefore vital that the investment planner develops the project or program charter to sufficient detail. This development is a collaborative approach and the planner is supported by engineering and the execution team to properly develop the document. Once developed, the head of Asset Investment Planning or their designate approves the charter for release.

The execution team has to accept the project charter and acknowledge the feasibility of the requested task. We envisage that for most projects and programs, there will be a simple, pre-approved process to transfer projects and programs to the execution team.

During completion, the execution team reports to Asset Investment Planning for any requested changes or issues related to scope, budget and timeline. The execution team reports to finance for budget forecasts. The three teams will work collaboratively to resolve issues, whereby Asset Investment Planning has the lead in developing a solution that adheres to the approved budget.

### 3.5.3 Roles

<b>Asset Planner</b>	Responsible for developing a project/program charter with suitable definition for the solution in terms of scope, budget and schedule for hand-off to the execution team.
	Responsible for approving scope, budget and schedule related change requests from the execution team. The planner will engage

as needed with the execution team, the planning team, operations and finance collaboratively when issues arise.

#### **Engineering**

Responsible for delivering designs and documentation as requested by the asset planner and the execution team based on cost estimation checklists. Responsible for consulting with internal stakeholders and the execution team to ensure the quality of the documentation.

#### **Execution team**

Responsible for accepting charters that meet the agreed level of documentation.

Accountable for delivering the solution as agreed in the completion stage. Responsible for proactively communicating scope, schedule or budget related issues to Asset Investment Planning.

#### **Finance**

Responsible for summarizing budget forecasts for approval by the Vice President.

### **3.5.4 Timing**

Will be done annually or before a submission to BCUC

## 4 Supporting Technology

The integrated planning process draws heavily on communication and in-depth option analysis to realize its full potential. Technology can support this process by keeping track of business needs throughout the process. The risk framework and prioritization tool support the consistent and defensible outcomes of the process.

### 4.1 Business Needs Registry

The asset needs registry is pivotal in the process as the planning department, asset planners and regional and asset engineers have to enter, update, track and manage asset needs. The process starts with adequate information on an asset need and depends on the asset planner acting when the need enters the planning window. The asset planner has to track solutions with asset needs and notify the need identifier.

The simplest design of the registry could be a straightforward list of entries with the required minimum information. The regional or asset engineer can use this in combination with SharePoint or server folders as document libraries for supporting documentation to document the asset needs. The asset planner can draw on the simple sorting function to identify asset needs that have entered the planning window.

Moving into the analysis stage of the process, a more advanced needs registry could support the asset planner in maintaining the link between needs and solutions. The challenge at this stage arises from multiple needs being addressed in a single solution, the possibility of program based solutions. For the asset planner, it is important to be able to identify needs that have not been addressed, as well as being able to communicate on those needs that have been incorporated in a solution.

With the volume and complexity of asset and business needs that FortisBC deals with, the solutions will show equal complexity. A capability for straightforward allocation of needs to predefined programs will save the asset investment planner time and increase the effectiveness of the process. Additionally, the asset investment planner will find value in supporting technology that can handle multiple options for a single solution and allow evaluation and scoring of each option individually. With each additional layer of functionality, the supporting technology ever tighter integrates needs with solutions.

### 4.2 Risk Framework (Under Development)

The risk framework has to support the process in the first two stages when evaluating the risk of an asset need and the value of a proposed solution. Standardizing the risk scoring template along corporate risk tolerance and accepted thresholds will lead to consistent and defensible solutions.

### 4.3 Project Prioritization Tool (Under Development)

In its simplest form, the project prioritization tool has to support Asset Investment Planning in sequencing solutions to achieve the highest value. Therefore, the asset planner must be able to relate the benefit of a solution to the cost of the solution. Implementing a standardized formula in the tool to evaluate value as the relationship between benefit and cost will support consistency.

A more advanced version of this technology can support the asset planners in dealing with constraints and multiple options. It could use optimization logic to propose a plan based on the identified constraints, providing Asset Investment Planning with a baseline much quicker. The department can then focus on adding value through professional expertise that cannot be captured easily in numbers and rules.

## Appendix 1 Integrated Planning Process Flow

Figure 3: Process Diagram Stage 1: Identify business needs

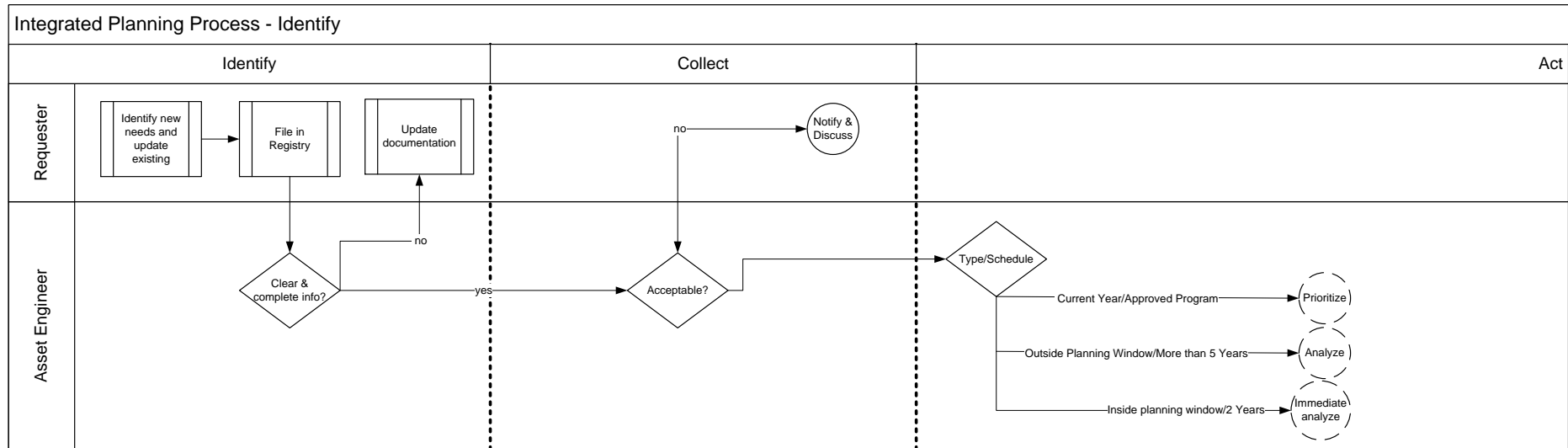


Figure 4: Process Diagram Stage 2: Analyze needs and develop solutions

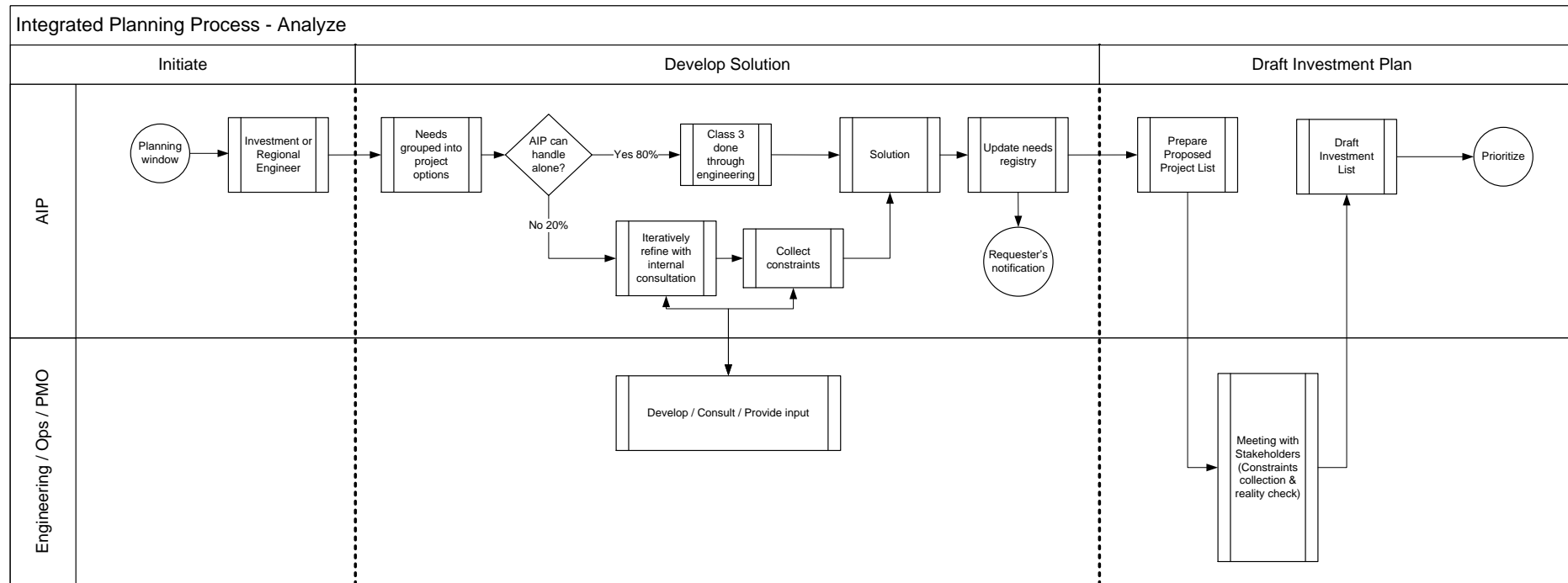


Figure 5: Process Diagram Stage 3: Prioritize solutions

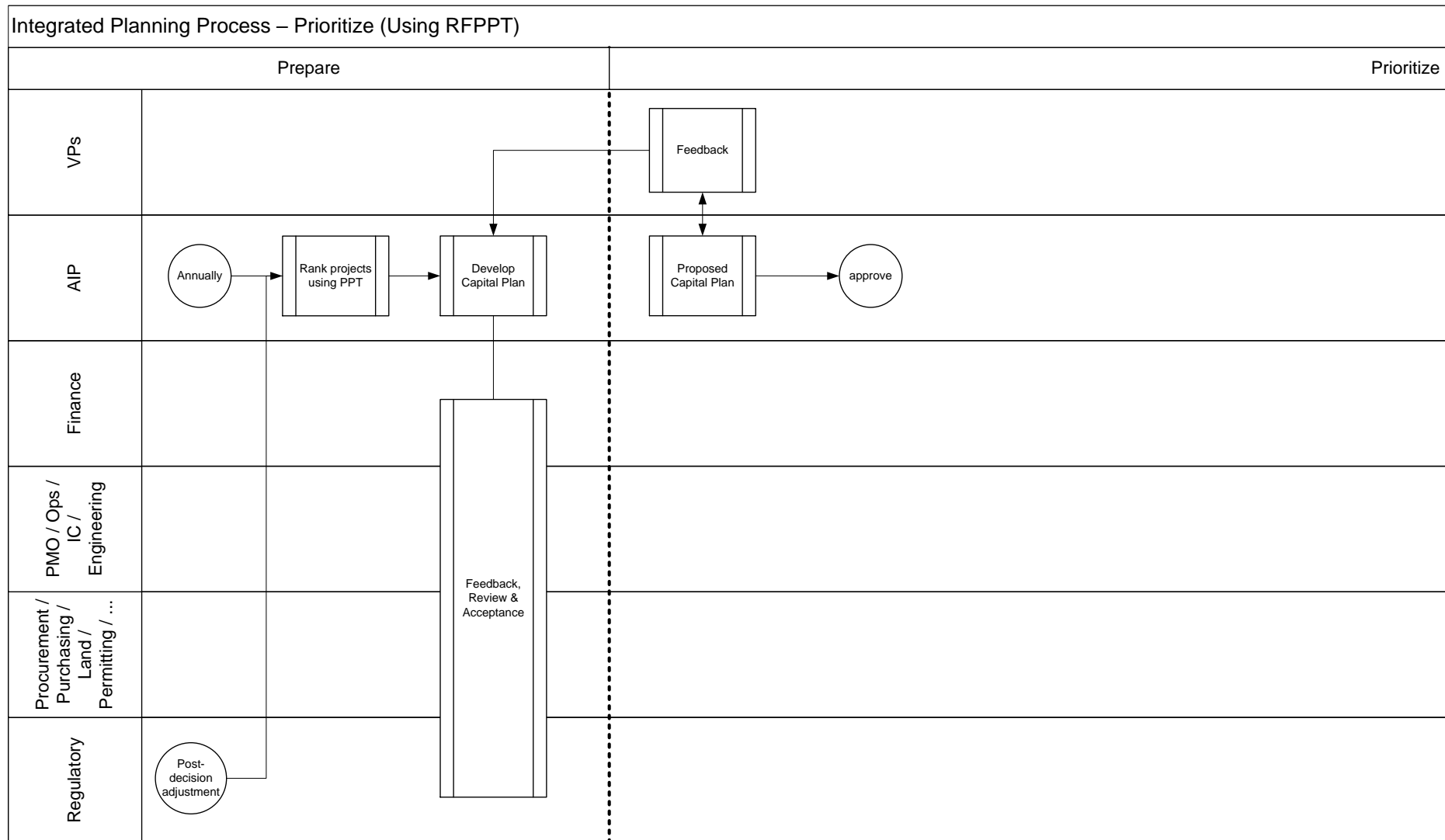


Figure 6: Process Diagram Stage 4: Approve a long term plan and budget

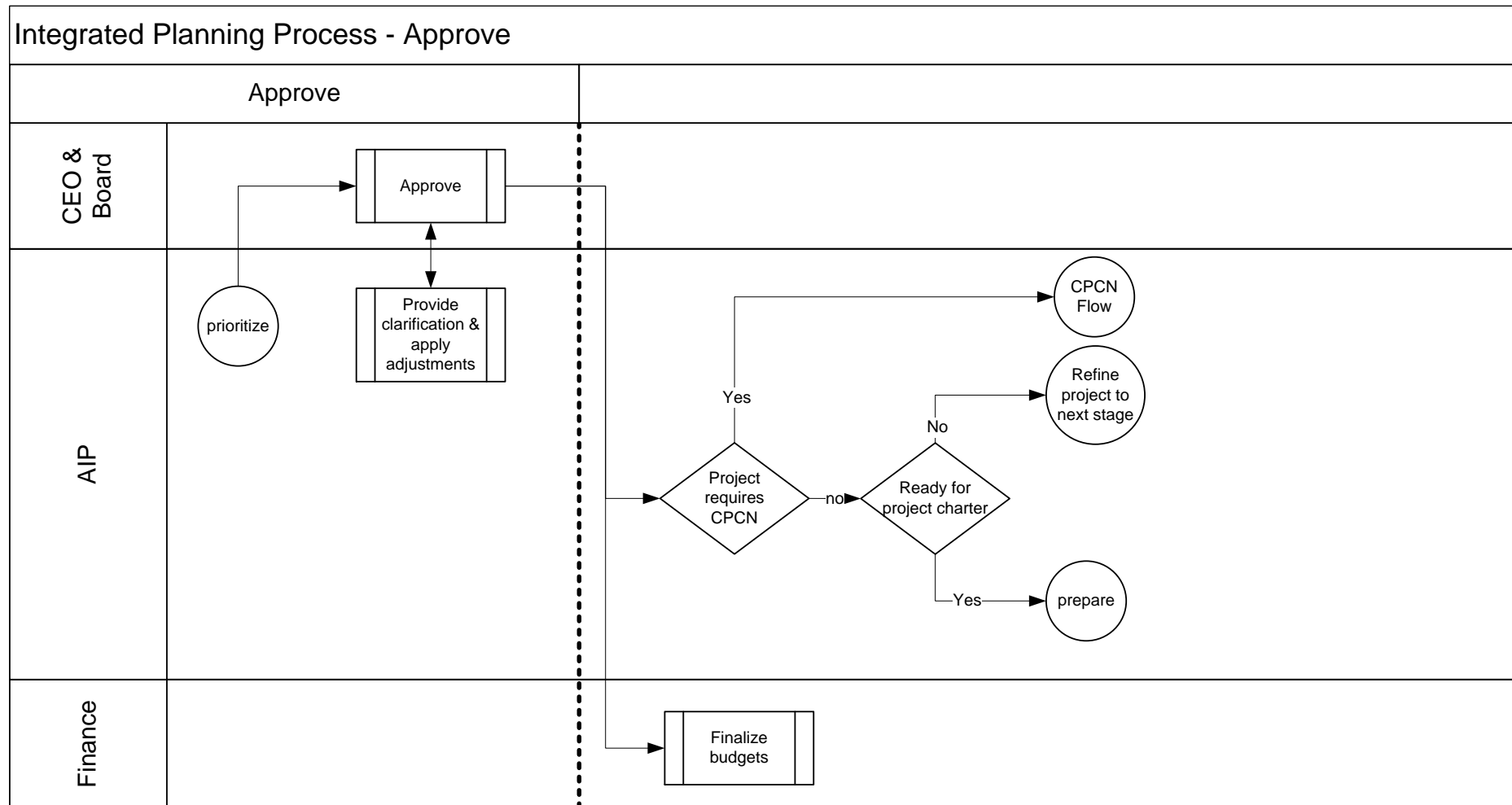
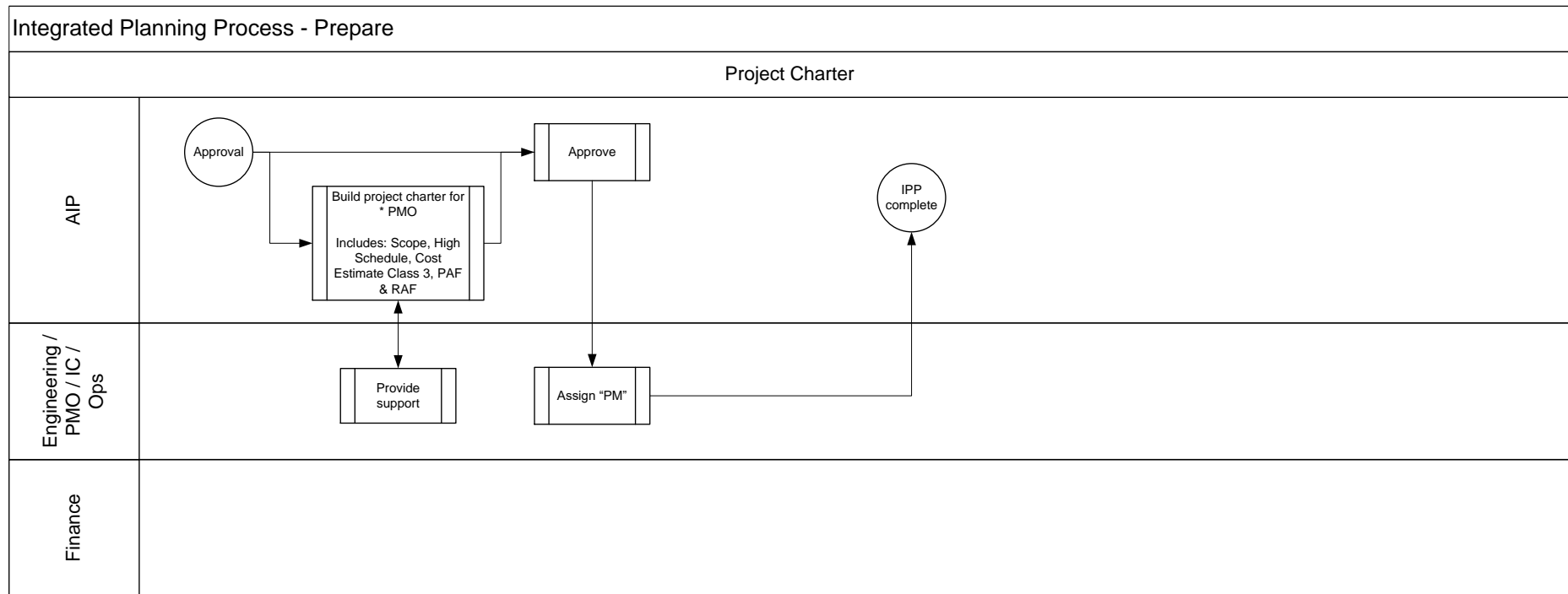


Figure 7: Process Diagram Stage 5: Prepare for completion



**Attachment 18.1**

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## ICG IR2 18.1

### APPENDIX

Notes and photographs recorded in FBC's Maintenance Management System for the UBO Unit 6 weld repair in 2014

"Stay bars and outer band have paint removal and polishing. Turbine cavitation in area A has holes and deep cavitation on all blades. Could not repair during runner weld due to man power limitations, will require runner weld in 2 years, to be documented at next year's annual inspection. Ground out cavitation and repaired with nitronic 60 wire. Ground back to original profile in section B-C of blades. Nose between scroll case and penstock has large gap at bottom and is missing rivets, need to be documented next inspection to determine action. Pics attached."

#### Pre-weld images:





**Post-weld images:**



