ORGANIZATION OF MISO STATES, INC.
Special Board of Directors Meeting
Meeting Notes
June 21, 2006

Steve Gaw, President of the Organization of MISO States, Inc. (OMS), called the June 21, 2006 Special Meeting of the OMS Board of Directors to order at approximately 12:00 p.m. (EDT). The following board members or their proxies participated in the meeting:

Kevin Wright, Illinois
David Hadley, Indiana
John Norris, Iowa
AW Turner, proxy for Mark David Goss, Kentucky
Monica Martinez, proxy for Laura Chappelle, Michigan
Ken Nickolai, Minnesota
Steve Gaw, Missouri
Greg Jergeson, Montana
Susan Wefald, North Dakota
Judy Jones, Ohio
Gary Hanson, South Dakota
David Sapper, proxy for Dan Ebert, Wisconsin

Absent
Manitoba
Nebraska
Pennsylvania

State Agency members participating
Angie Butcher, Lisa Pappas – Michigan
Mike Proctor – Missouri
Candace Beery – Montana
Jerry Lein – North Dakota
Jan Karlak – Ohio
Phil Lusk – South Dakota

OMS Staff participating - Bill Smith, Julie Mitchell

The directors and proxies listed above established the necessary quorum for the meeting of at least eight directors being present.

Presentations with discussion

1. Midwest ISO's response to OMS questions on subregional geographic reserve margins, as well as reliability vs. market metrics in MISO (a follow-up to the May 8-9, 2006 conference) – Clair Moeller
Presentation Documentation follows minutes

- Questions were asked and answered.

2. Summary of Midwest ISO's June 6, 2006 Resource Adequacy "informational filing" and subsequent comment and filing schedule – Steve Kozey
Presentation Documentation follows minutes

- The schedule for MISO to comment is June 27th, OMS will file July 14th
- Sometime in July, OMS is to meet with MISO regarding the Ancillary Market Services.
- FERC should decide on September filing, then tariff sheets to follow.
- Bill Smith raised the following topics: OMS Board has a meeting July 13th and MISO has indicated it will receive OMS's comments late. Contents of the document to MISO and FERC will both considered at the meeting on July 13th. OMS has a July 20th meeting to talk with Roy Jones about the Ancillary Market details filing.

3. Relationship Among Operating Reserves, Ancillary Service Markets, Reliability through Markets Concept and Demand Response – Ron McNamara

Presentation Documentation follows minutes

- Manage volume risk through two capacity constructs: 1) operating reserves – real time, excess supply over anticipated load on short-term basis & 2) planning reserves – requiring an excess supply over anticipated load on long-term basis.
- Ron McNamara proposes to make the cost of reserve margins transparent.
- MISO is proposing in short-term markets in N4-PJM – New England (co-optimizing).

4. Resource Adequacy Timeline

- The draft is started and Jan Karlak has sent it around. Steve Gaw requested that it be sent around again.
- Work Groups are to contribute to various issues and Commissioners are asked to comment more frequently until the meeting on July 12th.
- Steve Gaw asked the Commissioners to comment (on the June 6th draft filing) on whether or not they think it's a good/bad idea re: MISO's concept on MISO's capacity market.
- OMS may be comfortable with balancing authority issue even before they meet with Roy Jones.
- Susan Wefald asked if there was a need for possible edits.
- Work Groups need to send their pieces to Bill Smith by June 30th. Work Groups will also funnel updates to Bill Smith who will send the document to the Board.
- Steve Gaw asked if Commissioners have changed their positions since they filled out their questionnaires. Steve asked that the survey be sent out again with the draft.
- Candace Beery asked if there was a set of questions to pose to Roy Jones.
- Jan Karlak stated that she and Bill Smith had learned of a contact at DOE who could provide funding for OMS's Ancillary Services.

Meeting adjourned at 3:45 pm EDT

Summary of Midwest ISO June 6, 2006 Resource Adequacy Informational Filing

Stephen G. Kozey, Midwest ISO

OMS Special Board Meeting
June 21, Columbus, Ohio

Topics

- Why did the Midwest ISO make the filing
- What was in the filing
- What wasn't in the filing
- Schedule for comments
- What OMS might consider for its comments
- What FERC might do
- Next steps

Why Did The MISO Make The Filing?

- The filing was an update to the FERC about the Midwest ISO's plan to meet a requirement set in the August 6, 2004 Order to have a resource adequacy plan beyond Module E

What Was In The Filing?

- The filing described stakeholder interaction over the last two years on resource adequacy
- The filing tells FERC we have a two-step plan where the first step is better short-term price reliability signals. The second step toward long-term resource adequacy involves five elements.

Phase I

- Phase I of the plan will involve filing to consolidate functional control over Operating Reserves from the Balancing Authorities to the Midwest ISO
- It will have steps to deal with short-term Contingency Reserves and Regulation Ancillary Services as well
- The potential savings form these topics was in an April 3rd filing

Phase II

- A description of the five elements
  - DSM programs
  - Longer-term FTRs
  - Facilitating longer-term energy contracts
  - Further seams coordination especially with PJM
  - Coordinate with national or regional resource adequacy requirements developed at the ERO or RRO level

What wasn’t in the filing?

- Tariff sheets
- Specific wording to implement the plan

Schedule For Comments

- June 27th
- Expected to be extended by FERC to grant the OMS request for an extension

On What Areas Might The OMS Comment

- The split itself, small steps first, longer-term steps next
- That this will cost money and increase Midwest ISO charges to implement
- That, while holding substantive comments on specifics till later, there is enough in the plan to comment upon now

What Would Be a Good Reaction From FERC?

- Two steps toward resource adequacy are OK, but get going
- When you file tariff sheets, also make clear where costs will be recovered and where the energy charge for Operating Reserves will appear in the Midwest ISO settlement system
- Make clear when you will need to file for authorization to raise more debt

What Would Be A Bad Reaction From FERC?

- The Midwest ISO has taken too long
- Stakeholder process is not producing useful results
- File more than Phase I sooner, including something like the long-term resource adequacy mechanisms in other eastern organized markets

Next Steps

- Midwest ISO continues the stakeholder process (July and August)
- Midwest ISO shares draft tariff sheets with stakeholders (August/September)
- After FERC issues an order on the filing, Midwest ISO files tariff sheets (September/October)

Substantive Discussion of the Relationship Of Phase I and II

- Ron McNamara's presentation to follow

MISO Planning Discussion with OMS Board of Directors

June 21st, 2006

Discussion Topics

- Planned Reserve Sharing Group
- Reserves Margins
  - MISO Forecast
  - State-by-state
- Comparison of linkage between LOLE, Reserve Margins and LMP volatility
- Value of Deferred capacity through reserve margin reductions
- Comparison of reserve margin reductions and transmission investment

New NERC Regional Reliability Organizations

- NERC RRO's across the MISO and PJM footprints have changed.
- MAPP, MAIN, ECAR and MAAC were replaced with two large RRO's: Midwest Reliability Organization and ReliabilityFirst Corporation.
- Load in the Ameren Balancing Authority joined the Southeastern Reliability Council (SERC)

Standards for Planned Reserves

- The legacy standards across the new RRO footprints were different
  - MAPP – 15% Planning
  - MAIN – 14% Planning (evaluated annually)
  - MAAC/PJM – 15 % Planning
  - ECAR – 4% Operating (No Planning Requirement
  - SERC – No Resource Adequacy Requirement (left up to States or independently formed reserve sharing groups)

MRO vs. RFC Requirements

- The MRO and RFC standards for planning reserves are virtually identical.
  - LOLE < .1day/yr
  - LOLE Analysis performed annually for both short term (year 1) and long term (years 2 through 10)
  - Develop a Minimum Planned Resource Requirement using LOLE analysis. Reserve Margin levels can vary depending on zone definition.
  - Each LSE shall procure resources to meet the minimum Planned Reserve requirement for the coming planning year

Significance of the RFC Planning Reserve Standard

- The RFC planning standard allows for a single set of requirements to be created across the MISO footprint.
  - This will create a level of consistency that has not existed to date.
- A large reserve sharing group, with sufficient transmission will result in smaller reserve margin requirements,
  - Cost savings should be significant compared to self supplying or participating in a smaller groups.
  - Transmission evaluation not yet accomplished

Midwest ISO Planned Reserve Sharing Group (PRSG) Proposal

- Midwest ISO is offering to administrate a Planned Reserve Sharing Group that is formed by its load serving entities.
  - Open to Members and non-members
  - Established to assist its' members in meeting the Resource Planning Reserves standards
- Midwest ISO is also facilitating a Contingency reserve sharing pool (CRSP)
  - "spinning" capacity for real time response

MISO's Role in the PRSG

- MISO has held meetings and has presented our proposal to various MISO Stakeholder groups as well as the MAPP Pool Committee.
- A Memorandum of Understanding has been issued to LSE's in the MISO Reliability Footprint. The MOU gives members a seat at the table in the development of the final PRSG agreement.
- MISO has begun to develop a first draft of a final agreement. This draft will be used to guide the agreement development going forward.

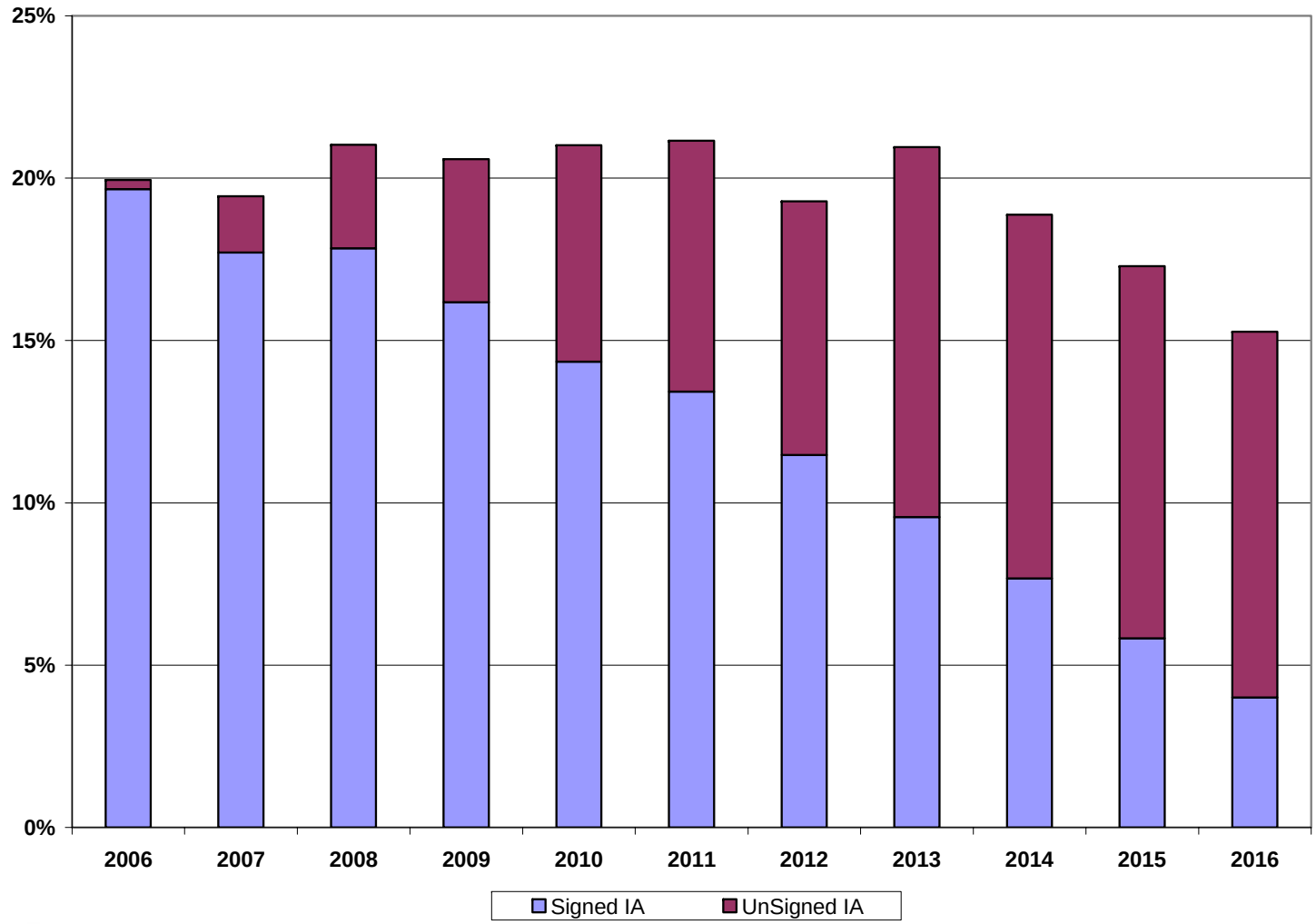
MISO's Role in the PRSG

- MISO will host meetings and conference calls between now and the end of 2006 to work out a final PRSG agreement.
- MISO will perform all of the necessary analysis detailed in the regional standards (short and long term LOLE analysis)
- MISO will gather all of the necessary data and will report back to the regions.

Reserves

- MISO reserve forecast based on varying levels of capacity available (based on the MISO Generation Interconnection Queue)
- State-by-state breakdown

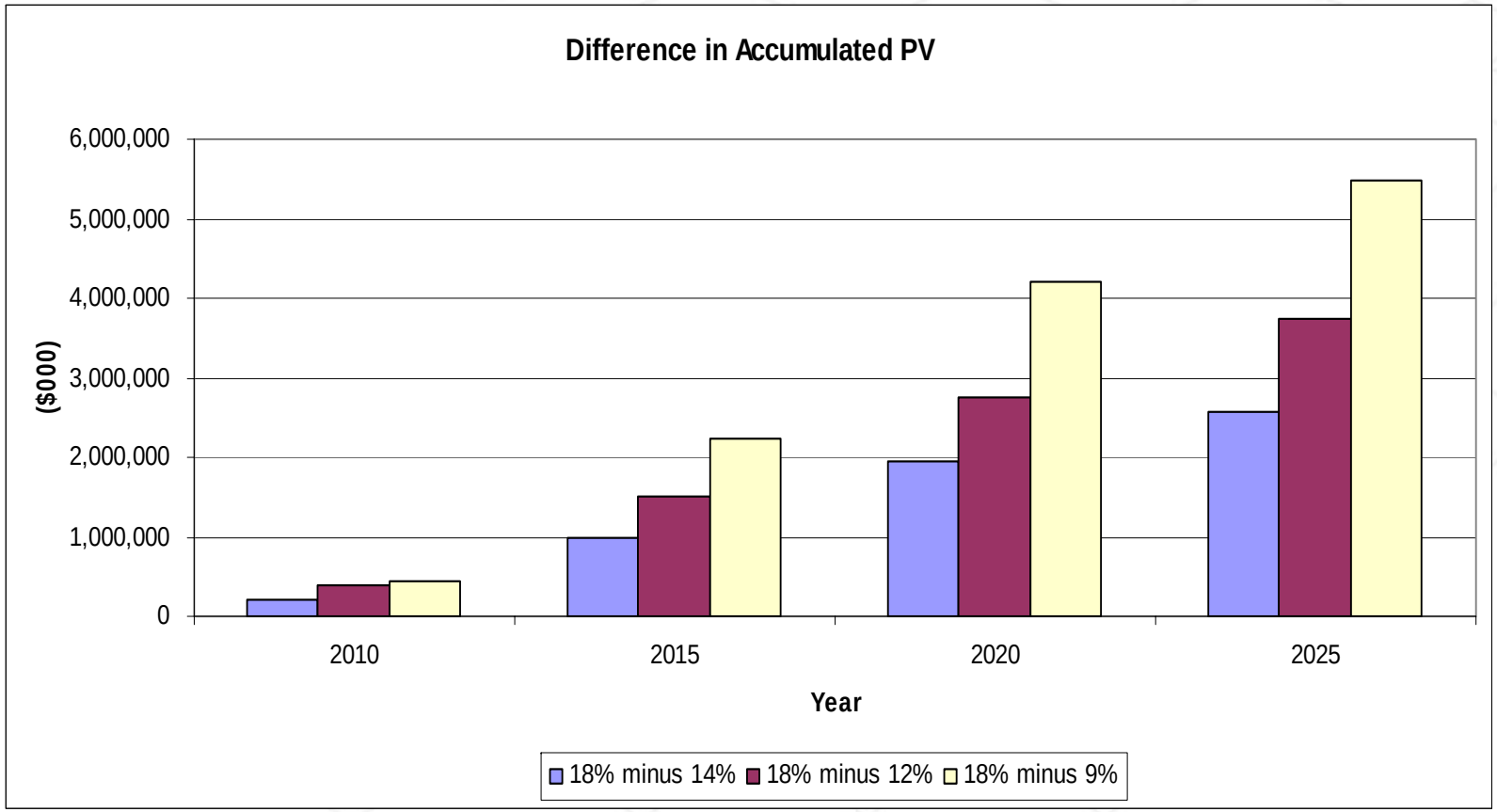
Reserve Margins with Queue Information



Capacity Additions 2006-2016

Type	Present Day	Signed IA	Unsigned IA
ST Coal	55%	65%	60%
Nuclear	8%	0%	1%
Hydro	2%	1%	1%
Wind	1%	0%	24%
Comb. Cycl.	9%	23%	8%
ST Gas	2%	0%	0%
ST Oil	2%	2%	0%
CT Gas	17%	11%	5%
CT Oil	4%	0%	0%
BTM	2%	0%	0%

Value of Deferred Capacity - MISO



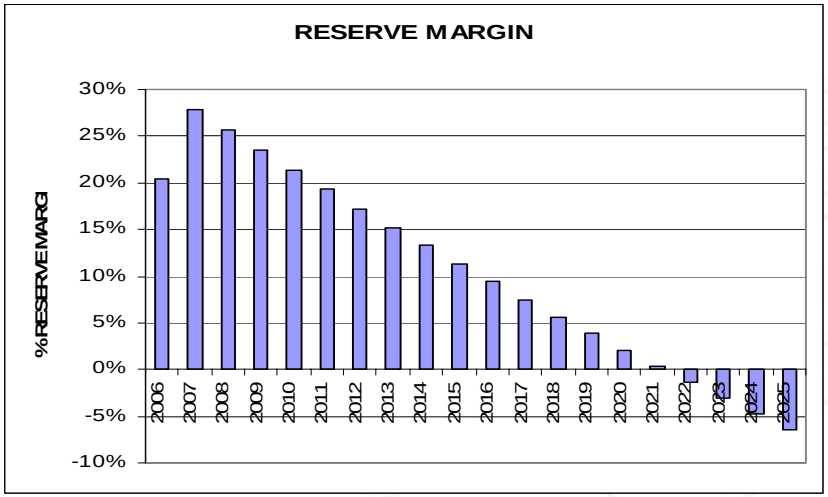
Reserve Margins By State Assumptions

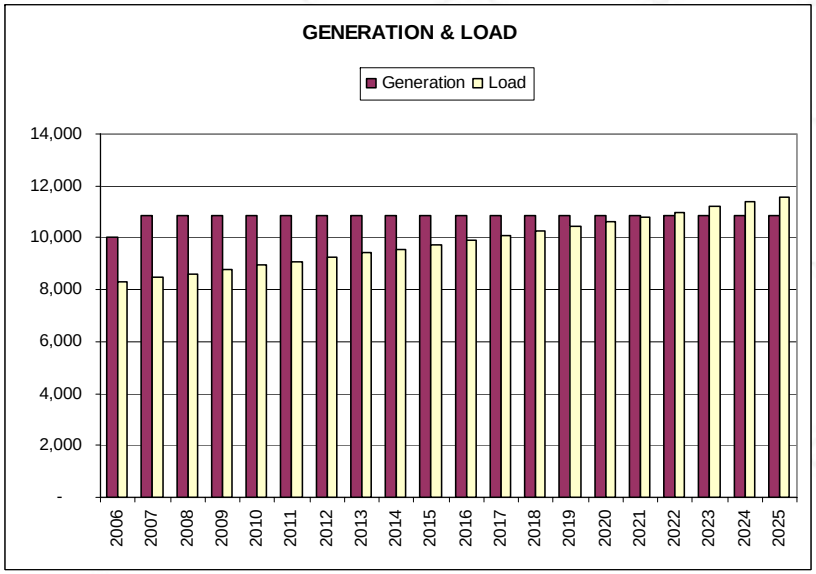
- Generator Assumptions
  - Generators physically located in one State but dedicated to load in another were counted in the State with the load. i.e. joint owned units
  - Companies with generation & load in multiple States had their generation assigned to serve the load in the State where the generator was located if the load the generator was to serve was not known
  - MISO Queue Generators with a signed Interconnection Agreement were included

Reserve Margins By State Assumptions Continued

- Load and Energy Assumptions
  - Load & Energy was assumed to grow at 1.75% annually
  - Coincident Peak Load was used for both State total and individual company total
- Transmission Assumptions
  - The analysis was done with no transmission ties between companies - .i.e. no firm transactions

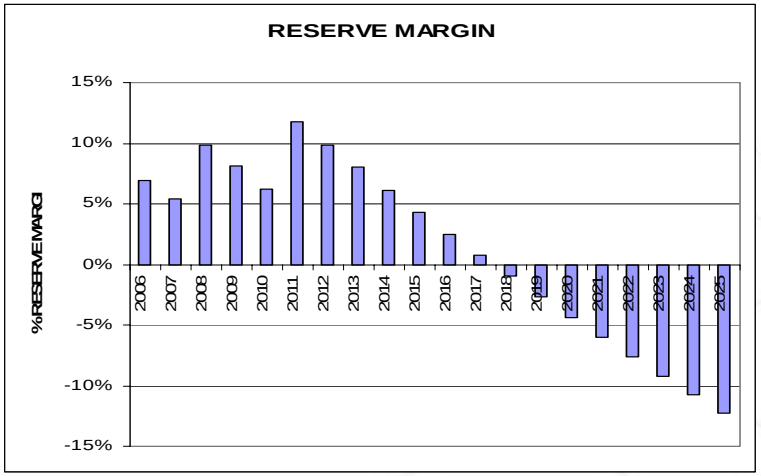
IOWA

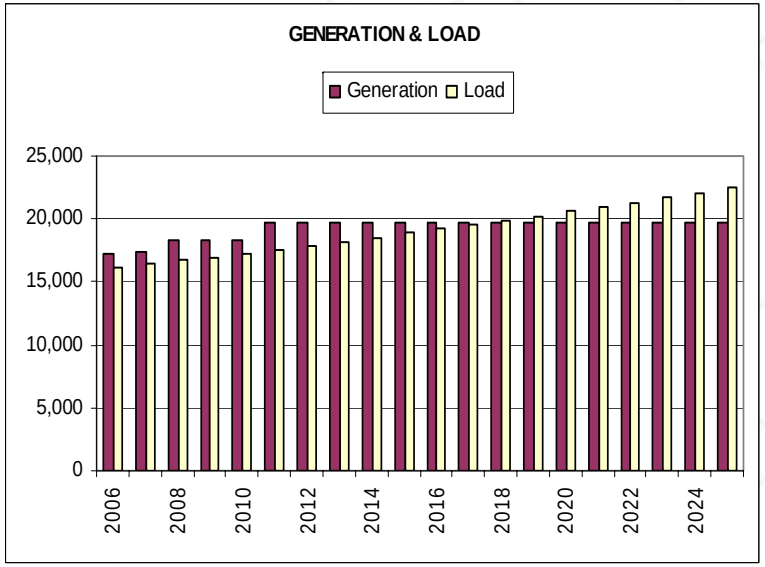




		2006
Alliant West IA	Generation	3,947
	Load	3,304
	Reserve margin	19
Associated Electric Coop	Generation	-
	Load	198
	Reserve margin	(100)
Dairyland Power Coop. IA	Generation	14
	Load	93
	Reserve margin	(85)
MidAmerican Energy Co. IA	Generation	5,566
	Load	4,385
	Reserve margin	27
Muscatine Power & Water	Generation	281
	Load	164
	Reserve margin	71
Northern States Power Co. IA	Generation	23
	Load	-
	Reserve margin	-
WAPA	Generation	207
	Load	189
	Reserve margin	10
IOWA TOTAL	Generation	10,038
IOWA TOTAL	Load	8,333
IOWA TOTAL	Reserve margin	20%

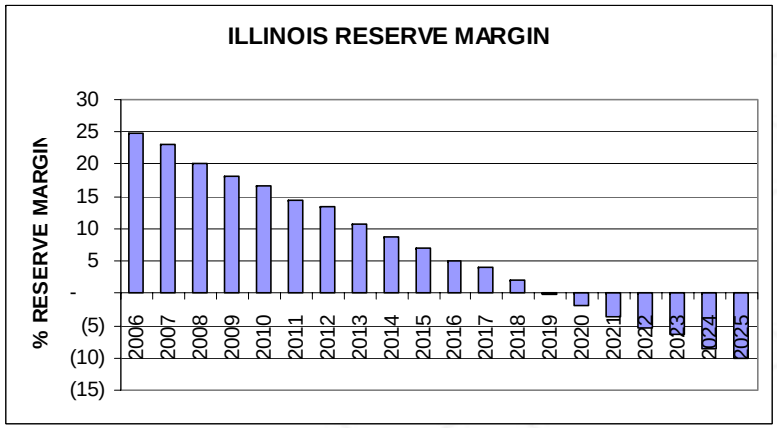
WISCONSIN

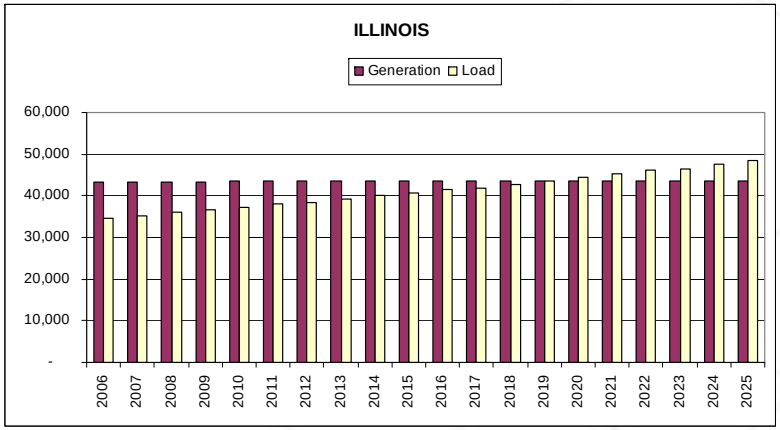




		2006
Dairyland Power Coop.	Generation	994
	Load	728
	Reserve margin	37
Great River Energy	Generation	174
	Load	46
	Reserve margin	278
Madison Gas & Electric	Generation	738
	Load	738
	Reserve margin	0
Northern States Power	Generation	832
	Load	1,483
	Reserve margin	-44
We Energies	Generation	6,967
	Load	6,584
	Reserve margin	6
Wisconsin Power & Light	Generation	4,013
	Load	2,927
	Reserve margin	37
Wisconsin Public Power, Inc.	Generation	204
	Load	883
	Reserve margin	-77
Wisconsin Public Service Corp.	Generation	3,340
	Load	2,752
	Reserve margin	21
WISCONSIN TOTAL	Generation	17,261
WISCONSIN TOTAL	Load	16,141
WISCONSIN TOTAL	Reserve margin	7%

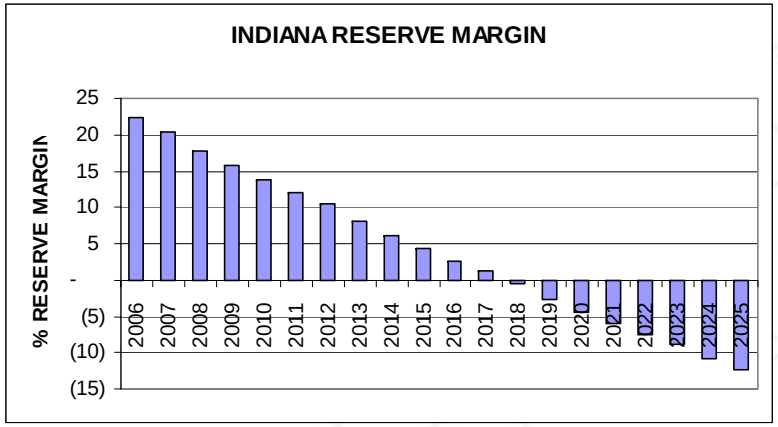
ILLINOIS

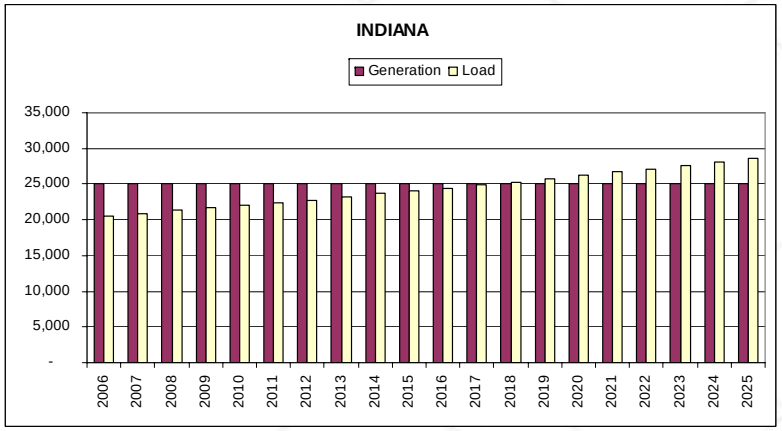




Description	Data Item	2006
Alliant West IL	Generation	-
	Load	194
	Reserve margin	(100)
AmerenCIPS	Generation	6,838
	Load	3,827
	Reserve margin	79
Central Illinois Light Co.	Generation	1,293
	Load	1,358
	Reserve margin	(5)
Commonwealth Edison Co.	Generation	26,641
	Load	23,739
	Reserve margin	12
Dairyland Power Coop. IL	Generation	-
	Load	19
	Reserve margin	(100)
Electric Energy, Inc.	Generation	275
	Load	1,240
	Reserve margin	(78)
Illinois Power Co.	Generation	6,593
	Load	4,161
	Reserve margin	58
MidAmerican Energy Co. IL	Generation	511
.	Load	598
	Reserve margin	(15)
Southern Illinois Power Coop	Generation	467
	Load	355
	Reserve margin	32
Springfield Water, Light & Power	Generation	610
	Load	488
	Reserve margin	25
ILLINOIS TOTAL	Generation	43,228
ILLINOIS TOTAL	Load	34,602
ILLINOIS TOTAL	Reserve margin	25

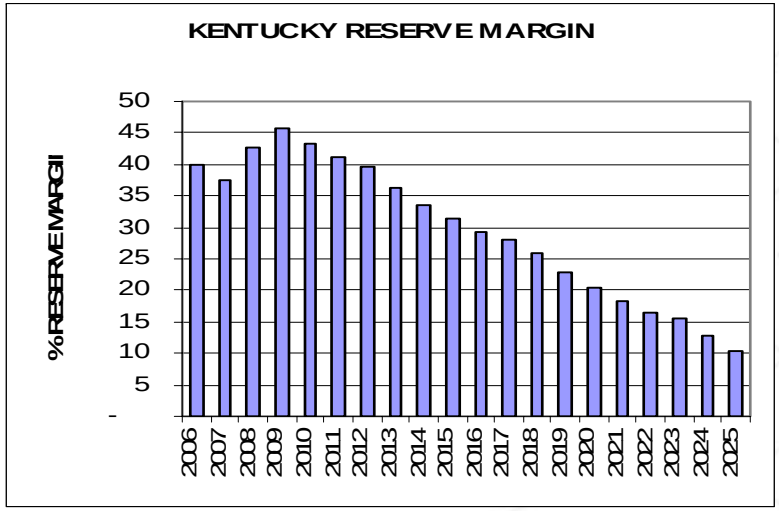
INDIANA

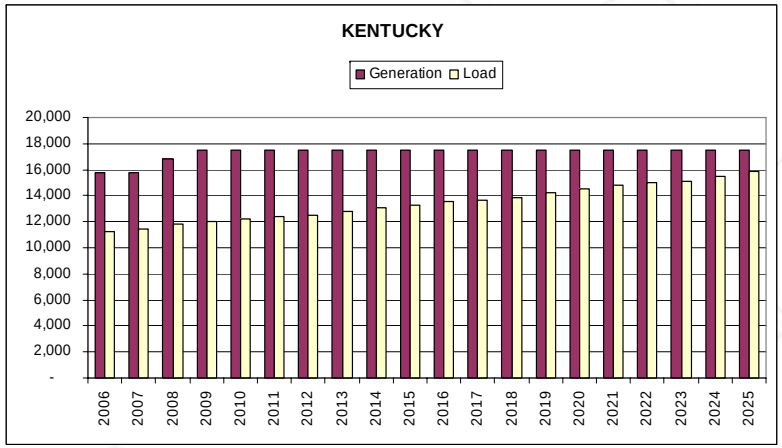




		2006
American Electric Power Co., Inc.	Generation	6,503
	Load	4,044
	Reserve margin	61
Hoosier Energy Rural Electric Coop	Generation	1,801
	Load	1,279
	Reserve margin	41
Indianapolis Power & Light Co.	Generation	3,616
	Load	3,118
	Reserve margin	16
Northern Indiana Public Service Co.	Generation	3,338
	Load	3,707
	Reserve margin	(10)
Northern States Power Co.	Generation	158
	Load	-
	Reserve margin	-
PSI Energy, Inc.	Generation	8,454
	Load	7,147
	Reserve margin	18
Southern Indiana Gas & Electric	Generation	1,252
	Load	1,922
	Reserve margin	(35)
INDIANA TOTAL	Generation	25,121
INDIANA TOTAL	Load	20,512
INDIANA TOTAL	Reserve margin	22

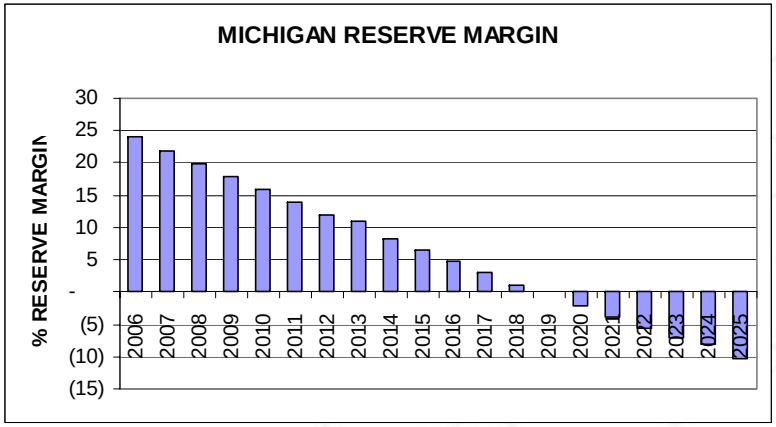
KENTUCKY

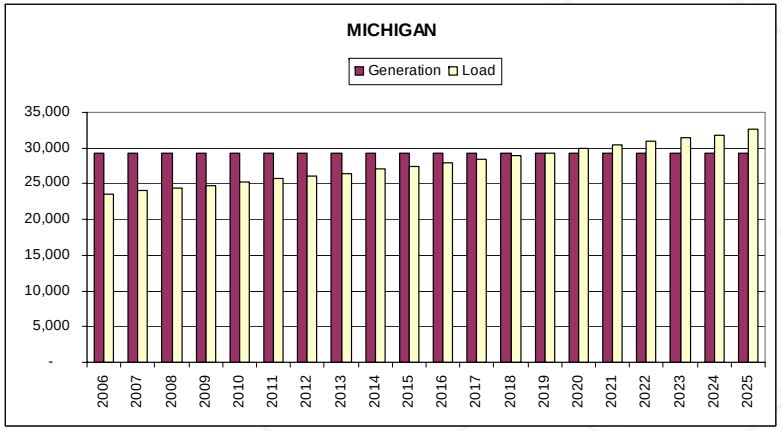




		2006
American Electric Power Co.	Generation	2,043
	Load	1,320
	Reserve margin	55
Big Rivers Electric Corp.	Generation	1,787
	Load	618
	Reserve margin	189
East Kentucky Power Coop	Generation	2,728
	Load	2,691
	Reserve margin	1
Louisville Gas & Electric Co.	Generation	9,218
	Load	7,311
	Reserve margin	26
KENTUCKY TOTAL	Generation	15,777
KENTUCKY TOTAL	Load	11,276
KENTUCKY TOTAL	Reserve margin	40

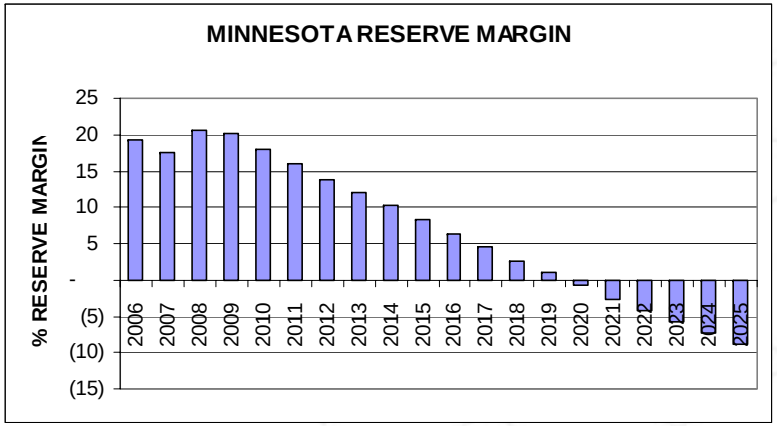
MICHIGAN

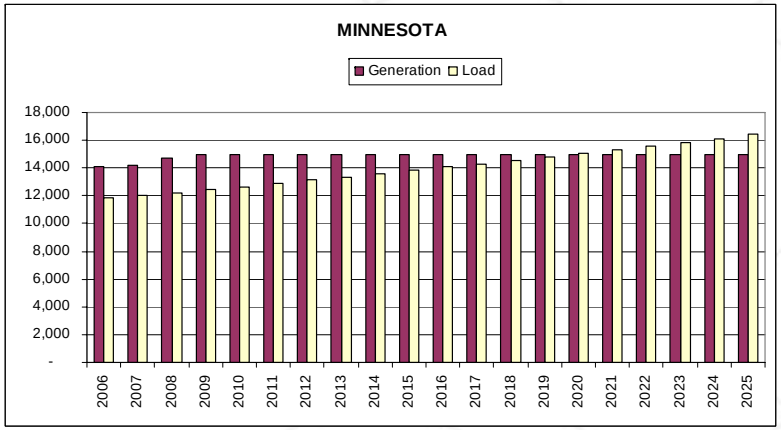




		2006
American Electric Power Co.	Generation	2,060
	Load	1,140
	Reserve margin	81
Consumers Energy Co.	Generation	11,797
	Load	9,543
	Reserve margin	24
Detroit Edison Co.	Generation	14,498
	Load	12,456
	Reserve margin	16
Lansing Board of Water & Light	Generation	527
	Load	493
	Reserve margin	7
Northern States Power Co	Generation	2
	Load	28
	Reserve margin	(94)
Wolverine Power Supply Coop	Generation	371
	Load	581
	Reserve margin	(36)
MICHIGAN TOTAL	Generation	29,256
MICHIGAN TOTAL	Load	23,597
MICHIGAN TOTAL	Reserve margin	24

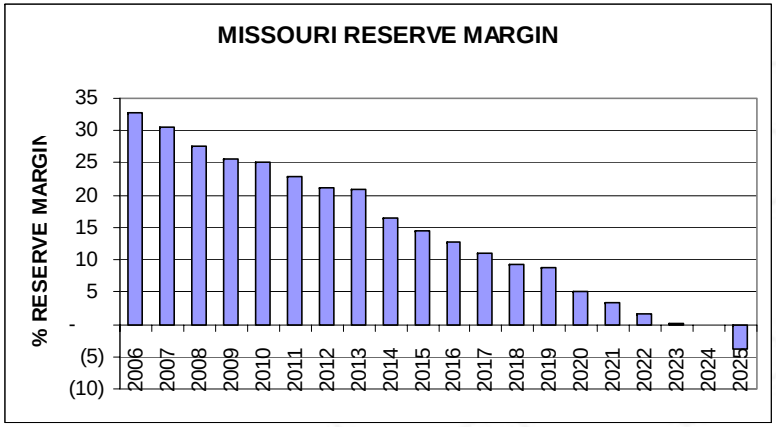
MINNESOTA

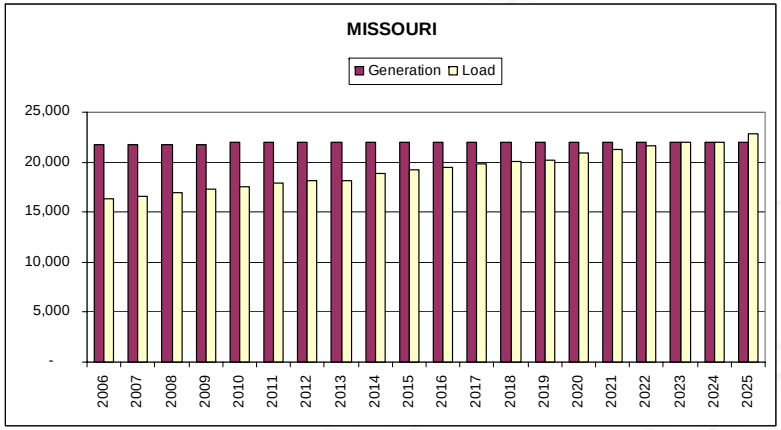




		2006
Alliant West MN	Generation	185
	Load	389
	Reserve margin	(52)
Dairyland Power Coop.	Generation	-
	Load	93
	Reserve margin	(100)
Great River Energy	Generation	2,743
	Load	2,247
	Reserve margin	22
Hutchinson Utilities Commission	Generation	-
	Load	72
	Reserve margin	(100)
Minnesota Power, Inc.	Generation	2,235
	Load	1,561
	Reserve margin	43
Minnkota Power Coop	Generation	-
	Load	63
	Reserve margin	(100)
Northern States Power Co. MN	Generation	7,980
	Load	7,084
	Reserve margin	13
Otter Tail Power Co.	Generation	218
	Load	429
	Reserve margin	(49)
Southern MN Municipal Power Agency	Generation	744
	Load	462
	Reserve margin	61
MINNESOTA TOTAL	Generation	14,105
MINNESOTA TOTAL	Load	11,822
MINNESOTA TOTAL	Reserve margin	19

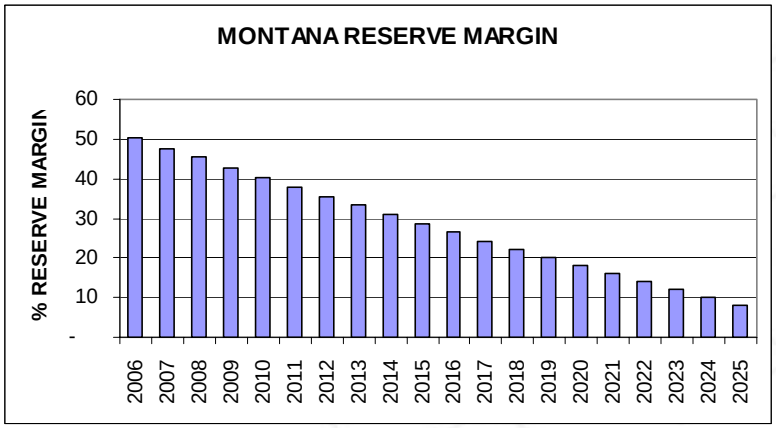
MISSOURI

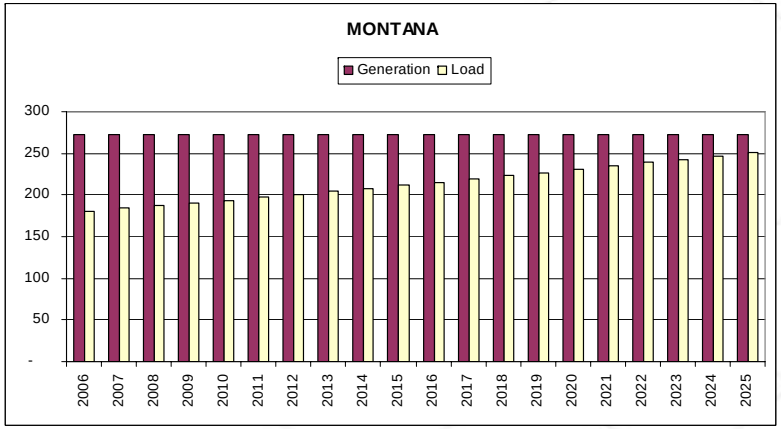




		2006
AmerenUE	Generation	9,863
	Load	8,451
	Reserve margin	17
Associated Electric Coop	Generation	4,018
	Load	2,687
	Reserve margin	50
Empire District Electric Co.	Generation	1,248
	Load	827
	Reserve margin	51
Independence Power & Light Dept.	Generation	293
	Load	317
	Reserve margin	(8)
Kansas City Power & Light Co.	Generation	2,465
	Load	1,836
	Reserve margin	34
Missouri Public Service Co.	Generation	2,286
	Load	1,831
	Reserve margin	25
Southwestern Power Administration	Generation	745
	Load	-
	Reserve margin	-
Springfield City Utilities	Generation	779
	Load	793
	Reserve margin	(2)
MISSOURI TOTAL	Generation	21,696
MISSOURI TOTAL	Load	16,341
MISSOURI TOTAL	Reserve margin	33

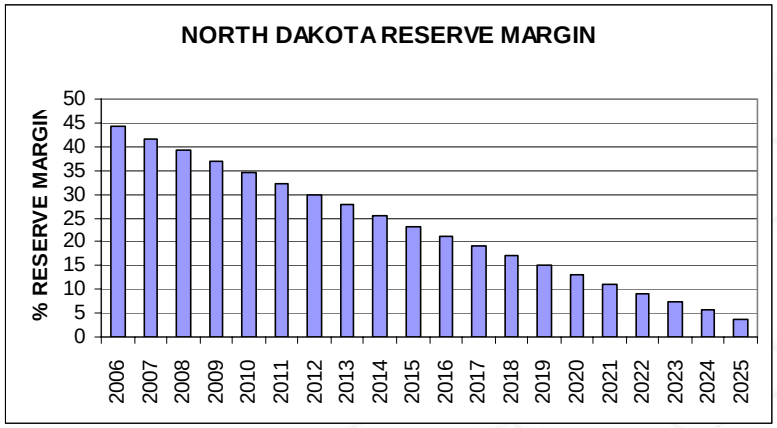
MONTANA

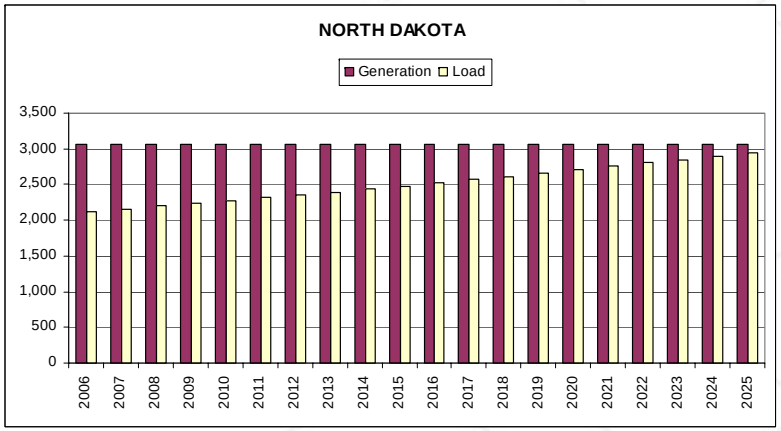




		2006
Montana Dakota Utilities	Generation	133
	Load	146
	Reserve margin	(9)
WAPA	Generation	139
	Load	38
	Reserve margin	263
MONTANA TOTAL	Generation	272
MONTANA TOTAL	Load	181
MONTANA TOTAL	Reserve margin	50

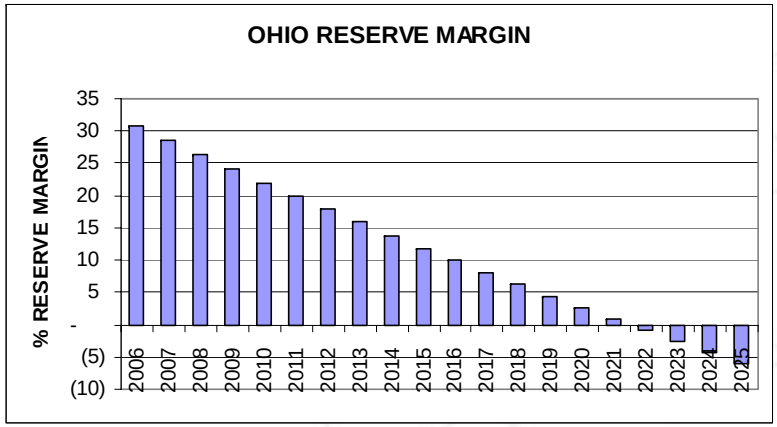
NORTH DAKOTA

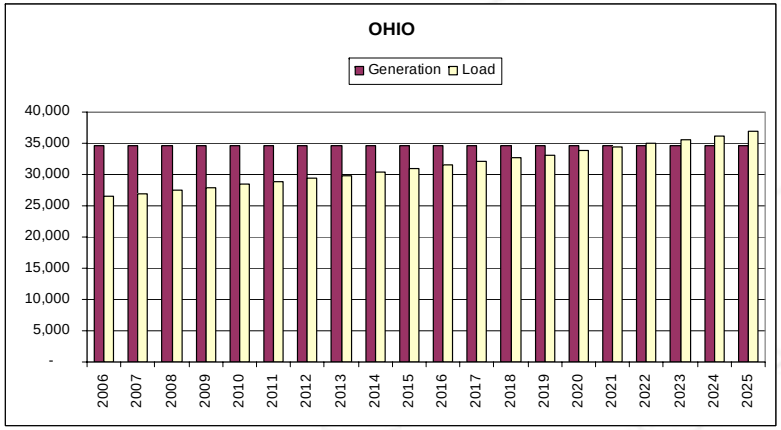




		2006
Minnkota Power Coop, Inc.	Generation	383
	Load	567
	Reserve margin	-32
Montana Dakota Utilities Co.	Generation	313
	Load	340
	Reserve margin	-8
Northern States Power Co.	Generation	0
	Load	453
	Reserve margin	-100
Otter Tail Power Co.	Generation	318
	Load	420
	Reserve margin	-24
WAPA	Generation	2,045
	Load	601
	Reserve margin	240
NORTH DAKOTA TOTAL	Generation	3,060
NORTH DAKOTA TOTAL	Load	2,123
NORTH DAKOTA TOTAL	Reserve margin	44

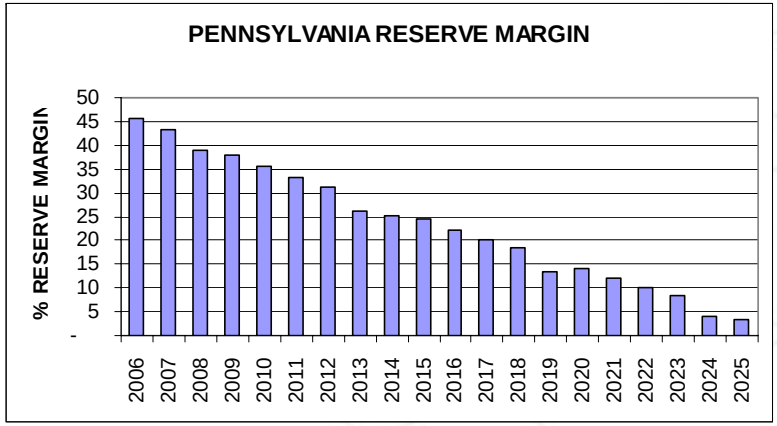
OHIO

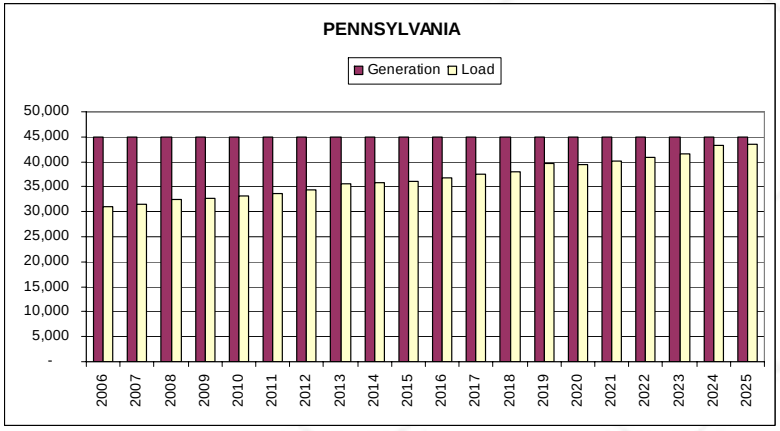




		2006
American Electric Power Co. EAST	Generation	3,458
	Load	3,970
	Reserve margin	(13)
American Electric Power Co. NORTH	Generation	9,925
	Load	6,712
	Reserve margin	48
Cincinnati Gas & Electric Co.	Generation	6,232
	Load	6,071
	Reserve margin	3
Cincinnati Gas & Electric Co.	Generation	-
	Load	-
	Reserve margin	-
Dayton Power & Light Co.	Generation	4,292
	Load	3,204
	Reserve margin	34
FirstEnergy Corp.	Generation	10,741
	Load	6,709
	Reserve margin	60
OHIO TOTAL	Generation	34,648
OHIO TOTAL	Load	26,487
OHIO TOTAL	Reserve margin	31

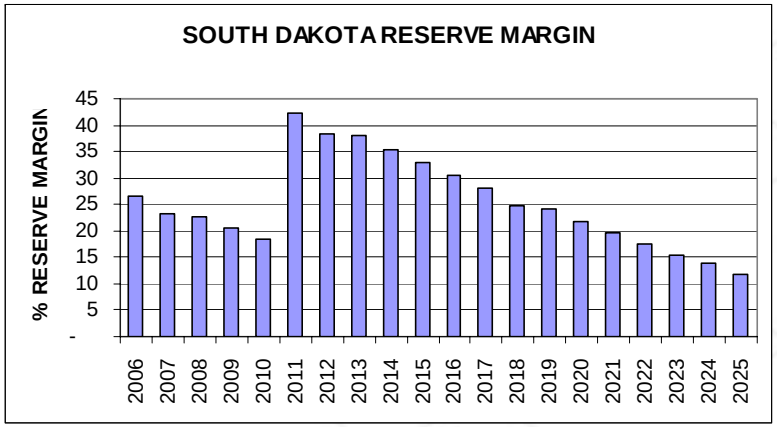
PENNSYLVANIA

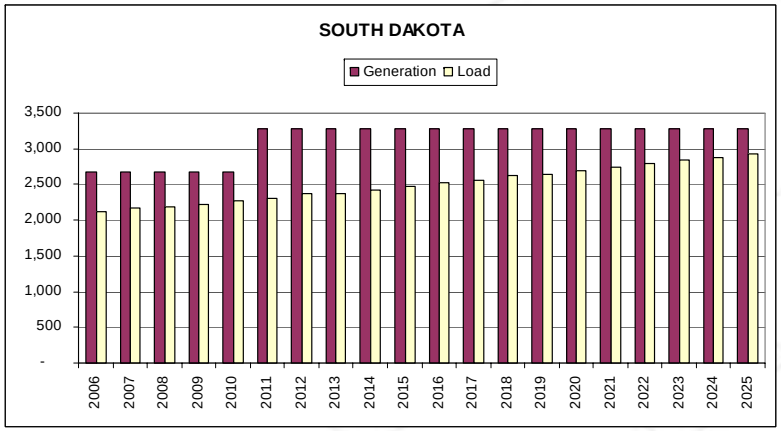




		2006
Allegheny Energy, Inc. PA	Generation	4,709
	Load	3,916
	Reserve margin	20
Duquesne Light Co.	Generation	3,286
	Load	2,829
	Reserve margin	16
FirstEnergy Corp. PA	Generation	2,959
	Load	3,913
	Reserve margin	(24)
GPU Corp. WEST	Generation	11,591
	Load	5,687
	Reserve margin	104
PECO Energy Co.	Generation	11,925
	Load	8,445
	Reserve margin	41
PPL Electric Utilities Corp.	Generation	10,515
	Load	7,474
	Reserve margin	41
PENNSYLVANIA TOTAL	Generation	44,984
PENNSYLVANIA TOTAL	Load	30,902
PENNSYLVANIA TOTAL	Reserve margin	46

SOUTH DAKOTA

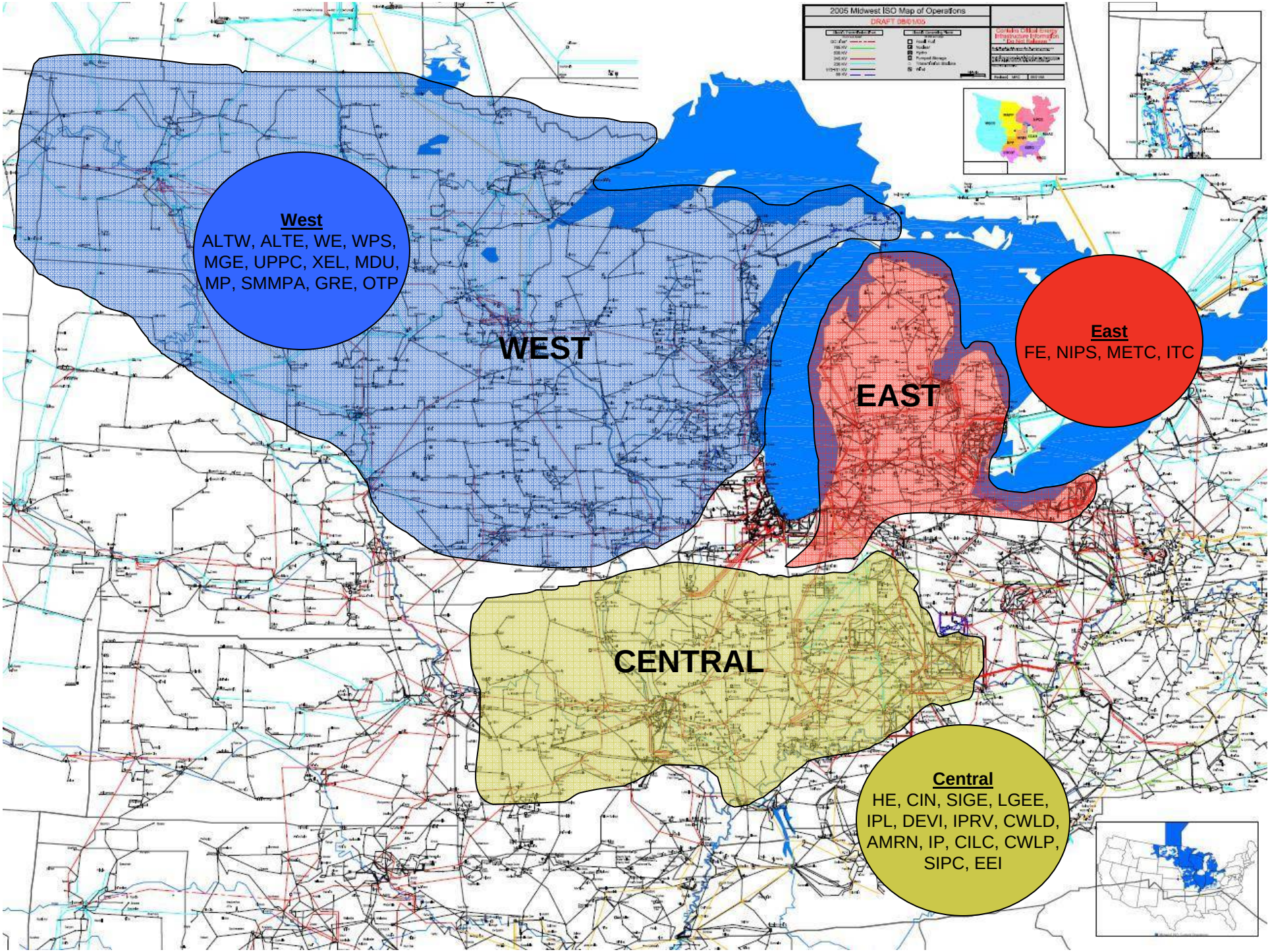




		2006
Northern States Power	Generation	413
	Load	397
	Reserve margin	4
NorthWestern Public Service	Generation	233
	Load	337
	Reserve margin	(31)
Otter Tail Power	Generation	275
	Load	84
	Reserve margin	228
WAPA	Generation	1,760
	Load	1,417
	Reserve margin	24
SOUTH DAKOTA TOTAL	Generation	2,681
SOUTH DAKOTA TOTAL	Load	2,116
SOUTH DAKOTA TOTAL	Reserve margin	27

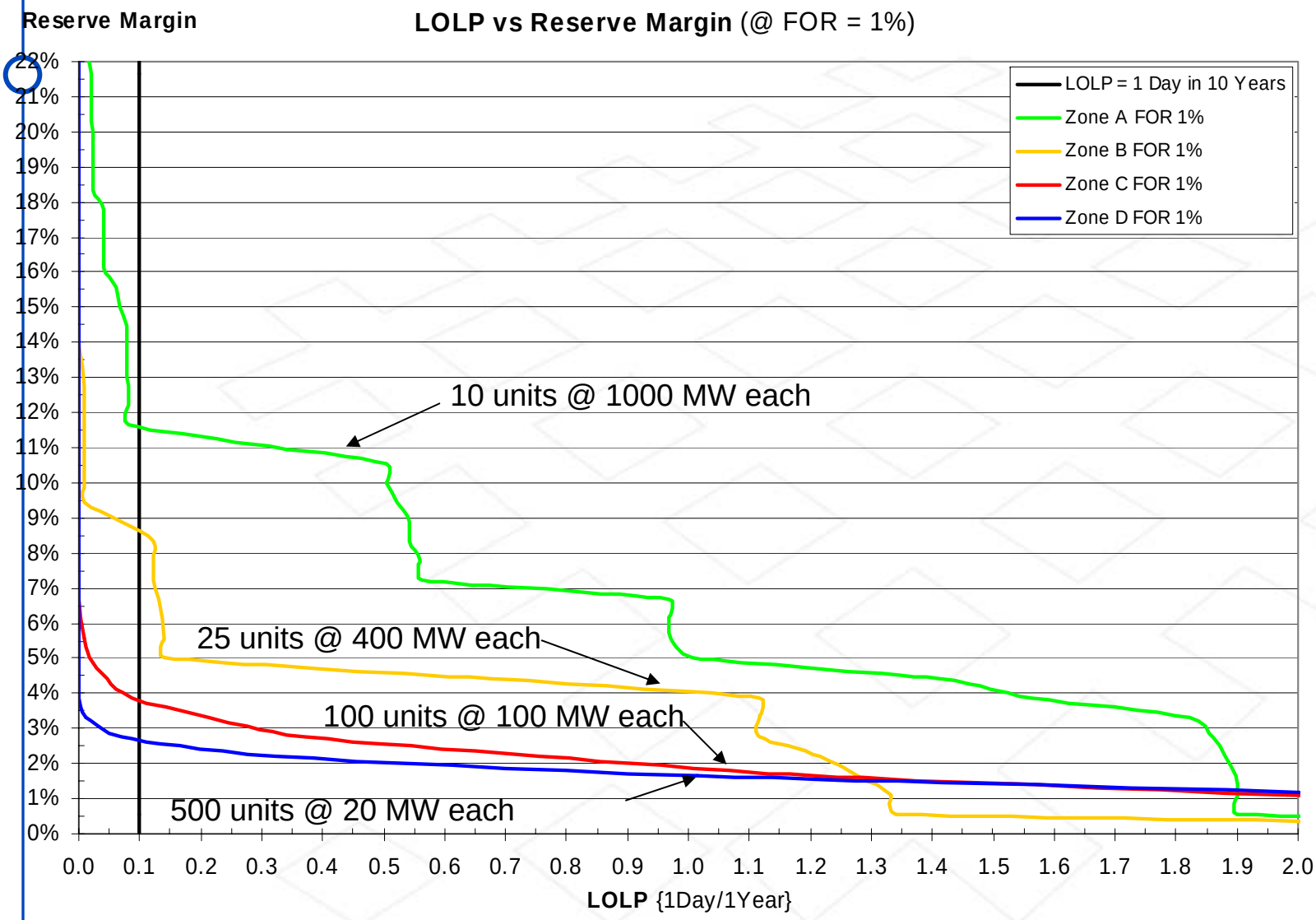
Estimated Reserve Margins by Company
Top 30 LSE's in MISO BA's

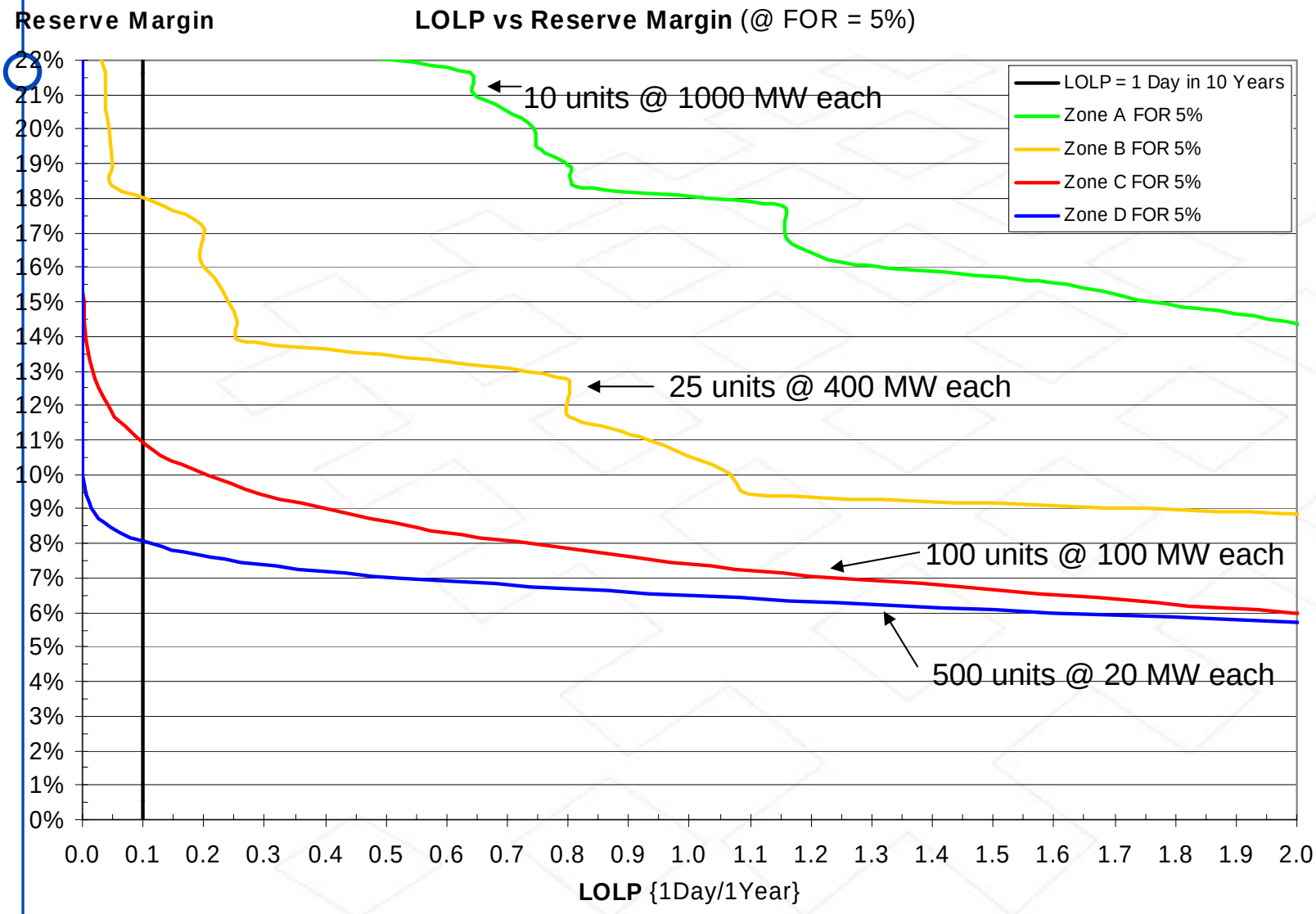
Company	Net Demand	Estimated Resources	Reserve Margin
Detroit Edison Merchant Operations	11,225	12,344	10%
FirstEnergy Service Company	10,109	10,182	1%
FirstEnergy Solutions	1,805	2,096	16%
NSP Energy Marketing	8,723	10,633	22%
Ameren Union Electric	8,700	10,071	16%
Consumers Energy Company	7,572	8,174	8%
Louisville Gas and Electric Company	6,597	7,607	15%
Cinergy PSI	6,340	7,447	17%
Cinergy CGE	4,720	5,335	13%
Cinergy UHLP	891	1,075	21%
Wisconsin Electric Power Company	6,038	7,107	18%
Alliant Energy West	3,307	4,275	29%
Alliant Energy East	2,760	3,925	42%
Illinois Power Company	3,426	3,850	12%
Indianapolis Power & Light Company	3,018	3,341	11%
NIPSCO Energy Management	2,614	2,787	7%
Ameren CIPS	2,700	3,078	14%
Wisconsin Public Service Corporation	2,178	2,891	33%
Split Rock Energy LLC	2,266	2,891	28%
Hoosier Energy REC, Inc	1,336	1,693	27%
Minnesota Power	1,130	1,768	56%
Central Illinois Light Company	1,168	1,292	11%
SIGECO Power Marketing	1,209	1,425	18%
Wisconsin Public Power Inc.	196	286	46%
Madison Gas and Electric Company	673	877	30%
Otter Tail Corporation	597	727	22%
Southern MN Municipal Power Agency	485	558	15%
City Water, Light & Power	466	558	20%
Southern Illinois Power Cooperative	383	443	16%
UPPCO Generation & Marketing	134	193	44%
All Others	11,129	15,013	35%
Total	113,895	133,942	18%


2005 Midwest ISO Map of Operations
DRAFT 08/01/05
West
ALTW, ALTE, WE, WPS, MGE, UPPC, XEL, MDU, MP, SMMPA, GRE, OTP
WEST
EAST
East
FE, NIPS, METC, ITC
CENTRAL
Central
HE, CIN, SIGE, LGEE, IPL, DEVI, IPRV, CWLD, AMRN, IP, CILC, CWLP, SIPC, EEI

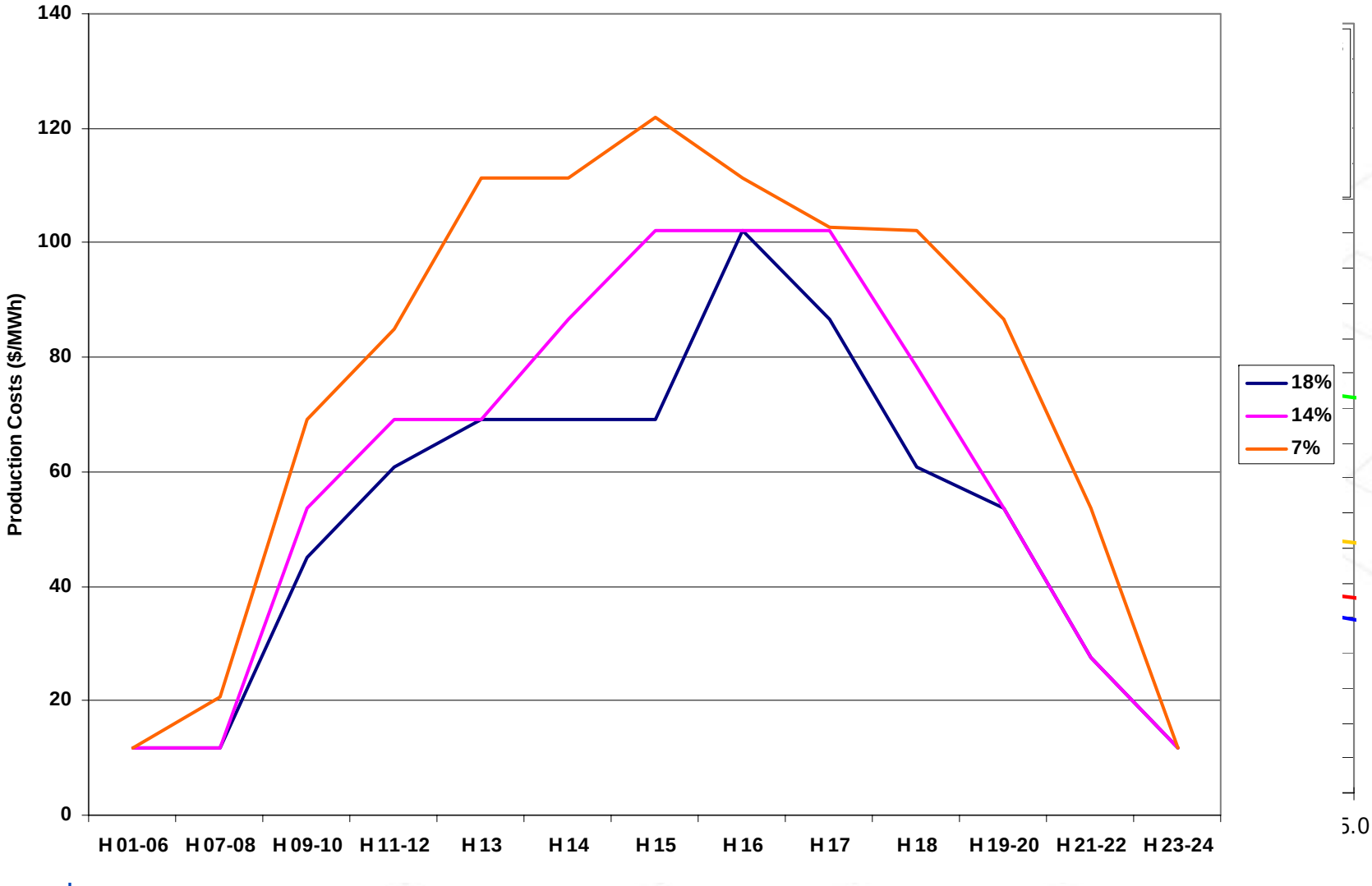
Example of Linkage Between LOLE and Reserve Margin

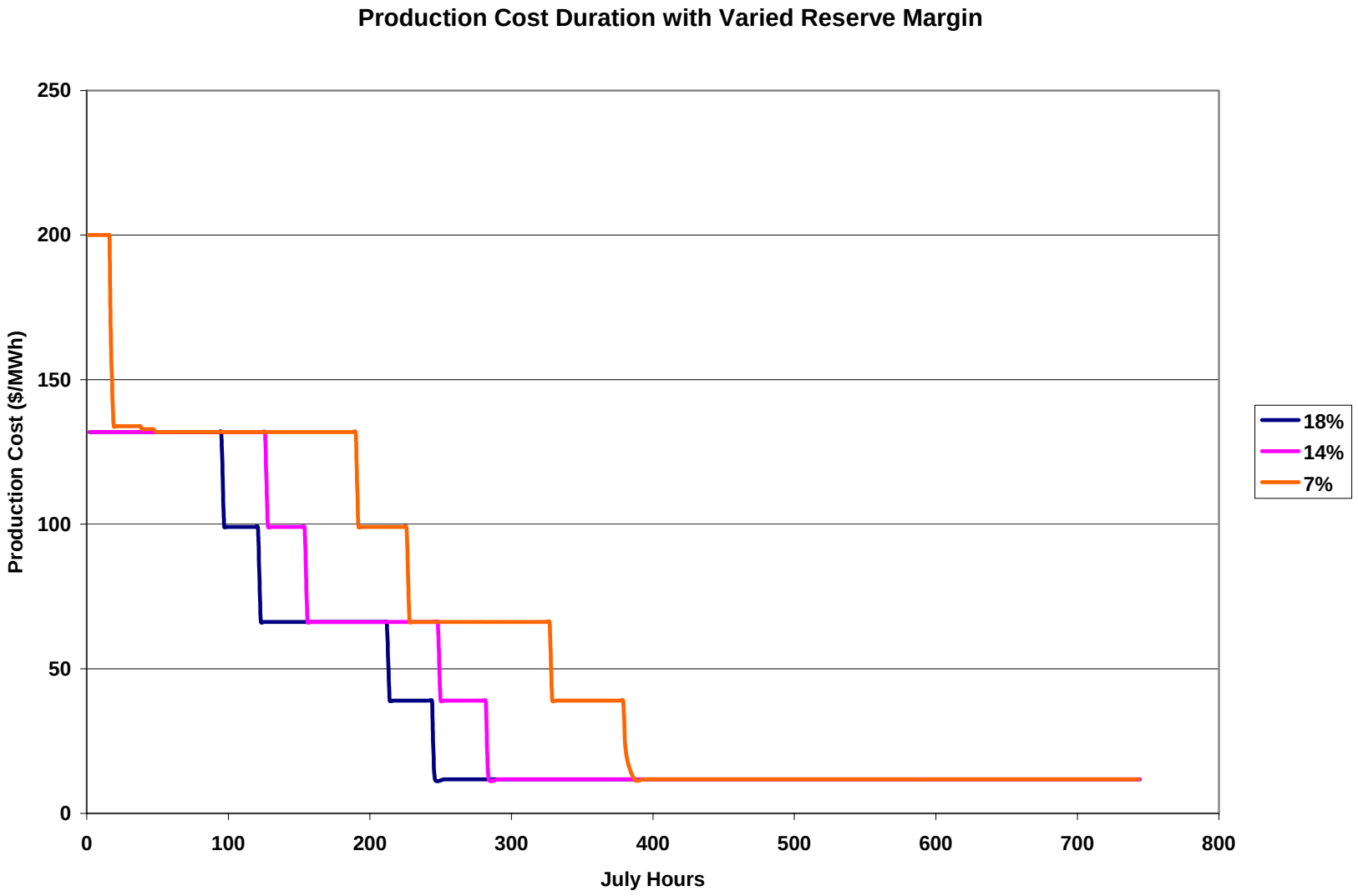
- Created four example systems comprised of 10,000 MW of generation and 9,000 MW of load to test the impact of unit size on LOLE
  - Systems differed by the number and size of the units
    - 10 units @ 1000 MW each
    - 25 units @ 400 MW each
    - 100 units @ 100 MW each
    - 500 units @ 20 MW each
- Performed LOLE analysis at varying Forced Outage rate levels for each of the above four systems


Reserve Margin
LOLP vs Reserve Margin (@ FOR = 1%)
LOLP = 1 Day in 10 Years
Zone A FOR 1%
Zone B FOR 1%
Zone C FOR 1%
Zone D FOR 1%
10 units @ 1000 MW each
25 units @ 400 MW each
100 units @ 100 MW each
500 units @ 20 MW each
22%
21%
20%
19%
18%
17%
16%
15%
14%
13%
12%
11%
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0
LOLP {1Day/1Year}


Reserve Margin
LOLP vs Reserve Margin (@ FOR = 5%)
22%
21%
20%
19%
18%
17%
16%
15%
14%
13%
12%
11%
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0
LOLP {1Day/1Year}
LOLP = 1 Day in 10 Years
Zone A FOR 5%
Zone B FOR 5%
Zone C FOR 5%
Zone D FOR 5%
10 units @ 1000 MW each
25 units @ 400 MW each
100 units @ 100 MW each
500 units @ 20 MW each

Average Peak Day Hourly Production Costs (not scarcity price) by Reserve Margin

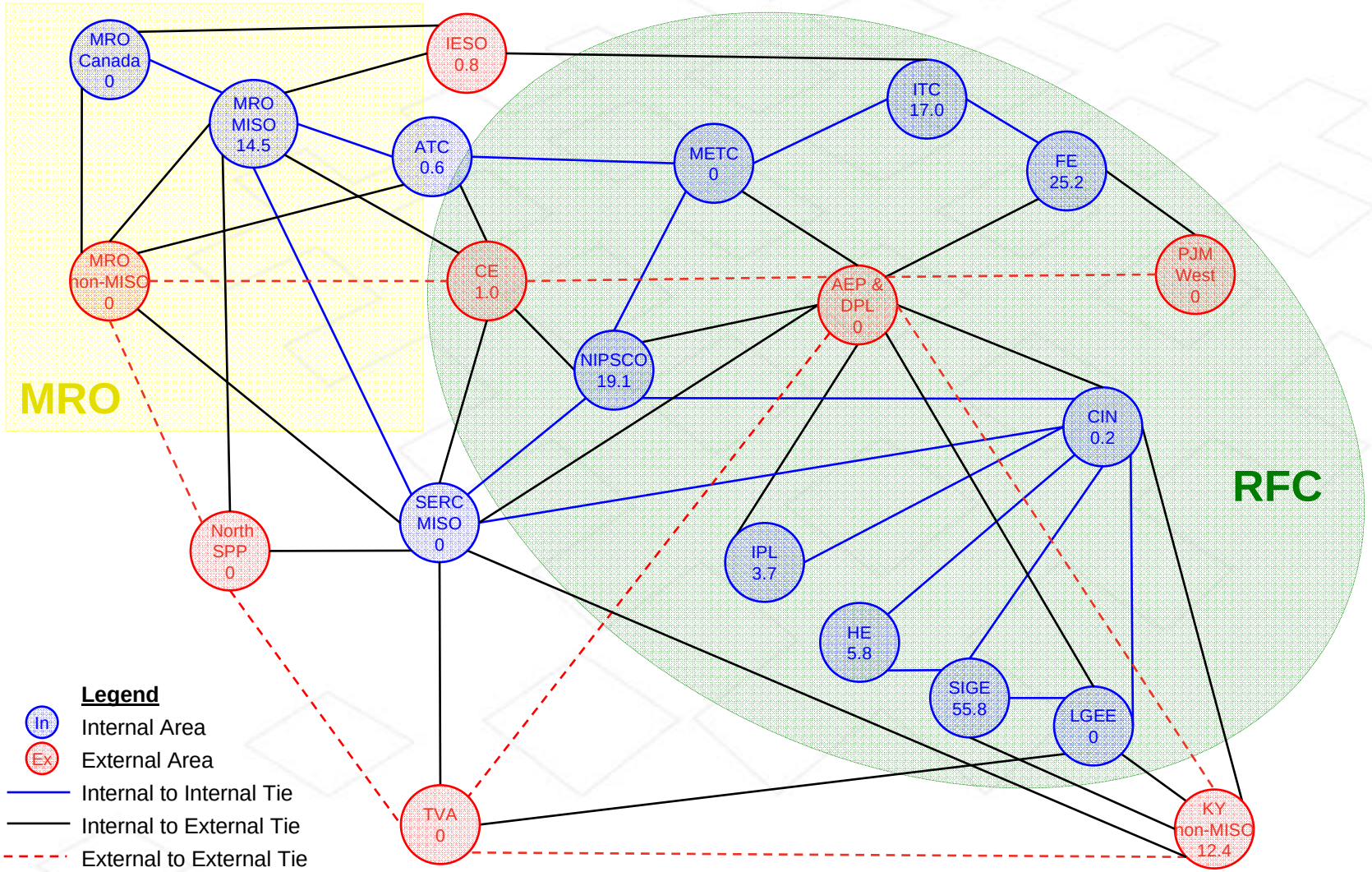



Production Cost Duration with Varied Reserve Margin
Production Cost ($/MWh)
250
200
150
100
50
0
0
100
200
300
400
500
600
700
800
July Hours
18%
14%
7%

Study Configuration

2006 Stand-Alone LOLP in Days/Year
shown below (does not assume transmission ties)

- note: Ties outside study area are not shown



Study Area Definition

Internal Areas

MRO-MISO	ALTW, GRE, MDU, MPL, NSP, OTP & SMMP
MRO-Canada	Manitoba Hydro(MHSP) & Saskatchewan Power(SASK)
ATC	American Transmission Company (ALTE, WE, WPPI, MGE & WPS)
SERC-MISO	AMRN(CIPS & AUEP), CILCO, CWLP, SPRIL, ILPC & SIPC
NIPSCO	Northern Indiana Public Service Co.
METC	Michigan Electric Transmission Company (CEC, LBWL & WPSC)
ITC	International Transmission Company (DETED)
FE	FirstEnergy Corp.
CIN	Cinergy Services, Inc. (CGE & PSI)
IP&L	Indianapolis Power & Light Co.
HE	Hoosier Energy Rural Electric Coop, Inc.
SIGE	Southern Indiana Gas & Electric Co.
LG&E	Louisville Gas & Electric Co.

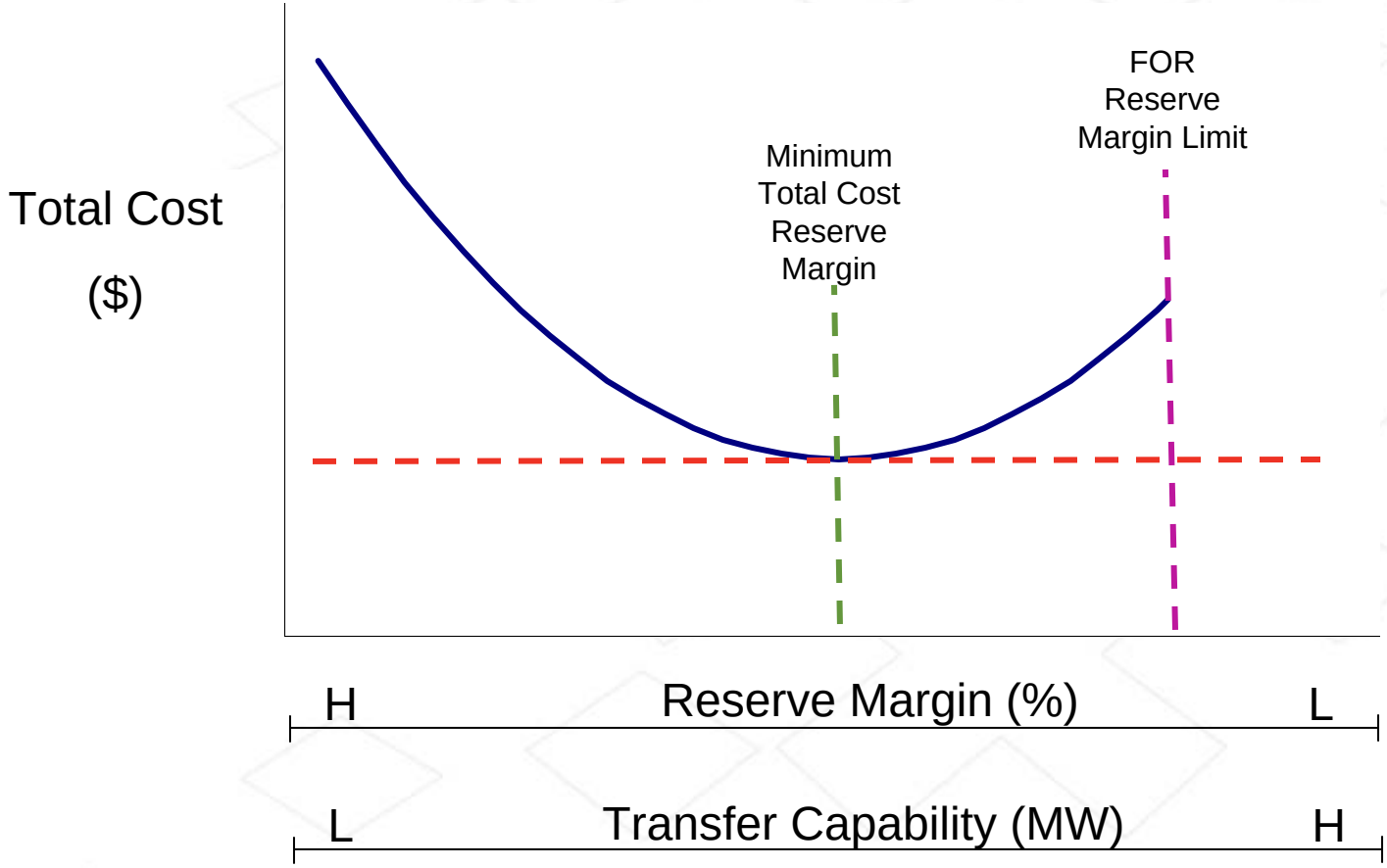
External Areas

MRO-NonMISO	DPC, LES, MIDAM, MPW, NPPD, OPPD & WAPA
COED	Commonwealth Edison Co.
AEP-&-DPL	American Electric Power, Dayton Power & Light & Ohio Valley Electric Corp.
NorthSPP-&-AECI	AECI, EES, KCPL, MIPU & SWPA
Kentucky-NonMISO	Big Rivers Electric Corp.(BREC) & East Kentucky Power Coop, Inc.(EKPC)
PJM-West	Allegheny Energy, Duquesne Light, GPU Corp. WEST & PPL Electric Utilities
TVA	Tennessee Valley Authority
IESO	Independent Electricity System Operator (ONHY)

Observations

- Many components go into linking LOLE to reserve margins.
  - Units sizes and the system Forced outage rate
- LMP volatility can also be linked to LOLE through the reserve margin
- LMP volatility goes up as reserve margin decreases
- Transmission investment can be used to reduce reserve requirements
- Need to determine where the economic trade-off between reliability, reserves, LMP's and new transmission development

Need to Determine The Optimal Transmission Investment/ Reserve Margin Combination



Value Drivers For Transmission Investment

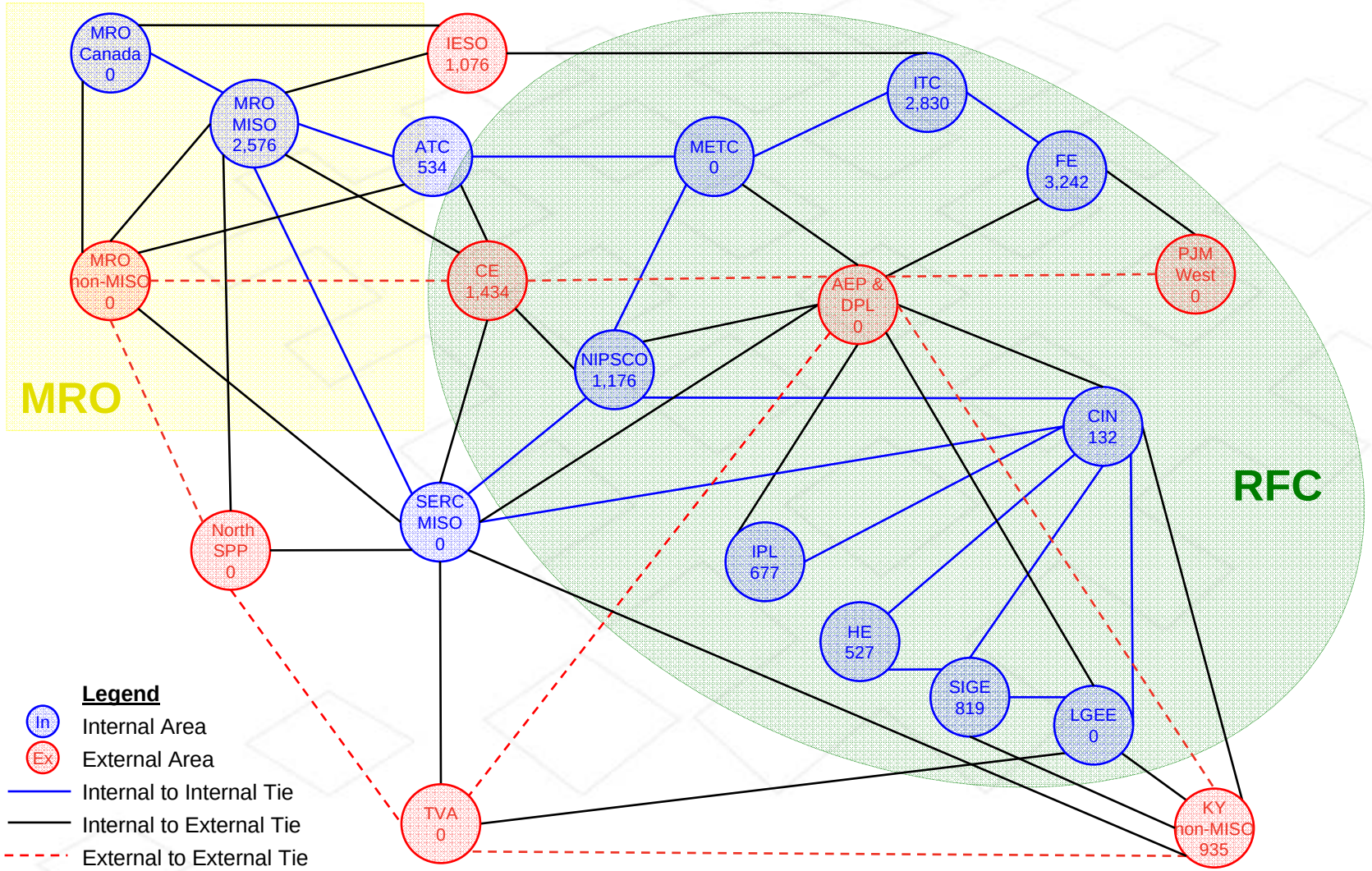
- Local Value
  - Local reliability primarily addressed in MTEP03 and MTEP05
  - Market Monitor estimates $1.2 billion in congestion for the first year of the market. The resulting present value over 20 years is 12 billion. New transmission will address at both the local and regional level and reduce.
- Shared Value
  - MTEP06 looking beyond local value to regional projects.
  - RECB addressing inclusion and allocation criteria for regional economic transmission
  - Cost of new transmission paid for in part by the deferred or eliminated need for new generation. Estimates of over $5 billion present value

Questions?

Study Configuration

2006 Needed Support {MW} for LOLP = 0.1
shown below (does not assume transmission ties)

- note: Ties outside study area are not shown



The Role of Capacity, Demand & Price in ISO-administered Energy Markets

June 21, 2006

Ron McNamara

The Role of Capacity, Demand & Price in ISO-administered Energy Markets

Midwest ISO
We manage power.

Resource Adequacy Plans are created to help

- Ensure reliability, and
- Promote investment (resource adequacy)

The Midwest ISO filed a plan with FERC for moving towards a permanent resource adequacy plan.

- The June 6th Filing recognizes the importance of providing Market Participants with efficient, accurate and transparent pricing signals regarding the true value of energy in order to allow Market Participants to make more informed real-time decisions and assist in longer term decisions related to infrastructure investment.

The Role of Capacity, Demand & Price in ISO-administered Energy Markets

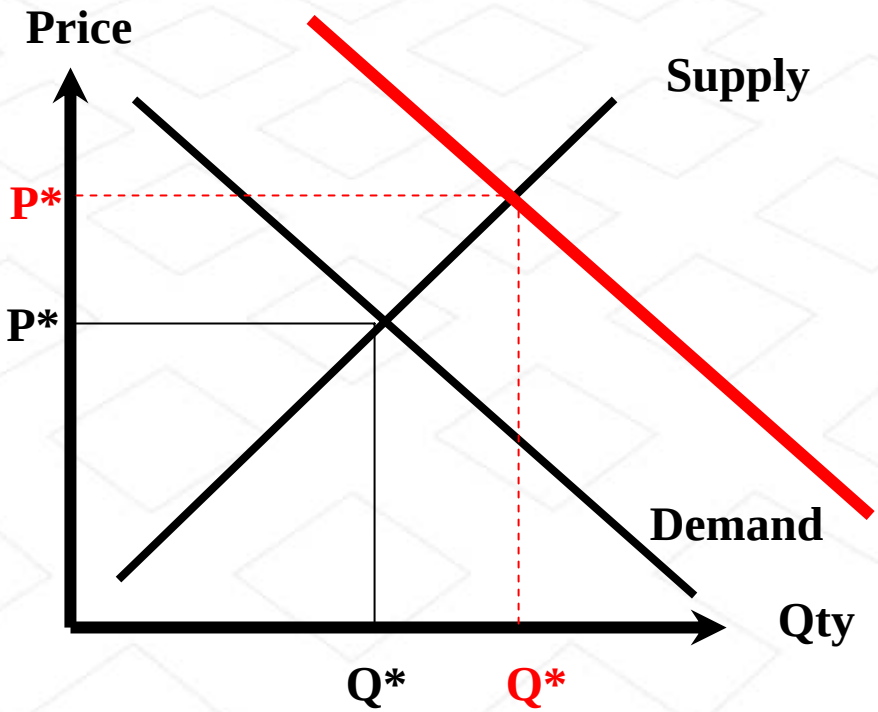
Midwest ISO
We manage power.

June 6th Filing outlines a two phased approach to a "permanent resource adequacy plan" for the Midwest ISO Region that focuses on both, the region's short term reliability needs and encourages long-term planning and investment in infrastructure, as directed by FERC.

- Phase I of the RAR Plan will focus on the short-term reliability of the Midwest ISO Region through the integration of Contingency Reserves and Regulation service into the existing Energy Markets.
- Phase II of the RAR plan will focus on the longer-term reliability needs of the regions such as long-term planning, demand side management programs, long-term FTRs and national industry standards that are currently under development.

Supply, Demand and Risk

- The intersection of supply and demand in any market establishes the equilibrium price and quantity.
  - Let's complicate things just a little - suppose these aren't the "actual" supply and demand curves but rather the "expected" supply and demand curves…



Now let's suppose the actual demand is greater.

…then price is higher than anticipated…call this price risk.

…and quantity is greater also…call this volume risk.

Volume Risk

- With “normal” goods, managing the physical aspects of differing volumes isn’t nearly as problematic as it is in electricity.
- Why…
  - Because the lights can go out!
- Typically…we assume the “demand” for electricity is vertical…especially in real time…and is therefore taken as a “given”…i.e. it isn’t demand it is load.

Managing the volume risk

- So how has this “volume” risk been managed to date….primarily through two “capacity” constructs.
  - First…Operating reserves
    - Requiring an excess of supply over anticipated load on a short term basis (usually next day)
  - Second, in order to ensure that adequate operating reserves are on hand…we need so called Planning reserves
    - Requiring an excess of supply over anticipated load on a long term basis.

The Role of Capacity in ISO-administered Energy Markets

What is Capacity?

- ability to produce power
- ‘steel in the ground’?
- Demand resources can compete against generation to meet capacity needs, though historically this has not been done much
- Transmission resources can compete against generation to meet locational capacity needs by allowing generation at another location to meet the locational requirement
- Typically mentioned in terms of ‘resource adequacy’ or ‘supply adequacy’

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Why is capacity needed?

- Reliable operation of the grid is a primary function of an ISO/RTO
  - Capacity is needed to support reliable grid operations
- NERC defines Reliability as two components:
  - Security & adequacy
- Security relates to operating reserves
  - Short-term operational aspects
- Adequacy relates to planning reserves
  - Has there been sufficient investment over time to meet the real-time energy balance?
- **2003 East Coast blackout was not caused by resource inadequacy**

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Who's responsible for it?

- Operating reserves (security)
  - The ability to operate the system reliably; that is, the ability to withstand contingencies
  - Schedules 3, 5 & 6 in our tariff
  - Regulation, spinning & non-spinning reserves
  - Regulation: resources necessary to continuously balance generation with load, and maintain system frequency
  - Spinning reserves: resources already synchronized to the grid that can respond to instructions to move output levels within a 10-minute period
  - Non-spin reserves: resources not currently synchronized to the grid but can respond to instructions to move output within a 10-minute period

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Who's responsible for it?

- Operating reserves (security)
- **The ISO is responsible for secure operation of the grid – this is Phase I in our filing!**
- The ISO is administering bid-based security constrained economic dispatch to support reliability and efficiency gains
  - Operating reserves are a necessary component of the above
  - Operating reserves have public good aspects (free rider issues)
  - The Midwest ISO is moving towards administering markets for operating reserve procurement
- EPAct recognizes that an ERO standard may provide for reliable operation of the grid
  - FERC agrees
  - RROs are imposing operating reserve standards

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Who's responsible for it?

- Planning reserves (adequacy)
  - The ability of the system to meet the energy requirements of its participants
  - Module E in our tariff
  - Network Resources designated by LSEs (load serving entities) to reliably serve their load
  - RROs have typically imposed planning reserve standards
    - LSEs must demonstrate they have less than 1 day in 10 year LOLE
    - Module E codifies the existing standards

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Who's responsible for it?

- Planning reserves (adequacy)
- **States have rights on resource adequacy standards for LSEs**
  - FPA expressly excludes FERC 'jurisdiction … over facilities used for the generation of electric energy'
  - FERC WMP white paper: 'Order No. 2000 did not include a regional view of resource adequacy. …. The approach to and level of resource adequacy will be decided by the states in the region drawing from a mix of generation, transmission, energy efficiency, and demand responses….. In any case, the choice on the approach is made by the states within the region.'

The Role of Capacity in ISO-administered Energy Markets

Midwest ISO
We manage power.

Who's responsible for it?

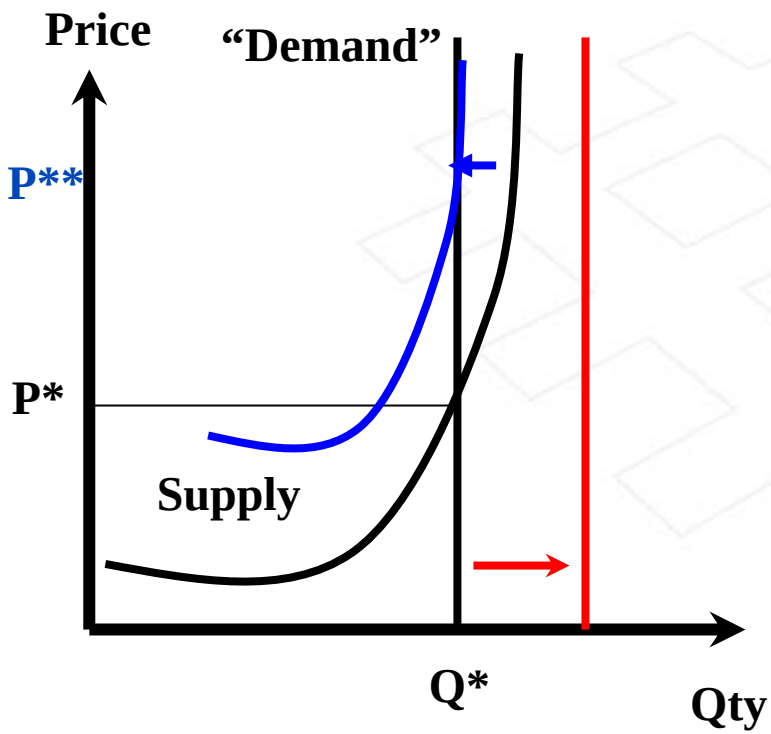
- Planning reserves (adequacy)
- **States have rights on resource adequacy standards for LSEs**
  - EPAct recognizes that an ERO standard may provide for reliable operation of the grid
  - ERO precluded by statute from establishing resource adequacy standards
  - An ERO standard may provide for reliable operation but may not require construction of generation or transmission.
    - FERC agrees
    - RROs are proposing planning reserve standards through PRSGs (planning reserve sharing groups
    - Participation in any particular PRSG is voluntary

The Role of Capacity in ISO-administered Energy Markets

Who's responsible for it?

- Planning reserves (adequacy)
- **States have rights on resource adequacy standards for LSEs**
- Reporting resource adequacy is not the same as requiring it. The ERO must conduct assessments of the adequacy of the bulk power system and report its findings to FERC.
- **The Midwest ISO conducts annual and more forward looking assessments of the adequacy of the Midwest ISO grid.**
- **This is part of Phase II in our filing!**

Price risk



With a vertical "demand" curve, a shift of either the demand or supply curves can potentially lead to problems…in some cases there may be no intersection…and either everybody doesn't get electricity or somebody needs to be involuntarily shut off. In other cases, prices can skip between very low and very high prices.

Managing price risk

- So how has this “price” risk been managed to date….primarily through price caps and then, by necessity, capacity constructs.
  - First…Price caps in energy and capacity markets have not worked, either for
    - Ensuring reliability (e.g., the need for RMR), or
    - Promoting investment (RMR)
  - Second, price responsive demand will change the vertical demand curve to one with some slope,
    - Mitigation price volatility,
    - Mitigate market power, and
    - Helping to ensure resource adequacy

The Role of Demand in ISO-administered Energy Markets sum

- Limited exposure to spot prices:
  - Only those MPs who choose to rely on spot prices are exposed.
  - If your load is fully contracted, you are not exposed.
  - Any party can be hedged through contracts, own generation (self supply), demand response, to the degree they choose.
  - Regulators can ensure utility or competitive LSEs hedge default customers with contracts.
- Market power mitigation still applies.
  - Shortage cost pricing does not mean removal of mitigation.
  - Offer caps, must-offer and other measures stay in place.

The Role of Capacity, Demand & Price in ISO-administered Energy Markets

How do other ISOs/RTOs deal with resource adequacy?

- NYISO: planning reserves imposed by state (NY Reliability Council)
- CAISO: planning reserves imposed by state (CPUC)
- PJM: planning reserves historically imposed by local RRO (MAAC) for PJM Classic
  - New members have to agree to a PJM-determined planning reserve standard: a price of entry into PJM
- ISO-NE: planning reserves determined by NE power pool agreements

Where is the Midwest ISO with respect to resource adequacy?

MISO priorities are on improvements likely to have the most impact on regional efficiency that can lead to customer savings.

- Improve spot pricing and regional dispatch.
- Create regional OR markets and co-optimise with energy dispatch/procurement and pricing.
- Introduce scarcity pricing for better price signals.
- Develop ICAP/LICAP options only if/when improved energy plus OR markets prove deficient.
  - Rely on ERO/State mechanisms, which may be sufficient.
  - Develop adequacy metrics

Regulatory Filings

June 2006

- Informed the Commission of the Midwest ISO's plan to address both short-term and long-term resource adequacy –*i.e.,* two Phase Approach
- Initial focus on short-term adequacy and reliability through contemporaneous commitment, dispatch and pricing of energy, operating reserves and regulation.

Fall 2006

- Filing to implement Energy Markets Tariff, Transmission Owners Agreement and Balancing Authority Agreement revisions necessary to address short-term adequacy and reliability.
- Discussion of revisions in applicable stakeholder forums.