

New York State Reliability Council Transmission Workshop

Bulk Power Transmission Systems & How They Work

June 28, 2005

9 AM – 4:30 PM

New York State Nurses Association Headquarters

11 Cornell Rd., Latham, NY

1a. The Basics

- What is electricity
- Power & energy
- Kirchhoff's Laws
- DC, AC and the concept of interconnection
- What makes power flow

1b. Electric Power Systems and How They Work

- What *really* makes power flow
- The power swing equation
- Transient stability
- VARs – not so imaginary

2. Synchronous Interconnections

- Synchronous Interconnections – or “Grids”
- The 4 major grids in North America
- Control Areas and why they're so important
- Reliability Councils, NERC, ISOs and RTOs
- Criteria (standards) for planning and operation

3. Power Transfers on the Bulk Power System

- Transmission criteria
- Effects of transmission failures
- Transmission Transfer Capabilities (TTCs) and how they're determined
- OASIS, Congestion, etc.

4. The New York Control Area (NYCA)

- Location of major generating facilities
- The NYCA transmission system
- The New York ISO
 - Control responsibilities
 - Commercial responsibilities
 - Emergency responsibilities
- Transmission interfaces / flowgates
- Ties with neighboring systems
- OASIS
- Likely limits in NYCA

5. Balancing Act – Reliability and Commercial Use

- Economic constraints vs. reliability risks
- A short history of reliability
- NERC, Regional Reliability Councils, NYISO & NYSRC

6. The Great Blackouts

- November 1965 – Northeast
- June 1967 – PJM
- July 1977 – New York City
- July and August 1996 – West Coast
- August 2003 – Northeast and Upper Midwest