Power System Planning - Future of Electricity Generation & Utilities

February 19, 2015 UT Energy Week Austin, TX

Kenneth A. Donohoo, PE Director, System Planning Distribution and Transmission

Assets Planning Business and Operations Support Oncor Electric Delivery Co LLC kenneth.donohoo@oncor.com

WE DELIVER.



PLANNING ORGANIZATIONAL DRIVERS

Interdependent Integrated Smart Systems T&D and Technology Strategic "Compliance Plus" Integrated Systems Planning and Policy Development

Advanced Requirements for Voltage Control, Stability, Reliability, and System Operability

Traditional Functional Separation Independent T&D Planning

Expansion of Government Oversight and Involvement in System Planning

Federal/State Compliance



PLANNING CONCEPTS

- Customer Expectations/Interest/Communications Increasing
- Compliance and Oversight Increasing
- Generation Locating Away from Load Centers
- Renewable, Distributed Generation and Demand/Load Response Increasing
- System Inertia (Large Units) Lower (frequency control)
- System Strength Weaker (fault duty, short circuit ratio)
- Dynamic and Transient Stability Limiting Transfer Capability More Than Static Limits
- Oscillations and Control Interactions Increasing Concern
- Load and Peak Demand Projections Highly Variable Based Upon Many Factors
- System Operational Control and Coordination Very Complex



PLANNING CONCEPTS

- System Security and Flexibility Needed for Events Changing Conditions
- HILF Events, CIP and Physical Security Concerns
- Outages, Clearances and System Restoration Considered
- Changing Load Types (Lighting Incandescent to CFL to LED)
- Models to Support Good Decisions
- Power Electronics Enabling Transmission Control/Redispatch Increase Utilization of Existing System
- Possible Redevelopment of existing generation sites



