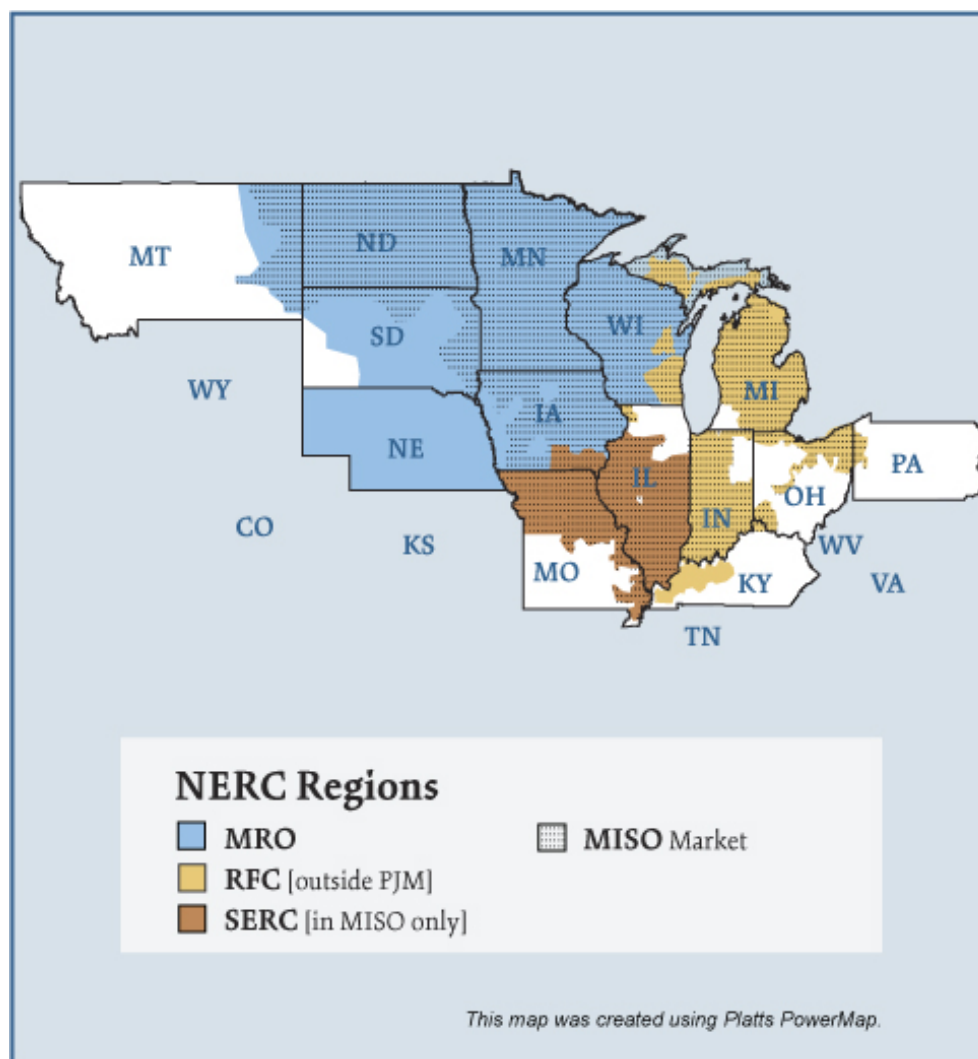


## Midwest Electric Regions



## Midwest Electric Market: Overview and Focal Points

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight.gov/oversight](http://www.ferc.gov/oversight.gov/oversight)

### Overview

#### Market Description

Midwest Reliability Organization (MRO) reliability region and the portion of the SERC reliability region in MISO and the ReliabilityFirst Corporation (RFC) reliability region not in PJM.

#### Geography

States covered: All or most of North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan and parts of Montana, Missouri, Kentucky, and Ohio.

Reliability regions: Midwest Reliability Organization (MRO), Southeastern Electric Reliability Council (SERC) and ReliabilityFirst Corporation (RFC)

(These regions were formerly: East Central Area Reliability Coordination Agreement (ECAR), Mid-America Interconnected Network (MAIN), and Midcontinent Area Power Pool (MAPP) regions.)

Balancing authorities: See list on page 6.

Hubs: Cinergy, First Energy, Illinois, Michigan, Minnesota

#### RTO/ISO

Midwest ISO (MISO) (established 2002) administers a two-settlement (day ahead and real-time) energy market known as the Day-2 market. It produces hourly locational marginal prices that are rolled up into 5 regional hub prices. MISO also administers a monthly financial transmission rights (FTR) allocation and auction.

Midwest bilateral trading is active on the IntercontinentalExchange (ICE) at the Cinergy Hub and Northern Illinois Hub.

#### [Midwest ISO 2006 State of the Markets Report](#)

Market Monitor: Dr. David Patton – Independent Market Monitor

Updated August 3, 2007

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## Midwest Electric Market: Overview and Focal Points

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### Generation/Supply (MISO only)

Marginal fuel type: Coal

Generating capacity (summer 2006): 137,232 MW

Capacity reserve (summer 2006): 21,025 MW

Reserve margin (summer 2006): 18%

### Demand (MISO only)

All time peak demand: 116 GW (set July 31, 2006)

All time peak demand for MISO market footprint excluding LG&E: 110.5 GW (set July 31, 2006)

In summer of 2006, demand reached record levels on several occasions due to extremely hot weather.

Peak demand growth: 3.4% (2005-2006)

Summer Peak Demand (GW): 112.2 (2005) 116 (2006) 110.5 (2006 MISO market footprint excluding LG&E)

*Source: Derived from MISO Data*

### Prices (MISO only)

Annual Average Day-Ahead Price at Cinergy Hub: \$50.54/MWh (2005) \$40.44/MWh (2006)

Prices increased in 2005 as a result of disturbances to the natural gas market. Prices declined in 2006 as natural gas storage levels remained above historical ranges throughout the injection season (April through October).

Updated June 1, 2007

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## Midwest Electric Market: Overview and Focal Points

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### **Interconnections/Seams**

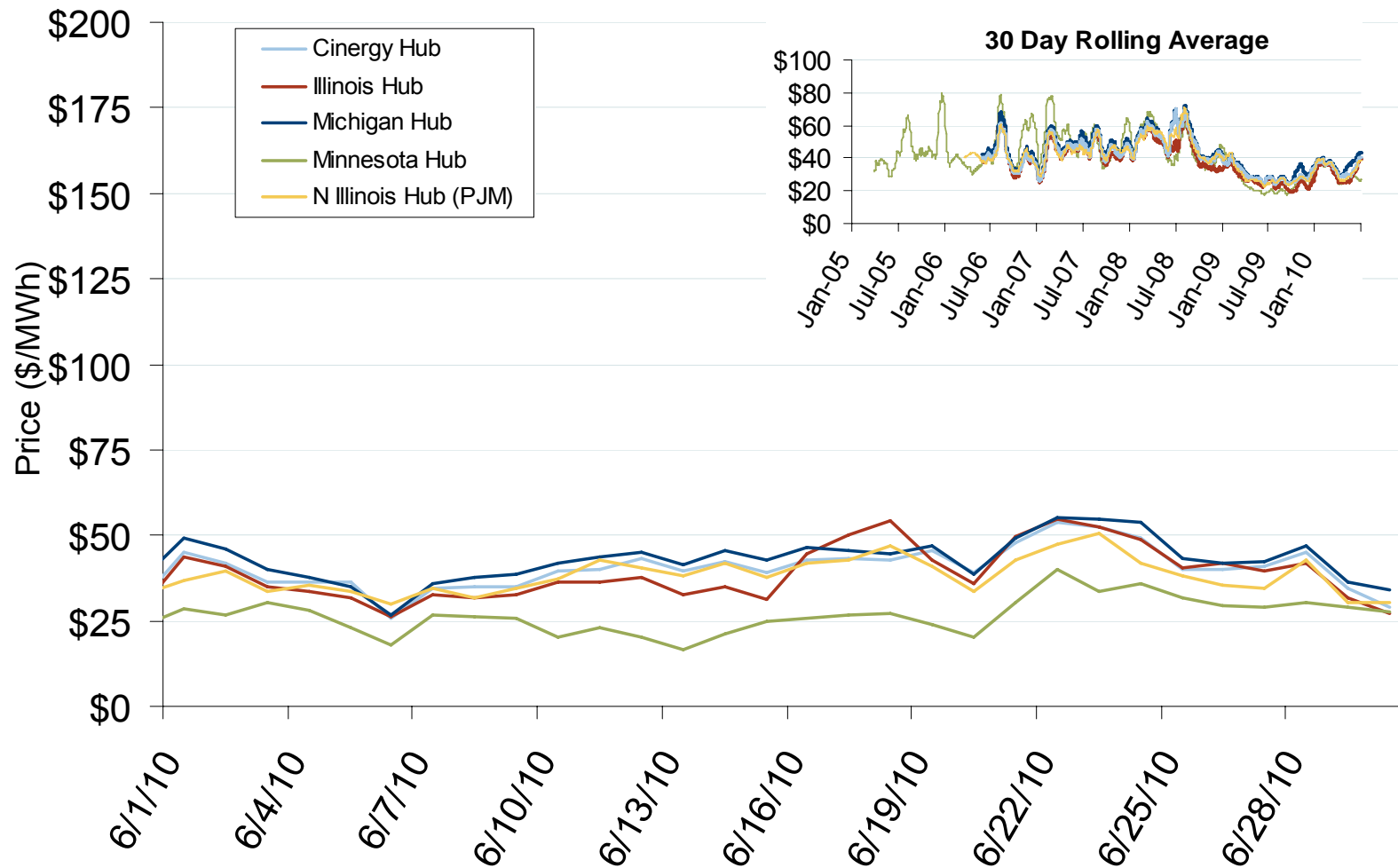
Since the start of the Day-2 market on April 1, 2005, persistent transmission constraints in the Wisconsin and the Upper Peninsula of Michigan (WUMS) and Minnesota areas have caused their prices to diverge from other areas of MISO, usually at times of high loads or decreased generation supply.

## Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2005	2006	2007	2008	2009	5-Year Avg
Cinergy	\$63.76	\$51.81	\$61.20	\$66.88	\$34.65	\$55.65
Michigan Hub*	N/A	\$55.29	\$64.43	\$69.15	\$36.56	\$58.94
Minnesota Hub*	N/A	\$59.47	\$72.32	\$67.46	\$32.09	\$59.62
NI Hub	\$61.76	\$52.52	\$58.93	\$66.13	\$34.47	\$54.75
Illinois Hub*	N/A	\$51.32	\$59.88	\$62.52	\$31.36	\$53.88
MAPP South	\$65.48	\$55.11	\$61.18	\$69.18	\$33.31	\$56.85

\* As of April 1, 2005.

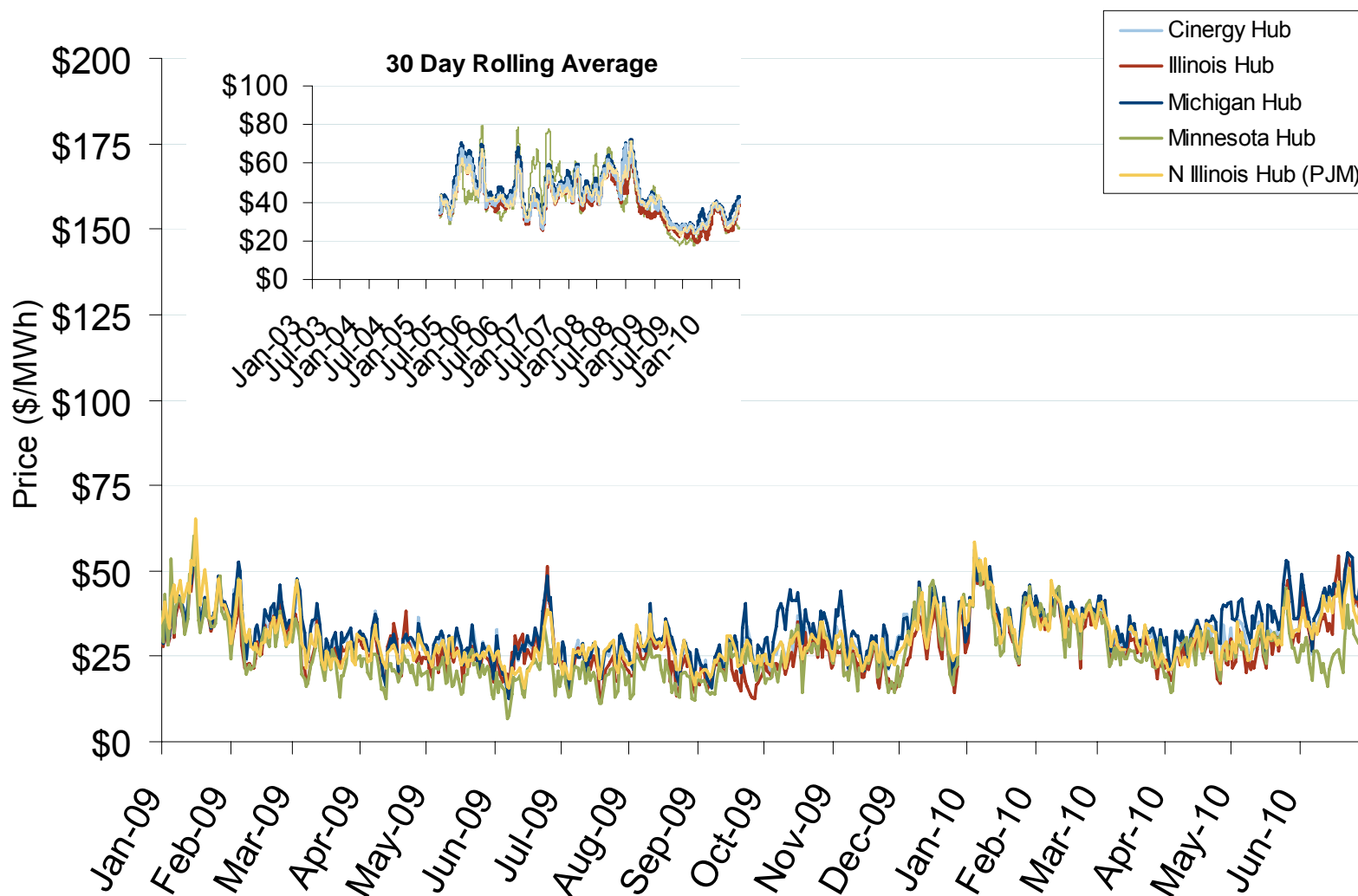
## Daily Average of MISO Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from MISO and PJM data as reported by Bloomberg.

Updated July 9, 2010

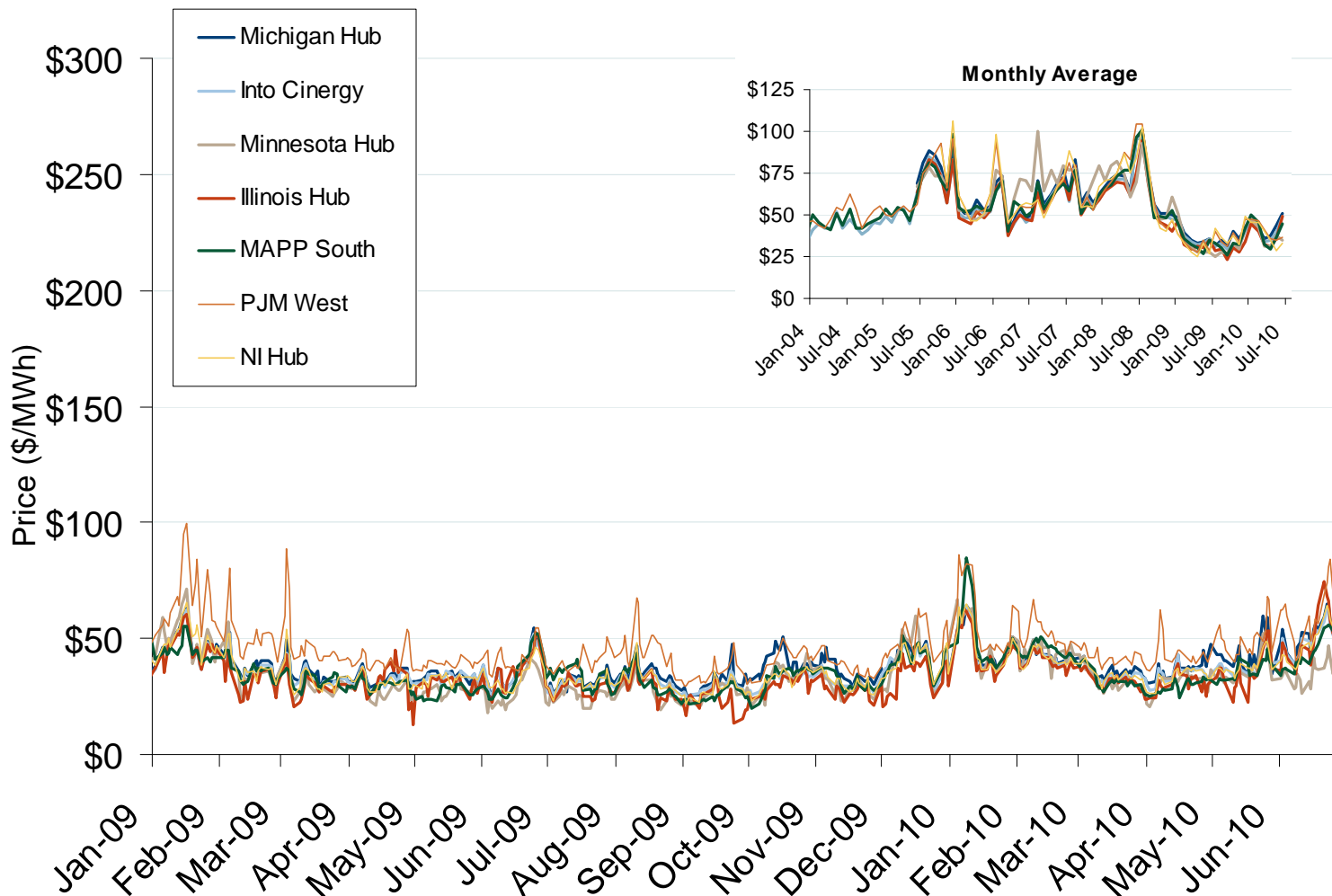
## Daily Average of MISO Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from MISO and PJM data as reported by Bloomberg.

Updated July 9, 2010

## MISO/PJM Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

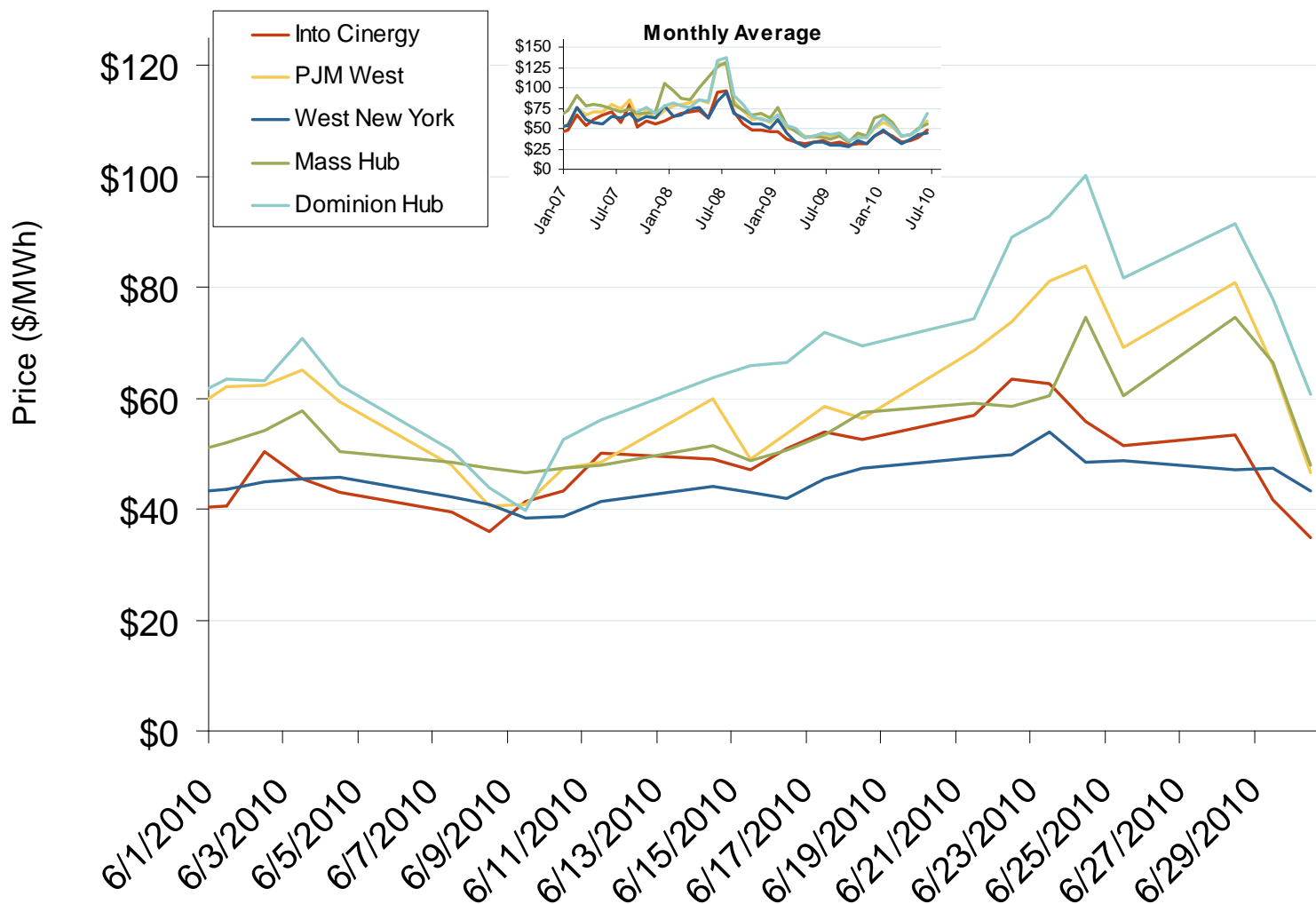
Updated July 9, 2010



Midwest Electric Market: Last Month's Eastern Bilateral Prices

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

# Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

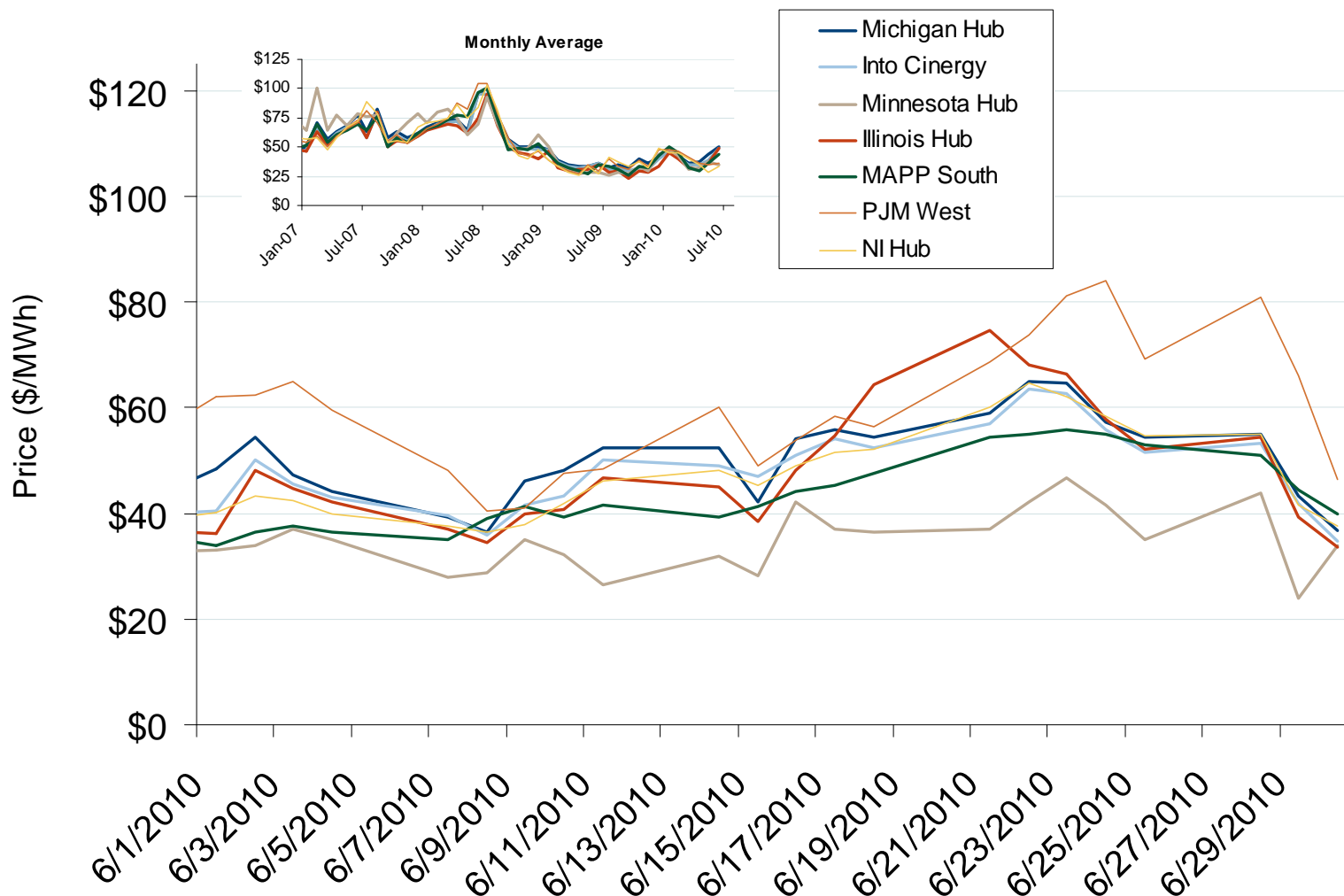
Updated July 9, 2010

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Midwest Electric Market: Last Month's MISO/PJM Bilateral Prices

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

# MISO/PJM Bilateral Day-Ahead On-Peak Prices

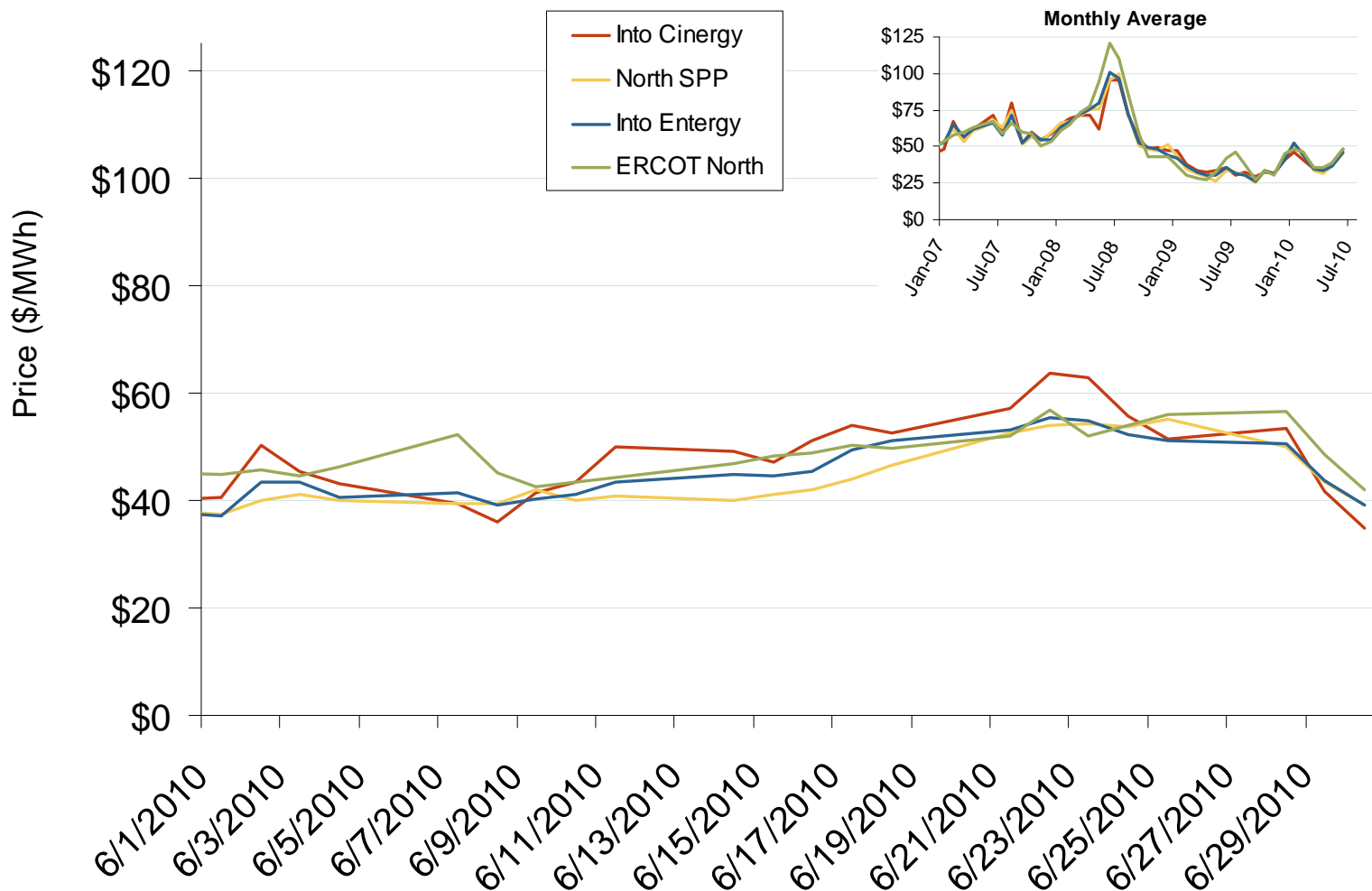


Source: Derived from *Platts* data.

Updated July 9, 2010

11521

# Midwestern Daily Bilateral Day-Ahead On-Peak Prices

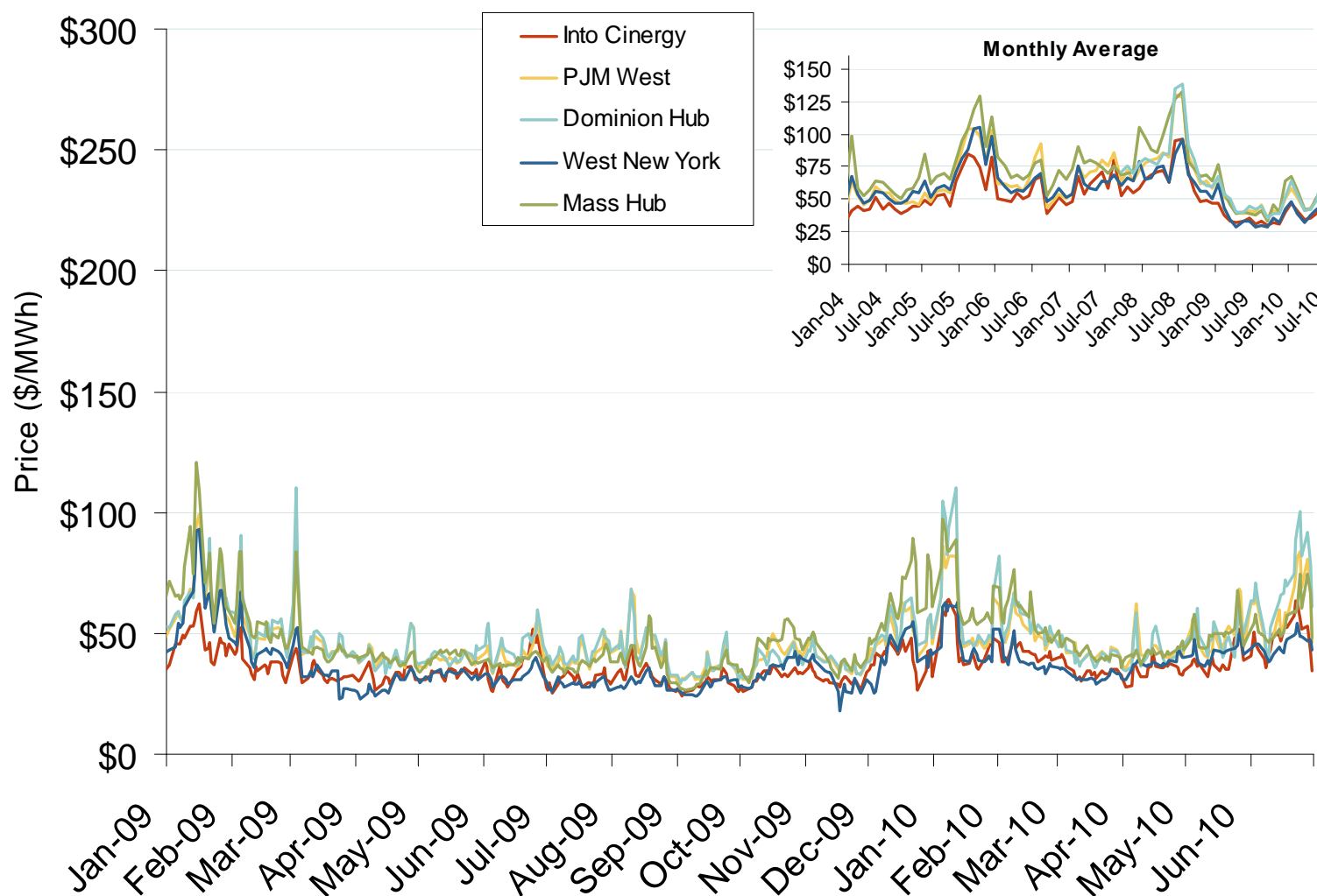


Source: Derived from *Platts* data

Updated July 9, 2010

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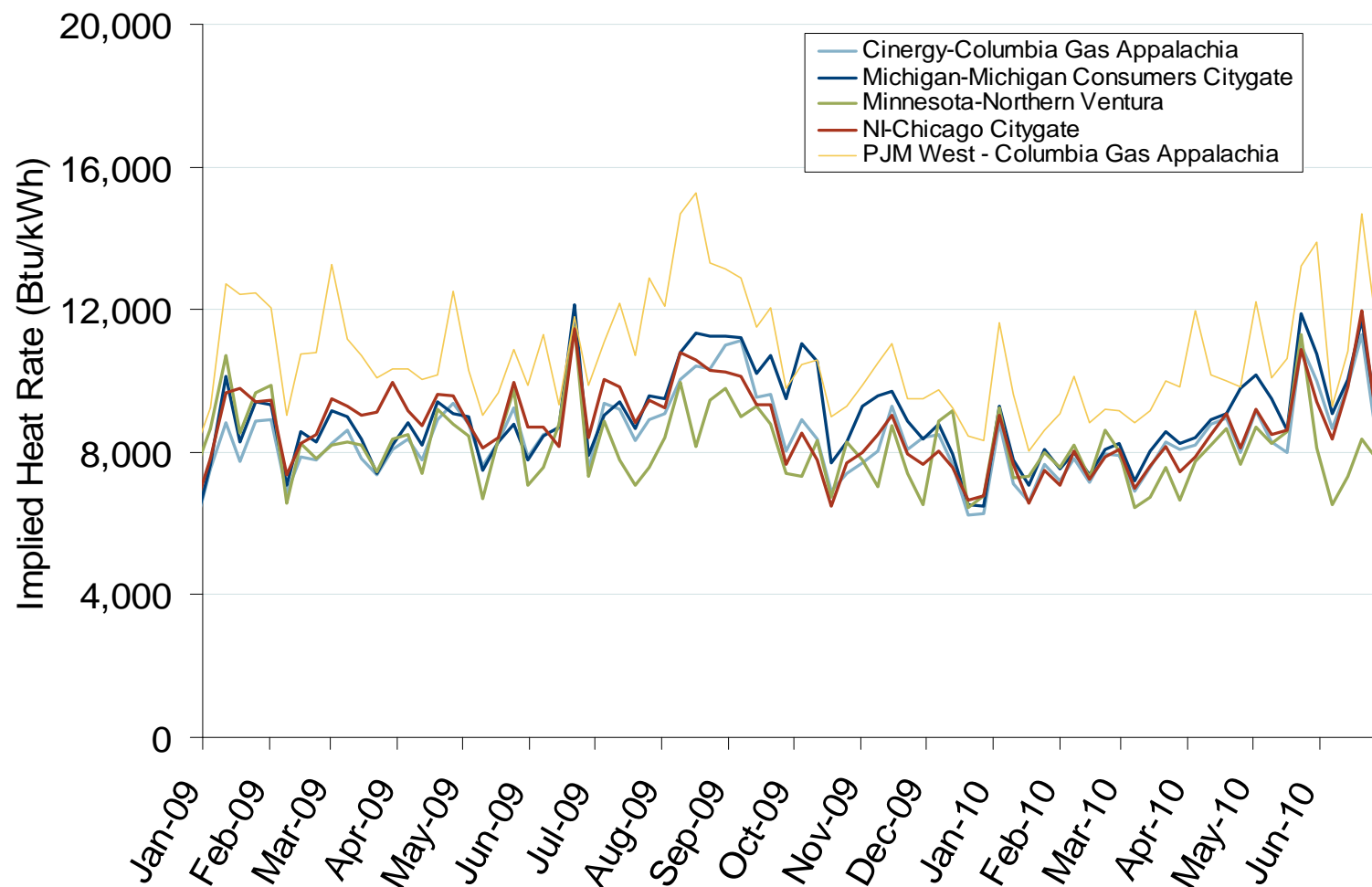
## Eastern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from *Platts* data.

Updated July 9, 2010

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## Implied Heat Rates at MISO and PJM Hubs Weekly Averages

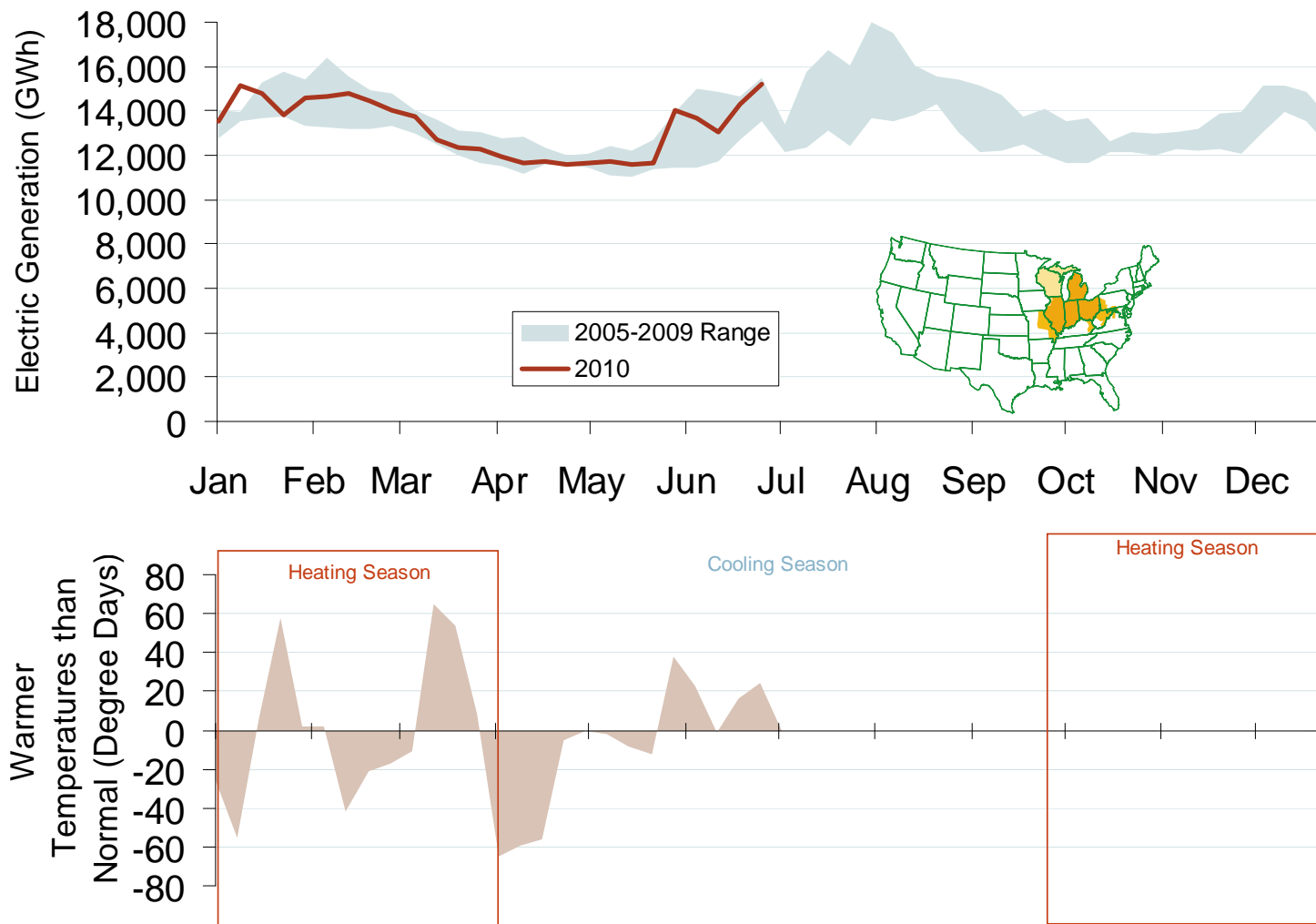


Source: Derived from *Platts* on-peak electric and natural gas price data.

Updated July 9, 2010

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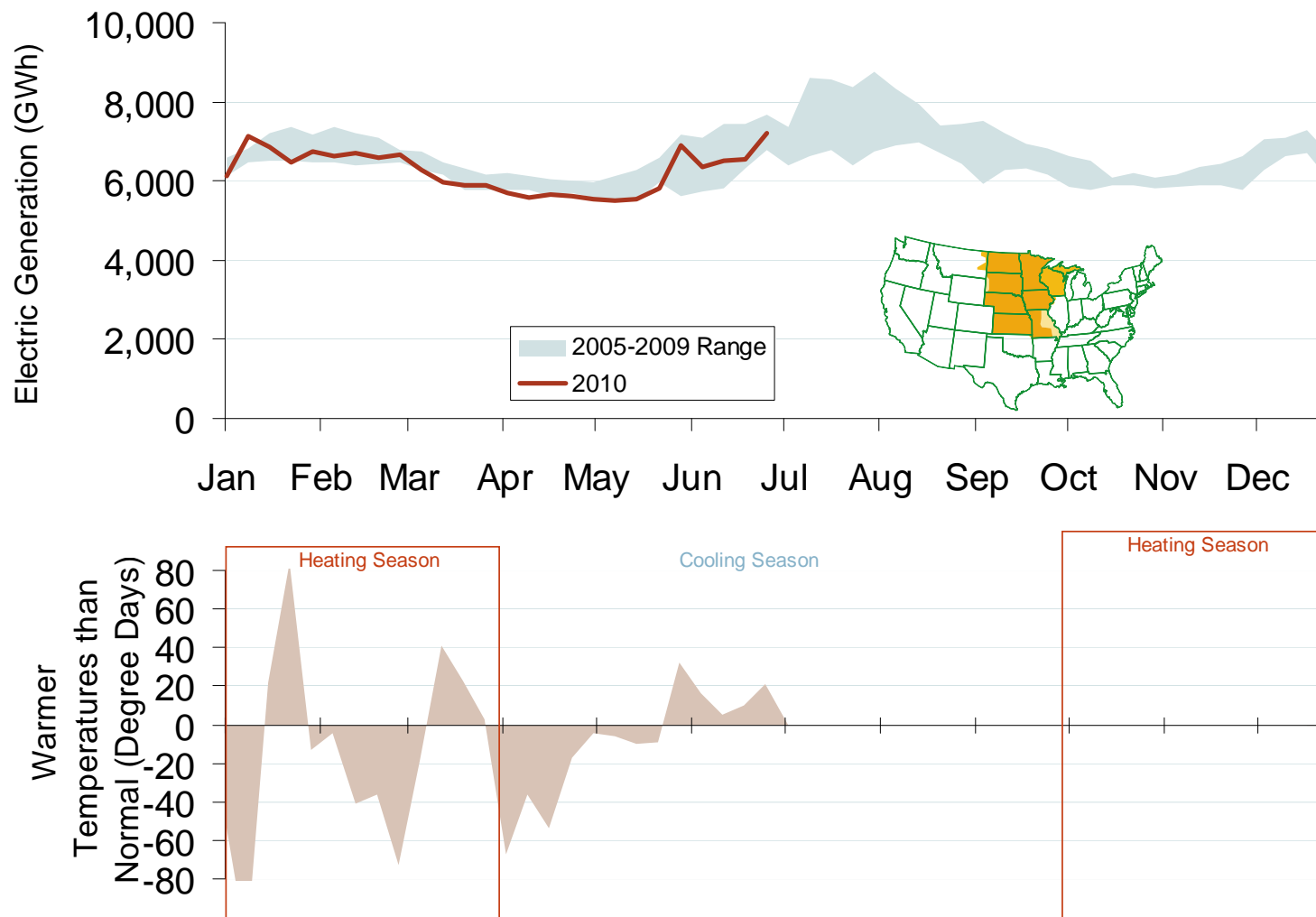
# Weekly Electric Generation Output and Temperatures Central Industrial Region



Source: Derived from EEI and NOAA data.

Updated July 9, 2010

## Weekly Electric Generation Output and Temperatures West Central Region



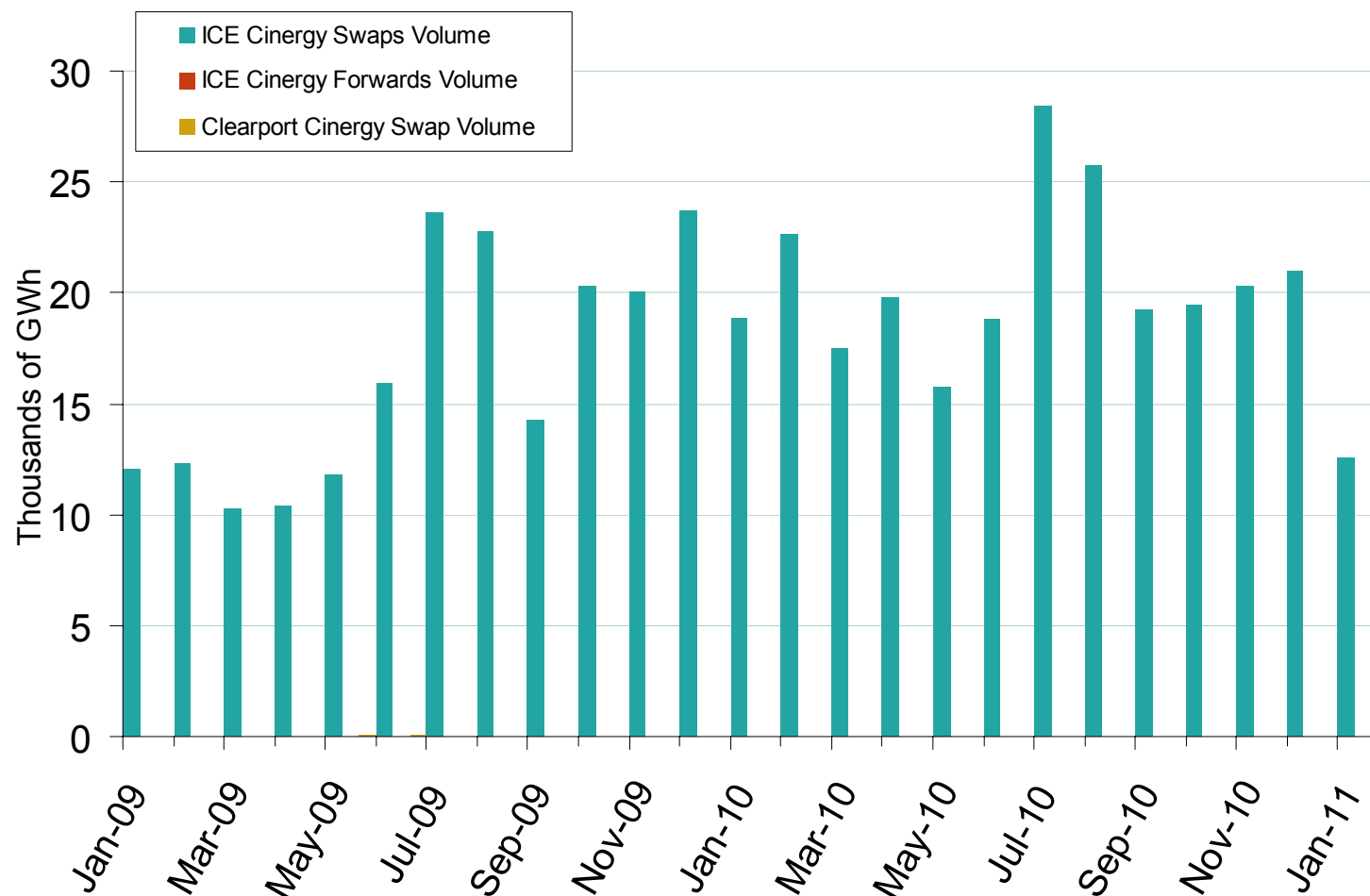
Source: Derived from *EI* and NOAA data.

Updated July 9, 2010

## Midwest Electric Market: Physical &amp; Financial Market Volumes

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

## Cinergy Forward and Swap Volumes



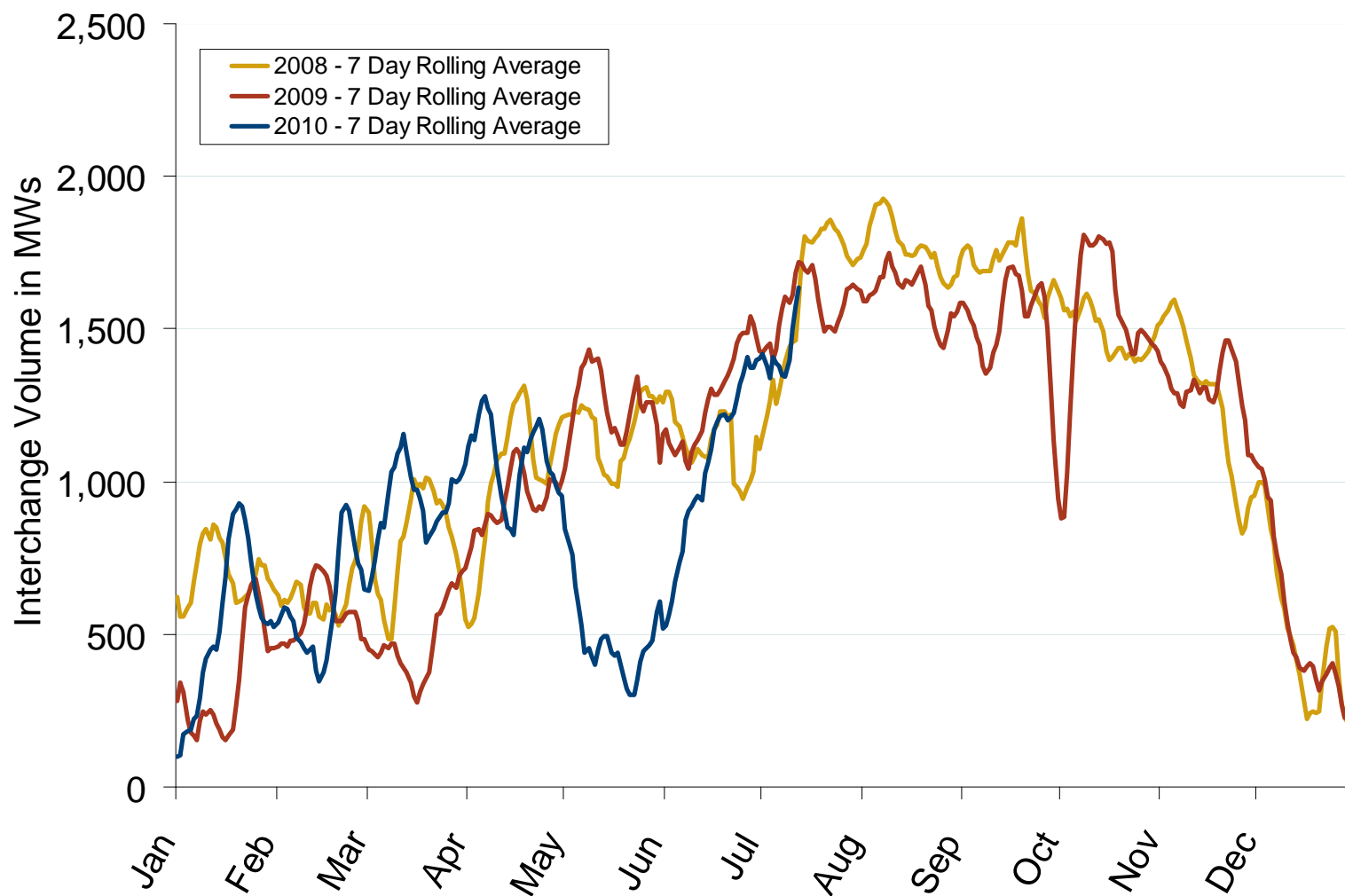
Source: Derived from *ICE* and *Nymex ClearPort* data. ICE on-peak forward (physical) and swap (financial) volumes are for the Cinergy Hub and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swaps (financial) volume are for the Cinergy Hub traded by month.

Updated July 9, 2010

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## Imports into MISO from Manitoba Hydro 2008 - 2010

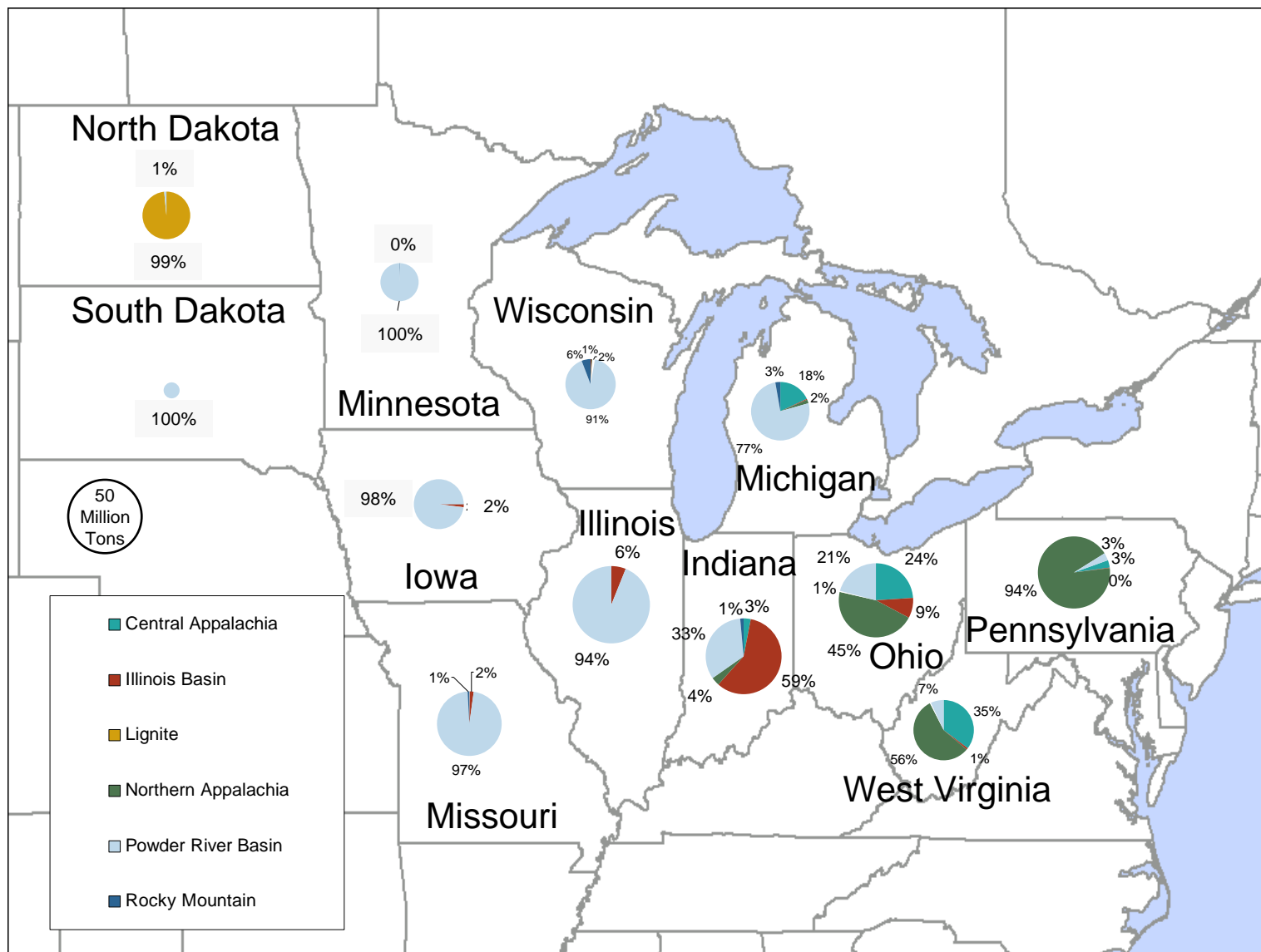


Source: Derived from MISO data.

Updated July 13, 2010

1135

## 2008 Coal Shipment Origins by Supply Basin



Source: Derived from FERC and EIA data.

Updated March 23, 2009

1195