



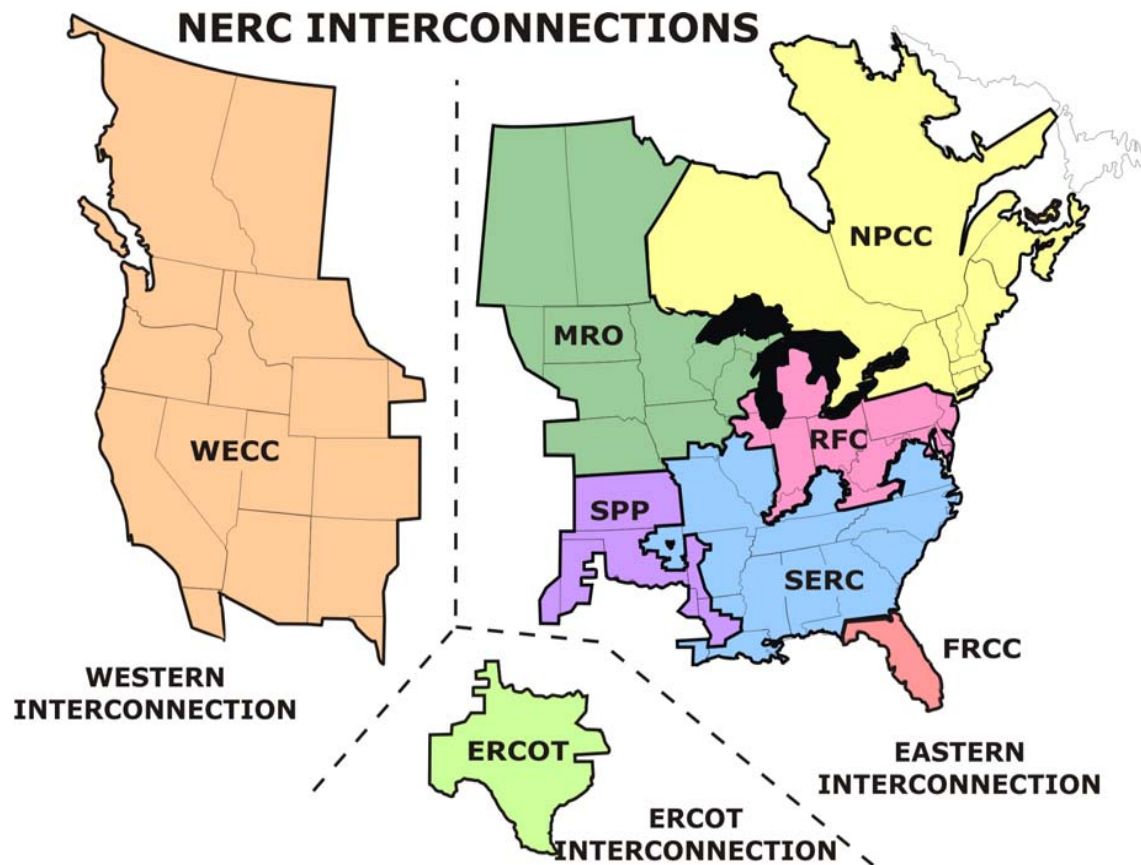
Integrating Wind Resources in ERCOT

Warren Lasher
ERCOT System Assessment

TransTech Conference

January 22, 2008

North American Electric Grids



The ERCOT Region is one of 3 North American grid interconnections.

ERCOT is a NERC Regional Reliability Council in addition to an ISO.

The ERCOT grid:

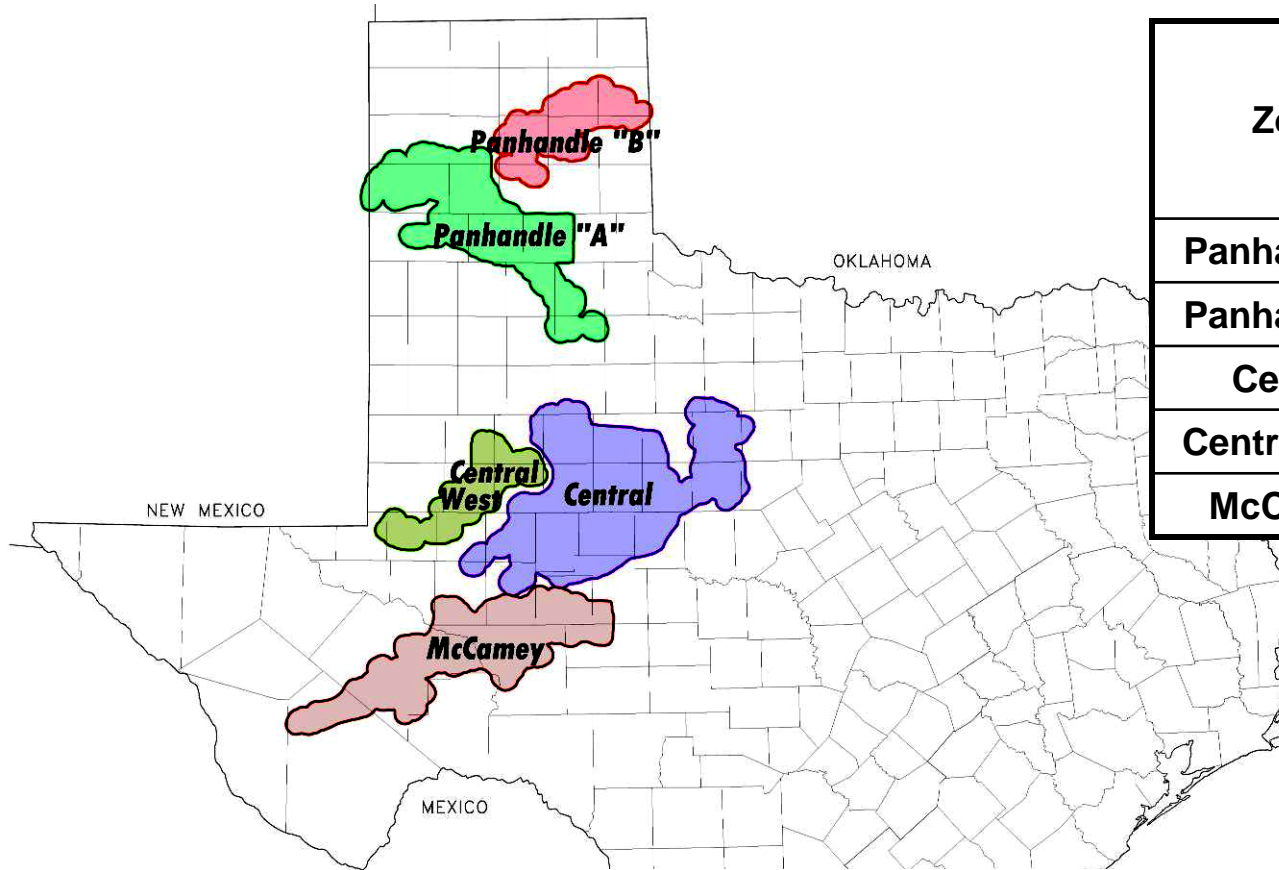
- 75% of Texas land
- 85% of Texas load
- 38,000 miles of transmission lines
- 550+ generation units
- Physical assets are owned by transmission providers and generators
- 62,339 MW peak demand (set 8/17/06)

ERCOT Transmission Policy

- **ERCOT-wide postage-stamp transmission rate, paid by load**
- **Generators post security for new interconnection facilities**
- **Utilities are responsible for transmission upgrades**
- **Transmission upgrades (except for low-voltage equipment) are ultimately rolled into regional rate**
- **Streamlined transmission planning process**



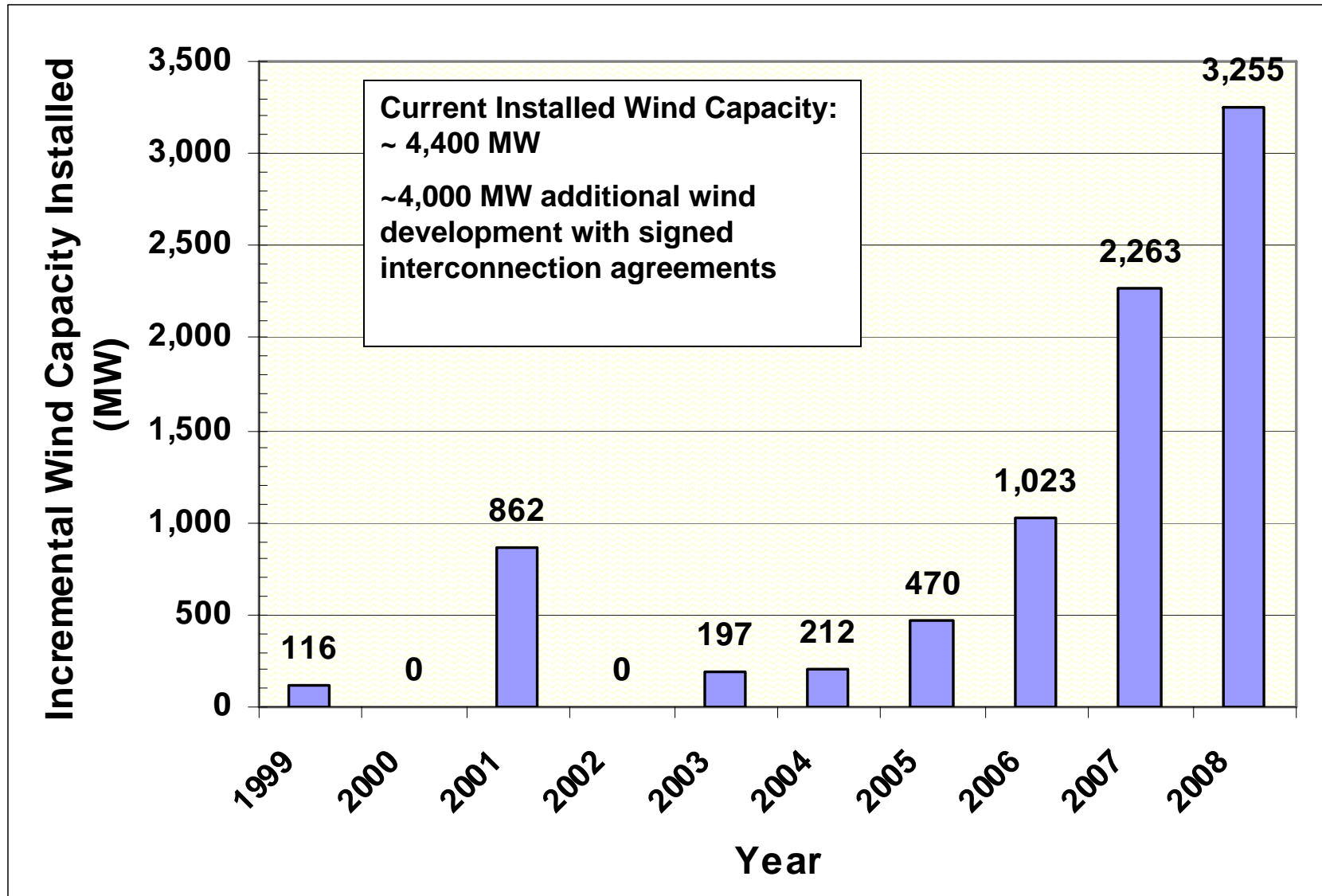
CREZ Transmission Optimization (CTO) Study - Wind Integration Levels



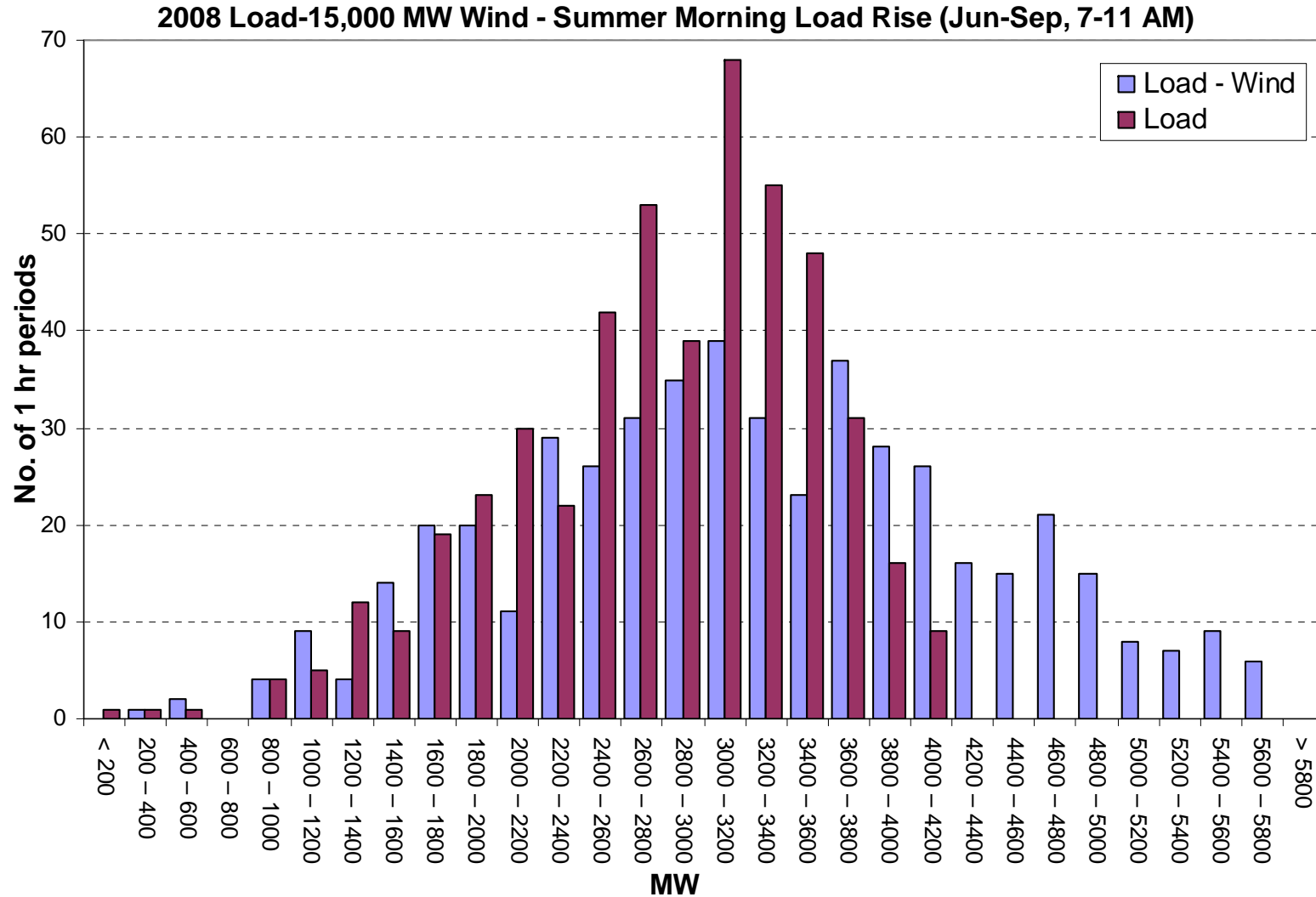
Zone	Minimum Wind Capacity (GW)	Maximum Wind Capacity (GW)
Panhandle A	1.4	6.7
Panhandle B	1.1	3.7
Central	1.4	5.6
Central West	0.5	2.1
McCamey	0.8	3.2

- *Per statute, PUCT is to designate CREZs in Texas and order transmission improvements*
- *With 7 GW of existing and planned wind, the CTO Study will review the integration of 12 to 25 GW of total wind in ERCOT.*

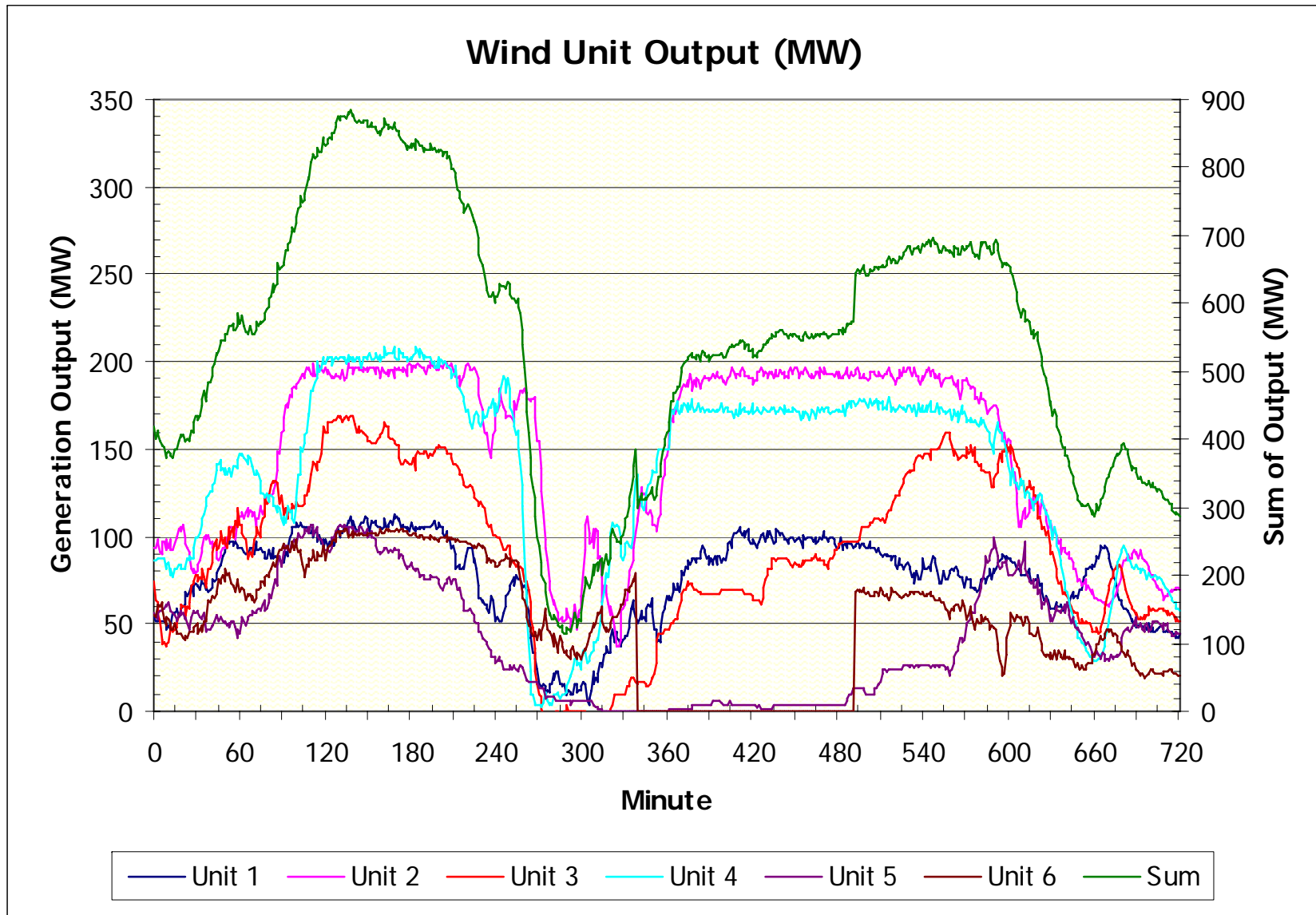
New Wind Capacity (per year)



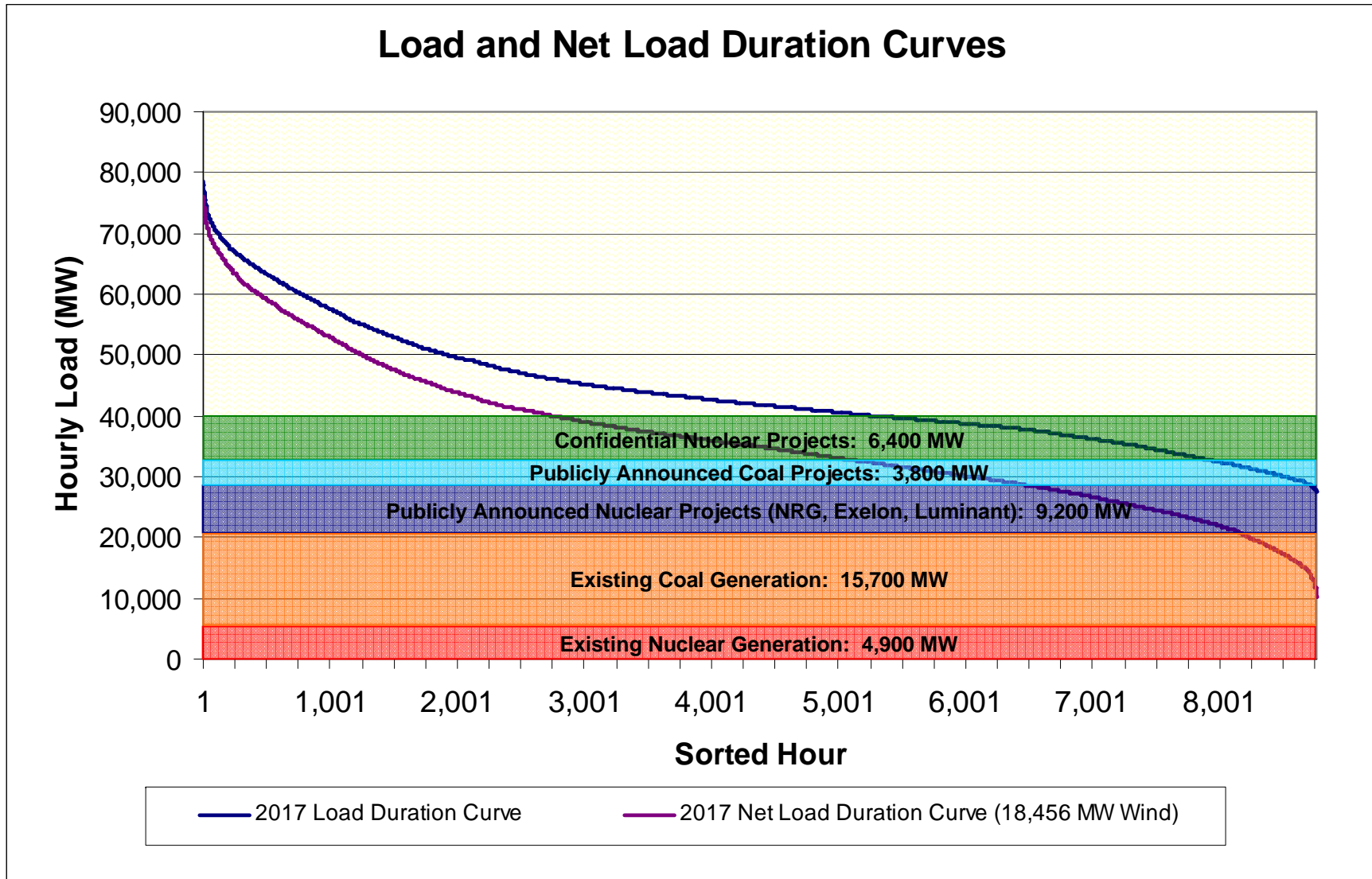
Wind Impact Ancillary Services Study - Example



Predictability of Wind Generation



Impact of Wind on Base-load Generation





Questions or Comments?

