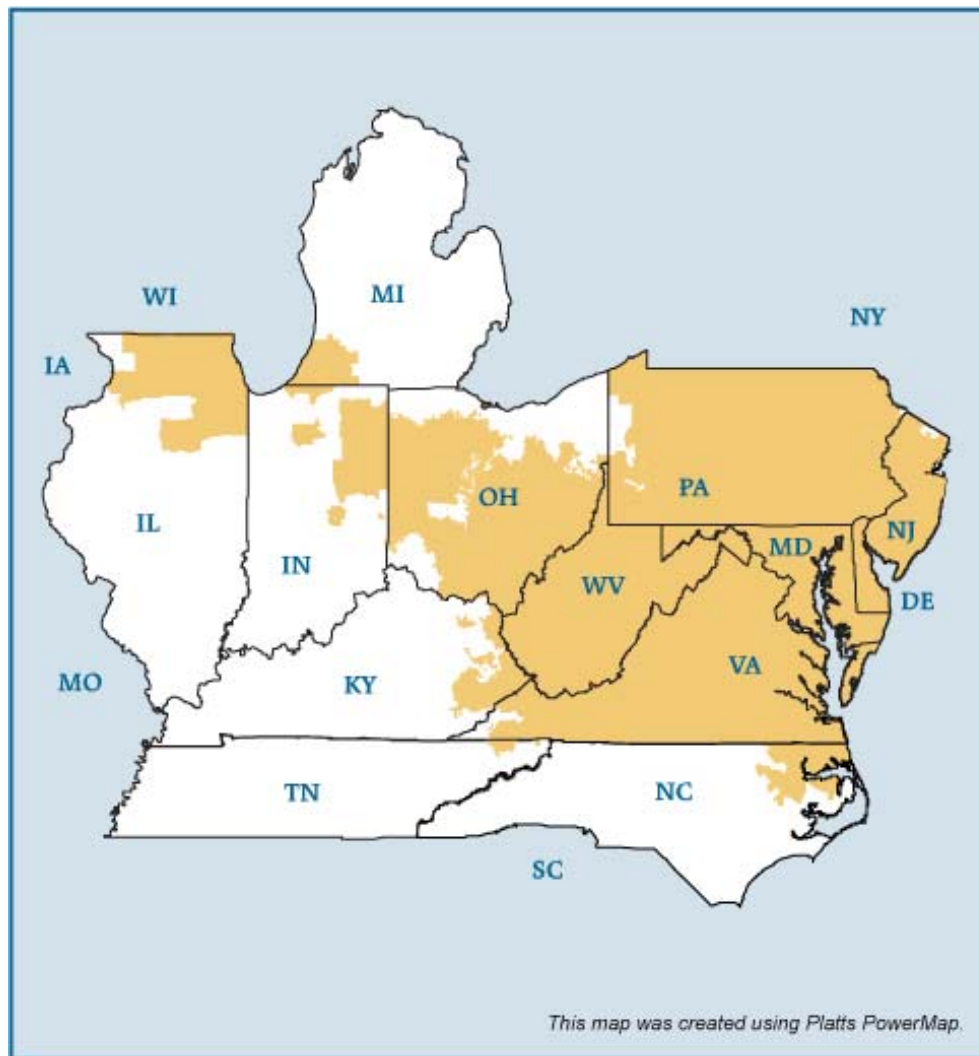


# PJM Electric Market



## Overview

**Market Description:** PJM Interconnection (PJM)

### Geography

States covered: All or most of Pennsylvania, New Jersey, Maryland, Delaware, District of Columbia, Virginia, West Virginia and Ohio. Parts of Illinois, Michigan, Indiana, Kentucky, North Carolina and Tennessee.

Reliability region: Reliability *First* Corporation (RFC) and SERC Reliability Corporation (SERC)

Balancing authority: PJM

Load zones: Allegheny Power Systems (APS), American Electric Power (AEP), Atlantic Electric Power Company, Inc. (AECO), Baltimore Gas and Electric Company (BGE), ComEd, Dayton Power and Light Company (DAY), Delmarva Power and Light Company (DPL), Dominion (DOM), Duquesne Light (DUQ), Jersey Central Power and Light Company (JCPL), Metropolitan Edison Company (METED), PPL Electric Utilities (PPL), PECO Energy (PECO), Pennsylvania Electric Company (PENELEC), Potomac Electric Power Company (PEPCO), Public Service Electric and Gas Company (PSEG), and Rockland Electric Company (RECO).

Hubs: AEP GEN, AEP-Dayton, Chicago GEN, Chicago, Dominion, Eastern, N. Illinois, New Jersey, Ohio, West INT, Western.

## Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

**RTO/ISO**

PJM Interconnection (PJM) operates the region's power grid and wholesale electric markets:

- Energy market: two-settlement (day ahead and real-time) spot market with locational marginal pricing (prices are calculated at each bus every five minutes),
- Capacity market,
- Ancillary services markets, and
- Financial transmission rights (FTR) market.

Energy and capacity in the region are also traded bilaterally through brokers and the Intercontinental Exchange (ICE).

**Generation/Supply**

Marginal fuel type: Coal and natural gas

Generating capacity (summer 2006): 164,634 MW

Capacity reserve (summer 2006): 19,990 MW

Reserve margin (summer 2006): 14%

**Demand**

All time peak demand: 144,644 MW (set August 2, 2006)

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

Peak demand growth: 8.1 % (2005-2006)

**Summer Peak Demand (MW) 133,762 (2005) 144,644 (2006) (Source: PJM)**

**Federal Energy Regulatory Commission • Market Oversight @ FERC.gov****Prices****Annual Average Day-Ahead Price****PJM Western Hub (a basket of 109 buses stretching from Erie PA to Washington DC)****2004:** \$41.73/MWh**2005:** \$60.89/MWh**2006:** \$50.07/MWh

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).

The PJM Western Hub pricing point is one of the most liquid energy pricing points in the world and is used for transactions on the PJM spot markets and in bilateral transactions.

**Interconnections/Seams**

Coming soon

## Focal Points

**New Capacity Market Initiated:** Effective June 1, PJM replaced its former capacity market with the Reliability Pricing Model (RPM). RPM uses a sloped demand curve and locational prices, which are intended to better promote resource availability at times and locations when and where needed. The first RPM auction was held in April with results applying for the year beginning June 1, 2007 through May 31, 2008 (see [PJM Auction Report](#) for further detail). When the new construct is in full implementation, the base auction will be for capacity three years out. Capacity offered into the market can include new or existing generation, transmission enhancements and demand-side resources.

**PJM expands territory:** In the first half of 2005, PJM Interconnection completed the integration of new territories that had begun in 2002. The Duquesne Zone, which includes Pittsburgh, Pa., and the surrounding area, was added on Jan. 1. On May 1, PJM added the Dominion Zone, which includes the eastern two-thirds of Virginia and a portion of eastern North Carolina. These two zone additions add 22 GW to the PJM summer peak load.

**Electric regions combine:** Three former electric reliability councils combined to form the Reliability First Corp. (RFC). RFC, after being approved as the regional council by the North American Electric Reliability Council, began operation on Jan. 1, 2006. The new region spans an area from the Mid-Atlantic across the Midwest, including parts of Wisconsin and Illinois. The three former councils that combined to form RFC are the East Central Area Reliability Council (ECAR), the Mid-Atlantic Area Council (MAAC), and the Mid-America Interconnected Network (MAIN). The RFC serves part of the territory of two RTOs, the PJM Interconnection and Midwest ISO.

## Supply and Demand Statistics for PJM

| <b>Supply Demand Statistics</b> |         |         |         |
|---------------------------------|---------|---------|---------|
|                                 | 2004    | 2005    | 2006    |
| Summer Generating Capacity MW   | 106,250 | 166,950 | 164,634 |
| Summer Peak Demand MW           | 77,887  | 133,762 | 144,644 |
| Summer Reserves MW              | 28,363  | 33,188  | 19,990  |
| Summer Reserve Margin:          | 36%     | 25%     | 14%     |
| Annual Load (GWh):              | 438,874 | 684,592 | 696,165 |
| Annual Net Generation GWh       | 441,778 | 701,443 | 714,091 |

Source: Derived from PJM data.

Updated May 16, 2007

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## Yearly Average of RTO DA Prices - All Hours

| <b>Annual Average Day Ahead Prices (\$/MWh)</b> |             |             |                |
|---|-------------|-------------|----------------|
|   | <b>2005</b> | <b>2006</b> | <b>5 Years</b> |
| Northern Illinois Hub                           | \$47.19     | \$40.98     | NA             |
| Western Hub                                     | \$60.89     | \$50.07     | \$43.48        |
| Eastern Hub                                     | \$67.54     | \$52.99     | \$47.11        |
| Dominion Hub                                    | \$69.03     | \$53.78     | NA             |

Source: Derived from PJM data.

Updated February 6, 2007

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

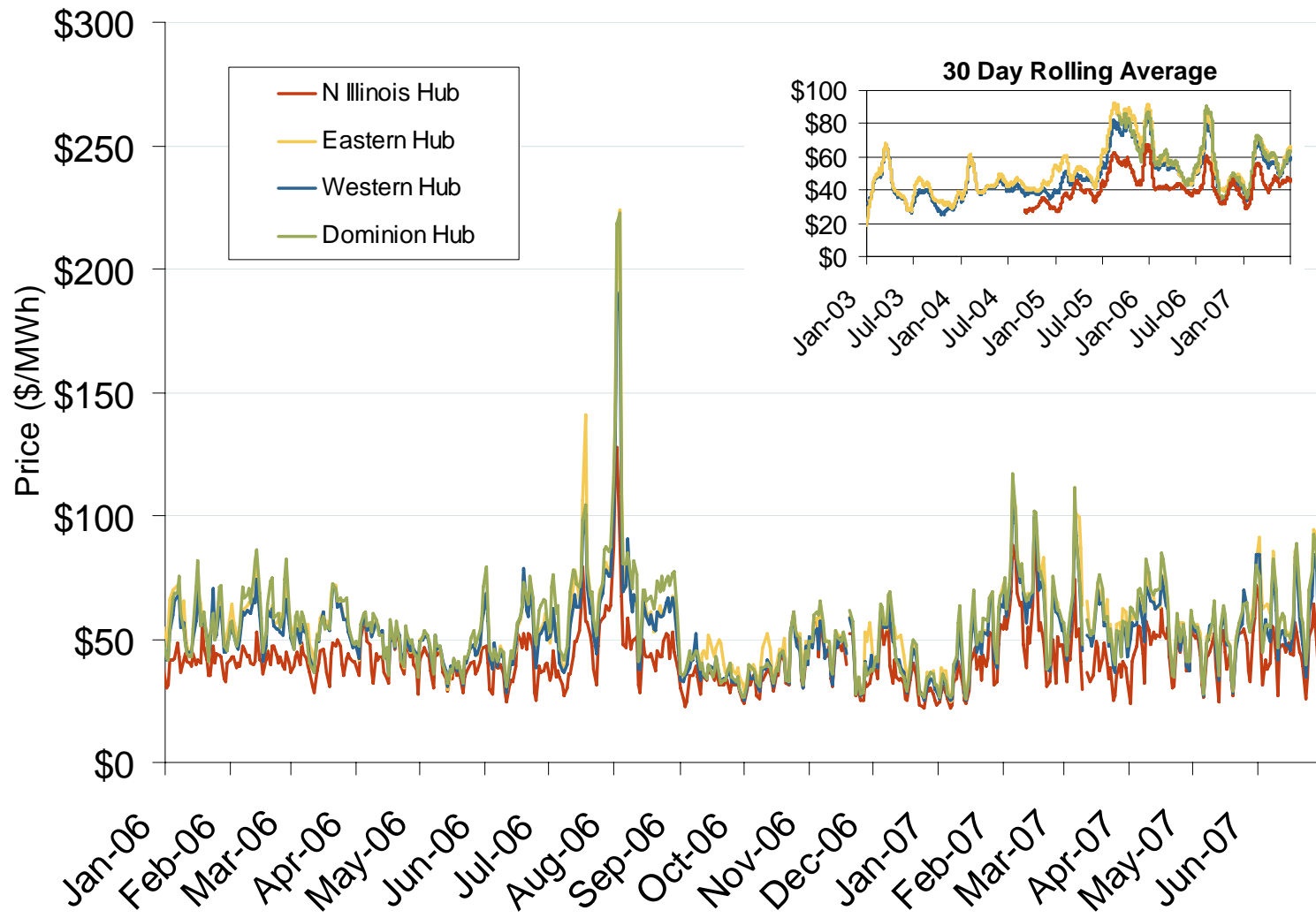


Source: Derived from PJM data.

Updated July 7, 2007



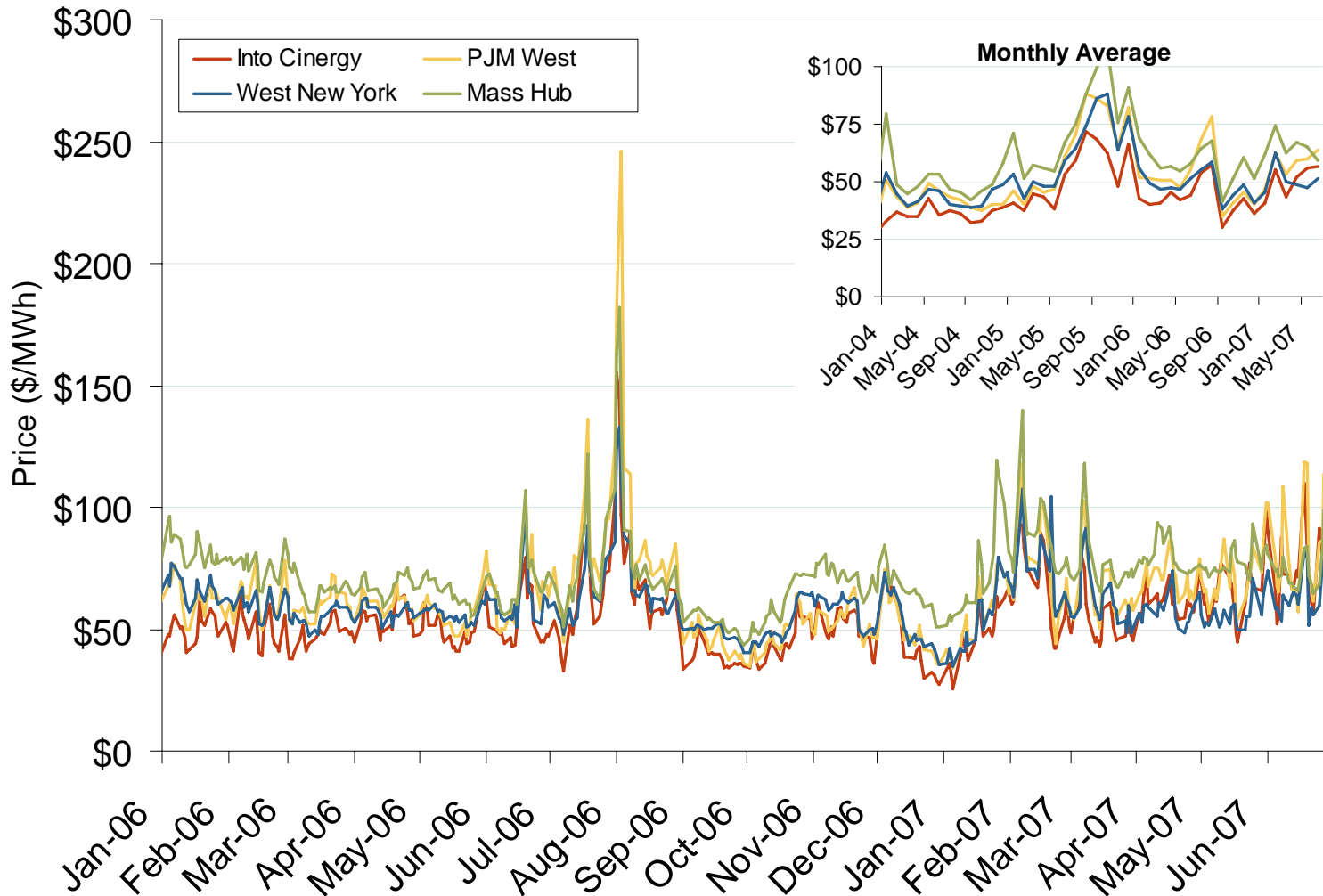
# Daily Average of PJM Day-Ahead Prices - All Hours



Source: Derived from PJM data.

Updated July 7, 2007

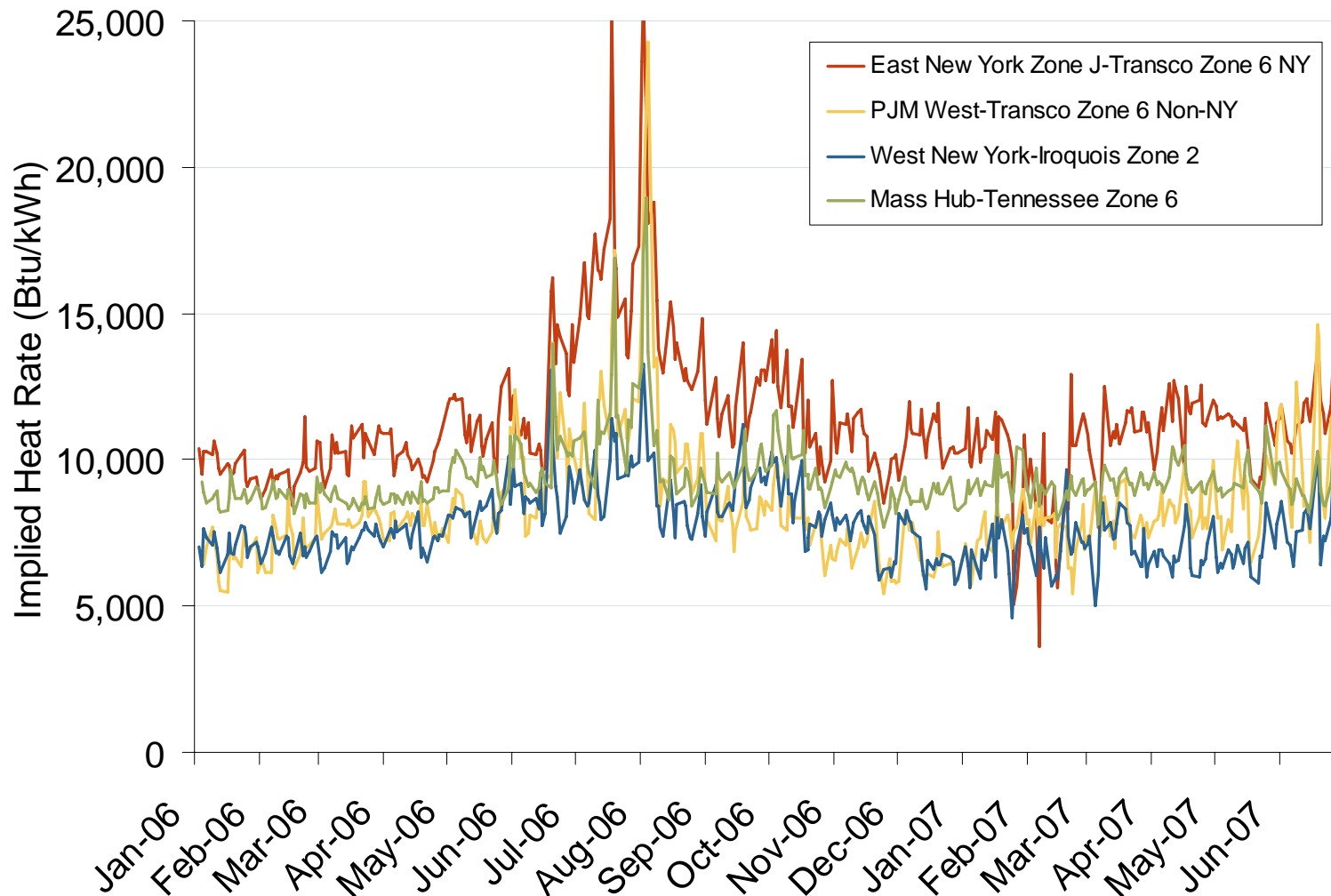
# Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from Platts data.

Updated July 7, 2007

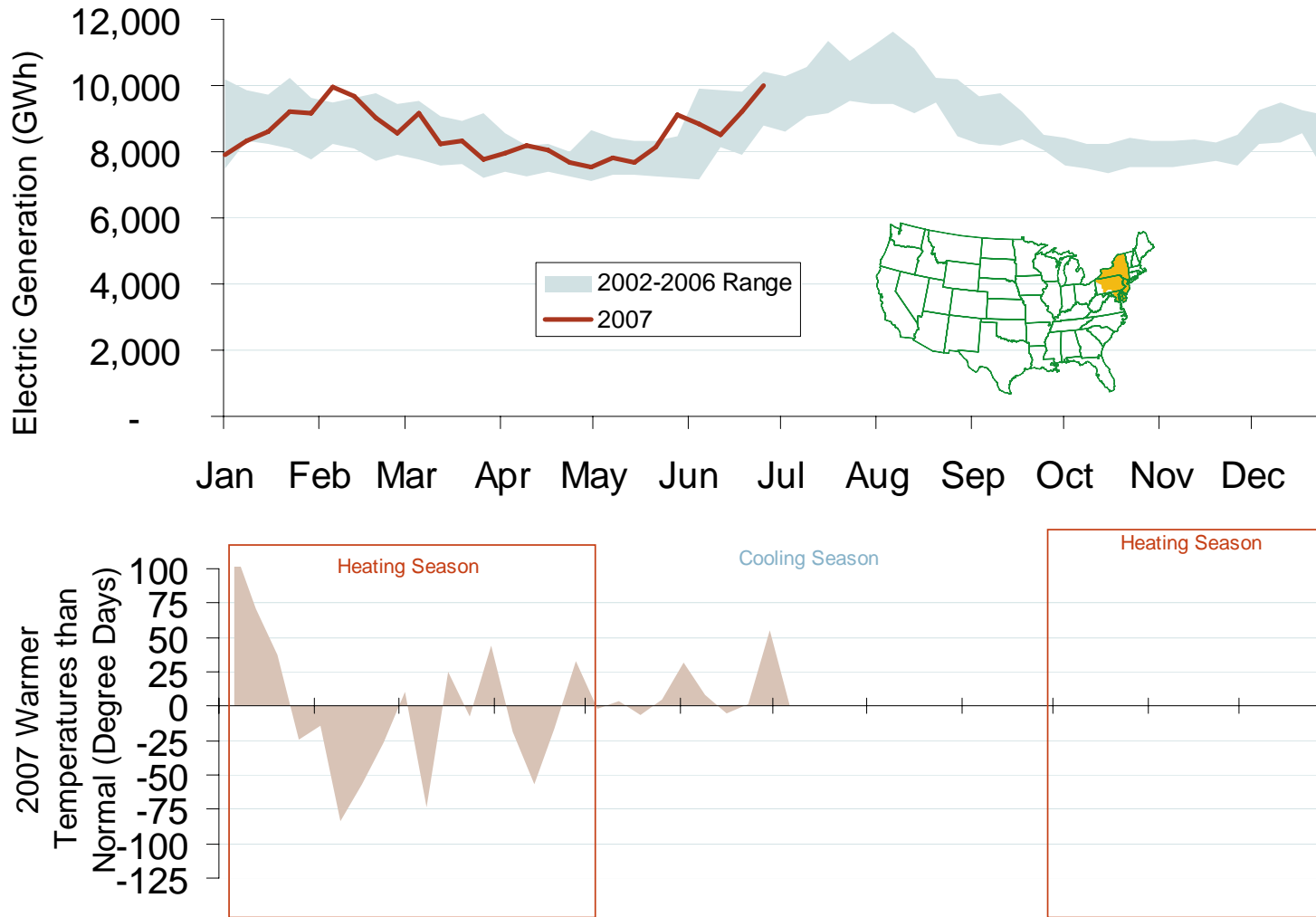
## Implied Heat Rates at Eastern Trading Points



Source: Derived from *Platts* data

Updated July 7, 2007

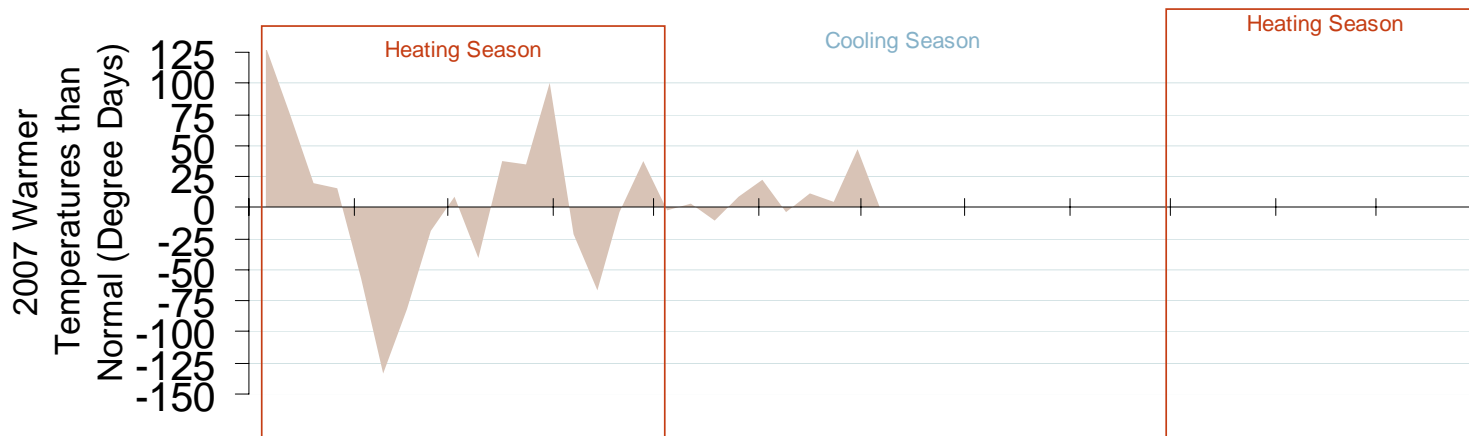
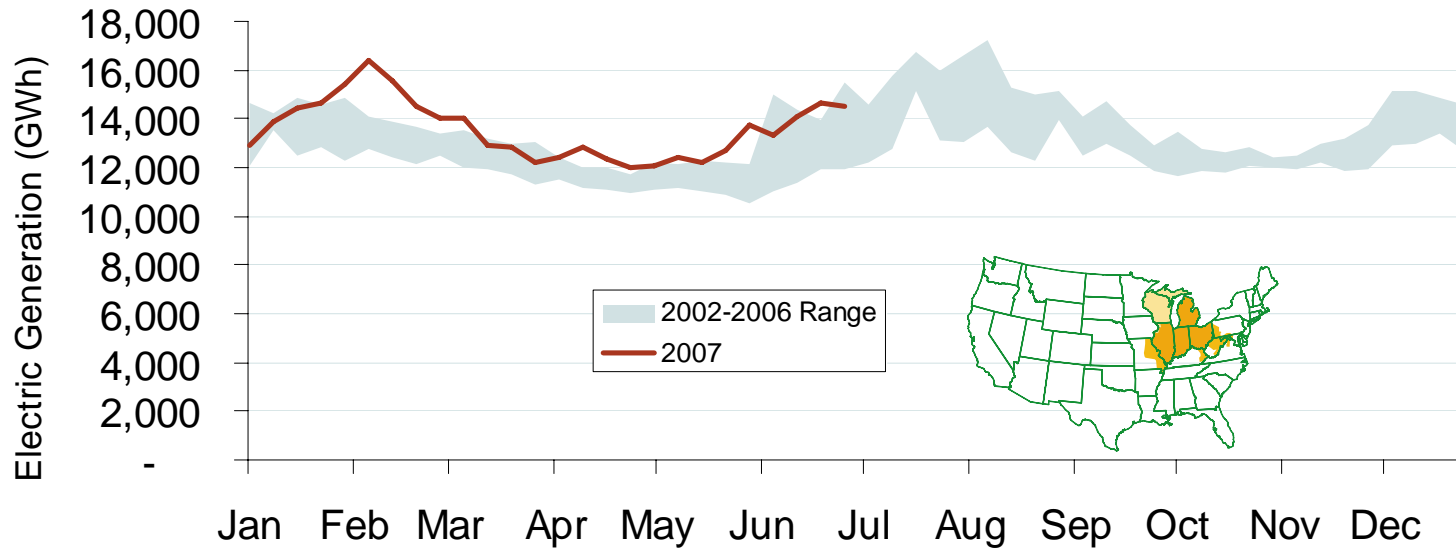
# Weekly Electric Generation Output and Temperatures Mid Atlantic Region



Source: Derived from EEI and NOAA data.

Updated July 7, 2007

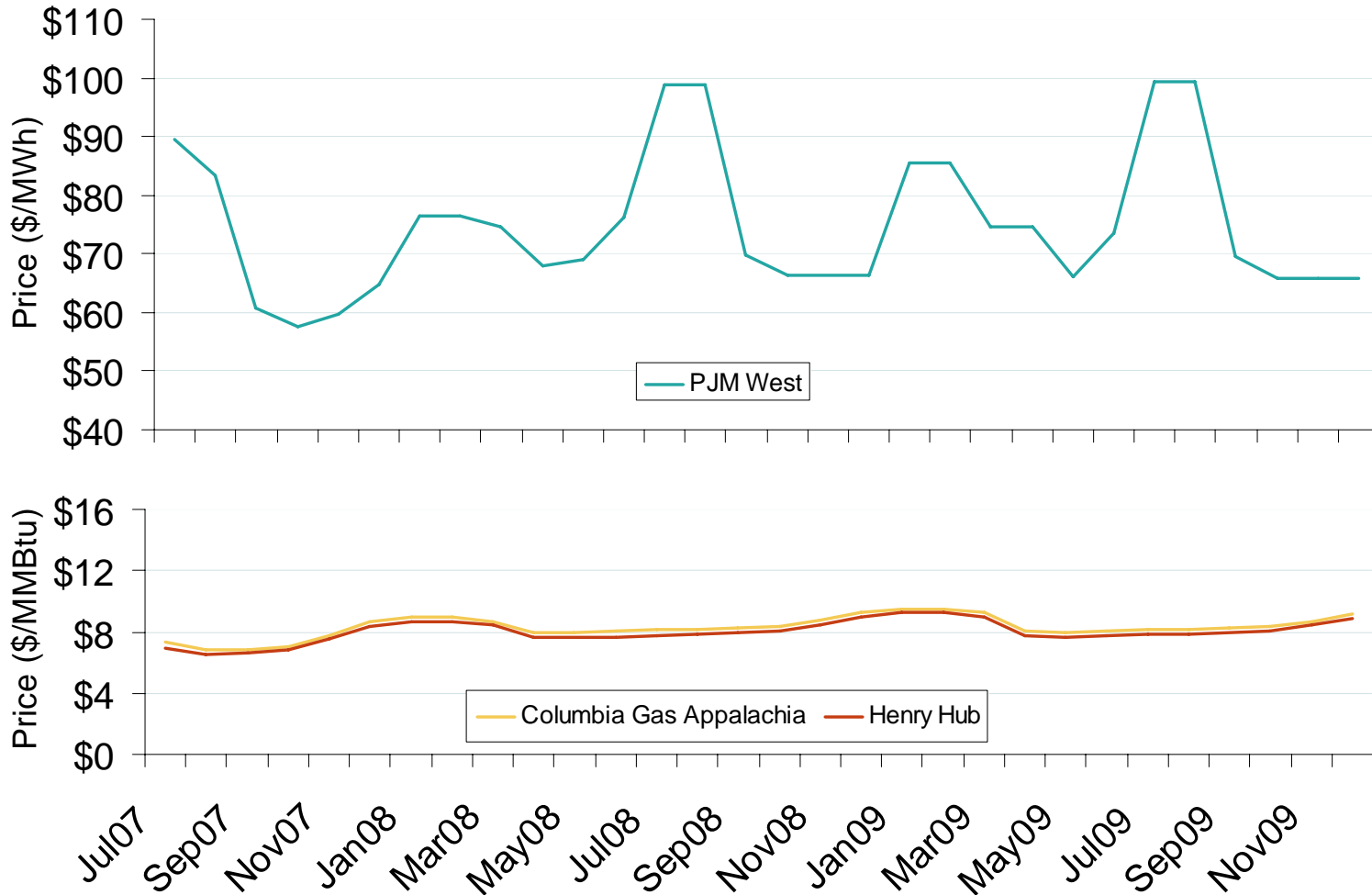
# Weekly Electric Generation Output and Temperatures Central Industrial Region



Source: Derived from EEI and NOAA data.

Updated July 7, 2007

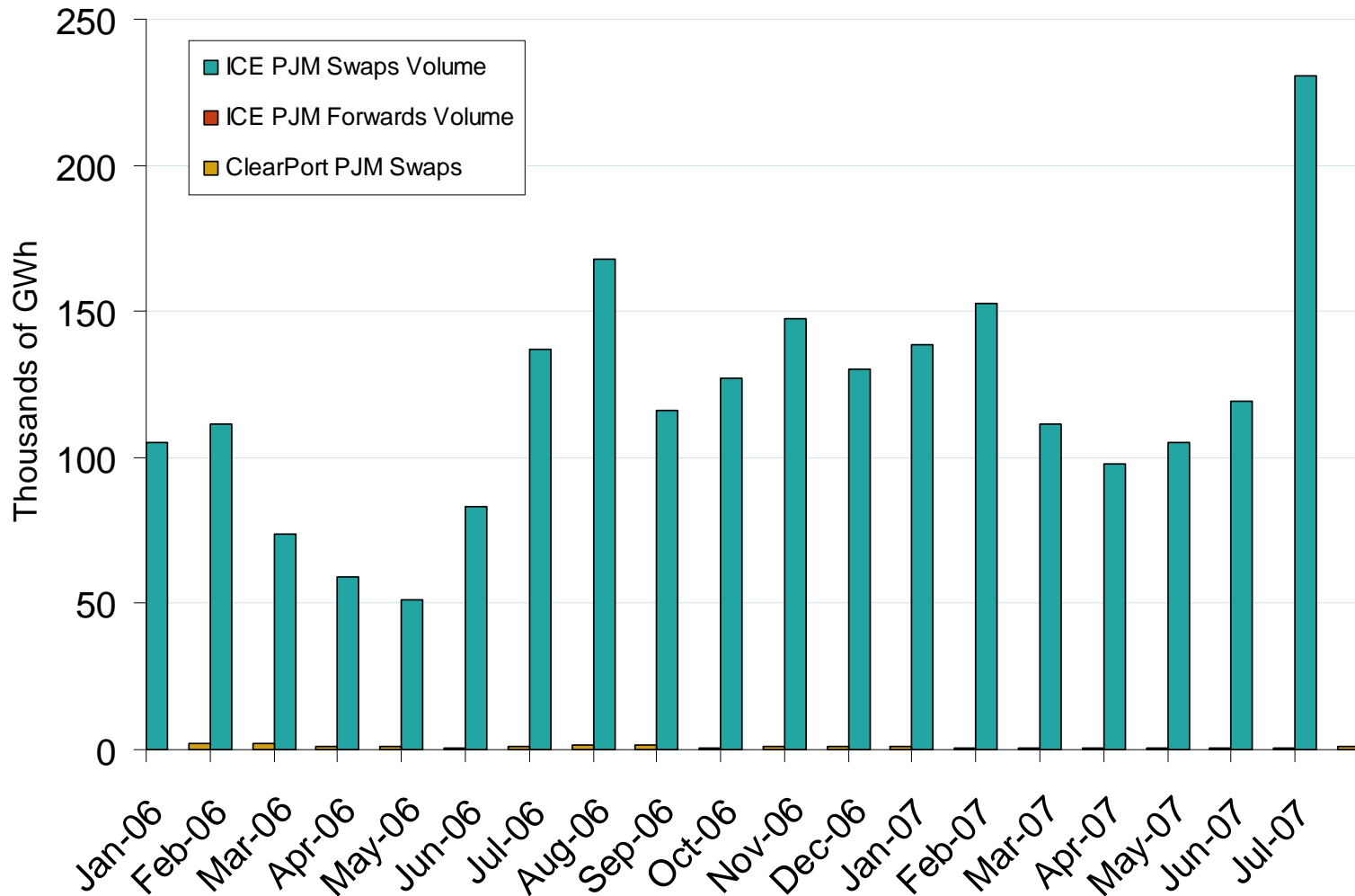
## PJM West Electric Forward Price Curve and Selected Natural Gas Forward Curves



Source: Derived from Nymex data.

Updated July 7, 2007

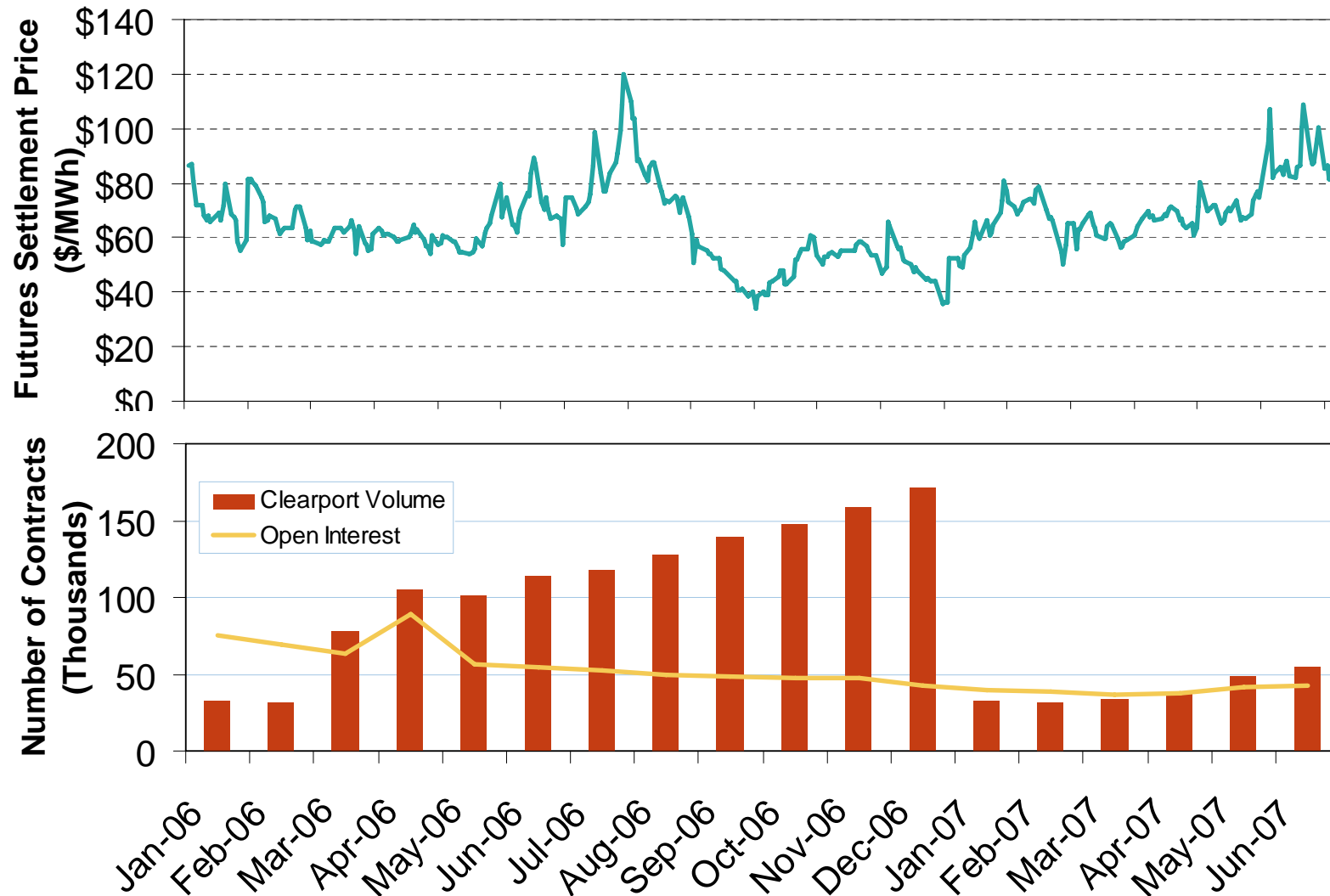
## PJM Western Hub Forward and Swap Volumes



Source: Derived from ICE and Nymex ClearPort data. ICE on-peak forward and swap volumes are for PJM’s Western Hub and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swaps volumes are for PJM’s Western Hub traded by month.

Updated July 7, 2007

## Daily Settlement Price, Monthly Volume and Open Interest



Source: Derived from Nymex data.

Updated July 7, 2007