PRESENTATION TO THE LEGISLATIVE ENERGY COMMISSION

September 8, 2009

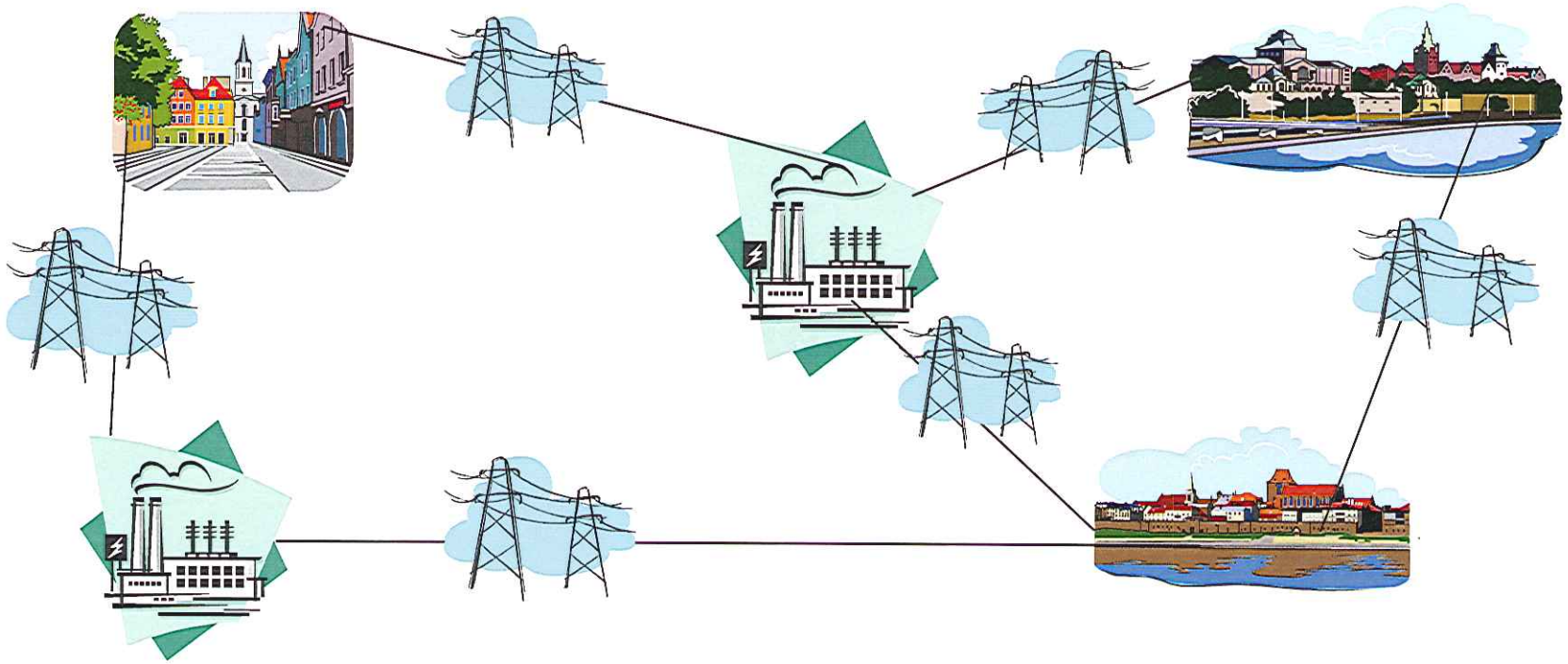
Minnesota Public Utilities Commission

Office of Energy Security/Reliability Administrator

Midwest Independent Transmission System Operator

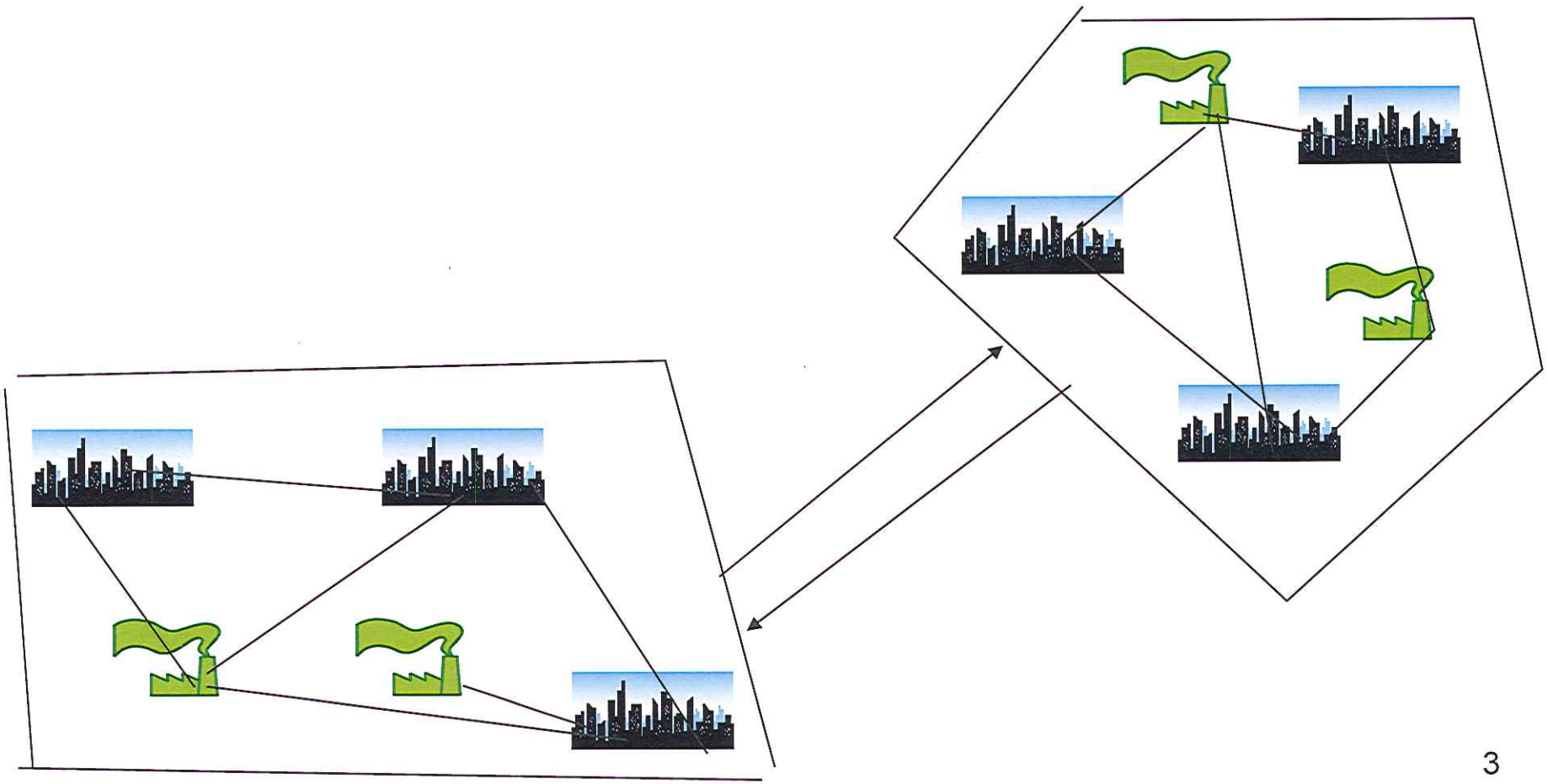
Utility Service Provision "Then"

- ***"Then" Utilities built facilities to serve own customers***



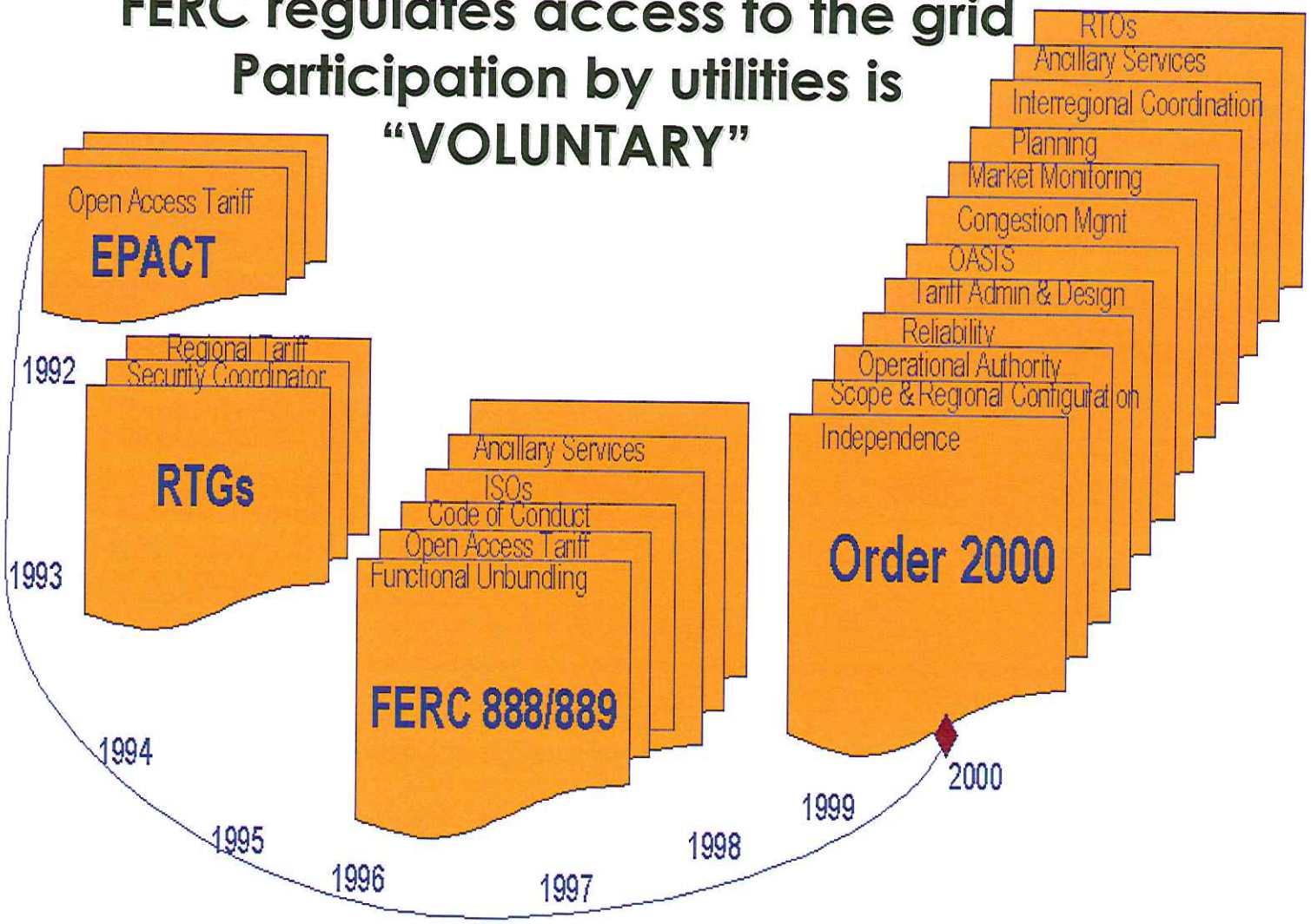
"Then" There was no Open Energy Market

- "Then" Bilateral Transactions used to Buy/Sell Power for Own Customers



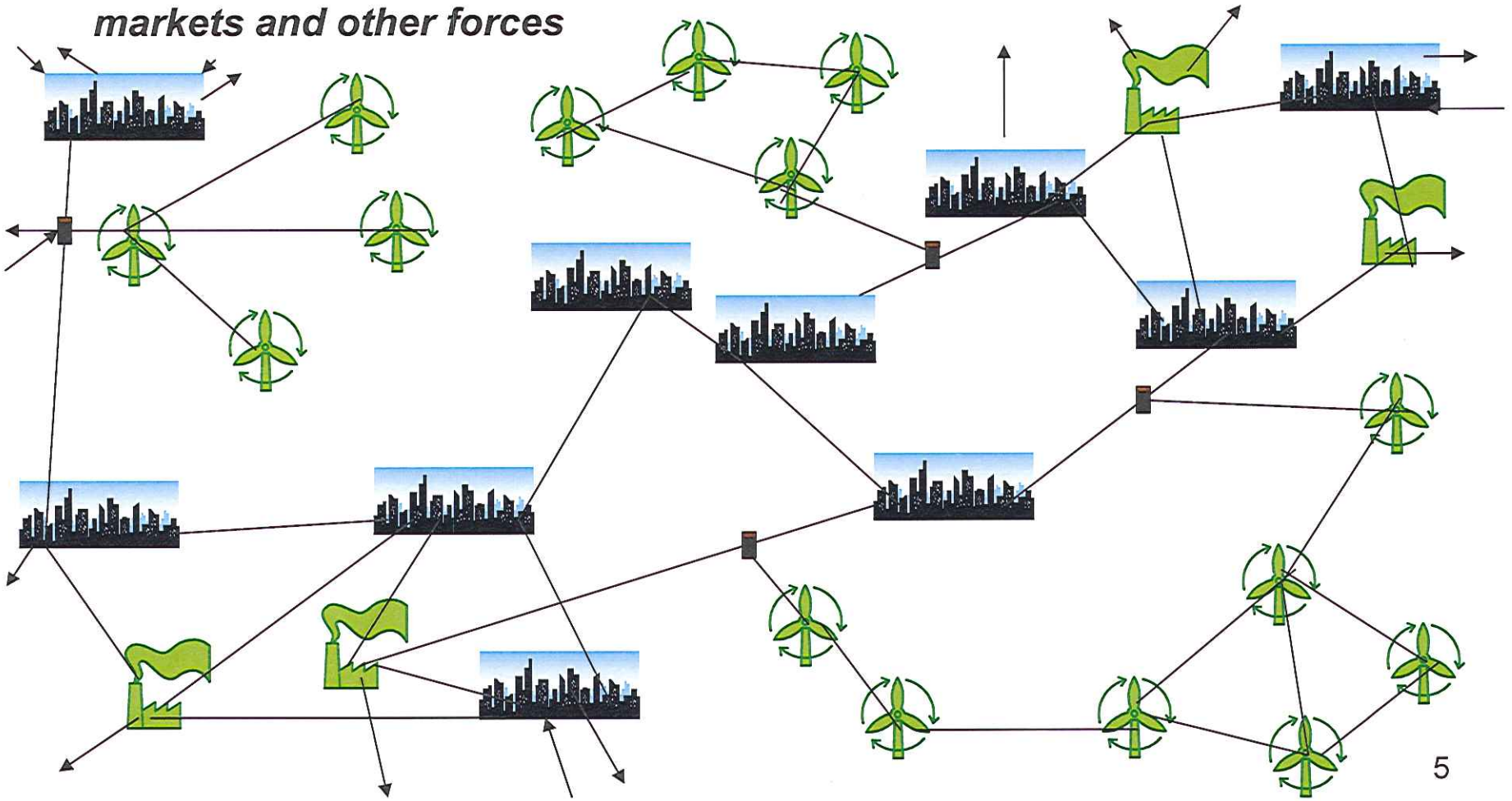
Open Access Transmission

FERC regulates access to the grid
Participation by utilities is "VOLUNTARY"



Utility Service Provision "Now"

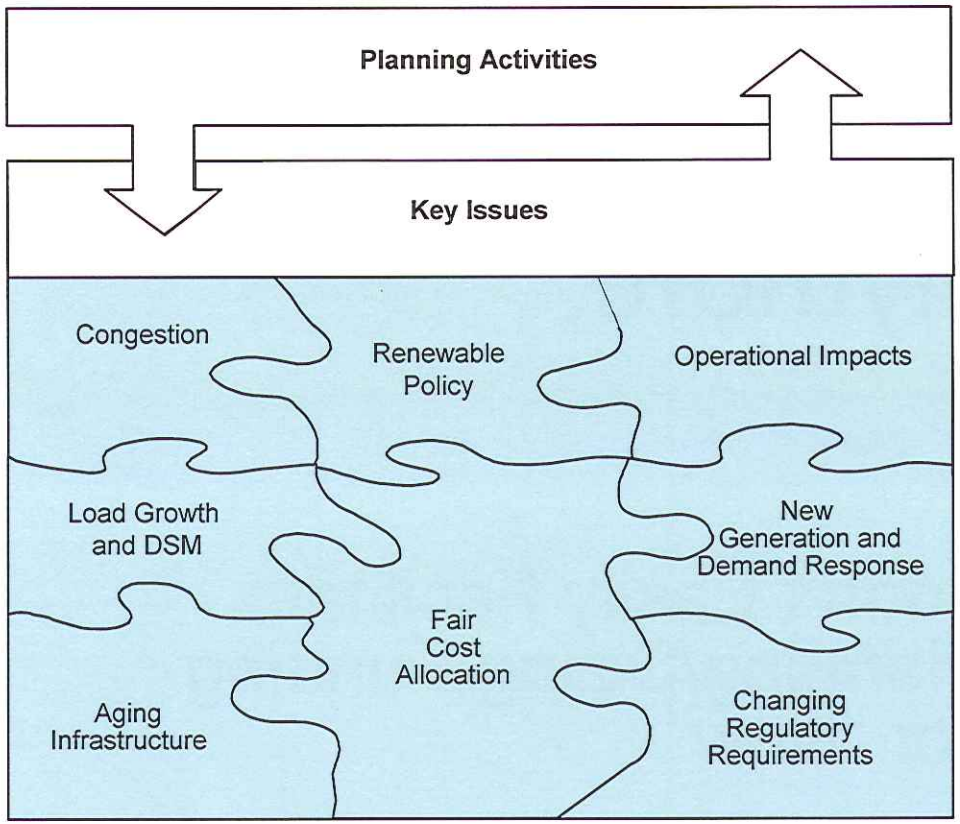
- ***"Now" Utilities build facilities to serve customers, public policies, markets and other forces***



Transmission is Needed

- Industry Studies conclude that new Transmission is needed to enable renewable resource development and to fulfill environmental public policy mandates

Transmission Planning: Now



- "Then" rules don't apply to "Now" so
  - How do we plan?
  - How do we size transmission appropriately?
  - How do we ensure key drivers are considered?
  - Who pays?

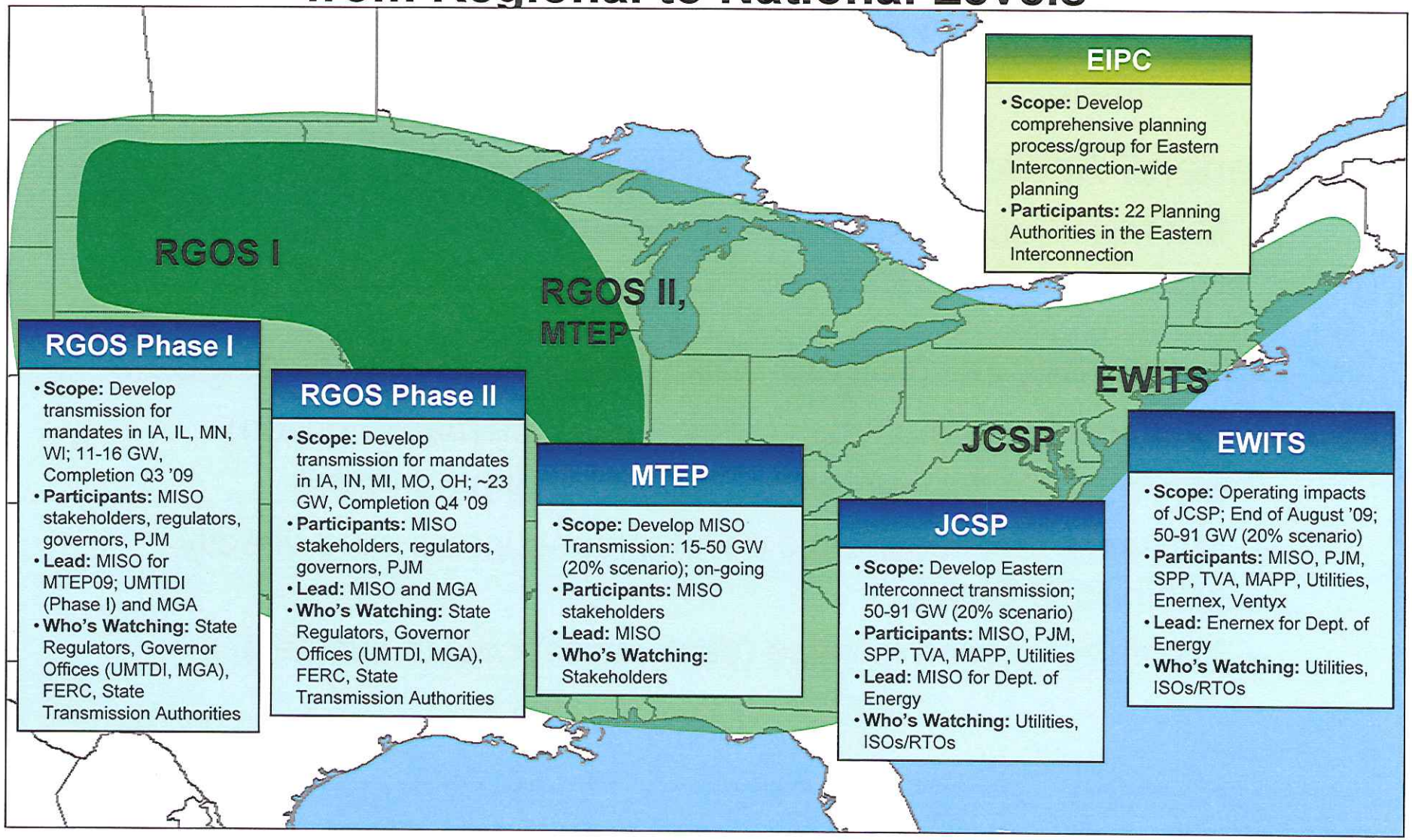
"Then" Rules don't Work Anymore

"Then" Rules don't Easily Facilitate Transmission Planning/Sizing/Funding for "Now"

The Transmission Design Challenge

- General Approach for Transmission Study
  - Minimize transmission capital costs, generation capital costs and system energy costs while maintaining system reliability
- Solution may be subject competing constraints or goals:
  - Minimize investment risk (seek shorter payback horizon)
  - Maximize carbon reduction (replace coal production)
  - Maximize local economic development (install wind directly within RPS State)
  - Maximize economic value (seek lowest cost to customer)

Midwest ISO is Actively Engaged in Planning from Regional to National Levels



RGOS Phase I

- **Scope:** Develop transmission for mandates in IA, IL, MN, WI; 11-16 GW, Completion Q3 '09
- **Participants:** MISO stakeholders, regulators, governors, PJM
- **Lead:** MISO for MTEP09; UMTIDI (Phase I) and MGA
- **Who's Watching:** State Regulators, Governor Offices (UMTDI, MGA), FERC, State Transmission Authorities

RGOS Phase II

- **Scope:** Develop transmission for mandates in IA, IN, MI, MO, OH; ~23 GW, Completion Q4 '09
- **Participants:** MISO stakeholders, regulators, governors, PJM
- **Lead:** MISO and MGA
- **Who's Watching:** State Regulators, Governor Offices (UMTDI, MGA), FERC, State Transmission Authorities

MTEP

- **Scope:** Develop MISO Transmission: 15-50 GW (20% scenario); on-going
- **Participants:** MISO stakeholders
- **Lead:** MISO
- **Who's Watching:** Stakeholders

JCSP

- **Scope:** Develop Eastern Interconnect transmission; 50-91 GW (20% scenario)
- **Participants:** MISO, PJM, SPP, TVA, MAPP, Utilities
- **Lead:** MISO for Dept. of Energy
- **Who's Watching:** Utilities, ISOs/RTOs

EWITS

- **Scope:** Operating impacts of JCSP; End of August '09; 50-91 GW (20% scenario)
- **Participants:** MISO, PJM, SPP, TVA, MAPP, Utilities, Enernex, Ventyx
- **Lead:** Enernex for Dept. of Energy
- **Who's Watching:** Utilities, ISOs/RTOs

EIPC

- **Scope:** Develop comprehensive planning process/group for Eastern Interconnection-wide planning
- **Participants:** 22 Planning Authorities in the Eastern Interconnection

RGOS = Regional Generation Outlet Study
MTEP= Midwest ISO Transmission Expansion Plan
JCSP = Joint Coordinated System Plan

EWITS = Eastern Wind Integration and Transmission Study
EIPC = Eastern Interconnection Planning Collaborative

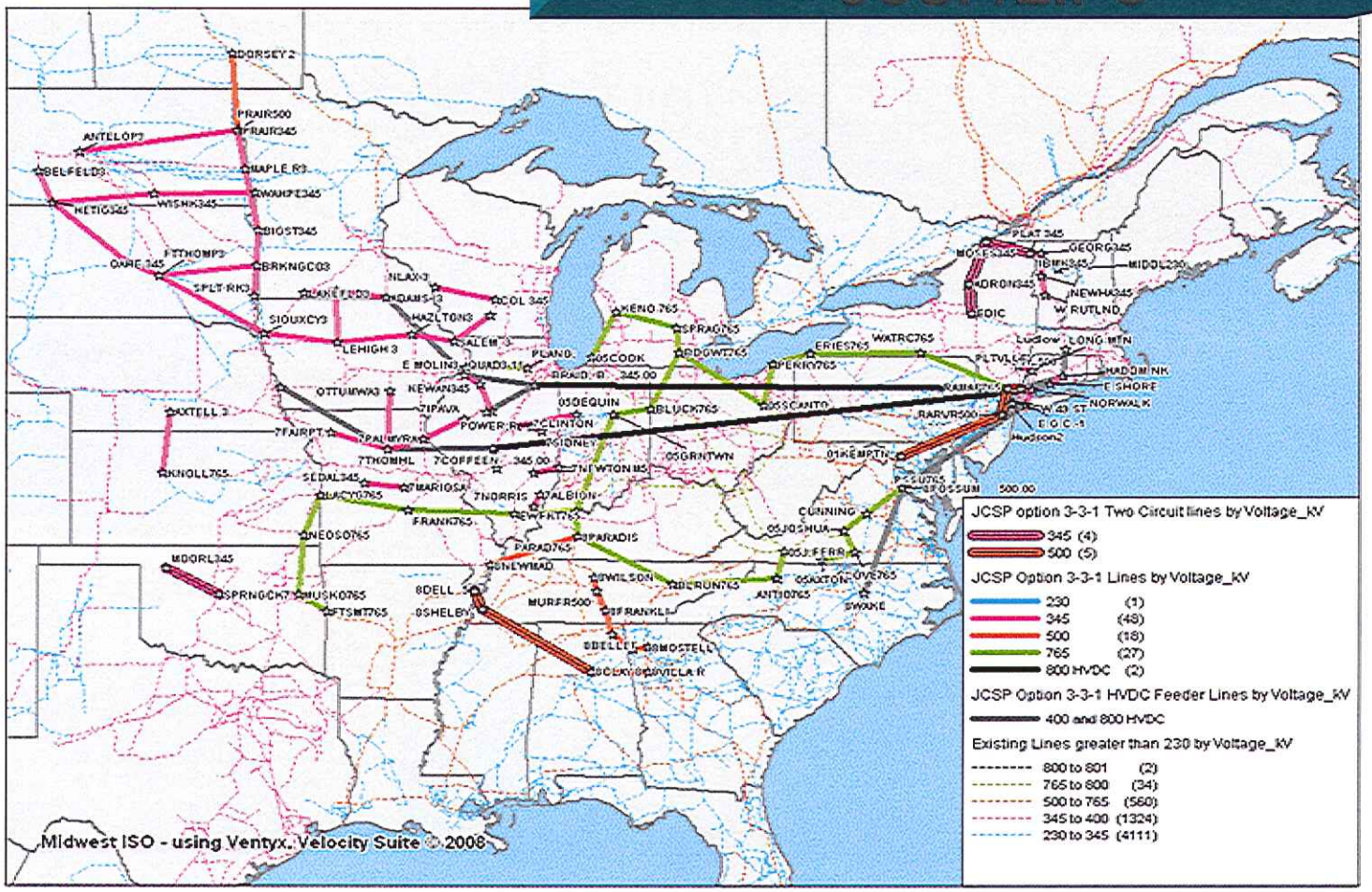
Conceptual Progression of Plans

1 year — Planning Horizons — 20 year

Queue

RGOS

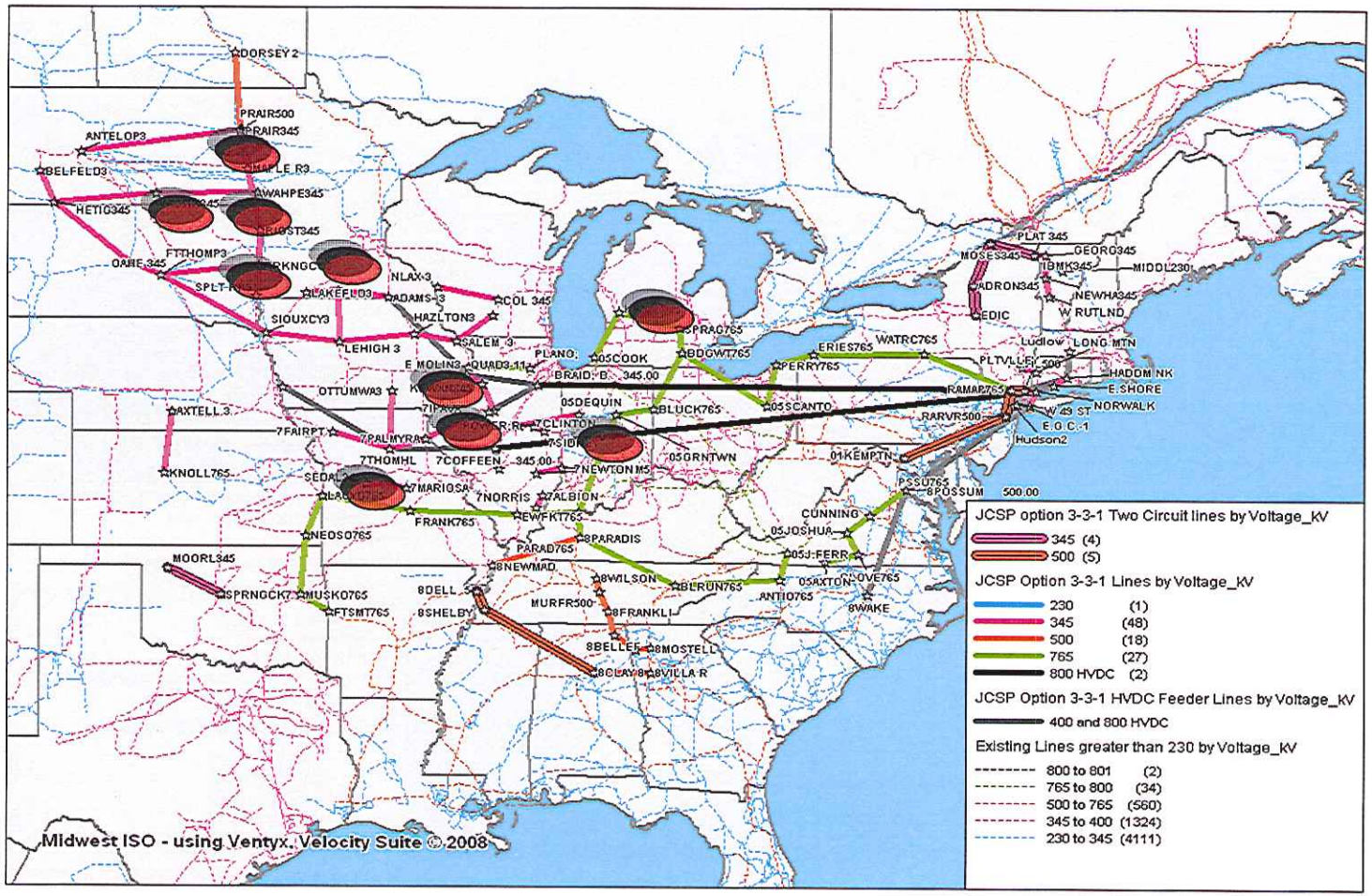
JCSP/EIPC



Queue Development Continues with near term upgrades…

1 year — Planning Horizons — 20 year

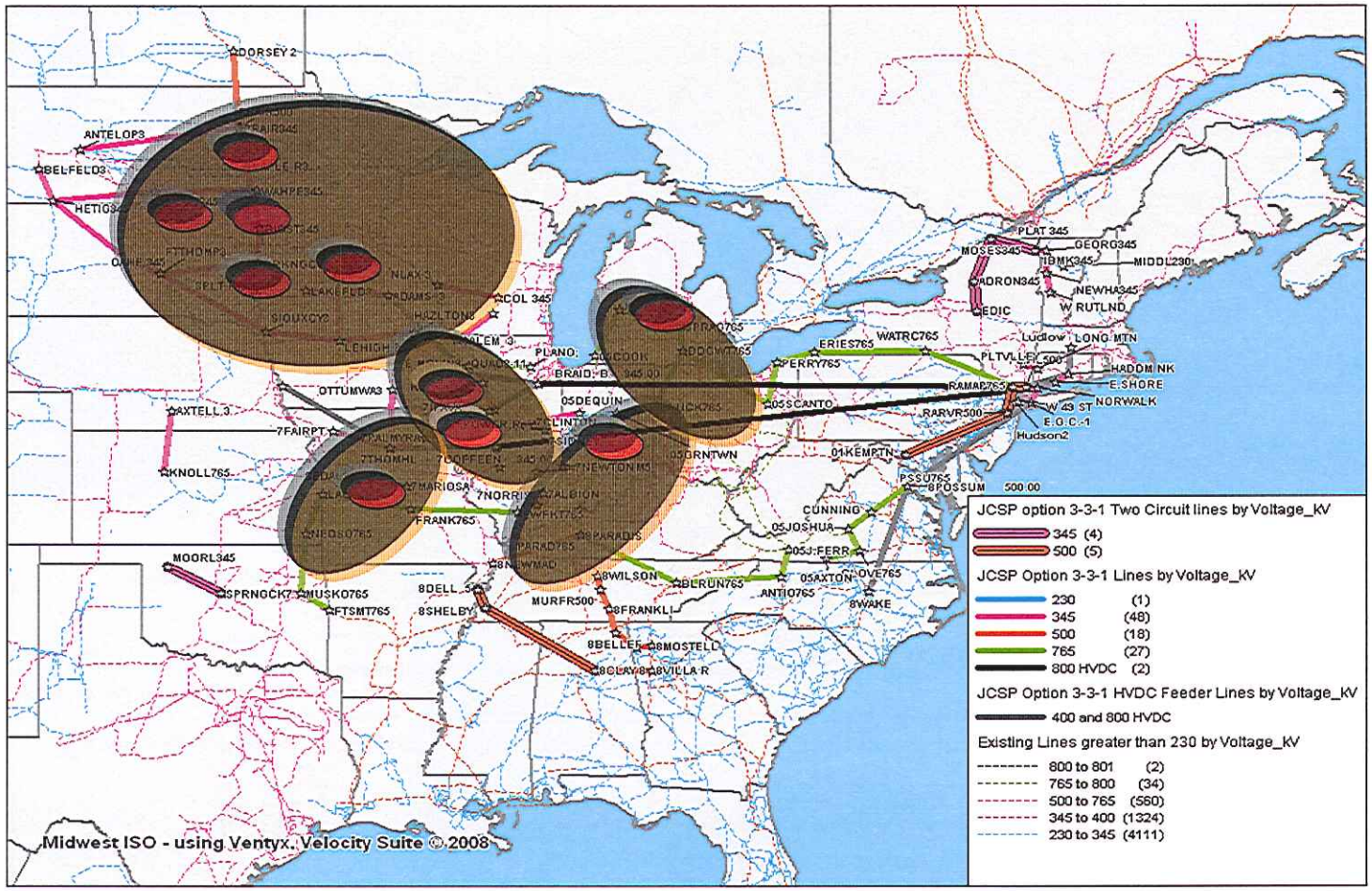
Queue



...Until RGOS Aggregate Plans better inform…

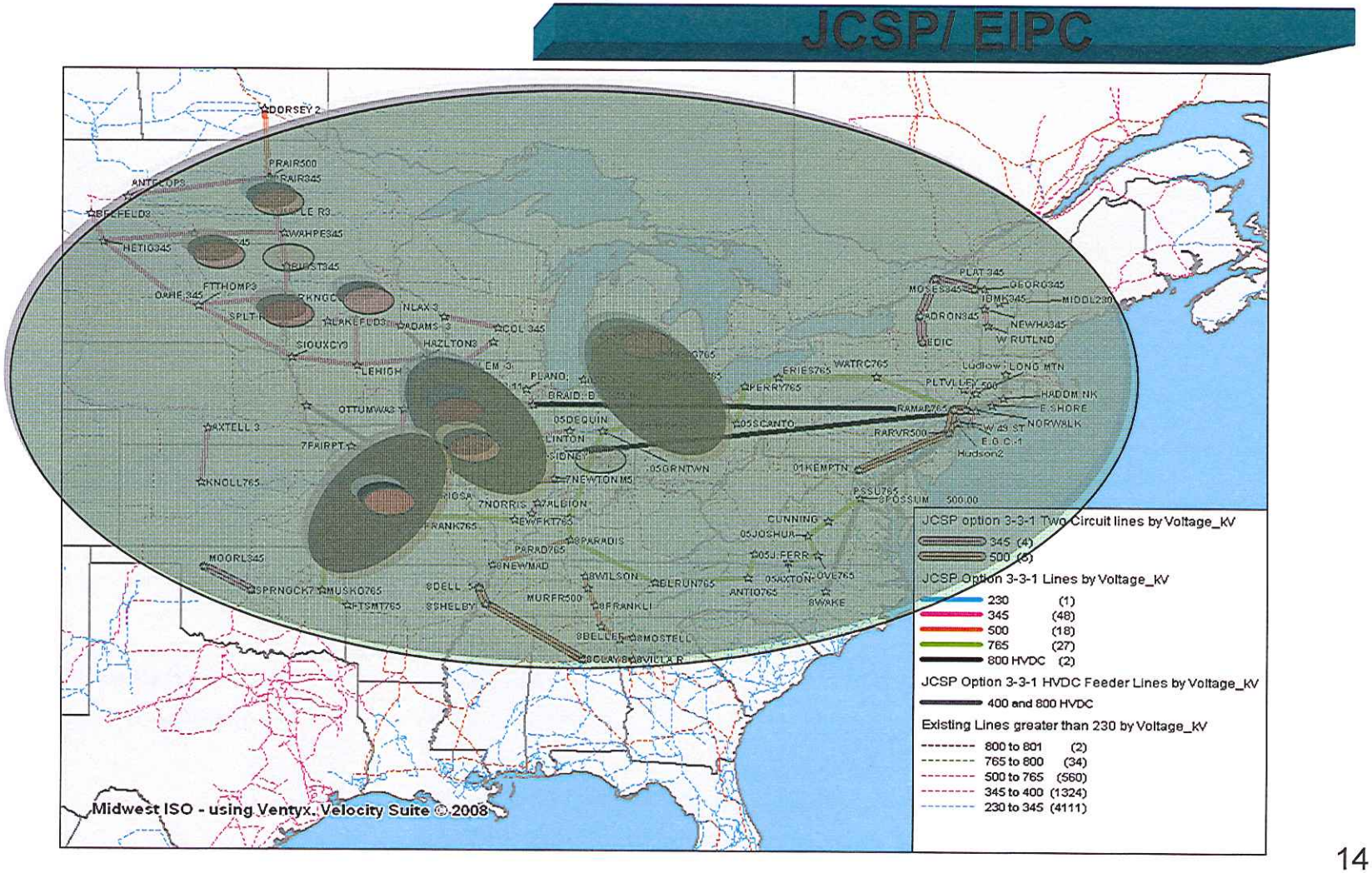
1 year — Planning Horizons — 20 year

RGOS



...Consistent with an inter-regional plan with a longer term view

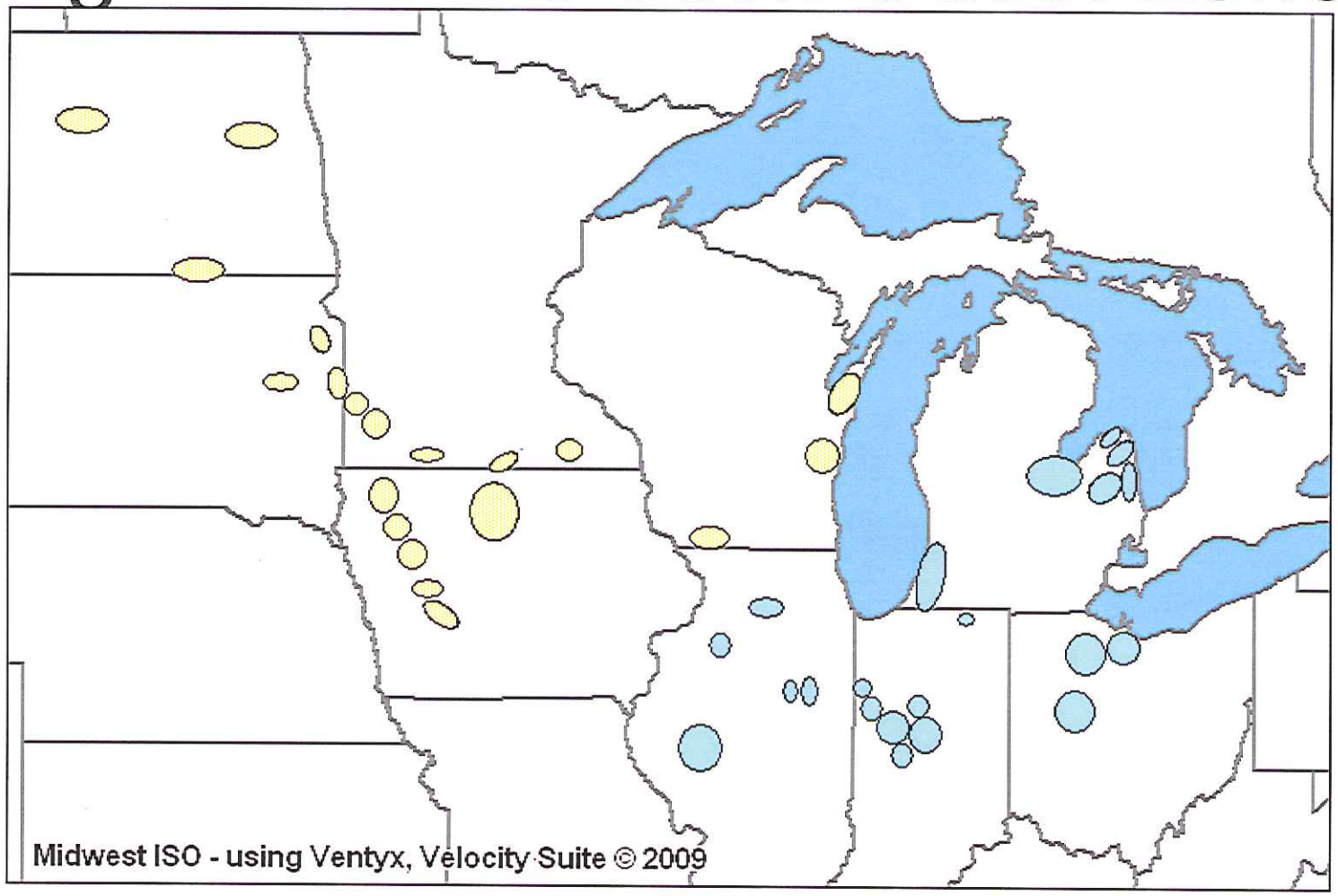
1 year — Planning Horizons — 20 year



RGOS Next Steps

- Regional Generation Outlet Study 1 is in the detailed design phase
  - Detailed transmission analysis and design for RGOS 1 state requirements
  - Higher wind level designs for supporting RGOS 2 and potential national requirements
  - Preliminary transmission plan for RGOS 1 state requirements published August 24th
- Regional Generation Outlet Study 2 has begun indicative design work
  - Indicative transmission developed and economic analysis in progress

Regional Generation Outlet Zones



Yellow Circles: Zones from RGOS I work
Blue Circles: Zones defined for RGOS II work

Conditions Precedent to Increased Transmission Build

- A robust business case for the plan
- Increased consensus around regional energy policy
- A regional tariff that matches who benefits with who pays over time
- Cost recovery mechanisms that reduce financial risk

Regional Transmission Planning -- States

- Upper Midwest Transmission Development Initiative (UMTDI)
- Eastern Interconnection States Planning Council (EISPC)

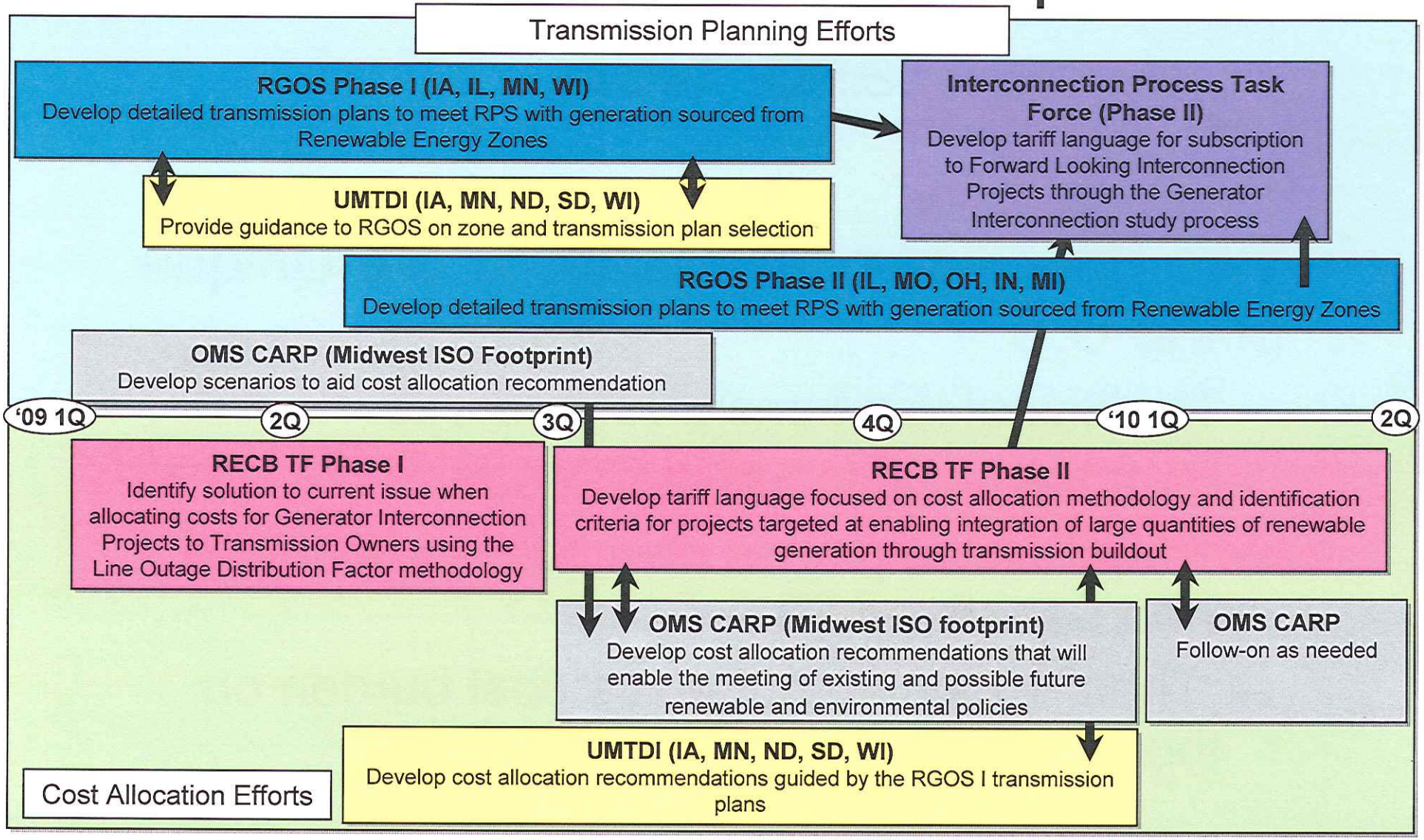
Planning – Legislative Studies

- Dispersed Renewable Generation Study
  - Phase 1 (June, 2008)
  - Phase 2 (September 15, 2009)
- Resource Assessment Study (Sept. 2009)
- RES Transmission Plan (Nov, 2009)

Funding Efforts – Cost Allocation

- Cost Allocation/Resource Planning (CARP)
  - Organization of MISO States (OMS)
- Regional Expansion Costs and Benefits (RECB)
  - All MISO Stakeholders
- Upper Midwest Transmission Development Initiative (UMTDI)
  - **Minnesota, North Dakota, South Dakota, Iowa, Wisconsin**

Environmental Policy Planning and Cost Allocation Activities in the Midwest ISO footprint



RGOS = Regional Generation Outlet Study
UMTDI = Upper Midwest Transmission Development Initiative
OMS CARP = Organization of Midwest ISO States Cost Allocation Regional Planning

Situations Caught between "Then" and "Now"

- Two Specific Local Situations are Unique in the U.S.
  - Traditional low transmission areas
  - High Renewable Energy Potential
  - "Then" Rules placed cost burden on those who Benefitted "Then"
  - "Then" Rules do not place cost burden on those who Benefit "Now"

Getting Caught Between "Then" and "Now": "Otter Tail Situation"

- High quality wind resources in Otter Tail service area
  - Over 8,500 MW of wind seeking to locate in the approximately 1000 MW Otter Tail Zone
  - Largely targeted to serve Renewable Portfolio Standards outside of the Otter Tail Zone, not for Otter Tail Customers
- "Then" rules still apply—Local Utility Pays
- Devastating to OTP and customers
  - Estimated 44% rate increase for Otter Tail customers even if only 1,700 MW proceed to commercial operation
- Midwest ISO has filed a FERC request to provide relief to the loads in Midwest ISO
- Wind developers strongly object
- Awaiting FERC decision

Getting Caught Between "Then" and "Now": "Brookings"

- Brookings will:
  - Stabilize the Immediate Region (MN,SD,IA)
  - Increase Reliability in the Region
  - Provide Outlet for Entire Wind Area
- MISO Group 5 projects require line; they are located:
  - 46.4% in Iowa
  - 15.2% in South Dakota
  - 38.4% in Minnesota
- "Then" Rules still Apply – Generator Outlet—Generator Pays
- Wind Generators Strongly Object
  - Too far along to add costs
  - Adds too much risk to Wind
  - Would make wind uncompetitive
  - Can't wait a year for "now" rules
- CapX parties concerns if have to pay; need cost recovery even if
  - Wind not used by CapX customers
  - CapX customers may not get commensurate benefits

Summary and Conclusion

"Then"

- Utilities built Generation and Transmission to Meet Own Customers' Needs

- Process was Fairly Straightforward

"Now"

- Utilities, ISO, Stakeholders plan/size/build for Customers Needs PLUS Public Policy Mandates and Market Conditions

- Process much more complex

ISSUE

"Then" Rules do not easily support Transmission Planning/Sizing/Building Driven by "Now" Conditions

Efforts

- Many Planning and Funding/Cost Allocation Efforts Occurring to Revise Rules to Support “Now”

Advocates, Utilities, Stakeholders, ISO and States are working to Revise "Then" Rules to Support Energy Provision "Now".

Questions?