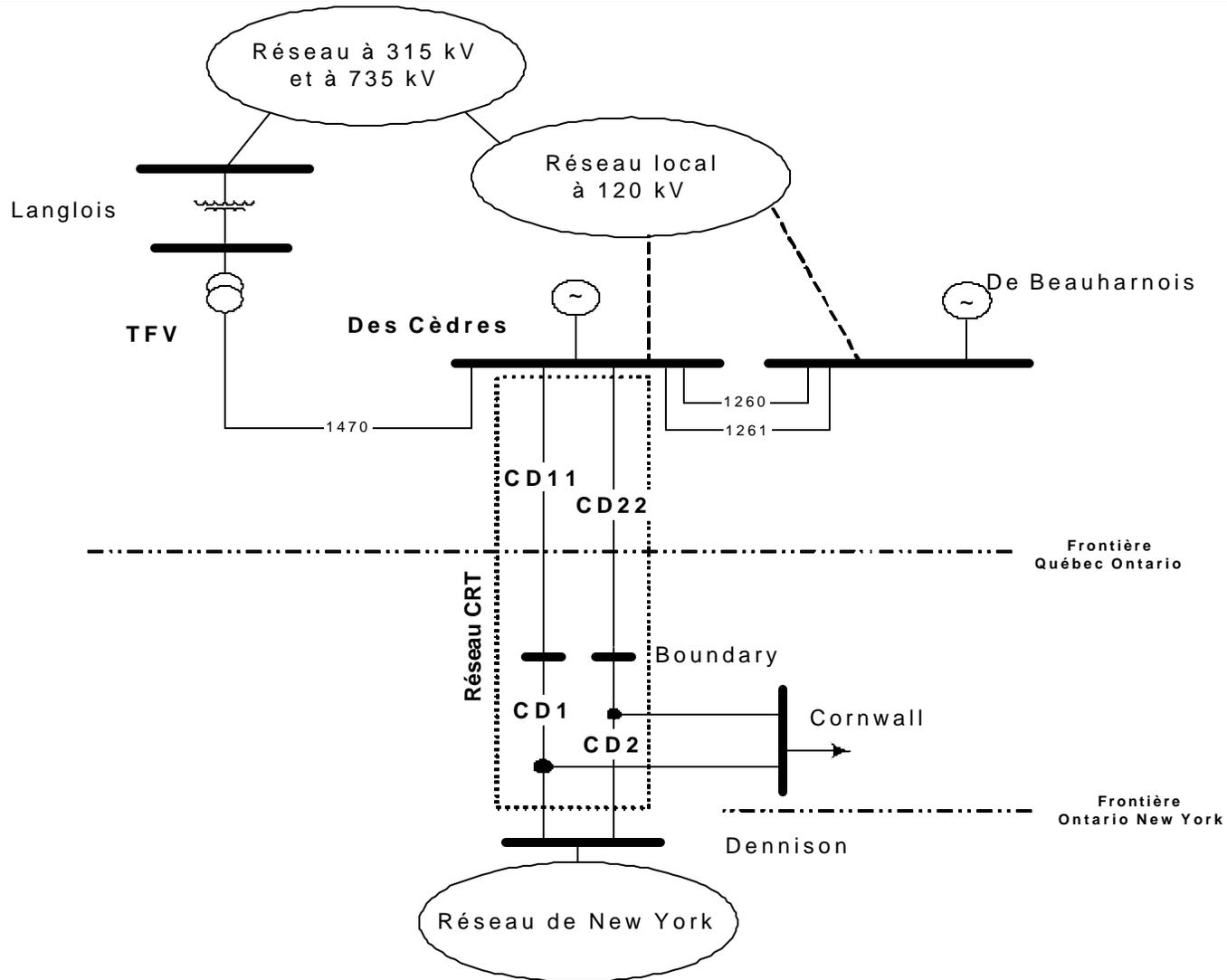


Dennison - CRT Proxy Bus

**Presentation to MSWG
Glenn Sylvain
Hydro-Québec TransÉnergie
May 13, 2005**

Draft – for discussion purposes only

One line Diagram



Current situation

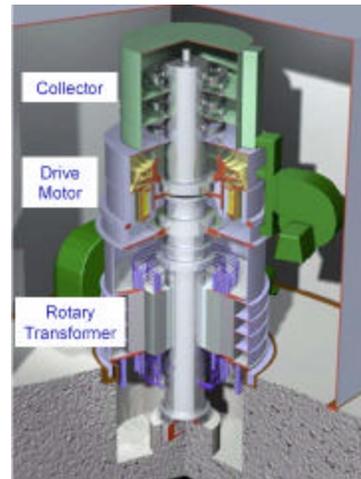
- ◆ **HQ_GEN CEDARS sinking into NMPC North (23644):**
 - TTC HQT-CRT 325 MW
 - Delivery into Dennison limited to a maximum of approximately 175 MW.
- ◆ **No export into Quebec from NMPC except for emergency situations.**

New development

- ◆ **Since January 2005, new technology (Variable Frequency Transformer – VFT) in place facilitating transit.**
 - Transfer Capacity 100 MW
 - For first 100 MW, no need to dispatch Cedars production units to transit power on CRT

What is the VFT ?

- ◆ The VFT system is based on a combination of hydro generator and transformer technologies.
- ◆ It consists of a rotary transformer, for continuously controllable phase shift together with a drive system and control that adjust the angle and speed of the rotary transformer to regulate the power flow through the VFT.



Cut-away Drawing of VFT



Photograph of Langlois 100 MW VFT

What Function Does the VFT Provide?

- ◆ **The VFT system provides a means to control power between two asynchronous grids.**
- ◆ **The VFT allows controlled power exchange between the grids, while retaining many of the inherent virtues of an AC interconnection.**
- ◆ **The VFT improve operating flexibility of the CRT interconnection.**
- ◆ **Operating since April 2004, synchronous connected to CRT in December 2004 and in commercial use since April 2005.**

Request to MSWG

- ◆ **Examine request by Hydro-Quebec TransEnergie to modify status from Generator Bus to Proxy Bus.**
- ◆ **Determine steps to complete project**
- ◆ **Set date for implementation**

Benefits to NY market

- ◆ **One more access point into Ontario / Quebec**
- ◆ **Import / export flexibility through 7040 and CRT**
- ◆ **Increase level of revenues for Transmission Owners.**

Benefits to Canadian market

- ◆ **New interconnection with U.S.**
- ◆ **Increase revenues for Transmission Owners**
- ◆ **Provide additional resources for loads in Ontario and Quebec**

Time schedule

◆ September 2005