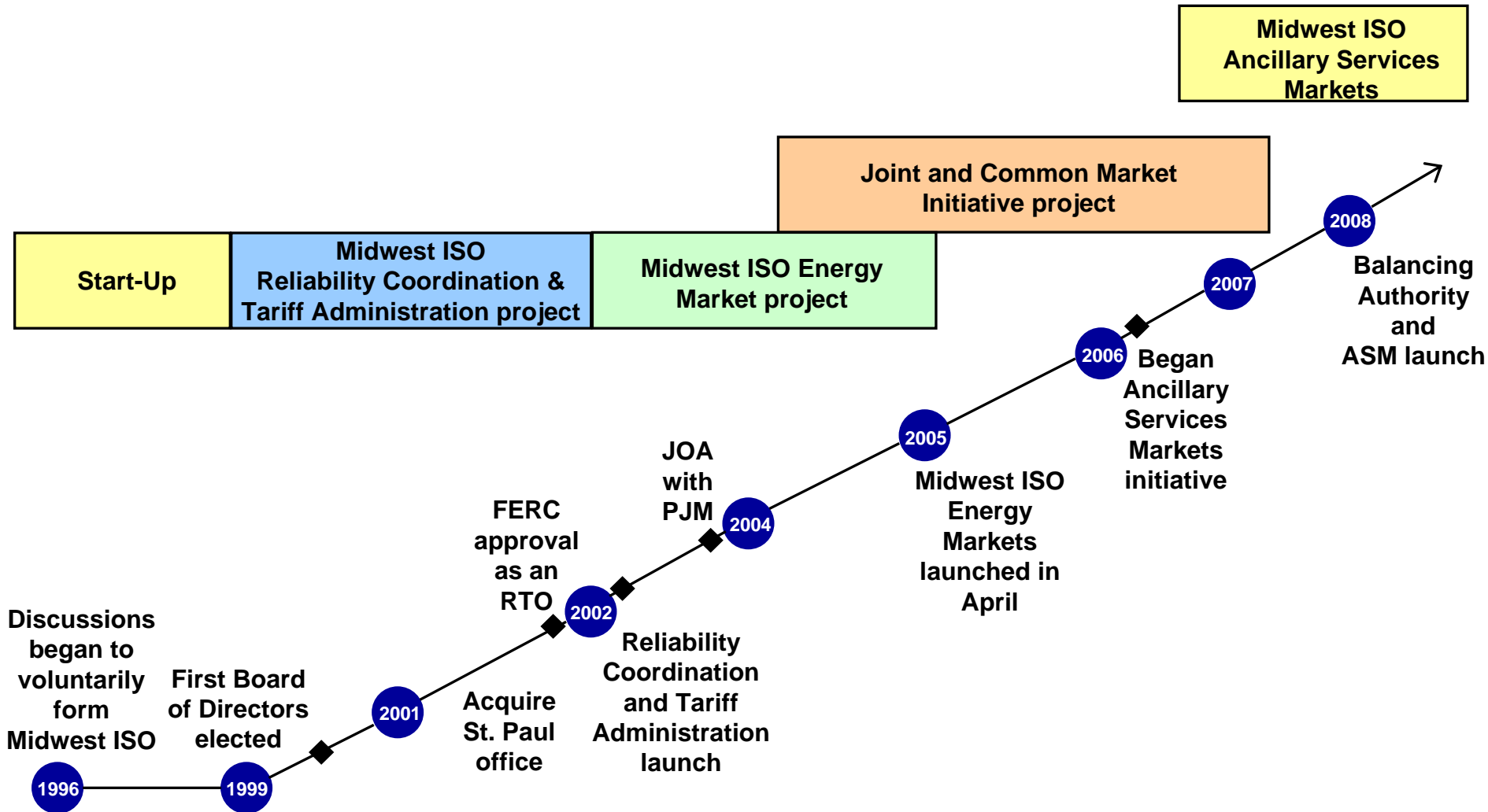


ATC Quarterly Midwest ISO Update

June 26, 2008

History

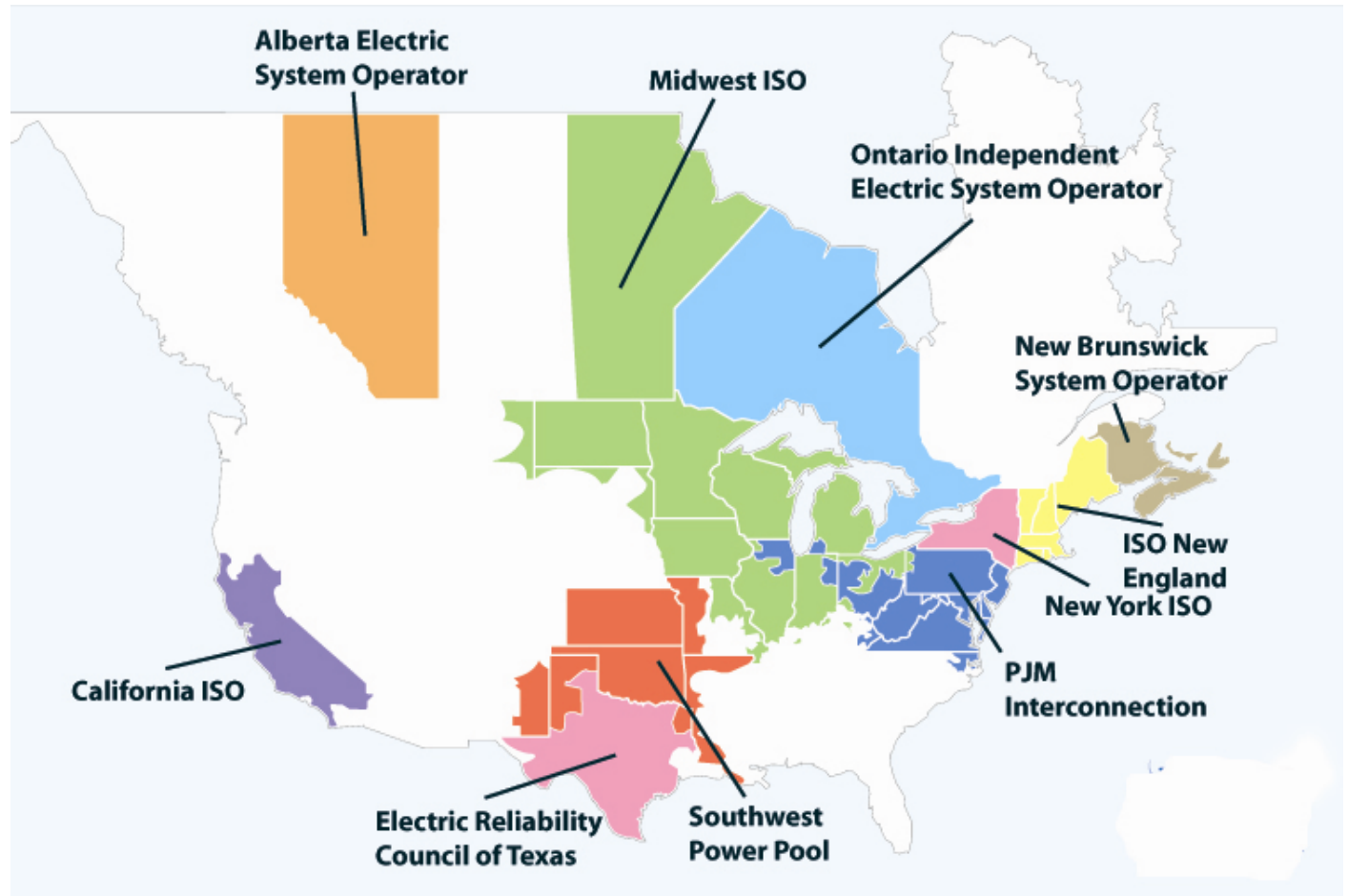


What We Do



- ☐ Monitor flow of power over the high voltage transmission system
- ☐ Schedule transmission service
- ☐ Manage power congestion through security-constrained economic dispatch
- ☐ Operate day-ahead and real-time energy markets
- ☐ Regional transmission planning

ISOs and RTOs



Fast Facts

- **Nation's first FERC-approved RTO**
- **Not for profit**
- **Regulated by FERC**
- **Largest geographical RTO (15 states plus Manitoba)**
- **\$3 billion settled/month**
- **Independent board of directors**

Midwest ISO Control Centers

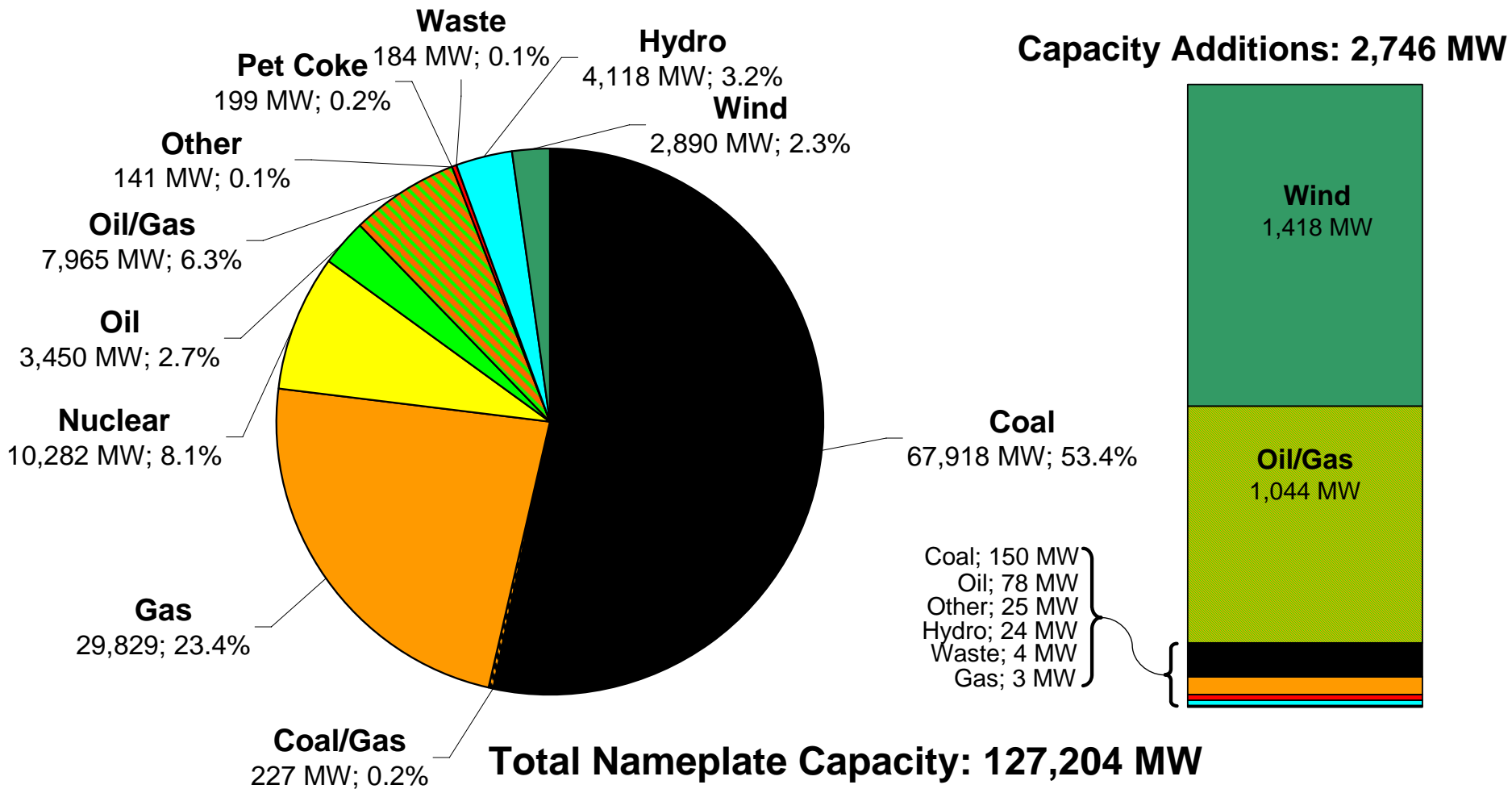


Carmel, Indiana



St. Paul, Minnesota

Nameplate Capacity by Fuel

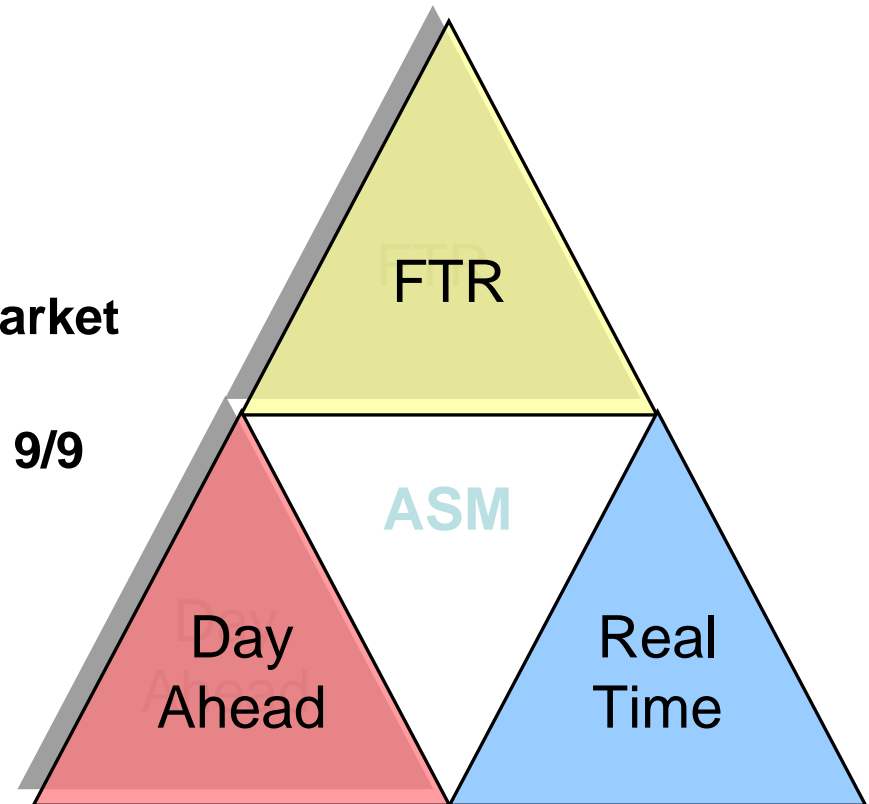


Wisconsin and the Midwest ISO

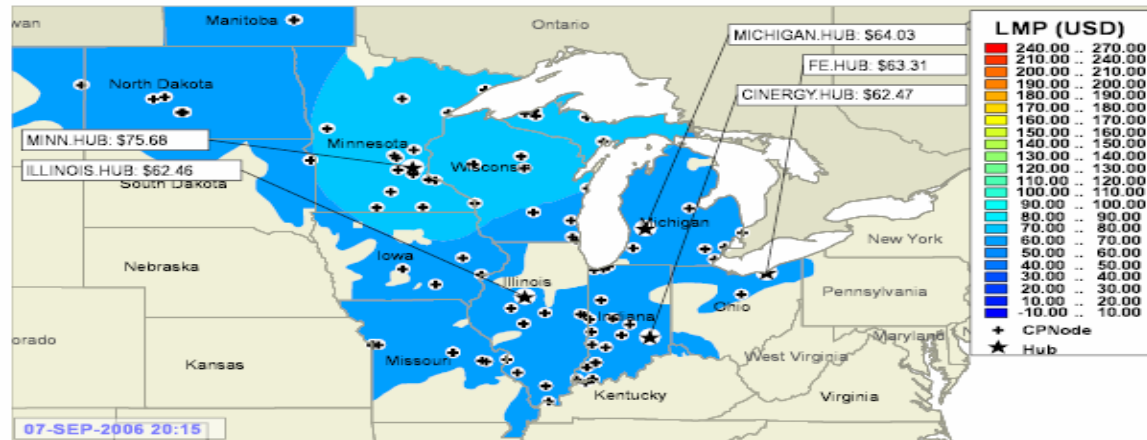
- WPPI, ATC, MGE, Alliant, Xcel, WE Energies, and WPS are members
- Saint Paul VP Clair Moeller resides in Hudson
- Member, UW Public Utility Institute
- Hired several recent UW grads and have summer interns from Wisconsin this summer
- PSC leadership role

Midwest Market Overview

- The market consists of these components:
 - Day ahead energy market
 - Real time energy market
 - Financial transmission rights market (FTRs)
 - Ancillary services market starts 9/9



Real-Time LMP Pricing Map



Sep 7 2006 20:15

Location	Hourly Day Ahead			5-Minute Real Time			Delta			Last Hour Estimated		
	HE 21			20:15						HE 20		
	LMP	MLC	MCC	LMP	MLC	MCC	LMP	MLC	MCC	LMP	MLC	MCC
AEBN	53.27	-0.75	-3.23	62.51	-3.25	-0.58	-9.24	2.5	-2.65	66.18	-3.09	-0.27
AEC	52.93	-1.14	-3.18	62.69	-3.07	-0.58	-9.76	1.93	-2.6	66.20	-3.07	-0.27
AECI	50.85	-2.09	-4.31	62.81	-2.5	-1.03	-11.96	0.41	-3.28	72.03	-2.66	5.15
AEP	52.71	-1.18	-3.36	62.67	-3.08	-0.59	-9.96	1.9	-2.77	66.35	-2.92	-0.27
ALTE.COLUMBAL1	63.83	-0.19	6.77	67.01	1.25	-0.58	-3.18	-1.44	7.35	70.87	1.61	-0.27
ALTE.EDGGS5G5	59.74	-0.6	3.09	67.32	1.56	-0.58	-7.58	-2.16	3.67	71.07	1.80	-0.27
ALTW.DAEC	22	-2.5	-32.75	61.31	-1.55	-3.48	-39.31	-0.95	-29.27	67.47	-1.80	-0.27
ALTW.FPL_DAEC	22	-2.5	-32.75	61.31	-1.55	-3.48	-39.31	-0.95	-29.27	67.47	-1.80	-0.27
ALTW.OTTUMW1	46.95	-3.33	-6.97	64.36	0.77	-2.75	-17.41	-4.1	-4.22	69.73	0.46	-0.27
AMRN.CALLAWAY1	50.34	-3.66	-3.25	61.28	-4.48	-0.58	-10.94	0.82	-2.67	56.08	-4.61	-8.86
AMRN.LABADIE3	50.02	-3.98	-3.25	60.55	-5.21	-0.58	-10.53	1.23	-2.67	59.10	-5.21	-5.22
AMRN.LABADIE4	50.08	-3.92	-3.25	60.62	-5.14	-0.58	-10.54	1.22	-2.67	59.16	-5.16	-5.22
AP	52.71	-1.18	-3.36	62.67	-3.08	-0.59	-9.96	1.9	-2.77	66.35	-2.92	-0.27
BCA	53.05	-1	-3.2	62.57	-3.19	-0.58	-9.52	2.19	-2.62	66.10	-3.17	-0.27
BREC	54.06	0.05	-3.24	62.56	-3.2	-0.58	-8.5	3.25	-2.66	66.20	-3.07	-0.27
CE	52.71	-1.18	-3.36	62.67	-3.08	-0.59	-9.96	1.9	-2.77	66.35	-2.92	-0.27
CIN.CAYUGA.1	50.63	-3.36	-3.26	60.38	-5.38	-0.58	-9.75	2.02	-2.68	64.10	-5.17	-0.27
CIN.CAYUGA.2	50.88	-3.1	-3.27	60.7	-5.06	-0.58	-9.82	1.96	-2.69	64.44	-4.83	-0.27
CIN.GIBSON.1	48.84	-5.15	-3.26	58.28	-7.48	-0.58	-9.44	2.33	-2.68	61.86	-7.41	-0.27
CINERGY.HUB	53.01	-0.99	-3.25	62.47	-3.29	-0.58	-9.46	2.3	-2.67	66.23	-3.04	-0.27
CISO	51.41	-2.26	-3.58	63.23	-1.46	-1.65	-11.82	-0.8	-1.93	78.00	-1.84	10.30
CLEC	52.91	-1.16	-3.18	62.75	-3.01	-0.58	-9.84	1.85	-2.6	66.25	-3.02	-0.27
CONS.18MCVCV	52.84	-1.26	-3.15	62.97	-2.79	-0.58	-10.13	1.53	-2.57	66.85	-2.42	-0.27
CONS.CETR	54.56	0.44	-3.13	64.55	-1.21	-0.58	-9.99	1.65	-2.55	68.54	-0.73	-0.27
CONS.PALISA2A1	52.43	-1.59	-3.23	62.46	-3.3	-0.58	-10.03	1.71	-2.65	66.20	-3.07	-0.27
CPLE	53.14	-0.89	-3.22	62.5	-3.26	-0.58	-9.36	2.37	-2.64	66.15	-3.12	-0.27
Midwest ISO Contour Map www.midwestmarket.org		-0.68	-3.22	62.47	-3.29	-0.58	-9.12	2.61	-2.64	66.11	-3.15	-0.27
		-1.62	-3.12	63.3	-2.46	-0.58	-10.79	0.84	-2.54	70.49	-2.61	3.56
		-2.15	-5.5	64.48	-1.28	-0.58	-14.88	-0.87	-4.92	117.04	-1.57	49.07
		-2.03	-3.41	61.38	-4.38	-0.58	-9.57	2.35	-2.83	65.01	-4.26	-0.27
		-2.41	-3.19	61.94	-3.82	-0.58	-10.29	1.41	-2.61	65.76	-3.51	-0.27
DECO.MONROE3	52.29	-1.77	-3.19	62.08	-3.68	-0.58	-9.79	1.91	-2.61	65.96	-3.31	-0.27
DECO.STCLAIR7	52.21	-1.87	-3.17	62.97	-2.79	-0.58	-10.76	0.92	-2.59	66.71	-2.56	-0.27
DENL	52.83	-1.24	-3.18	62.76	-3	-0.58	-9.93	1.76	-2.6	66.25	-3.02	-0.27

Summer 2008 Outlook

Generation Adequacy

- 2007 Peak Market Load: 103,891 MW
- 2008 Expected Market Load: 100,009 MW*

**With 100% demand side resource execution*

- Effective Reserve Margin: 21.5 %



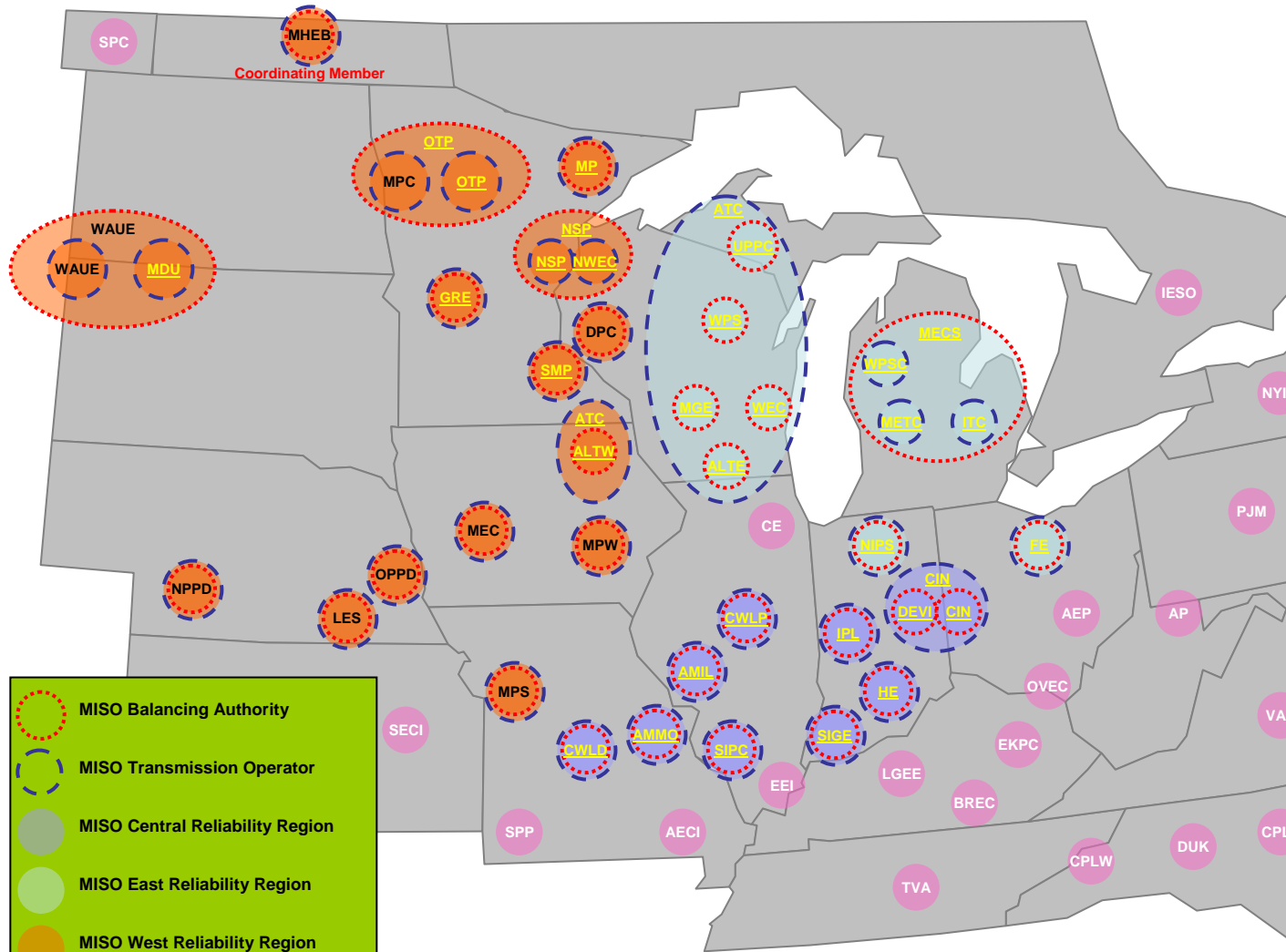
Module E – Resource Adequacy

- **Midwest ISO sets a planning reserve margin using LOLE for each planning zone**
- **LSEs submit annual and monthly forecasts, resource plans**
- **Begins in 2009**
- **FERC filing planned on June 25 on financial settlement**
- **2008 reserve margin for Module E is 15%**

Ancillary Services Market

- **NERC certified us as a balancing authority on April 18th**
- **Updated all of the relevant business practice manuals (BPMs)**
- **Successful completion of first of four parallel operations “open loop” testing periods**
- **Successful completion of additional “closed loop” operations tests (most recently on May 7th)**
- **Readiness advisor**
- **Market starts September 9th**

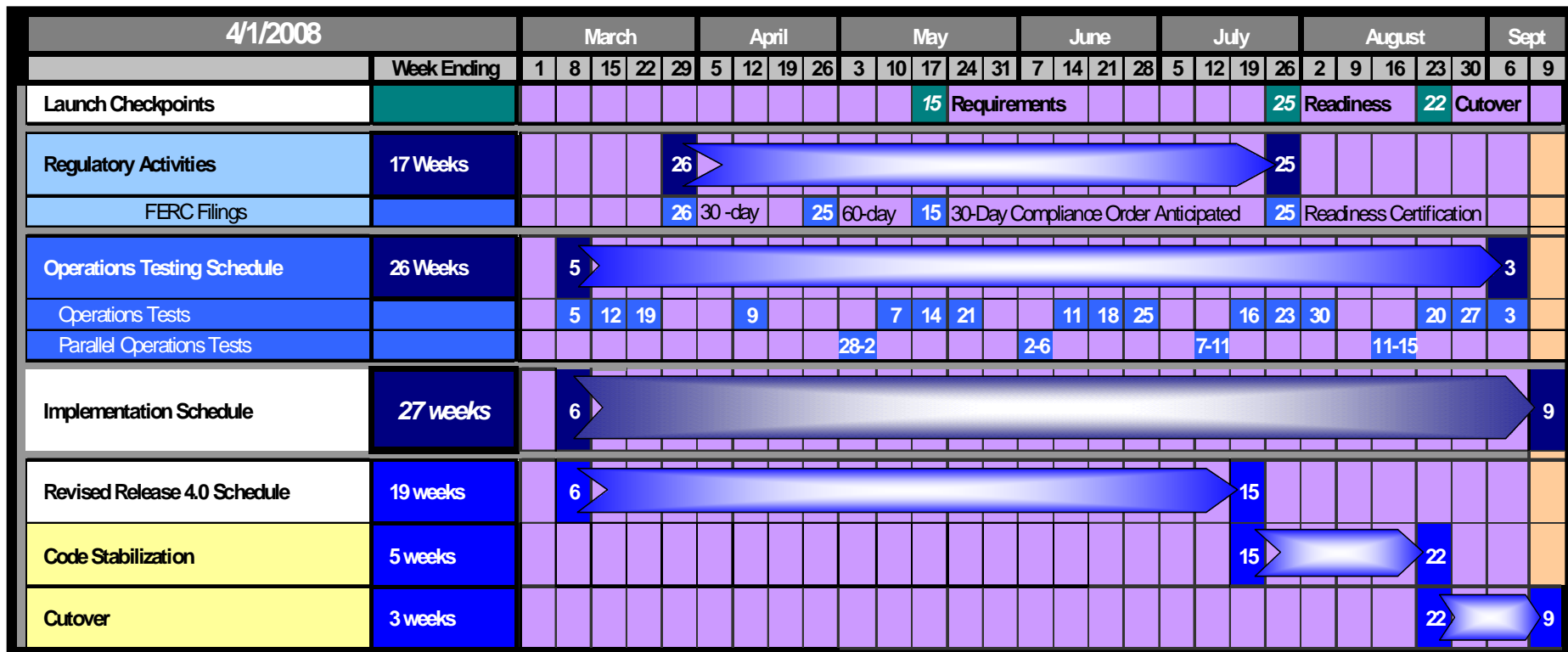
Midwest ISO Map



- MISO Balancing Authority
- MISO Transmission Operator
- MISO Central Reliability Region
- MISO East Reliability Region
- MISO West Reliability Region
- Neighboring Entity
- MISO Market Participant

- AECI: Associated Electric Coop, Inc.
- AEP: American Electric Power (PJM)
- ALTE: Alliant East
- ALTW: Alliant West
- AMIL: Ameren (Illinois)
- AMMO: Ameren (Missouri)
- AP: Allegheny Power (PJM)
- ATC: American Transmission Co.
- BREC: Big Rivers Electric Corp.
- CE: Commonwealth Edison (PJM)
- CIN: Cinergy
- CPLE: Progress Energy East
- CPLW: Progress Energy West
- CWLD: Columbia Water & Light
- CWLP: City Water Light & Power (Springfield)
- DEVI: Duke Energy Vermillion (gen. only)
- DPC: Dairyland Power Cooperative
- DUK: Duke Energy
- EEL: Electric Energy Inc.
- EKPC: East Kentucky Power Cooperative
- FE: First Energy
- GRE: Great River Energy
- HE: Hoosier Energy
- IESO: Independent Elec. System Operator
- IPL: Indianapolis Power & Light
- ITC: International Transmission Co.
- LES: Lincoln Electric System
- LGEE: Louisville Gas & Electric
- MDU: Montana-Dakota Utilities
- MEC: MidAmerican Energy Company
- MECS: Michigan Electric Coord. Systems
- METC: Michigan Electric Trans. Co.
- MGE: Madison Gas & Electric
- MHEB: Manitoba Hydro
- MP: Minnesota Power
- MPC: Minnkota Power Company
- MPS: Missouri Public Service (Aquila)
- NPPD: Nebraska Public Power District
- MPW: Muscatine Power & Water
- NIPS: Northern Indiana Public Service
- NSP: Northern States Power (Xcel)
- NWEC: Northwestern Wisconsin Electric Co.
- NYISO: New York ISO
- OPPD: Omaha Public Power District
- OTP: Otter Tail Power
- OVEC: Ohio Valley Electric Corp.
- PJM: Pennsylvania-Jersey-Maryland
- SIPC: Southern Illinois Power Co.
- SIGE: Southern Indiana Gas & Electric
- SMP: Southern Minn. Municipal Power
- SPC: Sask Power Company
- SPP: Southwest Power Pool
- SECI: Sunflower Electric Cooperative, Inc.
- TVA: Tennessee Valley Authority
- UPPC: Upper Peninsula Power Co.
- VAP: Dominion Energy
- WAUE: WAPA Upper Great Plains East
- WEC: Wisconsin Electric Company
- WPS: Wisconsin Public Service
- WPSC: Wolverine Power Supply Cooperative

BA / ASM Project Schedule



Module F (Western Expansion)

- **Services are available to all applicable entities**
- **Offers the following services**
 - **Reliability coordination**
 - **Seams coordination**
 - **Replacement for the Midwest ISO – MAPP seams agreement**
 - **Market coordination**
 - **Transmission provider integrates into the Midwest ISO Market, yet retains its own transmission tariff**

Potential West Region Customers

- **Transmission provider and balancing authority:**
 - MidAmerican Energy (IOU) (Iowa)
 - Muscatine Power & Water (Iowa)
 - Western Area Power Administration – Upper Great Plains (North Dakota, South Dakota)
 - Dairyland Power Cooperative (Wisconsin)
- **Transmission provider:**
 - Basin Electric Power Cooperative (North Dakota)
 - Heartland Consumers Power District (South Dakota)
 - Northwestern Public Service (IOU) (South Dakota)
 - Corn Belt Power Cooperative (Iowa)
 - **Currently in the Midwest ISO Energy Market and located within a Midwest ISO TO Balancing Authority:**
 - Minnkota Power Cooperative (North Dakota)
 - Central Iowa Power Cooperative (Iowa)
 - Rochester Public Utilities (Minnesota)

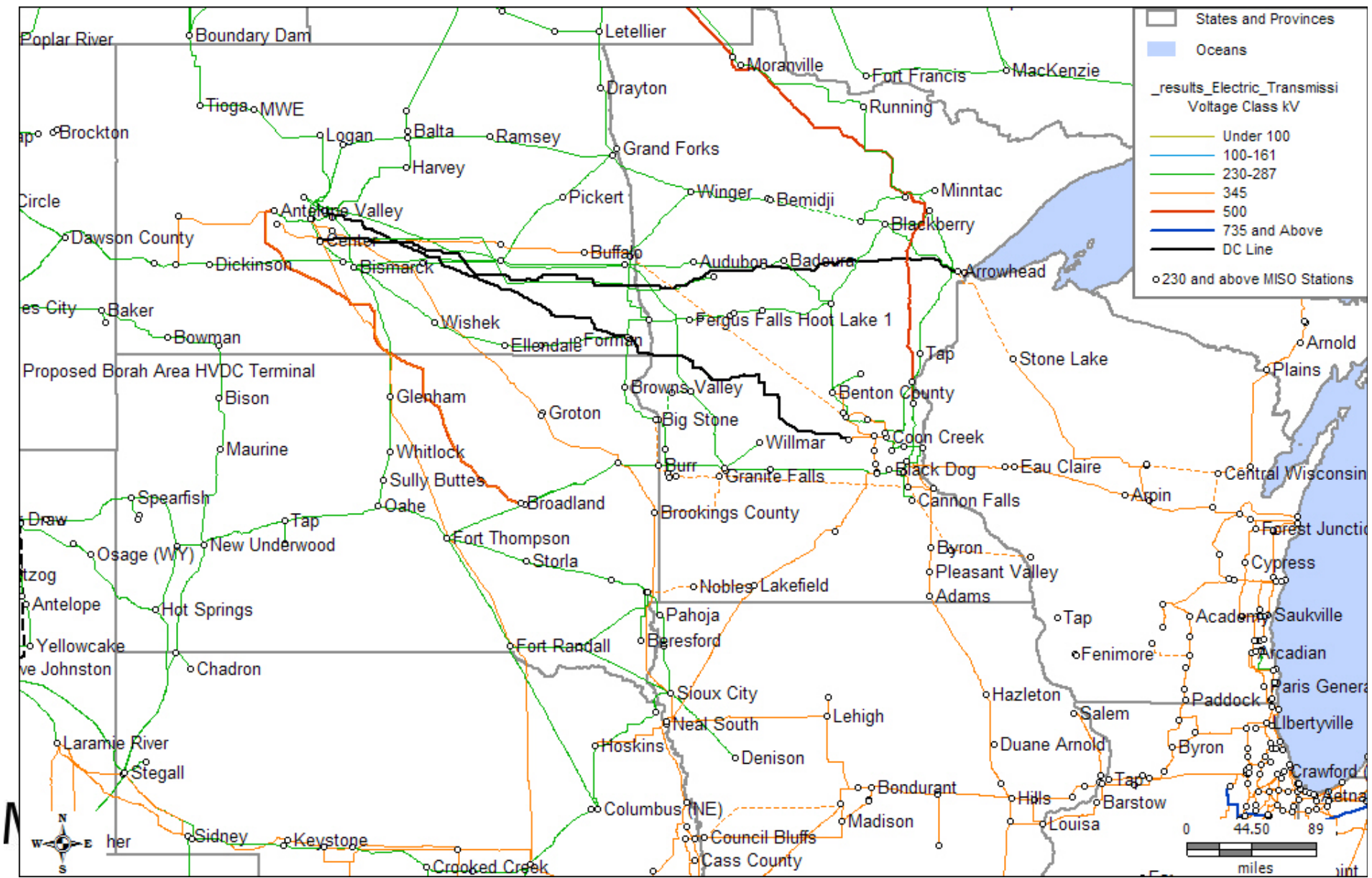
Regional Transmission Planning

- **MTEP '03**
 - \$1.8 billion in rolled-up plans through 2007
 - Initial value proposition for large scale plans
- **MTEP '05, MTEP '06**
 - Reliability focused
 - 5-year plans (2009 and 2011 planning horizons)
 - \$2.9 and \$3.6 billion in planned and proposed reliability projects
- **MTEP '07**
 - Expands to 10-year horizon
 - Updates MTEP '06 planning analysis
 - Introduces scenario-based future generation for out year
 - \$3.98 billion in planned and proposed reliability and economic projects (28 new projects)

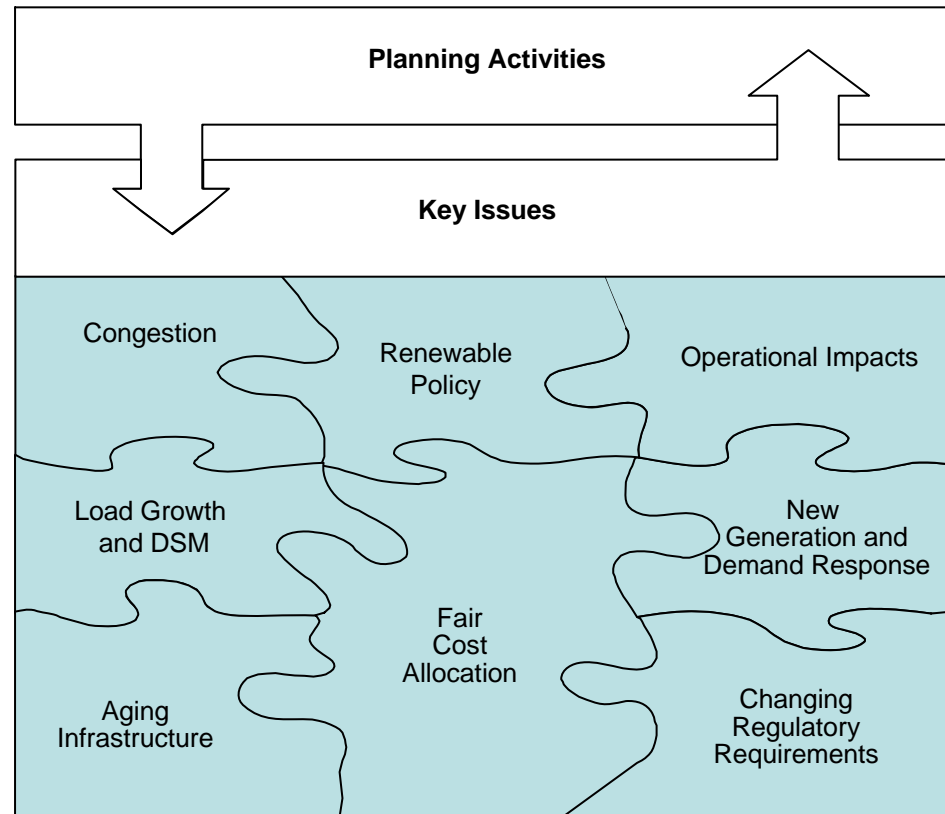
On Going Transmission Planning

- **MTEP 08- due October 2008**
 - Four futures for MISO only and expansion of interconnections to PJM
 - Reference-wind mandates in MISO
 - Renewable-20% energy MISO only, 40,000 MW
 - Environmental -\$25/MWh carbon tax
 - Fuel constraint on natural gas
 - Economic and Reliability evaluations to 2021
 - Target Studies
 - East- shows regional dependence on resolving constraints in the West and integrating the Central results
 - Central
 - West
- **Joint Coordinated System Plan due end of 2008**
 - Develop transmission plans for MISO and all of its neighbors
 - MISO, MAP, Duke Carolinas, PJM, NYISO, NEISO, TVA, SPP, Entergy
 - Present wind mandates, 15,000 MW MISO, 50,000 MW remainder of US Eastern Interconnection, 5% total energy of the US Eastern Interconnection
 - 20% Wind energy mandate for the U.S. Eastern Interconnection
 - 260,000 MW total, 90,000 MW from MISO
- **Eastern Wind Integration Study due mid 2009**
 - sponsored by DOE/National Renewable Energy Laboratory
 - Produces a time synchronized wind data base for the JCSP area, allows the study of wind diversity
 - Studies the generation types, ramping characteristics and reserve margin increases that would be needed for the JCSP transmission and JCSP areas
- **MTEP 09 due October 2009**
 - Transmission based on the JCSP
 - Futures
 - Two wind futures from JCSP above
 - Two MISO specific futures
 - Economic planning to 2024, Reliability planning also
 - Regional Generator Outlet Study-MTEP 09 target study
 - Determine transmission needed to deliver wind mandates to MN, IA, WI, IL.
- **Queue Reform**

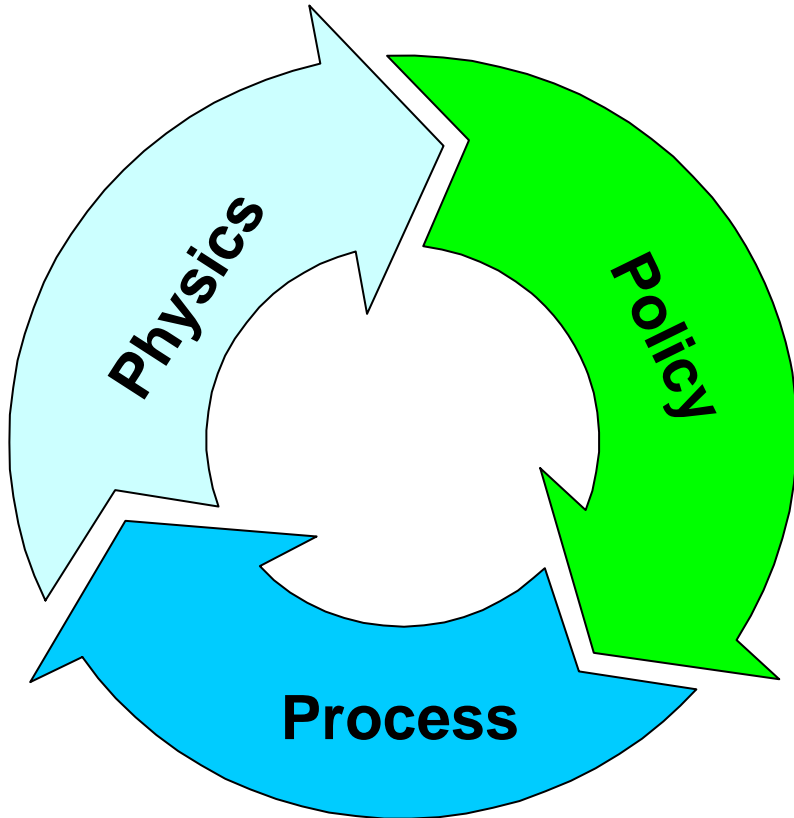
MISO West Region



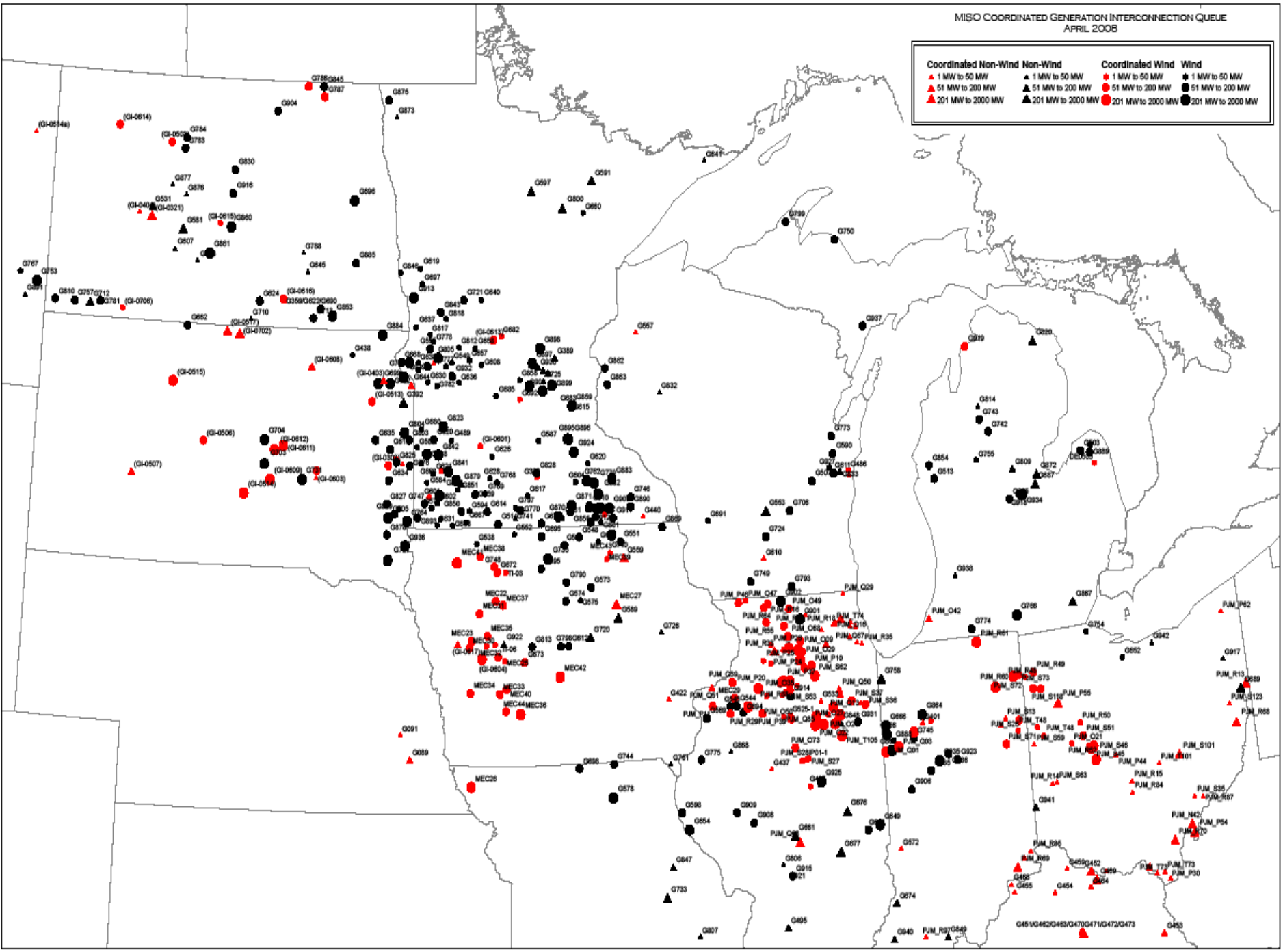
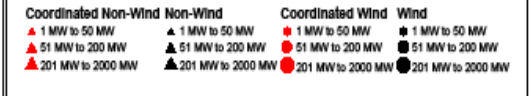
Key Issues Currently Impacting Transmission Planning



3 P's of Queue Reform



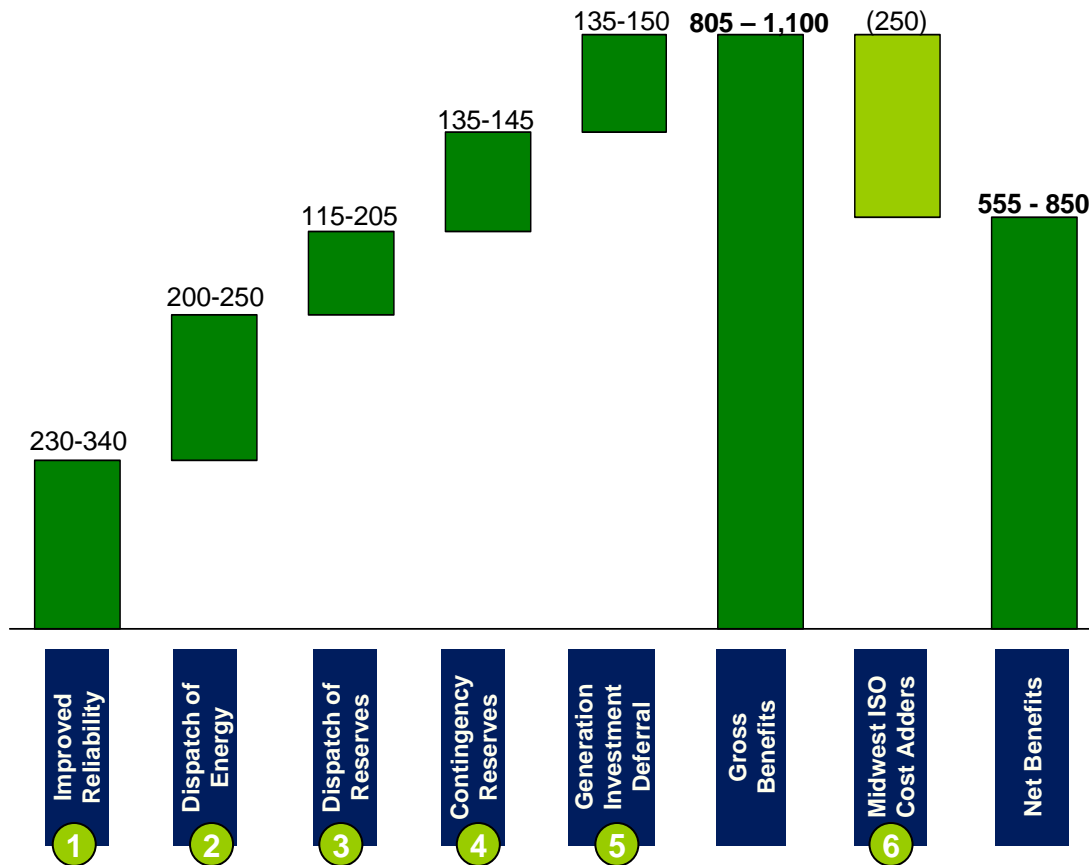
- Interconnecting generation more efficiently:
 - Process: focus study efforts on those generation projects ready to achieve interconnection
 - Physics: regional generation outlet study is the first step in using alternative planning methods to identify network upgrades to support interconnection of large quantities of generation in remote areas
- 25 new requests in April containing 5 GW of generation
- Proposal filed last month



VALUE PROPOSITION

Annual Benefit by Value Driver¹

(in \$ millions)



(1) Figures shown reflect annual benefits and costs reflected in 2007 dollars.

Qualitative Value Drivers

7

Price Transparency

Data / Informational
Transparency

Planning Coordination

Seams Management

Regulatory Compliance

Wholesale Platform for
Demand Response

Wholesale Platform for
Renewable Portfolio
Standards

Upcoming

- **June 5 Planning subcommittee**
- **June 11: Planning advisory committee**
- **June 18: Advisory meeting– Hot topic: resource adequacy June 24: JCSP meeting (St. Louis)**
- **June 25: Module E enforcement provision filing (resource adequacy requirements)**
- **August 1: Report due to FERC on transmission cost allocation methodologies**
- **August 19-21: Advisory and Board meetings in Saint Paul (Tour 9am 8/19--Adv mtg hot topic: transmission interconnection queue progress)**
- **September 9: ASM market start**
- **October 1: Duquesne integration**
- **October 14-16: OMS annual mtg, Adv and Board mtg, Carmel (Tour on 10/15, Adv mtg hot topic: FTR allocation and auction)**
- **December 3: Advisory meeting (Hot topic: RECB)**

For Further Information

- Visit our website:
www.midwestmarket.org
- Inter-RTO council website:
www.isorto.org
- MISO-PJM joint and common market website: www.miso-pjm.com
- OMS website: www.misostates.org
- Schedule a tour of our control centers