OE ENERGY MARKET SNAPSHOT

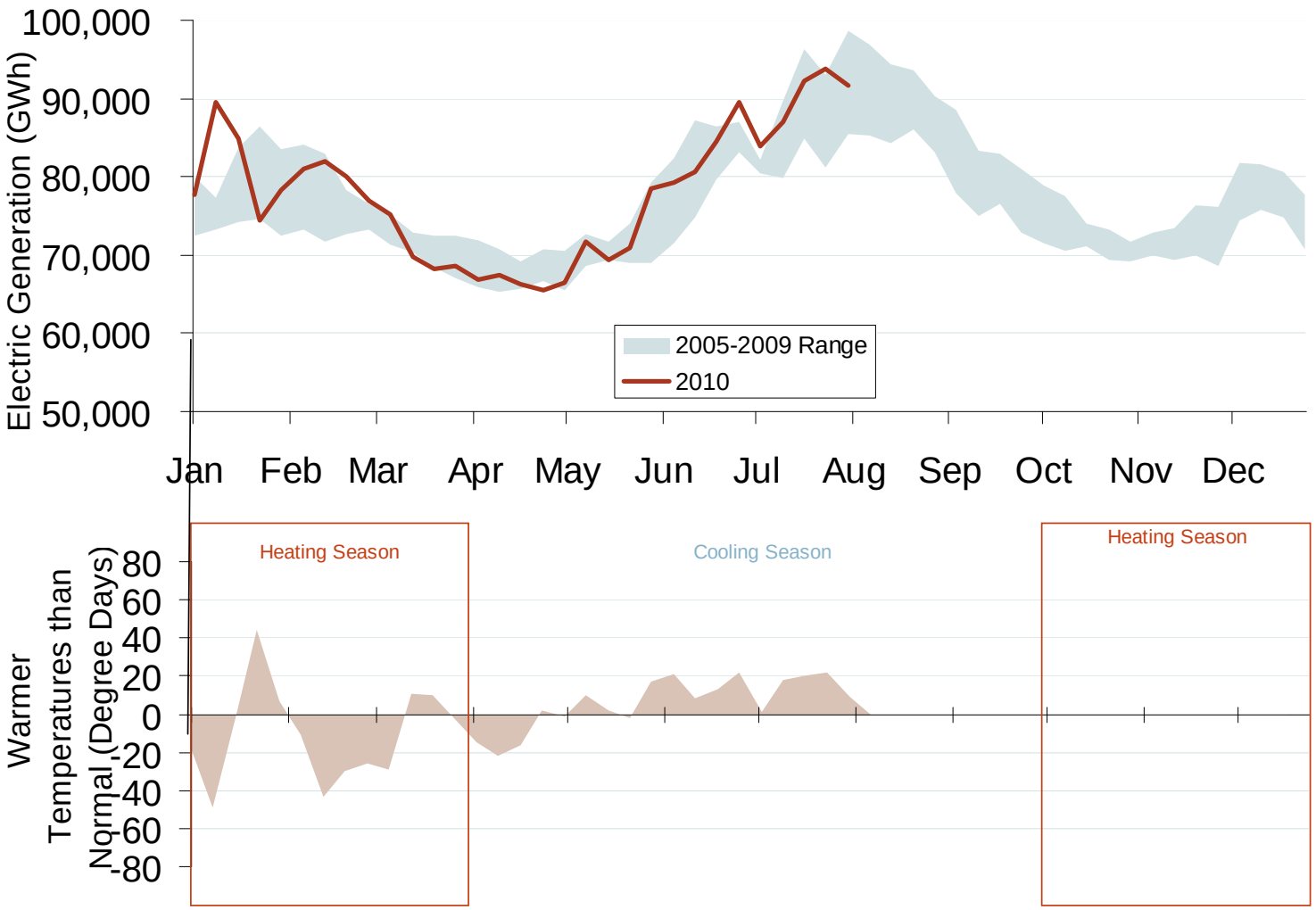
Northeast States Version – July 2010 Data

- **Electricity Markets**
- **Natural Gas and Fuel Markets**

Office of Enforcement
Federal Energy Regulatory Commission
August 2010

Electricity Markets

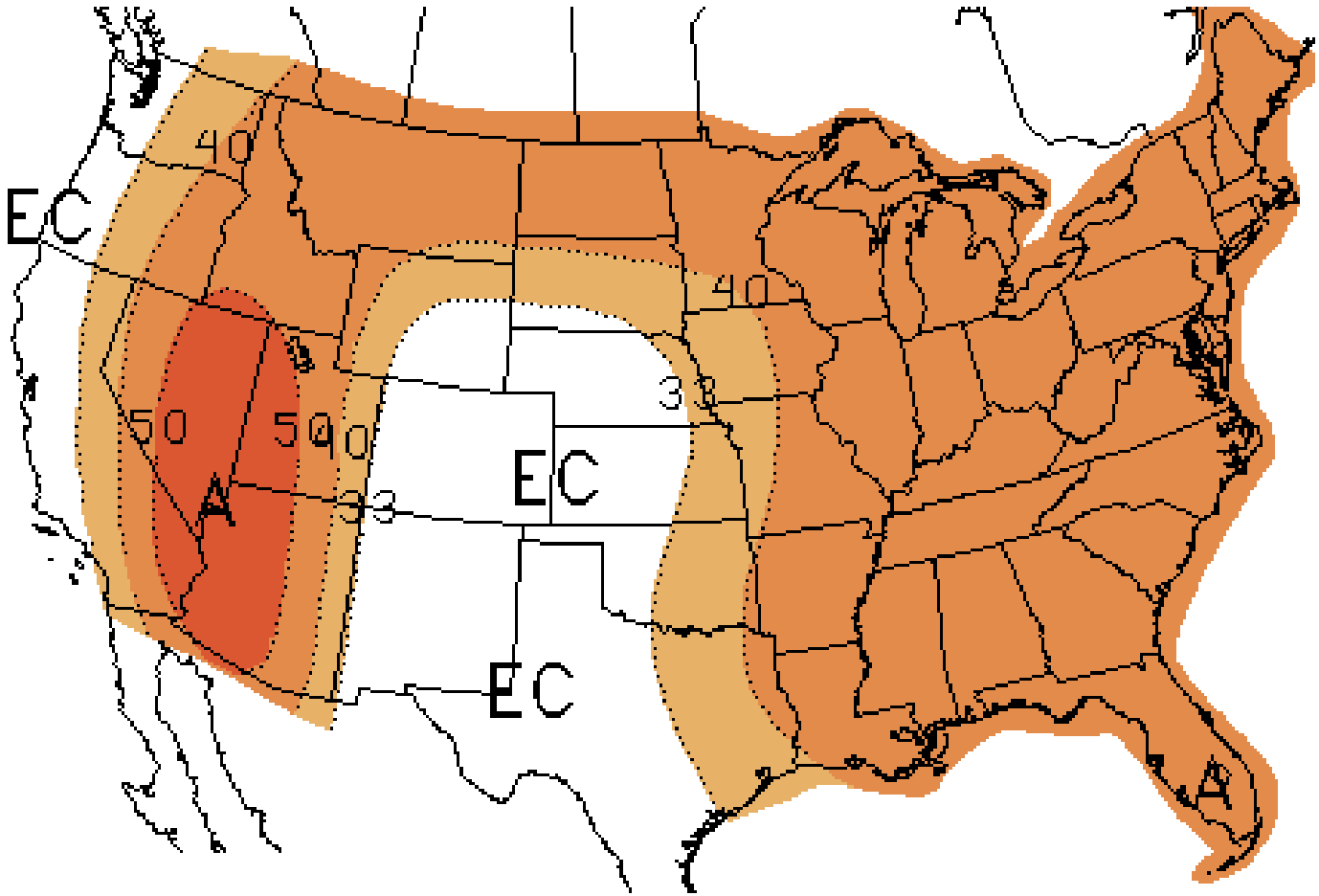
Weekly U.S. Electric Generation Output and Temperatures



Source: Derived from *EEI* and *NOAA* data.

Updated August 6, 2010

NOAA's Monthly Temperature Forecast Made July 31, Valid for August 2010



Note: "A" areas are above normal, "B" areas are below normal and "EC" means equal chance. Normal is based on the last 30 years of data.

Source: NOAA

Updated August 6, 2010

Weather: NOAA Temperature Forecast

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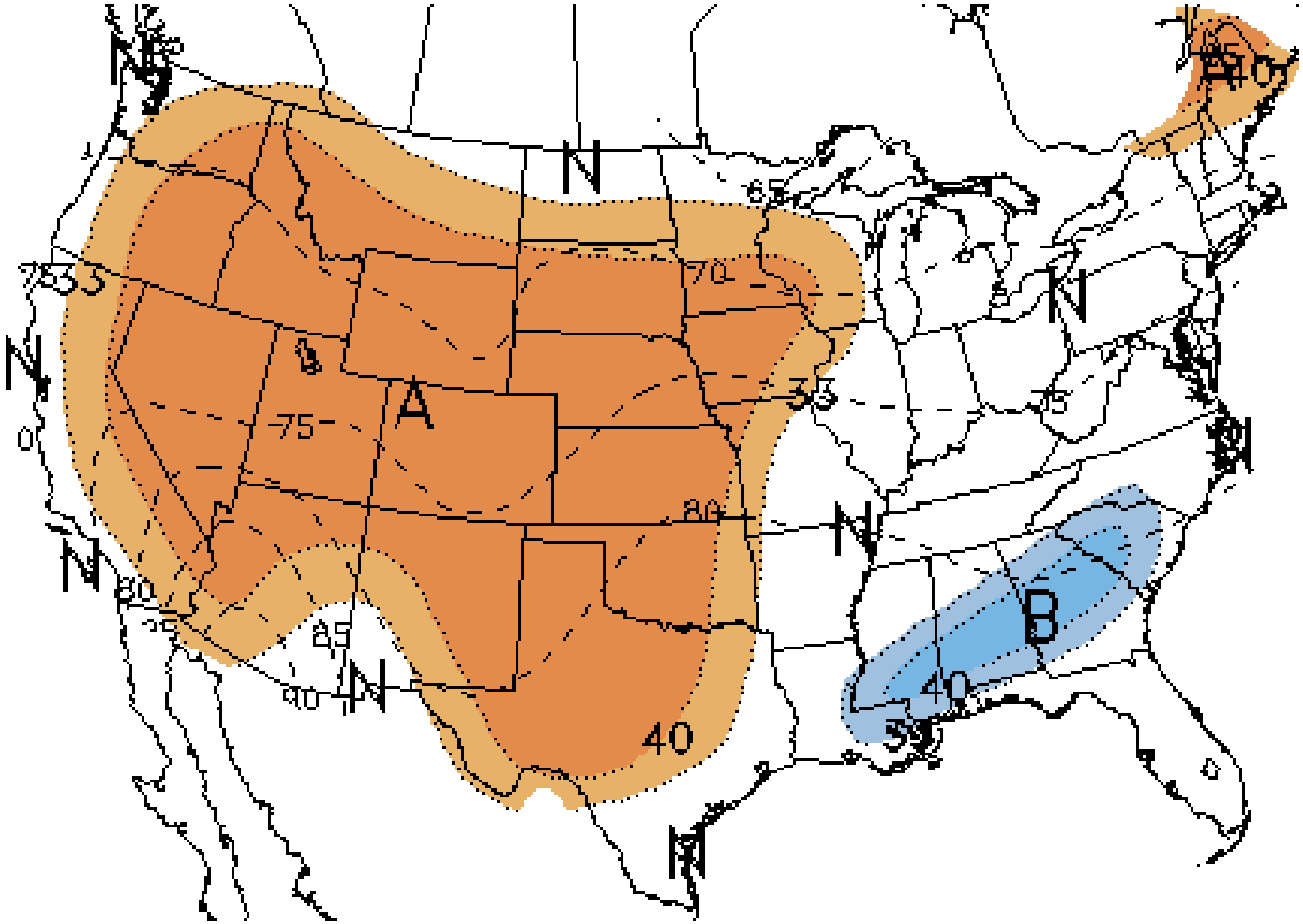
NOAA's 8 to 14 Day Temperature Forecast
Made August 4, Valid for August 12-18, 2010

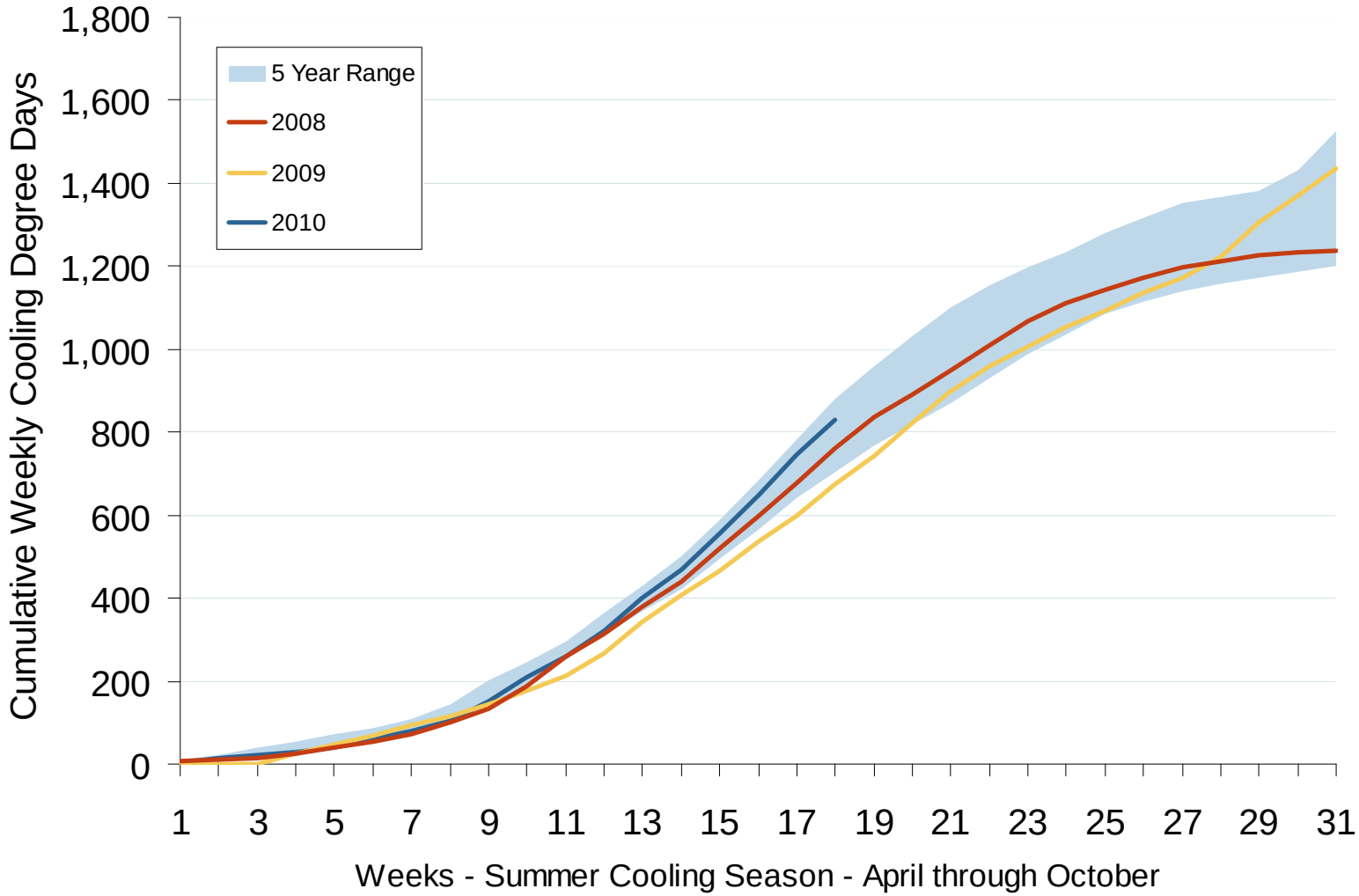


Note: "A" areas are above normal and "B" areas are below normal. Normal is based on the last 30 years of data.

Source: NOAA

Updated August 6, 2010

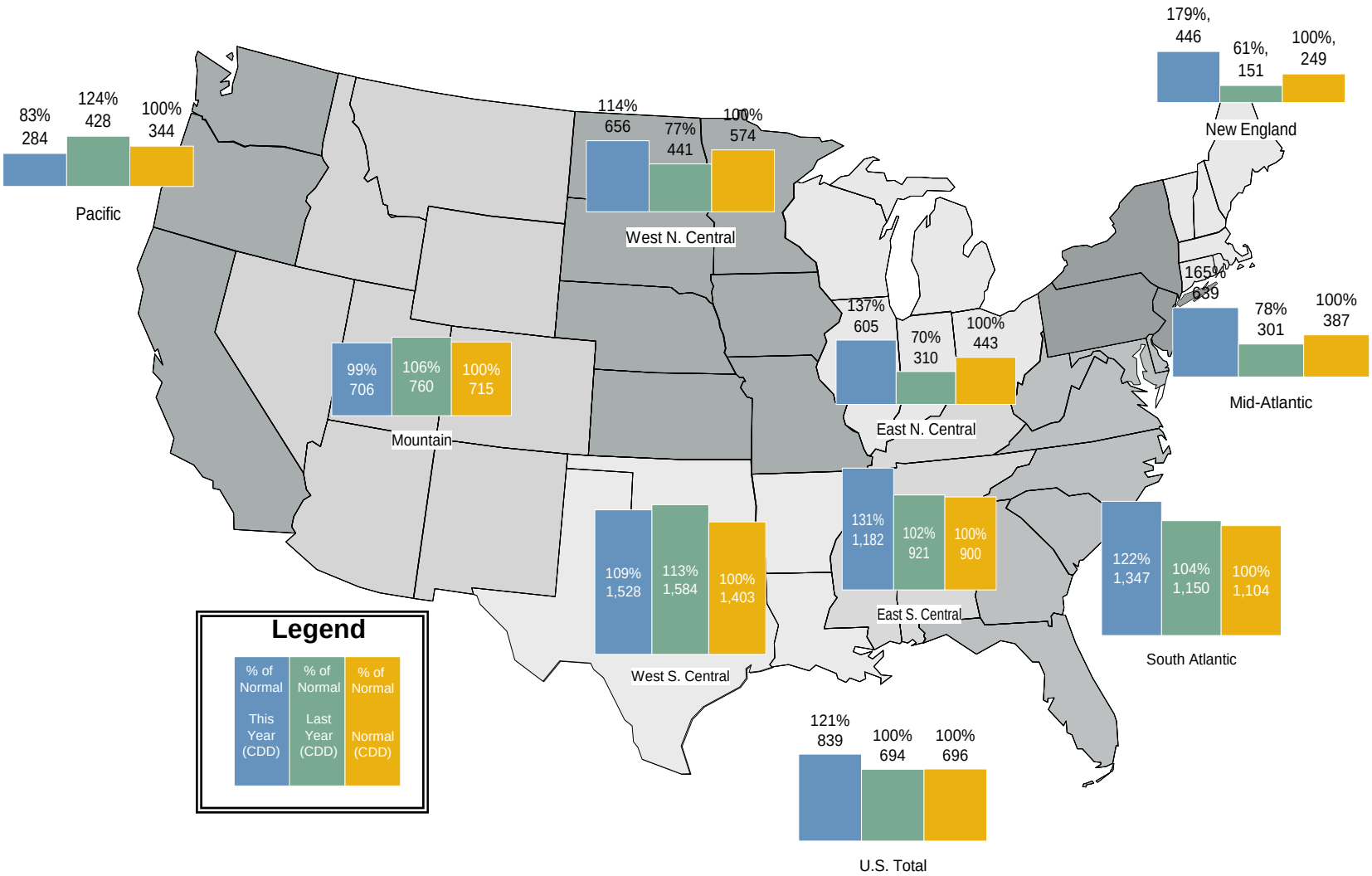
U. S. Summer Cumulative Cooling Degree Days - 2010



Source: Derived from *NOAA* data.

Updated August 6, 2010

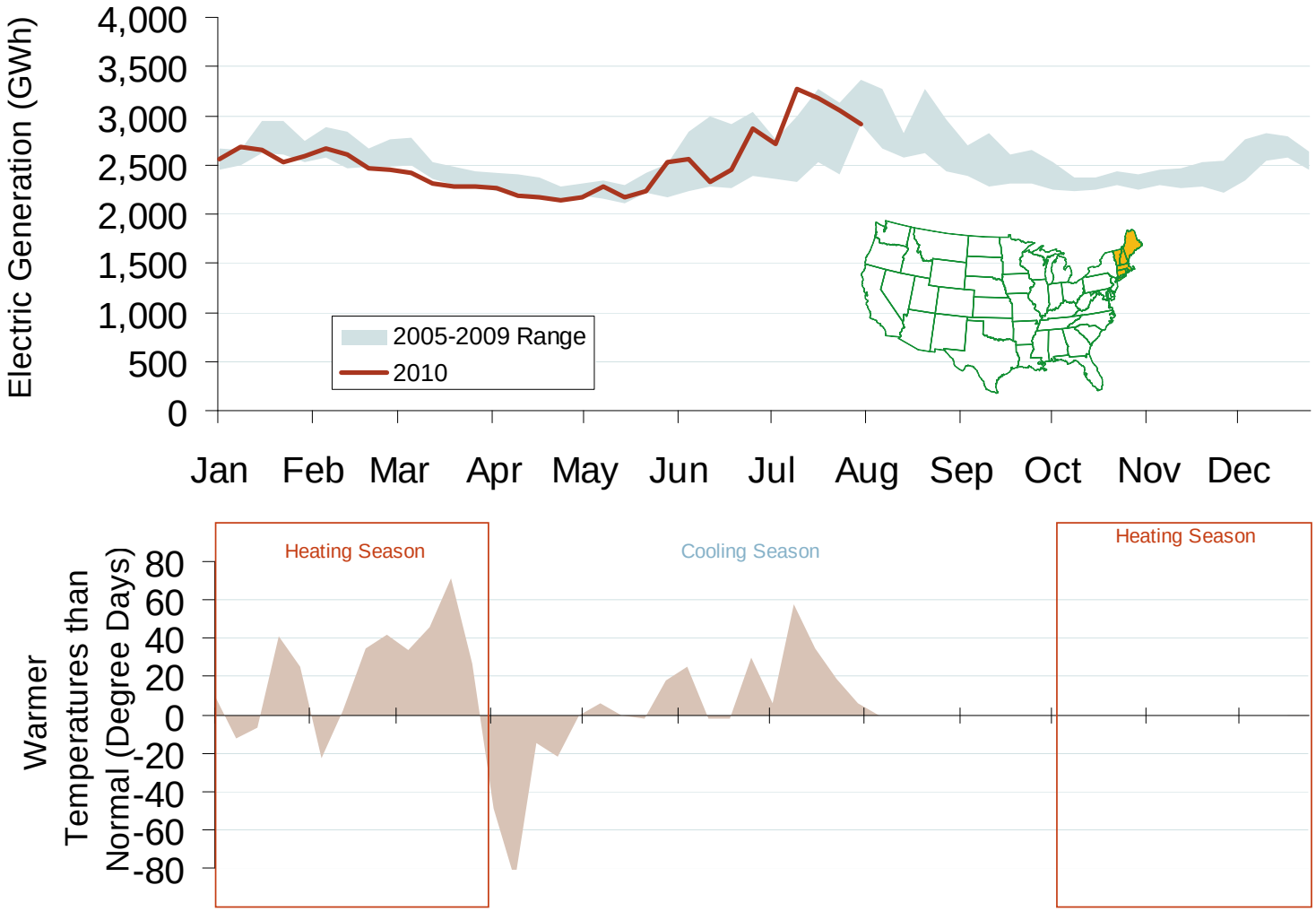
Regional Cooling Degree Days: January – July 2010



Source: Derived from *NOAA* data. Normal is based on a 30-year average of cooling degree days.

Updated August 6, 2010

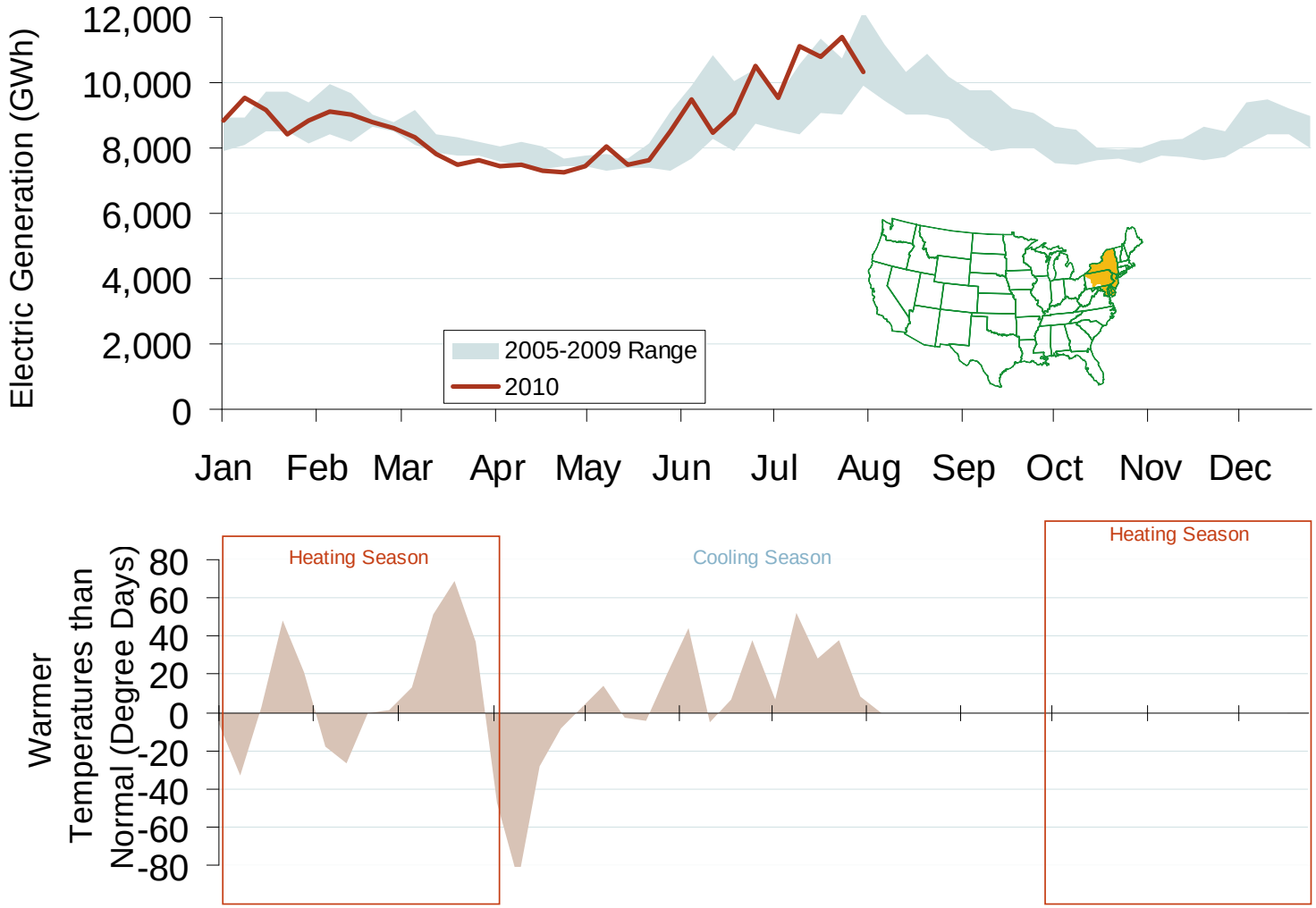
Weekly Electric Generation Output and Temperatures New England



Source: Derived from *EEI* and *NOAA* data.

Updated August 6, 2010

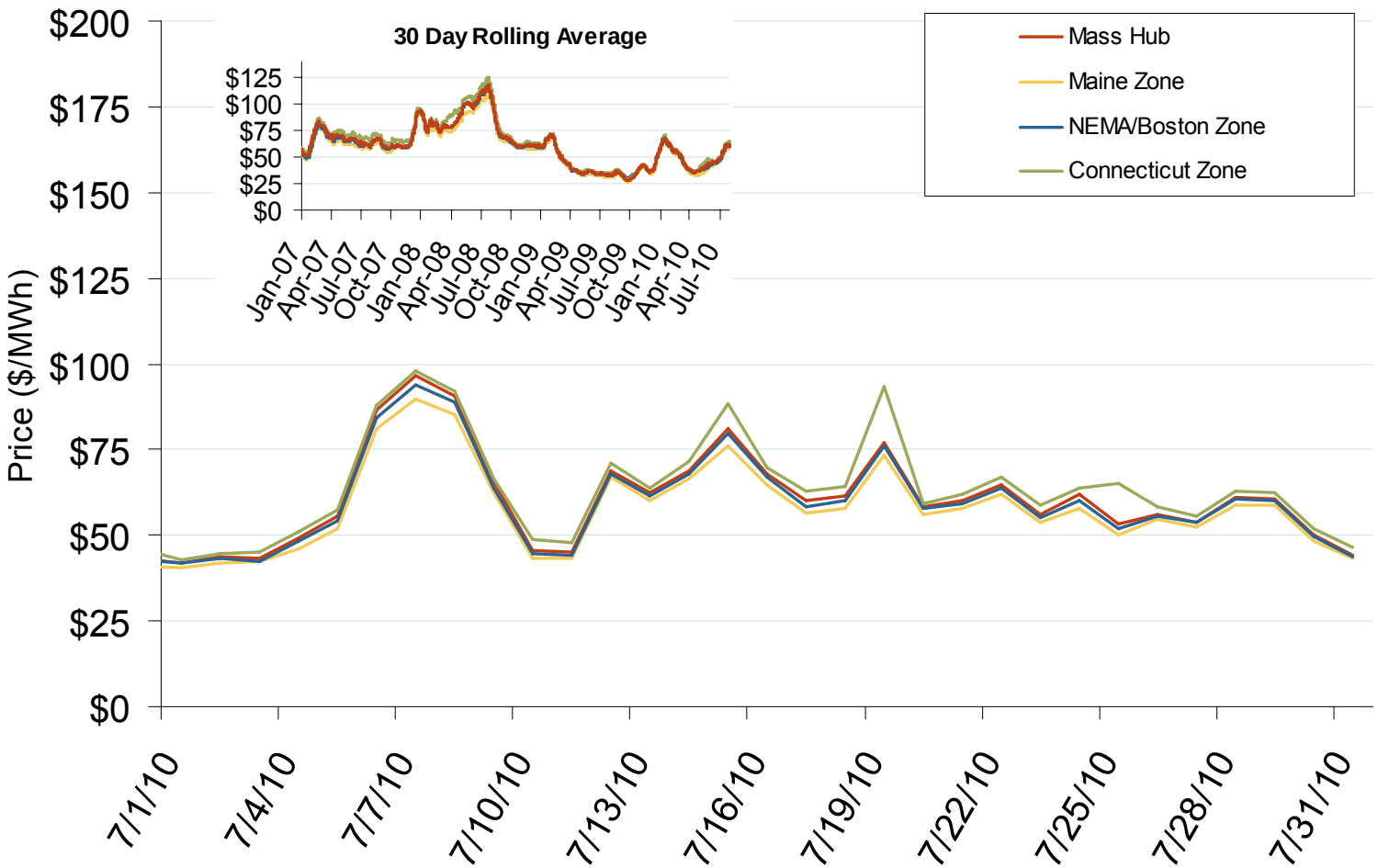
Weekly Electric Generation Output and Temperatures Mid Atlantic Region



Source: Derived from *EEI* and *NOAA* data.

Updated August 6, 2010

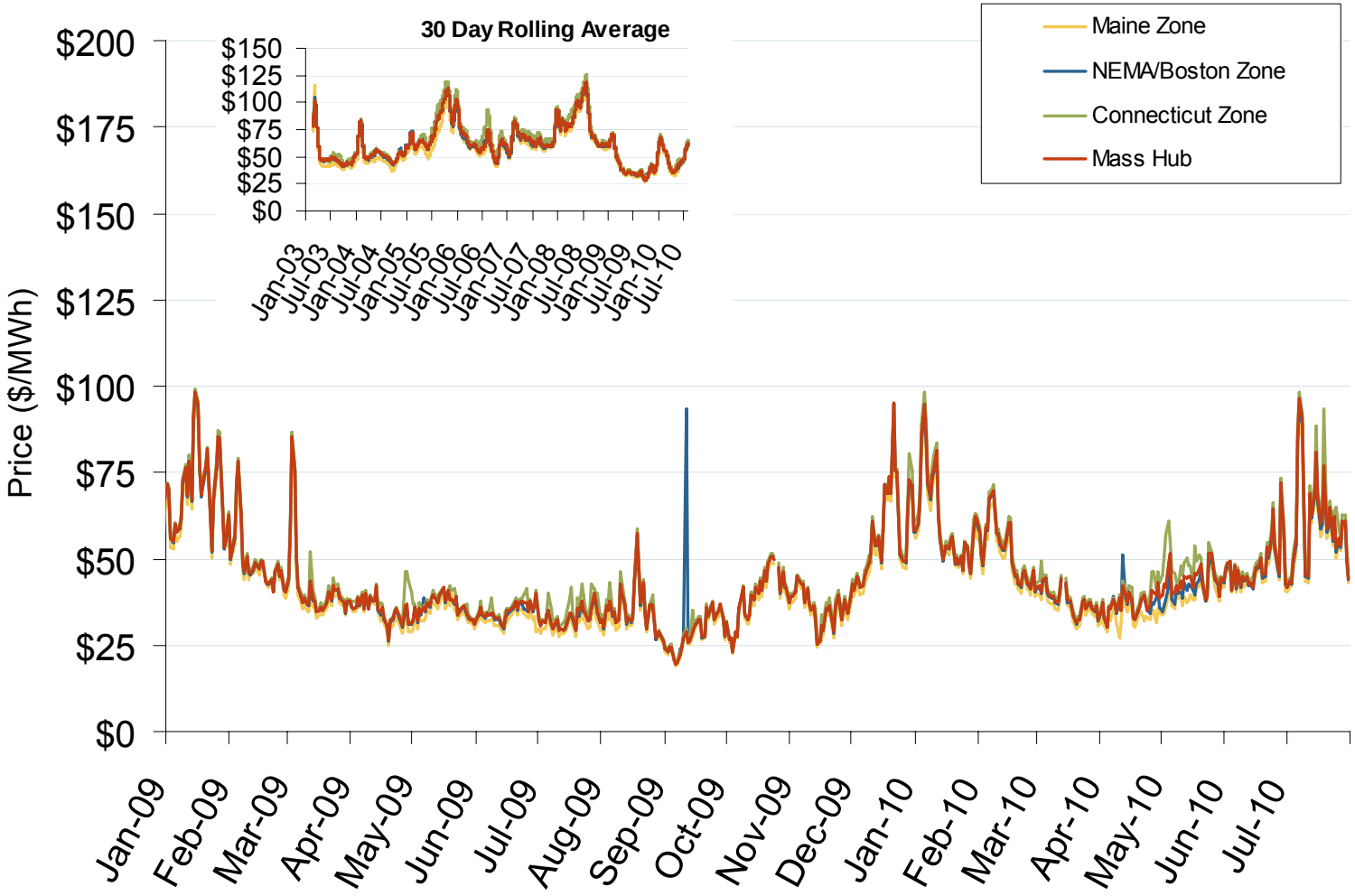
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *ISO-NE* data as reported by *Bloomberg*.

Updated August 6, 2010

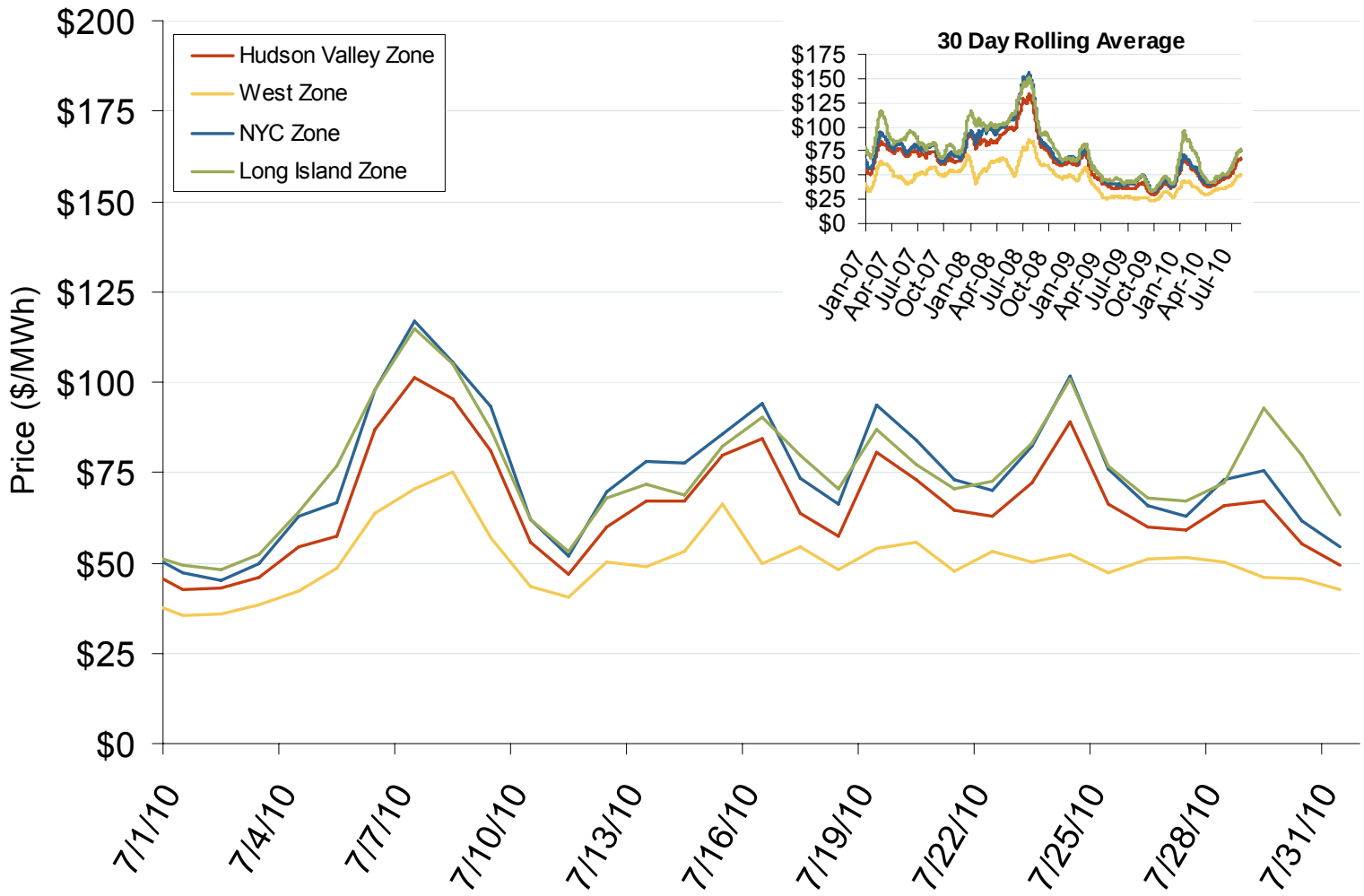
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *ISO-NE* data as reported by *Bloomberg*.

Updated August 6, 2010

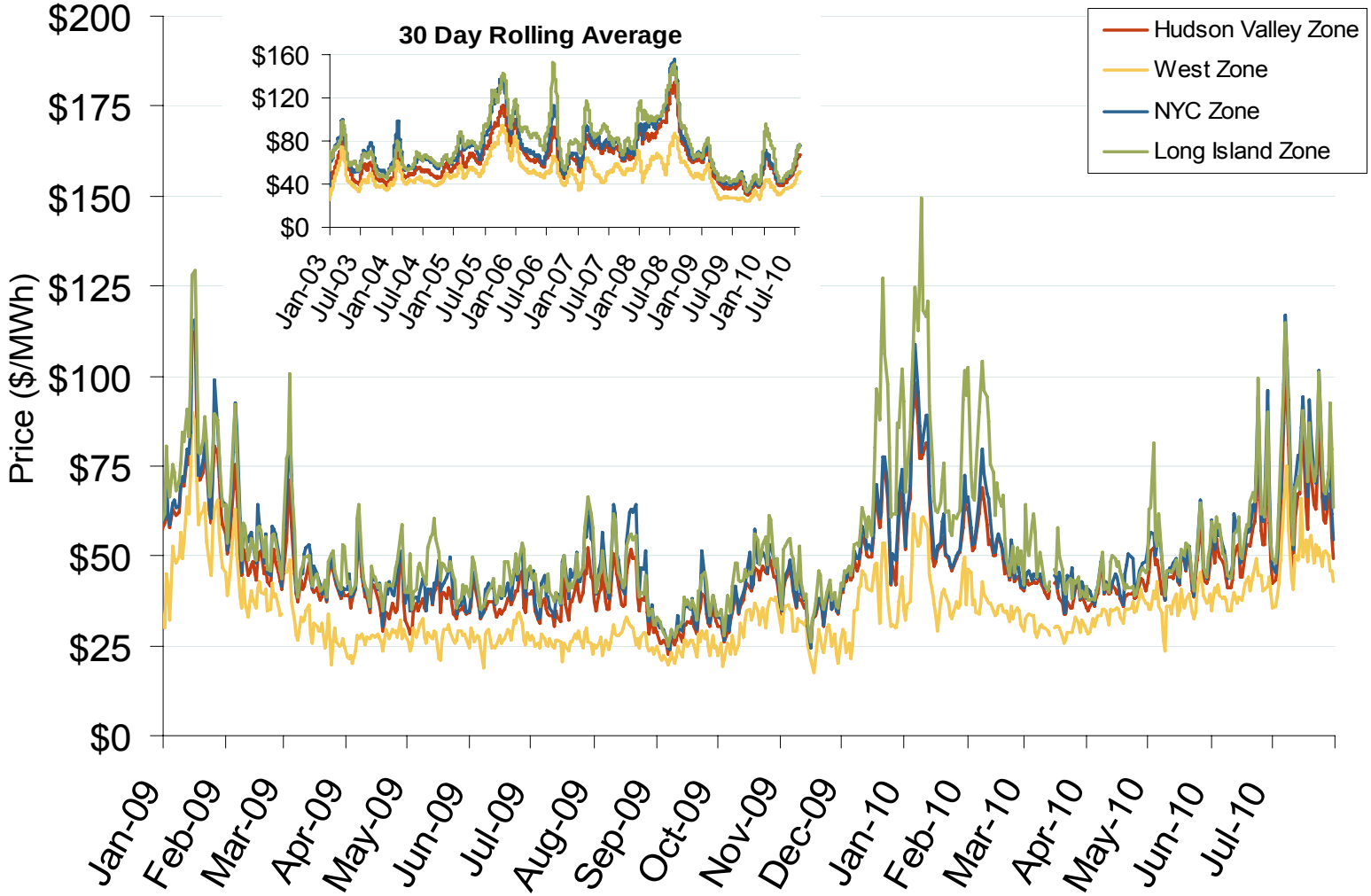
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *NYISO* data as reported by *Bloomberg*.

Updated August 6, 2010

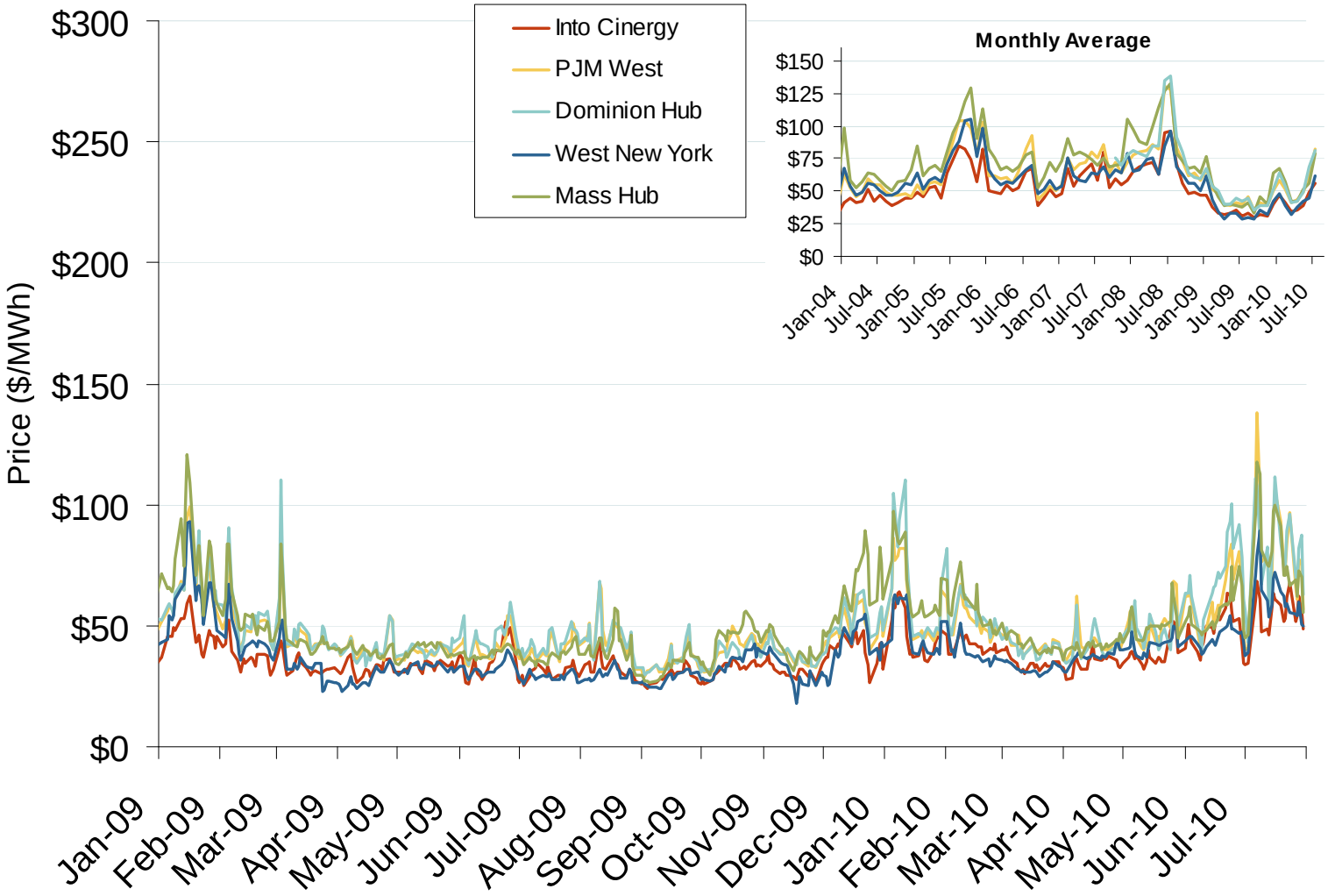
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *NYISO* data as reported by *Bloomberg*.

Updated August 6, 2010

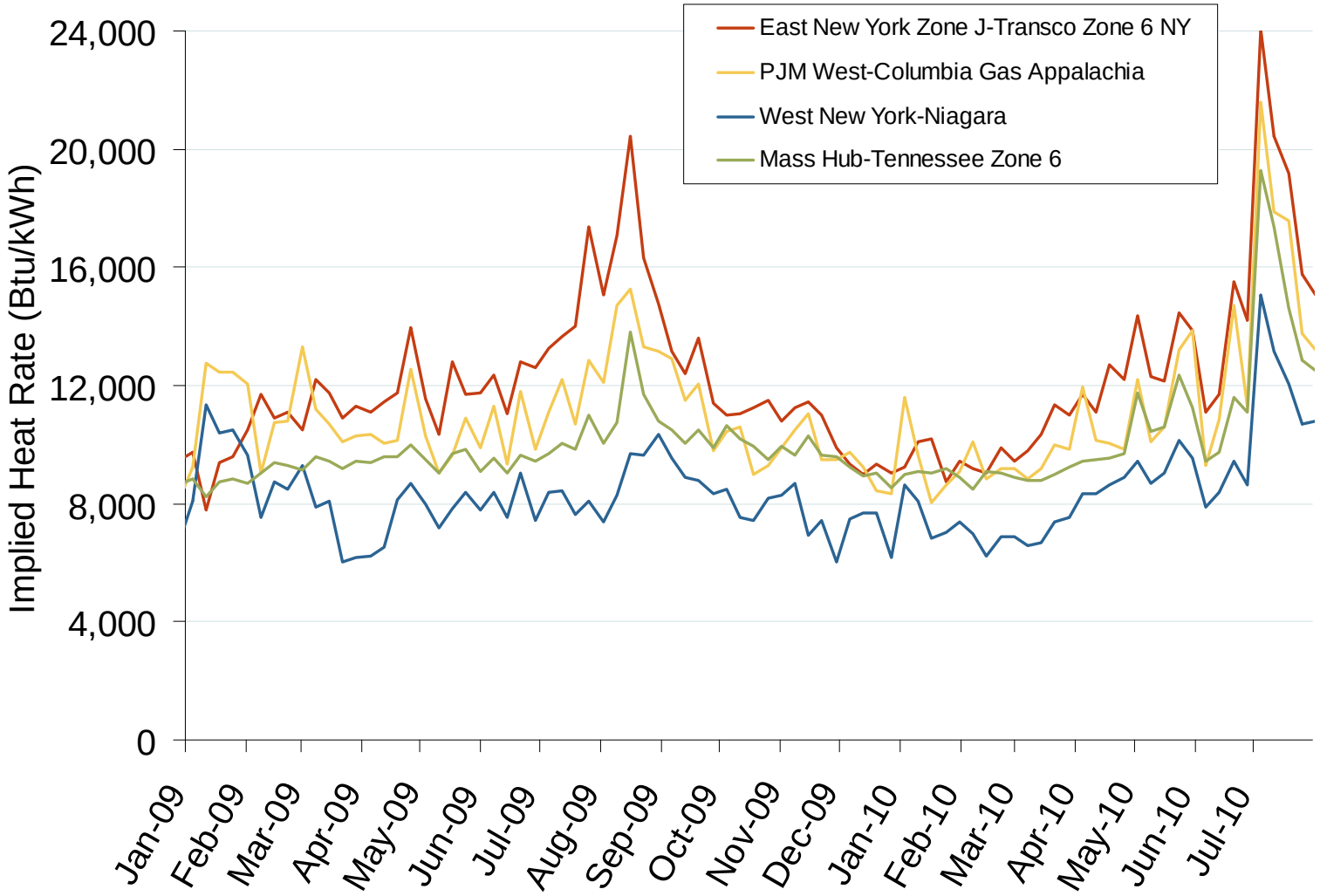
Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated August 6, 2010

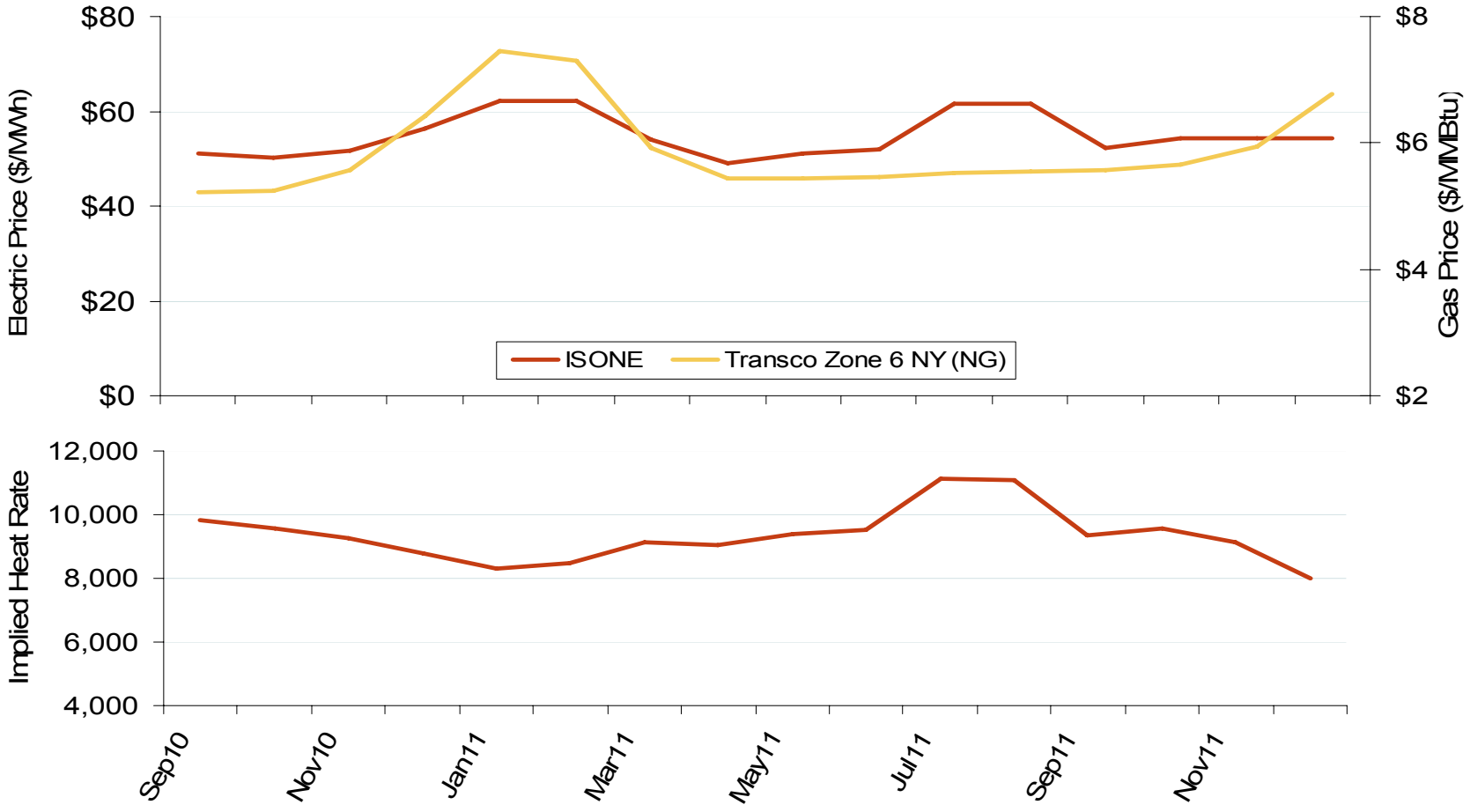
Implied Heat Rates at Eastern Trading Points Weekly Averages



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

Updated August 6, 2010

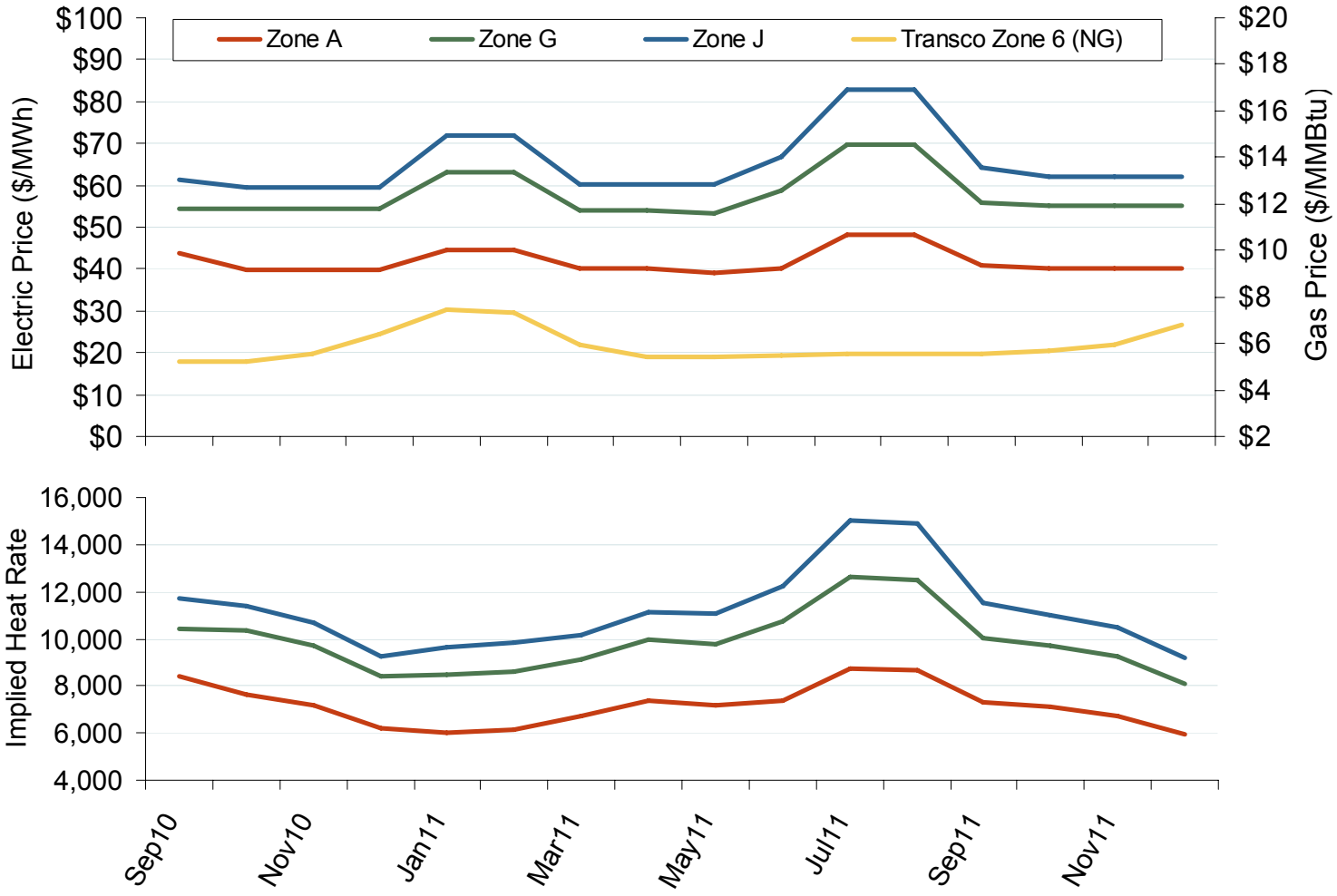
New England Electric Forward Price Curve and Implied Heat Rate



Source: Derived from *Nymex* data.

Updated August 6, 2010

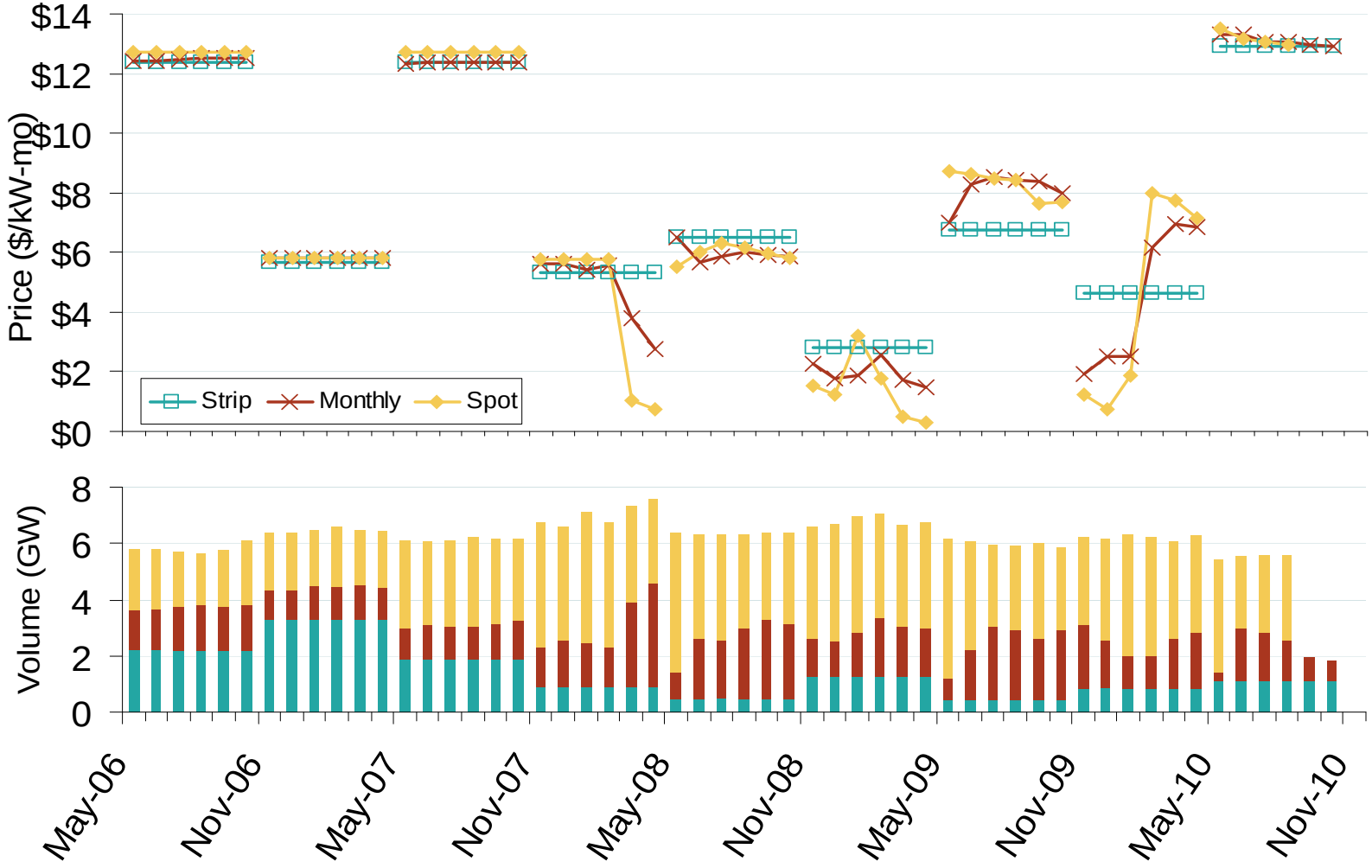
New York Electric Forward Price Curves and Implied Heat Rates



Source: Derived from *Nymex* data.

Updated August 6, 2010

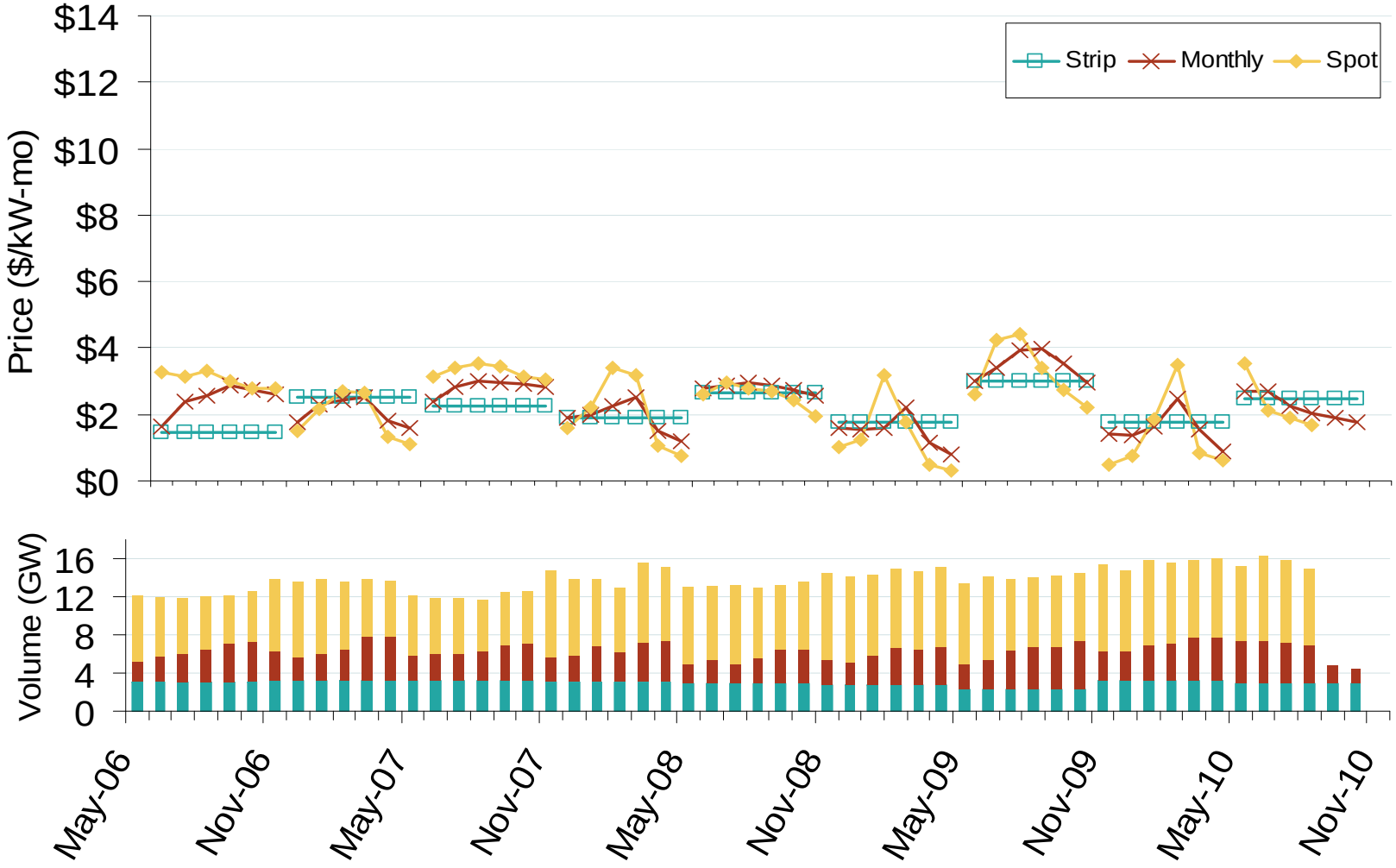
Weighted Average ICAP Clearing Prices and Volumes: New York City



Source: Derived from NYISO data.

Updated August 6, 2010

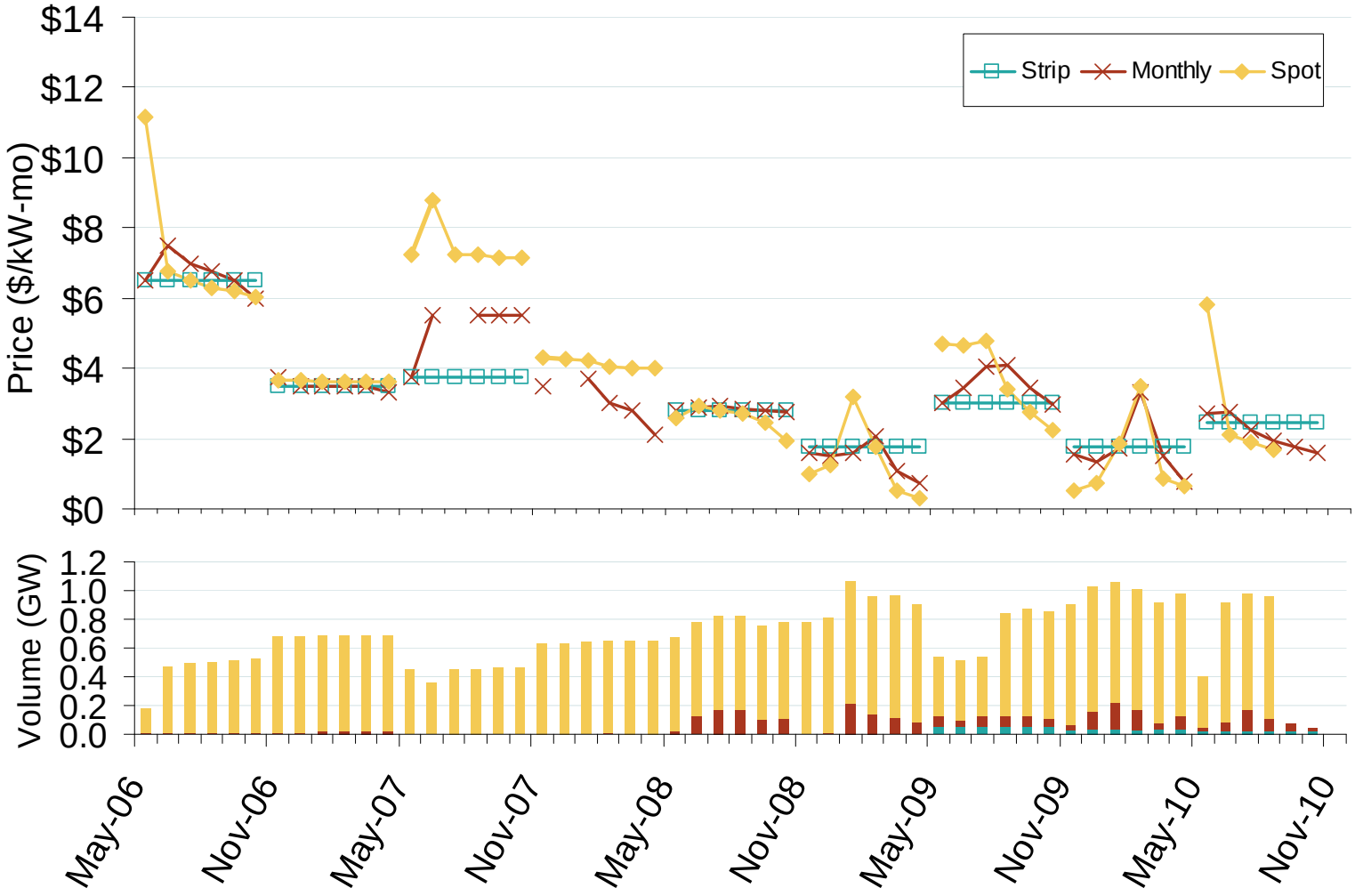
Weighted Average ICAP Clearing Prices and Volumes: Rest of New York State



Source: Derived from NYISO data.

Updated August 6, 2010

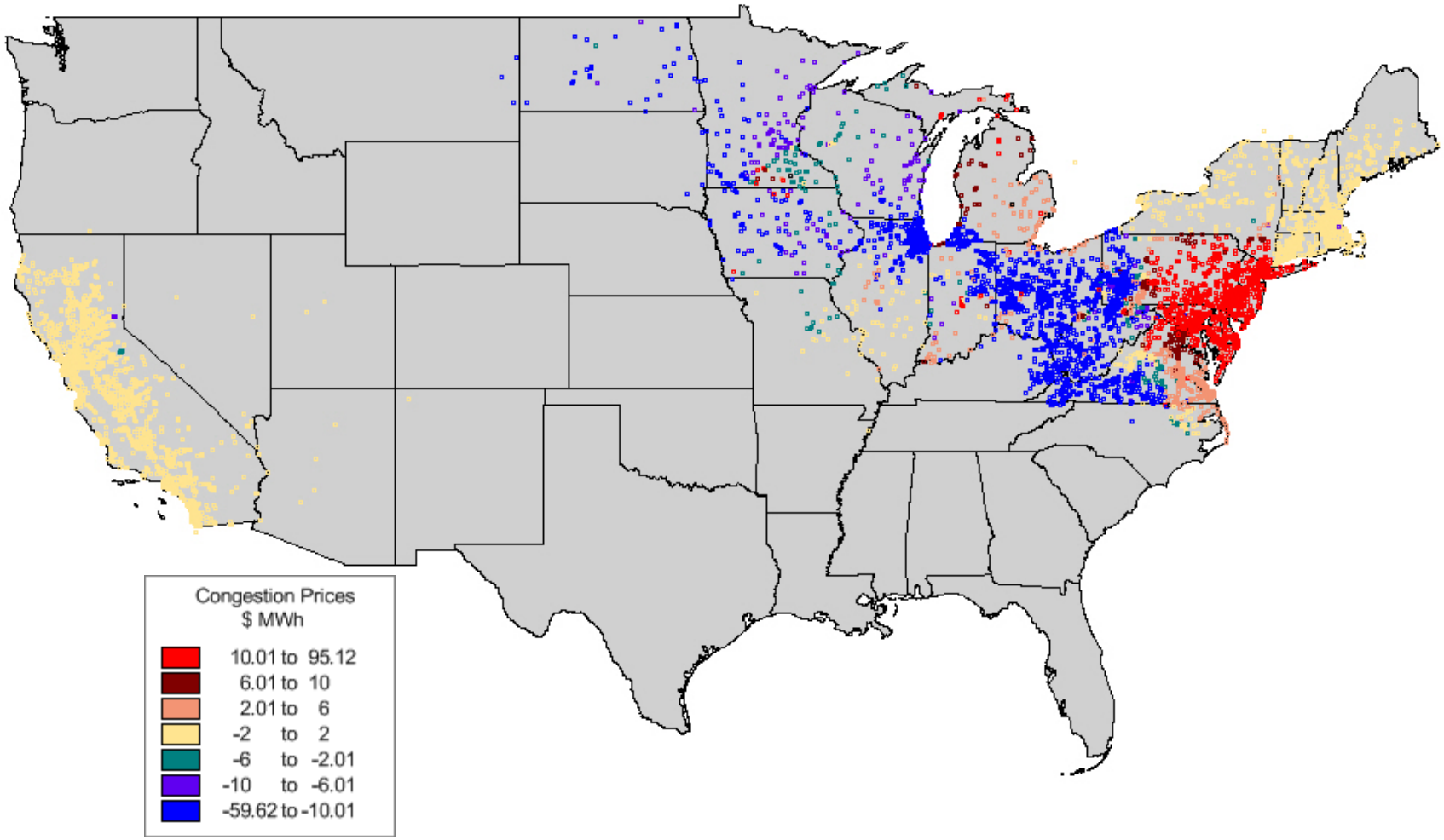
Weighted Average ICAP Clearing Prices and Volumes: Long Island



Source: Derived from NYISO data.

Updated August 6, 2010

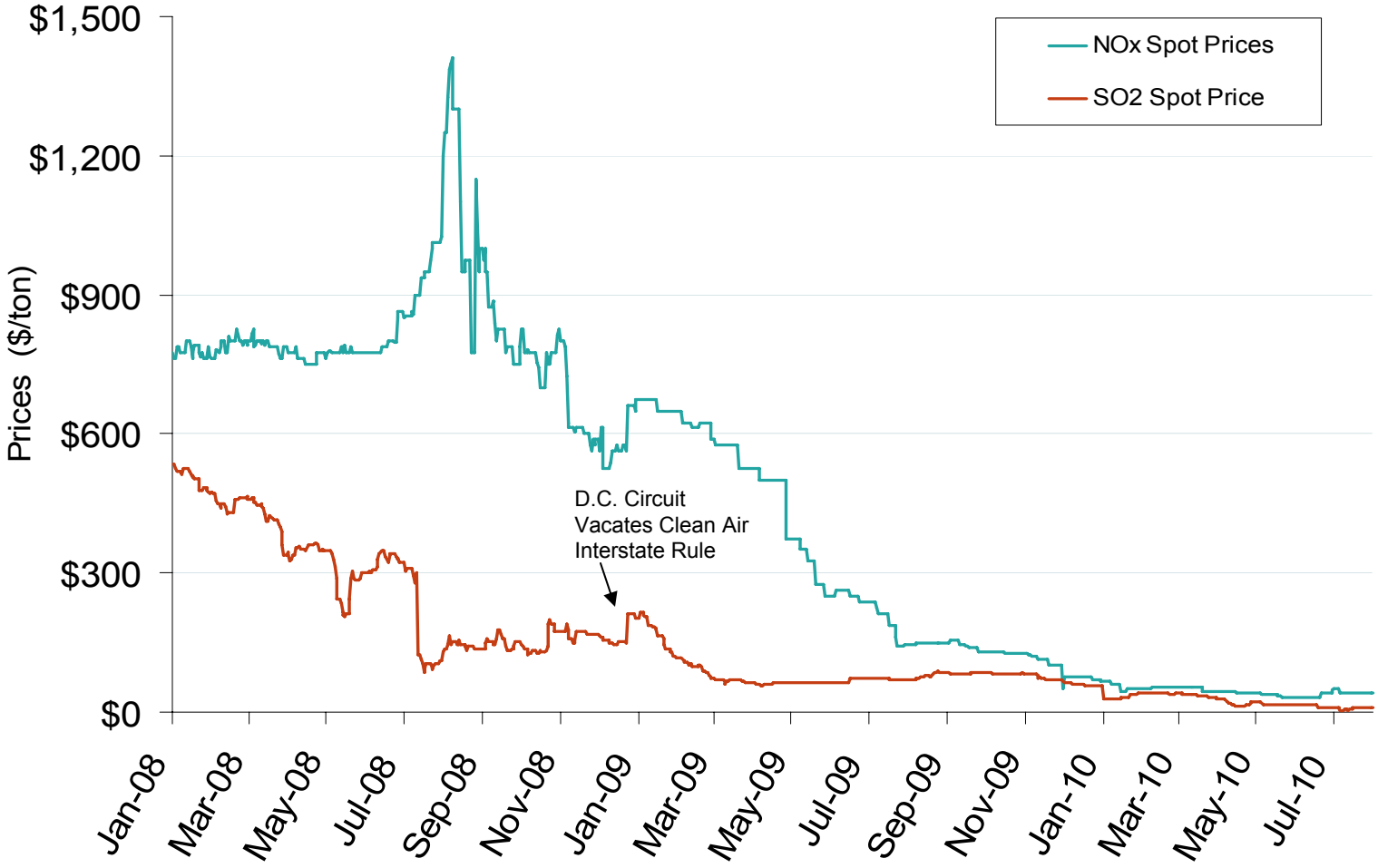
Day Ahead On-Peak Congestion Average Monthly Prices July 2010



Source: Velocity Suite

Updated August 6, 2010

SO_2 Allowance Spot Prices and NOx Seasonal Allowance Spot Prices



Source: Derived from *Bloomberg*.

Updated August 6, 2010

Chicago Climate Exchange CO2 Index

Source: Derived from *Bloomberg*.

Updated August 6, 2010

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30 States including D.C. have Renewable Energy Portfolio Standards (RPS)

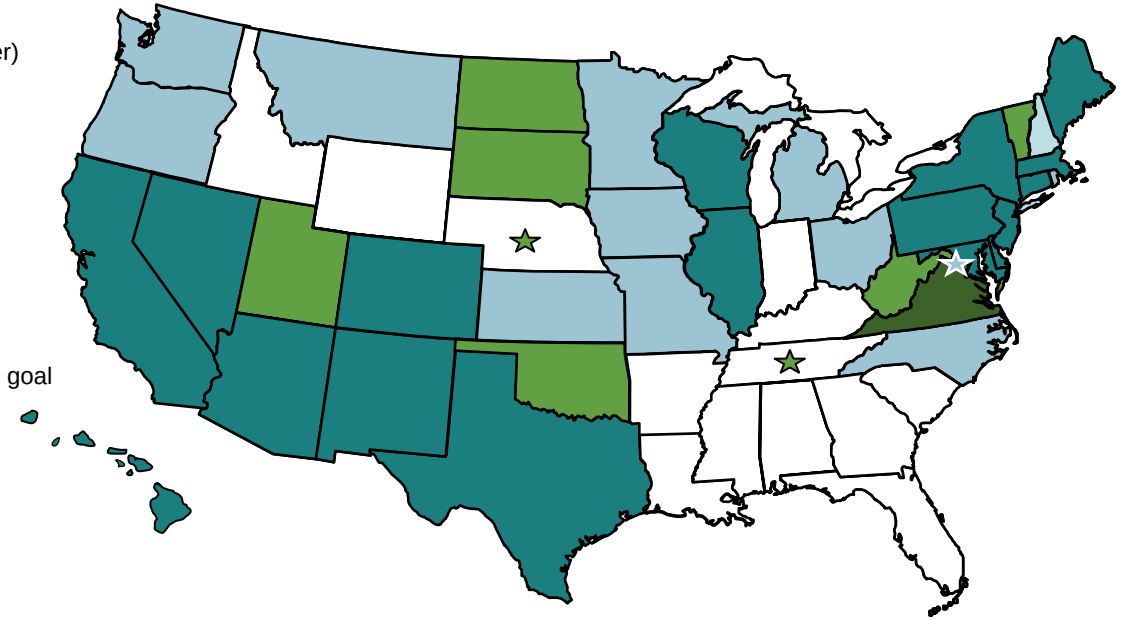
ND: 10% by 2015
SD: 10% by 2015
★ **NE** utilities: 10% by 2020
KS: 20% by 2020
OK: 15% by 2015

MN: 25% by 2025; Xcel: 30% by 2020
IA: 105 MW, plus 1 GW wind goal by 2010
MO: 15% by 2021

MI: 10% MWh and 1,100 MW by 2015
WI: 10% by 2015
IL: 25% by 2025 wind 75% of RPS
OH: 12.5% by 2025

ME: 40% by 2017, plus 8 GW wind goal by 2030
NH: 23.8% by 2025
VT: 20% by 2017; all growth to 2012 from RE and EE
MA:15% by 2020 then 1% each year, plus 2 GW wind goal by 2020
RI: 16% by end 2019
CT: 27% by 2020
NY: 30% by 2015
NJ: 22.5% by 2020
PA: 18% by 2020
DE: 20% by 2019-2020
DC: 20% by 2020 ☆
MD: 20% by 2022
VA: 15% by 2025; goal with production incentives
WV: 25% by 2025 with alternative and renewable resources
NC: 12.5% by 2021
TVA: 50% by 2020 ★

WA: 15% by 2020
OR: 25% by 2025
CA: 20% by 2010 (law) 33% by 2020 (Exec Order)
MT: 15% by 2015
NV: 25% by 2025
UT: 20% by 2025
CO: 30% by 2020
AZ: 15% by 2025
NM: 20% by 2020
TX: 5,880 MW by 2015, plus 500 MW non-wind goal
HI: 40% by 2030



Updates at: http://www.ferc.gov/market-oversight/othr-mkts/renew.asp

- RPS
- Accelerated or strengthened RPS
- Voluntary standards or goals
- Strengthened voluntary standard

Notes: An RPS requires a percent of an electric provider's energy sales (MWh) or installed capacity (MW) to come from renewable resources. Most specify sales (MWh). Map percents are final years' targets. Alaska has no RPS.
* Nebraska does not have a state-wide goal, but its two largest public power districts do.
TVA's goal is not state policy; it calls for 50% zero- or low-carbon generation by 2020.
Sources: Derived from data in: LBNL, PUCs, State legislative tracking services, Pew Center. Details, including timelines, are in the Database of State Incentives for Renewables and Energy Efficiency: http://www.dsireusa.org

Updated June 29, 2010

Renewable Portfolio Provisions for Solar and Distributed Generation

16 States and D.C. use Set-asides, 3 use Multipliers to Encourage these Technologies

WA: double-credit for DG

OR: 20 MW PV by 2020;
***** 2 utility PV credit

CA: 3 GW, including 1,940 MW distributed solar by 2016

NV: 1.5% solar by 2025
***** 2.4 central PV;
***** 2.45 distributed PV

UT: ***** 2.4 solar-electric multiplier

CO: 3% DG by 2020
1.5% customer-sited

AZ: 4.5% DG by 2025; half residential

NM: 4% solar-electric, 0.6% DG by 2020

TX: double-credit for non-wind; non-wind goal – 500 MW

MO: 0.3% solar-electric by 2021

IL: 1.5% solar PV by 2025

MI: triple credit for solar-electric

OH: 0.5% solar-electric by 2025

NH: 0.3% solar-electric by 2014

NY: customer-sited is 7% of RPS increments, 0.5% of 2015 sales

MA: 400 MW PV by 2020

RI: 3 MW solar by 2013

NJ: 5,316 GWh solar-electric by 2026

PA: 0.5% PV by 2020

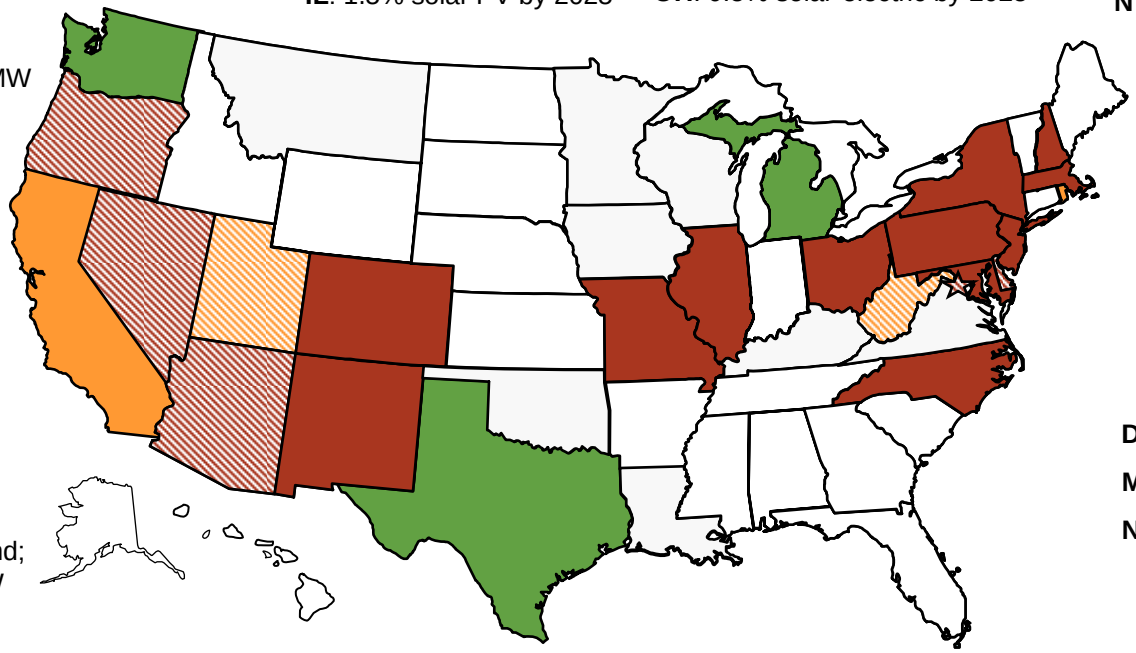
WV: various multipliers

DE: 2.005% PV by 2019;
* 3 PV credit

DC: 0.4% solar by 2021 ☆

MD: 2% solar-electric in 2022

NC: 0.2% solar by 2018



- MI, TX, and WA use RPS multipliers only
- AZ, DC, DE, NV, and OR have RPS set-asides and multipliers
- CA, RI, UT, and WV have solar targets outside an RPS

Solar / DG set-aside in RPS
Solar / DG in other renewable program
RPS credit multiplier for Solar / DG
Multiplier & set-aside in an RPS
Multiplier & set-aside in Renewable Goal

Updates at: http://www.ferc.gov/market-oversight/othr-mkts/renew/othr-rnw-rps-solar-DG.pdf

Notes: **(*) Multipliers** receive extra credit towards RPS compliance. **Set-asides** are specific technology targets in an RPS, specified by percent, MW, or MWh. An RPS requires a percent of an electric provider's energy sales (MWh) or installed capacity (MW) to come from renewable resources.
Abbreviations: DG – distributed generation; PV – solar photo-voltaic; RPS – Renewable Portfolio Standard
Sources: Derived from data in: LBNL, State Legislative and Public Utility web sites, California Solar Initiative, and the Database of State Incentives for Renewables and Energy Efficiency: http://www.dsireusa.org

Updated August 6, 2010

34003

Natural Gas and Fuel Markets

Natural Gas Market Overview: 5 Year Range of Henry Hub Spot Prices

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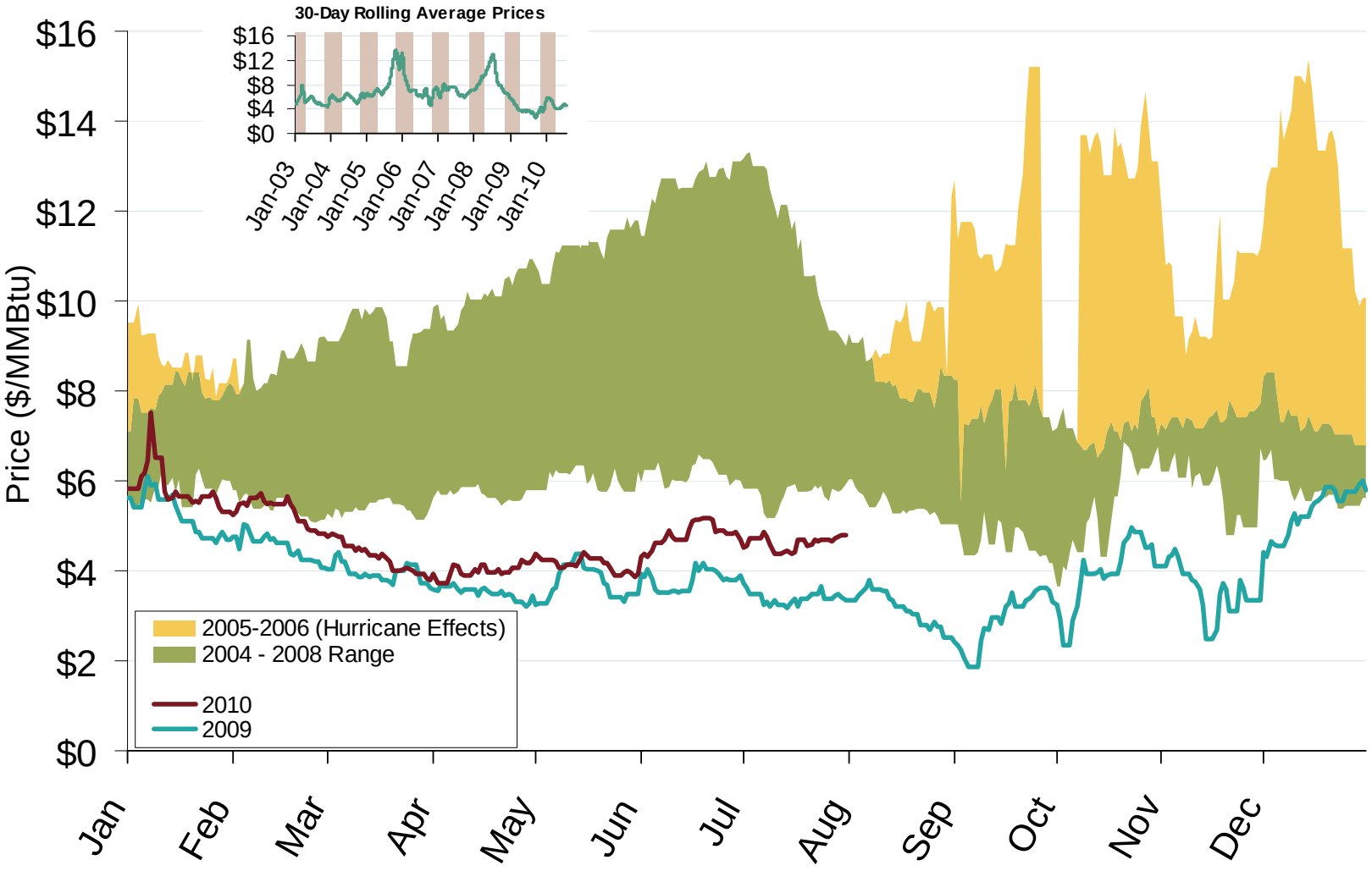
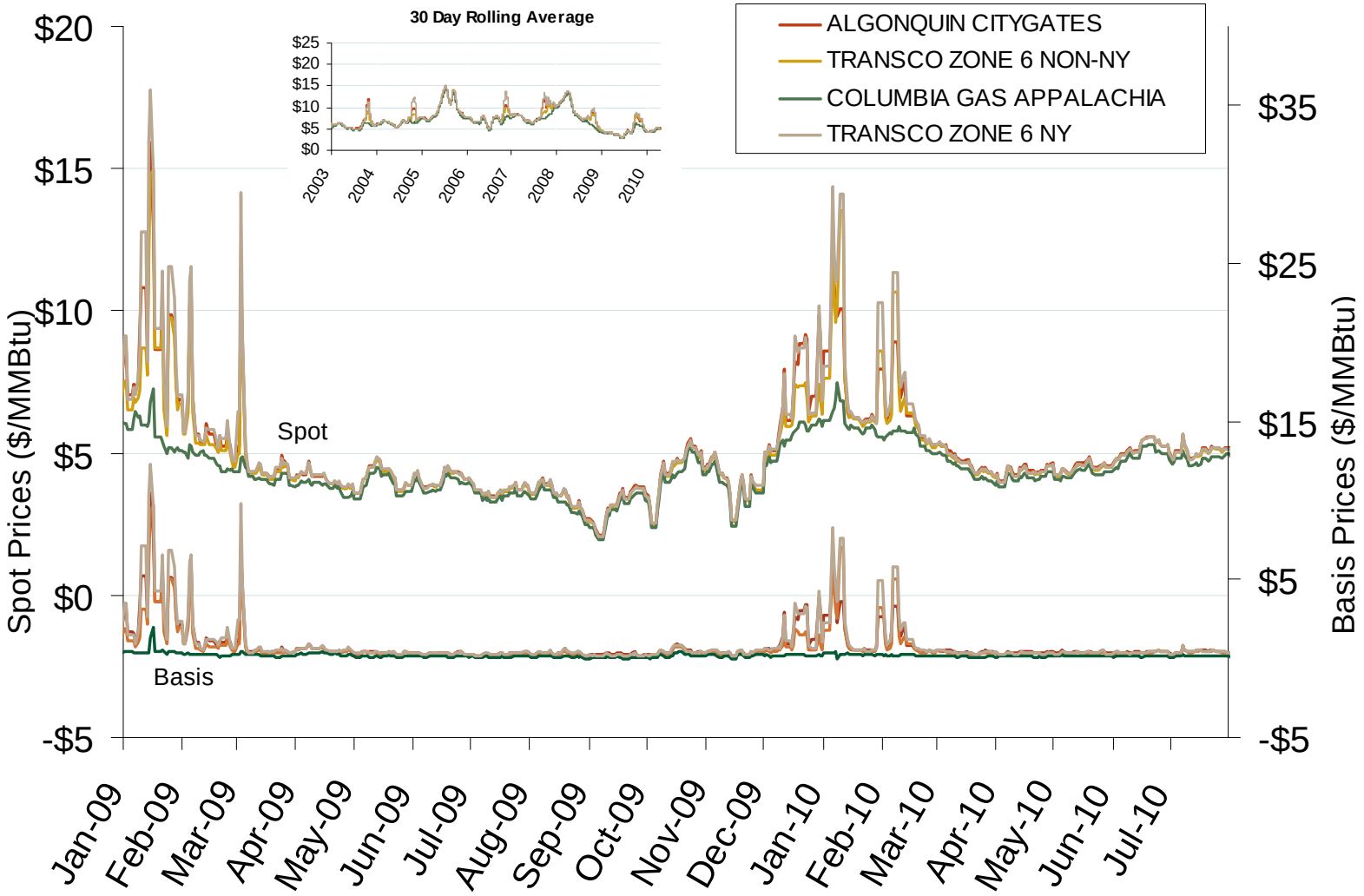
Henry Hub Natural Gas Daily Spot Prices



Source: Derived from *Platts* data.

Updated August 6, 2010

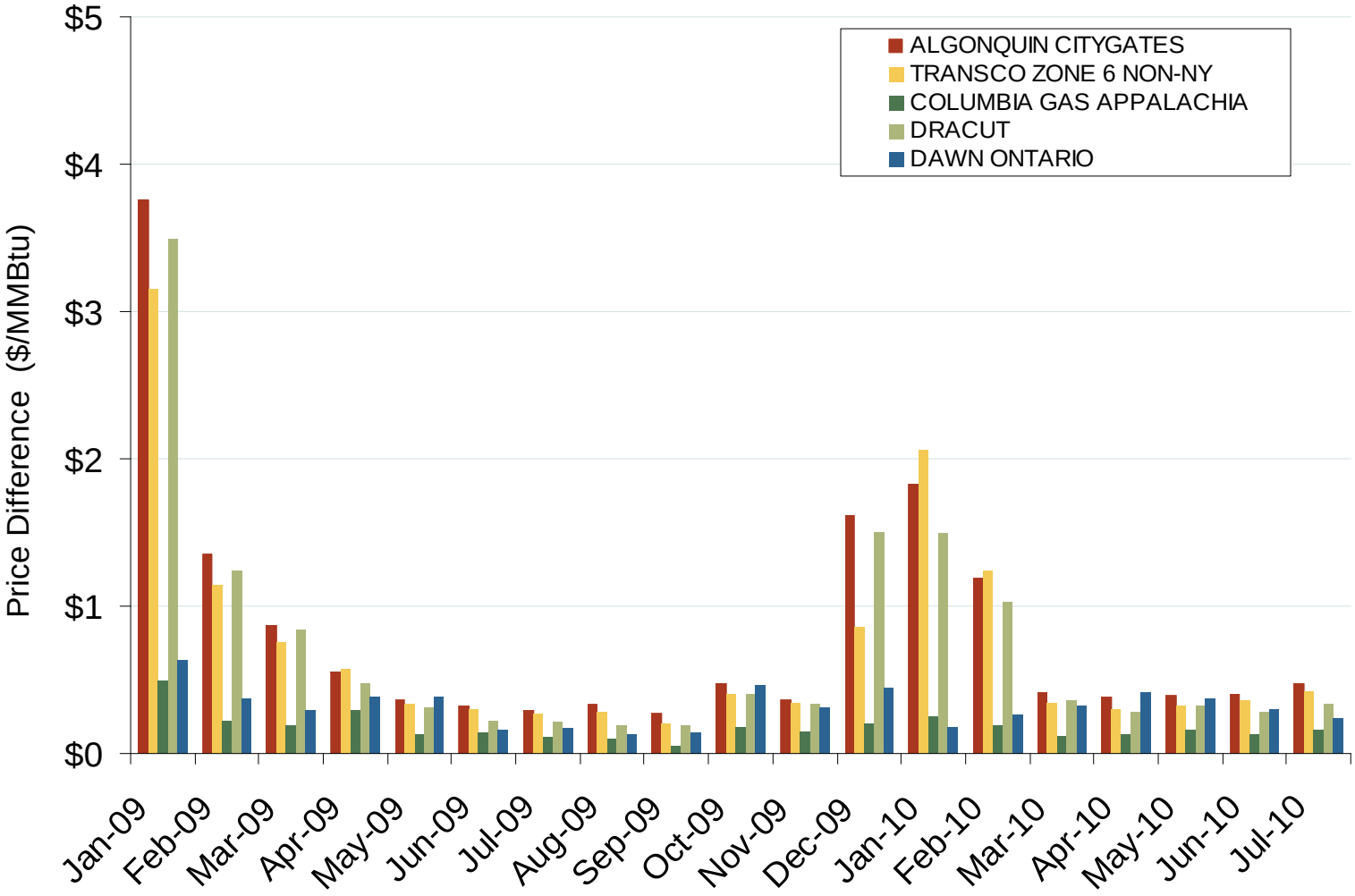
Northeastern Spot Prices and Basis



Source: Derived from *Platts* data.

Updated August 6, 2010

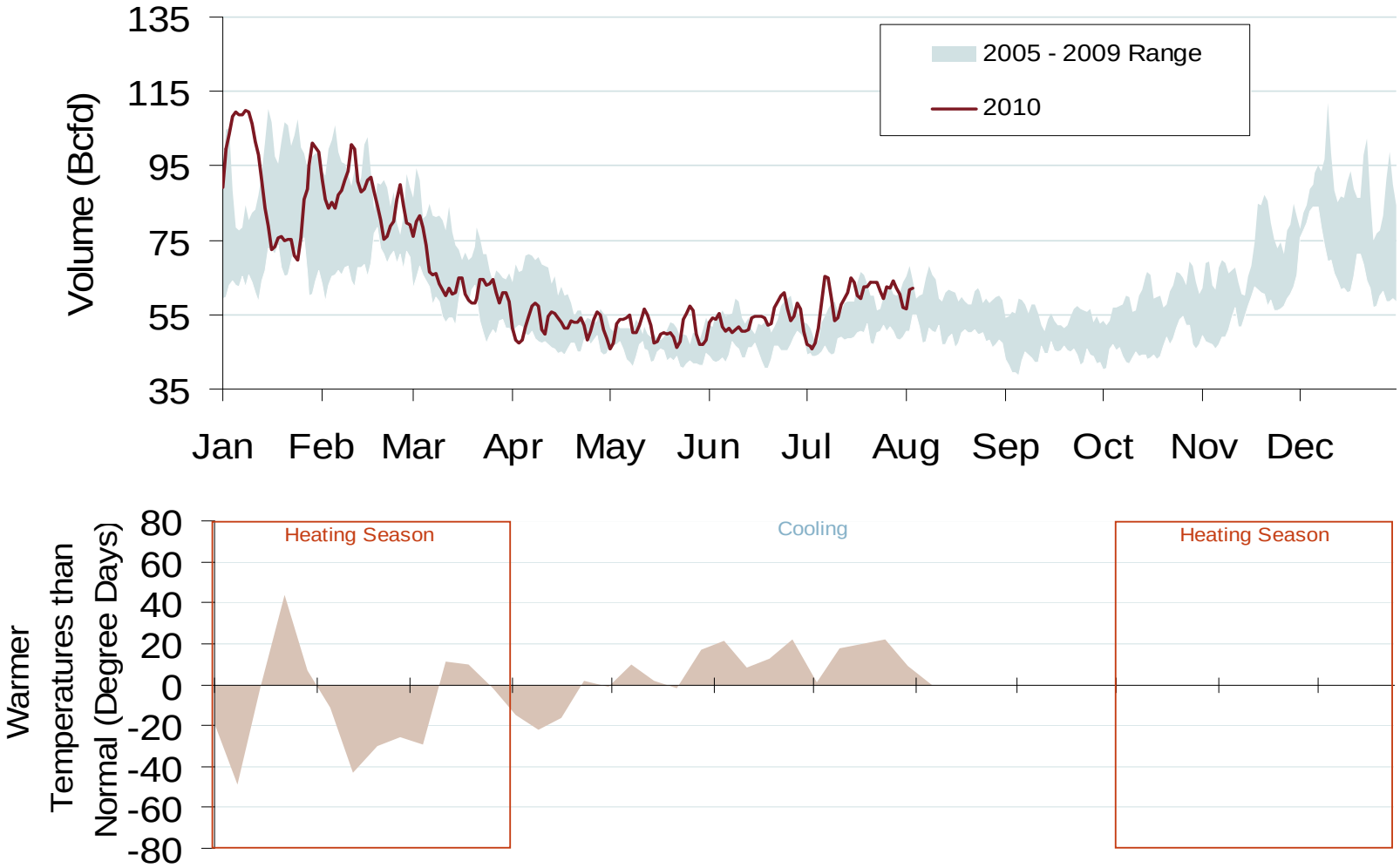
Northeastern Monthly Average Basis Value to Henry Hub



Source: Derived from *Platts* data.

Updated August 6, 2010

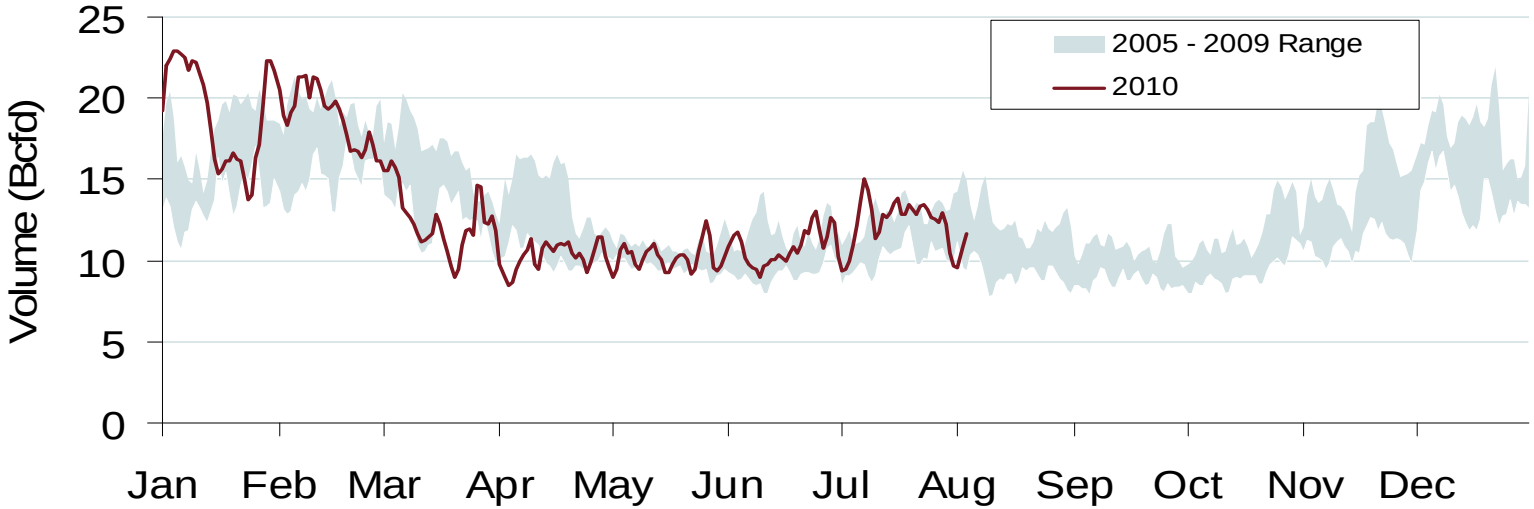
Total U.S. Natural Gas Demand (All Sectors) and Temperatures

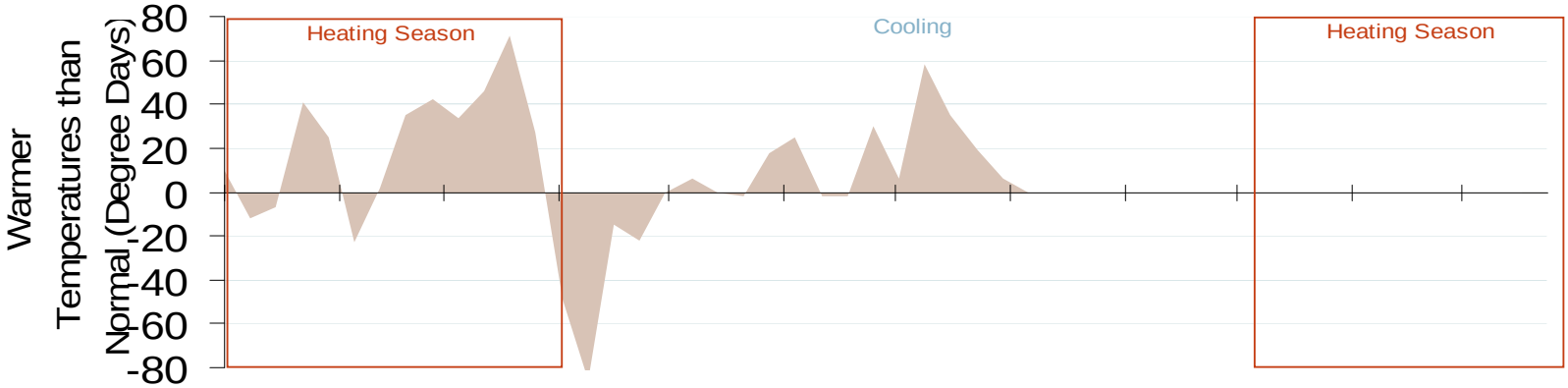


Source: Derived from Bentek Energy and Weekly NOAA data.

Updated August 6, 2010

Daily Northeast Natural Gas Demand
All Sectors

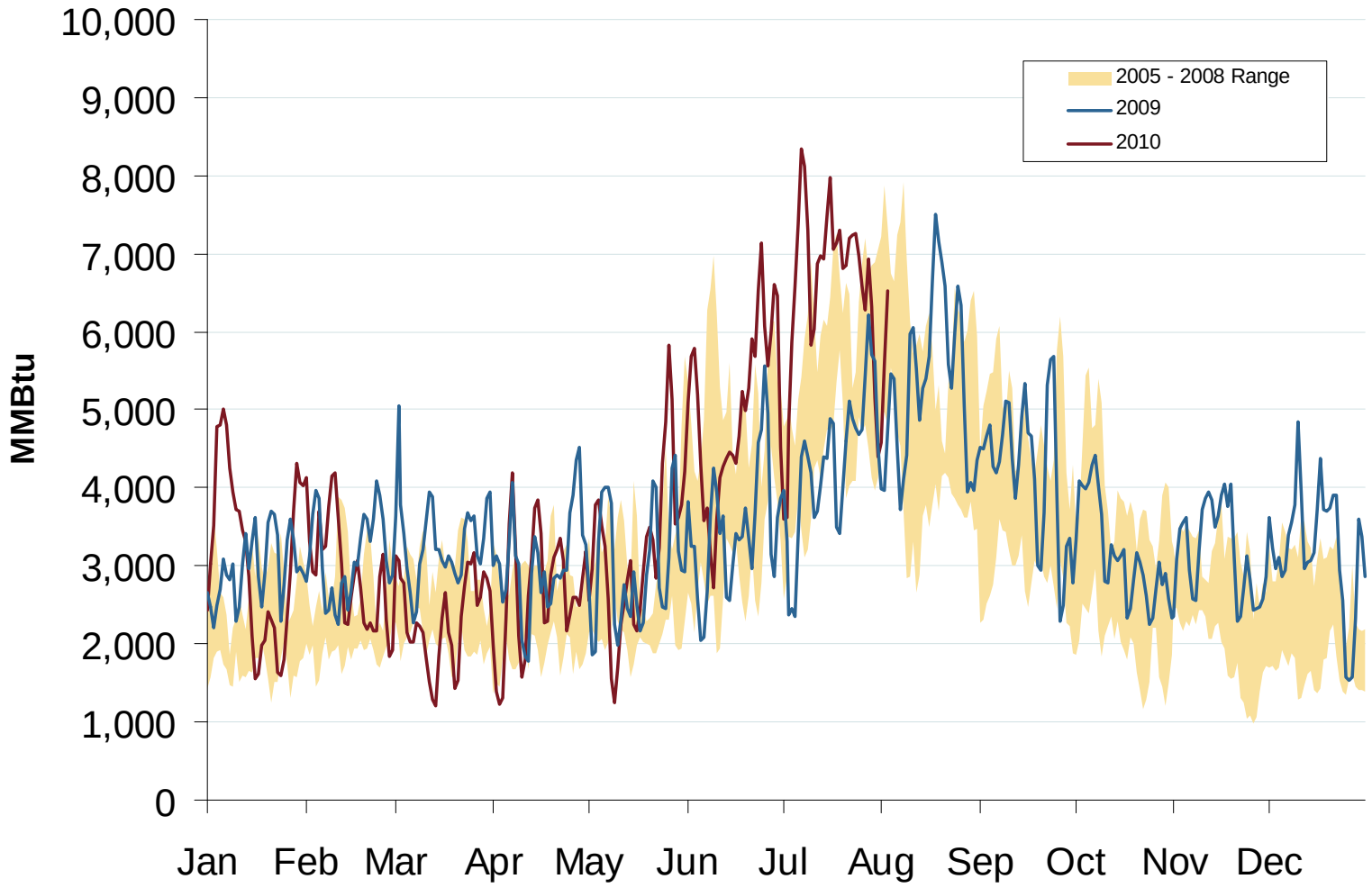




Source: Derived from Bentek Energy and Weekly NOAA data.

Updated August 6, 2010

Northeast Natural Gas Consumption for Power Generation



Source: Derived from Bentek Data
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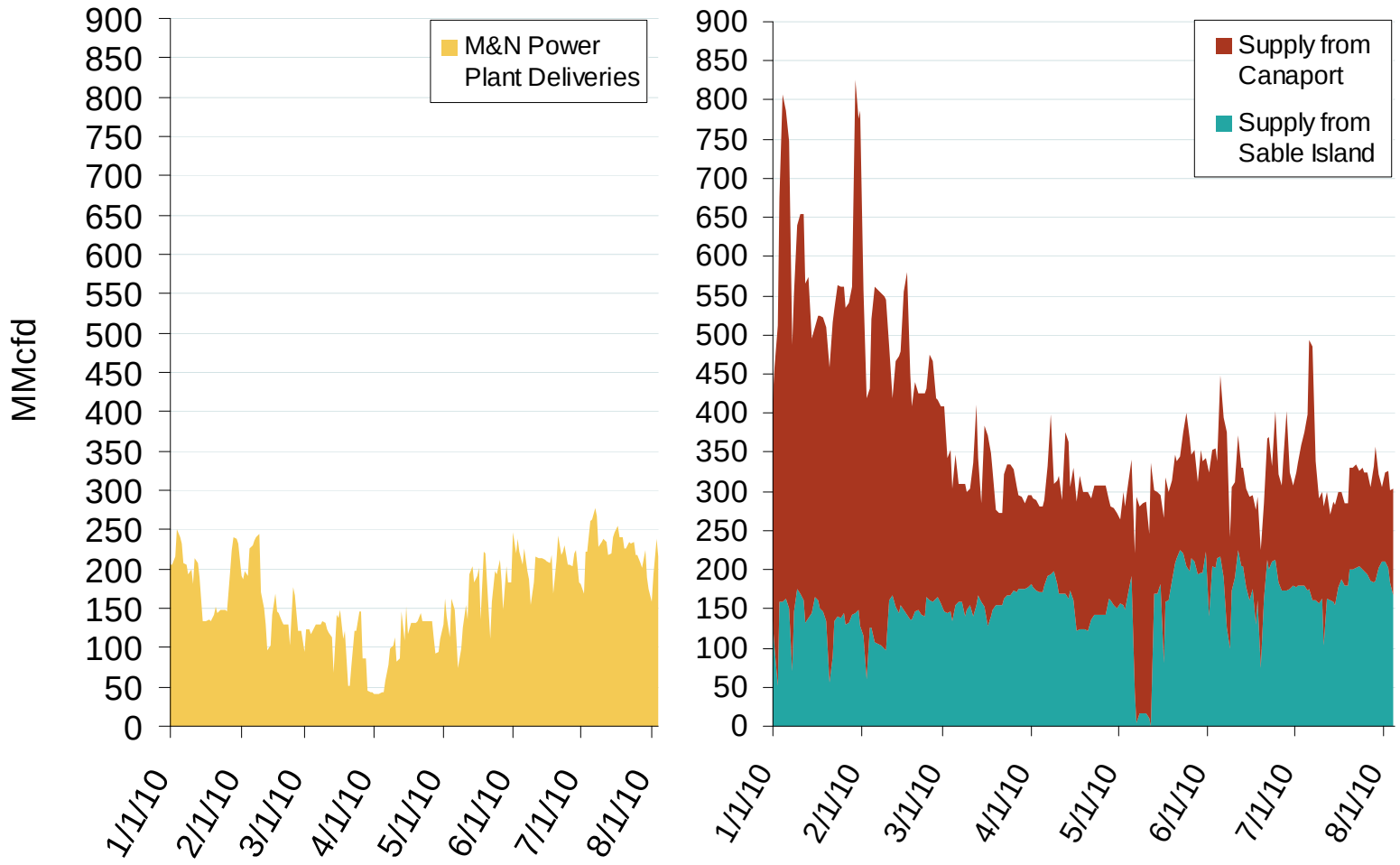
Updated August 6, 2010

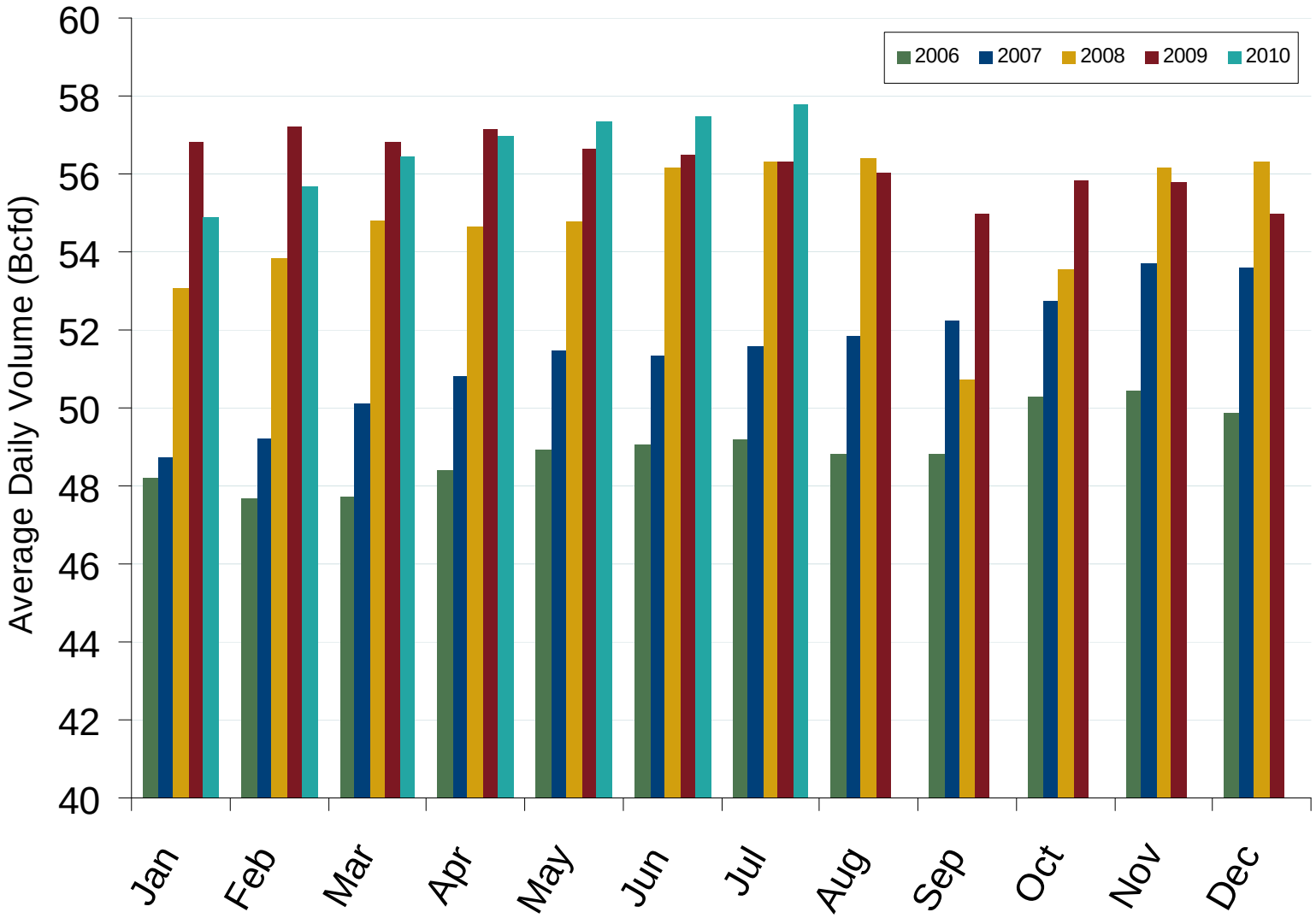
Maritimes Pipeline Flows



Source: Derived from *Bentek* data.

Updated August 6, 2010

Monthly U.S. Dry Gas Production – Lower 48 States

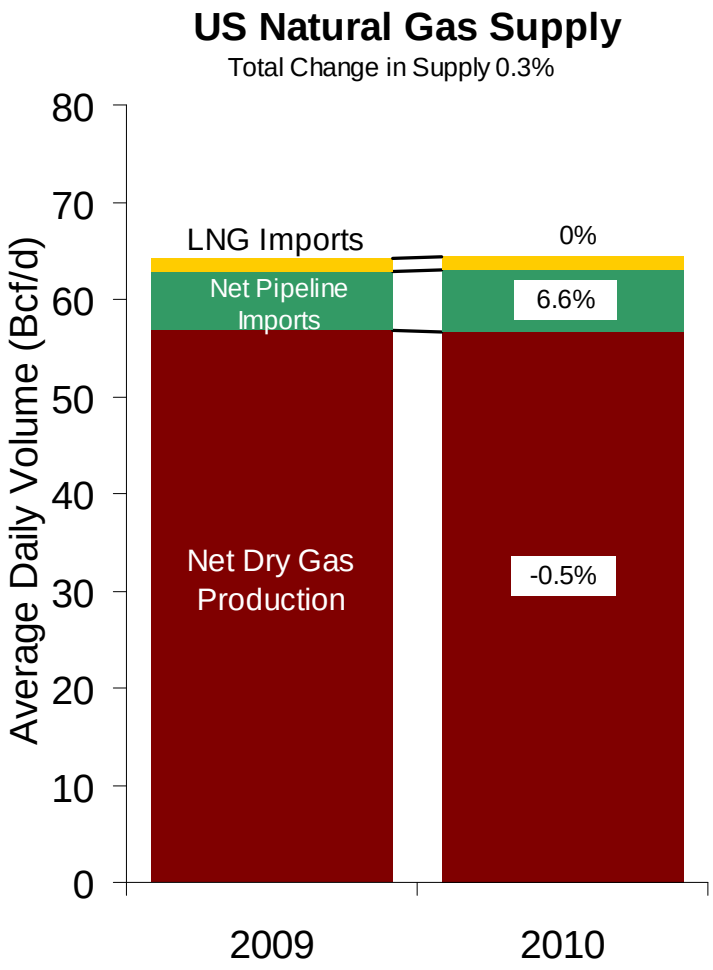


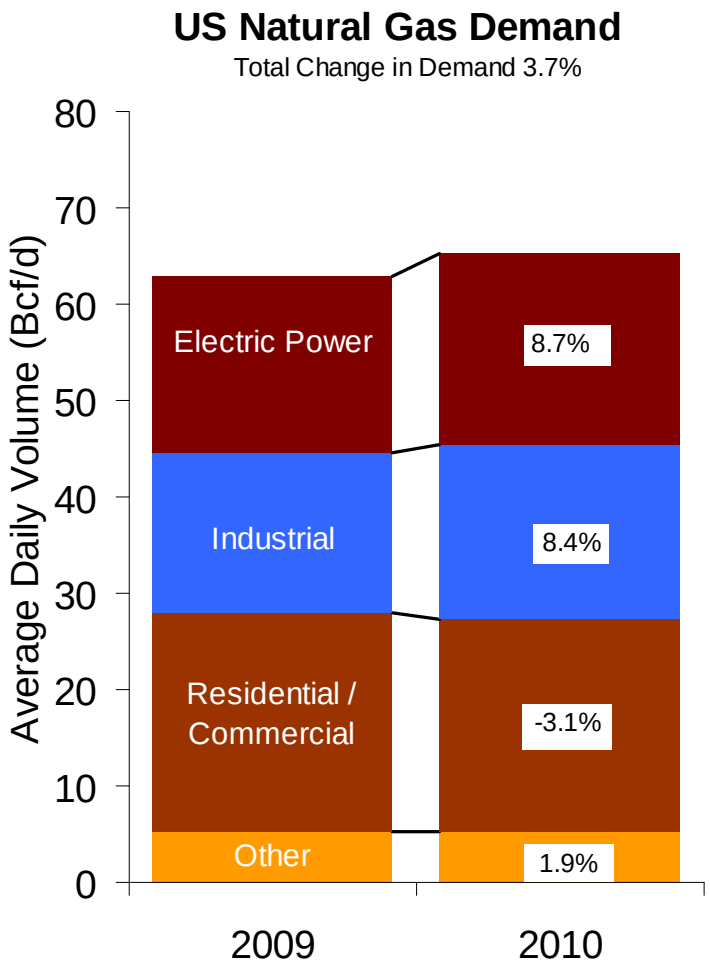
Source: Derived from *Bentek data.*

Note: Prior to July 2010, chart was derived from a combination of EIA and Bentek data

Updated August 6, 2010

U.S. Natural Gas Supply and Demand 2009 vs. 2010: January - July



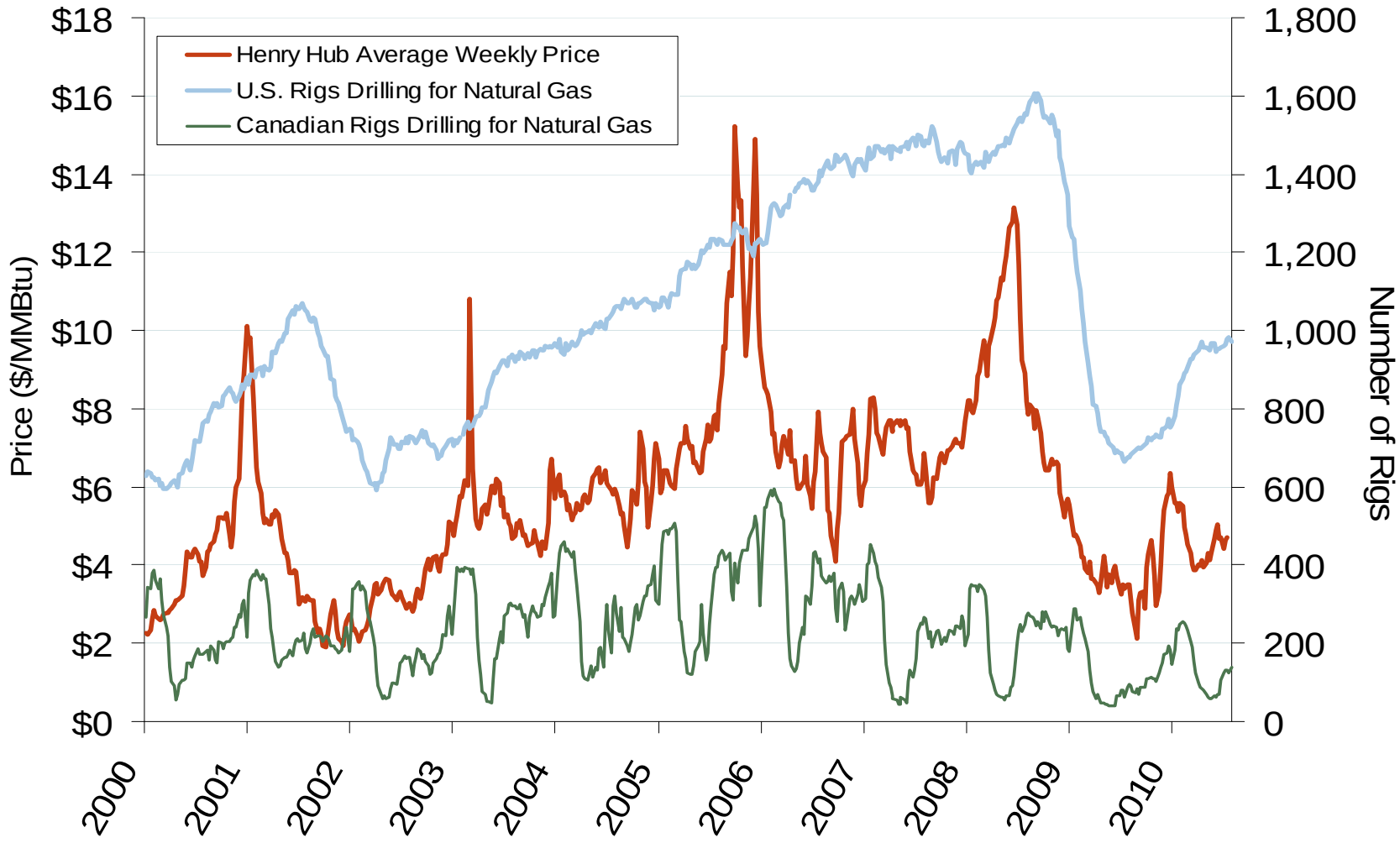


Source: Derived from Bentek data.

August 2010 Northeast Snapshot Report

Updated August 6, 2010

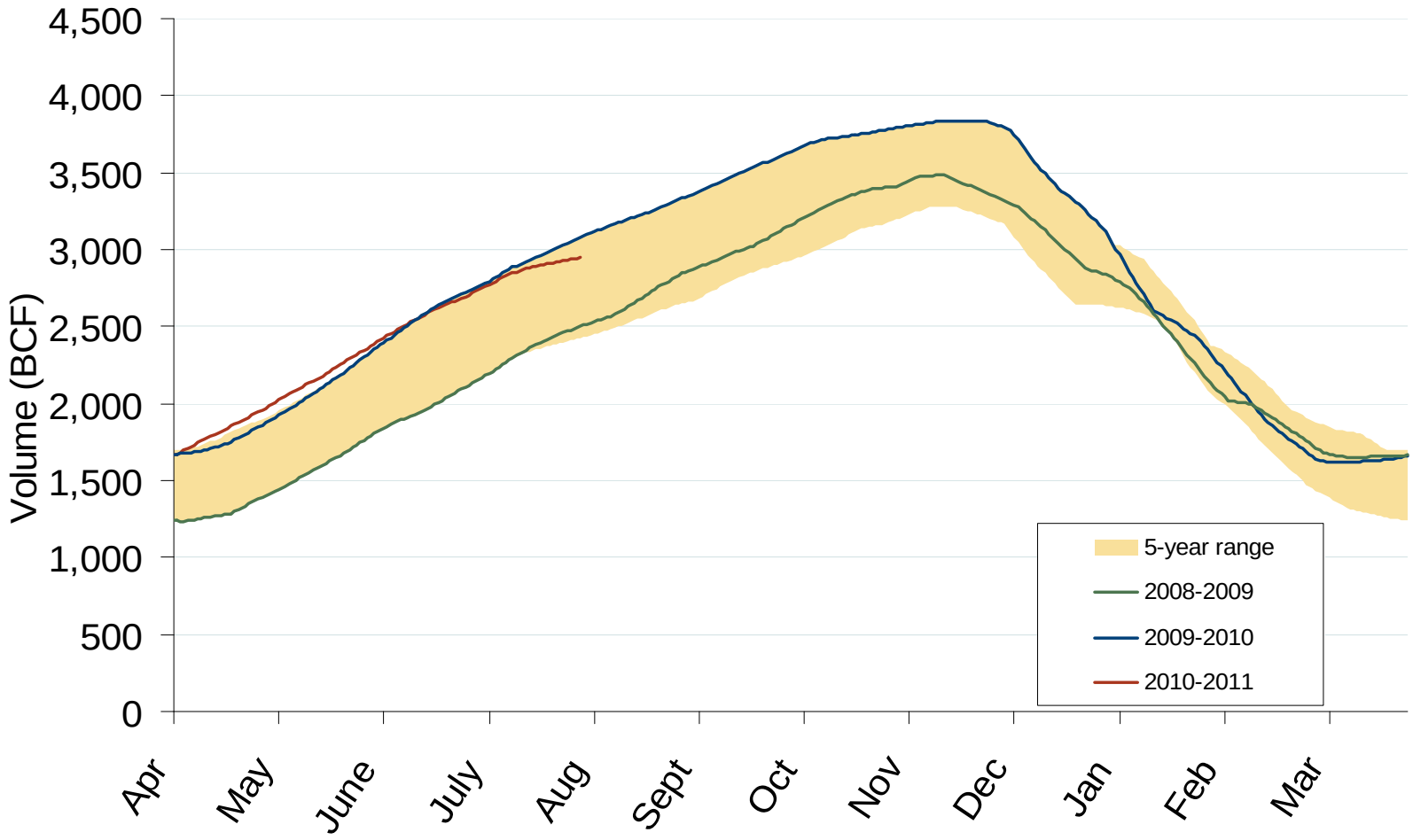
U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices



Source: Derived from *Platts* and *Baker Hughes* data.

Updated August 6, 2010

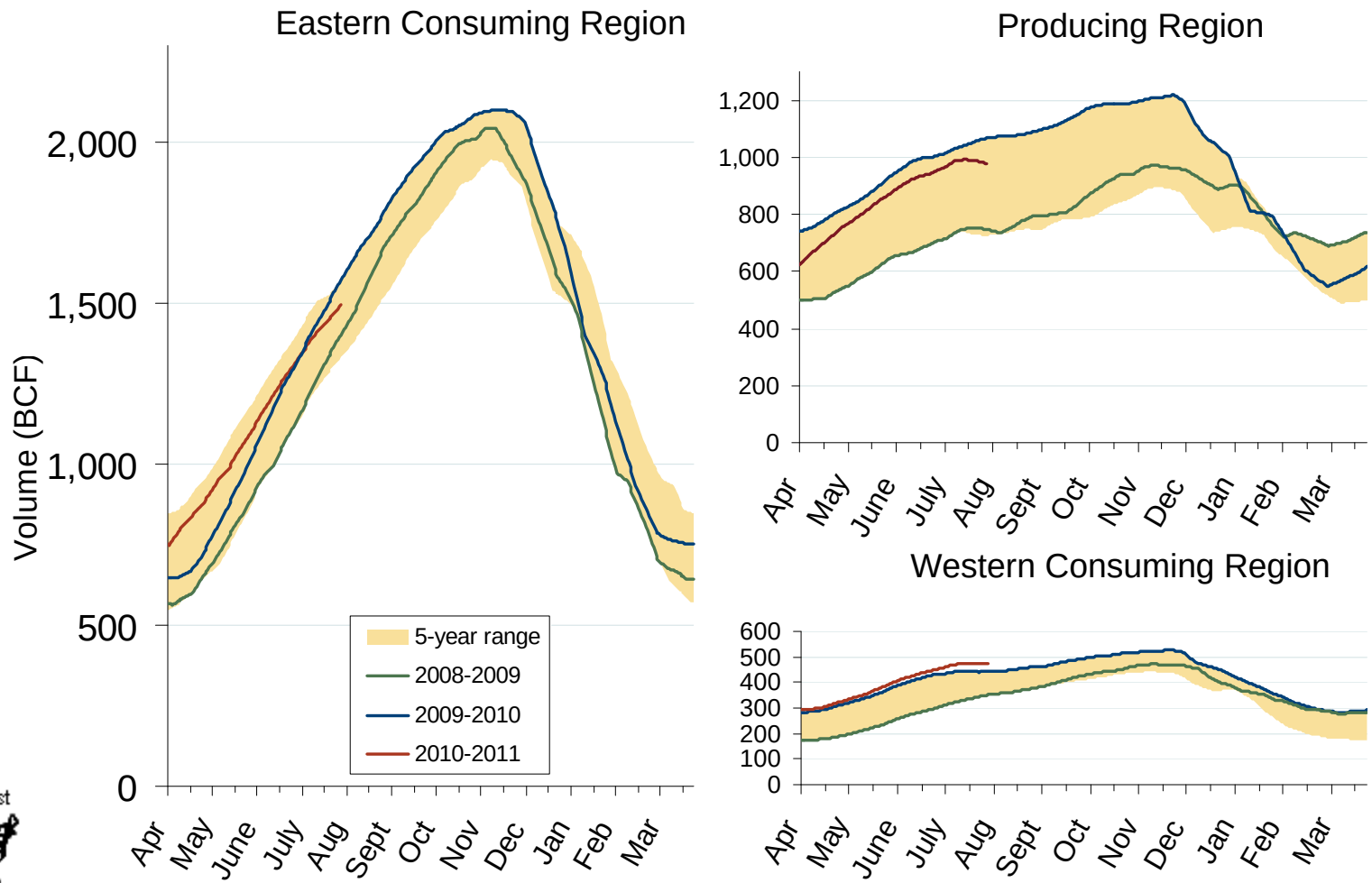
Total U.S. Working Gas in Storage



Source: Derived from *EIA* data.

Updated August 6, 2013

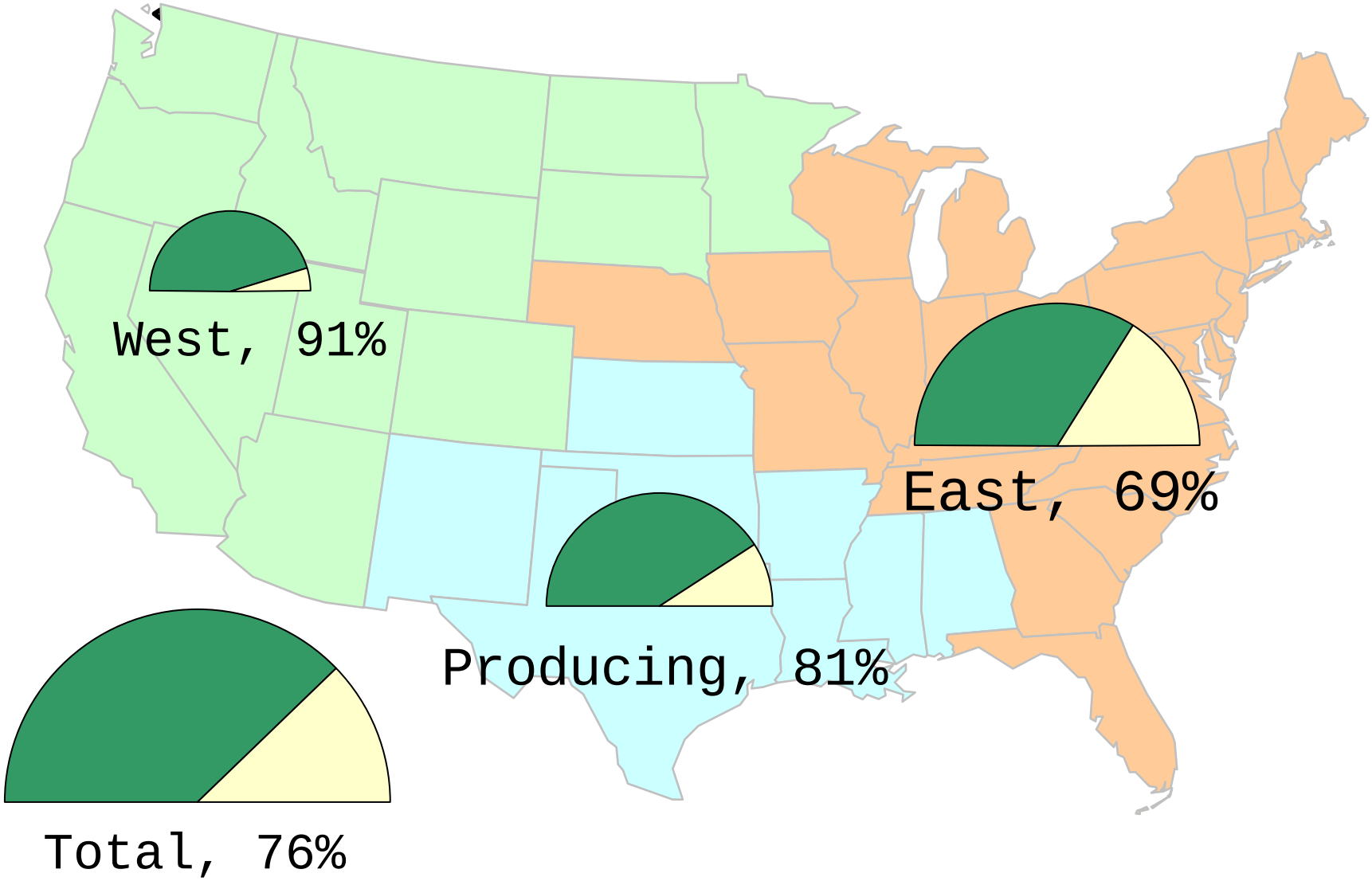
Regional Totals of Working Gas in Storage



Source: Derived from *EIA* data.

Updated August 6, 2014

Natural Gas Storage Inventories – % full on July 30, 2010

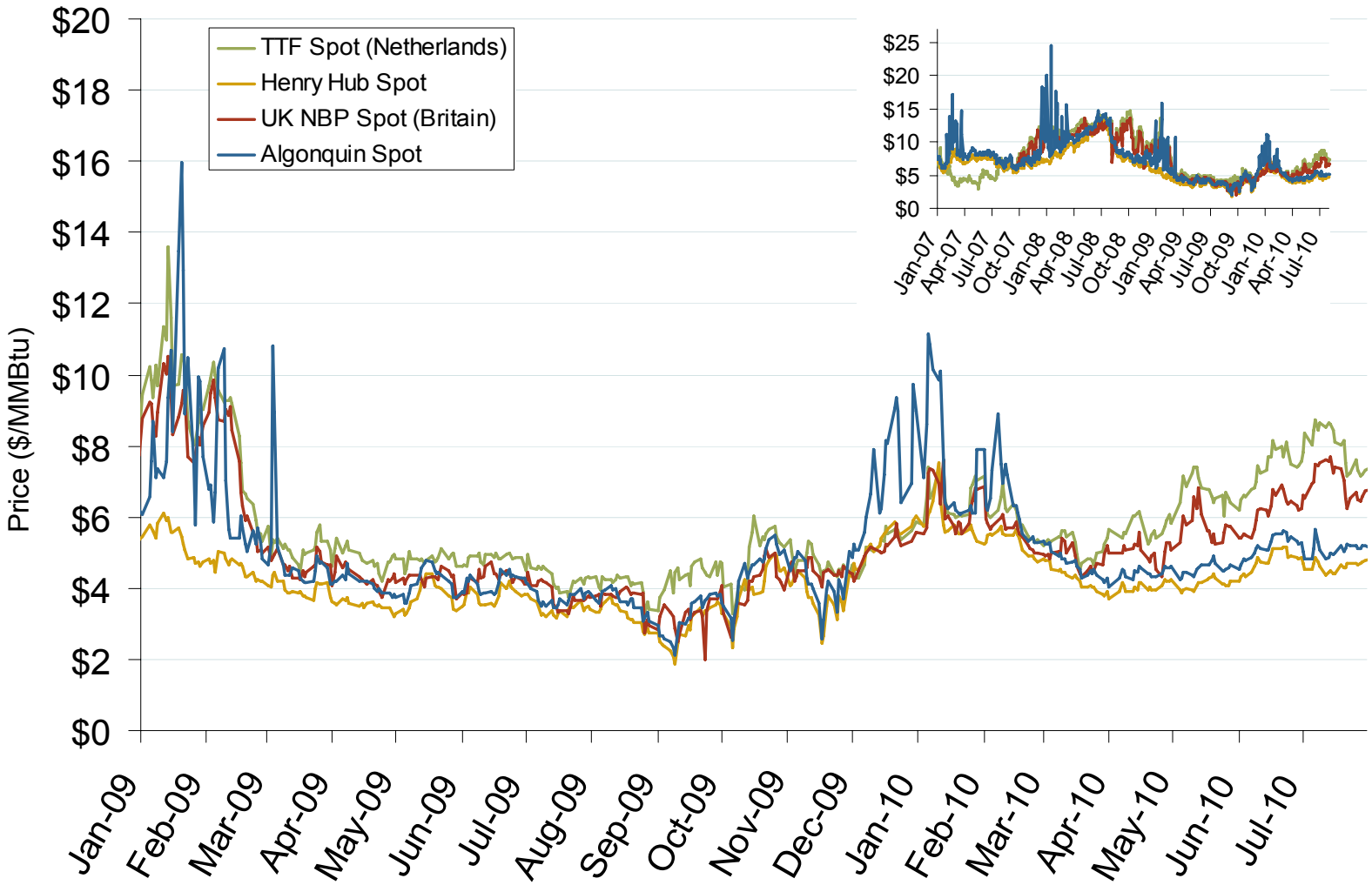


Source: Derived from EIA Weekly Storage Report and the 2009 Estimated Peak Underground Working Gas Storage Capacity.

Updated August 6, 2010 20022

August 2010 Northeast Snapshot Report

Atlantic Basin European and US Spot Natural Gas Prices



Source: Derived from *Bloomberg* and *ICE* data.

Updated August 6, 2010

World LNG Estimated August 2010 Landed Prices

Source: *Waterborne Energy, Inc.* Data in $US/MMBtu.

August 2010 Northeast Snapshot Report

Updated August 6, 2010

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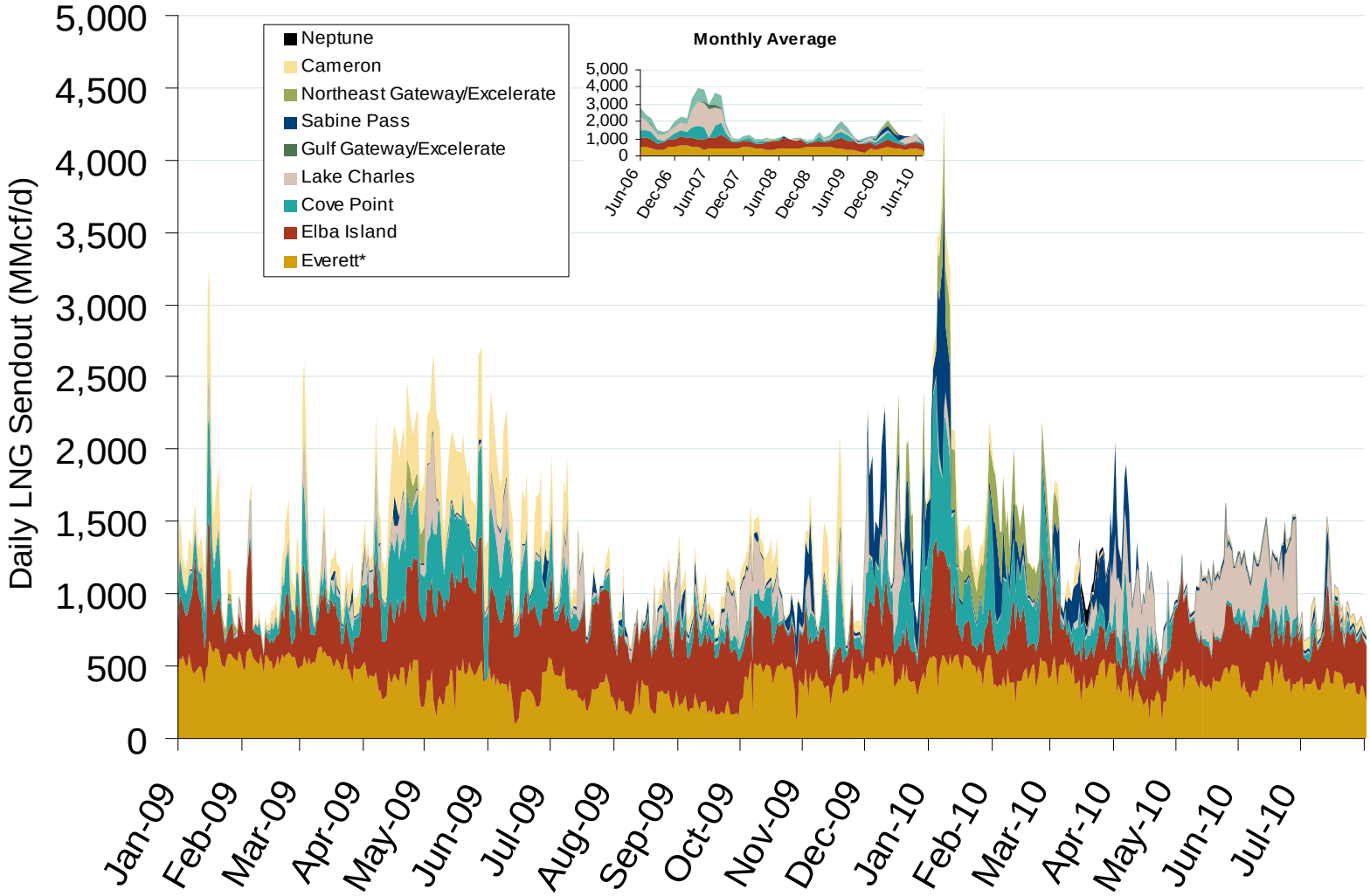
Daily Gas Sendout from Existing U.S. LNG Facilities

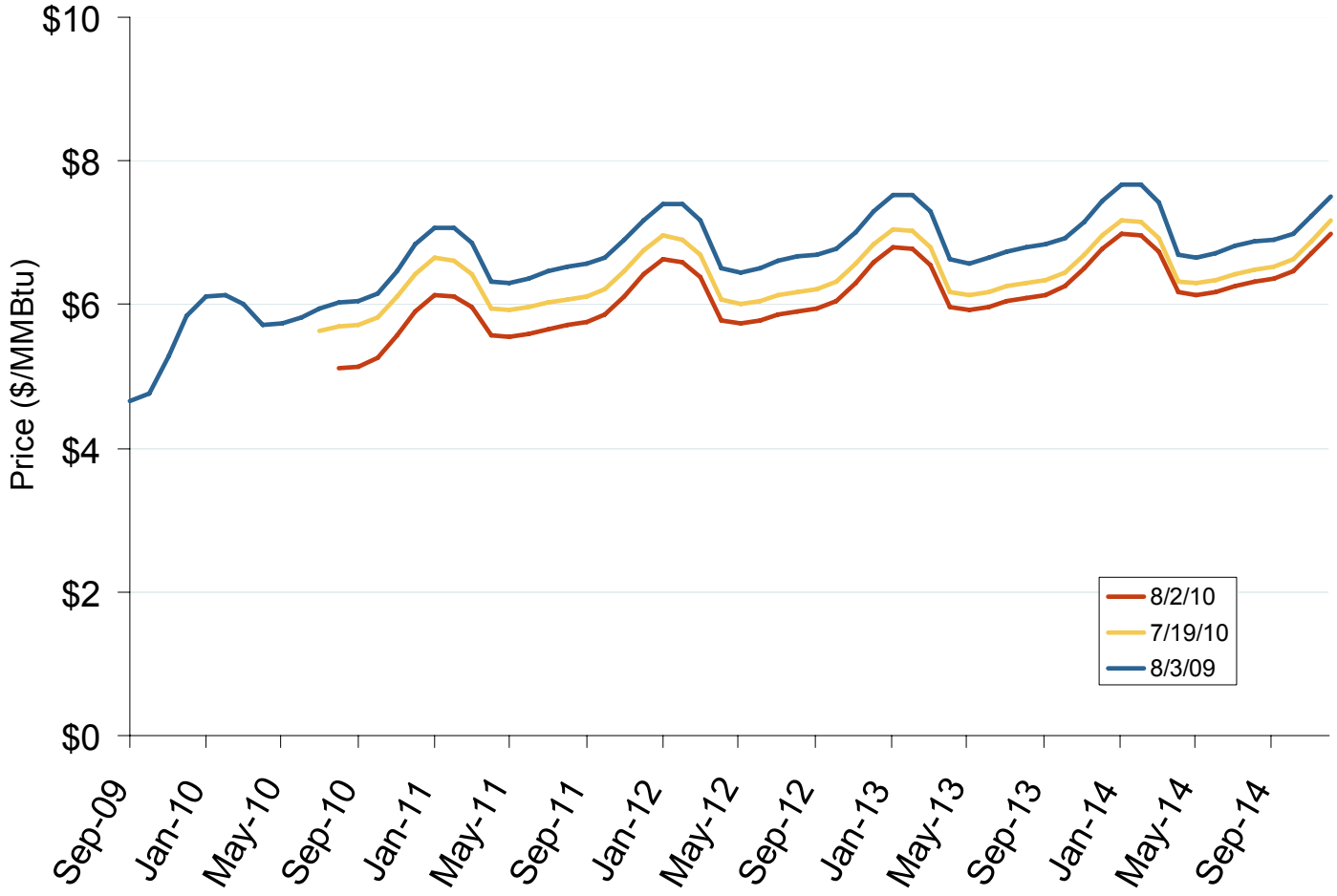


Source: Derived from *Bentek* data.

* Everett data includes flows onto the AGT and TGP interstate lines, plus estimates of flows to the Mystic 7 power plant, Keyspan Boston Gas, and LNG trucked out of the terminal. Excludes Freeport LNG which flows via intrastate pipelines.

Updated August 6, 2010

NYMEX Natural Gas Forward Price Curve



The NYMEX futures contract trades in 10,000 million Btu units. The blue series shows the forward price curve for these contracts 1-year ago. The red and yellow curves show prices for contracts traded on the current and previous months.

Source: Derived from *NYMEX* data.

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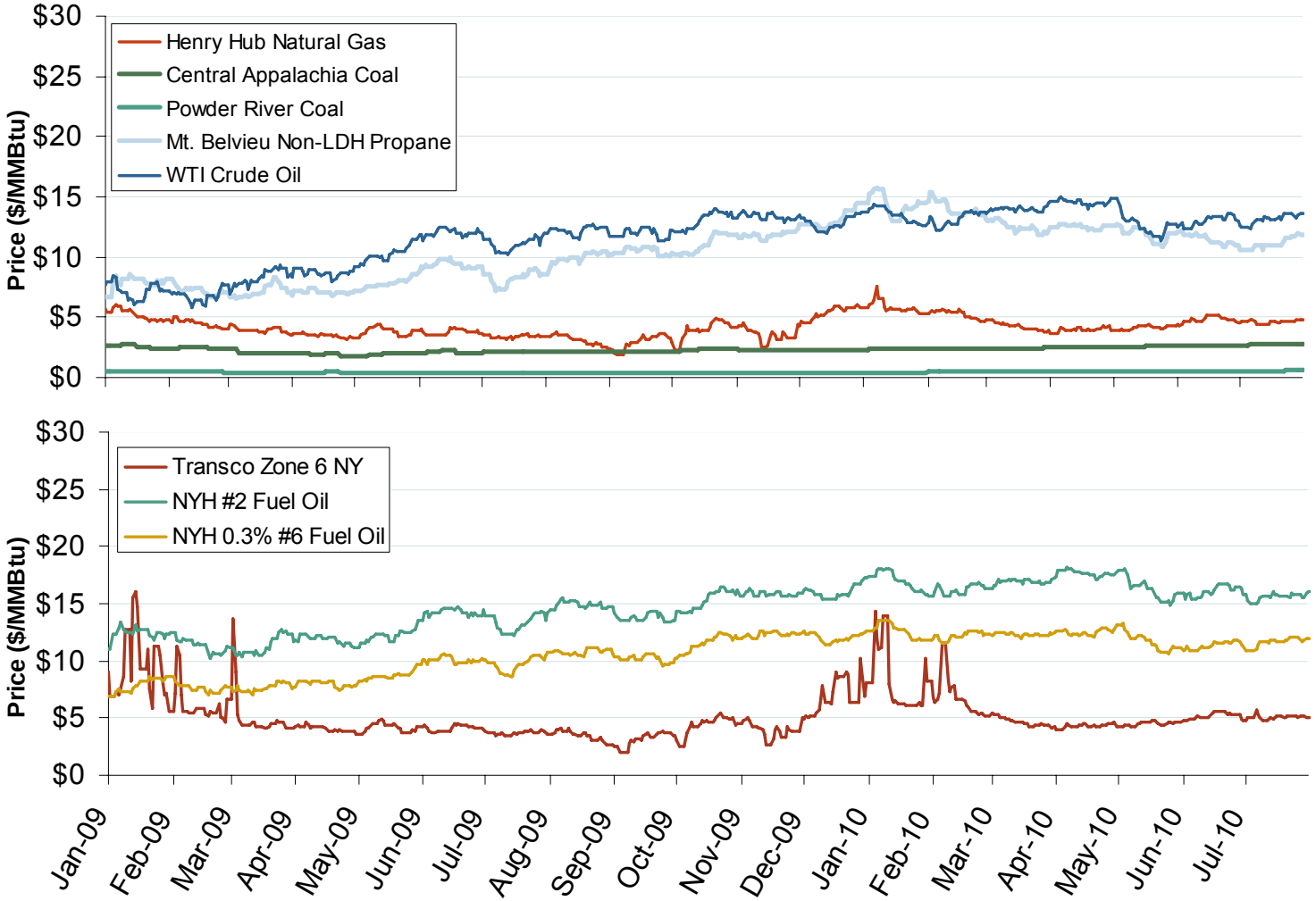
Oil, Coal, Natural Gas and Propane Daily Spot Prices



Source: Derived from *ICE* and *Bloomberg* data.

Note: Coal prices are quoted in $/ton. Conversion factors to $/MMBtu are based on contract specifications of 12,000 btus/pound for Central Appalachian coal and 8800 btus/pound for Powder River Basin coal.

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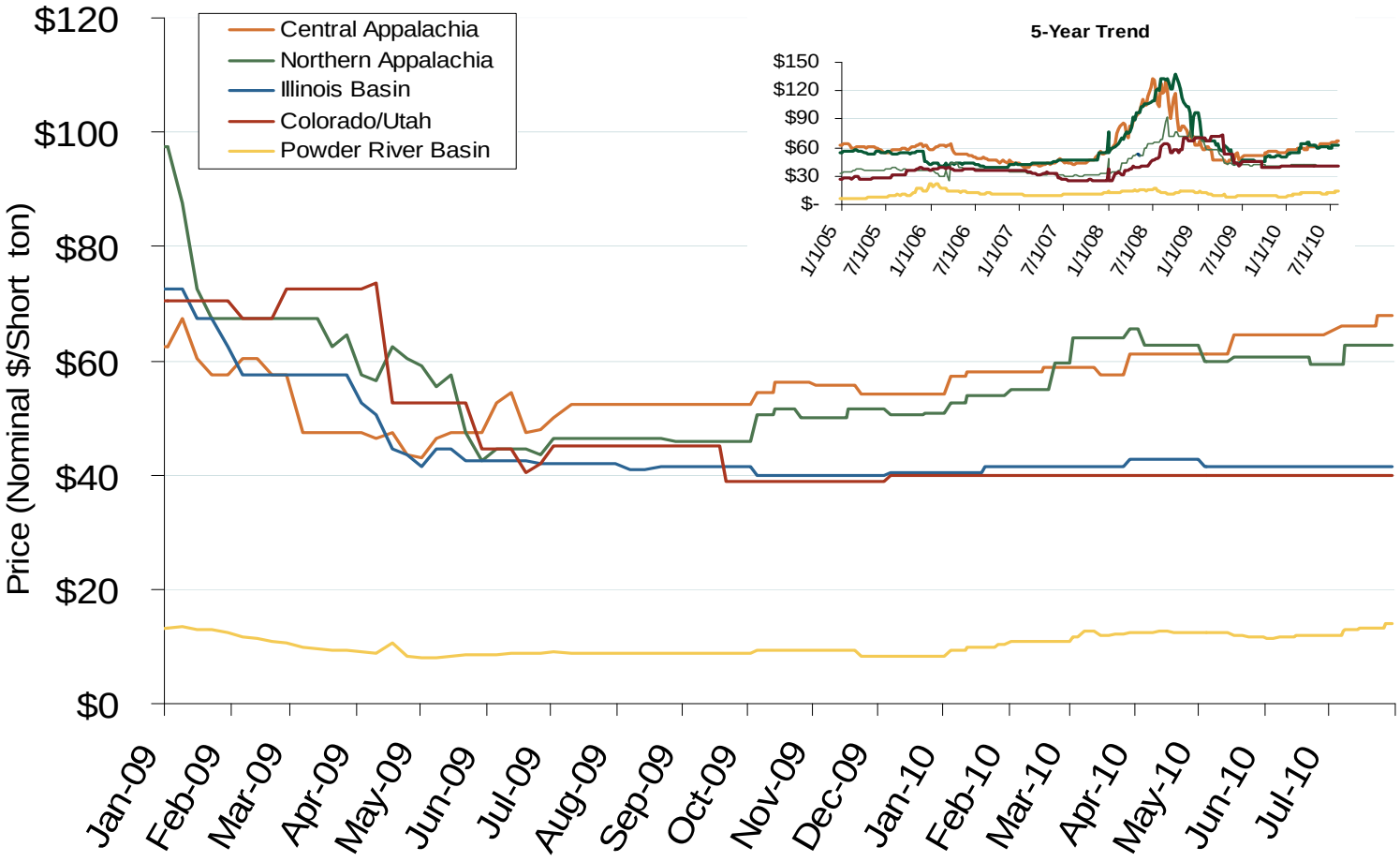
Regional Coal Spot Prices



Note: the Central Appalachian (CAPP) coal is priced at Big Sandy. All others are mine mouth prices. Prices do not include transportation costs to a plant, as those can vary widely by contract specifications. Prices exclude incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.

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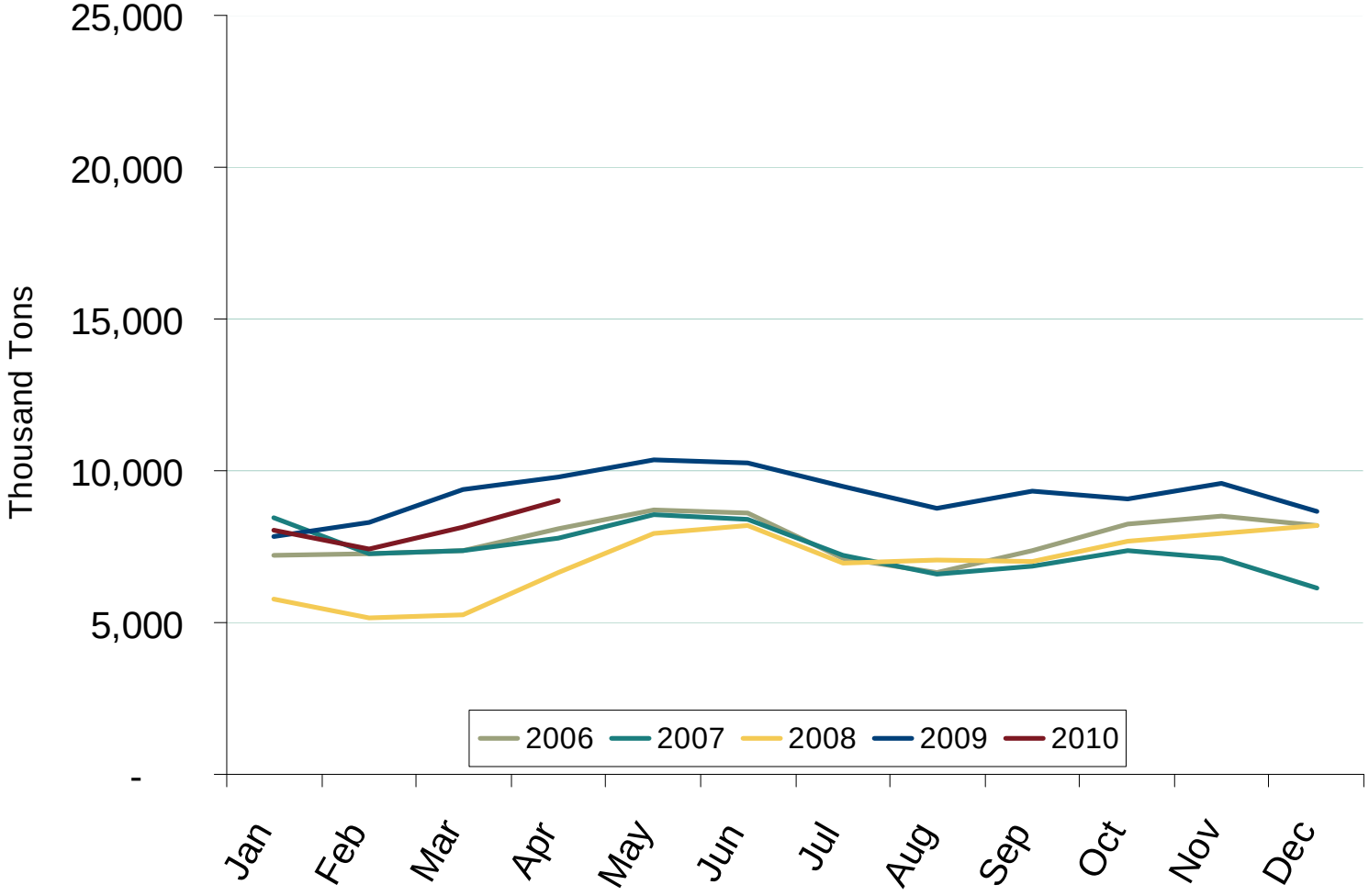
Northeast Coal Stockpiles at Electric Power Generating Facilities



Source: Energy Information Administration. Excludes Industrial and Commercial Plants.

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