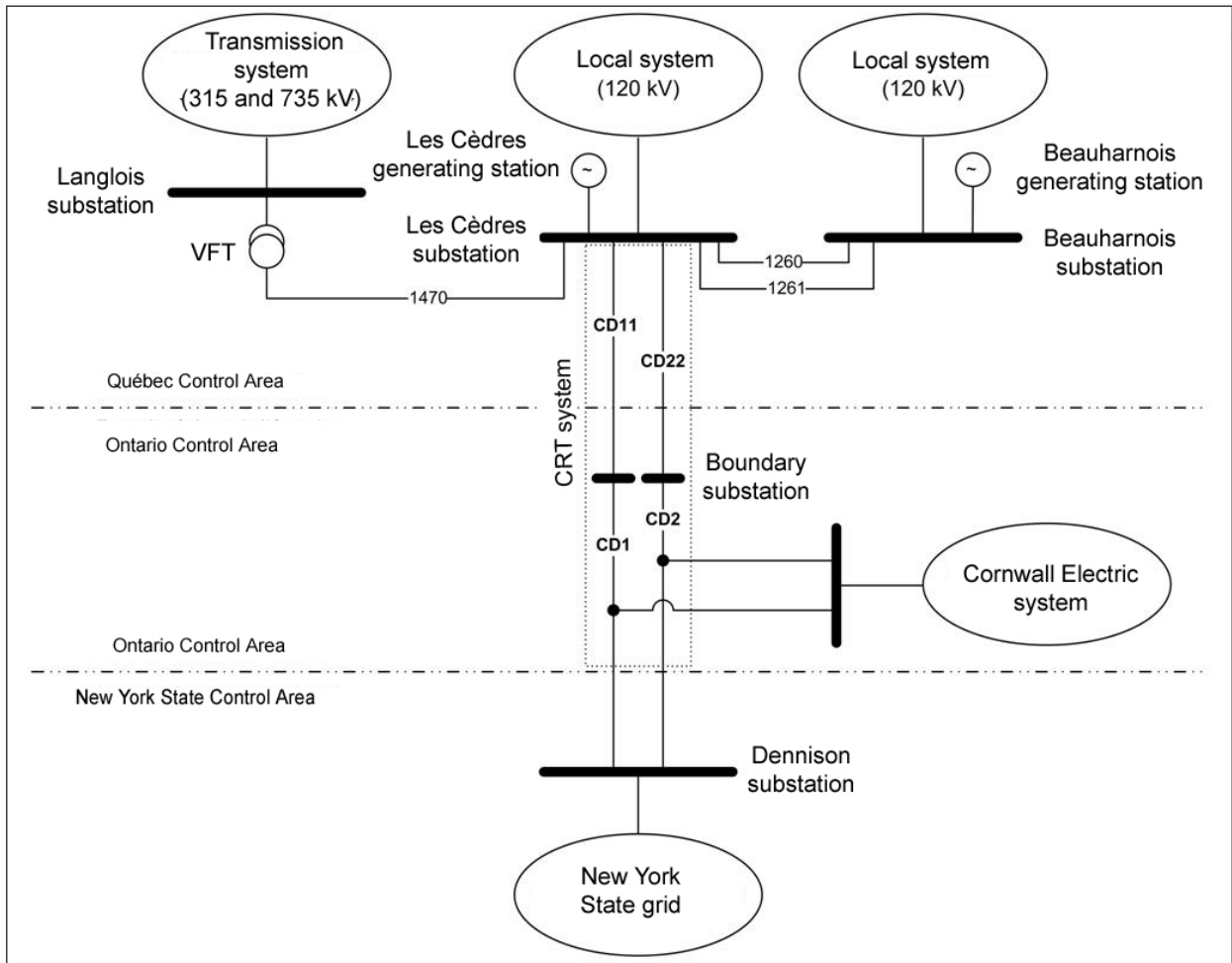


1. Description of the point of delivery/receipt

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). A generation rejection special protection system is installed at Cedars substation to prevent the instability of Cedars and Beauharnois production units, as well as to prevent the overload of the Cedars-Dennison lines over their thermal capacity. A telecommunications signal is routed from Dennison substation to Cedars to ensure the stability of the CRT network.

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)

Point of delivery DEN has a maximum capacity of 270 MW in summer and 279 MW in winter and point of delivery CORN has maximum capacity of 160 MW. However, the total transfer capability (TTC) of both points of delivery combined is 370 MW.

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 network, as well as circuits 1260, 1261 or 1470, may lead to a reduction in the TTC, depending on the ambient temperature and the number of units available at Cedars generating station.

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.

The VFT greatly increases the stability of the CRT network and an unavailability of the latter, or of the 1470 circuit, reduces the combined export TTC from 370 to 310 MW. In addition, when the circuit 1470 is unavailable, the TFV cannot be used for the transfer to the Quebec network; the TTC at the reception point DEN is then zero.

Also, the unavailability of one of the lines of the CRT network CD1/CD11 CD2/CD22, reduces the combined export TTC to 155 MW with the TFV in service and to 135 MW without the TFV. When the generation rejection at Les Cèdres is out of service, the maximum capacity is also reduced to 155 MW.

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 270 MW in summer (May 1 to October 31) to 279 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.

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 request transmission service on the HQT-DEN or DEN-HQT path must first be a CRT customer.

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.