David Ince. Information Request Number 2.

BC Hydro F2020 - F2021 Revenue Requirements Application

Topic: Performance Metrics

Reference: Appendix E: Service Plan. Page 17 of 36.

Reference: Ince IR 1.1.1

The response to Ince 1.1.1 states: "The BC Hydro system is highly complex and dynamic and it is difficult to make a direct link between the SAIDI, SAIFI and Generation Facility Forced Outage Factor performance metrics and investments in the system. These metrics are influenced by factors beyond capital and maintenance investment including operational procedures and uncontrollable events".

1. Please confirm that BC Hydro has established some degree of positive correlation between sustaining capital and operations expenditures, and all of the performance metrics indicated above.
2. Given the persistent constraints of capital and operations funding, please indicate if BC Hydro is attempting to further quantify and then implement a suitable level of sustaining capital and operations expenditures to realize an optimum balance of cost, reliability and customer satisfaction.
3. Has BC Hydro at a high level sponsored or accessed external studies that attempt to quantify the tradeoffs between cost, reliability and customer satisfaction?
4. Can BC Hydro provide access to the most relevant internal and external studies that attempt to quantify the relationship between performance metrics and system expenditures?

TOPIC: Water License Renewals

References:

CEC 1.74.3
Yukon Energy Water License renewal for Aishihik Hydro plant:

https://www.cbc.ca/news/canada/north/yukon-energy-champagne-aishihik-agreement-issues-1.4933076

https://yukonenergy.ca/energy-in-yukon/projects-facilities/aishihik-hydro-plant/water-licensing-renewal/

https://cafn.ca/aishihik-relicensing-2019/

5. Does BC Hydro consider it mandatory for it and/or the provincial government to obtain First Nations consent on any or all water license renewals?
6. Please specify the budgeted dollar allocations for the processes involved in these 3 license renewals? Are these fully specified and costed in Table 6-18 of the Application.

7. Please indicate the high-level steps and scheduled timeframe involved in the successful achievement of these renewals.
8. Has BC Hydro anticipated or in any way planned for a contingency condition where it is required to restore these facilities to original water course and/or original seasonal flow conditions?
9. Has BC Hydro determined an opportunity value for these 3 facilities, as in the long-term additional costs to BC Hydro (replacement energy, capacity and infrastructure costs) if these facilities have to be restored to either original water course, or original seasonal flow conditions?

Topic: Burrard Thermal

References: Ince 1.7.15 and BC Clean Energy Act Part 1 (2o).

10. Does BC Hydro interpret the provision in the Clean Energy Act requiring that the corporation: "to achieve British Columbia's energy objectives without the use of nuclear power" to prohibit the use of fusion-based nuclear power?

Topic: Load Forecast

11. Please indicate the effect on the load forecast of the July 18 2019 federal government announcement of funding for electric busses in BC.

12. Regarding the July 8 letter by Chevron to the provincial Environmental Assessment Office Re: Kitimat LNG electrification; please indicate the expected effect on BC Hydro's load forecast.

Topic: Cost of Energy and Independent Power Producers

Reference BCUC 1.15.1

Regarding the reference to: 'a time of delivery factor', please explain how BC Hydro adjusts compensation to IPPs for energy delivered based on a monthly and intra-day factor. Please provide the tables (2 x 12, or 3 x 12) price adjustment matrices used by BC Hydro by major IPP procurement process.

13. Please indicate the timeframe during which these tables were first issued, as in when the applicable standard-form IPP contracts were finalized. Have these price adjustment matrices been altered since they were first applied under the respective calls for which they were created?
14. When IPP renewals are undertaken, is the price adjustment matrix the same as when the IPP contract was signed, or updated with adjustments recognizing BC Hydro's more recent load and supply situation?
15. If BC Hydro were to develop a new price matrix (2 x 12 or 3 x 12 or other) for IPP energy delivery, based on its currently foreseeable energy balance, directionally, how would the table be altered?

16. Referencing the BCUC 1.32 IR series regarding the renewal of IPP contracts, why should BC Hydro pay more than strict variable operating costs to IPPs, post-contract expiry?

Topic: Risk Identification and Management

Reference: Ince 1.10.1

17. Please indicate where the key organizational, strategic, operational, etc. risks identified by BC Hydro fit on the generic BC Hydro Risk matrix. That is, please quantify the expected probably and severity of the prioritized risks for the corporation. Based on this assessment, what are the highest risks faced by BC Hydro?

18. How are these risks different for BC Hydro's ratepayers?

Topic: Seasonal Generation Constraints and System Operations

Reference: Ince 1.7.5 and Ince 1.7.8

19. Please confirm that BC Hydro has provided information related to minimum generation constraints for calendar year 2018, which indicates that incremental domestic energy brought into the BC Hydro system in the May-June time frame of that year would have resulted in increased spill or forced exports.
20. Please confirm that this period of the year typically features low prices for exported market power.
21. Does BC Hydro expect the current pattern of low market prices during the spring freshet to persist into the foreseeable future? At a high-level, please discuss the generation resource mix/makeup of the US Pacific Northwest, the timing of the freshet (and wind-based electricity supply) in this region, and how this translates into seasonal market prices.
22. Please confirm that as indicated in the response to Ince IR 1.7.8, the forced spill/export situation during the freshet period is forecast to be worse in the year 2020.
23. Please provide a chart in the same format, that in addition to the water situation in 2018 and forecast 2020, also provides the distribution for the 45 historical weather sequences used in BC Hydro's energy studies. That is, assuming BC Hydro's forecast demand requirements for each of calendar years 2018 and 2020, replicate the charts provided in the response to IRs 1.7.5 and 1.7.8 (feather duster chart format). Specifically, provide the charts in the IRs referenced above, for all water years 1973 to 2017 inclusive as a series of lines on a single chart for each of calendar years 2018 and 2020.
24. Given the above analysis, what percentage of incremental domestic energy is BC Hydro expected to be able to use for calendar years 2018 and 2020, by month, displayed in tabular format. That is, for each of the years 2018 and 2020, what percentage (based on inflows in water years 1973 to 2017 inclusive) of additional domestic energy would be absorbed/useful in the BC Hydro system, and what percentage would result in a mandatory spill or forced export. Monthly resolution please.

25. Please confirm that any incremental domestic energy brought into the BC Hydro system in December 2020 will have a close to 100% probability of being used/useful for domestic consumption (sales).
26. Please confirm that any incremental domestic energy brought into the BC Hydro system in June 2020 will have less than a 50% probability of being used/useful for domestic consumption (sales).

    Reference: BC Hydro 2019/20 – 2021/22 Service Plan:

    27. Regarding BC Hydro's 2/3 share of the Waneta hydro electricity facility: does the monthly contractual energy available to BC Hydro from this asset, differ substantially from the remaining 1/3 share?

    28. Please provide a monthly energy profile for the last 5 years indicating overall Waneta electricity production, BC Hydro's share, and remaining.

Topic: Operations Costs

Reference: Gjoshe 1.5.2:

29. Please explain why Power Smart and Integrated Planning groups are not integrated as a single business unit with the objective of providing the lowest cost overall electricity supply to the corporation? Would such a merger result in synergies in terms of cooperation/coordination during the energy and capacity planning processes?

    Reference: Province of British Columbia Mandate Letter dated February 21, 2019:

"The Government is adopting and implementing the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP), and the Calls to Action of the Truth and Reconciliation Commission (TRC), demonstrating our support for true and lasting reconciliation with Indigenous Peoples. All public sector organizations are expected to incorporate the UNDRIP and TRC within their specific mandate and context. Additionally, in May 2018, the Government released 10 Draft Principles to Guide the Province's Relationship with Indigenous peoples, which serves as a guide for all public sector organizations as we continue to build relationships with Indigenous communities based on respect and recognition of inherent rights;
While Government has already taken steps towards achieving our legislated carbon reduction targets, much remains to be done. Our new climate strategy will outline significant GHG reduction measures in 2019/20 while supporting our program and service objectives through economic growth powered by clean, renewable energy, supported by technological innovation. Please ensure your organization's operations align with Government's new climate plan;"

30. Please discuss the processes of costing and then acheiving the above Mandate Letter items.

Topic: PRES Project

References: Ince IR 1.6.14 and 2019/20 – 2021/22 Service Plan: Goal 4: Help Make Renewable, Clean Power British Columbia's Leading Energy Source

"Objective 4.1: BC Hydro will strengthen its legacy of renewable, clean power and conservation investments through its energy-efficiency and conservation programs, capacity reduction initiatives and support of low-carbon electrification.

The Clean Energy performance measure represents the minimum threshold generation output in accordance with the B.C. Government's requirement that at least 93 per cent of electricity generation in the province be from clean or renewable resources, as specified in the Clean Energy Act. While actual output of the non-clean resources in the system supports system reliability and can vary depending on market conditions and water inflows to our reservoirs, BC Hydro expects that the actual performance will remain close to 98 per cent."

31. Please confirm the reason why BC Hydro is not considering gas-fired generation solutions in the Peace Region to service incremental gas production demands, as stated in the response to Ince IR 1.6.14, is that this generation would result in the exceedance of the overall 93% clean target.
32. The table in the Service Plan indicates a forecast Clean Energy percentage of 97.6% for Fiscal 2019. Please indicate the actual percentage for Fiscal 2019. Has recent information, subsequent to the issuance of the Service Plan, changed the forecast for subsequent years?
33. Please confirm that the Clean Energy target percentage is still 93%. How much headroom (expressed as annual GWh) was there in actual Fiscal 2019, relative to the target percentage? How much headroom (in GWh) is there in the gap between the expected 98% and the target 93%? Assuming an 80% load factor, what does the energy headroom translate to in terms of average annual MW?

Topic: Miscellaneous

Reference: Ince IR 1.3.5

34. Please estimate the value of one foot of water at each of Williston and Kinbasket at an assumed value of power of $C30/MWh.

    Reference: Ince 1.4.1

35. Please confirm that approximately 160 residential accounts and a single transmission account (the Red Chris mine) are served by BC Hydro via. the Northwest Transmission Line/Iskut Extension.
36. Please provide a pie chart showing breakdown of electricity sales (residential, general, transmission) by BC Hydro to customers via NTL/Iskut Extension for the most recent actual year available.

Reference: Ince 1.13.3

37. Market liquidity: please confirm that it can be assumed that BC Hydro (for a price) could purchase firm energy from the Pacific Northwest (through Powerex) backed by firm transmission for a period of 1, 5 or 10 years.
38. Please indicate the maximum rate of imports (MW) above which this could present difficulties, either due to market liquidity constraints, counterparty credit issues, or transmission access.
39. Is it reasonable to assume that BC Hydro could import 100 MW of firm power from the Pacific Northwest for a 5-year period year-round (target: 8760 hours per year)? Is it reasonable to assume that BC Hydro could import the same quantity during the November to April timeframe (only) for 5 years?

Reference: Ince IR 1.8.41 Load Forecast Section 3.3.4.1, Application Section 7.5 and Table 7-9

Regarding the Mining customer payment plan regulatory account, as stated in the Application section 7.5.6: "[The] Mining Customer Payment Plan Regulatory Account – BC Hydro will request a recovery mechanism, if necessary, upon completion of the five year program, which commenced in March 2016. This account currently has a zero balance;"

40. Please explain if this account still has a zero balance. Please indicate the current and reasonably foreseeable (market forwards pricing) coal and copper market prices.