



**Public Service
of New Hampshire**

The Northeast Utilities System

*Connecting New Resources to the Northern
New Hampshire Transmission System*

Maps redacted – Critical Energy Infrastructure

PSNH's Transmission System

- Consists of 1000 miles of 345, 230 and 115 kv lines and 52 substations
- Represents about 12% of the region's transmission* system.
- Represents about 6% of the PSNH's customers electric costs.

To meet reliability needs and serve load growth, PSNH is planning to invest about \$200 M in new facilities over the next 5 years.

* 345Kv, 230Kv, & 115Kv



Current North Country Transmission System

Transmission Lines	Miles	Year Built
Whitefield- Lost Nation	18	1948
Berlin – Lost Nation	28	1947
Whitefield - Berlin	27	1969
Whitefield - Littleton	17	1958
Whitefield – Franconia Area Tap	15	1969
Littleton – Franconia Area Tap	9	1971



Transmission Planning Criteria

- Planning criteria
 - Facilities must be installed to meet area load assuming a single element is out of service and most generation is not operating. Facility costs are paid by load.
- Generation Interconnection
 - New generation must pay for facilities to connect their unit(s) to the transmission system as well as to pay for system upgrades required to relieve system problems caused by the addition of the new generation.

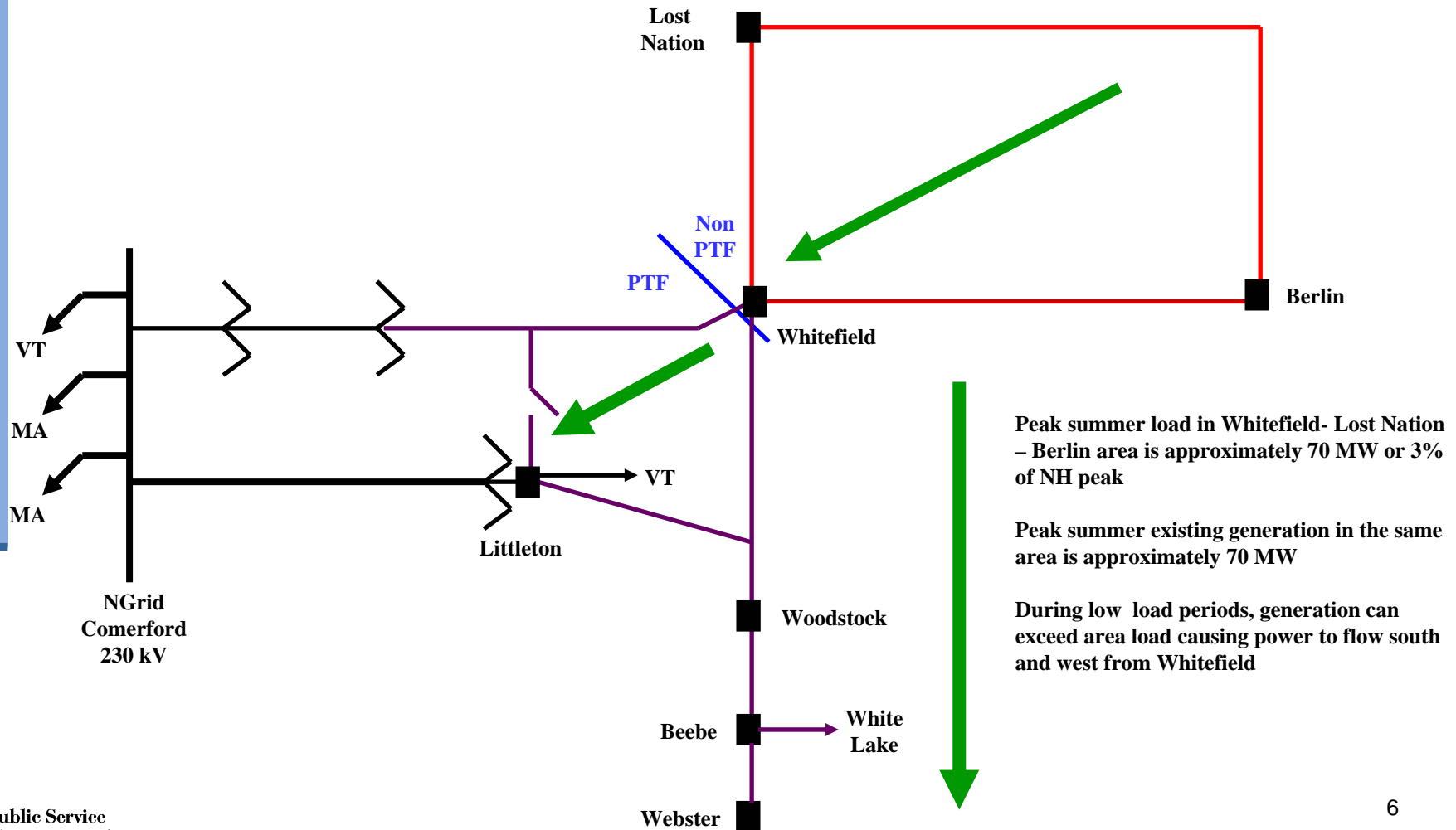
PSNH's North Country transmission

PSNH's transmission system north of the White Mountains is adequate to support :

- The existing load and existing generation plus load growth for many years to come.
- The addition of approximately 100 MW of new generation without major system upgrades.
- The addition of 400+ MW of new generation if :
 - The transmission lines (over 100 miles) between Littleton - Whitefield – Lost Nation – Berlin and associated substation equipment are upgraded
 - Additional transformation is installed at the Littleton Substation
 - System transmission studies may determine that additional upgrades are required beyond the Northern NH area



Power Flow for New Generation



Timeframe to install new facilities

- Several steps must be successfully completed before new facilities can be placed in-service to support 400+ MW of new generation
 - Determine exact system needs and receive ISO approval:
9 - 18 months
 - Site and permit facilities:
9 - 18 months
 - Construct facilities:
24 - 36 months
 - Above estimates are typical timeframes, but could be longer depending on time required to resolve various issues, permitting, delivery time of equipment, and system upgrades required outside the northern New Hampshire area.



Conclusions

- PSNH system can accommodate 100 MW of new generation without transmission rebuilds.
- Beyond 100 MW of new generation, PSNH is prepared to:
 - Continue to support the economic growth and health of the North Country and the State
 - Work within the well-defined process which the Federal Energy Regulatory Commission has established for use in New England by the ISO-NE and utilities to ensure that the electric system is planned and built in a safe, reliable, fair, and cost-effective manner.
 - Plan, design, construct and modify its transmission system to accommodate new generation
 - Discuss with interested parties creative ways to provide for the recovery of cost incurred for any North Country transmission upgrades
 - Work with interested parties and state and local regulatory officials to resolve issues and obtain necessary approvals to allow transmission upgrades to be completed in the shortest reasonable time frame.

