

August 1, 2019

Sent By E-mail

British Columbia Utilities Commission
Suite 410, 900 Howe St.
Vancouver, BC V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Norton Rose Fulbright Canada LLP
1800 - 510 West Georgia Street
Vancouver, BC V6B 0M3 CANADA

F: +1 604.641.4949
nortonrosefulbright.com

Matthew D. Keen
+1 604.641.4913
matthew.keen@nortonrosefulbright.com

Assistant
+1 604.641.4527
rosalind.endo@nortonrosefulbright.com

Dear Mr. Wruck:

**BC Hydro F2020-F2021 Revenue Requirements Application (RRA)
Association of Major Power Customers of BC (AMPC) Information Request (IR) No. 2**

We are legal counsel to AMPC in this matter and write to enclose AMPC's IR No. 2 to BC Hydro. Please contact the writer if you have any questions.

Yours very truly,



Matthew D. Keen

MDK/roe

Association of Major Power Customers of British Columbia (AMPC)

British Columbia Hydro and Power Authority (BC Hydro)
F2020-F2021 Revenue Requirements Application (Application) – Project No.1598990

INFORMATION REQUEST (IR) NO. 2 TO BC HYDRO

CONTENTS

23.0	Load and Revenue Forecasts	2
24.0	Load Forecast	3
25.0	Finance Charges	3
26.0	Finance Charges	4
27.0	Finance Charges	4
28.0	Finance Charges	5
29.0	Finance Charges	5
30.0	Finance Charges	5
31.0	Demand Side Management	6
32.0	Competitiveness.....	6
33.0	Rate Smoothing Regulatory Account.....	7
34.0	Operating Costs	9
35.0	Capital Expenditures	10
36.0	Capital Expenditures	12
37.0	Capital Expenditures	12
38.0	Capital Expenditures	13
39.0	Other Revenue Requirement Items – Voltage Conversion Projects.....	13
40.0	Biomass.....	14
41.0	Depreciation	14
42.0	Fiscal 2007 to Fiscal 2008 Revenue Requirements Application Depreciation Study	16
43.0	Rate Forecast.....	19
44.0	IFRS Conversion Impacts	20
45.0	Gains and Losses on Retirement.....	20
46.0	Powerex	21
47.0	Regulatory Account Interest.....	22
48.0	Energy Study & Water Flows	23
49.0	Energy Study.....	25
50.0	Water Rentals.....	26

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

23.0 Load and Revenue Forecasts

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 1.5.1, pdf p. 47

In its response, BC Hydro states (emphasis added):

The difference in the average growth between the October 2018 Load Forecast and the May 2016 Load Forecast is a result of differences in drivers, assumptions, and methodology. All of these impact the difference between the two forecasts as shown in the table below and their respective growth rates as shown in the figure below.

It is not clear from BC Hydro's Application what the statistical confidence level is for its Monte Carlo uncertainty model, used to develop its load forecast. It is also unclear whether the changes in the load forecasting methodology from May 2016 to October 2018 includes changes to BC Hydro's probability approach. AMPC is therefore seeking further clarification on the probability approach and methodology used by BC Hydro for its load and revenue forecasts.

23.1 Are the load and revenue forecasts in this Application based on a P50 probability approach (i.e., where 50% of estimates exceed the P50 estimate and 50% fall below the P50 estimate)? Is the P50 probability approach used for all customer classes? Please fully explain your response.

23.2 If BC Hydro did not use a P50 probability approach for its load forecast in the current Application, please provide a table that outlines the financial impacts of using a P50 probability approach for load forecasting in terms of impacts to revenue requirement, forecast revenues, and resulting rate changes. The table should target the same level of return for the 2020 and 2021 test years (holding all else equal, i.e., not simply capturing differences in deferral accounts).

23.3 Please confirm BC Hydro used the load forecast from its Application for its capital expenditure and planning in the test years. If not confirmed, please fully explain your response, including:

(a) Identifying the load forecast BC Hydro uses for planning replacement and growth-related capital expenditures and project timing;

(b) Discussing the differences between the load forecast filed in this Application and the load forecast(s) used for capital planning purposes; and

(c) Providing a table that compares the following by rate class: load forecast, a P50 probabilistic-based load forecast, and the load forecast used for planning capital expenditures.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

24.0 Load Forecast

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.2.2, pdf p. 4

In its response, BC Hydro states that "[it] did not observe a material impact on load due to the constrained gas supply [resulting from the October 2018 rupture of the Enbridge T-South pipeline] from October 2018 to April 2019".

Reference: FortisBC Inc., "BC's natural gas supply may be limited this winter, reducing your use will help" (attached as Appendix A)

In its news releases dated between October 8 to December 12, 2018, FortisBC Inc. issued multiple news releases asking customers to reduce natural gas use following the rupture of the Enbridge pipeline.

After the October 2018 rupture of the Enbridge T-South pipeline, many customers were required to switch fuels, or did so voluntarily, in response to the constrained gas supply and increased natural gas costs. AMPC is seeking additional information on how constrained gas supply and fuel switching impacted BC Hydro's load.

24.1 Please provide data for each month between October 2018 to April 2019 on the effect of constrained gas supply/fuel switching on BC Hydro's load.

24.2 What threshold does BC Hydro use to determine whether an impact on load is "material"? Please fully explain your response.

24.3 Please describe any effects to Powerex's trading activity, for gas or electricity, that were caused by the October 2018 rupture of the Enbridge T-South pipeline.

24.4 Please describe any effects from the rupture and/or Powerex's trading activity on BC Hydro's system, e.g., depleted reservoir levels, that extended beyond April 2019.

25.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.2 and Attachment 1, pdf pp. 45-48

In its response, BC Hydro provides a table that shows its sinking fund balances, sinking fund income and sinking fund income as a percentage of total sinking fund balances for each year from F2016 to F2021. The table shows mid-year net debt of \$22,994 million and \$24,212 million for 2020 and 2021, which is higher compared to the mid-year rate base of \$22,759 million and \$23,162 million.

AMPC is seeking clarification on the figures provided by BC Hydro.

25.1 Could any portion of the \$1,500 million and \$2,300 million of new borrowing for 2020 and 2021 be borrowed as short-term debt? Please fully explain your response and provide any relevant supporting documents or policies.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

25.2 For the net long-term debt for 2020 and 2021 shown in the table, please indicate how much is for financing of assets in service (i.e., assets used and useful in 2020 and 2021) compared to other purposes (e.g., capital projects in progress, working cash requirements).

26.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.2.2 and Attachment 1, pdf pp. 45-48

In its response, BC Hydro provides a schedule showing the calculation of long-term debt costs. The table shows Future Debt Hedge interest rates, but excludes the impact of hedging gains and losses. BC Hydro explains that these gains and losses are recorded in the Debt Management Regulatory Account and amortized in accordance with BCUC Order No. G-42-16.

AMPC is seeking clarification of the data provided in the schedule in order to understand BC Hydro's calculation of long-term debt costs.

26.1 Please revise the table provided in response to AMPC IR 1.4.2.2 Attachment 1 to include long-term debt costs using those hedged interest rates provided in response to AMPC IR 1.4.9.

26.2 Please explain why BC Hydro did not include hedged interest rate impacts (as provided in response to AMPC IR 1.4.9) in Schedule 2.2 of Appendix A, Debt Management Regulatory Account, for 2020 and 2021.

26.3 Please revise the table provided in response to AMPC IR 1.4.2.2 Attachment 1 to reflect those interest rates for planned issues from 2020 and 2021 (from Appendix A, Schedule 8.0, Line 83).

26.4 Why do the interest rates provided in the schedule not reconcile to the forecast interest rates for long-term debt included in Table 8-6 of the Application?

26.5 Please revise the table provided in response to AMPC IR 1.4.2.2 Attachment 1 to reflect those interest rates for long-term debt included in Table 8-6 of the Application.

27.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.2.3, pdf p. 49

In its response, BC Hydro provides a table that shows its sinking income fund is 3.5% of the sinking fund balances for both F2020 and F2021.

AMPC is seeking clarification on how these figures were derived and how variances are captured.

27.1 Please explain in detail how BC Hydro determined a sinking income fund of 3.5%, including supporting calculations.

27.2 Are variances between forecast and actual earnings for sinking funds captured in a regulatory and/or deferral account? Please fully explain your response.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

28.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.3, pdf p. 50

In its response, BC Hydro states that "[t]o forecast finance charges, BC Hydro uses a number of market variables and economic forecasts of short and long-term interest rates and foreign exchange rates."

AMPC is seeking additional information on the data and assumptions that BC Hydro relied on to forecast finance charges.

28.1 Please identify the market variables, economic forecasts, and assumptions that BC Hydro relied on to develop its finance charges forecast and provide copies of all relevant documents.

29.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.3.1, pdf p. 51

In its response, BC Hydro states that "[t]he WACD Adjustment shown in Schedule 8.0, line 50 is the amount required to adjust the gross finance charges to the amount of eligible borrowing costs used by BC Hydro in calculating the weighed average cost of debt ... [t]he WACD Adjustment shown in line 46 is the amount required to adjust the debt amount to the amount of net debt used by BC Hydro in calculating the weighted average cost of debt."

AMPC is seeking clarification of how the WACD Adjustments in Schedule 8.0 were determined.

29.1 Please provide supporting calculations for the WACD Adjustments shown in Schedule 8.0, line 46 and 50, for each year from F2015 to F2021.

29.2 Please explain any year-over-year changes identified in 29.1 above.

30.0 Finance Charges

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.4.6, pdf pp. 56-57

In its response, BC Hydro states:

Until the end of fiscal 2019, BC Hydro's policy had been to update the monthly weighted average cost of debt rate to apply to regulatory accounts only if the actual weighted average cost of debt rate changed from the previous update by more than 25 basis points. As a result, the actual rate used to apply interest to regulatory accounts remained at 4.05 per cent throughout the fiscal 2017 to fiscal 2019 period. In February 2019, BC Hydro amended this policy to remove this 25 basis point threshold and as a result, the rate to apply to regulatory accounts is now updated every month to reflect the actual weighted average cost of debt rate.

AMPC is seeking clarification on this change to BC Hydro's policy.

30.1 Please provide a copy of the amended policy referred to.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

30.2 Please provide a comparison of actual and approved WACD for F2015 to F2019, including the impact to regulatory accounts if the approved WACD was applied to regulatory account balances.

31.0 Demand Side Management

Reference (i): Exhibit B-6, BC Hydro Response to AMPC IR 1.5.9, pdf p. 80

In its response, BC Hydro states:

The LRMC is based on an outdated cost assessment for greenfield wind projects in the Peace River region and it includes BC Hydro's cost to integrate and deliver the energy to the load centre in the Lower Mainland. BC Hydro recognizes that the cost of wind energy has continued to decline since the last update, meaning \$105/MWh is an outdated estimate that is too high. BC Hydro plans to update the LRMC in the next IRP.

Reference (ii): Exhibit B-5, BC Hydro Response to BCUC IR 1.175.3, pdf pp. 1974-1976

In its response, BC Hydro states:

A recent preliminary assessment by BC Hydro estimated the range for wind cost between \$54/MWh and \$80/MWh, including delivery to the Lower Mainland. This range is consistent with the wind cost estimates in the BC context that have been raised in two recent proceedings.

AMPC is seeking long run marginal cost of energy information in order to understand BC Hydro's demand-side management initiatives.

31.1 Is BC Hydro continuing to use the LRMC figure of \$105/MWh until it files its next IRP in February 2021? If not, please fully explain your response.

32.0 Competitiveness

Reference (i): Exhibit B-6, BC Hydro Response to BCOAPO IR No. 1.3.3, pdf p. 341

In its response to BCOAPO IR No. 1.3.3, BC Hydro provides a table summarizing its performance measure targets and actual results for 2017/2018. The table identifies BC Hydro's target in 2017/2018 to achieve "1st quartile" competitive rates.

Reference (ii): Exhibit B-1, BC Hydro RRA Application, pdf p. 64

On pdf p. 64, BC Hydro states (emphasis added):

One of the performance measures in our Service Plan is Affordable Bills. BC Hydro participates in an annual survey by Hydro Quebec of electricity costs in 22 cities in Canada and the United States. Our goal is to be in the first (i.e., best) quartile of utilities surveyed for residential rates. For 2018, BC Hydro's average residential bills were the third lowest and within the first quartile. Based on power consumption, small power bills were between fifth and eighth lowest; medium power bills were between third and fourth

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

lowest and large power bills were between third and fifth lowest. BC Hydro's 2018 Electricity Rate Comparison Report is provided as Appendix V.

AMPC is seeking clarification on BC Hydro's performance targets for industrial customers' rates.

32.1 Please confirm that BC Hydro does not have performance targets for industrial rates. If not confirmed, please fully explain your response.

33.0 Rate Smoothing Regulatory Account

Reference (i): Exhibit B-6, BC Hydro Response to AMPC IR 1.22.2, pdf p. 280

In its response regarding its continued collection of the \$45 million Rate Smoothing Account debt servicing cost for each test year, BC Hydro states that "Section 4(1)(c) of Direction No. 8 provides that the BCUC must not disallow for any reason the recovery in rates of the costs incurred by BC Hydro with respect to debt servicing costs on amounts borrowed related to the Rate Smoothing Regulatory Account approved by Order No. G-48-14."

Reference (ii): Exhibit B-6, BC Hydro Response to BCSEA IR 1.22.2, pdf p. 623

In this IR, BCSEA asked BC Hydro to explain what it meant by "write-off" in the following statement:

"To enhance the regulatory oversight of BC Hydro while still advancing its social, economic and environmental priorities, the Government of B.C. has: Accepted a recommendation for BC Hydro to cease using the Rate Smoothing Regulatory Account, and to write-off the balance in the account in fiscal 2019 ..."

BC Hydro's response was as follows:

As a result of the Comprehensive Review, BC Hydro ceased using the Rate Smoothing Regulatory Account and wrote-off the balance in the account in fiscal 2019. BC Hydro expensed the entire \$1.044 billion Rate Smoothing Regulatory Account balance to operating expenses at December 31, 2018. Further information can be found on pages 2, 10 and 30 of [BC Hydro's 2018/19 Third Quarter Report](#).

Additionally, as BC Hydro ceased using the Rate Smoothing Regulatory Account at the end of the third quarter of fiscal 2019, \$92 million forecast to be transferred to the Rate Smoothing Regulatory Account during the fourth quarter of fiscal 2019 will be recorded as expenses in fiscal 2019.

In the context of the passage included the preamble, "write-off" means that the total amount forecast to be transferred to the Rate Smoothing Regulatory Account by the end of fiscal 2019, which would have been recovered from ratepayers in future periods, is a cost borne by the Government of B.C. as BC Hydro's shareholder, and will no longer be recovered from ratepayers. This amount totals \$1.136 billion (\$1.044 billion plus \$92 million).

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

Reference (iii): Exhibit B-5, BC Hydro Response to BCUC IR 1.140.1, pdf pp. 1615-1616

In setting out BC Hydro's calculation of the annual debt servicing costs for fiscal 2020 and fiscal 2021 associated with the write-off of the balance of the Rate Smoothing Regulatory Account, BC Hydro states as follows:

As a result of the write-off of the balance of the Rate Smoothing Regulatory Account, BC Hydro will collect \$1.136 billion less cash from ratepayers than if the total forecast transfers to the account had continued to the end of fiscal 2019 and had been recovered in customer rates in future periods. BC Hydro's debt is therefore \$1.136 billion higher than it otherwise would be, all other things equal.

BC Hydro uses its forecast weighted average cost of debt to calculate the annual debt servicing costs associated with this debt.

\$ millions	Reference Appendix A	F2020	F2021
Forecast weighted average cost of debt	Sch 8.0, L52	3.88%	3.82%
Debt related to the Rate Smoothing Regulatory Account		\$1,136	\$1,136
Annual debt servicing costs		\$44.1	\$43.4

Please refer to BC Hydro's response to BCUC IR 1.140.5, where we explain that our debt is managed on a portfolio basis and that we do not specifically allocate debt repayments to specific drivers of debt. For the purpose of the calculation above, we are not assuming any repayment of the debt related to the Rate Smoothing Regulatory Account during the fiscal 2020 to fiscal 2021 test period.

Reference (iv): [British Columbia Hydro and Power Authority 2018/19 Third Quarter Report, p. 30](#)

At p. 30, BC Hydro describes the writing off of the Rate Smoothing Regulatory Account as follows:

As at December 31, 2018, the entire balance of the Rate Smoothing Regulatory Account (RSRA) was expensed as BC Hydro determined that collection of the RSRA was no longer probable based on information received from the Province. This resulted in an operating expense of \$1.04 billion during the three month and nine month periods ended December 31, 2018. The operating expense was comprised of the \$815 million balance in the account as at April 1, 2018 and \$229 million deferred in the account during the nine-month period ended December 31, 2018 prior to the write-off.

AMPC would like to better understand BC Hydro's claims regarding the debt servicing costs for debt related to the Rate Smoothing Regulatory Account.

33.1 Please confirm that ratepayers are continuing to pay the carrying cost of the 1.136 billion in debt that has already been paid. Please fully explain.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

33.2 Please confirm that, during 2020 – 2021, BC Hydro will pay down the principal of some of the debt in its portfolio other than the \$1.136 billion in debt identified as related to the RSRA.

34.0 Operating Costs

Reference (i): Exhibit B-6, BC Hydro Response to AMPC 1.3.10, pdf p. 35

In its response, BC Hydro attributes higher school taxes to a change to BC Assessment's replacement cost model for transmission and distribution lines.

AMPC is seeking further information on which lines are affected and the impact of those changes to BC Hydro's Application.

34.1 When was BC Assessment's updated replacement cost model implemented, and what is the basis for the change? Please provide a copy of the updated replacement cost model, including any relevant documents specifying which transmission and distribution lines were affected.

34.2 Please confirm that BC Assessment consulted or engaged with BC Hydro with regard to the change to BC Assessment's replacement cost model for transmission and distribution lines, prior to the change. For example, did BC Hydro appeal or challenge the change? Please describe the substance and procedure of the consultation or engagement that occurred and BC Hydro's position regarding the changes.

34.3 How did the model change? Please explain in detail, and provide any relevant documentation or summaries of the changes.

Reference (ii): Exhibit B-6, BC Hydro Responses to AMPC IRs 1.3.10 & 1.3.11, pdf pp. 35-36

BC Hydro states that taxes are forecast to increase during the test years due to the following:

- **General inflationary increases to Provincial tax revenue requirements (for School Taxes) and municipal tax revenue requirements (for Grants in Lieu). The test period forecast assumes that the Government of B.C. and municipalities will continue to implement annual tax increases of approximately 3 per cent to 4 per cent on the assessed values of land, buildings and electric system assets;**
- **Increases in taxes for Metro Vancouver land parcels due to the continuing trend of higher than inflationary increases in assessed values by BC Assessment;**
- **An increased BC Hydro taxable asset base, as new assets are constructed and placed in-service in fiscal 2020 and fiscal 2021. Significant examples include the John Hart Generating Station Replacement, West Kamloops Substation, and the Ruskin Dam and Powerhouse Upgrade;**
- **Increased forecast domestic electricity sales, which will result in a corresponding increase in Grants in Lieu costs, which are paid based on 1 per cent of these sales; and**
- **Higher School Taxes due to significant increases in the assessed values of transmission and distribution lines as a result of BC Assessment's updated replacement cost model for these assets.**

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

BC Hydro then provides the following individual factor impact assessment forecast for the test years:

Taxes (\$ million)	
F2019 Forecast	242.2
Increased property values & increased taxation rates ¹	6.7
Completion of new capital projects	1.1
Increased domestic electricity sales	1.8
Decrease in IPP capital leases due to change in IFRS accounting treatment	(2.0)
F2020 Forecast	249.8
Increased property values & increased taxation rates ¹	5.4
Increase in assessed value of transmission & distribution lines	4.0
Completion of new capital projects	1.2
Increased domestic electricity sales	1.8
F2021 Forecast	262.2

Note 1: Property values and increased rates are closely linked, and together result in the general inflationary increases experienced each year.

AMPC would like to better understand the factors that BC Hydro says are leading to higher tax and grant in lieu payments being required.

34.4 Please confirm that the amount BC Hydro is permitted to pay in grants in lieu is subject to a cap. If confirmed, please describe the cap and amount that BC Hydro would be permitted to pay in grants in lieu if the cap were not in effect.

34.5 Please provide additional details and documents to support BC Hydro's forecast that the Government of BC and municipalities will implement annual tax increases between 3-4% on the assessed values of land, buildings and electric system assets. In your response, please consider and explain the role of municipal mill rates and, for grants in lieu, the cap related to electricity sold.

35.0 Capital Expenditures

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 1.115.1, pdf pp. 1282-1284

In its response, BC Hydro identifies the intended CPCN filing date for the following five extension projects:

- Metro North Transmission
- West Kelowna Transmission/Westbank Substation Upgrade
- Northwest Substation Upgrade
- Peace Region to Kelly Lake 500kV Transmission Reinforcement
- Mainwaring Substation Upgrade

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

BC Hydro provides CPCN filing dates for most of the projects but has not provided the forecast start dates of construction or forecast in-service dates for these five projects.

Reference: Exhibit B-6, BC Hydro Response to BCOAPO IR 1.47.2, pdf p. 525

In its response, BC Hydro explains which of its Key Business Units are responsible for delivering capital projects. It states:

Other than the Capital Infrastructure Project Delivery Business Group, Power System capital investments (excluding the Site C Project), are delivered by the Operations Business Group, specifically the Program and Contract Management KBU and the Distribution Design and Customer Connections KBU. The Program and Contract Management KBU delivers lower risk and high volume projects and programs. The Distribution Design and Customer Connections KBU delivers lower risk and tariff driven customer connections.

AMPC is seeking additional information on the staffing, timing and processing for system extension requests in order to better understand the steps and timing involved.

35.1 Which KBU deals with service extension requests?

35.2 Does BC Hydro have different Business Groups for service extension requests by large power users compared to smaller users? Please explain how this Business Group operates and which customer classes and sectors are served.

35.3 Have there been any staffing changes within the last five years, or proposed for the test years for the KBU that handles large power users' service extension requests?

35.4 Please provide copies of any internal policies governing service extension requests and generally explain the steps that BC Hydro undertakes when processing a service extension request, including average timelines to complete each step. If BC Hydro follows different steps or timelines for different types of customers, please fully explain.

35.5 How many requests for system extension has BC Hydro received per year from large power users in each of the last five years? Please provide the average request to completion time for system extension requests by large power users by year for the last five years.

35.6 How does the current waiting time for completion of system extension requests to compare to (i) the 2000 – 2015 period; and (ii) any neighbouring or other jurisdictions BC Hydro benchmarks its performance to.

35.7 Does BC Hydro have any internal targets for timing related to customer service requests? If not, why not? If so, please provide details.

35.8 Has BC Hydro taken or planned to take any steps to reduce waiting times for system extension requests for large power users? Please fully explain your response.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

36.0 Capital Expenditures

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 107.1, Attachment 1, pdf p. 1056

In its response, BC Hydro provides an updated table that identifies 28 projects that were placed in-service from March 1, 2018 to March 31, 2019 inclusive with an Expected Cost of \$5 million or greater. The table identifies the following projects with cost variances over 5%:

- Kamloops Substation (17%)
- Arnott Capacity Upgrade (15%)
- Campbell River Substation Capacity Upgrade (29%)
- Fernie – Substation Upgrade (19%)
- 37-60/138kV CB Replacement F14/F15 (58%)
- 60 kV CB Replacement - F16/17 (8%)

AMPC is seeking additional information on the reasons for and recovery of cost variances on these projects.

36.1 For each of the projects listed above, please confirm that the cost variances on these projects were added to rate base and recovered on the basis they were prudently incurred costs. If not confirmed, please fully explain your response.

36.2 For each of the projects listed above, explain why the actual cost exceeded the expected cost, including what modifications were required to the project and the date when BC Hydro first knew or reasonably could have known of the need for modifications.

37.0 Capital Expenditures

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 107.2, pdf pp. 1058-1062

In its response to BCUC IR 107.2, BC Hydro identifies the factors that contributed to the cost variances on the following projects:

- Dawson Creek/Chetwynd Area Transmission
- Interior to Lower Mainland Transmission
- Northwest Transmission Line
- Hugh Keenleyside Spillway Gate Upgrade
- Big Bend Substation

BC Hydro attributes the cost variances to multiple factors, including:

- Late design and scope changes, in some cases post contract award;
- Underestimating the resources required, time required and work scope;
- Unexpected geotechnical conditions;
- Challenges with achieving competitive tender processes; and
- Delays and extended project duration.

AMPC is seeking additional information on the recovery of cost variances on these projects.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

37.1 For each of the projects listed above, please confirm that cost variances on these projects were added to rate base and recovered on the basis they were prudently incurred costs. If not confirmed, please fully explain your response.

38.0 Capital Expenditures

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 161.6, pdf p. 1817

On p. 1817, BC Hydro identifies project write-offs of \$27.3 million in F2018. It identifies a \$13.6 million write-off for the Terrace to Kitimat Transmission Project and a \$13.7 million write-off for other project/partial write-offs.

AMPC is seeking additional information to assess the reasonableness of these project write-offs.

38.1 For the Terrace to Kitimat Transmission project, please provide a list of:

(a) the costs that have already been incurred in the Terrace to Kitimat Transmission project. In this list, please identify any measures taken by BC Hydro to redirect costs already incurred towards other projects (e.g., repurposing materials already purchased or redirecting contractors/labour already engaged); and

(b) the costs to refurbish the existing line. Please also provide the associated business case.

38.2 For the remaining \$13.7 million write-off, please provide a list of the other project write-offs and partial write-offs that occurred and identify any measures taken by BC Hydro to redirect costs already incurred towards other projects (e.g., repurposing materials already purchased or redirecting contractors/labour already engaged).

39.0 Other Revenue Requirement Items – Voltage Conversion Projects

Reference: Exhibit B-5, BC Hydro Response to BCUC IR 1.158.1, pdf p. 1768

In its response, BC Hydro confirms that BC Hydro incurred costs related to infrastructure rights prior to F2019, these customer-owned equipment upgrades did not commonly occur and were not material.

AMPC is seeking additional information on these voltage conversion projects in order to assess the reasonableness of the projects and understand what customer contributions BC Hydro is seeking.

39.1 Please explain why these voltage conversion projects are being undertaken now despite "not commonly occur[ring]" in the past and being "not material".

39.2 Please provide BC Hydro's estimated customer contributions for these projects for F2020-F2021.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

40.0 Biomass

Reference: Exhibit B-5, BC Hydro Response to BCUC IR No. 1.15.2, pdf p. 230

In its response, BC Hydro stated:

80 per cent, in aggregate of historical energy volumes and 100 per cent of the aggregate capacity volumes are renewed for the Biomass EPA. BC Hydro also states that “BC Hydro assumes that 100 per cent of the capacity will be available to serve winter peak demand because the reductions in energy, where applicable, are expected to come in other months of the year (e.g., freshet).”

AMPC is seeking clarification on the effects of renewing the Biomass EPA on customers.

40.1 How are customers compensated for the reduction in energy purchases if BC Hydro still uses 100% of the capacity of the Biomass EPAs?

41.0 Depreciation

Reference (i): Exhibit B-6, BC Hydro Response to AMPC IR No. 1.23.1, pdf p. 288; BC Hydro Response to AMPC IR No. 1.23.7, pdf p. 313; BC Hydro Response to AMPC IR No. 1.23.7.1, pdf p. 314

On pdf p. 288, BC Hydro states as follows:

BC Hydro currently has no indication that asset life expectations have changed in a significant way that would have a material impact on depreciation expense. Therefore, we believe that the cost and effort of performing the study would outweigh the benefits.

AMPC seeks to understand BC Hydro’s response.

41.1 How much did the 2005 depreciation study cost to conduct?

41.2 Did BC Hydro assess at any point whether asset life expectancies from the 2005 depreciation study remain valid? If not, why not? If yes, please (i) confirm the investigation was done on an asset class specific basis, and (ii) provide details of the asset class life expectancy assessment analysis.

41.3 Please provide all management notes, asset condition assessments and working papers produced since the last approved depreciation study that provide justification for continuing to apply the estimated life expectancies determined by that last depreciation study, on the basis of current life characteristics.

41.4 Please confirm that BC Hydro has an obligation to periodically test the assumptions that feed into the assessment of its material expenses, to avoid a material misstatement. If confirmed, please identify what BC Hydro understands this obligation to consist of. If not confirmed, please fully explain your answer.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

41.5 Please identify all material asset retirements, if any, that occurred prior to the service life estimate for the particular asset(s), as set out in the last depreciation study. For each such retirement, please fully explain:

(a) Why the retirement occurred;

(b) How far in advance of the applicable estimated service life the asset was retired; and

(c) Why, in BC Hydro's view, the retirement did not amount to an indication that the estimated life for that asset class had changed.

41.6 Please identify any material assets that exceeded their estimated service life for the particular assets, as set out in the last depreciation study. For each such retirement, please fully explain:

(a) Why the asset, in BC Hydro's view, has exceeded its estimated service life;

(b) How far past the applicable estimated service life the asset remained in service (also noting if the asset is still in service); and

(c) Why, in BC Hydro's view, the retirement did not amount to an indication that the estimated life for that asset class had changed.

Reference (iii): Exhibit B-6, BC Hydro Response to AMPC IR No. 1.23.8 and 1.23.8.1, pdf pp. 315-316

At pdf pp. 315-316, BC Hydro states that its applied for depreciation rate for the Burrard synchronous condense facility is as such to ensure that the assets are depreciated by no later than the end of fiscal 2025. BC Hydro states that "this date was selected based on a conservative estimate of the remaining useful life of the generators, which are the most significant component of the remaining assets at the facility." At pdf p. 319, BC Hydro acknowledges that "the depreciation rates [of these assets] are based on fully depreciating all asset classes by no later than fiscal 2025 and not on the assets' useful life".

AMPC wishes to better understand the basis for BC Hydro's depreciation rate for the Burrard synchronous condense asset.

41.7 Please explain why it is appropriate to (i) depreciate all of the Burrard synchronous condense facility assets to coincide with the remaining useful life of the generators, and (ii) use a conservative estimate of the remaining useful life of the generators.

41.8 Please provide a non-conservative (i.e., best) estimate for the remaining useful life of the synchronous condense facility.

Reference (iv): International Accounting Standards, IAS 16 (attached as Appendix B)

IAS 16.51 states as follows:

51. The residual value and the useful life of an asset shall be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s)

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: 2

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

shall be accounted for as a change in an accounting estimate in accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors.

AMPC would like to understand how BC Hydro understands and has followed IAS 16.

41.9 Please confirm that IAS 16 specifies that the residual value and the useful life of an asset should be reviewed at least each financial year-end.

41.10 Please confirm that BC Hydro has not reviewed the residual value and the useful life of its assets each financial year-end (or more frequently) as required by IAS 16. If not confirmed, please fully explain.

42.0 Fiscal 2007 to Fiscal 2008 Revenue Requirements Application Depreciation Study

Reference (i): F07/F08 Revenue Requirements Application Depreciation Studies Appendix F, as referred to in BC Hydro Response to AMPC IR 1.23.4, pp. 25 – 27 and Tables 1 and 2 at pp. 31 – 38.

At pp. 25 – 27 of the F07/F08 Revenue Requirements Application Depreciation Studies, BC Hydro described two methodologies it used to determine the average service lives for various asset classes as follows:

Survivor Curve Judgments. The survivor curve estimates were based on judgment which considered a number of factors. The primary factors were the statistical analysis of data; current policies and outlook as determined during conversations with management personnel; and average service life estimates of this Company and other electric companies.

In the circumstances of number of Profile ID's, BC Hydro provided a detailed database that included the aged surviving balances as at March 31, 2003, representing the plant providing utility service sorted by the year in which it was installed. The annual aged retirements were determined using one of three methods as follows:

- The aged retirement information was available for a number of transaction years from the companies' current accounting and operational systems;
- The annual unaged retirement transactions were available from the companies' current accounting and operational systems. The annual retirement transactions were then aged using the computed mortality method as previously described; or
- The annual retirements of plant physically removed were determined on a unit basis from various operational systems within the company. The physical retirements (on a number of units basis) were costed using standardized costs which were aged using the computed mortality method as previously described.

This information provided at least a 10 year experience band that was analyzed using the retirement rate method of survivor curve estimation. Additionally, in a number of circumstances experience bands representing many decades were available. In circumstances where multiple Profile ID's represented similar assets and the combination of the multiple Profile ID's would still result in a group of homogenous assets, the

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

retirement rate analysis was made over the combined group. The average service lives determined from use of the retirement rate method of analysis are summarized on Table 1 at pages III-4 through III-6 of this report.

In the circumstances of the remaining Profile ID's the retirement rate method could not be used in the development of the average service lives. In these circumstances the average service lives were developed on judgment of Gannett Fleming that considered the current policies and outlook as determined during conversations with management personnel; and average service life estimates of previous studies of this Company and other electric companies. A number of these Profile ID's represented accounts that contained the least amount of investment in the system. 109 Profile ID's comprised over 95% of the BC Hydro investment (Primary Profile ID's). Approximately 250 Profile ID's comprise the investment of the remaining 5% of company investment. In a limited number of cases, the use of judgment served as the primary basis for the survivor curve estimate for the primary Profile ID's as sufficient information did not exist for use of the retirement rate method of average service life analysis. The average service lives determined based on the judgment of Gannett Fleming is summarized on Table 2 at pages III-8 through III-9 of this report.

AMPC wants to better understand the methodologies used to develop the last full depreciation study, to better assess its accuracy.

42.1 Please confirm that, where possible, BC Hydro used the retirement rate method to estimate asset average service lives for the F07/F08 Revenue Requirements Application Depreciation Studies.

42.2 Please confirm that, given the passage of time since the F07/F08 Revenue Requirements Application Depreciation Studies, it would now be possible to assess the asset classes that could not be assessed using the retirement rate method in the creation of the F07/F08 Revenue Requirements Application Depreciation Studies (and were estimated by the professional judgment of Gannett Fleming instead).

42.3 Please confirm that the retirement rate method was preferred in the F07/F08 Revenue Requirements Application Depreciation Studies over the professional judgment method because it was considered more accurate. If not confirmed, please fully explain your answer.

42.4 Specifically for accounts 25203 – Towers and 55101 - Overhead Conductors > 60 kV, as those accounts are identified in Table 2, please provide a current spreadsheet, in Excel format, that includes original costs of all material assets recorded in the accounts and vintage year. Please also provide in the spreadsheet the same information regarding assets that have retired from that account, including for each vintage the retirement that has occurred along with the year of retirement and asset age at retirement.

Reference (ii): Exhibit B-6, Attachment 1 to BC Hydro Response to AMPC IR 1.23.5 and F07/F08 Revenue Requirements Application Depreciation Studies Appendix F, as referred to in BC Hydro Response to AMPC IR 1.23.4 at p. 60

At p. 60 of the F07/F08 Revenue Requirements Application Depreciation Studies, BC Hydro recorded the following data for Account 22003, Powerhouse Integral with Dam: \$747 million of exposures and less than \$1 million of retirements in the history of the Account.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

AMPC wants to better understand how the depreciation of this asset class has unfolded.

42.5 Please confirm the statement in the preamble for this IR, that at p. 60 of the F07/F08 Revenue Requirements Application Depreciation Studies, BC Hydro recorded the following data for Account 22003, Powerhouse Integral with Dam: \$747 million of exposures and less than \$1 million of retirements in the history of the Account. If not confirmed, please fully explain and provide an update of all recorded retirements in the history of this account.

42.5.1 With regard to the information set out in Attachment 1 to BC Hydro's response to AMPC IR 1.23.5, please confirm that over the eight year period 2011-2018, the total retirements from this account were \$7,400, in 2013. If not confirmed, please fully explain and provide all recorded retirements from this account over this timeframe.

42.5.2 For account 22003, please provide the expected retirements that would occur over the period 2011-2018 based on the application of an Iowa 80-R4 based on the vintage of assets in service over this period 2011-2018, by year.

42.6 Please provide an updated version of Attachment 1 to BC Hydro's response to AMPC IR 1.23.5 that splits accounts by type of asset (hydro-electric generator, thermal generation, transmission, distribution, etc.). Please include in this updated version approved additional asset componentization that occurred as a result of BC Hydro's proposal in the F12/F14 RRA, Appendix G (referenced in response to AMPC IR 1.23.4.4).

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: 2

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

43.0 Rate Forecast

Reference (i): Exhibit B-5, Attachment 2 to BC Hydro's Response to BCUC IR 1.5.1, pdf pp. 57-58

In this Attachment 2, at pdf pp. 57-58, BC Hydro sets out various forecasts for residential and commercial economic drivers, for F2019 - F2024.

Reference (ii): [BCH ~ Application for the Review of the 2006 Integrated Electricity Plan and the Approval of the 2006 Long-Term Acquisition Plan - G-29-07 - 2007-03-15 - G-General](#)

At p. 154 of this 2007 order, the Commission ordered that BC Hydro file a report showing "a financial forecast of BC Hydro's rates in both real and nominal terms, for a minimum of ten years, but preferably 20 years. Input assumptions should be summarized in a concise, but comprehensive manner."

AMPC requires the same information in this proceeding, to allow the Commission to consider factors relevant to the Commission's exercise of its discretion in setting just and reasonable rates.

43.1 Please provide a report, as ordered by the Commission in 2007, that provides a forecast of BC Hydro's rates, in real and nominal terms, for the next 10 years. Please concisely identify and explain all input assumptions made.

Reference (iii): Exhibit B-1, Appendix C, Phase I Comprehensive Review of BC Hydro at p. 34 of the report

At pdf p. 1274, BC Hydro provides a five year rate forecast as follows:

Table 4: BC Hydro Five Year Rates Forecast

	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Cumulative Five Years*
Current Rates Forecast – Annual Rate Increase before reducing the DARR	6.8%	0.7%	2.2%	0.0%	3.2%	n/a
Current Rates Forecast – Annual Bill Impact – Including reduction in DARR**	1.8%	0.7%	2.2%	0.0%	3.2%	8.1%
Previous Gov't's 10 Year Rates Plan – Annual Bill Impact	2.6%	2.6%	2.6%	2.6%	2.6%	13.7%
Forecast BC Inflation	2.3%	2.0%	2.0%	2.0%	2.0%	10.7%

AMPC seeks to better understand BC Hydro's five year rate forecast.

43.2 Please provide an illustrative example of the necessary revenue increase (in total dollars) required to generate 40% equity in Site C (at current capital estimates and including the Site C regulatory account collection) within the long-term timeframe proposed to achieve the debt-to-equity target. Please provide the annual rate increase required for each year to achieve

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

40% equity of proposed Site C costs. Please provide the annual rate increase required to achieve 40% equity in Site C within (i) 10 years, and (ii) within 20 years.

44.0 IFRS Conversion Impacts

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.23.6, pdf p. 311

At pdf p. 311, BC Hydro states as follows with regard to IFRS conversion impacts:

BC Hydro's IFRS conversion impacts are not finalized as they are subject to audit by BC Hydro's external auditor. Therefore, BC Hydro's response in the following table identifies the types of impacts resulting from the IFRS conversion but does not provide the amount of the impacts.

AMPC would like to better understand the potential IFRS conversion impacts and BC Hydro's process with regard to them.

44.1 When does BC Hydro anticipate its external auditor to finalize its audit?

44.2 Please provide a timeline for when BC Hydro anticipates finalization of IFRS conversion impacts and its proposed approach to review and approval before the BCUC for potential impact on rates.

44.3 Specifically what years will be impacted by IFRS conversion (including year of impact and years BC Hydro proposes to defer costs to)?

45.0 Gains and Losses on Retirement

Reference (i): Exhibit B-5, BC Hydro Response to BCUC IR 1.161.7, pdf p. 1820

At pdf p. 1820, BC Hydro provides a variance comparison between 2018 and 2019 RRA forecast and actuals for Provision and Other:

\$ million	F2017 RRA	F2017 Actual	F2018 RRA	F2018 Actual	F2019 RRA	F2019 Forecast	F2020 Plan	F2021 Plan
Dismantling costs	30.9	33.7	35.7	67.5	30.6	44.5	67.0	43.0
Gains/losses on mass asset retirements	31.0	33.5	33.1	34.0	33.6	33.6	35.9	36.7
Capital asset write-offs	7.9	18.5	7.0	9.7	6.1	6.1	8.0	8.1
Project write-offs	-	14.8	-	27.3	-	-	9.9	9.7
Non-cash provision expenses ¹	(5.3)	(31.3)	-	(3.1)	-	(2.0)	-	-
Other costs ²	1.5	(0.7)	(14.8)	16.9	(18.6)	0.1	(12.6)	(12.5)
Total (Schedule 5.0 Line 110)	66.0	63.6	61.0	152.3	51.7	82.3	108.2	87.0

Reference (ii): Exhibit B-6, Attachment 1 to BC Hydro Response to AMPC IR 1.23.5

In Attachment 1 to this IR, BC Hydro provides additions/transfer, retirements and changes to Net Book Value from 2011 to 2018.

AMPC would like to better understand how additions/transfer and retirements are accounted for by BC Hydro, both theoretically and practically.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

45.1 Please indicate if BC Hydro's approach to mass asset depreciation permits gains on retirement in addition to losses on retirement. If this is possible, please provide a detailed numerical example of how a gain on retirement of mass assets can arise (including transactions by year for the example asset in question).

45.2 With reference to Excel file AMPC-1.23.5 Attachment 1, please confirm that the only instances where a retirement from Original Cost exceeded the retirement from Accumulated depreciation was where the retirement from gross cost was a reversal or other negative transaction (value added to original cost due to retirement, not subtracted), for example in account C34004 for F13. Please provide a description of the events that give rise to this type of transaction.

45.3 Please provide BC Hydro's definition of "mass asset" and indicate which, if any, of BC Hydro's assets are not included in this definition. If there are assets not included, please provide a description of the approach to depreciation and disposal for non-mass-asset property.

45.4 Please provide a calculation of the depreciation expense that would arise for assets in service in F2017 and F2018 if depreciation had not been stopped for assets that have been fully amortized (e.g., under traditional group accounting where gains and losses are not booked in the year experienced and over-depreciation of any given asset within the group is permissible). If this is not possible, please provide an order of magnitude estimate of the value.

45.5 Please provide a schedule that breaks down forecast gains/losses on mass asset retirements and dismantlement costs by asset account for test years 2020 and 2021. Please explain the forecast methodology for these two costs. If test year forecast methodology relies on actuals, please provide all relevant years and supporting calculations.

46.0 Powerex

Reference: Exhibit B-6, Attachment 1 to BC Hydro Response to AMPC IR 1.17.3.2, pdf p. 201

On pdf p. 201, when asked to provide a breakdown of gross revenue and related costs associated with Powerex Net Income, BC Hydro stated as follows:

Details of Powerex Corp's past, current and forecast business activities, unless otherwise publicly reported by BC Hydro (as in Section 8.9 of Chapter 8 and Appendix A of the Application) are commercially sensitive and thus confidential. Powerex net income is included in BC Hydro Trade Income to the benefit of BC Hydro ratepayers.

AMPC seeks to understand the effects of Powerex activity and income on customer rates. AMPC accordingly seeks to understand the types of costs allocated to Powerex and if possible, the general magnitude.

46.1 Please provide an explanation as to the types of costs and magnitude of costs, without providing confidential information, that are assigned against Powerex gross income each year to get to Powerex Net Income. If possible, please provide annual values for actual years 2017 – 2018. If considered confidential, please provide a detailed description of what makes each value confidential.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

46.2 Are there government fees, taxes or payments of any kind to government that are included in Powerex related annual costs, and netted against Powerex gross income? If so, please explain each individual charge and how they are calculated to Powerex (i.e. as a component on total energy sales, etc.).

46.3 How is the rate that Powerex pays BC Hydro for the cost of BC electricity that Powerex wheels into US markets determined?

46.3.1 Are any other BC Hydro based costs applied against Powerex's gross income to arrive at its net income?

47.0 Regulatory Account Interest

Reference (i): Exhibit B-1, BC Hydro's RRA Application, 7.9.2 Interest Rate Applied to Regulatory Accounts, p. 7-58 and 7-59, pdf p. 949

In its Application at pdf p. 949, BC Hydro states as follows:

By Order No. G-77-12A to BC Hydro's Fiscal 2012 to Fiscal 2014 Amended Revenue Requirements Application, the BCUC approved that the interest rate applicable to BC Hydro's regulatory account balances in a given year is the weighted average cost of debt in that year. The weighted average cost of debt that is forecast to be applied to the regulatory account balances is 3.88 per cent for fiscal 2020 and 3.82 per cent for fiscal 2021.

The table provided on the page prior, 7-58 lists that all Cost of Energy deferral accounts, and most other short-term cash related variance accounts are charged interest in this manner.

Reference (ii): Exhibit B-5, BC Hydro Response to BCUC IR 1.140.7, pdf p. 1629

At pdf p. 1629, BC Hydro provides a table of forecast interest related to each regulatory account and whether or not the interest is recovered in rates during F2020 and F2021:

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: 2

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

\$ million	Ref.	Recovered in Test Period	F2020 Forecast	F2021 Forecast	
1	Heritage Deferral Account	2.1 L4	Yes	(11)	(4)
2	Non-Heritage Deferral Account	2.1 L11	Yes	3	1
3	Trade Income Deferral Account	2.1 L17	Yes	(1)	(0)
4	Storm Restoration Costs	2.2 L43	Yes	1	0
5	Amortization of Capital Additions	2.2 L56	Yes	1	0
6	Rock Bay Remediation	2.2 L101	Yes	(1)	(0)
7	Arrow Water Systems	2.2 L116	Yes	0	0
8	Remediation	2.2 L130	Yes	(1)	(0)
9	Real Property Sales	2.2 L141	No	2	1
10	Dismantling Cost	2.2 L158	Yes	1	0
11	First Nations Costs	2.2 L11	Yes	3	2
12	Site C	2.2 L23	No	19	19
13	SMI	2.2 L69	Yes	8	7
14	Total Interest on Regulatory Accounts	2.1 L25 + 2.2 L205		24	28

47.1 Please explain why BC Hydro is charging interest for accounts capturing timing differences and/or cash related expenses.

47.2 Please explain why BC Hydro is applying its WACC, largely impacted by long-term (and often higher) interest rates, as opposed to a short-term interest rate, more indicative of the length of time these costs are carried for?

48.0 Energy Study & Water Flows

Reference (i): Exhibit B-6, BC Hydro Response to AMPC IR 1.15.1, pdf p. 167

At pdf p. 167, BC Hydro states that:

BC Hydro is unable to provide the revised Energy Studies financial policy as it has not yet been finalized and reviewed by the BC Hydro Board of Directors. BC Hydro expects to have a finalized and reviewed revised Energy Studies financial policy by March 31, 2020.

Reference (ii): Exhibit B-5, BC Hydro Response to BCUC IR 1.31.1, pdf pp. 373-375

At pdf pp. 373-375, BC Hydro provided an explanation about the range of inputs used in the Energy Study, as discussed in Appendix DD of the application, including as follows:

The use of these weather year ensembles ensures that the variability in inflows, prices, loads, and resources due to the impacts of weather are well represented in the models, producing a range of possible outcomes. This range captures both dry and wet periods and accurately represents the historic geographic correlation in weather between the regions included in the modeling. This range is large enough that BC Hydro considers the

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

average of the resulting forecast to be an unbiased estimator of the drivers, and hence how the system will be operated.

...

As of 2018, historic weather and inflow data exists for the period 1973 through 2017. These 45 years provide the basis for the ensemble set. The Energy Study models require 5 years of inflow data. As a result, a set of parallel sequences is created from the data that preserves any year-over-year correlation, as follows ...

...

The 45 possible weather sequences were used as an input into the October 2018 Energy Studies, along with the starting elevation of each reservoir as of October 1, 2018.

AMPC wishes to better understand the range of potential impacts water inflows have on Energy Study results and correspondingly on forecast revenue.

48.1 Please confirm AMPC's understanding, based on BC Hydro's response, that BC Hydro routinely uses an unapproved Energy studies financial policy. If not confirmed, please fully explain your response.

48.1 Please provide the Energy Study Financial policy that BC Hydro used in preparing Energy Study reports and related tasks.

48.2 Please explain qualitatively and directionally what changes were applied to the last approved policy compared to the currently utilized policy.

48.3 Does BC Hydro assign a probability of occurrence to water inflow and other Energy Study inputs? If so, please explain how these are incorporated into the Energy Study. If not, please confirm that each year of input data is incorporated with the same probability of occurrence.

48.4 Please explain why the five-year ensemble sets of January 1973 to December 1977, January 1974 to December 1978, January 2014 to December 1973, and January 2017 and December 1976 were chosen.

48.5 Please explain if BC Hydro uses the entire aggregate 45 year historic inflow data or just the weather ensemble sets to forecast possible ranges of inflows. If the former, please explain how these five year data sets to 'preserve any year-over-year correlation' are input into the model along with the 45 year historic inflows. Please explain if the end result is the same year of data being input multiple times within the model or, if not, how the model differentiates these data sets.

48.6 For the October 2018 Energy Study supporting BC Hydro's F2020-F2021 RRA, please provide the range of historic weather inflow outcomes used (i.e. the lowest and the highest aggregate inflow levels on record) and provide the revenue and cost implications (including gas purchases and market purchases that may result). Please also include in this table the averaged inflow levels corresponding to each test year (or multi-year period) and the resulting revenue.

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

48.7 Please provide aggregate starting elevation of reservoir levels as of October 1, 2018. Provide a table of monthly averaged and aggregate water inflow results from the Energy Study underpinning the F2020-F2021 RRA.

48.8 For the actuals available since October 1, 2018 please compare to the average storage level forecast used in the Energy Study (as provided above). Please comment on associated differences and the impact on costs and revenues. If this actual information is not currently available, please provide at the time of the Cost of Energy update, currently scheduled for October 18, 2019.

49.0 Energy Study

Reference (i): Exhibit B-6, BC Hydro Response to AMPC IR 1.15.3, pdf pp. 169-173

In response to AMPC IR 1.15.3 (at pdf pp. 169-173), BC Hydro provides a series of histogram charts comparing forecast ranges of system inflows for an ensemble of inflow forecasts with observed system inflows for the years F2015 to F2019. The charts are described as follows:

The following charts are histograms showing the forecast system inflows for an ensemble of inflow forecasts. The x-axis is the percentage of normal for system inflows. For example, for fiscal 2015, the range of forecast inflows in March 2014 was from 88 to 108 per cent of normal. The observed system inflow for fiscal 2015 in the end was 101 per cent of normal. Please refer to BC Hydro's response to BCUC IR 1.31.1 for a description of how the forecasts are developed and used in the Energy Studies.

Reference (ii): Exhibit B-6, BC Hydro Response to AMPC IR 1.15.8.2, pdf p. 183

At pdf p. 183, BC Hydro states that "BC Hydro has provided in its response to AMPC IR 1.15.3 a set of forecast distributions of system inflows that reflect the likelihood of low inflow conditions."

49.1 Please provide an explanation of what the y-axis represents for these charts and provide commentary to explain the differences between forecast and observed.

49.2 Please provide corresponding background data for each graph.

49.1 Please explain how "normal" is defined as mentioned in the preamble to the histogram charts provided.

49.2 Please confirm that BC Hydro's associated revenue requirement for each year provided would have been based on the halfway point between the ranges provided by the red bars (so for example, 98% of "normal" for F2015). If not confirmed, please add a bar that represents the results of the Energy Study for each year provided.

49.3 Regarding BC Hydro's response to AMPC 1.15.8.2, please specify which set of forecast reflects the probability of low inflow conditions. Please explain the percentile distribution BC Hydro quantifies as 'low inflow conditions' (i.e. below the X percentile).

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

50.0 Water Rentals

Reference: Exhibit B-6, BC Hydro Response to AMPC IR 1.16.2 and Attachment, pdf pp. 187-188

In its response, BC Hydro provides its water rental rates and costs from F2014 to F2021.

Reference: Exhibit B-1, BC Hydro RRA Application, Appendix A, Schedule 4.0, p. 38, pdf p. 1189

On pdf p. 1189., BC Hydro provides its unit cost for water rentals for F2017-F2021.

Cost of Energy (\$ million)		F2017			F2018			F2019			F2020	F2021
Line	Reference	RRA	Actual	Diff	RRA	Actual	Diff	RRA	Forecast	Diff	Plan	Plan
	Column	1	2	3 = 2 - 1	4	5	6 = 5 - 4	7	8	9 = 8 - 7	10	11
Unit Costs (\$/MWh)												
16	Water Rentals	8.0	7.9	(0.0)	7.6	7.5	(0.0)	7.7	8.5	0.9	7.8	7.8
17	Natural Gas for Thermal Generation	66.5	128.9	62.3	45.4	37.7	(7.7)	45.9	44.1	(1.8)	42.4	44.3
18	IPPs and Long-Term Commitments	92.3	88.9	(3.4)	91.3	91.4	0.1	94.7	90.7	(4.0)	99.6	99.8
19	Non-Integrated Area	209.6	211.8	2.2	229.4	231.0	1.6	258.9	238.9	(20.0)	268.4	280.9
20	Market Electricity Purchases	37.5	25.8	(11.7)	40.5	24.4	(16.1)	38.5	42.9	4.4	26.6	28.1
21	Surplus Sales	(23.8)	(23.1)	0.7	(27.1)	(27.5)	(0.4)	(28.6)	(51.6)	(23.0)	(40.3)	(36.1)
22	Total Weighted Cost	29.9	29.0	(0.9)	32.0	29.5	(2.4)	33.5	31.8	(1.7)	35.2	36.1

AMPC is seeking confirmation from BC Hydro on how its water rental rates compare to those in other Canadian jurisdictions. AMPC has provided a table below that sets out the water rental rates in different Canadian jurisdictions.

50.1 Please confirm that water rental rates captured in the table below are accurate, to the best of BC Hydro's knowledge. If not confirmed or if BC Hydro is aware of or relies on other water rental rates for other Canadian jurisdictions, please provide that information including all relevant documents.

Jurisdiction	Water Rental Rates (\$/MWh)	Source
BC	\$7.8	Exhibit B-1, BC Hydro RRA Application, Appendix A, Schedule 4.9, p. 38, pdf p. 1189
Newfoundland & Labrador	\$2.58	Newfoundland and Labrador Regulation 64/03, Water Power Rental Regulations, 2003 under the Water Resources Act (O.C. 2003-230) Amended by: 69/16. Section (4) Rates. Available online: https://assembly.nl.ca/Legislation/sr/regulations/rc030064.htm
Quebec	\$3.25	Régis Québec Official Source, R-13 Watercourses Act, updated June 5, 2018. Available online: http://legisquebec.gouv.qc.ca/en/ShowDoc/cs/R-13
Manitoba	\$3.34	The Water Power Act, Water Power Regulation, C.C.S.M. c. W60, Last amendment included M.R. 77/2010, available online:

REQUESTOR NAME: **Association of Major Power Customers of BC (AMPC)**

INFORMATION REQUEST ROUND NO: **2**

TO: **BC Hydro**

DATE: **August 1, 2019**

PROJECT NO: **1598990**

APPLICATION NAME: **BC Hydro F2020-F2021 Revenue Requirement Application**

		http://web2.gov.mb.ca/laws/regs/current/pdf-regs.php?reg=25/88%20R
Ontario	\$3.80	Ontario Ministry of Finance, Gross Revenue Charge, last modified May 15, 2017. Available online: https://www.fin.gov.on.ca/en/tax/grc/index.html ; Rate applied is effectively equal to \$3.80/MWh (9.5% of \$40,000 per GWh).
Saskatchewan	\$5.68	The Water Power Rental Regulations, 2018 being Chapter W-6 Reg 4 (effective April 19, 2018). Available online: http://www.publications.gov.sk.ca/freelaw/documents/English/Regulations/Regulations/W6R4.pdf

[Account login \(https://accounts.fortisbc.com/\)](https://accounts.fortisbc.com/)

BC's natural gas supply may be limited this winter, reducing your use will help

Enbridge's response to their ruptured transmission pipeline

[View statements \(http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident\)](http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident)

December 12, 2018

12:00 p.m.

The recent [natural gas rates announcement \(https://www.fortisbc.com/news-events/media-centre-details/2018/12/08/20181207-January-rates-announced-for-FortisBC-natural-gas-customers\)](https://www.fortisbc.com/news-events/media-centre-details/2018/12/08/20181207-January-rates-announced-for-FortisBC-natural-gas-customers) has raised some questions among our customers about the reasons behind the increase. The October 9 Enbridge pipeline rupture caused significant disruption to the gas system that serves the Pacific Northwest region, including restricted gas flow into the market and corresponding increases to the market price for available gas supply. As a result of actions taken to secure required natural gas for our customers, FortisBC's costs for gas storage and transportation have increased. [See a sample bill \(/accounts-billing/billing-rates/understanding-your-bill-natural-gas/how-to-read-your-gas-bill\)](/accounts-billing/billing-rates/understanding-your-bill-natural-gas/how-to-read-your-gas-bill).

Here are five facts to consider:

1. FortisBC is a regulated utility

FortisBC is regulated by the British Columbia Utilities Commission (BCUC). The BCUC reviews all changes to FortisBC's customer rates and determines whether changes are necessary. In this case, the BCUC has determined that the Storage and Transport rate on customers' bills needs to increase on an interim basis to cover these additional costs.

The BCUC issued an interim decision on rates and it is subject to their approval in the first quarter of 2019. Once approved, the decision may result in a bill adjustment for our customers. It is difficult to predict what the adjustment may be, but we always strive to deliver natural gas safely and reliably at the lowest reasonable cost to our customers.

2. The majority of the increase is related to the Enbridge pipeline rupture

The majority of the increase lies within the Storage and Transport charges, which reflects the prices we pay to other companies to store and transport gas through their pipelines and infrastructure. And one of the main pipelines that the majority of our gas comes from, owned and operated by Enbridge, was compromised.

The Enbridge pipeline rupture required FortisBC to secure additional natural gas supply to maintain service to customers, increasing Storage and Transport charges.

FortisBC and the regional gas market as a whole, experienced increased volatility because of the October 9 Enbridge transmission line rupture. Market instability and uncertainty, coupled with supply and demand, are factors that contributed to an interim adjustment to rates.

[Learn more about your rates \(/accounts-billing/billing-rates/natural-gas-rates\)](/accounts-billing/billing-rates/natural-gas-rates) and what components make up your overall bill.

3. FortisBC does not mark up costs or make any money on Storage and Transport charges

We do not mark up Storage and Transport costs, or make any money on this specific charge. You pay what we pay. We operate in a commodity market, which is subject to various unpredictable events happening - weather for example - so volatility exists. The charges are reviewed quarterly and set annually by the BCUC.

4. We are a customer of Enbridge. Their ruptured pipeline that has caused natural gas supply concerns is not owned or operated by FortisBC.

It is important to understand that we are a customer of Enbridge and the pipeline is not owned by FortisBC. While the rupture itself was not our responsibility, ensuring our customers have the natural gas they need is. As Enbridge was unable to supply

sufficient volumes of natural gas through their system, we worked to obtain additional supply from other sources to ensure we met our customers' needs.

5. We appreciate our customers' conservation efforts and patience

While an increase is never welcome, we continue to focus our efforts to keep costs as low as possible for customers.

One way to lower your bill is to reduce your consumption, the less natural gas you use, the less you pay. For instance, when the weather is milder, you use less natural gas and therefore you may see a decrease to your bill.

We also appreciate the efforts customers are making to reduce their natural gas use. Customer conservation has played a vital role in maintaining the stability of the FortisBC natural gas system so far this winter and can also help reduce your bill.

FortisBC archive of statements and information related to the Enbridge-owned natural gas pipeline rupture

BC's natural gas supply may be limited this winter, reducing your use will help

December 5, 2018

10:45 a.m.

BC's natural gas supply may continue to be limited this winter due to the rupture of the Enbridge-owned natural gas transmission pipeline on October 9. Although Enbridge has repaired their pipeline, it is operating at a limited capacity, meaning BC's natural gas system may be challenged during times of peak demand this winter. That's why we're asking all customers to continue to reduce their use of natural gas wherever possible. As temperatures across BC drop, it is important to continue to conserve wherever possible. This will help to replenish storage options to help offset the difference in availability later when demand is high on the coldest days of winter.

On November 17, Enbridge announced that the National Energy Board approved an increase to the maximum allowable operating pressure from 80 per cent to 85 per cent. With this increase, FortisBC's gas supply, when combined with incremental open market purchases and conservation efforts, will be closer to a typical level of supply for this time of year.

While the planned increase is positive news, FortisBC, and the regional gas market as a whole, will still not receive as much gas as it normally expects from the Enbridge transmission system - even at this increased operating pressure. In the event of a prolonged period of colder than average weather, we could find ourselves in a position where demand is outpacing supply. If this imbalance extends over a number of days, it is possible that large-scale industrial and commercial customers would be faced with short-term curtailment. As the province prepares to enter the coldest months of the year, the need to conserve natural gas is still present.

To better inform our customers' conservation efforts, we have developed a forecast for our website that provides a [five day outlook of our expected gas supply](/news-events/media-centre/bc-s-natural-gas-supply-may-be-limited-this-winter) along with recommended levels of conservation. The forecast will be updated every Monday and Thursday online and on our social media platforms.

Every molecule of gas conserved can be used elsewhere on our system to keep homes warm and businesses working. Small conservation steps can make a significant impact collectively. Turning down the thermostat a few degrees and reducing the amount of hot water being used are simple ways to reduce natural gas use in the home or workplace.

The conservation measures demonstrated by all our customers to date are much appreciated, and we encourage those continued efforts over the next few months.

November 22, 2018

12:00 p.m.

BC's natural gas supply may continue to be limited this winter due to the rupture of the Enbridge-owned natural gas transmission pipeline on October 9. Although Enbridge has repaired their pipeline, it is operating at a limited capacity, meaning BC's natural gas system may be challenged during times of peak demand this winter.

On November 17, Enbridge announced that the National Energy Board approved an increase to the maximum allowable operating pressure from 80 per cent to 85 per cent. With this increase, FortisBC's gas supply, when combined with incremental open market purchases and conservation efforts, will be closer to a typical level of supply for this time of year.

While the planned increase is positive news, FortisBC, and the regional gas market as a whole, will still not receive as much gas as it normally expects from the Enbridge transmission system - even at this increased operating pressure. In the event of a prolonged period of colder than average weather, we could find ourselves in a position

where demand is outpacing supply. If this imbalance extends over a number of days, it is possible that large-scale industrial and commercial customers would be faced with short-term curtailment. As the province prepares to enter the coldest months of the year, the need to conserve natural gas is still present.

That's why we're asking all customers to continue to reduce their use of natural gas. Small conservation steps can make a significant impact collectively. Turning down the thermostat a few degrees and reducing the amount of hot water being used are simple ways to reduce natural gas use in the home or workplace.

Small conservation steps can make a significant impact collectively. The conservation measures demonstrated by all our customers to date are much appreciated, and we encourage those continued efforts over the next few months.

Natural gas supply will be limited this winter, please reduce your use

November 15, 2018

11:00 a.m.

While Enbridge plans to increase the flow of natural gas to 80 per cent capacity by the end of the month, we're still looking at a shortfall of natural gas through the winter.

Roger Dall'Antonia, president and CEO of FortisBC, explains why it remains important for all natural gas customers to conserve. (<https://www.youtube.com/watch?v=tvBmg-VhZh4>)

Until both Enbridge-owned pipelines are back at full operating pressure, FortisBC will have a constrained supply of natural gas and our gas system will be vulnerable during periods of colder weather.

As such, FortisBC is asking all customers to continue to conserve natural gas whenever possible throughout the winter. Small steps such as turning down the thermostat to between 18 - 20 °C when home and awake and no more than 17 °C when out or asleep and reducing hot water use through shorter showers and using cold water for laundry can help save natural gas.

FortisBC is actively working to make more gas available for British Columbians by maximizing output of the Southern Crossing pipeline from Alberta, buying more natural gas supply from the open market, working with industrial customers to improve their energy use and even switching our compressed natural gas-powered vehicles over to gasoline for the winter.

Regular information updates are being planned to provide our customers with the latest information to help guide their [conservation choices \(/news-events/media-centre/bc-s-natural-gas-supply\)](/news-events/media-centre/bc-s-natural-gas-supply).

November 6, 2018

5:10 p.m.

Enbridge has completed repairs on its 36-inch natural gas transmission pipeline that had ruptured on October 9 near Prince George. The pipeline is now operating at a reduced capacity of about 55 per cent operating pressure and will gradually ramp up to 80 per cent through November.

Reports of the pipeline repairs have caused some confusion on what this means for FortisBC's natural gas supply and whether natural gas conservation is still required.

Until both Enbridge-owned pipelines are back at full operating pressure, FortisBC will have a constrained supply of natural gas and our gas system will be vulnerable during periods of colder weather. While bringing Enbridge's full transmission to 80 per cent will be a positive step, it is not enough natural gas to support the typical winter natural gas consumption of our entire customer base.

As such, FortisBC is asking all customers to continue to conserve natural gas whenever possible throughout the winter. We continue to work to ensure that all of our customers have the natural gas they need this winter by working with industrial customers to optimize their energy use, maximizing the output of the Southern Crossing pipeline from Alberta and securing natural gas supply from the open marketplace to access in times of higher demand. Regular information updates are being planned to provide our customers with the latest information to help guide their [conservation choices \(https://www.fortisbc.com/news-events/media-centre/bc-s-natural-gas-supply\)](https://www.fortisbc.com/news-events/media-centre/bc-s-natural-gas-supply).

Enbridge Transmission Pipeline Repair Update

October 31, 2018

5:10 p.m.

On the evening of October 31, Enbridge announced the completion of repairs to its 36-inch natural gas transmission pipeline that had ruptured on October 9 near Prince George, BC. Following the repairs, and a comprehensive integrity assessment, Enbridge expects to begin safely returning the repaired segment to service within 48 hours.

It is important to note that, although the 36-inch transmission line is returning to service, it will not be operating at full capacity and natural gas supply in BC will continue to be limited. FortisBC asks all of its customers to continue to conserve natural gas whenever possible.

For more information on the repairs of the Enbridge-owned pipeline, visit [Enbridge's website \(http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident\)](http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident).

Explaining FortisBC's natural gas delivery system

October 31, 2018

11:00 a.m.

On October 9, an Enbridge-owned natural gas transmission pipeline ruptured near Prince George, BC. Enbridge expects their pipeline to be returned to service by mid-November. However, their pipeline will be operating at reduced capacity through the winter.

This has an immediate impact on the supply of natural gas for FortisBC customers because almost 75 per cent of FortisBC's natural gas supply is delivered by Enbridge's pipelines. FortisBC also has natural gas storage facilities located throughout BC that we are able to access during times of peak demand but they are only able to store a limited supply. That's why we're asking all our customers to reduce their natural gas use over the coming months.

The following video explains how the FortisBC natural gas delivery system works and how our customers can help to reduce their use of natural gas this winter.

[Watch the video \(https://www.youtube.com/watch?v=xnNJJaDVTIgg\)](https://www.youtube.com/watch?v=xnNJJaDVTIgg)

Natural gas system will be challenged in times of high demand this winter

October 22, 2018

2:05 p.m.

Due to gas supply constraints as a result of Enbridge's natural gas transmission pipeline rupture, FortisBC customers should know that that our regional natural gas supply, including the entire province, will be limited to 50 to 80 per cent of normal levels. This means that the natural gas system will be challenged in times of high demand throughout the winter. As such, FortisBC is asking all of its customers to be conscious of their natural gas use and conserve energy wherever possible.

On Friday, October 19, Enbridge released a statement announcing that they expect their ruptured 36-inch natural gas transmission line to be repaired and in service by mid-November. However, both the 36 and 30-inch transmission lines will only be running at 80 per cent capacity and are not expected to return to maximum operating pressure throughout the winter.

We are actively working to make more gas available for our customers. For example, we've worked with TransCanada to maximize output of the Southern Crossing pipeline that feeds into the Interior from Alberta and are actively working with industrial customers to optimize their energy use - keeping them running while minimizing system impacts. We are also working on securing additional natural gas in the open marketplace to best support the province's gas supply.

We appreciate the efforts that have been made by our customers to conserve natural gas and encourage them to continue to limit their natural gas use wherever possible to ensure all British Columbians are able to access natural gas for essential uses.

[Watch our video from Doug Stout \(https://www.youtube.com/watch?v=_2v2h6LSqAs\)](https://www.youtube.com/watch?v=_2v2h6LSqAs), vice president, market development and external relations, for additional information.

Enbridge announces that they expect 36-inch natural gas transmission pipeline to be returned to service by mid-November

October 19, 2018

3:05 p.m.

On the morning of October 19, Enbridge announced that they expect their 36-inch pipeline will be restored to service at about 80 per cent capacity by mid-November. This would bring BC's total natural gas supply up to between 60 to 80 per cent of our typical supply.

Until the transmission pipeline is repaired and operating at full capacity, we are asking all our customers to continue reducing their use of natural gas. See below for tips on how to reduce your gas use.

We appreciate your ongoing efforts to limit your use of natural gas at this time. FortisBC will continue to monitor the situation and provide updates as they become available. For more information on Enbridge's response to their transmission pipeline rupture, visit [www.enbridge.com \(http://www.enbridge.com/\)](http://www.enbridge.com/).

BC's natural gas supply is limited: please continue to reduce your use of natural gas

October 16, 2018

9:30 p.m.

As a result of Enbridge's 36-inch natural gas transmission pipeline rupture on October 9, 2018, BC's natural gas supply is limited. While the 36-inch pipeline is not in operation, a 30-inch line is running at 80 per cent capacity. This means FortisBC is still receiving gas but at a reduced flow, about only 40 per cent of our normal supply.

Until the transmission pipeline is repaired and operating at full capacity, we are asking customers to reduce their natural gas use. To date, Enbridge has not provided an estimated date of repair. In the meantime, here are some ways you can help reduce the use of gas:

Turn down the thermostat



Where possible we're asking customers to set your thermostat between 18 - 20 °C when home and awake and no more than 17 °C when out or asleep.

Natural gas fireplace



Natural gas fireplaces can still be used to efficiently heat the room you're in. Save energy by turning down the thermostat in the rest of the house and not heating areas that no one is using.

Put on a sweater



If you're cold, reach for a sweater, socks or blanket instead of turning up the heat.

Take shorter showers



Save hot water by shortening your showers by two minutes.

Dishwasher



Use the energy-saving mode when your dishes are less dirty.

Run your dishwasher only when it's full.

Clothes washer/dryer



Wash laundry in cold water.

Always wash full loads to help save energy.

Use lower heat settings on your natural gas dryer, such as permanent press.

Window coverings



On sunny days, take advantage of Mother Nature by opening blinds or curtains to warm up.

Heat only the rooms you're in



Close warm air supply registers in rooms you're not using. Avoid heating non-insulated spaces such as a garage, crawl space, attic or storage shed.

We appreciate your ongoing efforts to limit your use of natural gas at this time. FortisBC will continue to monitor the situation and provide updates as they become available. For more information on Enbridge's response to their transmission pipeline rupture, visit www.enbridge.com (<http://www.enbridge.com/>).

Pipeline rupture site opened for site safety and clean-up planning

October 13, 2018

12:45 p.m.

On the morning of Saturday, October 13, 2018, Enbridge announced that the Transportation Safety Board, which is leading the investigation of the natural gas transmission pipeline rupture, has opened the area for Enbridge to begin site-safety work and begin planning for site clean-up. Planning regarding repair work is underway but there are no set timelines on when that will commence.

The repair of the 36-inch diameter pipeline is a necessary step to fully restore FortisBC's gas system. While Enbridge's 30-inch line was returned to service on Wednesday, stabilizing our system, we ask all our customers to continue to conserve natural gas wherever possible and to avoid non-essential uses of natural gas.

FortisBC will continue to monitor the situation and provide updates as they become available. For more information on Enbridge's ongoing response to their transmission pipeline rupture, visit www.enbridge.com (<http://www.enbridge.com/>).

FortisBC thanks BC for reducing natural gas use and to continue the efforts over the weekend

October 12, 2018

6:35 p.m.

Thank you BC for helping conserve natural gas over the past few days due to the Enbridge transmission pipeline rupture in Prince George. We appreciate the efforts you've made to limit your use of natural gas at this time.

Until the situation is resolved, we are asking all our customers to continue avoiding non-essential use of natural gas. Doug Stout, FortisBC VP of market development & external relations, shares what we know heading into the weekend.

[Watch the video \(https://www.youtube.com/watch?v=uQoF9OpL-oc\)](https://www.youtube.com/watch?v=uQoF9OpL-oc)

Enbridge received approval from the National Energy Board to restart its 30-inch natural gas line, and has restored service at 80 per cent capacity. Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained throughout the province.

Our industrial customers are being brought back onto the system with a reduced amount of natural gas. This process will continue through the weekend and includes large, multi-family high-rises. We are contacting those customers, and their gas marketers, as the curtailment of their natural gas service is lifted.

Industrial curtailed customers - please note curtailment is still in effect until further notice.

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We thank our customers and the community for their patience, and those who have conserved natural gas use during this time.

For updates from Enbridge please visit their [website](https://www.enbridge.com/media-center/media-statements)
(<https://www.enbridge.com/media-center/media-statements>).

FortisBC industrial customers start to come back onto the system with a reduced amount of natural gas

October 12, 2018

8:00 a.m.

As of early October 11, gas started flowing in Enbridge's 30-inch natural gas line. This line was shut down as a precautionary measure following the October 9, 2018, incident on its 36-inch gas line near Prince George, B.C.

Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained throughout the province.

Some of FortisBC's industrial customers have had their natural gas service curtailed. On Thursday, October 11, some industrial customers began being brought back onto the system with a reduced amount of natural gas. This process will continue through the weekend and includes large, multi-family high-rises. We are contacting those customers, and their gas marketers, as the curtailment of their natural gas service is lifted.

Industrial curtailed customers - please note curtailment is still in effect until further notice. (/services/commercial-industrial-services/natural-gas-price-market-curtailment-information)

We appreciate the efforts of our customers to limit their use of natural gas at this time. FortisBC is receiving a reduced gas flow—approximately 40 per cent of our normal capacity—while Enbridge makes repairs to its system. Until the situation is resolved, we are asking all our customers to continue avoiding non-essential use of natural gas.

Jason Wolfe, Director of Energy Solutions, explains further.

(<https://www.youtube.com/watch?v=PgkMzOeLAIY>)

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We thank our customers and the community for their patience, and those who have conserved natural gas use during this time.

For updates from Enbridge please visit their [website](https://www.enbridge.com/media-center/media-statements)
(<https://www.enbridge.com/media-center/media-statements>).

FortisBC begins bringing industrial customers online following Enbridge pipeline rupture

October 11, 2018

8:15 p.m.

Due to the Enbridge natural gas pipeline rupture, some of FortisBC's industrial customers have had their natural gas service curtailed. Starting this evening, some industrial customers are being brought back onto the system with a reduced amount of natural gas. This process will continue through the weekend and includes large, multi-family high-rises. We are contacting those customers, and their gas marketers, as the curtailment of their natural gas service is lifted.

We appreciate the efforts of our customers to limit their use of natural gas at this time. FortisBC is receiving a reduced gas flow—approximately 40 per cent of our normal capacity—while Enbridge makes repairs to its system. Until the situation is resolved, we are asking all our customers to continue avoiding non-essential use of natural gas.

FortisBC update to Enbridge natural gas transmission pipeline incident north of Prince George, B.C.

October 11, 2018

12:15 p.m.

As of early October 11, gas is now flowing in Enbridge's 30-inch natural gas line. This line was shut down as a precautionary measure following the October 9, 2018, incident on its 36-inch gas line near Prince George, B.C.

This means that we will begin to restore service to our approximately 128 customers in Salmon Valley who had their service disrupted as a result of Enbridge's gas line shut down. Customers can expect a FortisBC representative to come to their home or business to turn gas back on at the meter and relight all affected appliances.

Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained throughout the province.

We really appreciate the efforts of our customers to limit their use of natural gas at this time. When the system is stable, we'll work to return our customers who have curtailed their gas use back on line. Until this is complete, we ask our customers to please continue avoiding non-essential use of gas until the situation is completely resolved.

[Industrial curtailed customers - please note curtailment is still in effect until further notice. \(https://fbcdotcomprod.azurewebsites.net/services/commercial-industrial-services/natural-gas-price-market-curtailement-information\)](https://fbcdotcomprod.azurewebsites.net/services/commercial-industrial-services/natural-gas-price-market-curtailement-information)

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We thank our customers and the community for their patience, and those who have conserved natural gas use during this time.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

For updates from Enbridge please visit their [website \(https://www.enbridge.com/media-center/media-statements\)](https://www.enbridge.com/media-center/media-statements).

FortisBC update to Enbridge natural gas transmission pipeline incident north of Prince George, B.C.

October 11, 2018

8 a.m.

As of early October 11, gas is now flowing in Enbridge's 30-inch natural gas line. This line was shut down as a precautionary measure following the October 9, 2018, incident on its 36-inch gas line near Prince George, B.C.

This means that we will begin to restore service to our approximately 128 customers in Salmon Valley who had their service disrupted as a result of Enbridge's gas line shut down. Customers can expect a FortisBC representative to come to their home or business to turn gas back on at the meter and relight all affected appliances.

Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained throughout the province.

We really appreciate the efforts of our customers to limit their use of natural gas at this time. When the system is stable, we'll work to return our customers who have curtailed their gas use back on line. Until this is complete, we ask our customers to please continue avoiding non-essential use of gas until the situation is completely resolved.

[Doug Stout, FortisBC VP of market development & external relations, explains further. \(https://www.youtube.com/watch?v=4c4OBHwIUy4\)](https://www.youtube.com/watch?v=4c4OBHwIUy4)

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We thank our customers and the community for their patience, and those who have conserved natural gas use during this time.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

For updates from Enbridge please visit their [website](https://www.enbridge.com/media-center/media-statements) (<https://www.enbridge.com/media-center/media-statements>).

FortisBC update to Enbridge natural gas transmission pipeline incident north of Prince George, B.C.

October 11, 2018

4:05 a.m.

As of early October 11, gas is now flowing in Enbridge's 30-inch natural gas line. This line was shut down as a precautionary measure following the October 9, 2018, incident on its 36-inch gas line near Prince George, B.C.

This means that we will begin to restore service to our approximately 128 customers in Salmon Valley who had their service disrupted as a result of Enbridge's gas line shut down. Customers can expect a FortisBC representative to come to their home or business to turn gas back on at the meter and relight all affected appliances.

Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained.

When the system is stable, we will work to return our customers who have curtailed their gas use back on line. Until this is complete, we continue to ask our customers to avoid non-essential use of gas until the situation is completely resolved.

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We appreciate the patience of our customers and the community, and those who have conserved natural gas use during this time.

For updates from Enbridge please visit their [website](https://www.enbridge.com/media-center/media-statements) (<https://www.enbridge.com/media-center/media-statements>).

FortisBC update to Enbridge natural gas transmission pipeline incident north of Prince George, B.C.

October 10, 2018

11:10 p.m.

This evening FortisBC received notification that Enbridge has NEB approval (<https://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident>) to restart its 30-inch natural gas line. This line was shut down as a precautionary measure following the October 9, 2018, incident on its 36-inch gas line near Prince George, B.C.

This restart means more natural gas supply will gradually start to flow into FortisBC systems. Bringing this natural gas back on is a positive step to returning our system to normal; however, until the damaged 36-inch gas line is repaired, gas supply will continue to be constrained.

When the system is stable, we will work to return our customers who have curtailed their gas use back on line. Until this is complete, we continue to ask our customers to avoid non-essential use of gas until the situation is completely resolved.

FortisBC will continue to closely monitor gas flow, and provide regular updates as the situation progresses. We appreciate the patience of our customers and the community, and those who have conserved natural gas use during this time.

For updates from Enbridge please visit their website (<https://www.enbridge.com/media-center/media-statements>).

FortisBC asks customers to continue reducing natural gas use following Enbridge pipeline rupture

October 10, 2018

7:53 p.m.

We're very thankful to our customers who've been helping today to reduce their use of natural gas, resulting in a reduction of about 20 per cent province-wide. This means we have more time to keep gas flowing through the system for essential uses.

However, we still need more customers to reduce their natural gas usage as much as possible for now, as we continue to work with Enbridge and confirm the impact on the system. We're asking all of our natural gas customers across the province to turn off their thermostats and to reduce their use of all other natural gas appliances.

We recognize that in some parts of BC it may be impractical to turn off thermostats due to cold weather. Even turning the temperature down as much as possible and reducing hot water use and other natural gas usage will help. Thank you for your patience and support as we work to maintain service.

Enbridge continues to respond to the natural gas pipeline rupture near Prince George, B.C. that occurred at approximately 5:45 p.m. PST on October 9, 2018. The rupture occurred on an Enbridge natural gas pipeline, causing the natural gas being transported to be ignited. There are no reports of injuries as a result of the incident.

This pipeline was shut down, and an adjacent pipeline was shut down as well as a precaution. These pipelines are the main lines through which natural gas moves into FortisBC's system, so we're anticipating decreased energy flow and potential loss of service temporarily.

Although FortisBC's system is not damaged, we're working hard to continue providing energy for your homes and businesses. We're monitoring the situation and will provide regular updates here.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

FortisBC asks customers to continue reducing natural gas use following Enbridge pipeline rupture

October 10, 2018

4:55 p.m.

We're very thankful to our customers who've been helping today to reduce their use of natural gas, resulting in a reduction of about 20 per cent province-wide. This means we have more time to keep gas flowing through the system for essential uses.

However, we still need more customers to reduce their natural gas usage as much as possible for now, as we continue to work with Enbridge and confirm the impact on the system. We're asking all of our natural gas customers across the province to turn off their thermostats and to reduce their use of all other natural gas appliances.

We recognize that in some parts of BC it may be impractical to turn off thermostats due to cold weather. Even turning the temperature down as much as possible and reducing hot water use and other natural gas usage will help. Thank you for your patience and support as we work to maintain service.

Doug Stout, FortisBC external relations VP, explains further.

(<https://www.youtube.com/watch?v=ihrxb799oqQ>)

Enbridge continues to respond to the natural gas pipeline rupture near Prince George, B.C. that occurred at approximately 5:45 p.m. PST on October 9, 2018. The rupture occurred on an Enbridge natural gas pipeline, causing the natural gas being transported to be ignited. There are no reports of injuries as a result of the incident.

This pipeline was shut down, and an adjacent pipeline was shut down as well as a precaution. These pipelines are the main lines through which natural gas moves into FortisBC's system, so we're anticipating decreased energy flow and potential loss of service temporarily.

Although FortisBC's system is not damaged, we're working hard to continue providing energy for your homes and businesses. We're monitoring the situation and will provide regular updates here.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

FortisBC asks customers to reduce natural gas use following pipeline incident

October 10, 2018

11:45 a.m.

Enbridge continues to respond to a natural gas pipeline rupture near Prince George, B.C. that occurred at approximately 5:45 p.m. PST on October 9, 2018. The rupture occurred on a natural gas pipeline, causing the natural gas being transported to be ignited. There are no reports of injuries as a result of the incident.

These pipelines are the main lines through which natural gas moves into FortisBC's system, so we're anticipating decreased energy flow and potential loss of service temporarily.

FortisBC is asking all of our natural gas customers across the province to turn off their thermostats and to reduce their use of all other natural gas appliances.

We recognize that in some parts of BC it may be impractical to turn off thermostats due to cold weather. Even turning the temperature down as much as possible and reducing other natural gas usage will help. Thank you for your patience and support as we work to maintain service.

Doug Stout, FortisBC external relations VP, explains further.

(<https://www.youtube.com/watch?v=if9uFt6mr9k>)

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

Although FortisBC's system is not damaged, we're working hard to continue providing energy for your homes and businesses. We're monitoring the situation and will provide regular updates here.

FortisBC asks customers to reduce natural gas use following pipeline incident

October 10, 2018

9:10 a.m.

There has been an incident with a natural gas transmission pipeline north of Prince George that feeds our system.

As a result of the incident affecting the Enbridge pipeline that feeds our system we are anticipating decreased energy flow and potential loss of service. FortisBC is requesting all of our natural gas customers across the province to turn off their thermostats as well as reduce use of all other natural gas appliances. We appreciate your assistance and patience.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

Although FortisBC's system is not damaged, we are working hard to continue to provide the energy flow to your homes and businesses. We are monitoring the situation and will provide updates.

FortisBC asks customers to reduce natural gas use following pipeline incident

October 10, 2018

3:30 a.m.

There has been an incident with a natural gas transmission pipeline north of Prince George that feeds our system.

As a result of the incident affecting the Enbridge pipeline that feeds our system we are anticipating decreased energy flow and potential loss of service. FortisBC is requesting all of our natural gas customers across the province to turn off their thermostats as well as reduce use of all other natural gas appliances. We appreciate your assistance and patience.

If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at **1-800-663-9911 (tel:18006639911)** or **911 (tel:911)**.

Although FortisBC's system is not damaged, we are working hard to continue to provide the energy flow to your homes and businesses. We are monitoring the situation and will provide updates.

FortisBC asks customers to reduce natural gas use following pipeline incident

October 10, 2018

12:20 a.m.

There has been an incident with a natural gas transmission pipeline north of Prince George that feeds our system.

FortisBC is asking all customers to avoid non-essential use of gas until the pipeline supply issue in the north is resolved to ensure we are preserving the supply of natural gas. We monitor our system 24-hours a day, 365 days a year and conduct regular leak surveys and inspections to ensure our system is safe. If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at **1-800-663-9911 (tel:18006639911)** or **911 (tel:911)**.

Saving gas can be as simple as turning down your thermostat or not turning on your fireplace or natural gas BBQ. Although FortisBC's system is not damaged, we are working hard to continue to provide the energy flow to your homes and businesses. We are monitoring the situation and will provide updates.

FortisBC asks customers to reduce natural gas use following pipeline incident

October 9, 2018

11:30 p.m.

There has been an incident with a natural gas transmission pressure pipeline near Prince George that feeds our system.

FortisBC is asking customers to avoid non-essential use of gas until the pipeline supply issue in the north is resolved to ensure we are preserving the supply of natural gas. We monitor our system 24-hours a day, 365 days a year and conduct regular leak surveys and inspections to ensure our system is safe. If you smell gas, you need to leave the area and call the FortisBC 24-hour natural gas emergency line at 1-800-663-9911 (tel:18006639911) or 911 (tel:911).

Saving gas can be as simple as turning down your thermostat or not turning on your fireplace or natural gas BBQ. Although FortisBC's system is not damaged, we are working hard to continue to provide the energy flow to your homes and businesses. We are monitoring the situation and will provide updates.

Stay informed about BC's natural gas supply

Follow us on [Facebook \(https://www.facebook.com/fortisbc\)](https://www.facebook.com/fortisbc) and [Twitter \(https://twitter.com/FortisBC\)](https://twitter.com/FortisBC) for the most up-to-date information.

[Watch our latest videos \(https://www.youtube.com/playlist?list=PLx5Nq20vpNrobzyZ8AsGhCwNUNtvN-yyI\)](https://www.youtube.com/playlist?list=PLx5Nq20vpNrobzyZ8AsGhCwNUNtvN-yyI) to learn more about BC's natural gas supply, why it may be limited this winter, and how customers can reduce their use.

Find out how you can [reduce your natural gas use \(/news-events/media-centre/bc-s-natural-gas-supply\)](/news-events/media-centre/bc-s-natural-gas-supply).

Read the latest FortisBC media statements from [October 22 \(https://www.fortisbc.com/news-events/media-centre-details/2018/10/23/20181023-Natural-gas-conservation-needed-throughout-the-winter\)](https://www.fortisbc.com/news-events/media-centre-details/2018/10/23/20181023-Natural-gas-conservation-needed-throughout-the-winter), [November 2 \(https://www.fortisbc.com/news-events/media-centre-details/2018/11/03/20181102-Natural-gas-supply-still-limited-despite-completed-Enbridge-pipeline-repair\)](https://www.fortisbc.com/news-events/media-centre-details/2018/11/03/20181102-Natural-gas-supply-still-limited-despite-completed-Enbridge-pipeline-repair), [November 14 \(https://www.fortisbc.com/news-events/media-centre-details/2018/11/15/20181114-Colder-temperatures-means-greater-conservation-needed\)](https://www.fortisbc.com/news-events/media-centre-details/2018/11/15/20181114-Colder-temperatures-means-greater-conservation-needed) and [November 22 \(https://www.fortisbc.com/news-events/media-centre-details/2018/11/23/20181122-FortisBC-gas-supply-outlook-improves\)](https://www.fortisbc.com/news-events/media-centre-details/2018/11/23/20181122-FortisBC-gas-supply-outlook-improves).

Read [Enbridge's response \(http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident\)](http://www.enbridge.com/media-center/media-statements/prince-george-pipeline-incident) to their ruptured transmission pipeline.

Contact us

Customer contact centre: 1-888-224-2710 (tel:18882242710)

Industrial customers contact your [Key Account Manager \(/services/commercial-industrial-services/account-managers-for-commercial-industrial-and-business-customers\)](/services/commercial-industrial-services/account-managers-for-commercial-industrial-and-business-customers).

Media contacts (24 hours): 1-855-FBC-NEWS or (1-855-322-6397 (tel:18553226397))



Natural gas

1-888-224-2710 (tel:18882242710)

Monday-Friday

7 a.m. to 8 p.m.

Electricity

1-866-436-7847 (tel:18664367847)

Monday-Friday

7 a.m. to 7 p.m.

Media contacts

1-855-FBC-NEWS (tel:18553226397) or 1-855-322-6397 (tel:18553226397)

[Contact us \(/contact-us\)](/contact-us)

[Energy solutions for transportation \(https://www.fortisbc.com/est\)](https://www.fortisbc.com/est) 

[FortisBC Alternative Energy Services \(https://www.fortisbc.com/aes\)](https://www.fortisbc.com/aes) 

[Talking Energy - FortisBC's projects \(https://talkingenergy.ca/\)](https://talkingenergy.ca/) 

 [\(https://www.facebook.com/fortisbc\)](https://www.facebook.com/fortisbc)

 ([https://twitter.com/intent/follow?
source=followbutton&variant=1.0&screen_name=FortisBC](https://twitter.com/intent/follow?source=followbutton&variant=1.0&screen_name=FortisBC))
 (<https://www.instagram.com/fortisbc/>)

 (<https://www.linkedin.com/company/fortisbc>)
 ([https://www.youtube.com/user/fortisbc?
sub_confirmation=1](https://www.youtube.com/user/fortisbc?sub_confirmation=1))

[Privacy policy \(/privacy-policy\)](/privacy-policy)

[Terms of use \(/terms-of-use\)](/terms-of-use)

[Site map \(/sitemap\)](/sitemap)

© 2019 FortisBC. All rights reserved (/copyright).

IAS 16**Property, Plant and Equipment**

In April 2001 the International Accounting Standards Board (Board) adopted IAS 16 *Property, Plant and Equipment*, which had originally been issued by the International Accounting Standards Committee in December 1993. IAS 16 *Property, Plant and Equipment* replaced IAS 16 *Accounting for Property, Plant and Equipment* (issued in March 1982). IAS 16 that was issued in March 1982 also replaced some parts in IAS 4 *Depreciation Accounting* that was approved in November 1975.

In December 2003 the Board issued a revised IAS 16 as part of its initial agenda of technical projects. The revised Standard also replaced the guidance in three Interpretations (SIC-6 *Costs of Modifying Existing Software*, SIC-14 *Property, Plant and Equipment – Compensation for the Impairment or Loss of Items* and SIC-23 *Property, Plant and Equipment – Major Inspection or Overhaul Costs*).

In May 2014 the Board amended IAS 16 to prohibit the use of a revenue-based depreciation method.

In June 2014 the Board amended the scope of IAS 16 to include bearer plants related to agricultural activity.

In May 2017, when IFRS 17 *Insurance Contracts* was issued, it amended the subsequent measurement requirements in IAS 16 by permitting entities to elect to measure owner-occupied properties in specific circumstances as if there were investment properties measured at fair value through profit or loss applying IAS 40 *Investment Property*.

Other Standards have made minor consequential amendments to IAS 16. They include IFRS 13 *Fair Value Measurement* (issued May 2011), *Annual Improvements to IFRSs 2009–2011 Cycle* (issued May 2012), *Annual Improvements to IFRSs 2010–2012 Cycle* (issued December 2013), IFRS 15 *Revenue from Contracts with Customers* (issued May 2014), IFRS 16 *Leases* (issued January 2016) and *Amendments to References to the Conceptual Framework in IFRS Standards* (issued March 2018).

IAS 16

CONTENTS

*from paragraph***INTERNATIONAL ACCOUNTING STANDARD 16
PROPERTY, PLANT AND EQUIPMENT**

OBJECTIVE	1
SCOPE	2
DEFINITIONS	6
RECOGNITION	7
Initial costs	11
Subsequent costs	12
MEASUREMENT AT RECOGNITION	15
Elements of cost	16
Measurement of cost	23
MEASUREMENT AFTER RECOGNITION	29
Cost model	30
Revaluation model	31
Depreciation	43
Impairment	63
Compensation for impairment	65
DERECOGNITION	67
DISCLOSURE	73
TRANSITIONAL PROVISIONS	80
EFFECTIVE DATE	81
WITHDRAWAL OF OTHER PRONOUNCEMENTS	82
APPENDIX	
Amendments to other pronouncements	
APPROVAL BY THE BOARD OF IAS 16 ISSUED IN DECEMBER 2003	
APPROVAL BY THE BOARD OF <i>CLARIFICATION OF ACCEPTABLE METHODS OF DEPRECIATION AND AMORTISATION</i> (AMENDMENTS TO IAS 16 AND IAS 38) ISSUED IN MAY 2014	
APPROVAL BY THE BOARD OF <i>AGRICULTURE: BEARER PLANTS</i> (AMENDMENTS TO IAS 16 AND IAS 41) ISSUED IN JUNE 2014	

FOR THE BASIS FOR CONCLUSIONS, SEE PART C OF THIS EDITION

BASIS FOR CONCLUSIONS

DISSENTING OPINIONS

International Accounting Standard 16 *Property, Plant and Equipment* (IAS 16) is set out in paragraphs 1–83 and the Appendix. All the paragraphs have equal authority but retain the IASC format of the Standard when it was adopted by the IASB. IAS 16 should be read in the context of its objective and the Basis for Conclusions, the *Preface to IFRS Standards* and the *Conceptual Framework for Financial Reporting*. IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* provides a basis for selecting and applying accounting policies in the absence of explicit guidance.

IAS 16

International Accounting Standard 16

Property, Plant and Equipment

Objective

- 1 The objective of this Standard is to prescribe the accounting treatment for property, plant and equipment so that users of the financial statements can discern information about an entity's investment in its property, plant and equipment and the changes in such investment. The principal issues in accounting for property, plant and equipment are the recognition of the assets, the determination of their carrying amounts and the depreciation charges and impairment losses to be recognised in relation to them.

Scope

- 2 This Standard shall be applied in accounting for property, plant and equipment except when another Standard requires or permits a different accounting treatment.
- 3 This Standard does not apply to:
- (a) property, plant and equipment classified as held for sale in accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*.
 - (b) biological assets related to agricultural activity other than bearer plants (see IAS 41 *Agriculture*). This Standard applies to bearer plants but it does not apply to the produce on bearer plants.
 - (c) the recognition and measurement of exploration and evaluation assets (see IFRS 6 *Exploration for and Evaluation of Mineral Resources*).
 - (d) mineral rights and mineral reserves such as oil, natural gas and similar non-regenerative resources.
- However, this Standard applies to property, plant and equipment used to develop or maintain the assets described in (b)–(d).
- 4 [Deleted]
- 5 An entity using the cost model for investment property in accordance with IAS 40 *Investment Property* shall use the cost model in this Standard for owned investment property.

Definitions

- 6 The following terms are used in this Standard with the meanings specified:
- A bearer plant is a living plant that:*
- (a) is used in the production or supply of agricultural produce;
 - (b) is expected to bear produce for more than one period; and

- (c) has a remote likelihood of being sold as agricultural produce, except for incidental scrap sales.

(Paragraphs 5A–5B of IAS 41 elaborate on this definition of a bearer plant.)

Carrying amount is the amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses.

Cost is the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction or, where applicable, the amount attributed to that asset when initially recognised in accordance with the specific requirements of other IFRSs, eg IFRS 2 *Share-based Payment*.

Depreciable amount is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.

Entity-specific value is the present value of the cash flows an entity expects to arise from the continuing use of an asset and from its disposal at the end of its useful life or expects to incur when settling a liability.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. (See IFRS 13 *Fair Value Measurement*.)

An *impairment loss* is the amount by which the carrying amount of an asset exceeds its recoverable amount.

Property, plant and equipment are tangible items that:

- (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
- (b) are expected to be used during more than one period.

Recoverable amount is the higher of an asset's fair value less costs to sell and its value in use.

The *residual value* of an asset is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

Useful life is:

- (a) the period over which an asset is expected to be available for use by an entity; or
- (b) the number of production or similar units expected to be obtained from the asset by an entity.

IAS 16

Recognition

- 7 The cost of an item of property, plant and equipment shall be recognised as an asset if, and only if:
- (a) it is probable that future economic benefits associated with the item will flow to the entity; and
 - (b) the cost of the item can be measured reliably.
- 8 Items such as spare parts, stand-by equipment and servicing equipment are recognised in accordance with this IFRS when they meet the definition of property, plant and equipment. Otherwise, such items are classified as inventory.
- 9 This Standard does not prescribe the unit of measure for recognition, ie what constitutes an item of property, plant and equipment. Thus, judgement is required in applying the recognition criteria to an entity's specific circumstances. It may be appropriate to aggregate individually insignificant items, such as moulds, tools and dies, and to apply the criteria to the aggregate value.
- 10 An entity evaluates under this recognition principle all its property, plant and equipment costs at the time they are incurred. These costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. The cost of an item of property, plant and equipment may include costs incurred relating to leases of assets that are used to construct, add to, replace part of or service an item of property, plant and equipment, such as depreciation of right-of-use assets.

Initial costs

- 11 Items of property, plant and equipment may be acquired for safety or environmental reasons. The acquisition of such property, plant and equipment, although not directly increasing the future economic benefits of any particular existing item of property, plant and equipment, may be necessary for an entity to obtain the future economic benefits from its other assets. Such items of property, plant and equipment qualify for recognition as assets because they enable an entity to derive future economic benefits from related assets in excess of what could be derived had those items not been acquired. For example, a chemical manufacturer may install new chemical handling processes to comply with environmental requirements for the production and storage of dangerous chemicals; related plant enhancements are recognised as an asset because without them the entity is unable to manufacture and sell chemicals. However, the resulting carrying amount of such an asset and related assets is reviewed for impairment in accordance with IAS 36 *Impairment of Assets*.

Subsequent costs

- 12 Under the recognition principle in paragraph 7, an entity does not recognise in the carrying amount of an item of property, plant and equipment the costs of the day-to-day servicing of the item. Rather, these costs are recognised in profit or loss as incurred. Costs of day-to-day servicing are primarily the costs of labour and consumables, and may include the cost of small parts. The purpose of these expenditures is often described as for the ‘repairs and maintenance’ of the item of property, plant and equipment.
- 13 Parts of some items of property, plant and equipment may require replacement at regular intervals. For example, a furnace may require relining after a specified number of hours of use, or aircraft interiors such as seats and galleys may require replacement several times during the life of the airframe. Items of property, plant and equipment may also be acquired to make a less frequently recurring replacement, such as replacing the interior walls of a building, or to make a nonrecurring replacement. Under the recognition principle in paragraph 7, an entity recognises in the carrying amount of an item of property, plant and equipment the cost of replacing part of such an item when that cost is incurred if the recognition criteria are met. The carrying amount of those parts that are replaced is derecognised in accordance with the derecognition provisions of this Standard (see paragraphs 67–72).
- 14 A condition of continuing to operate an item of property, plant and equipment (for example, an aircraft) may be performing regular major inspections for faults regardless of whether parts of the item are replaced. When each major inspection is performed, its cost is recognised in the carrying amount of the item of property, plant and equipment as a replacement if the recognition criteria are satisfied. Any remaining carrying amount of the cost of the previous inspection (as distinct from physical parts) is derecognised. This occurs regardless of whether the cost of the previous inspection was identified in the transaction in which the item was acquired or constructed. If necessary, the estimated cost of a future similar inspection may be used as an indication of what the cost of the existing inspection component was when the item was acquired or constructed.

Measurement at recognition

- 15 An item of property, plant and equipment that qualifies for recognition as an asset shall be measured at its cost.

Elements of cost

- 16 The cost of an item of property, plant and equipment comprises:
- (a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates.
 - (b) any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.

IAS 16

- (c) the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, the obligation for which an entity incurs either when the item is acquired or as a consequence of having used the item during a particular period for purposes other than to produce inventories during that period.

17 Examples of directly attributable costs are:

- (a) costs of employee benefits (as defined in IAS 19 *Employee Benefits*) arising directly from the construction or acquisition of the item of property, plant and equipment;
- (b) costs of site preparation;
- (c) initial delivery and handling costs;
- (d) installation and assembly costs;
- (e) costs of testing whether the asset is functioning properly, after deducting the net proceeds from selling any items produced while bringing the asset to that location and condition (such as samples produced when testing equipment); and
- (f) professional fees.

18 An entity applies IAS 2 *Inventories* to the costs of obligations for dismantling, removing and restoring the site on which an item is located that are incurred during a particular period as a consequence of having used the item to produce inventories during that period. The obligations for costs accounted for in accordance with IAS 2 or IAS 16 are recognised and measured in accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*.

19 Examples of costs that are not costs of an item of property, plant and equipment are:

- (a) costs of opening a new facility;
- (b) costs of introducing a new product or service (including costs of advertising and promotional activities);
- (c) costs of conducting business in a new location or with a new class of customer (including costs of staff training); and
- (d) administration and other general overhead costs.

20 Recognition of costs in the carrying amount of an item of property, plant and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management. Therefore, costs incurred in using or redeploying an item are not included in the carrying amount of that item. For example, the following costs are not included in the carrying amount of an item of property, plant and equipment:

- (a) costs incurred while an item capable of operating in the manner intended by management has yet to be brought into use or is operated at less than full capacity;

- (b) initial operating losses, such as those incurred while demand for the item's output builds up; and
- (c) costs of relocating or reorganising part or all of an entity's operations.

21 Some operations occur in connection with the construction or development of an item of property, plant and equipment, but are not necessary to bring the item to the location and condition necessary for it to be capable of operating in the manner intended by management. These incidental operations may occur before or during the construction or development activities. For example, income may be earned through using a building site as a car park until construction starts. Because incidental operations are not necessary to bring an item to the location and condition necessary for it to be capable of operating in the manner intended by management, the income and related expenses of incidental operations are recognised in profit or loss and included in their respective classifications of income and expense.

22 The cost of a self-constructed asset is determined using the same principles as for an acquired asset. If an entity makes similar assets for sale in the normal course of business, the cost of the asset is usually the same as the cost of constructing an asset for sale (see IAS 2). Therefore, any internal profits are eliminated in arriving at such costs. Similarly, the cost of abnormal amounts of wasted material, labour, or other resources incurred in self-constructing an asset is not included in the cost of the asset. IAS 23 *Borrowing Costs* establishes criteria for the recognition of interest as a component of the carrying amount of a self-constructed item of property, plant and equipment.

22A Bearer plants are accounted for in the same way as self-constructed items of property, plant and equipment before they are in the location and condition necessary to be capable of operating in the manner intended by management. Consequently, references to 'construction' in this Standard should be read as covering activities that are necessary to cultivate the bearer plants before they are in the location and condition necessary to be capable of operating in the manner intended by management.

Measurement of cost

23 The cost of an item of property, plant and equipment is the cash price equivalent at the recognition date. If payment is deferred beyond normal credit terms, the difference between the cash price equivalent and the total payment is recognised as interest over the period of credit unless such interest is capitalised in accordance with IAS 23.

24 One or more items of property, plant and equipment may be acquired in exchange for a non-monetary asset or assets, or a combination of monetary and non-monetary assets. The following discussion refers simply to an exchange of one non-monetary asset for another, but it also applies to all exchanges described in the preceding sentence. The cost of such an item of property, plant and equipment is measured at fair value unless (a) the exchange transaction lacks commercial substance or (b) the fair value of neither the asset received nor the asset given up is reliably measurable. The acquired item is measured in this way even if an entity cannot immediately

IAS 16

derecognise the asset given up. If the acquired item is not measured at fair value, its cost is measured at the carrying amount of the asset given up.

25 An entity determines whether an exchange transaction has commercial substance by considering the extent to which its future cash flows are expected to change as a result of the transaction. An exchange transaction has commercial substance if:

- (a) the configuration (risk, timing and amount) of the cash flows of the asset received differs from the configuration of the cash flows of the asset transferred; or
- (b) the entity-specific value of the portion of the entity's operations affected by the transaction changes as a result of the exchange; and
- (c) the difference in (a) or (b) is significant relative to the fair value of the assets exchanged.

For the purpose of determining whether an exchange transaction has commercial substance, the entity-specific value of the portion of the entity's operations affected by the transaction shall reflect post-tax cash flows. The result of these analyses may be clear without an entity having to perform detailed calculations.

26 The fair value of an asset is reliably measurable if (a) the variability in the range of reasonable fair value measurements is not significant for that asset or (b) the probabilities of the various estimates within the range can be reasonably assessed and used when measuring fair value. If an entity is able to measure reliably the fair value of either the asset received or the asset given up, then the fair value of the asset given up is used to measure the cost of the asset received unless the fair value of the asset received is more clearly evident.

27 [Deleted]

28 The carrying amount of an item of property, plant and equipment may be reduced by government grants in accordance with IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance*.

Measurement after recognition

29 **An entity shall choose either the cost model in paragraph 30 or the revaluation model in paragraph 31 as its accounting policy and shall apply that policy to an entire class of property, plant and equipment.**

29A Some entities operate, either internally or externally, an investment fund that provides investors with benefits determined by units in the fund. Similarly, some entities issue groups of insurance contracts with direct participation features and hold the underlying items. Some such funds or underlying items include owner-occupied property. The entity applies IAS 16 to owner-occupied properties that are included in such a fund or are underlying items. Despite paragraph 29, the entity may elect to measure such properties using the fair value model in accordance with IAS 40. For the purposes of this election,

insurance contracts include investment contracts with discretionary participation features. (See IFRS 17 *Insurance Contracts* for terms used in this paragraph that are defined in that Standard).

- 29B An entity shall treat owner-occupied property measured using the investment property fair value model applying paragraph 29A as a separate class of property, plant and equipment.

Cost model

- 30 After recognition as an asset, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses .

Revaluation model

- 31 After recognition as an asset, an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

- 32–33 [Deleted]

- 34 The frequency of revaluations depends upon the changes in fair values of the items of property, plant and equipment being revalued. When the fair value of a revalued asset differs materially from its carrying amount, a further revaluation is required. Some items of property, plant and equipment experience significant and volatile changes in fair value, thus necessitating annual revaluation. Such frequent revaluations are unnecessary for items of property, plant and equipment with only insignificant changes in fair value. Instead, it may be necessary to revalue the item only every three or five years.

- 35 When an item of property, plant and equipment is revalued, the carrying amount of that asset is adjusted to the revalued amount. At the date of the revaluation, the asset is treated in one of the following ways:

- (a) the gross carrying amount is adjusted in a manner that is consistent with the revaluation of the carrying amount of the asset. For example, the gross carrying amount may be restated by reference to observable market data or it may be restated proportionately to the change in the carrying amount. The accumulated depreciation at the date of the revaluation is adjusted to equal the difference between the gross carrying amount and the carrying amount of the asset after taking into account accumulated impairment losses; or
- (b) the accumulated depreciation is eliminated against the gross carrying amount of the asset.

IAS 16

The amount of the adjustment of accumulated depreciation forms part of the increase or decrease in carrying amount that is accounted for in accordance with paragraphs 39 and 40.

- 36 **If an item of property, plant and equipment is revalued, the entire class of property, plant and equipment to which that asset belongs shall be revalued.**
- 37 A class of property, plant and equipment is a grouping of assets of a similar nature and use in an entity's operations. The following are examples of separate classes:
- (a) land;
 - (b) land and buildings;
 - (c) machinery;
 - (d) ships;
 - (e) aircraft;
 - (f) motor vehicles;
 - (g) furniture and fixtures;
 - (h) office equipment; and
 - (i) bearer plants.
- 38 The items within a class of property, plant and equipment are revalued simultaneously to avoid selective revaluation of assets and the reporting of amounts in the financial statements that are a mixture of costs and values as at different dates. However, a class of assets may be revalued on a rolling basis provided revaluation of the class of assets is completed within a short period and provided the revaluations are kept up to date.
- 39 **If an asset's carrying amount is increased as a result of a revaluation, the increase shall be recognised in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss.**
- 40 **If an asset's carrying amount is decreased as a result of a revaluation, the decrease shall be recognised in profit or loss. However, the decrease shall be recognised in other comprehensive income to the extent of any credit balance existing in the revaluation surplus in respect of that asset. The decrease recognised in other comprehensive income reduces the amount accumulated in equity under the heading of revaluation surplus.**
- 41 The revaluation surplus included in equity in respect of an item of property, plant and equipment may be transferred directly to retained earnings when the asset is derecognised. This may involve transferring the whole of the surplus when the asset is retired or disposed of. However, some of the surplus may be transferred as the asset is used by an entity. In such a case, the

A1094

© IFRS Foundation

amount of the surplus transferred would be the difference between depreciation based on the revalued carrying amount of the asset and depreciation based on the asset's original cost. Transfers from revaluation surplus to retained earnings are not made through profit or loss.

- 42 The effects of taxes on income, if any, resulting from the revaluation of property, plant and equipment are recognised and disclosed in accordance with IAS 12 *Income Taxes*.

Depreciation

- 43 **Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately.**
- 44 An entity allocates the amount initially recognised in respect of an item of property, plant and equipment to its significant parts and depreciates separately each such part. For example, it may be appropriate to depreciate separately the airframe and engines of an aircraft. Similarly, if an entity acquires property, plant and equipment subject to an operating lease in which it is the lessor, it may be appropriate to depreciate separately amounts reflected in the cost of that item that are attributable to favourable or unfavourable lease terms relative to market terms.
- 45 A significant part of an item of property, plant and equipment may have a useful life and a depreciation method that are the same as the useful life and the depreciation method of another significant part of that same item. Such parts may be grouped in determining the depreciation charge.
- 46 To the extent that an entity depreciates separately some parts of an item of property, plant and equipment, it also depreciates separately the remainder of the item. The remainder consists of the parts of the item that are individually not significant. If an entity has varying expectations for these parts, approximation techniques may be necessary to depreciate the remainder in a manner that faithfully represents the consumption pattern and/or useful life of its parts.
- 47 An entity may choose to depreciate separately the parts of an item that do not have a cost that is significant in relation to the total cost of the item.
- 48 **The depreciation charge for each period shall be recognised in profit or loss unless it is included in the carrying amount of another asset.**
- 49 The depreciation charge for a period is usually recognised in profit or loss. However, sometimes, the future economic benefits embodied in an asset are absorbed in producing other assets. In this case, the depreciation charge constitutes part of the cost of the other asset and is included in its carrying amount. For example, the depreciation of manufacturing plant and equipment is included in the costs of conversion of inventories (see IAS 2). Similarly, depreciation of property, plant and equipment used for development activities may be included in the cost of an intangible asset recognised in accordance with IAS 38 *Intangible Assets*.

IAS 16

Depreciable amount and depreciation period

- 50 The depreciable amount of an asset shall be allocated on a systematic basis over its useful life.
- 51 The residual value and the useful life of an asset shall be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s) shall be accounted for as a change in an accounting estimate in accordance with IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*.
- 52 Depreciation is recognised even if the fair value of the asset exceeds its carrying amount, as long as the asset's residual value does not exceed its carrying amount. Repair and maintenance of an asset do not negate the need to depreciate it.
- 53 The depreciable amount of an asset is determined after deducting its residual value. In practice, the residual value of an asset is often insignificant and therefore immaterial in the calculation of the depreciable amount.
- 54 The residual value of an asset may increase to an amount equal to or greater than the asset's carrying amount. If it does, the asset's depreciation charge is zero unless and until its residual value subsequently decreases to an amount below the asset's carrying amount.
- 55 Depreciation of an asset begins when it is available for use, ie when it is in the location and condition necessary for it to be capable of operating in the manner intended by management. Depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale (or included in a disposal group that is classified as held for sale) in accordance with IFRS 5 and the date that the asset is derecognised. Therefore, depreciation does not cease when the asset becomes idle or is retired from active use unless the asset is fully depreciated. However, under usage methods of depreciation the depreciation charge can be zero while there is no production.
- 56 The future economic benefits embodied in an asset are consumed by an entity principally through its use. However, other factors, such as technical or commercial obsolescence and wear and tear while an asset remains idle, often result in the diminution of the economic benefits that might have been obtained from the asset. Consequently, all the following factors are considered in determining the useful life of an asset:
- (a) expected usage of the asset. Usage is assessed by reference to the asset's expected capacity or physical output.
 - (b) expected physical wear and tear, which depends on operational factors such as the number of shifts for which the asset is to be used and the repair and maintenance programme, and the care and maintenance of the asset while idle.
 - (c) technical or commercial obsolescence arising from changes or improvements in production, or from a change in the market demand for the product or service output of the asset. Expected future reductions in the selling price of an item that was produced using an

A1096

© IFRS Foundation

asset could indicate the expectation of technical or commercial obsolescence of the asset, which, in turn, might reflect a reduction of the future economic benefits embodied in the asset.

- (d) legal or similar limits on the use of the asset, such as the expiry dates of related leases.

57 The useful life of an asset is defined in terms of the asset's expected utility to the entity. The asset management policy of the entity may involve the disposal of assets after a specified time or after consumption of a specified proportion of the future economic benefits embodied in the asset. Therefore, the useful life of an asset may be shorter than its economic life. The estimation of the useful life of the asset is a matter of judgement based on the experience of the entity with similar assets.

58 Land and buildings are separable assets and are accounted for separately, even when they are acquired together. With some exceptions, such as quarries and sites used for landfill, land has an unlimited useful life and therefore is not depreciated. Buildings have a limited useful life and therefore are depreciable assets. An increase in the value of the land on which a building stands does not affect the determination of the depreciable amount of the building.

59 If the cost of land includes the costs of site dismantlement, removal and restoration, that portion of the land asset is depreciated over the period of benefits obtained by incurring those costs. In some cases, the land itself may have a limited useful life, in which case it is depreciated in a manner that reflects the benefits to be derived from it.

Depreciation method

60 The depreciation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

61 The depreciation method applied to an asset shall be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method shall be changed to reflect the changed pattern. Such a change shall be accounted for as a change in an accounting estimate in accordance with IAS 8.

62 A variety of depreciation methods can be used to allocate the depreciable amount of an asset on a systematic basis over its useful life. These methods include the straight-line method, the diminishing balance method and the units of production method. Straight-line depreciation results in a constant charge over the useful life if the asset's residual value does not change. The diminishing balance method results in a decreasing charge over the useful life. The units of production method results in a charge based on the expected use or output. The entity selects the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. That method is applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits.

IAS 16

- 62A A depreciation method that is based on revenue that is generated by an activity that includes the use of an asset is not appropriate. The revenue generated by an activity that includes the use of an asset generally reflects factors other than the consumption of the economic benefits of the asset. For example, revenue is affected by other inputs and processes, selling activities and changes in sales volumes and prices. The price component of revenue may be affected by inflation, which has no bearing upon the way in which an asset is consumed.

Impairment

- 63 To determine whether an item of property, plant and equipment is impaired, an entity applies IAS 36 *Impairment of Assets*. That Standard explains how an entity reviews the carrying amount of its assets, how it determines the recoverable amount of an asset, and when it recognises, or reverses the recognition of, an impairment loss.

64 [Deleted]

Compensation for impairment

- 65 Compensation from third parties for items of property, plant and equipment that were impaired, lost or given up shall be included in profit or loss when the compensation becomes receivable.

66 Impairments or losses of items of property, plant and equipment, related claims for or payments of compensation from third parties and any subsequent purchase or construction of replacement assets are separate economic events and are accounted for separately as follows:

- (a) impairments of items of property, plant and equipment are recognised in accordance with IAS 36;
- (b) derecognition of items of property, plant and equipment retired or disposed of is determined in accordance with this Standard;
- (c) compensation from third parties for items of property, plant and equipment that were impaired, lost or given up is included in determining profit or loss when it becomes receivable; and
- (d) the cost of items of property, plant and equipment restored, purchased or constructed as replacements is determined in accordance with this Standard.

Derecognition

- 67 The carrying amount of an item of property, plant and equipment shall be derecognised:
- (a) on disposal; or
 - (b) when no future economic benefits are expected from its use or disposal.

A1098

© IFRS Foundation

- 68 **The gain or loss arising from the derecognition of an item of property, plant and equipment shall be included in profit or loss when the item is derecognised (unless IFRS 16 *Leases* requires otherwise on a sale and leaseback). Gains shall not be classified as revenue.**
- 68A However, an entity that, in the course of its ordinary activities, routinely sells items of property, plant and equipment that it has held for rental to others shall transfer such assets to inventories at their carrying amount when they cease to be rented and become held for sale. The proceeds from the sale of such assets shall be recognised as revenue in accordance with IFRS 15 *Revenue from Contracts with Customers*. IFRS 5 does not apply when assets that are held for sale in the ordinary course of business are transferred to inventories.
- 69 The disposal of an item of property, plant and equipment may occur in a variety of ways (eg by sale, by entering into a finance lease or by donation). The date of disposal of an item of property, plant and equipment is the date the recipient obtains control of that item in accordance with the requirements for determining when a performance obligation is satisfied in IFRS 15. IFRS 16 applies to disposal by a sale and leaseback.
- 70 If, under the recognition principle in paragraph 7, an entity recognises in the carrying amount of an item of property, plant and equipment the cost of a replacement for part of the item, then it derecognises the carrying amount of the replaced part regardless of whether the replaced part had been depreciated separately. If it is not practicable for an entity to determine the carrying amount of the replaced part, it may use the cost of the replacement as an indication of what the cost of the replaced part was at the time it was acquired or constructed.
- 71 **The gain or loss arising from the derecognition of an item of property, plant and equipment shall be determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.**
- 72 The amount of consideration to be included in the gain or loss arising from the derecognition of an item of property, plant and equipment is determined in accordance with the requirements for determining the transaction price in paragraphs 47–72 of IFRS 15. Subsequent changes to the estimated amount of the consideration included in the gain or loss shall be accounted for in accordance with the requirements for changes in the transaction price in IFRS 15.

Disclosure

- 73 **The financial statements shall disclose, for each class of property, plant and equipment:**
- (a) the measurement bases used for determining the gross carrying amount;
 - (b) the depreciation methods used;
 - (c) the useful lives or the depreciation rates used;

IAS 16

- (d) the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period; and
- (e) a reconciliation of the carrying amount at the beginning and end of the period showing:
 - (i) additions;
 - (ii) assets classified as held for sale or included in a disposal group classified as held for sale in accordance with IFRS 5 and other disposals;
 - (iii) acquisitions through business combinations;
 - (iv) increases or decreases resulting from revaluations under paragraphs 31, 39 and 40 and from impairment losses recognised or reversed in other comprehensive income in accordance with IAS 36;
 - (v) impairment losses recognised in profit or loss in accordance with IAS 36;
 - (vi) impairment losses reversed in profit or loss in accordance with IAS 36;
 - (vii) depreciation;
 - (viii) the net exchange differences arising on the translation of the financial statements from the functional currency into a different presentation currency, including the translation of a foreign operation into the presentation currency of the reporting entity; and
 - (ix) other changes.

74 The financial statements shall also disclose:

- (a) the existence and amounts of restrictions on title, and property, plant and equipment pledged as security for liabilities;
- (b) the amount of expenditures recognised in the carrying amount of an item of property, plant and equipment in the course of its construction;
- (c) the amount of contractual commitments for the acquisition of property, plant and equipment; and
- (d) if it is not disclosed separately in the statement of comprehensive income, the amount of compensation from third parties for items of property, plant and equipment that were impaired, lost or given up that is included in profit or loss.

75 Selection of the depreciation method and estimation of the useful life of assets are matters of judgement. Therefore, disclosure of the methods adopted and the estimated useful lives or depreciation rates provides users of financial statements with information that allows them to review the policies selected

A1100

© IFRS Foundation

by management and enables comparisons to be made with other entities. For similar reasons, it is necessary to disclose:

- (a) depreciation, whether recognised in profit or loss or as a part of the cost of other assets, during a period; and
- (b) accumulated depreciation at the end of the period.

76 In accordance with IAS 8 an entity discloses the nature and effect of a change in an accounting estimate that has an effect in the current period or is expected to have an effect in subsequent periods. For property, plant and equipment, such disclosure may arise from changes in estimates with respect to:

- (a) residual values;
- (b) the estimated costs of dismantling, removing or restoring items of property, plant and equipment;
- (c) useful lives; and
- (d) depreciation methods.

77 **If items of property, plant and equipment are stated at revalued amounts, the following shall be disclosed in addition to the disclosures required by IFRS 13:**

- (a) **the effective date of the revaluation;**
- (b) **whether an independent valuer was involved;**
- (c)–(d) [deleted]
- (e) **for each revalued class of property, plant and equipment, the carrying amount that would have been recognised had the assets been carried under the cost model; and**
- (f) **the revaluation surplus, indicating the change for the period and any restrictions on the distribution of the balance to shareholders.**

78 In accordance with IAS 36 an entity discloses information on impaired property, plant and equipment in addition to the information required by paragraph 73(e)(iv)–(vi).

79 Users of financial statements may also find the following information relevant to their needs:

- (a) the carrying amount of temporarily idle property, plant and equipment;
- (b) the gross carrying amount of any fully depreciated property, plant and equipment that is still in use;
- (c) the carrying amount of property, plant and equipment retired from active use and not classified as held for sale in accordance with IFRS 5; and

IAS 16

- (d) when the cost model is used, the fair value of property, plant and equipment when this is materially different from the carrying amount.

Therefore, entities are encouraged to disclose these amounts.

Transitional provisions

- 80 The requirements of paragraphs 24–26 regarding the initial measurement of an item of property, plant and equipment acquired in an exchange of assets transaction shall be applied prospectively only to future transactions.
- 80A Paragraph 35 was amended by *Annual Improvements to IFRSs 2010–2012 Cycle*. An entity shall apply that amendment to all revaluations recognised in annual periods beginning on or after the date of initial application of that amendment and in the immediately preceding annual period. An entity may also present adjusted comparative information for any earlier periods presented, but it is not required to do so. If an entity presents unadjusted comparative information for any earlier periods, it shall clearly identify the information that has not been adjusted, state that it has been presented on a different basis and explain that basis.
- 80B In the reporting period when *Agriculture: Bearer Plants* (Amendments to IAS 16 and IAS 41) is first applied an entity need not disclose the quantitative information required by paragraph 28(f) of IAS 8 for the current period. However, an entity shall present the quantitative information required by paragraph 28(f) of IAS 8 for each prior period presented.
- 80C An entity may elect to measure an item of bearer plants at its fair value at the beginning of the earliest period presented in the financial statements for the reporting period in which the entity first applies *Agriculture: Bearer Plants* (Amendments to IAS 16 and IAS 41) and use that fair value as its deemed cost at that date. Any difference between the previous carrying amount and fair value shall be recognised in opening retained earnings at the beginning of the earliest period presented.

Effective date

- 81 An entity shall apply this Standard for annual periods beginning on or after 1 January 2005. Earlier application is encouraged. If an entity applies this Standard for a period beginning before 1 January 2005, it shall disclose that fact.
- 81A An entity shall apply the amendments in paragraph 3 for annual periods beginning on or after 1 January 2006. If an entity applies IFRS 6 for an earlier period, those amendments shall be applied for that earlier period.
- 81B IAS 1 *Presentation of Financial Statements* (as revised in 2007) amended the terminology used throughout IFRSs. In addition it amended paragraphs 39, 40 and 73(e)(iv). An entity shall apply those amendments for annual periods beginning on or after 1 January 2009. If an entity applies IAS 1 (revised 2007) for an earlier period, the amendments shall be applied for that earlier period.

IAS 16

- 81C IFRS 3 *Business Combinations* (as revised in 2008) amended paragraph 44. An entity shall apply that amendment for annual periods beginning on or after 1 July 2009. If an entity applies IFRS 3 (revised 2008) for an earlier period, the amendment shall also be applied for that earlier period.
- 81D Paragraphs 6 and 69 were amended and paragraph 68A was added by *Improvements to IFRSs* issued in May 2008. An entity shall apply those amendments for annual periods beginning on or after 1 January 2009. Earlier application is permitted. If an entity applies the amendments for an earlier period it shall disclose that fact and at the same time apply the related amendments to IAS 7 *Statement of Cash Flows*.
- 81E Paragraph 5 was amended by *Improvements to IFRSs* issued in May 2008. An entity shall apply that amendment prospectively for annual periods beginning on or after 1 January 2009. Earlier application is permitted if an entity also applies the amendments to paragraphs 8, 9, 22, 48, 53, 53A, 53B, 54, 57 and 85B of IAS 40 at the same time. If an entity applies the amendment for an earlier period it shall disclose that fact.
- 81F IFRS 13, issued in May 2011, amended the definition of fair value in paragraph 6, amended paragraphs 26, 35 and 77 and deleted paragraphs 32 and 33. An entity shall apply those amendments when it applies IFRS 13.
- 81G *Annual Improvements 2009–2011 Cycle*, issued in May 2012, amended paragraph 8. An entity shall apply that amendment retrospectively in accordance with IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* for annual periods beginning on or after 1 January 2013. Earlier application is permitted. If an entity applies that amendment for an earlier period it shall disclose that fact.
- 81H *Annual Improvements to IFRSs 2010–2012 Cycle*, issued in December 2013, amended paragraph 35 and added paragraph 80A. An entity shall apply that amendment for annual periods beginning on or after 1 July 2014. Earlier application is permitted. If an entity applies that amendment for an earlier period it shall disclose that fact.
- 81I *Clarification of Acceptable Methods of Depreciation and Amortisation* (Amendments to IAS 16 and IAS 38), issued in May 2014, amended paragraph 56 and added paragraph 62A. An entity shall apply those amendments prospectively for annual periods beginning on or after 1 January 2016. Earlier application is permitted. If an entity applies those amendments for an earlier period it shall disclose that fact.
- 81J IFRS 15 *Revenue from Contracts with Customers*, issued in May 2014, amended paragraphs 68A, 69 and 72. An entity shall apply those amendments when it applies IFRS 15.
- 81K *Agriculture: Bearer Plants* (Amendments to IAS 16 and IAS 41), issued in June 2014, amended paragraphs 3, 6 and 37 and added paragraphs 22A and 80B–80C. An entity shall apply those amendments for annual periods beginning on or after 1 January 2016. Earlier application is permitted. If an entity applies those amendments for an earlier period, it shall disclose that

IAS 16

fact. An entity shall apply those amendments retrospectively, in accordance with IAS 8, except as specified in paragraph 80C.

81L IFRS 16, issued in January 2016, deleted paragraphs 4 and 27 and amended paragraphs 5, 10, 44 and 68–69. An entity shall apply those amendments when it applies IFRS 16.

81M IFRS 17, issued in May 2017, added paragraphs 29A and 29B. An entity shall apply those amendments when it applies IFRS 17.

Withdrawal of other pronouncements

82 This Standard supersedes IAS 16 *Property, Plant and Equipment* (revised in 1998).

83 This Standard supersedes the following Interpretations:

- (a) SIC-6 *Costs of Modifying Existing Software*;
- (b) SIC-14 *Property, Plant and Equipment – Compensation for the Impairment or Loss of Items*; and
- (c) SIC-23 *Property, Plant and Equipment – Major Inspection or Overhaul Costs*.

Appendix
Amendments to other pronouncements

The amendments in this appendix shall be applied for annual periods beginning on or after 1 January 2005. If an entity applies this Standard for an earlier period, these amendments shall be applied for that earlier period.

* * * * *

The amendments contained in this appendix when this Standard was issued in 2003 have been incorporated into the relevant pronouncements published in this volume.

IAS 16

Approval by the Board of IAS 16 issued in December 2003

International Accounting Standard 16 *Property, Plant and Equipment* (as revised in 2003) was approved for issue by the fourteen members of the International Accounting Standards Board.

Sir David Tweedie	Chairman
Thomas E Jones	Vice-Chairman
Mary E Barth	
Hans-Georg Bruns	
Anthony T Cope	
Robert P Garnett	
Gilbert Gélard	
James J Leisenring	
Warren J McGregor	
Patricia L O'Malley	
Harry K Schmid	
John T Smith	
Geoffrey Whittington	
Tatsumi Yamada	

IAS 16

Approval by the Board of *Clarification of Acceptable Methods of Depreciation and Amortisation* (Amendments to IAS 16 and IAS 38) issued in May 2014

Clarification of Acceptable Methods of Depreciation and Amortisation was approved for issue by fifteen of the sixteen members of the International Accounting Standards Board. Ms Tokar dissented. Her dissenting opinion is set out after the Basis for Conclusions.

Hans Hoogervorst	Chairman
Ian Mackintosh	Vice-Chairman
Stephen Cooper	
Philippe Danjou	
Martin Edelmann	
Jan Engström	
Patrick Finnegan	
Amaro Luiz de Oliveira Gomes	
Gary Kabureck	
Suzanne Lloyd	
Patricia McConnell	
Takatsugu Ochi	
Darrel Scott	
Chungwoo Suh	
Mary Tokar	
Wei-Guo Zhang	

IAS 16

**Approval by the Board of *Agriculture: Bearer Plants*
(Amendments to IAS 16 and IAS 41) issued in June 2014**

Agriculture: Bearer Plants was approved for issue by fourteen of the sixteen members of the International Accounting Standards Board. Mr Finnegan and Ms McConnell voted against its publication. Their dissenting opinions are set out after the Basis for Conclusions.

Hans Hoogervorst	Chairman
Ian Mackintosh	Vice-Chairman
Stephen Cooper	
Philippe Danjou	
Martin Edelmann	
Jan Engström	
Patrick Finnegan	
Amaro Luiz de Oliveira Gomes	
Gary Kabureck	
Suzanne Lloyd	
Patricia McConnell	
Takatsugu Ochi	
Darrel Scott	
Chungwoo Suh	
Mary Tokar	
Wei-Guo Zhang	