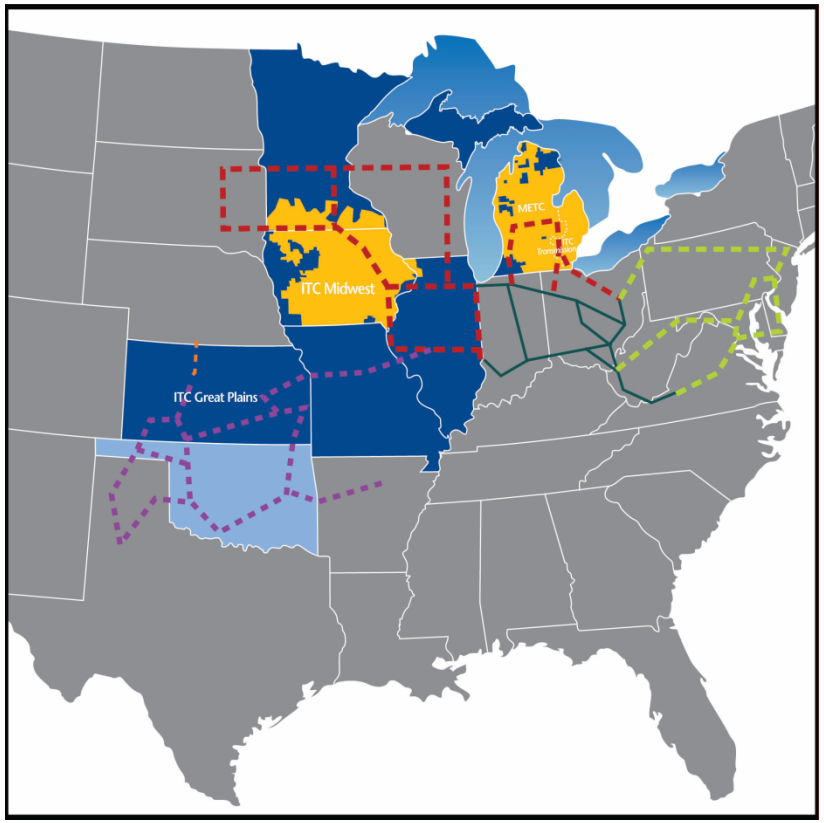
Missouri - Wind Energy & Transmission
September 15th, 2008

The Independent Vision

- A robust electric transmission system so that every SPP & MISO electric customer will have access to reliable, non-discriminatory, and low-cost energy procured through competitive wholesale energy markets
- Similar to the interstate highway system, a more robust transmission system will:
  - Enhance transmission system reliability
  - Provide equal access to all generation resources including renewables
  - Create an efficient and cost-effective transmission system for the consumer
  - Ensure low cost energy is available to the regional economy to support economic development and attract business
  - Be a market enabler for the SPP Market

ITC Overview
Current Footprint

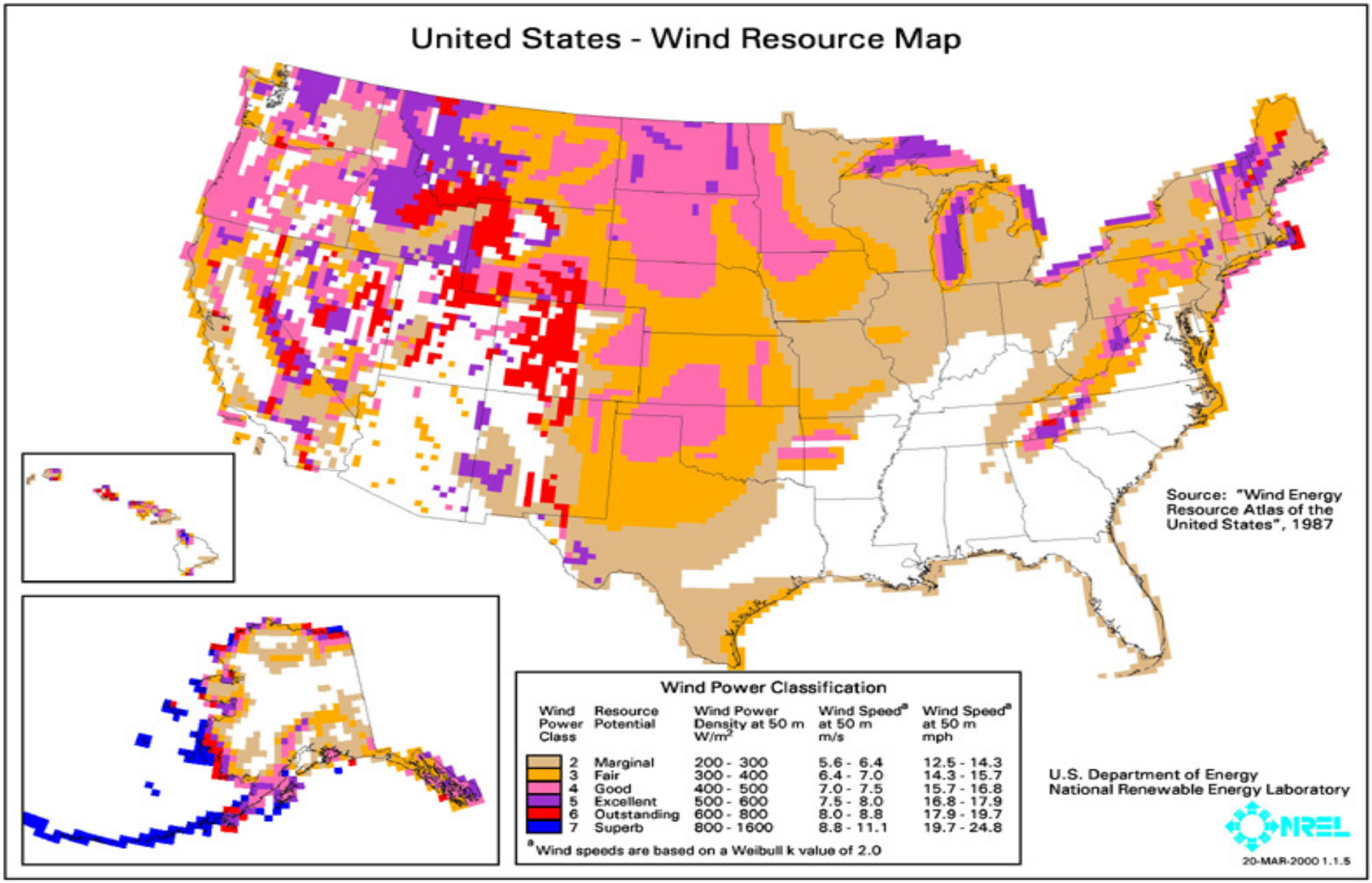


- ITC's current footprint:
  - Michigan
  - Iowa
  - Minnesota
  - Missouri
  - Illinois
  - Kansas (utility status)
  - Oklahoma (utility status)
- Southwest Power Pool ("SPP") regional transmission vision
- Midwest ISO ("MISO") regional transmission vision
  - PJM portion of MISO vision
- Existing AEP 765kV transmission lines

Landscape Overview

- Wind energy is the most rapidly growing type of generation resource
  - Wind forecasts expect wind generation to grow 6000MW annually for the next 5 years – 5000MW of wind was added in 2007
  - The SPP region has some of the most abundant wind resources in the United States
- The current cost recovery protocols for economic transmission projects in the SPP has resulted in construction of very few economic projects
  - Lack of transmission capacity is the largest barrier to future wind development in the SPP region
  - The wind industry supports the concept of base funding for a portfolio of economic transmission projects
  - Assurance of cost recovery for transmission owners is necessary for construction of a reliable and efficient transmission grid

Future Wind Development Potential SPP

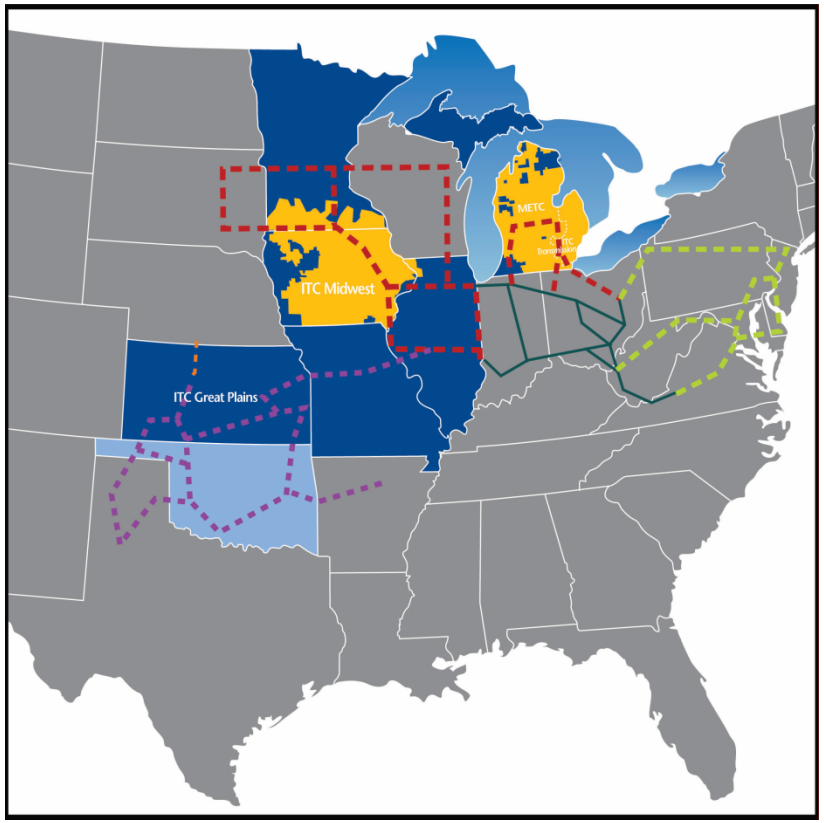


Wind Energy Needs A Robust System

- Today's transmission planning and resource interconnection processes are well suited to support generation that has freedom to site
  - In contrast, wind energy sites are dictated by nature
  - Typically, the best wind energy sites are distant from the existing transmission grid
- Transmission service for wind energy is classified as economic
- Significant expansion of the transmission system is a must so that wind energy potential can be maximized

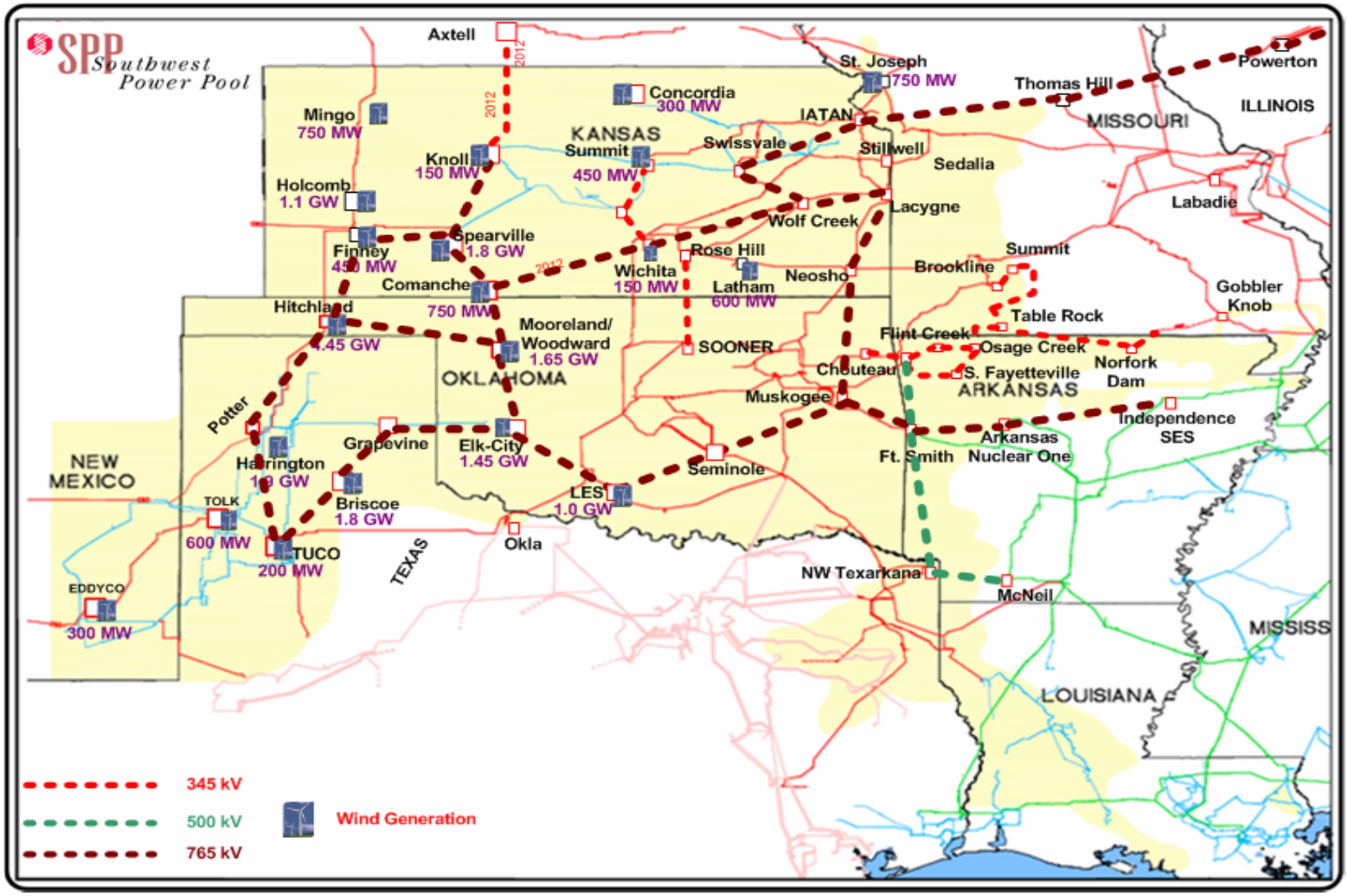
ITC's Vision

765 kV transmission infrastructure is part of a larger vision plan



- Like the interstate highway system conceived in the 1950's, a super regional transmission system will be needed to connect future renewable generation to load centers
- ITC has committed to the SPP to build the EHV Overlay project
- KS V-Plan is the critical first phase of the EHV Overlay project
- Lower voltage projects, like county roads, are a critical part of the transmission system

Southwest Power Pool
Proposed EHV Overlay



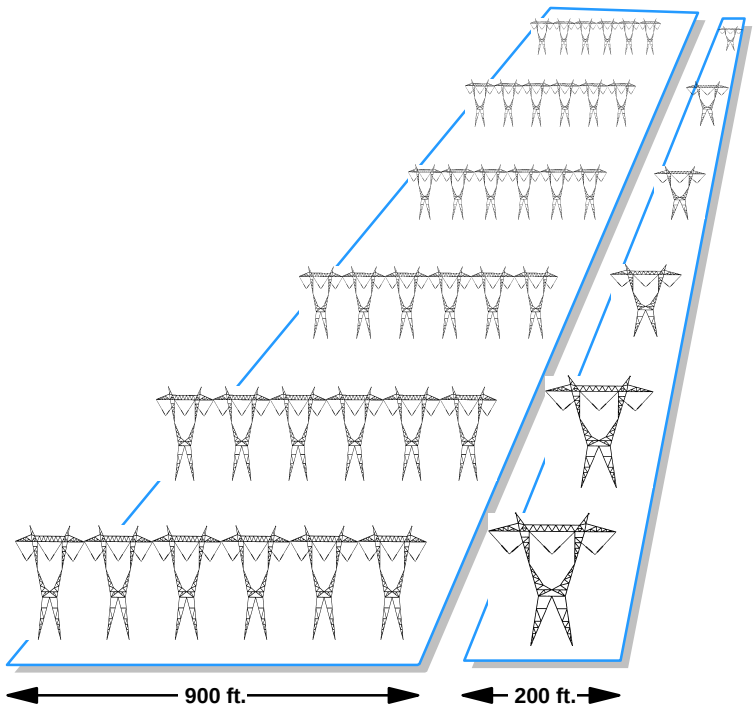
ITC Great Plains
Serving Wind Developers

- ITC is the first fully independent transmission company in the U.S. and only publicly traded company engaged exclusively in the transmission of electricity
  - ITC is expanding the business model that has been very successful in Michigan by constructing a robust transmission system to the benefit of all stakeholders
  - Removing the market participant bias from both the planning and operation of the transmission system is a key priority of ITC
- ITC Great Plains' vision closely aligns with the NWCC and AWEA vision for transmission expansion
  - ITC Great Plains is well situated to complete this task in a timely, cost-effective manner

ITC's Vision
765kV = Green Power

- 765 kV reduces line losses, which means less burning of fuel and reduced air emissions
  - Realize 250 MW in reduced losses on peak
  - 250 MW is equal to medium-sized coal generator
  - Enough to power 250,000 average homes
- "Losses are related to how heavily the system is loaded. U.S.-wide transmission and distribution losses were about 5% in 1970, and grew to 9.5% in 2001, due to heavier utilization and more frequent congestion." *
- Power transmitted over wire is more resource-efficient than coal transported over land.
- Power carried greater distances and facilitates renewable resources market

ITC's Vision
765kV = Greater Efficiency



345 kV 765 kV

- "On-ramps" and "off-ramps" provide for easy generation connections and future transmission integration
- Looped, redundant system design ensures higher transmission system availability under a broad range of system operating conditions
- 765 kV provides greatest capacity increases with least land consumption
  - One 765 kV facility can carry as much power as six 345 kV lines
  - Reduced right-of-way need lowers cost as well as impacts to consumers and to environment

Robust Transmission System Barriers

- There is little dispute around the following issues:
  - The SPP & MISO transmission systems, needs to be upgraded and modernized
  - Public policy should be aimed at improving the grid to support a competitive wholesale energy market
  - Without significant regional transmission expansion wind energy will be limited
- Major barriers include:
  - Siting and approval processes that differ widely from state-to-state
  - FERC Order 888 policy stating that the entity requesting new or changed transmission service must pay for all upgrades required to grant that service
  - The tension between the particular interests of generator owners and improvements in the overall efficiency of the transmission grid
  - Uncertainty about return of and return on an investment in transmission expansion
  - Cost allocation for economic projects as opposed to reliability projects
  - Transmission financing is not a barrier to transmission expansion

ITC Great Plains

Economic vs. Reliability Projects

- Reliability projects……
- Economic projects usually involve transmission upgrades that address system deficiencies such as congestion and losses, thereby freeing up lower-cost power to displace higher-cost power dispatched due to insufficient transmission capacity
- Many transmission projects for wind development are typically classified as economic projects
  - ISSUE #1: A generator will realize a revenue reduction after the economic project is in-service due to a more economic dispatch
  - ISSUE #2: Cost-recovery
  - ISSUE #3: Cost-allocation
  - ISSUE #4: The time required to plan, site, and construct transmission greatly exceeds the time required to develop wind energy sites

Economic Projects

- SPP utilizes zonal or license plate rates so instead of “who pays”, it becomes “Which zone(s) should be allocated a portion of the project’s revenue requirements?”
- The SPP economic planning process states the following:
  - “The economic planning process focuses on quantifying the economic benefits and costs of transmission expansion projects. The economic benefits of transmission expansion are driven by the impact on overall regional transmission congestion. The studies conducted by SPP estimate the overall impact on congestion across the modeled geographic footprint, and also identify which specific sub-regional areas and market participants will likely benefit from the quantified congestion reduction”
- The economic project description seems innovative and intelligent but has only delayed necessary transmission construction since there is no such thing as a purely economic project

Economic Project Cost Allocation

- Currently, SPP has only participant funding for economic projects
- SPP Cost Allocation Working Group Economic Upgrade Principles
  - SPP needs to have a funding policy that will encourage rather than discourage economic upgrades to be built
  - It is unrealistic to require 100% of economic upgrades to be funded by project sponsors and those funding economic upgrades must have specific rights to benefits that result from project
- Current cost recovery methodology for economic and requested upgrades relies on the following:
  - Generation or load cost savings, not applicable to transmission only utilities
  - Credits from deferred reliability projects
  - Incremental transmission service revenue, point to point or network

Removal of Barriers

- Promote transmission expansion as economic development
- Regional planning by RTO which sizes transmission expansion plans to the potential of a renewable rich resource areas rather than to individual planned projects
- Increased involvement of states in the regional planning process for better understanding and consistency in evaluating both the needs and benefits to end-use customers (all customers, not just investor owned)
- Reform state siting laws for transmission lines that specifically support Renewable Portfolio Standard (RPS) goals
- Promote cost allocation methodology that includes regional cost sharing or at a very minimum promote state cost allocation methodologies similar to California, Texas, Colorado and New Mexico

Economic Project Funding Suggestions

- SPP needs to serve as independent evaluator of transmission projects
  - Once deemed adequately beneficial by SPP the projects should be constructed and included in SPP's transmission tariff
- Economic projects need a cost allocation methodology
  - SPP has a cost allocation methodology for reliability or base plan funded projects that is 1/3 socialized and 2/3 socialized amongst benefiting zones based on MW-mile calculation
- SPP needs to adopt a postage stamp methodology for economic and reliability projects over 230 kV
- SPP must develop seams agreements with neighboring RTOs or transmission providers
- Increase likelihood for project sponsors for large regional projects

Transmission Expansion Observations

- Transmission expansion also provides strategic benefits i.e. price stability, increased reserve sharing and firm capacity, insurance against contingencies during abnormal system conditions, environmental benefits, reduction of additional energy infrastructure, and transmission access for renewable energy resources
- **Observation #1: Today's economic project is tomorrow's reliability project. In fact, the difference between the two categories is not always clear.**
  - The debate about "Beneficiary Pays" can be endless
- **Observation #2: Don't allow the debate to postpone economic projects to the point that they migrate from "needed" to "crisis"**
  - SPP clearly states in their annual report that reliability and economic projects are inseparable
- **Observation #3: There is an obvious link between congestion reduction and reliability so let's stop treating reliability projects as "musts" and economic projects as "wants"**
  - Transmission is defined by FERC as interstate commerce and provides the infrastructure for wholesale commerce
- **Observation #4: State regulated, vertically integrated companies are not the only entities who have rights to own and construct transmission**

ITC Great Plains

Transmission Expansion Conclusions

- Transmission needs to be a market enabler and not just a necessary means to deliver bulk power from central generators to load centers – Transmission expansion is a must
- SPP needs to continue to address the economic project process from a public policy perspective
  - Economic projects should be treated no different than reliability projects for cost allocation or pricing since there is no such thing as a purely economic project
- Regional transmission expansion needs regional siting and it may be time to promote FERC siting for such projects
- The time for change is now if SPP wants to be in the national forefront for wind energy and a robust transmission system
- Industry, regulators, and policymakers must move towards encouraging independence, regional planning, and regional pricing as a means to provide a robust transmission system that enhances customer service and reliability
- Transmission is environmentally friendly which helps overcome “not in my backyard” syndrome

Questions?

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