Power System Planning - Future of Electricity Generation & Utilities

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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