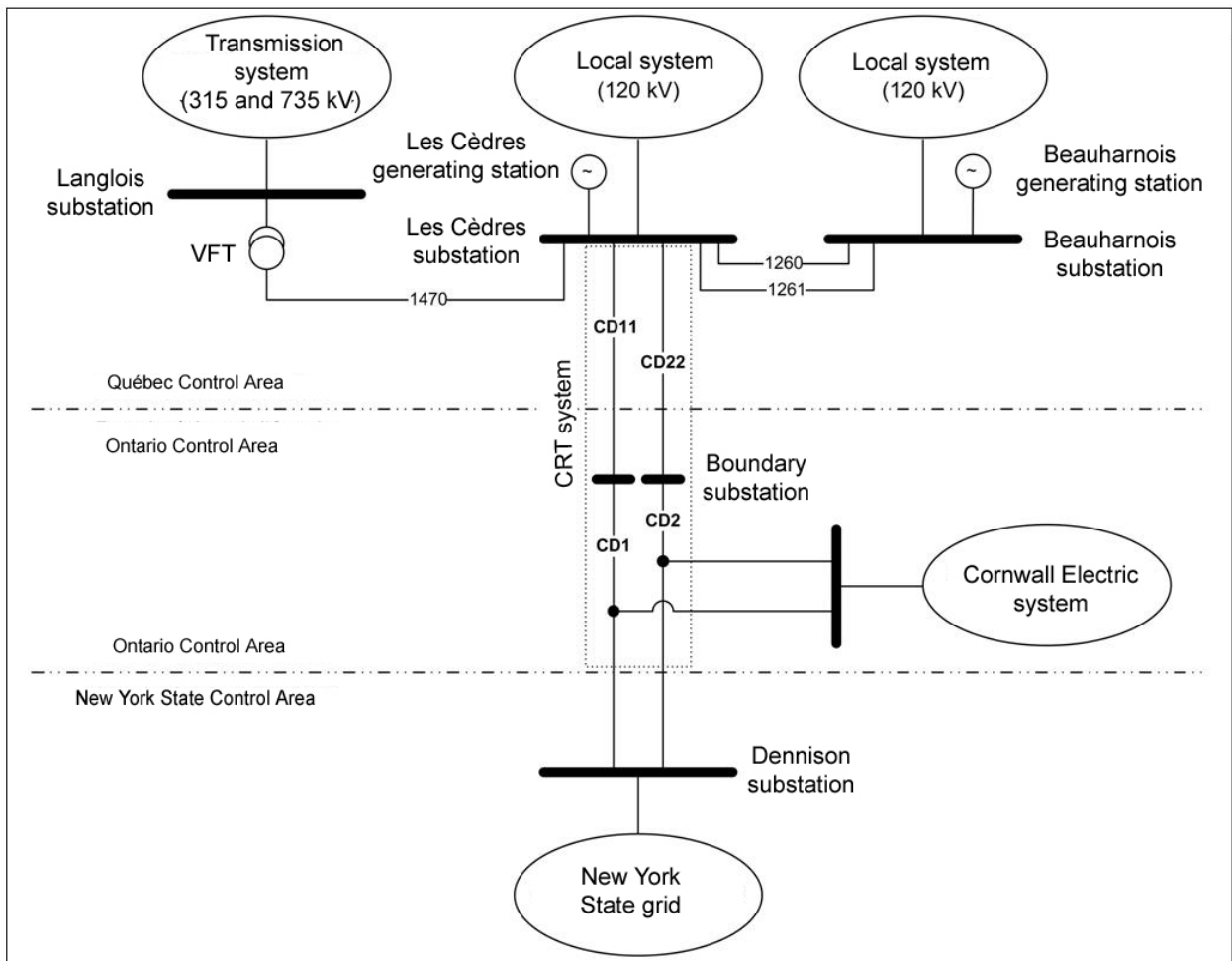


1. Description of the point of delivery/receipt

The Québec and New York State transmission systems are connected by a 120-kV double-circuit line linking Les Cèdres substation, belonging to Hydro-Québec TransÉnergie (the “Transmission Provider”), to Dennison substation, belonging to National Grid. The same line supplies the Cornwall Electric system in Ontario (see figure 1).

This tie line constitutes the Cedar Rapids Transmission Company (CRT) system, which comprises circuits CD11 and CD22 (Les Cèdres–Boundary) and the Canadian portion of circuits CD1 and CD2 (Boundary–Dennison). The U.S. portion of the latter belongs to Alcoa Power Generating Inc. – Long Sault Division (Long Sault).

Figure 1: Point of delivery/receipt DEN and point of delivery CORN



1.1. Configuration of points of delivery CORN and DEN

The tie line can be supplied by Les Cèdres and Beauharnois generating stations, and by the Transmission Provider's system. To ensure power flow from the generating stations, generating units are synchronized with Dennison substation and Cornwall Electric load-serving substations. Any power from Beauharnois is carried to Les Cèdres substation over circuits 1260 and 1261. Asynchronous transfer from the Transmission Provider's system is achieved using the 100-MW variable-frequency transformer (VFT) at Langlois substation and circuit 1470 connecting Langlois to Les Cèdres substation.

1.2. Configuration of point of receipt DEN

When the tie line is supplied by the New York State grid, power flow is asynchronous, with the use of the VFT, via Les Cèdres substation and circuit 1470 to Langlois substation.

2. Transfer capability

2.1. Total transfer capability

2.1.1. Capacity under normal conditions (all facilities available)

Points of delivery DEN and CORN have a maximum capacity of 199 MW and 160 MW respectively. However, the total transfer capability (TTC) of both points of delivery combined is 325 MW, the maximum capacity of Les Cèdres substation.

The transfer capability of point of receipt DEN corresponds to the capacity of the VFT, i.e., 100 MW.

2.1.2. Capacity under degraded conditions (one or more equipment outages)

Any outage affecting the CRT system or circuits 1260, 1261 or 1470 leads to a lower TTC.

A circuit 1260 or 1261 outage reduces transfer capability from Beauharnois generating station to the capacity of the remaining line, from 160 to 250 MW depending on ambient temperature. A circuit 1470 outage reduces to zero transfer capability from the Transmission Provider's system. In either case, sufficient capacity remains to transfer 325 MW from Les Cèdres and Beauharnois generating stations to Les Cèdres substation. Only an outage of one of the lines of the CRT system reduces the combined TTC of points of delivery CORN and DEN, which is then 162 MW.

During a circuit 1470 outage, the VFT cannot be used for wheel-in to Québec so the TTC of point of receipt DEN is then zero.

2.2. Transmission reliability margin

The transmission reliability margin (TRM) quantifies the Transmission Provider's uncertainty regarding the possibility of offering the anticipated transfer capability. TRM depends on uncertainty in forecasting the Cornwall Electric load.

2.3. Constraints on neighboring systems

2.3.1. Point of delivery CORN

Transfer capability corresponds to the Cornwall Electric load.

2.3.2. Point of delivery DEN

With all facilities available, TTC is limited by Dennison substation reception capacity, which ranges from 190 MW in summer (May 1 to October 31) to 199 MW in winter (November 1 to April 30).

2.3.3. Point of receipt DEN

Import capacity is limited to the 100-MW capacity of the VFT. With all facilities available, delivery capacity of Dennison substation ranges from 190 MW in summer (May 1 to October 31) to 199 MW in winter (November 1 to April 30).

3. Commercial aspects

To promote inter-grid transactions and increase flexibility for deliveries over the CRT system, the Transmission Provider reserves the entire capacity available over that system. It can thus offer its customers, through OASIS, an integrated reservation service whereby, they can use a single segment at a lumped rate for power flows to points of delivery CORN and DEN.

To facilitate transactions with the New York State grid, CRT reserves all transmission capacity available on the Long Sault line. Since the line is located in the U.S., however, the rate to use it cannot be incorporated into the Transmission Provider's tariff. On top of the Transmission Provider's applicable rate, CRT thus charges US\$1.58/MWh to use the line.

This additional charge is billed on the basis of the reservation, both Parent and Redirect, on paths HTQ-DEN or DEN-HQT. In the case of Redirects from HQT-DEN (or DEN-HQT) to another path, this charge is credited for the time period of the Redirect, if the Redirect is carried out on a firm basis, and is maintained if the Redirect is carried out on a non-firm basis.

Customers wishing to make transmission service requests for paths HQT-DEN, DEN-HQT and HQT-CORN may do so using OASIS.

Under a multiyear contract, 45 MW of capacity through the VFT has been booked to supply the Cornwall Electric load over path HQT-DEN, leaving 55 MW available for wheel-through. For any transmission service request over path HQT-DEN exceeding 55 MW or relying on Les Cèdres or Beauharnois generating units, the customer must first reach an agreement with the generating station owner, Hydro-Québec Production, and include the number and date of that agreement in the Customer section of the transmission reservation request.

If constraints arise on the transmission system, the Transmission Provider curtails or interrupts transmission services as stipulated in the *Hydro-Québec Open Access Transmission Tariff*. VFT outages are posted on OASIS.