

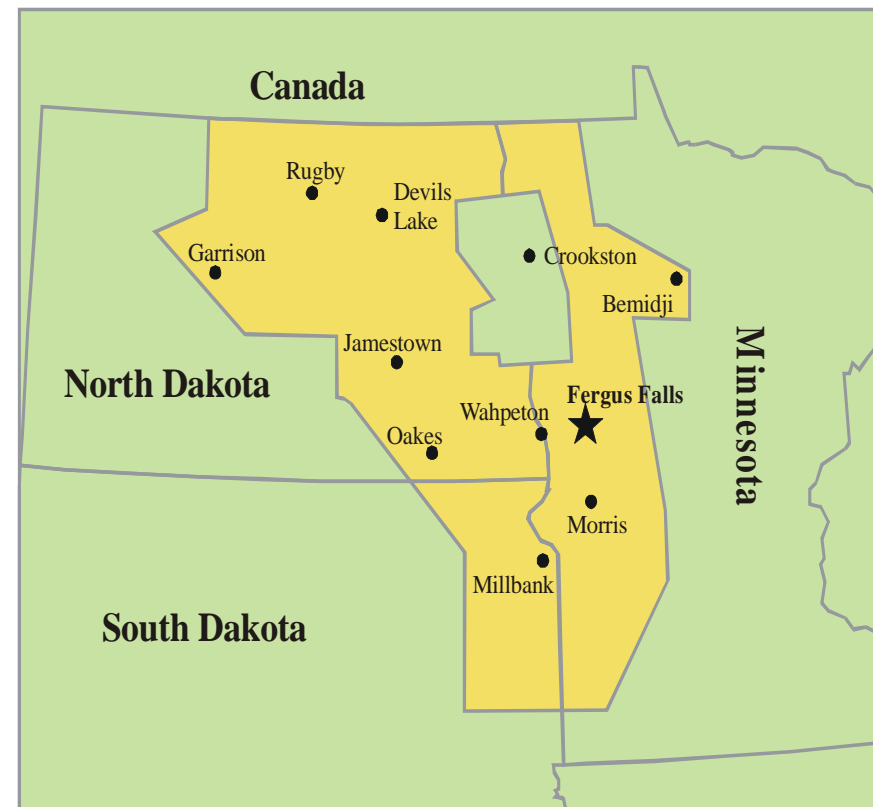
Customers, Engineering & Policy: Balancing Transmission Expansion

SD PUC
Crisis or Renaissance
State of America's Energy
May 12, 2009

Tim Rogelstad
Otter Tail Power Company

Otter Tail Power Company

- Investor Owned Utility
- 130,000 Retail Customers
- 4000 Miles of Transmission
- CapX 2020 Partner
- Celebrating 100th Anniversary



Transmission Objectives

- Reliable
 - Affordable
 - Efficient
 - Fair Cost Allocation
 - Opportunity to Invest
-

Key Policy Issues



- Regional Planning
 - How big and when?
- Cost Allocation
 - Who should pay?
- Need and Siting
 - State versus Federal?

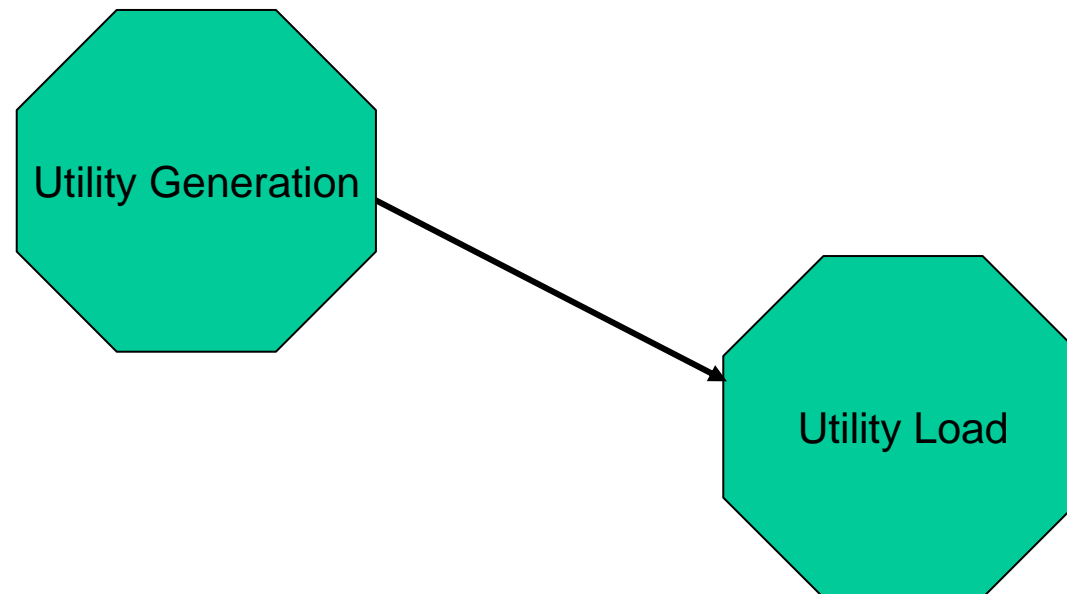
Cost Allocation – Who Pays? Challenges

- Precise determination of beneficiaries and cost causation difficult
- Use of facilities change over time
- Local versus regional or national need
- Size of area of shared costs

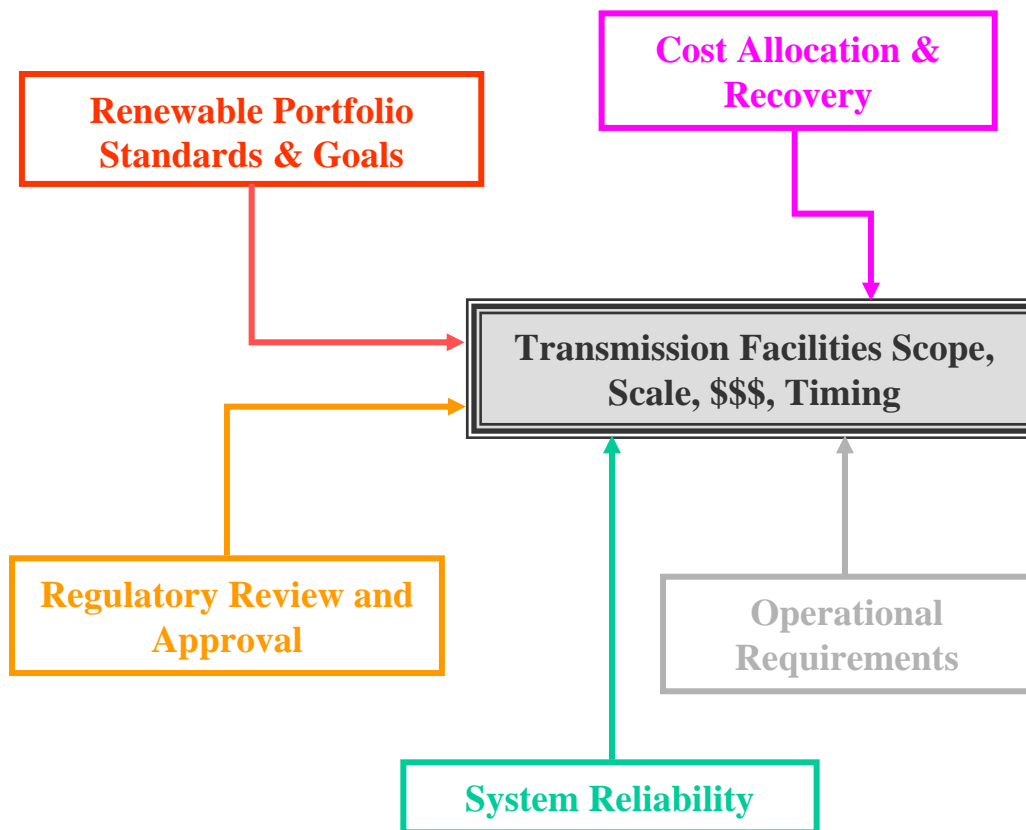
Current Cost Allocation Issues

- Current MISO Tariff – Unintended consequences
- Multi-Region Planning
- Access Points vs. EHV Overlay
- Fair and equitable solution

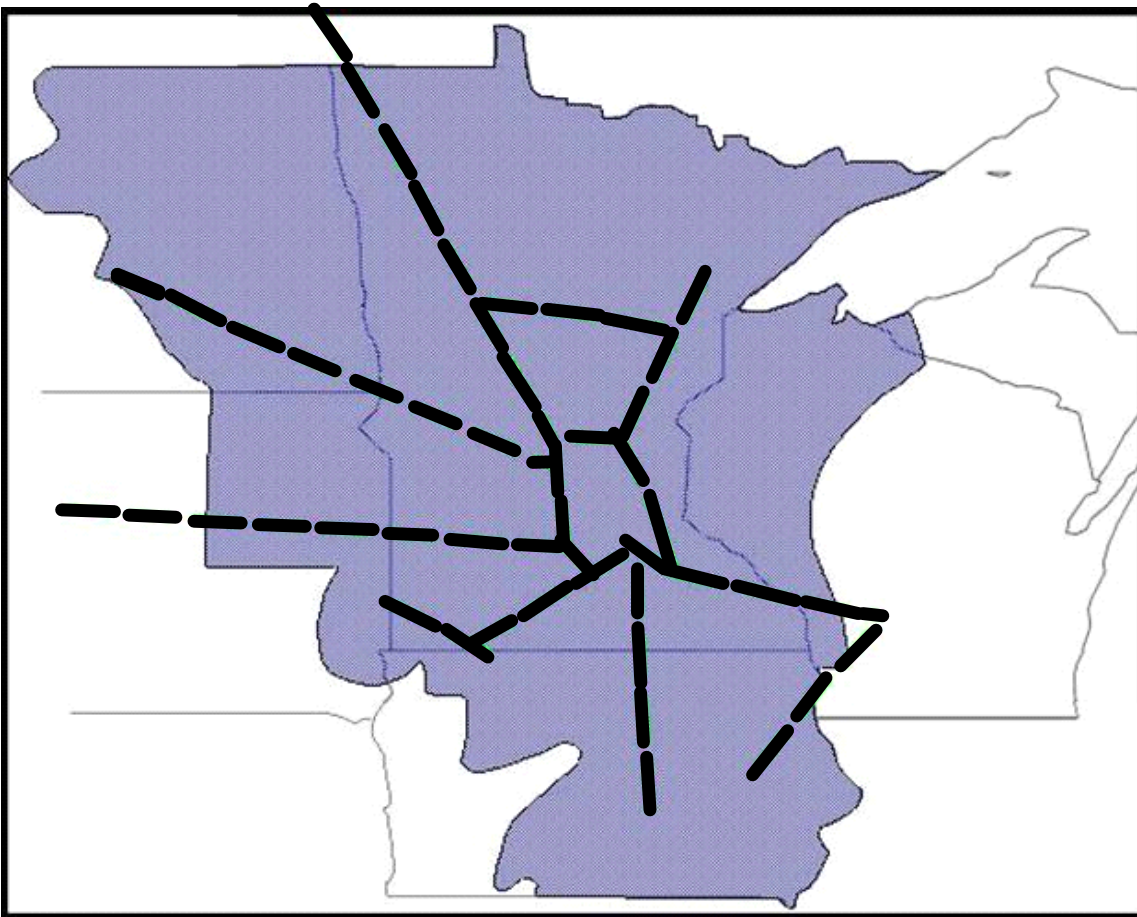
Transmission Development In The Past



Transmission Development Drivers



CapX 2020 Initiative



- Initiated in 2004
- 4,000 to 6,000 MW of growth by 2020
- Comprehensive planning effort - Vision Plan
- Identify plans for multiple generation scenarios
- Early renewable energy objectives

CapX Group 1 Projects

Extensive Effort by Utilities, Regulators, Stakeholders



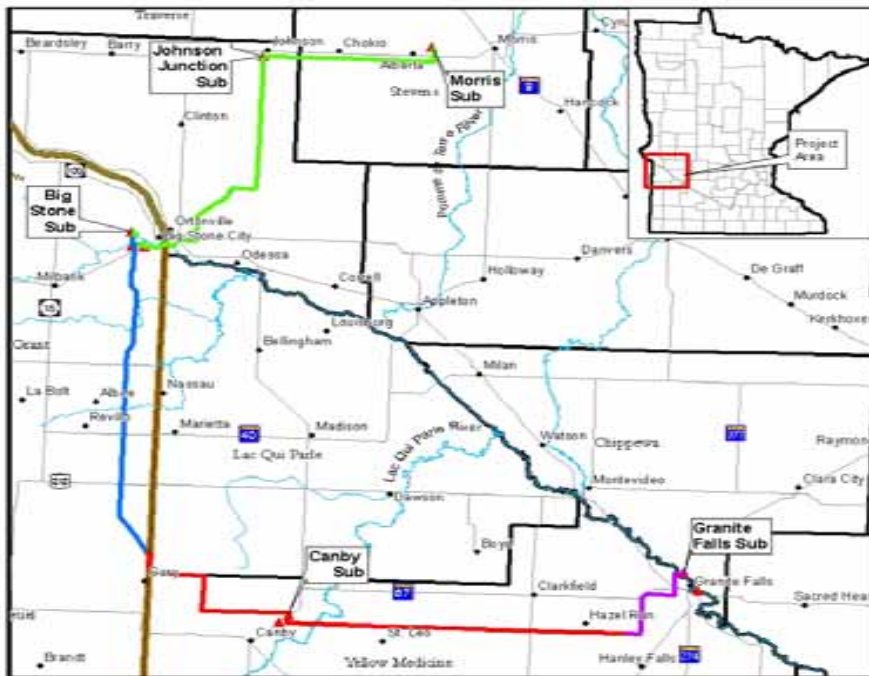
Nearly 700 miles, \$1.7 billion (\$2007)

In-service dates from 2012 to 2015

Fargo-St. Cloud-Monticello	250 mi, 345-kV
Brookings County-Hampton	240 mi, 345-kV
Hampton-Rochester-La Crosse	150 mi, 345-kV
Bemidji-Grand Rapids	70 mi, 230-kV

- Alleviates emerging community service reliability concerns
- Critical foundation for future transmission and generation, including renewables
- “Up-sizing” adds about \$200 million

Big Stone Transmission Project

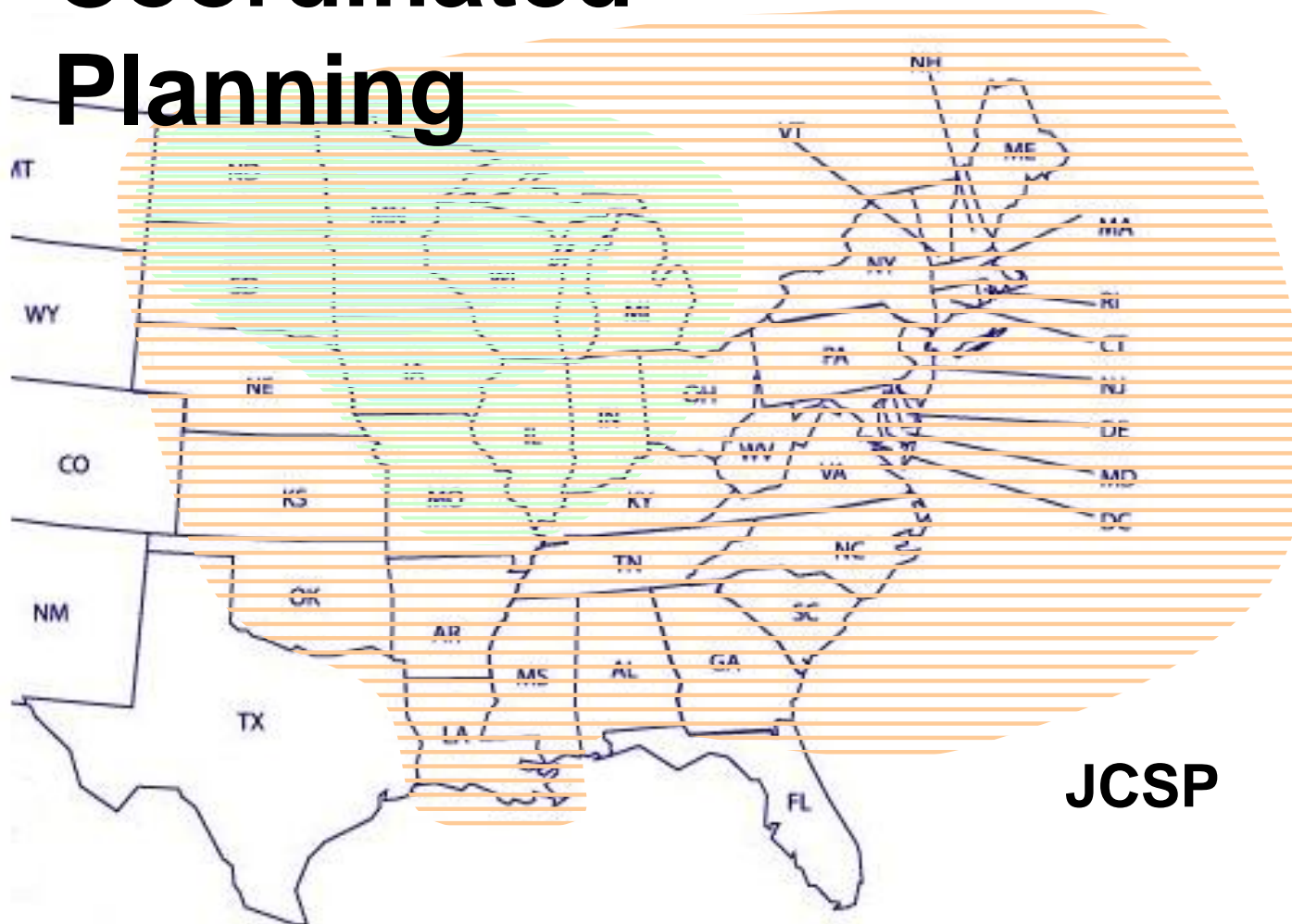


- Origin in Big Stone II generation interconnection request
- Planned to accommodate renewable generation
- Transmission approved in both states

Planning to Meet Future Transmission Needs

- Reliability
- Flexibility
- Integration of Renewables
- Other Generation Additions
- Export Level
- Coordination with State/Regional Planning Efforts
- Energy Market Efficiency

Coordinated Planning



Potential Transmission Projects Studied (CapX/MTO)

Facilities studied include:

- Minnesota Valley-Blue Lake 345 kV
- Lakefield Junction-Adams 345 kV
- Adams-Genoa-North La Crosse 345 kV
- La Crosse-Madison 345 kV
- Ashley-Hankinson 345 kV
- Fargo-Hankinson-Big Stone-Brookings 345 kV
- Brookings-Split Rock 345 kV

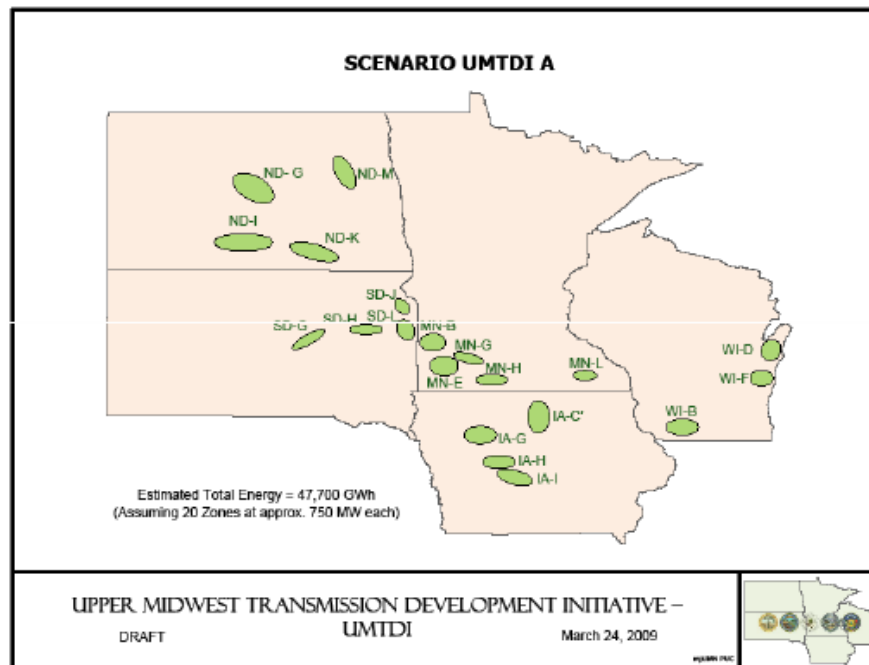


SW Twin Cities-Granite Falls 345-kV line



- Replace existing 115-mile 230 kV line with new double circuit 345-kV line
- Similar length
- Steel monopole towers
- Panther, McLeod and Blue Lake substations will be updated
- Approximately \$350 million

Upper Midwest Transmission Development Initiative ("UMTDI")



- 15,000 MW Nameplate Renewable
- What is required for export?

Inter-Regional Expansion

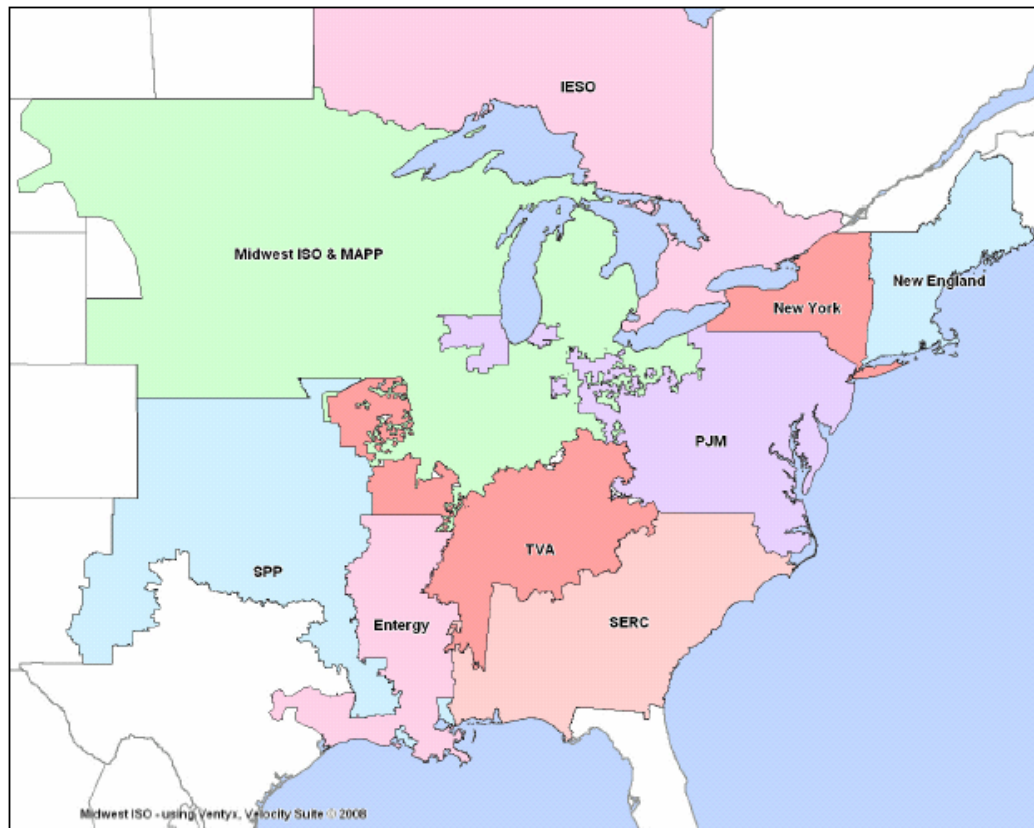


Figure 5-1: JCSP'08 Capacity Expansion Planning Regions.

- 345, 500, 765 kV
AC, DC
- \$80 billion

Summary

- Reliable System
 - Integration of New Facilities
- Affordable
 - Fair Cost Allocation
- Policy
 - Support Renewable Energy Development
 - Energy Efficiency
- Flexible
- Process is Working in the Upper Midwest