



SPP

*Southwest
Power Pool*

**Helping our members work together
to keep the lights on...
today & in the future**



Regional Wind Transmission Issues

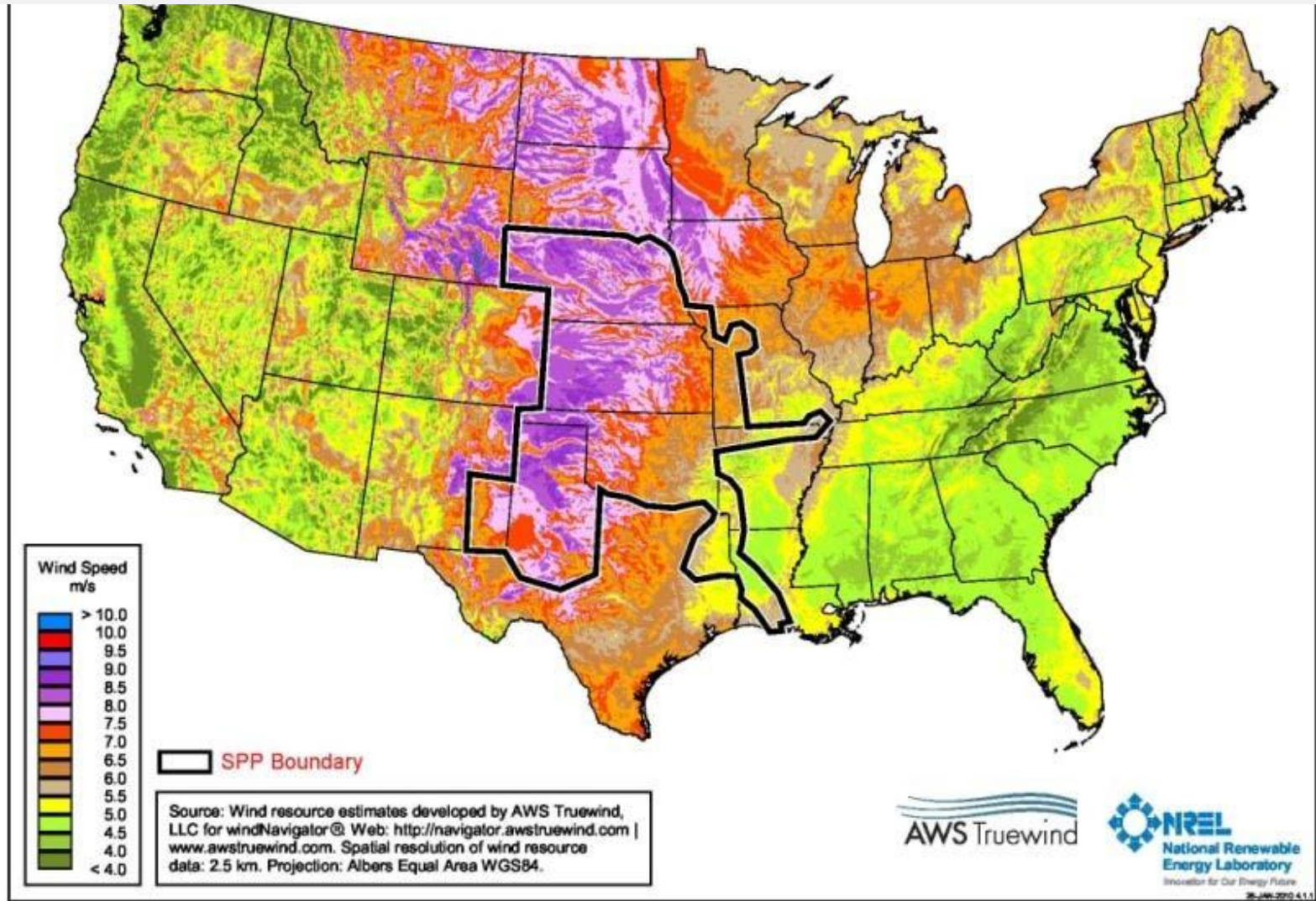
November 10, 2010



Overview

- **Wind Integration / Penetration Issues are BIG in SPP:**
 - 50,000 MW+ of wind farms in GI queue, Current queue 36 GW with significantly more expected
 - Eastern Wind Integration and Transmission Study (EWITS) projects 60-95 GW of wind development in SPP
- **SPP supports many wind related initiatives**
 - JCSP'08 / EWITS
 - NERC IVGTF
 - NWCC
 - Nebraska Power Authority Wind Integration Study
- **Focus today on three Areas of SPP Initiative**

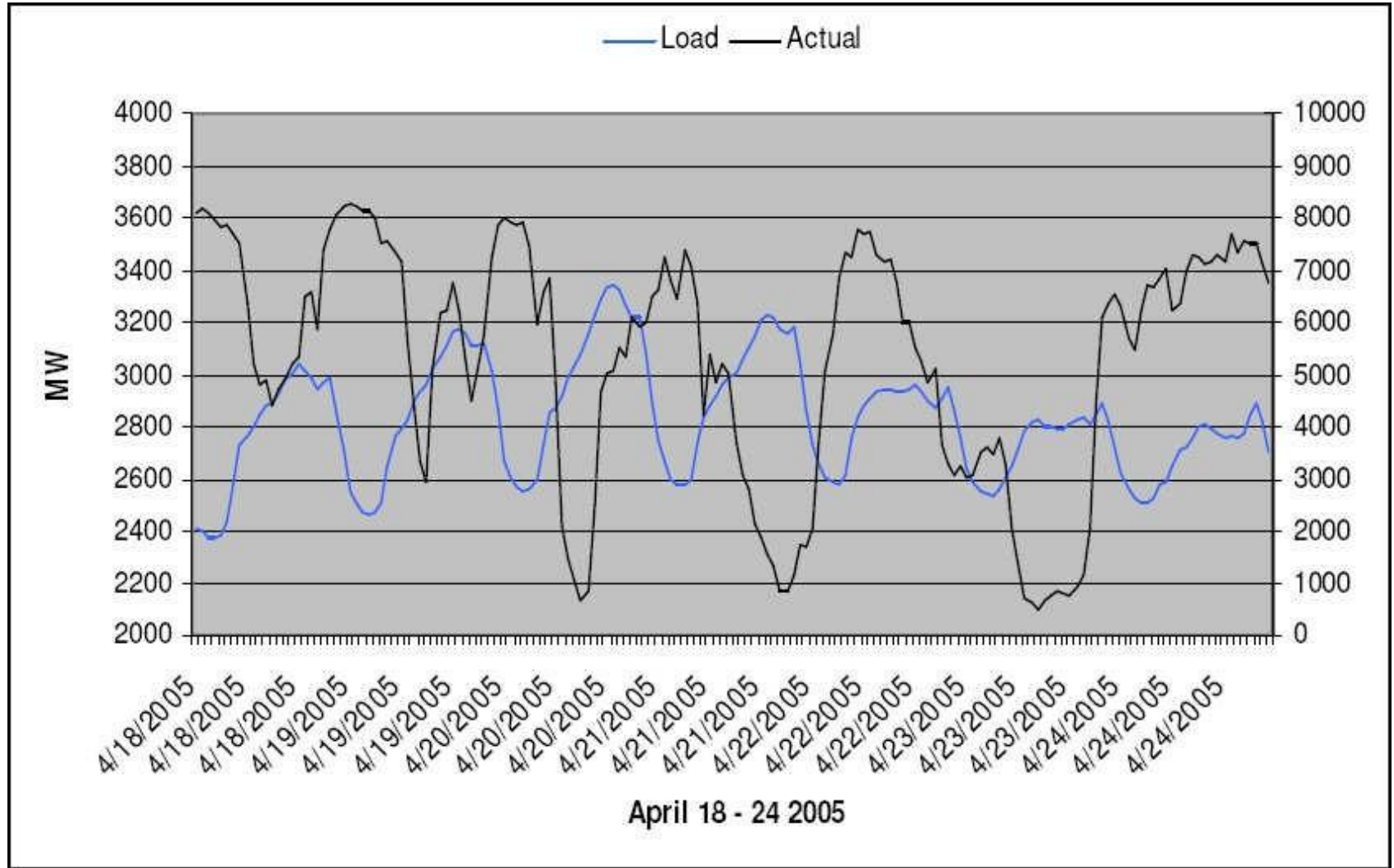
Annual Average Wind Speed - 80 meters

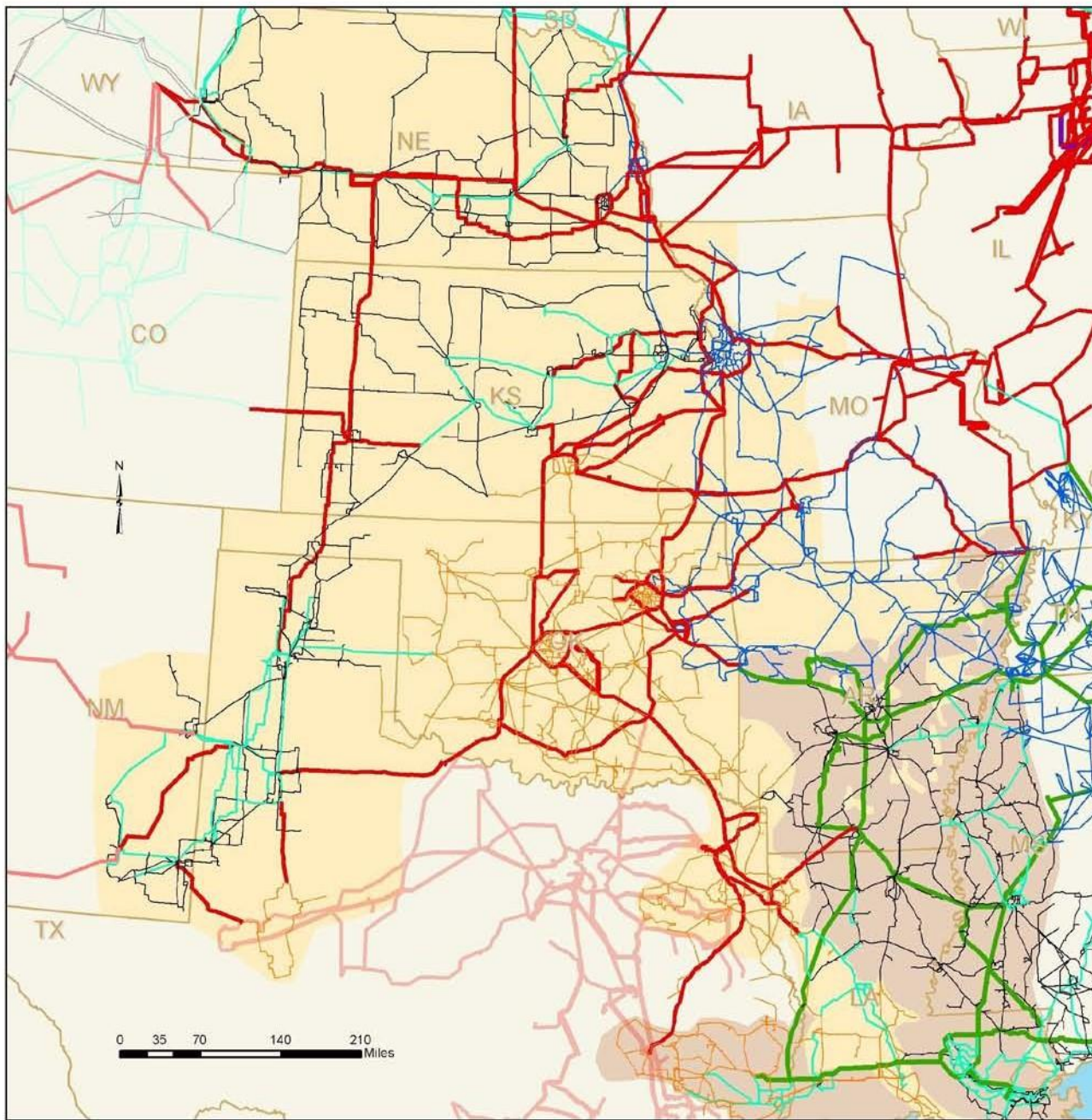


Ongoing SPP Initiatives

- **Transmission Expansion**
 - **Market Development**
 - **Energy Imbalance Market**
 - **Ancillary services Market**
 - **Balancing Authority Consolidation**
- Wind Integration Issues**








Correlation Between Wind and Load



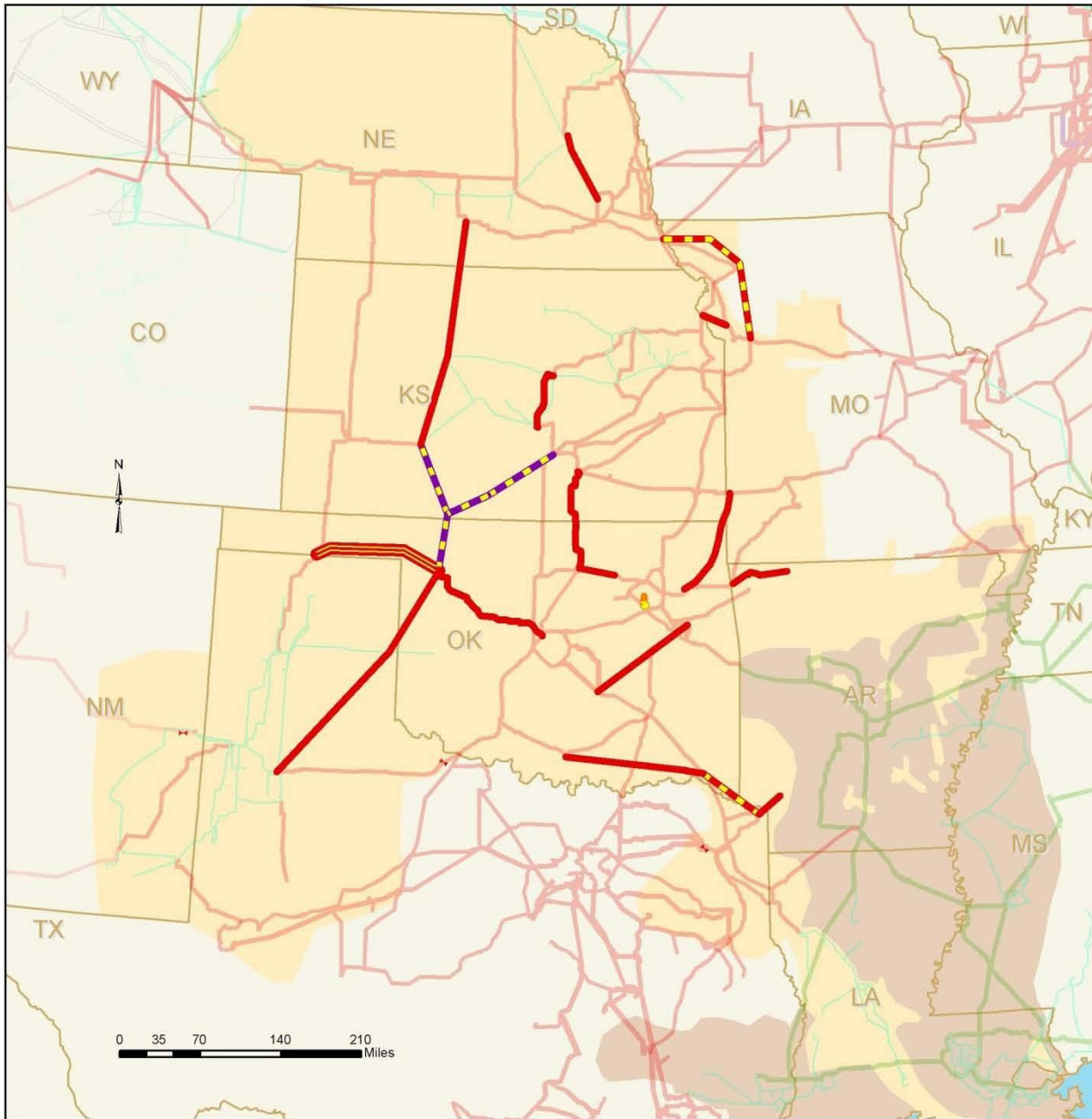


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**Current SPP
Transmission System**
(2009)

-  115 kV
-  138 kV
-  161 kV
-  230 kV
-  345 kV
-  500 kV
-  Southwest Power Pool
-  Entergy ICT





Transmission Expansion (345kV +)

-  Single Circuit PP
-  Double Circuit PP
-  Committed to be Built (345kV+)
-  230 kV
-  345 kV
-  500 kV
-  765 kV
-  Southwest Power Pool
-  Entergy ICT



Integrated Transmission Plan (ITP)

- **Balance**
 - long-term investment
 - congestion costs
- **Forward looking and proactive**
- **Create efficiencies in other processes**
 - Generator Interconnection
 - Transmission Service Request
- **Integrate west to east**

ITP Principles

- **Focusing on regional needs**
 - Also consider local needs
- **Planning the backbone transmission system**
 - Serving SPP load by SPP resources in cost-effective manner
- **Backbone enhances interconnections**
 - west & east regions
- **Strengthen ties to Eastern Interconnection and beyond**

ITP Principles

- **Incorporate a 20-Year physical modeling & 40-Year financial analysis**
- **Proactively prepare & respond to national priorities**
 - Provides flexibility to adjust expansion plans
- **Simplify multiple cost allocation methods**
- **Develop holistic, long-range view**
- **Authorization to Plan (ATP)**

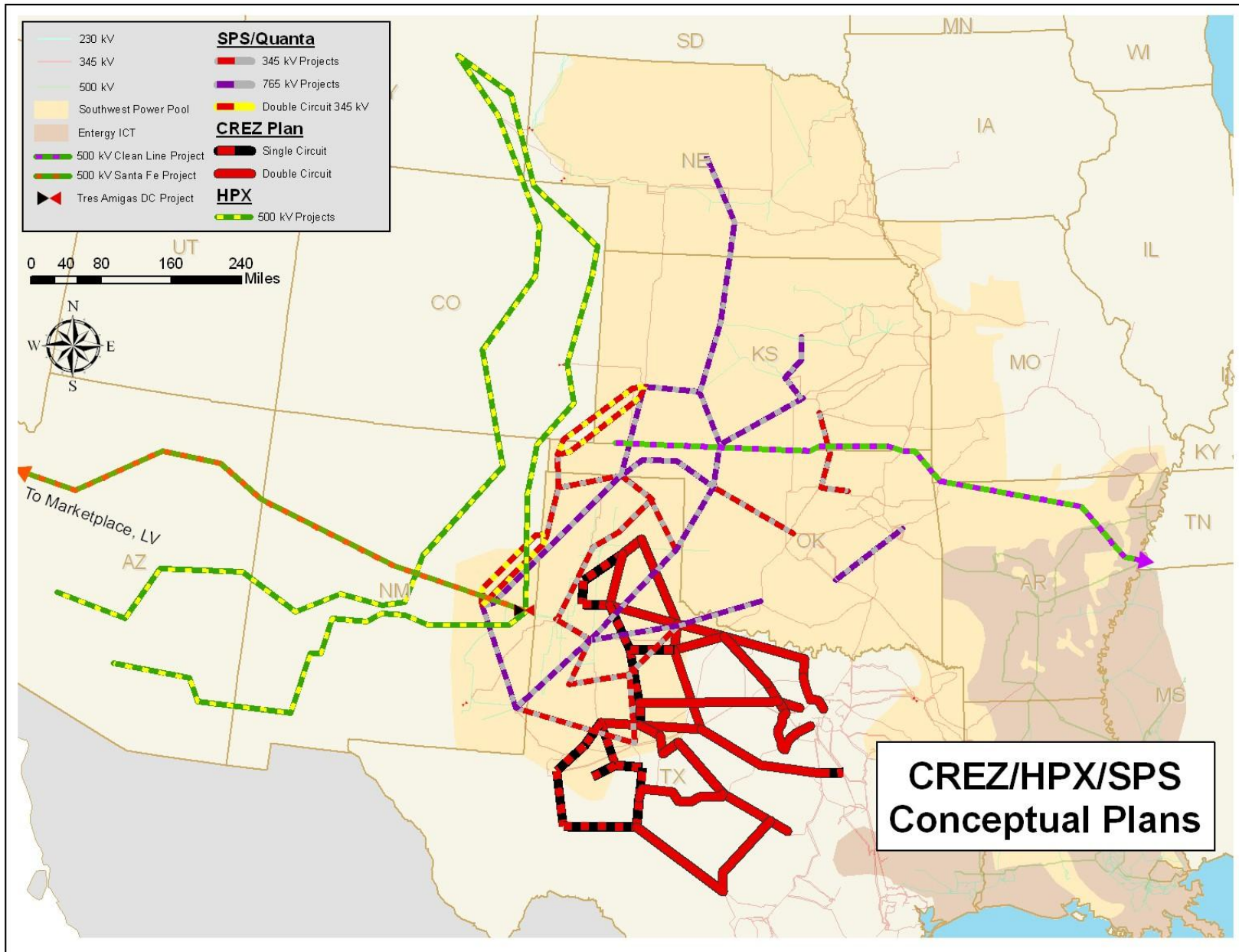


ITP Goals

- **Goal:** Design transmission backbone to connect load to the most reasonable generation alternatives
 - Improve connections between SPP's east and west regions
- **Horizons:** 20, 10, and 4 year
- **Focus:** Regional, integrated with local
- **Resulting in:** Comprehensive list of needed projects for SPP region over next 20 years
- **Underlying Value:** Reliability and economics are inseparable

Current ITP 20 Proposal

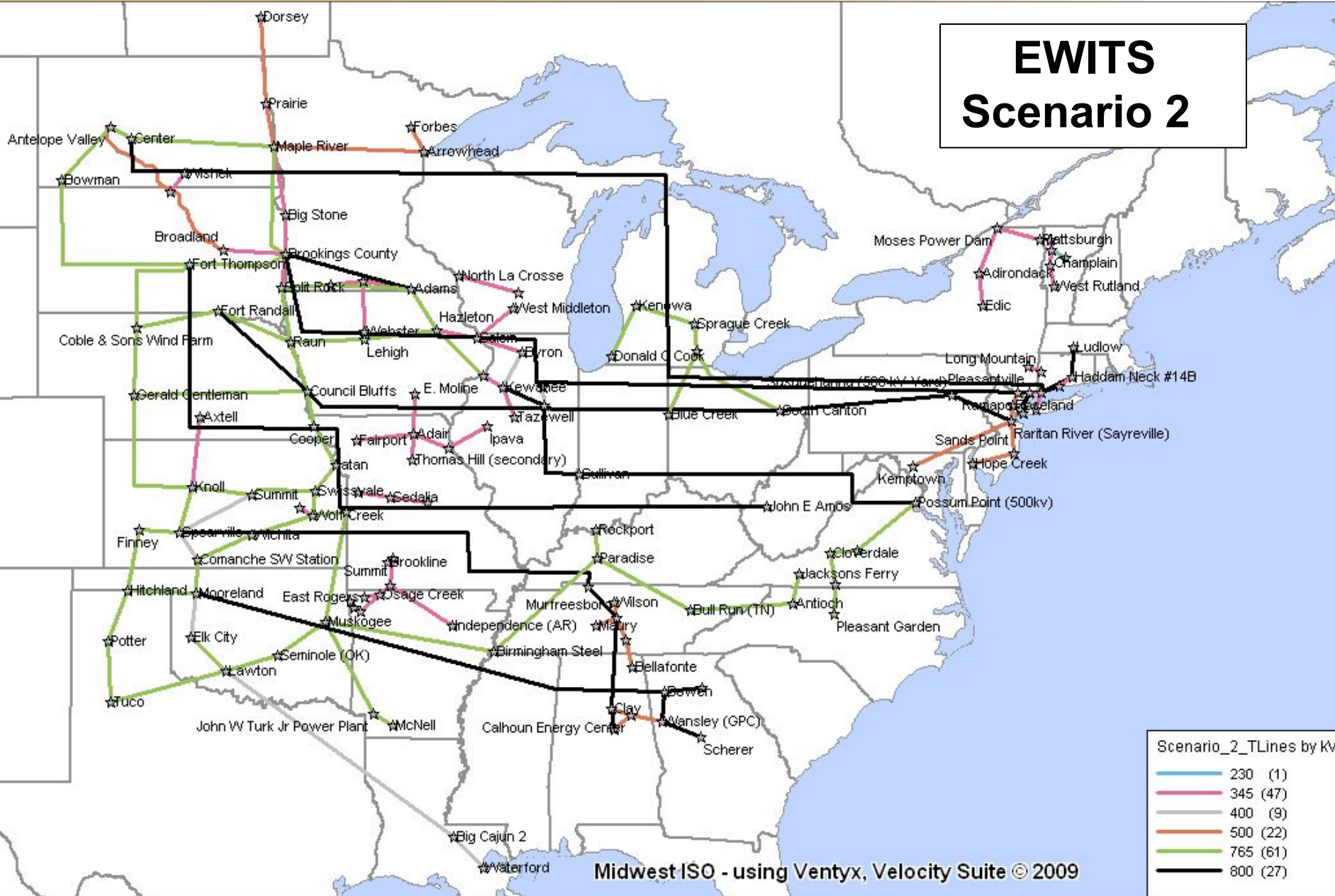




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EWITS Scenario 2



Scenario_2_TLines by kV

230	(1)
345	(47)
400	(9)
500	(22)
765	(61)
800	(27)



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