

**Central Hudson Gas & Electric Corporation**  
**Local Transmission Plan**

**Analytic Tools**  
(as of October 1, 2019)

Siemen’s PSS/E and PowerGEM’s TARA software are the main tools used to analyze Central Hudson’s local transmission system. Central Hudson uses TARA for thermal and voltage analyses of its local transmission system. For these analyses, Central Hudson’s local transmission system may be viewed as a group of smaller local areas and as an entire system.

**Thermal & Voltage Analyses**

System

The need for any growth or interconnection related system reinforcements within the planning horizon is identified utilizing TARA. For these analyses, the load levels at which system reinforcements are identified for thermal violations are first determined and then the years that those load levels would be reached are calculated.

To determine if any voltage violations exist, the system load is set to the load forecast for the end of the planning horizon and a load flow solution is produced for each contingency.

Local Areas

Central Hudson’s transmission system local areas are listed in the table below. These may change from time to time.

<b><u>Summary of Local Areas</u></b>
Northwest 69 kV
Southwest 69 kV
Southern Dutchess 115 kV
Mid-Dutchess 115 kV
Ellenville 69 kV
Newburgh Area
Eastern Dutchess 69 kV
Kingston - Milan

To determine if any growth or interconnection local area reinforcements are needed within the planning horizon, each local area’s load is projected to the end of the planning horizon and generally compared to the calculated rating of the limiting facility. For local areas with three or more transmission inputs, TARA is used to determine the load level and limiting facility. The need for reinforcement is identified when the load exceeds the

limiting facility's appropriate rating, or an area voltage is unacceptable (as determined with TARA).

### **Short Circuit Analyses**

Central Hudson utilized the Aspen One-Liner program for all short circuit analyses. These analyses are used to:

- Assist in the coordination of protective relaying systems
- Assess the capability of circuit breakers to interrupt fault currents
- Assess the ability of all equipment to withstand the mechanical forces associated with faults currents
- Assess the thermal capability of equipment during faults.

### **Dynamics Analyses**

Central Hudson does not have the capability in-house to perform these analyses. When necessary, dynamics analyses would be performed by a consultant.

### **Transient Switching Surge Analyses**

Central Hudson does not have the capability in-house to perform these analyses. When necessary, transient analyses would be performed by a consultant.