Hydro Québec
TransÉnergie

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Transmission tariff design

Présentation du Dr Ren Orans dans le cadre du Panel 4 concernant la pièce HQT-4, Document 3 et pièces complémentaires

- **R-3549-2004 – Phase 2**

1. Scope of My Direct Testimony

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1. Summary of Findings

1. **HQT's existing and proposed proforma tariff continues to fit Québec's market environment.**
2. **HQT's proposed design is consistent with the tariffs used in other jurisdictions that do not have Independent System Operators.**
3. **HQT's proposed allocation of revenues between point to point and network/native load services continues to be fair and reasonable.**
4. **HQT's proposed rates for short-term point to point service balance the competing objectives of:**
    1. Promoting efficient utilization of existing assets
    2. Assuring that all users make a fair contribution to fixed costs
5. **HQT's reductions in point to point revenues and its displacement of long with shorter term service are consistent with industry-wide trends.**
6. **In spite of decreases in Point to Point usage, growth in Native Load use has completely offset the need to increase rates.**

2. Transmission Tariff Design Choices

- **There are two Basic Tariff Design Choices:**
  - Pool Designs, like those offered in Ontario, Alberta, New York or New England, have the primary goal of developing competitve generation markets and typically have geographically differentiated rates that can vary from hour to hour.
  - Open Access Designs, like the tariffs used by HQT, BCTC, New Brunswick, SASKPOWER, or Manitoba, where the main goal of the tariff is to offer a simple postage stamp tariff that promotes comparable transmission access.

2. Transmission Tariff Design Choices

- **The Open Access Design continues to meet the following reasonable rate design Standards**
  - The tariff prices transmission service at average costs designed to collect HQT's authorized revenue requirements.
  - Both the rates and tariff language are relatively easy to implement and well understood because they follow FERC's proforma design. This facilitates ease of use.
  - The terms and conditions of the proforma tariff promote comparable access to all eligible users.
  - The tariff is equitable because it allocates fixed costs among all long term transmission users according to their relative usage of the system.
  - The proposed rates offer a reasonable balance between the need to make efficient use of the transmission system during low transmission value periods and the need to collect a fair share of fixed costs from all users.
  - Overall, the tariff continues to be appropriate for a regulated market enviroment in which an integrated utility, such as HQ, serves native loads, and trades with neighboring jurisdictions.

3. HQT's Proposed Revenue Allocation and Tariff Design Process

- **HQT's Proposed 7-Step Process to allocation revenues between NITS/NLS and LT-PTP**
  - Step 1: Determine HQT's TRR for the appropriate forward test year period, which is calendar year 2005 for this application.
  - Step 2: Estimate the revenues to be collected from ST-PTP sales over the same test year period.
  - Step 3: Subtract the ST-PTP revenues from the TRR from Step 1 to develop an estimate of the Net TRR to be collected from Network, Native Load and LT-PTP customers.
  - Step 4: Estimate the transmission system's single coincident peak (1-CP), the total transmission load at the time of the transmission system's annual peak. This step entails estimating the coincident peak loads of the LT-PTP, Network and Native Load customer classes. The peak load estimates of Native Load are based on a normal weather forecast and include losses. The LT - PTP forecast is based on reservations.
  - Step 5: Divide the Net TRR by the 1-CP load from Step 4 to develop the annual LT-PTP rate.
  - Step 6: Estimate the LT-PTP revenues as the product of the LT-PTP rate times an annual forecast of LT-PTP reservations.
  - Step 7: Subtract the LT-PTP revenues from the Net TRR to develop an estimate of the network revenues. Network revenues are then allocated to each network customer, who may receive Network or Native Load, based on the customer's load ratio share of HQT's annual peak demand.

3.1 Revenue Allocation – 3 Types of Tests

- **Causality Test**
  - Does the allocation of revenues reflect the costs imposed on the transmission system from each class of service?
  - HQT continues to use the forecasted annual peak load in planning. Therefore, the best measure of the costs imposed on HQT's system is the forecasted coincident peak load from each class of service.
- **FERC Load Shape Tests**
  - These tests distinguish HQT's load shape from the shapes of other jurisdictions who have used 12-CP.
  - The FERC tests are inconclusive with regard to the choice between 3-CP and 1-CP because no 1-CP cases were reported.
- **Supplemental Weather Tests**
  - The results of these supplemental tests lead me to conclude:
    - the single peak load is consistently predicted to occur in January;
    - the coldest day most frequently occurs in January, and
    - 72% of all coldest days occur within a 44-day window between January and early February.

3.2 Design of Short-Term Point to Point Rates

- ***Annual Rate 72.90 $/kW-yr is determined by process described above***
- ***Short-Term Rates follow The Regie's D-2002-95***
  - *Annual Rate = Monthly Rate / 12 (Firm and Non Firm)*
  - *Weekly Rate = Annual Rate / 52 (Firm and Non Firm)*
  - *Daily Rate = Weekly Rate / 5 (Firm)*
    = Weekly Rate / 7 (Non Firm)
  - *Hourly Rate = Daily Rate (Non Firm)l / 24 (Non Firm)*
- ***A more commonly found design would have time differentiated hourly rates; however, due to the need to bring rates closer to transmission values, hourly transmission pricing varies substantially from one provider to another.***
- ***Increasing the non-firm on-peak hourly rate has the potential to substantially reduce already declining levels of utilization. This conclusion is supported by my analysis of the effectiveness of discounting.***

4. An Independent Analysis of the Short-Term P to P Tariff

- **My analysis confirms both HQT's findings and supports the existing rate levels for hourly non-firm service**

- **Analysis Approach**

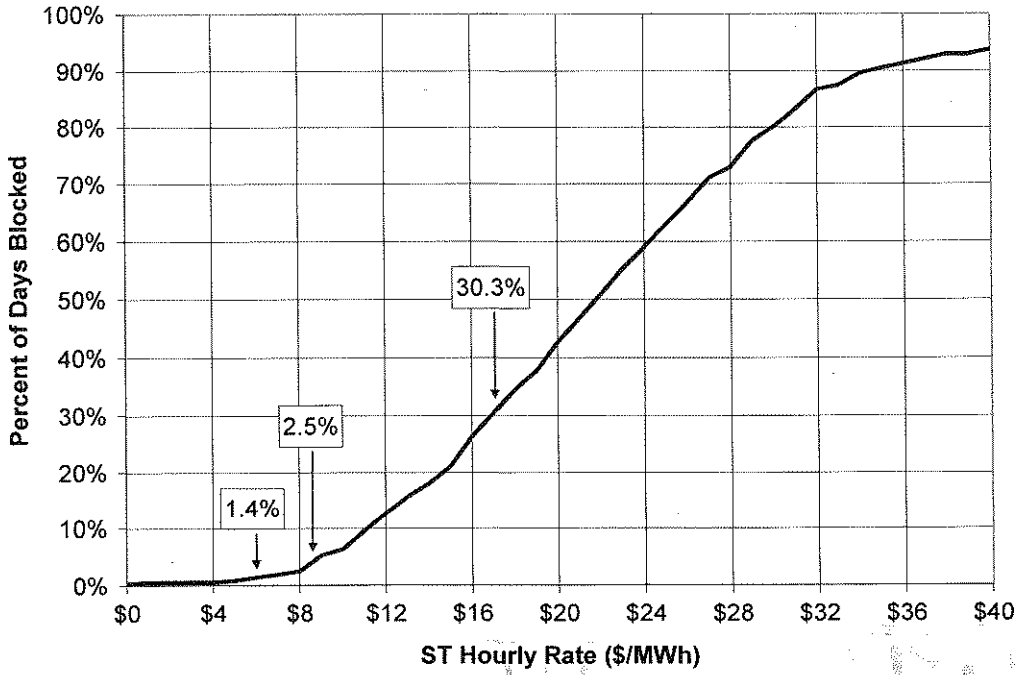
  - Based on 2004 market price data, my measure of transmission value is the maximum energy price spread between the on- and off-peak hours in HQ's three neighboring energy markets: Ontario, New York (NY), and New England (NE).

  - My analysis assumes a transmission customer (who is engaged in day-trading) would place a maximum value for HQT's short-term point-to-point service equal to the difference between the lowest off-peak price in any of the three markets and highest on-peak price in the same markets.

  - Transmission value, using this approach, is equal to the maximum on to off peak spreads, net of the costs of ancillary services, losses, and other transmission costs from the estimated maximum transmission values.

4. Analysis Results

1. This figure's horizontal axis measures the $/MW-h transmission rate. Its vertical axis is the cumulative percent of days with a value below the transmission rate.



2. HQT's existing rate of $8.33/MW-h is sufficiently low and would only block trade in 2.5% of the days in 2004. Reducing the $8.33/MW-h rate by 25% to $6.25/MW-h would only reduce the percent of days blocked to 1.4%.
3. Adopting the AEP on-peak pricing formula would raise the $8.33/MW-h rate to a $17.5/MW-h rate, which would block trade during 30.3% of the days in 2004.
4. Hence, maintaining hourly transmission service prices in the $8/MW-h range balances the goals of fixed cost recovery and efficient capacity utilization.

5. Comparison of HQT's Proposed Tariff Design with the Industry standard

- **HQT's proposed tariff is consistent with the design of other open access jurisdictions without an ISO and a power pool.**
  - Long Term Point to Point Service
    - HQT's proposed long term service and ratemaking process is consistent with the standard used in both Canadian and US Open Access Jurisdictions.
  - Short Term Point to Point Service
    - HQT's proposed short-term rates are also consistent with the maximum posted rate formulas frequently used for short term service.
  - Ancillary Services
    - HQT proposes to offer a standard set of ancillary services based on its costs to provide them.
  - Connection Costs to Transmission System
    - HQT's connection cost proposal, which provides a cap 560 $/kW on the amount of rolled-in cost treatment seeks to protect the interests of existing customers, while partially mitigating high interconnection costs.

6. Comparison of HQT's Proposed Tariff Design with BCTC's Approved Rate Designs and Discount Policy

- **BCTC and HQT have very Comparable Market Environments**
  - Both transmission entities use the proforma tariff to promote comparable transmission access.
  - Both transmission entities have affiliates who are their largest customers and actively participate in wholesale markets.
- **Important Differences in their Ratemaking Processes**
  - Long Term Rates
    - BCTC uses the maximum generation output of all the generators connected to its system to determine the Point to Point rate. This results in a long term point to point rate that is approximately 20 percent lower than a rate produced from using 1-CP.
    - BCTC also credits 100 percent of the short term revenues to native/network loads.
  - Short Term Rates
    - BCTC uses a discounting formula to discount the majority of short term use.
    - The formula has a maximum rate equal to Annual Rate / 8760 and a minimum equal to the variable transaction cost.

6. Conclusion

- **The overall recommendation of my testimony is that HQT's proposed OATT should be adopted in its entirety. This recommendation is driven by the following reasons:**
  - The proposed allocation of fixed transmission costs between service classes is fair and justified by HQT's transmission system planning that aims to provide sufficient capacity to meet the single Coincident Peak Load.
  - The combination of using a 1-CP allocation to determine the LT-PTP rate and the continued use of a competitive non-firm hourly rate produces a simple rate that obviates the need for a complicated rate discounting formula.
  - Open access jurisdictions, like HQT, continue to successfully use FERC's *pro forma* tariff to facilitate wholesale energy trading and unbundled transmission pricing.

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