

## **Presentation # 15**

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**Title:** Feeder DG capacity limits based on Power-Voltage profiles

### **Abstract**

Hydro One Networks has experienced a substantial growth in distributed generation connected to its distribution system (8.32 kV to 44 kV). These Distributed Generators (DGs) are mostly wind and solar generation farms with capacities ranging up to 10 MW.

Hydro One has done considerable work to determine feeder DG capacity limits based on Voltage-Power (V-P) relationship at the Point of Common Coupling (PCC) of the DG. By comparing the V-P characteristic of the system with various parameters such as feeder X/R ratios, location of DG connection (feeder length with respect to the TS/DS), and the power output from the DG, simple procedures to determine feeder DG capacity limits have been developed. This procedure allows Hydro One to place reasonable limits on DG capacity allocation while minimizing potential adverse effects on feeder voltage regulation/control and power quality.