OE ENERGY MARKET SNAPSHOT

Northeast States Version – March 2011 Data

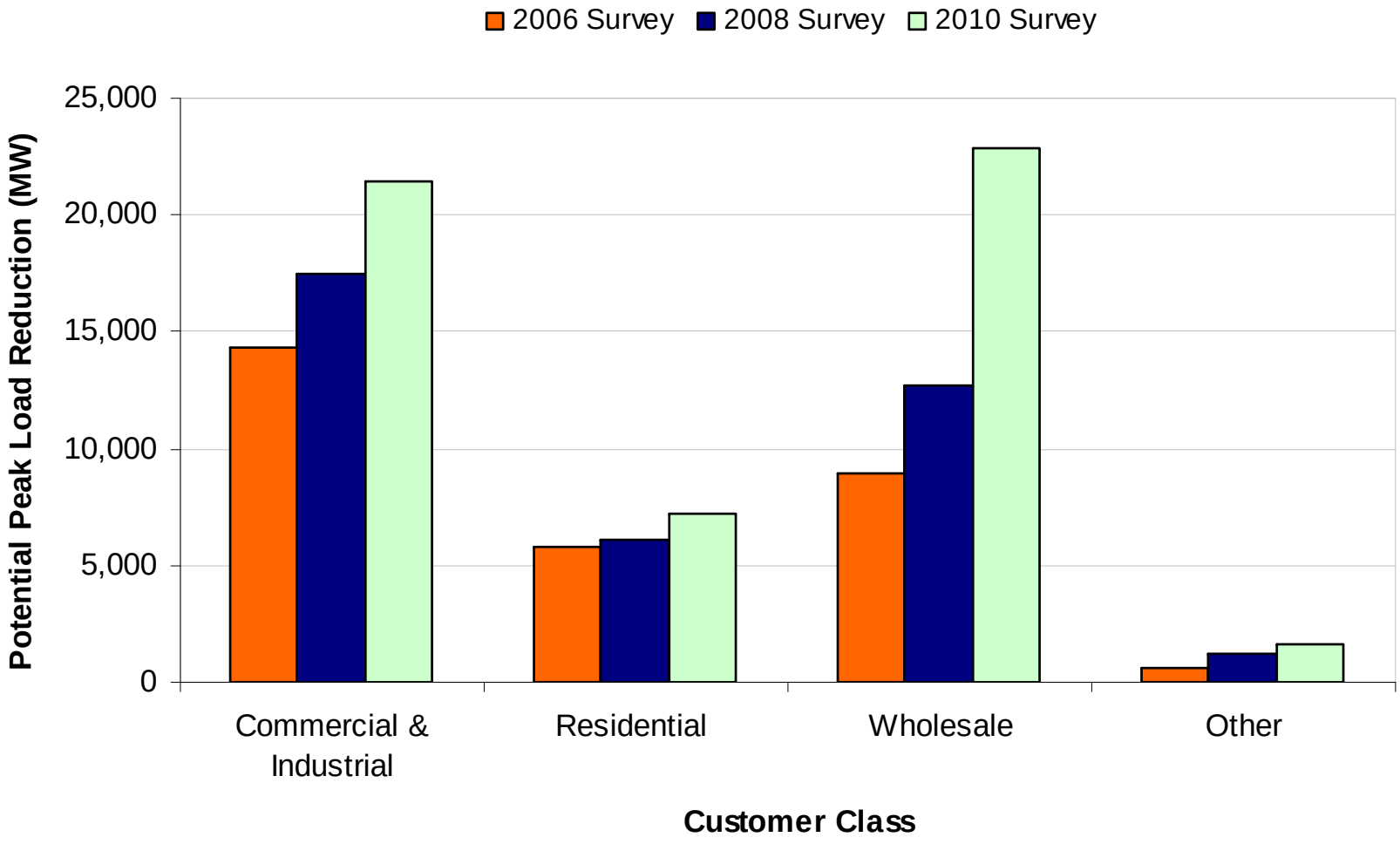
- **Special Report**
- **Weather**
- **Natural Gas and Fuel Markets**
- **Electricity Markets**

Office of Enforcement
Federal Energy Regulatory Commission
April 2011

Special Report:

- **Demand Response and Advanced Metering**

Reported Potential Peak Load Reduction

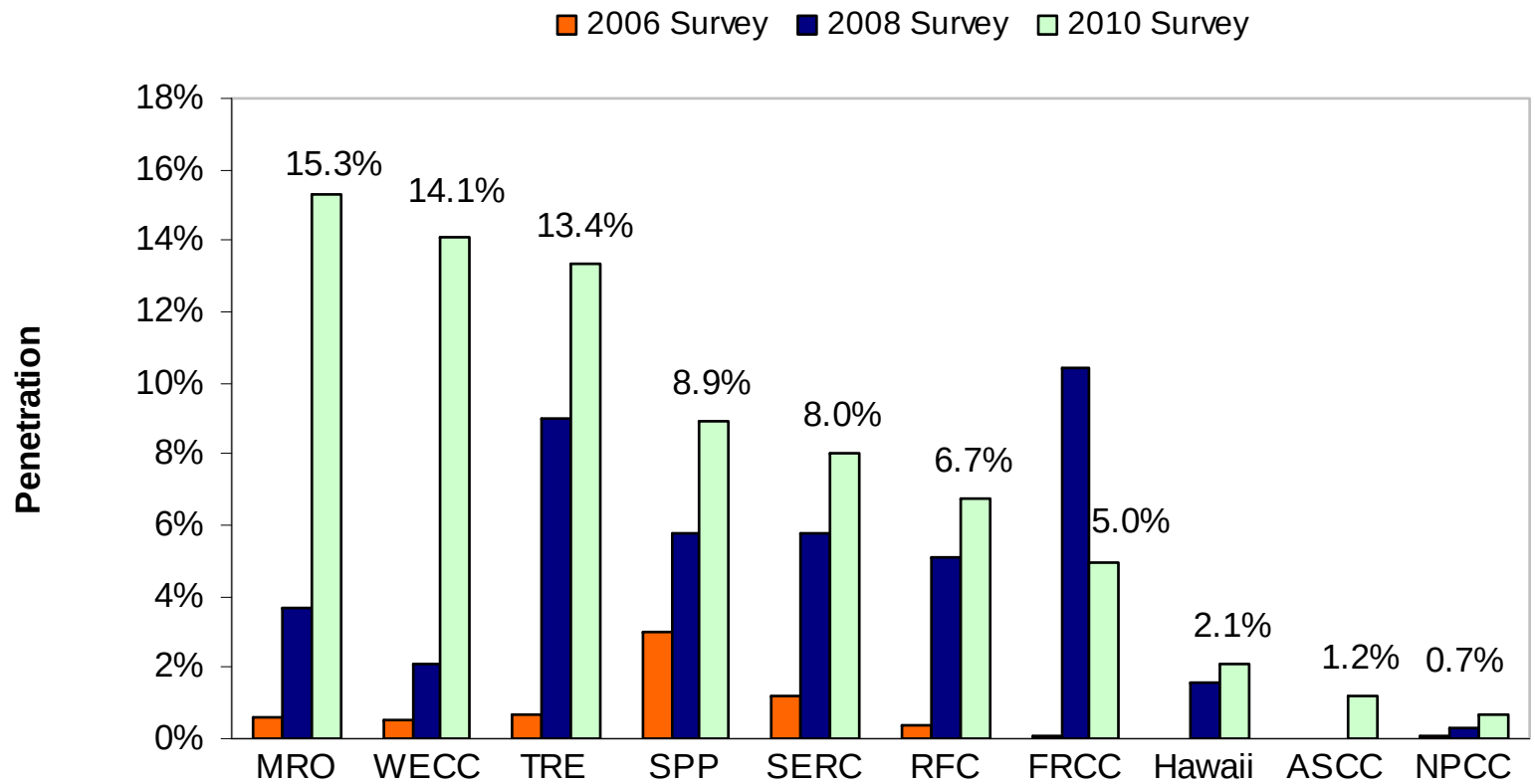


Full report at http://www.ferc.gov/legal/staff-reports/2010-dr-report.pdf

Source: FERC Assessment of Demand Response and Advanced Metering (February 2011)

Updated April 6, 2011

Estimated Advanced Metering Penetration



	MRO	WECC	TRE	SPP	SERC	RFC	FRCC	Hawaii	ASCC	NPCC
2006 Survey	0.6%	0.5%	0.7%	3.0%	1.2%	0.4%	0.1%	0.0%	0.0%	0.1%
2008 Survey	3.7%	2.1%	9.0%	5.8%	5.8%	5.1%	10.4%	1.6%	0.0%	0.3%
2010 Survey	15.3%	14.1%	13.4%	8.9%	8.0%	6.7%	5.0%	2.1%	1.2%	0.7%

Region

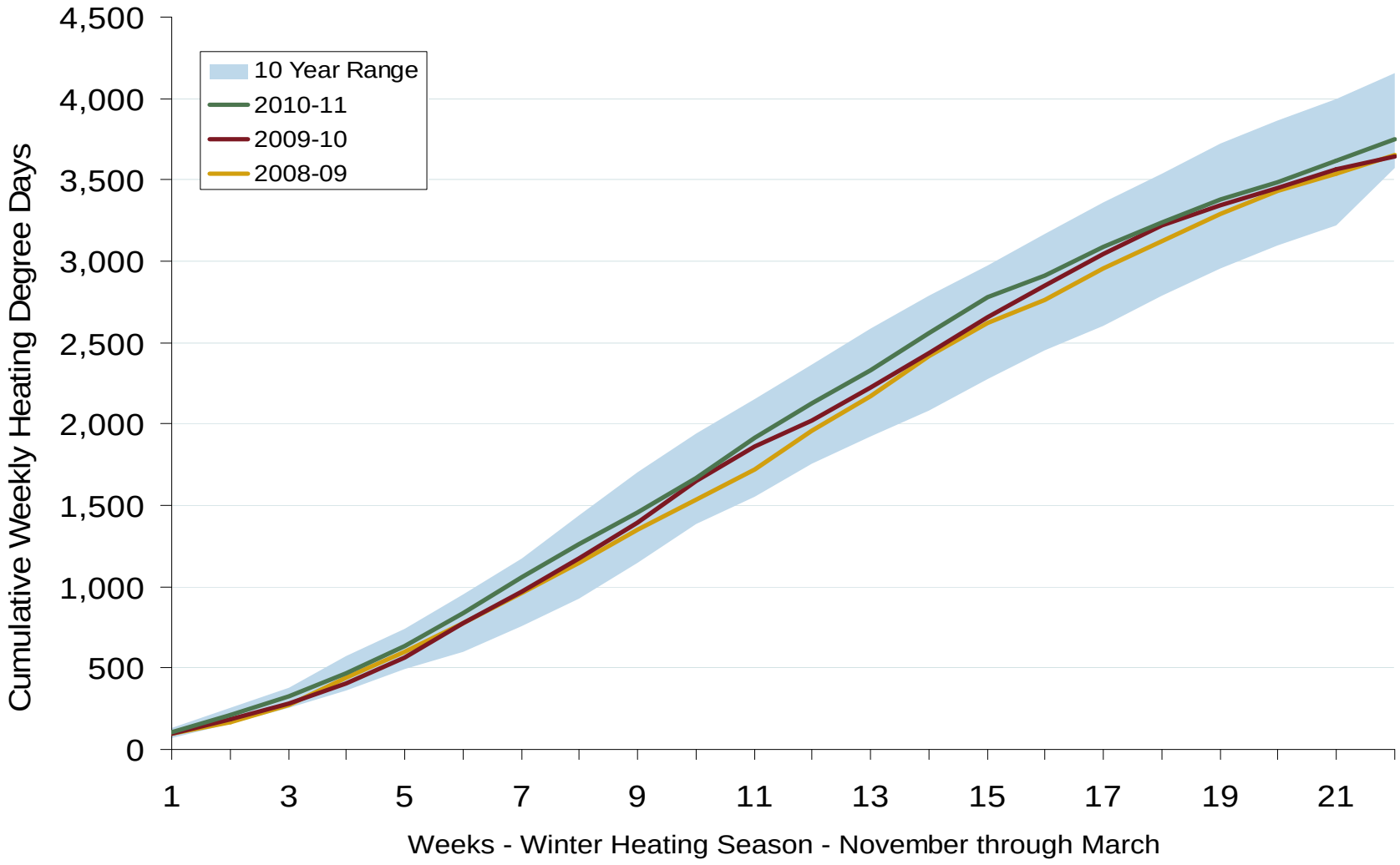
Full report at http://www.ferc.gov/legal/staff-reports/2010-dr-report.pdf

Source: FERC Assessment of Demand Response and Advanced Metering (February 2011)

Updated April 6, 2011

Weather

U. S. Winter Cumulative Heating Degree Days

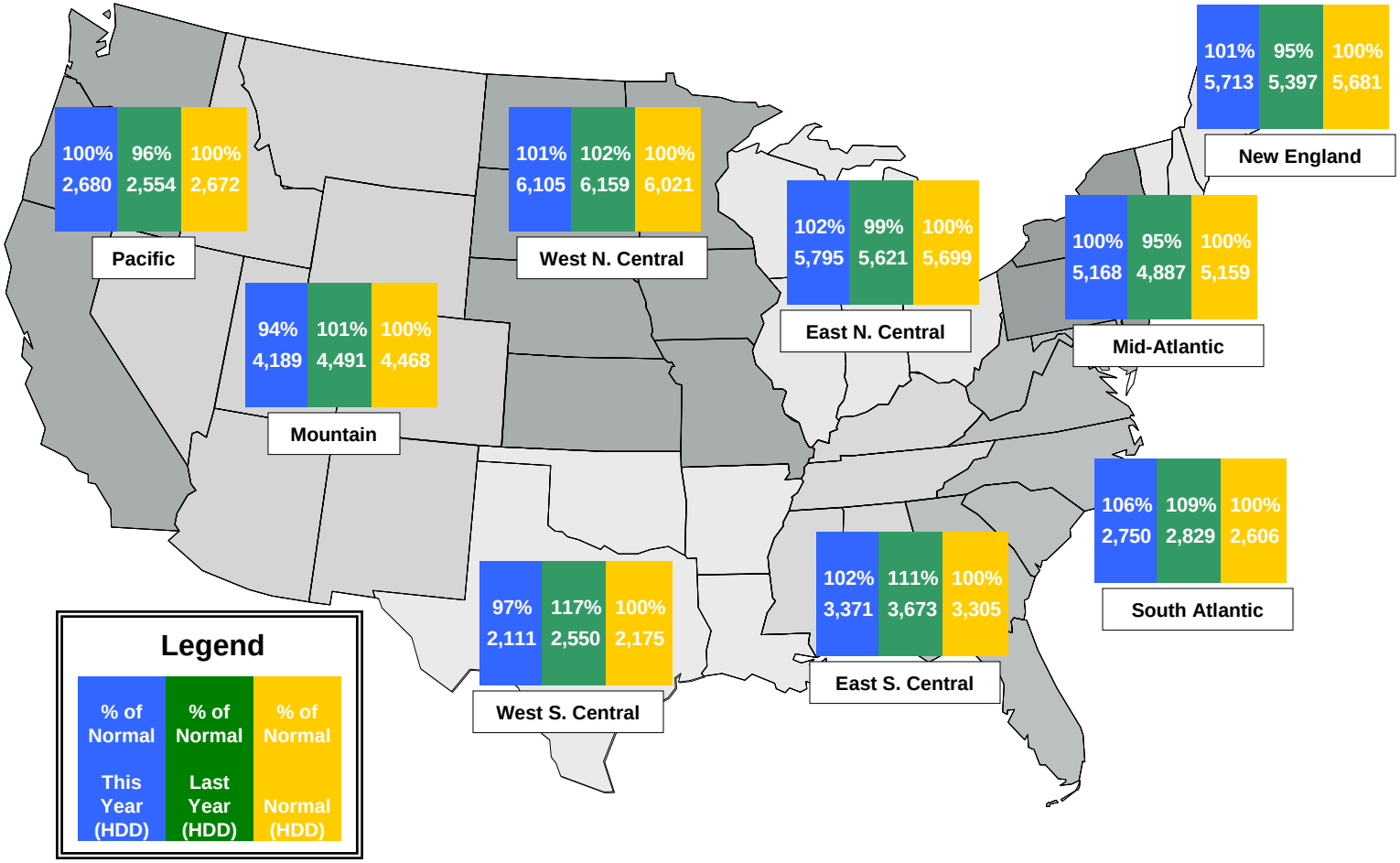


Source: Derived from *NOAA* data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

Regional Heating Degree Days
July 2010 Through March 2011



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

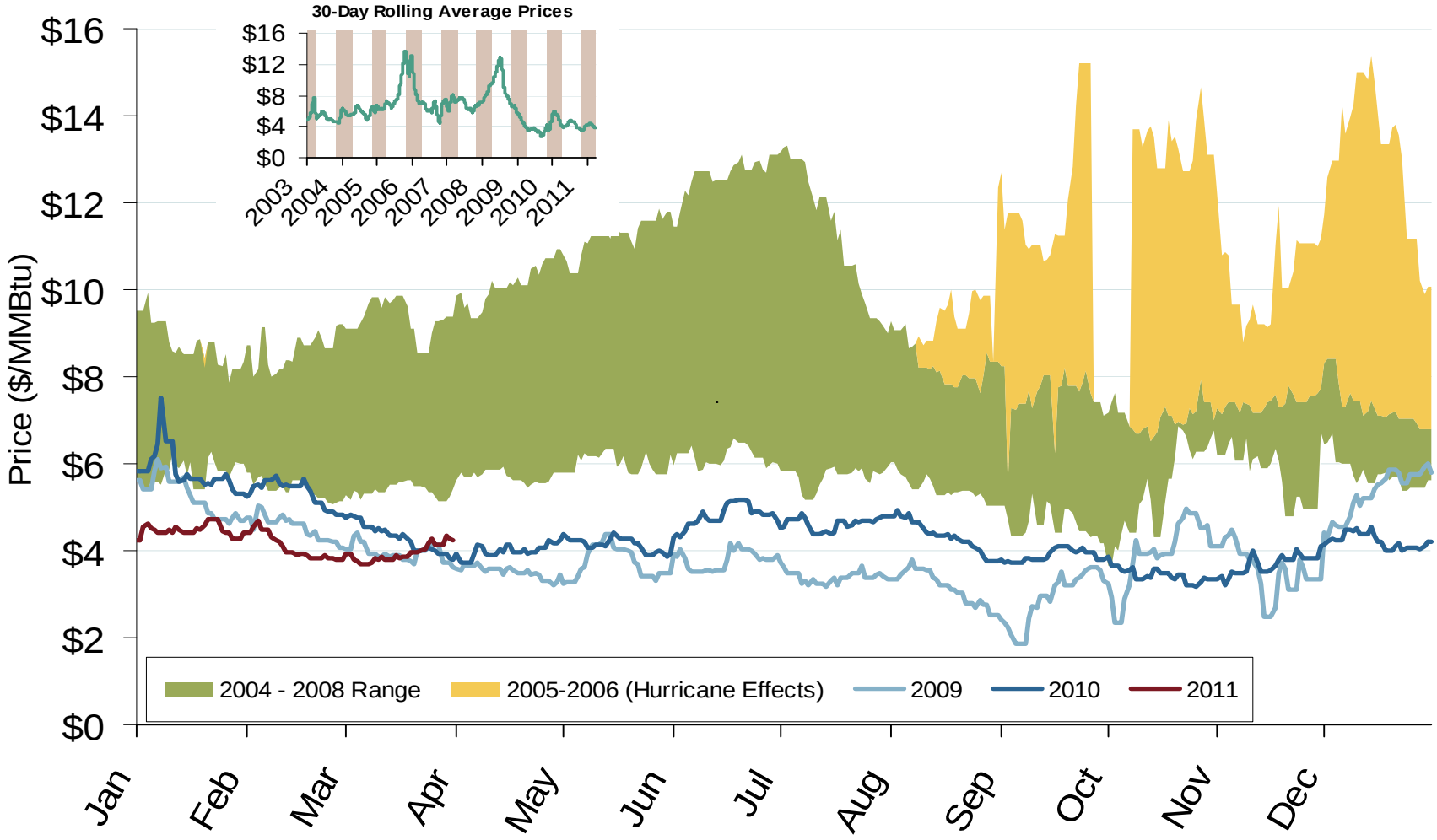
Updated April 8, 2011

Natural Gas and Fuel Markets

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

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

Henry Hub Natural Gas Daily Spot Prices

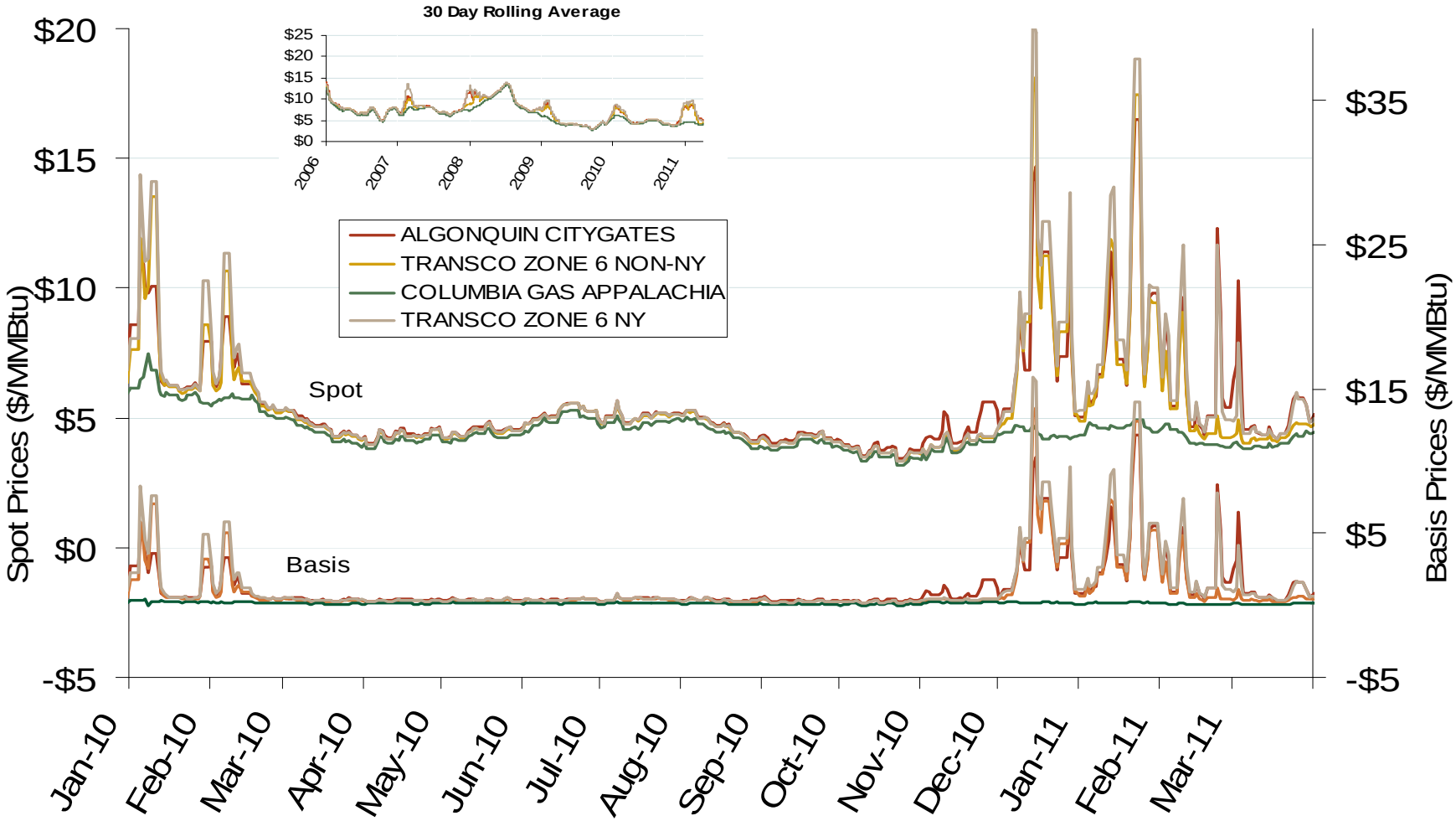


Source: Derived from *Platts* data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

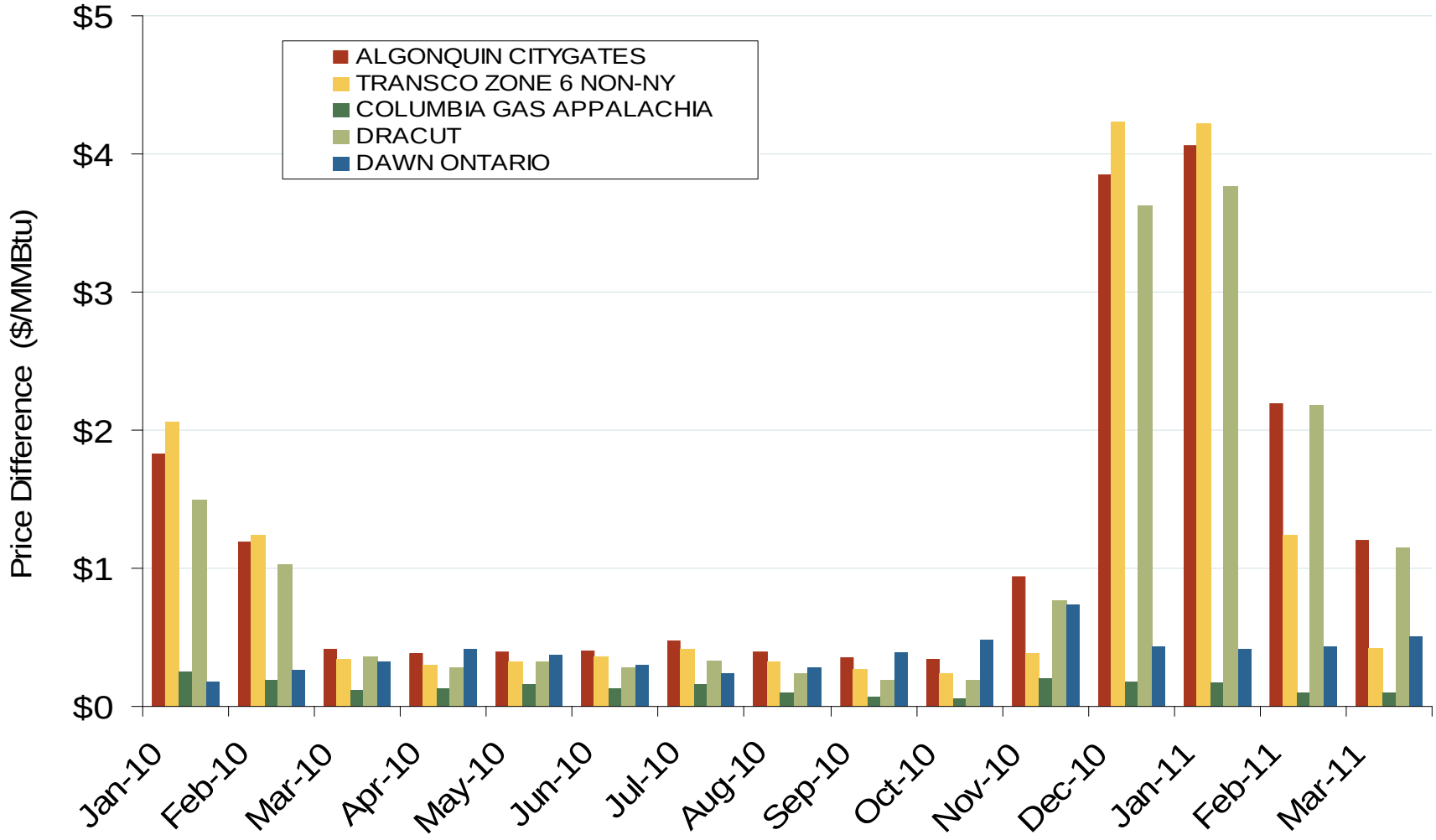
Northeastern Spot Prices and Basis



Source: Derived from *Platts* data.

Updated April 8, 2011

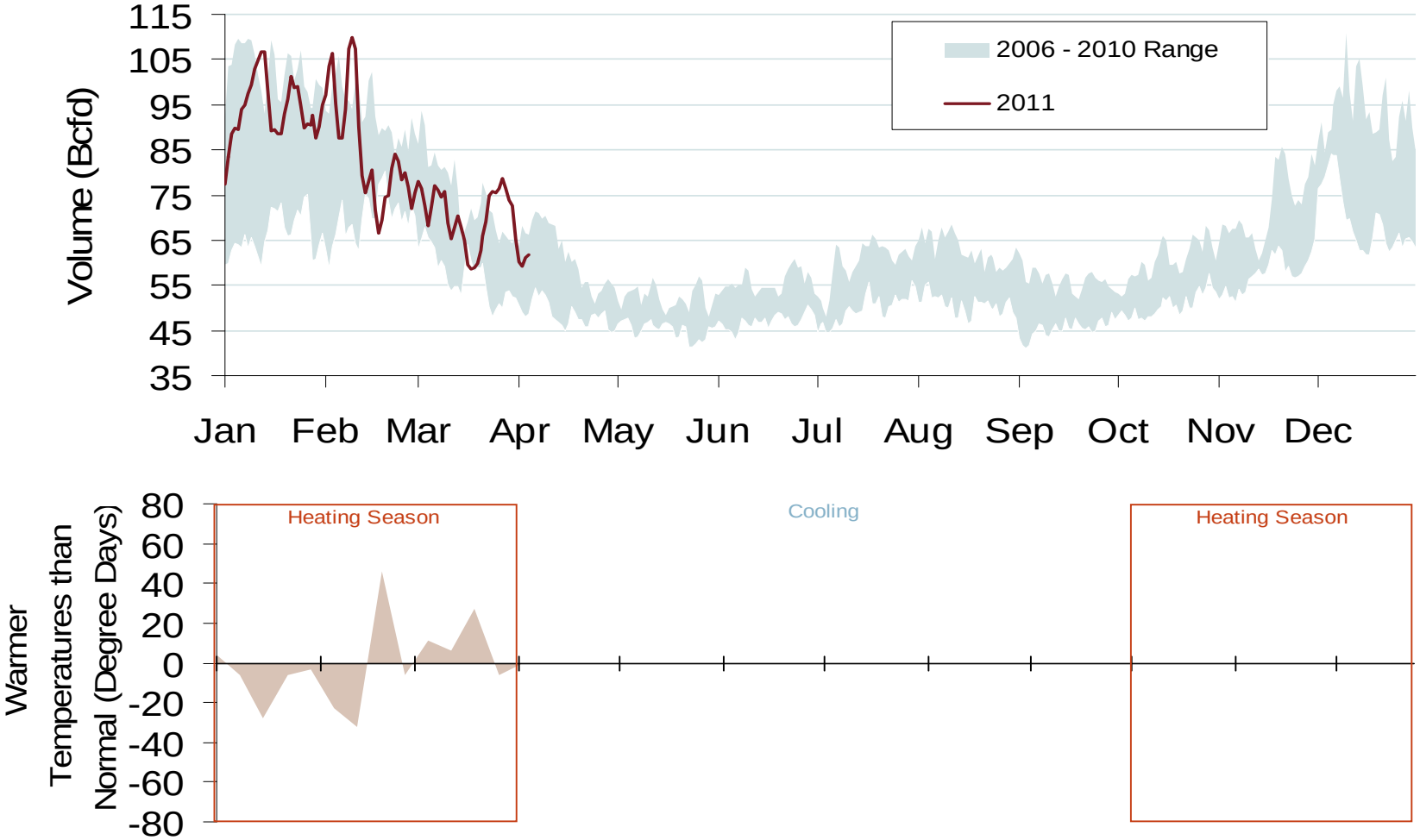
Northeastern Monthly Average Basis Value to Henry Hub



Source: Derived from *Platts* data.

Updated April 8, 2011

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

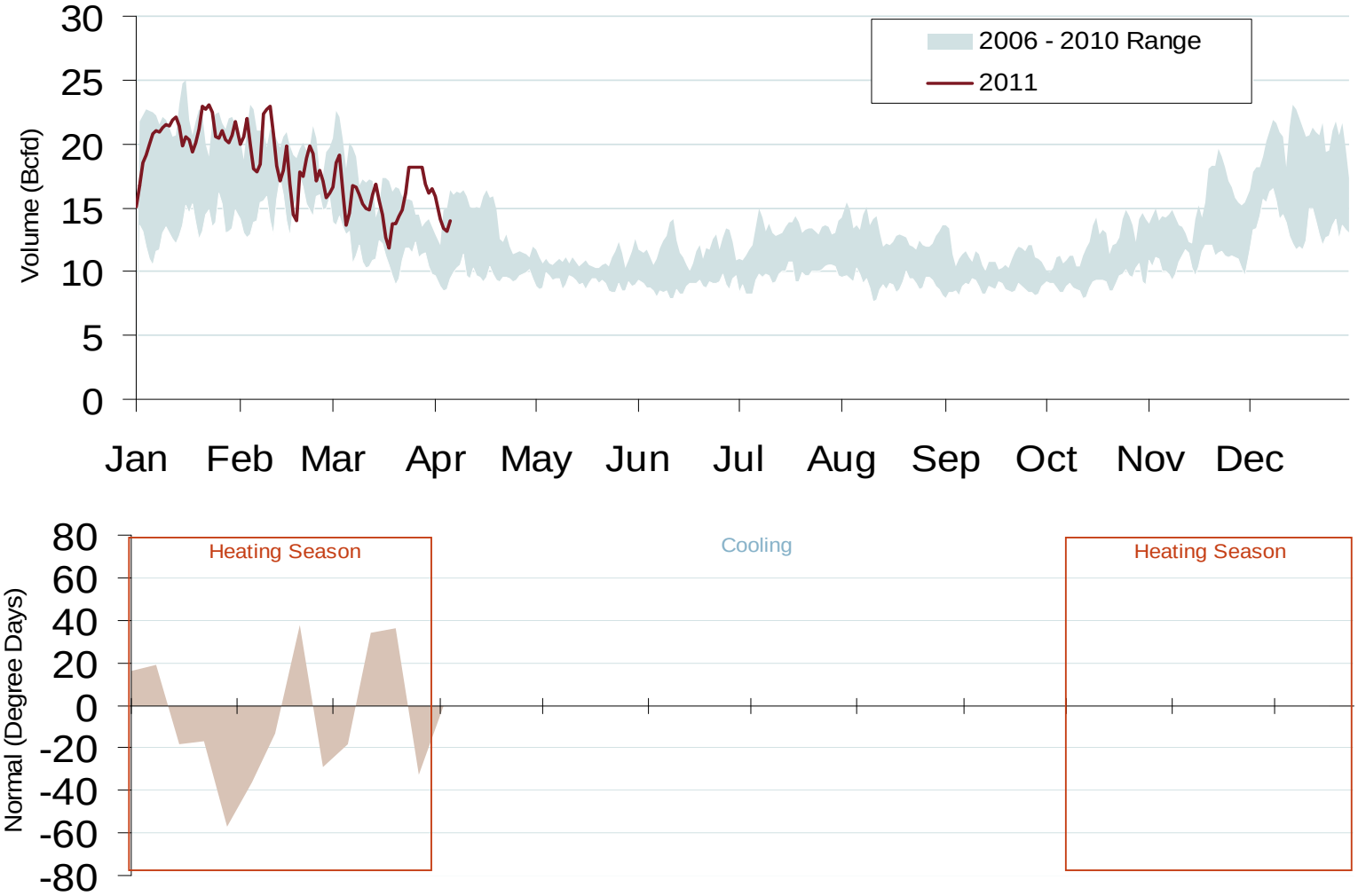


Source: Derived from *Bentek Energy* and *Weekly NOAA* data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

Daily Northeast Natural Gas Demand All Sectors

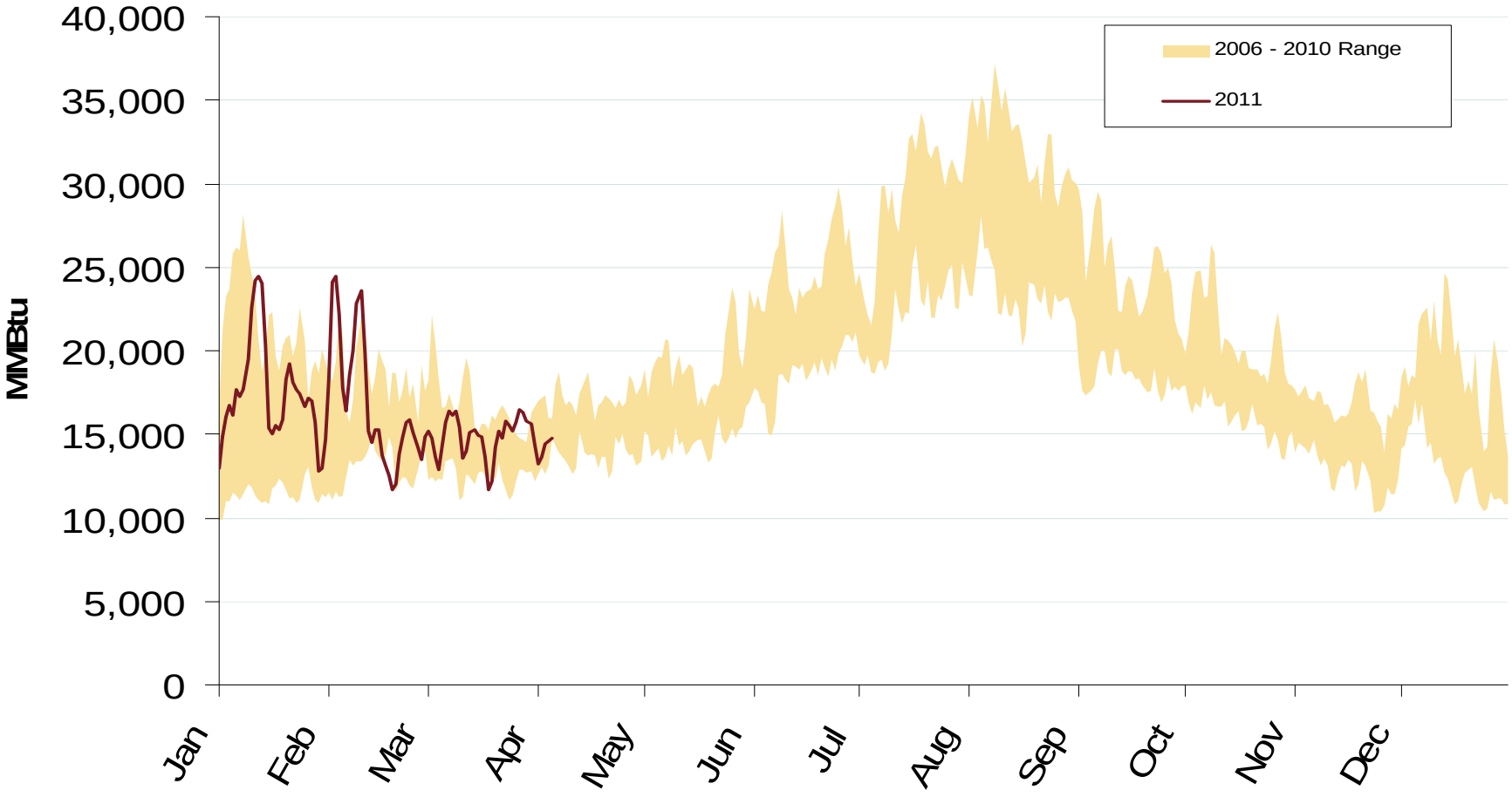


Source: Derived from *Bentek Energy* and *Weekly NOAA* data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

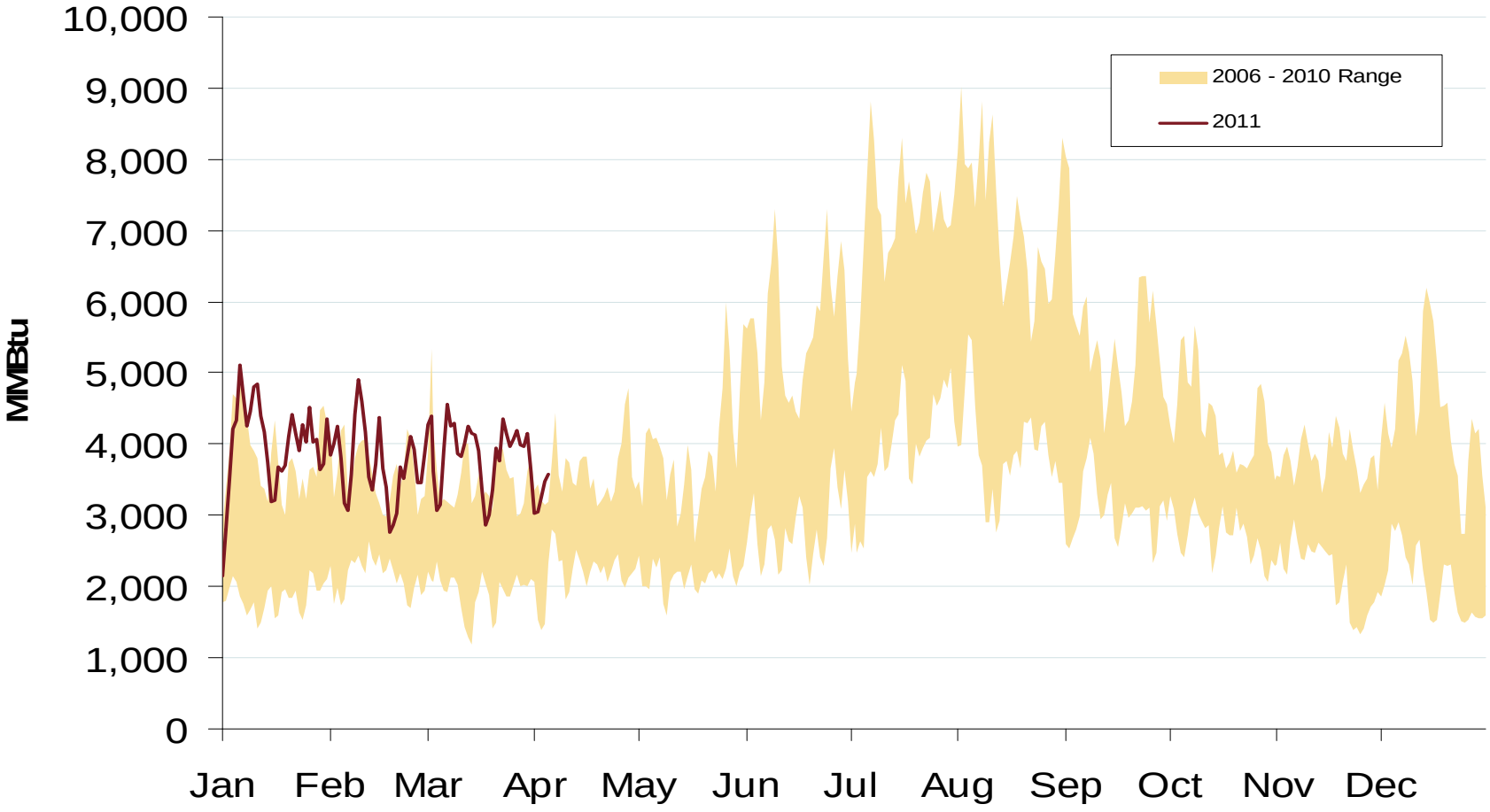
U.S. Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data.

Updated April 8, 2011

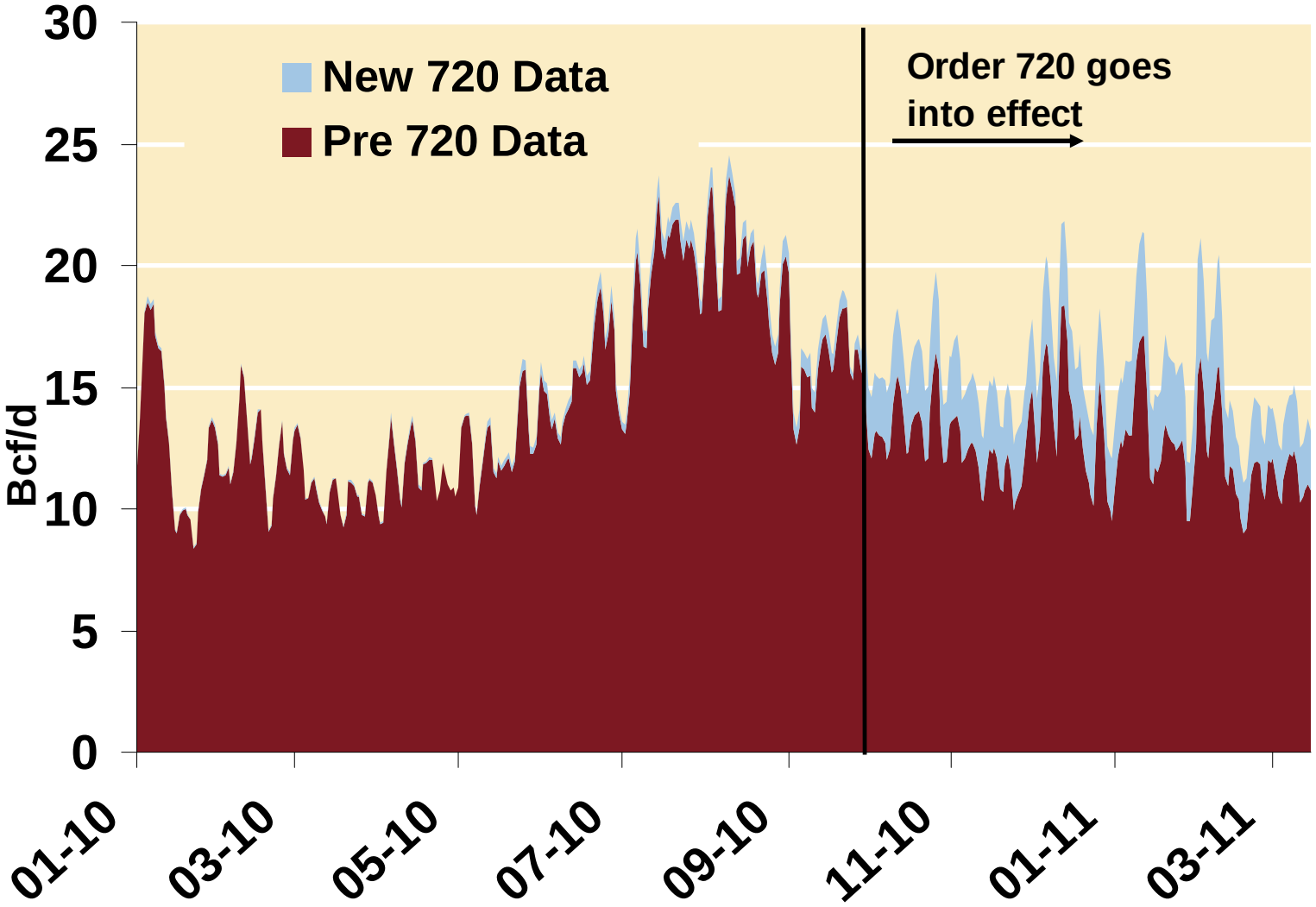
Northeast Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data.

Updated April 8, 2011

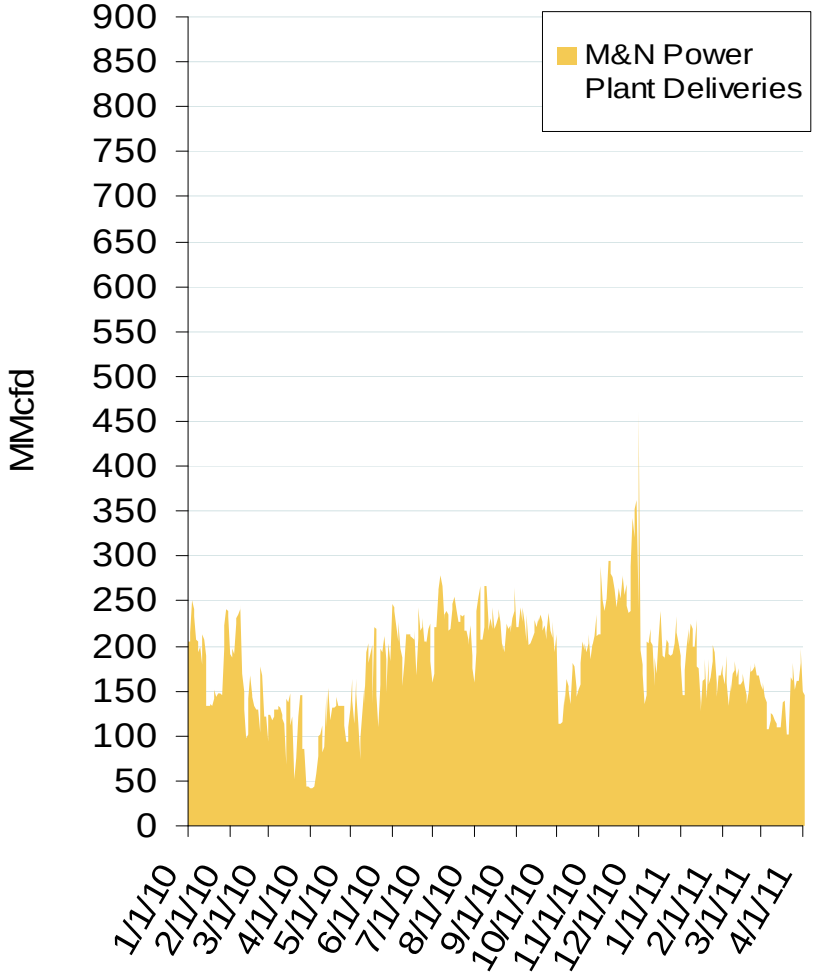
Order 720 Data on Gas Demand by Power Generators

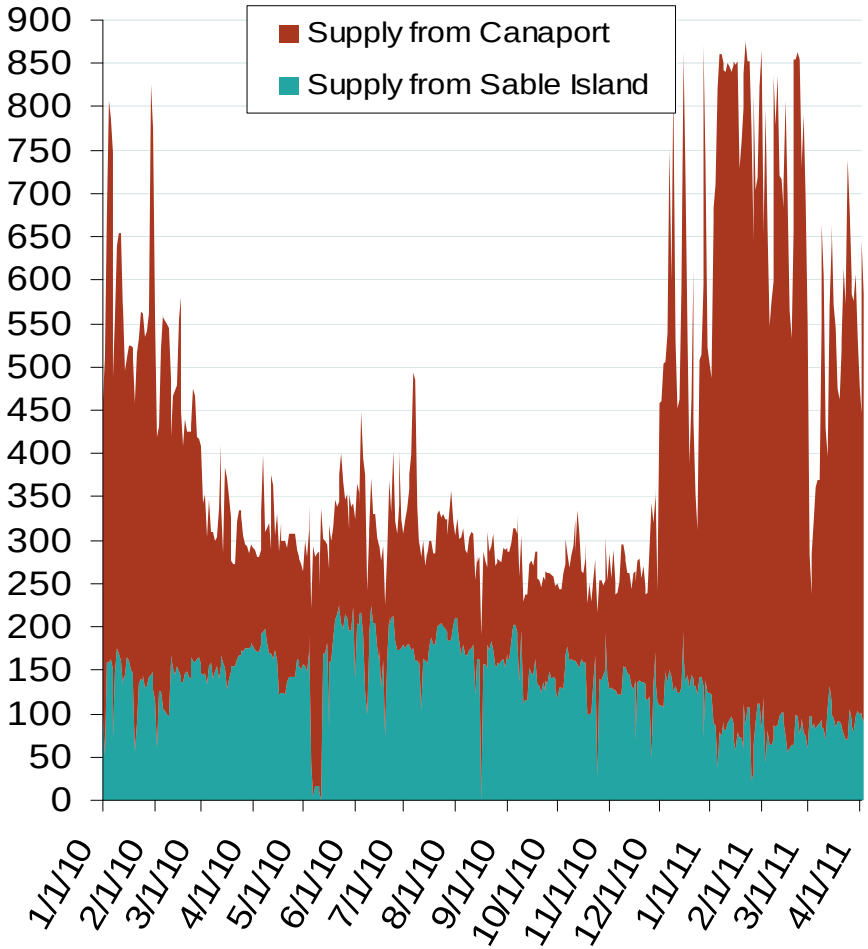


Source: Derived from Bentek Energy data.

Updated March 18, 2011

Maritimes Pipeline Flows

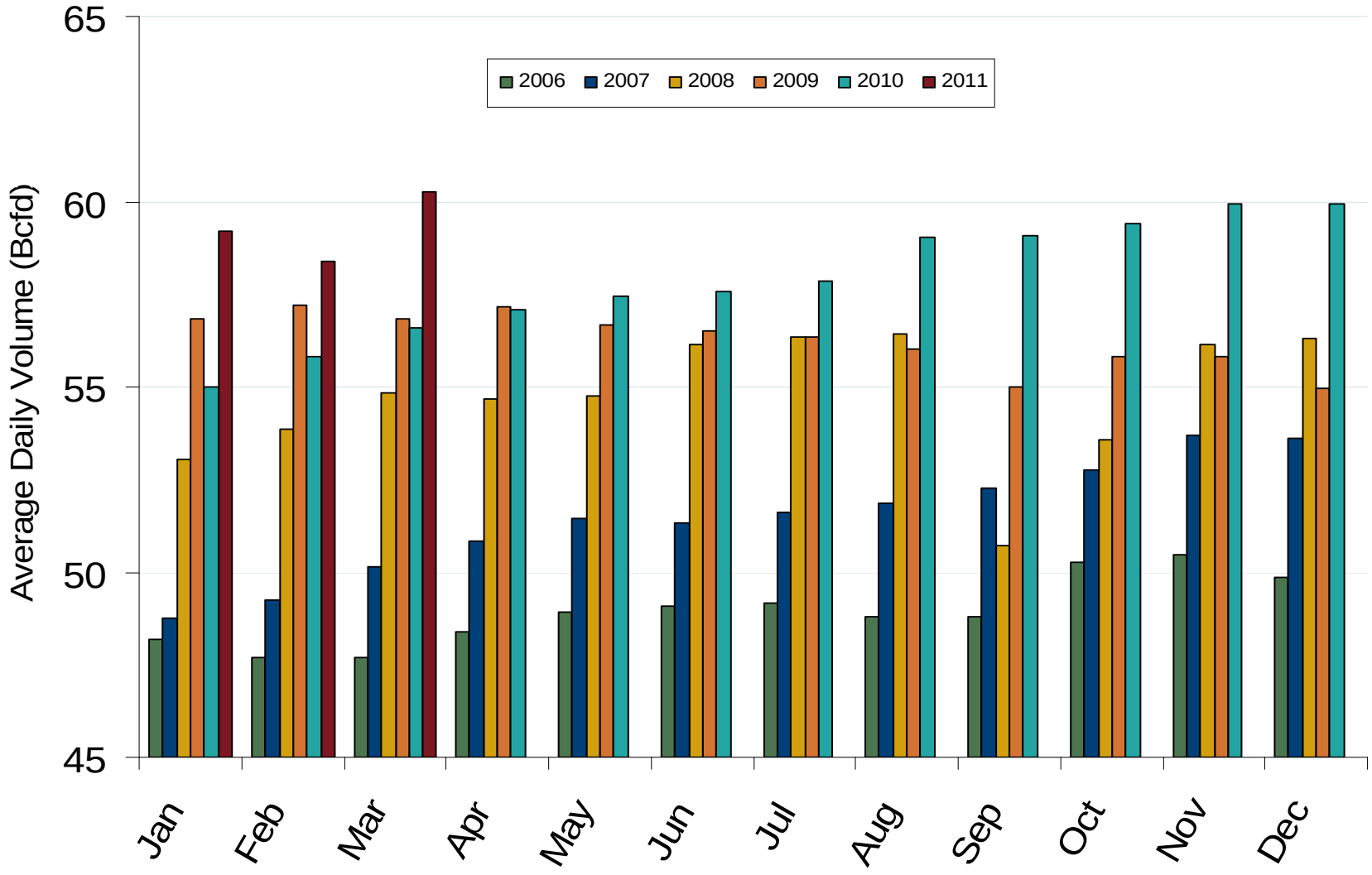




Source: Derived from *Bentek* data.

Updated April 8, 2011

U.S. Dry Gas Production

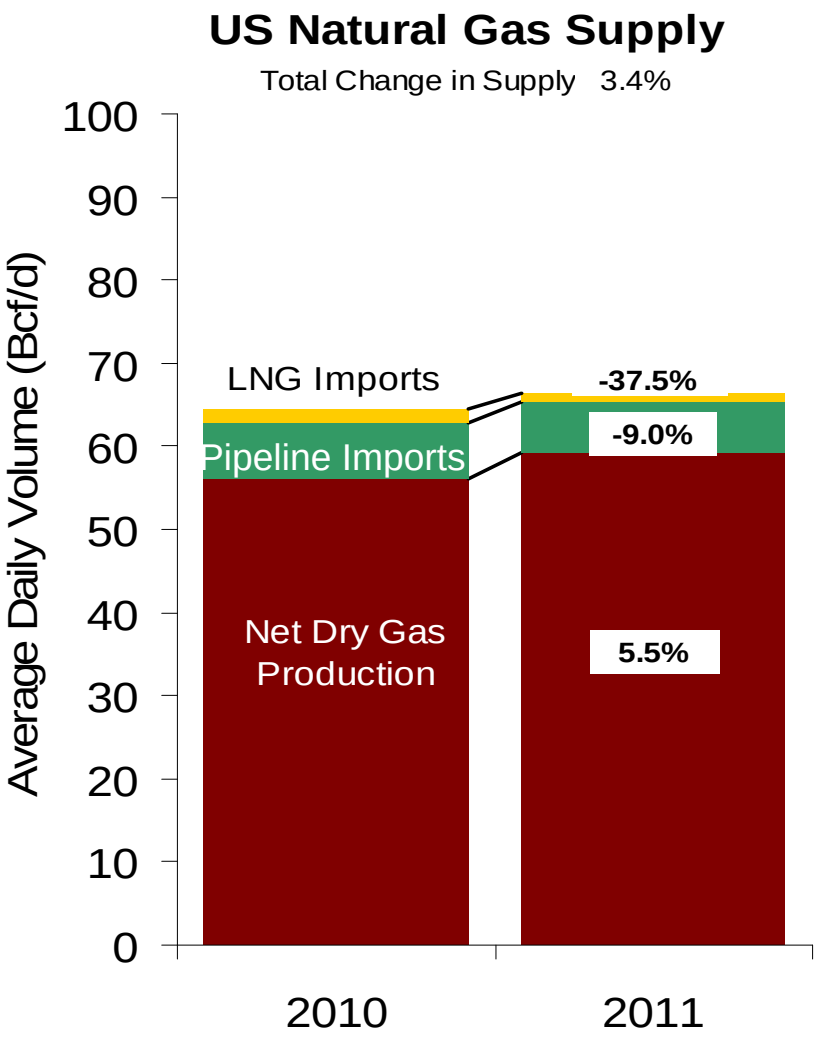


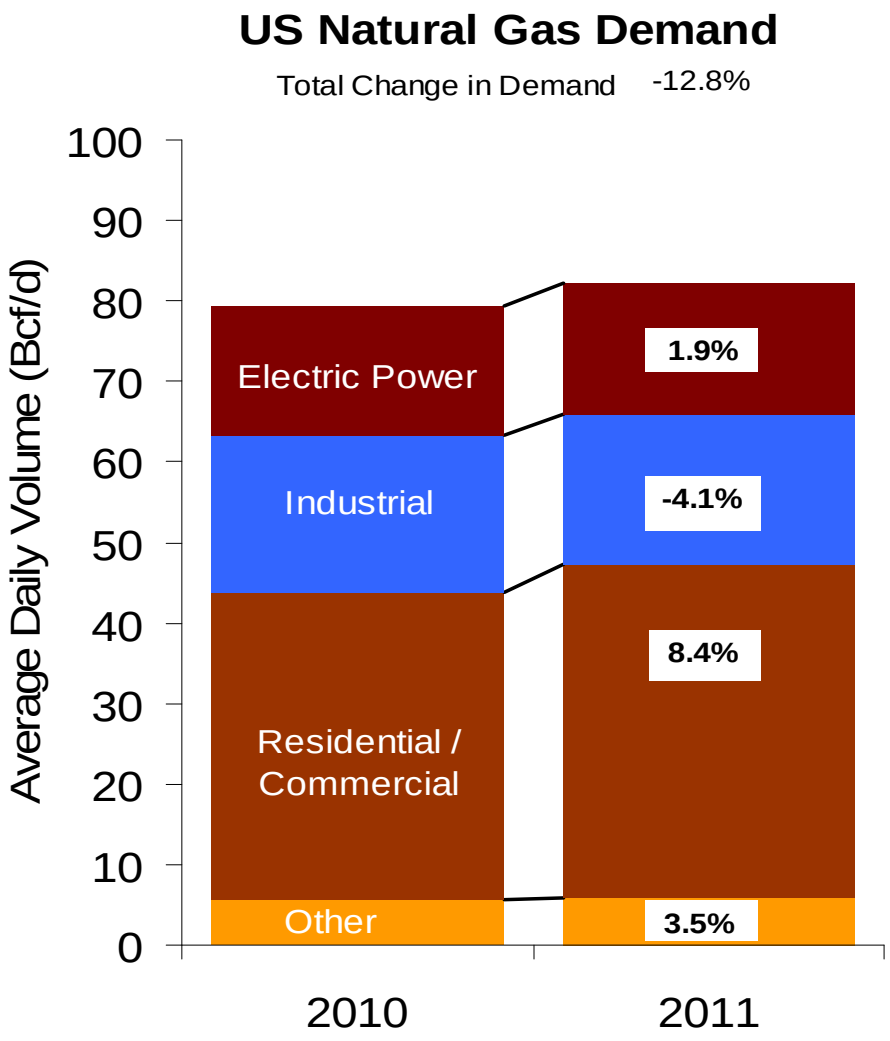
Source: Derived from *EIA and Bentek data.*

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

U.S. Natural Gas Supply and Demand 2010 vs. 2011: January - March

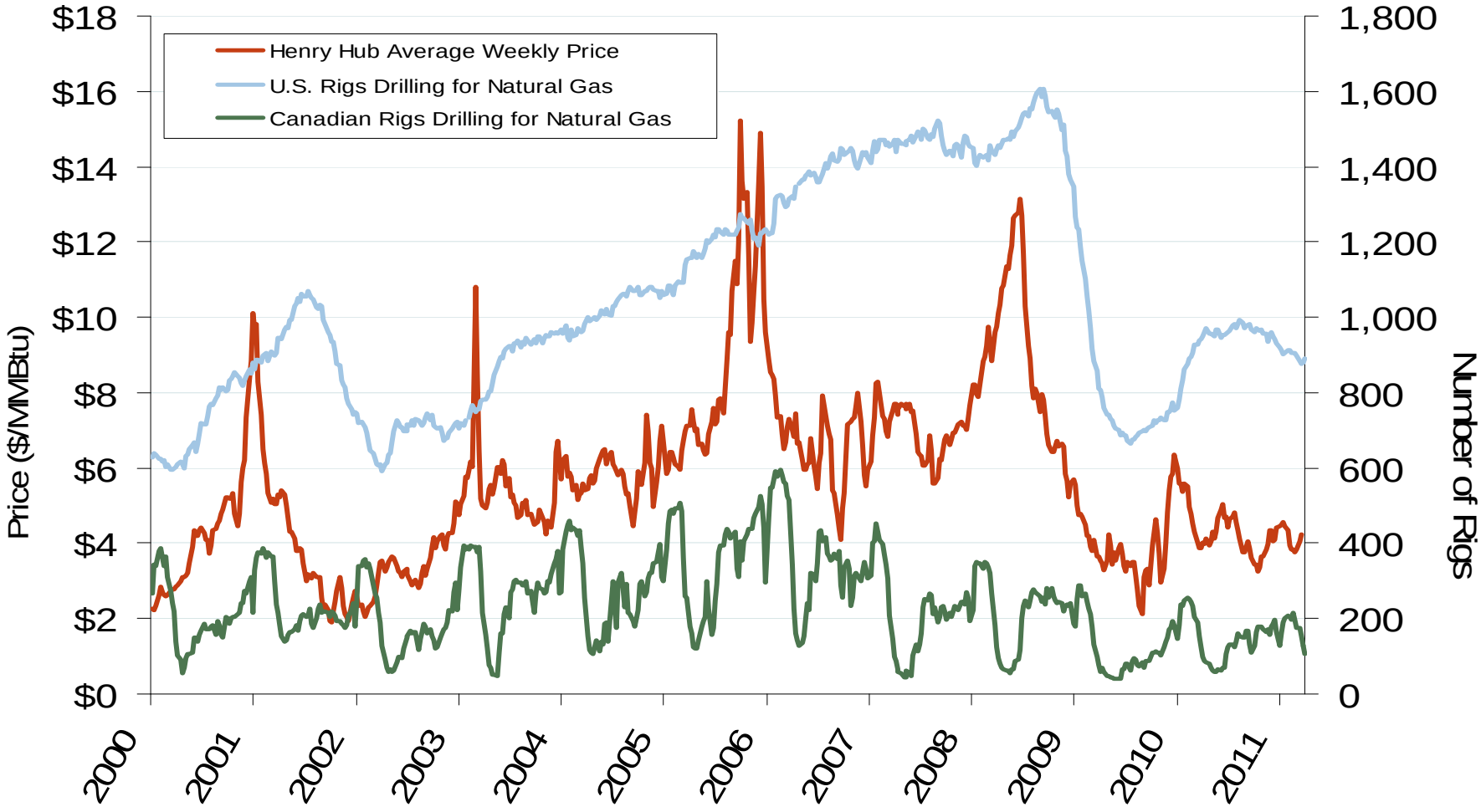




Source: Derived from *Bentek* data.

Updated April 8, 2011

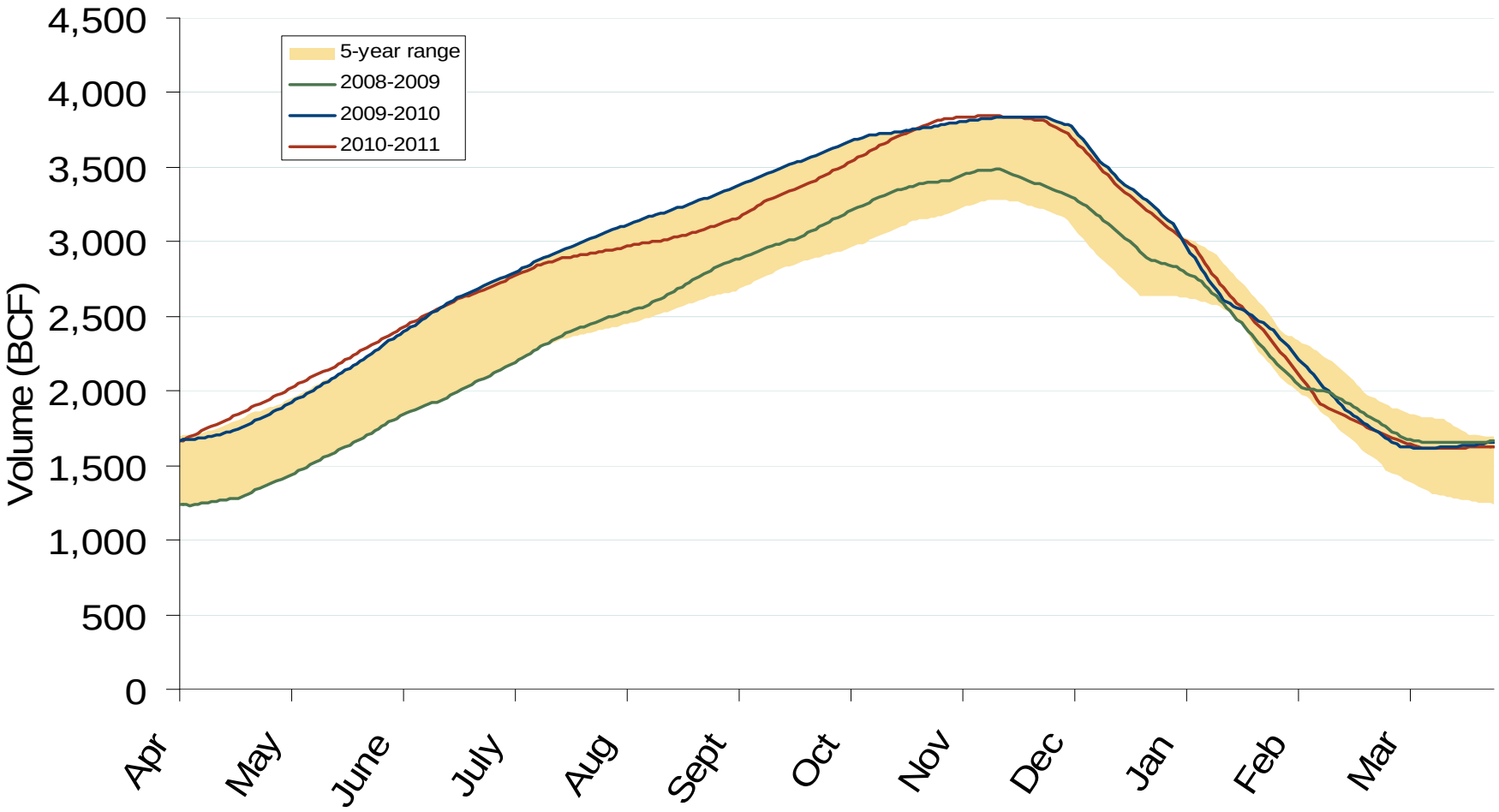
U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices



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

Updated April 8, 2011

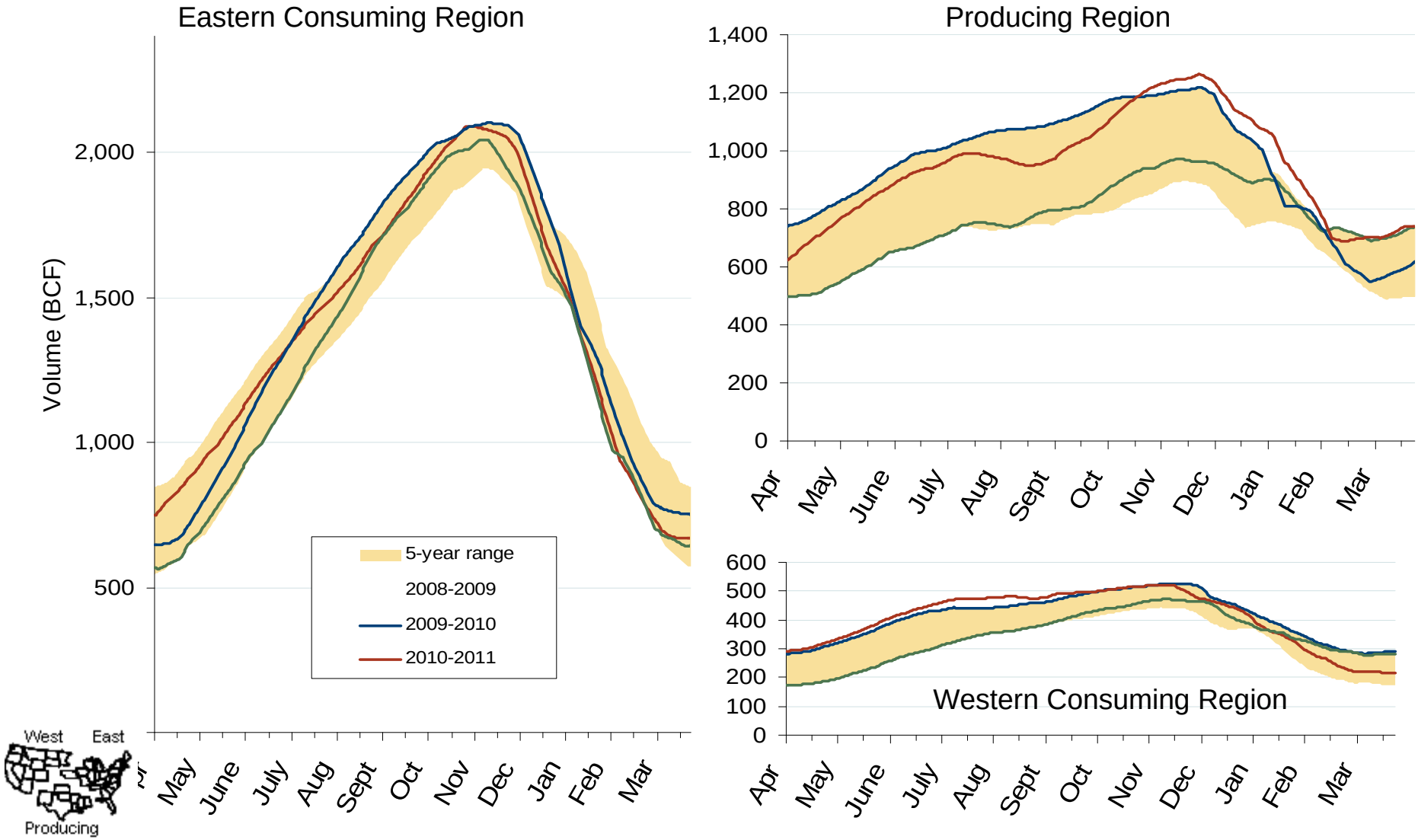
Total U.S. Working Gas in Storage



Source: Derived from *EIA* data.

Updated April 8, 2011

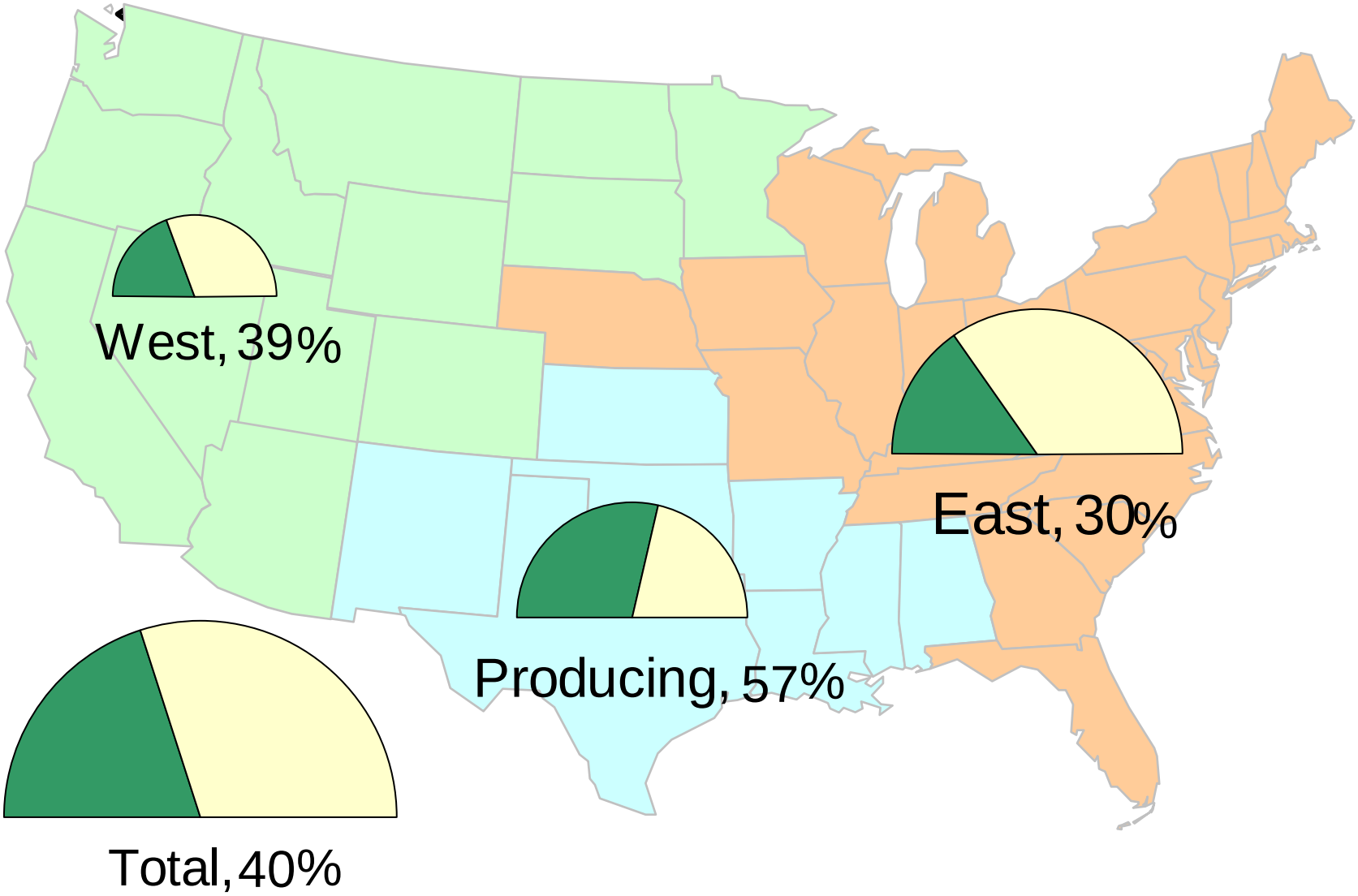
Regional Totals of Working Gas in Storage



Source: Derived from *EIA* data.

Updated April 8, 2011

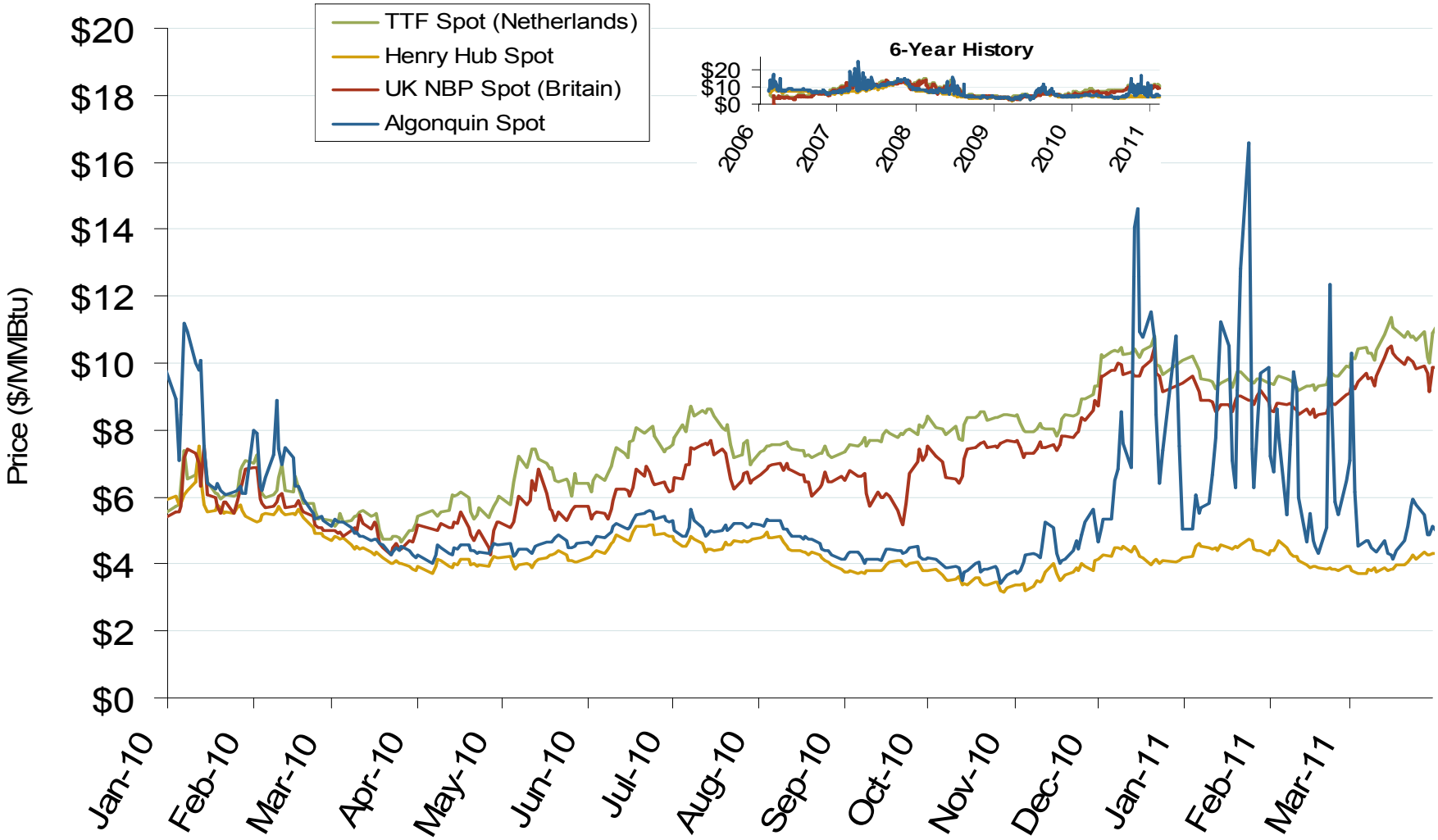
Natural Gas Storage Inventories – March 25, 2011



Source: Derived from *EIA Storage* and *Estimated Working Gas Capacity* data.

Updated April 8, 2011

Atlantic Basin European and US Spot Natural Gas Prices



Source: Derived from *Bloomberg and ICE data.*

Updated: April 07, 2011

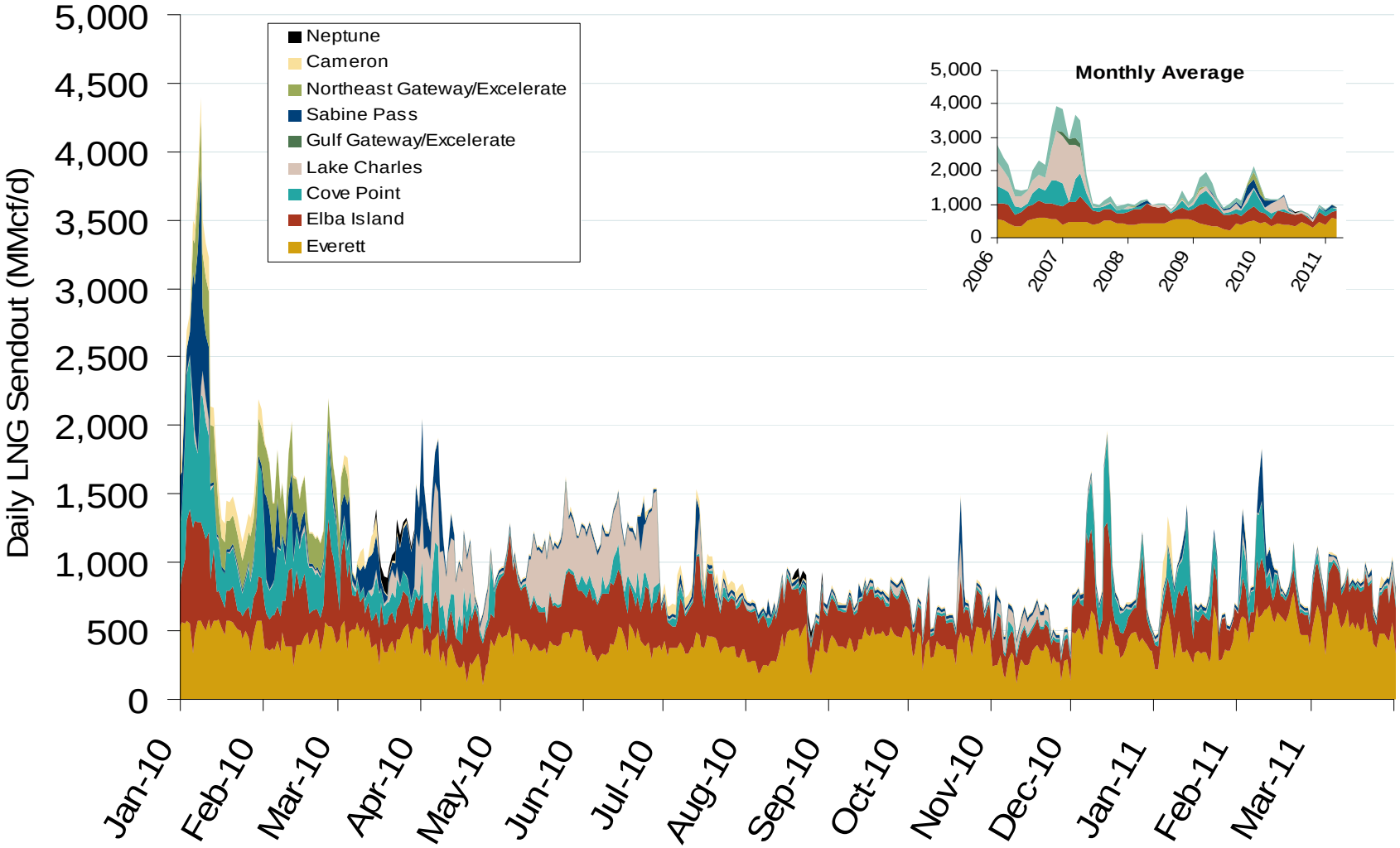
World LNG Estimated May 2011 Landed Prices

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

April 2011 Northeast Snapshot Report

Updated April 8, 2011

Daily Gas Sendout from Existing U.S. LNG Facilities

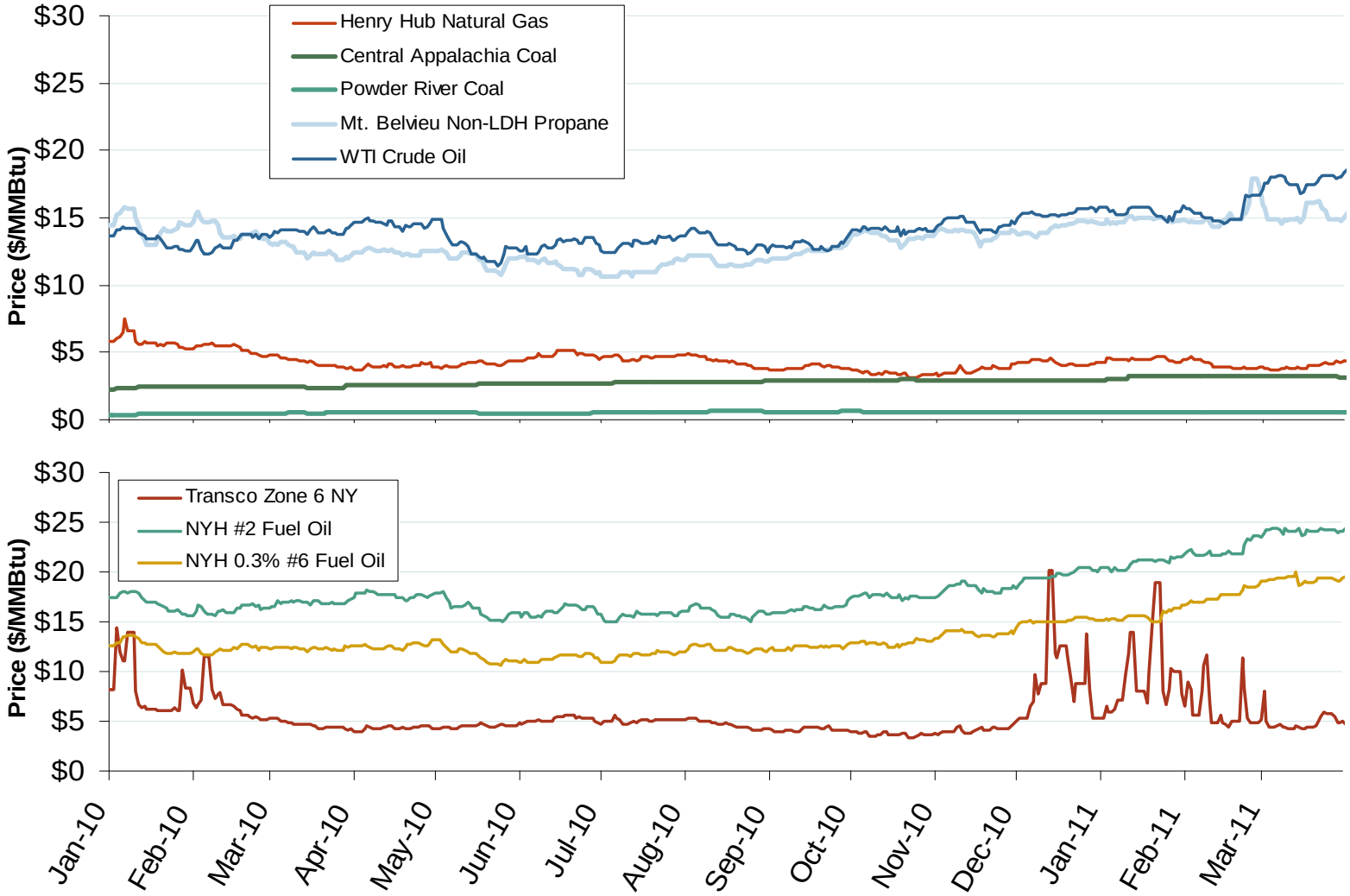


Source: Derived from *Bentek* data.

* 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 April 8, 2011

Oil, Coal, Natural Gas and Propane Daily Spot Prices

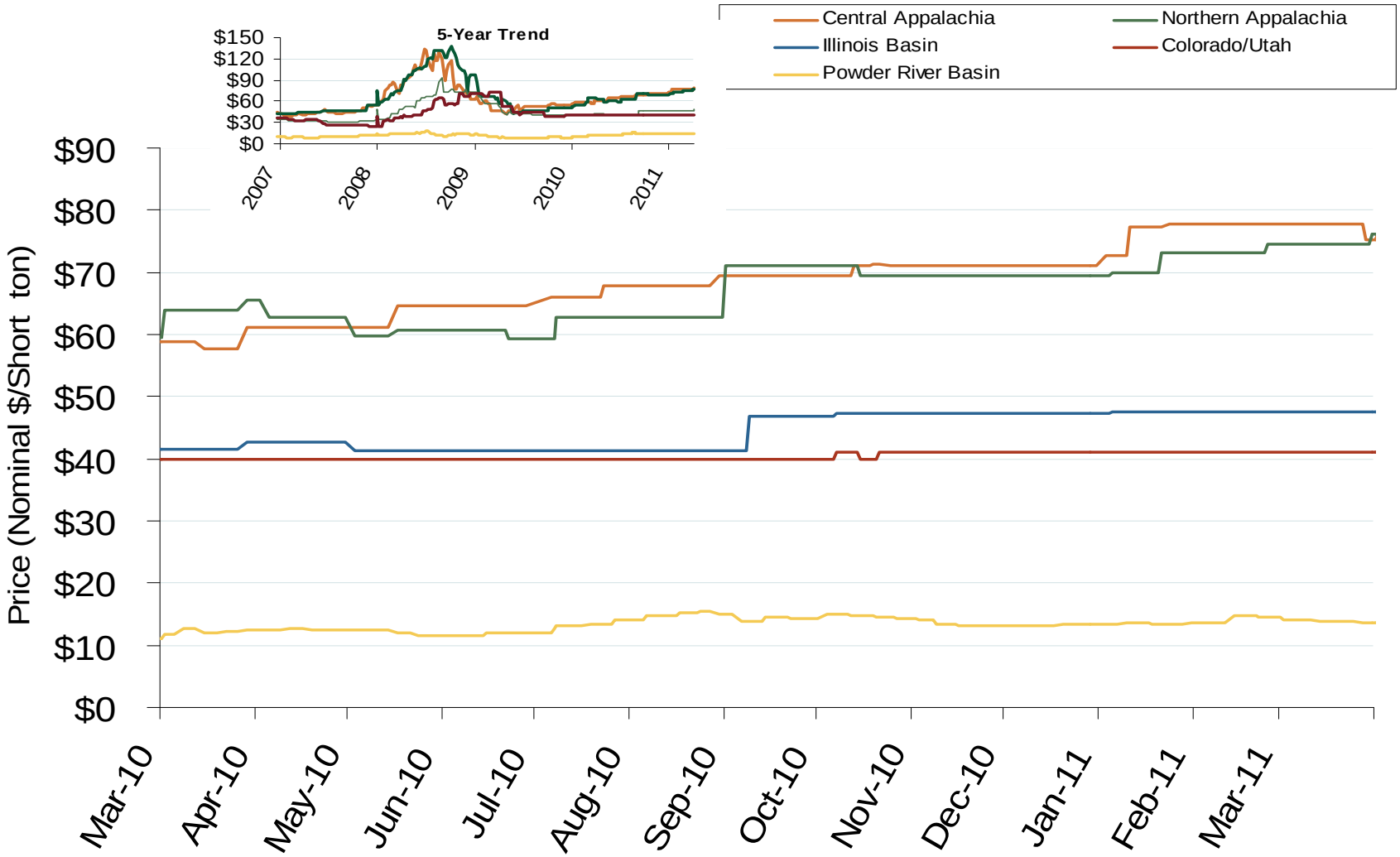


Source: Derived from *ICE and Bloomberg data.*

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.

Updated: April 07, 2011

Regional Coal Spot Prices

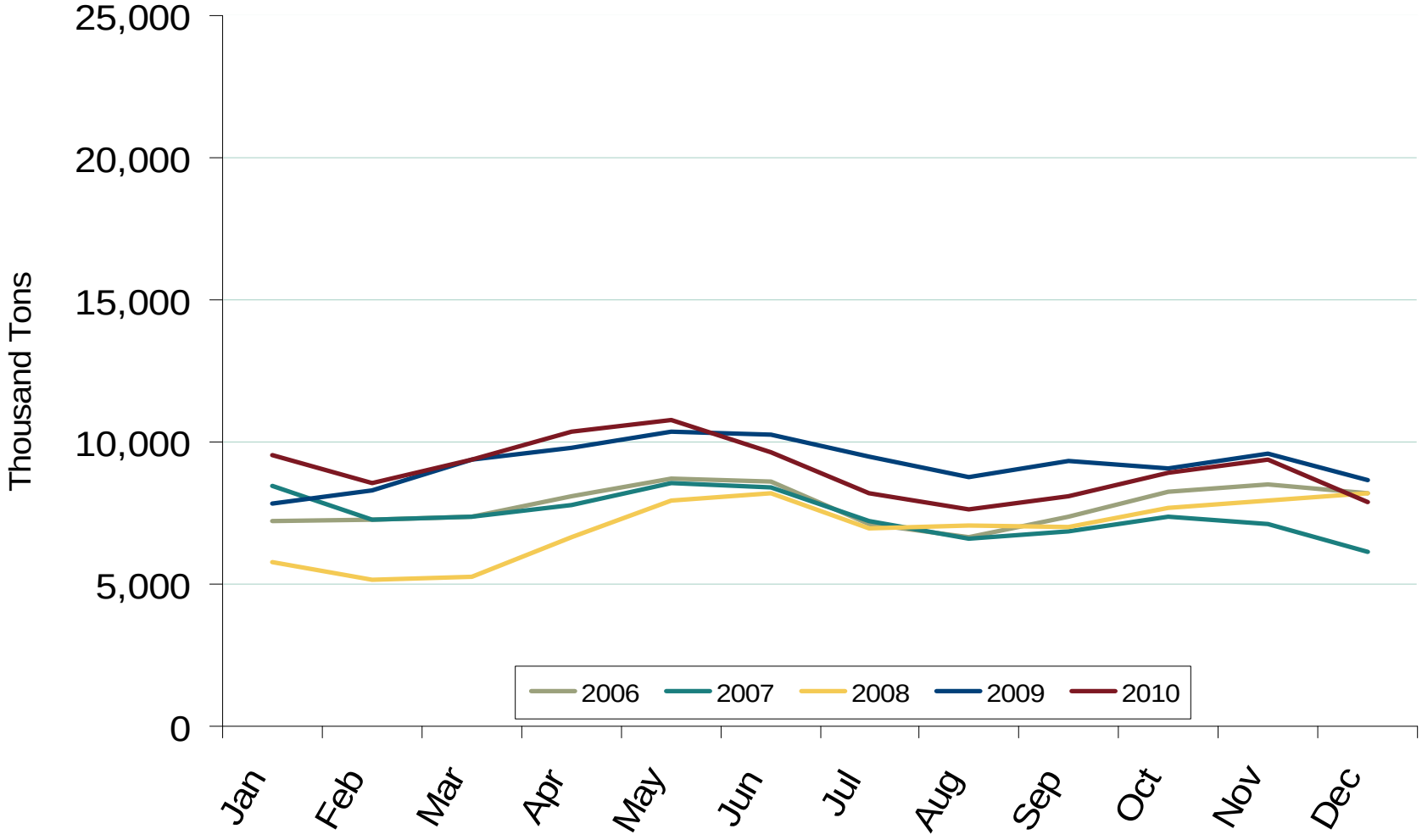


Note: the Central Appalachian (CAPP) coal is priced at Big Sandy. All others are mine mouth prices. Prices do not include transportation costs to a plant, as those can vary widely by contract specifications. Prices exclude incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.

Updated April 8, 2011

Northeast Coal Stockpiles at Electric Power Generating Facilities



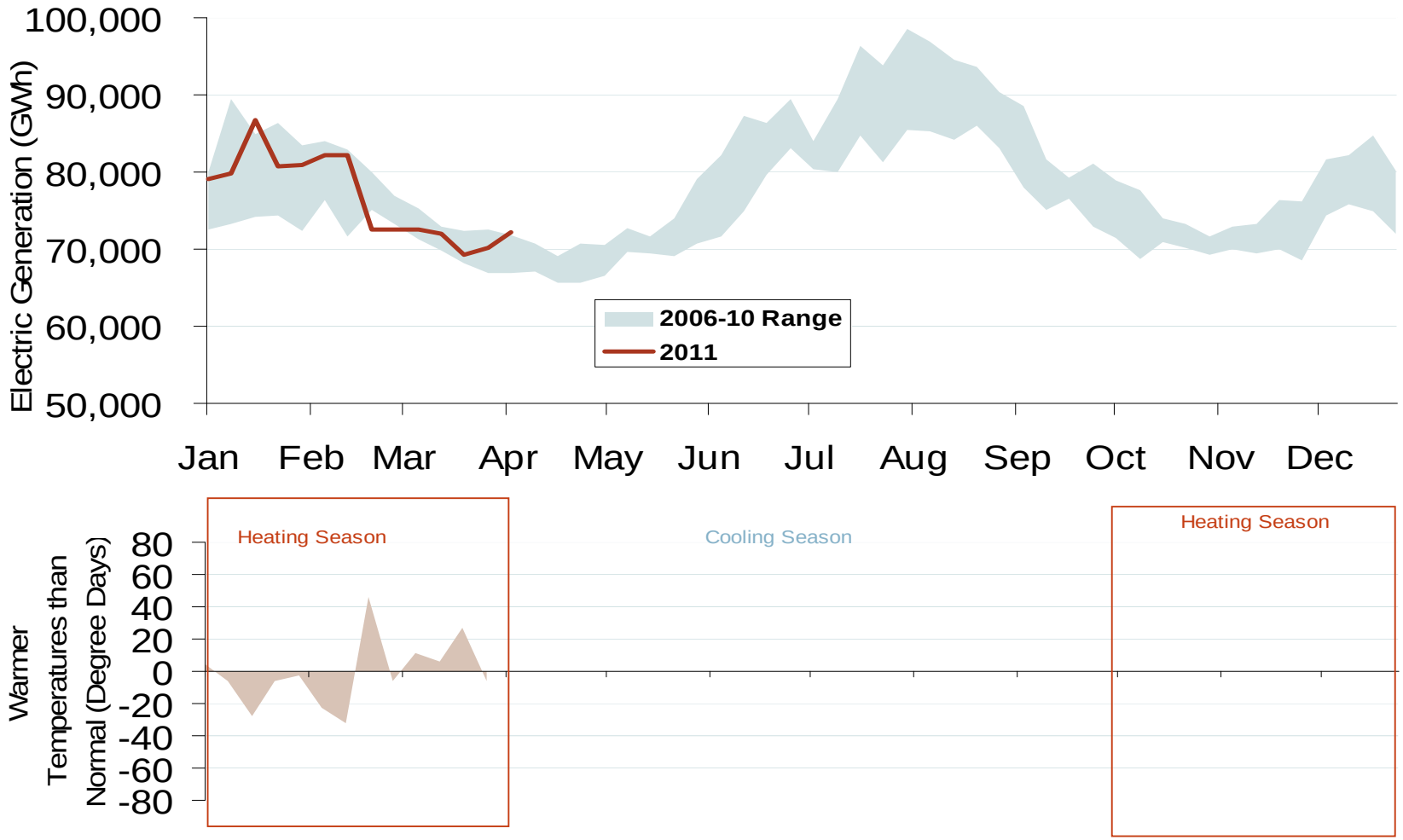
Source: Derived from *Energy Information Administration*. Excludes Industrial and Commercial Plants.

Updated: April 07, 2011

Electricity Markets

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

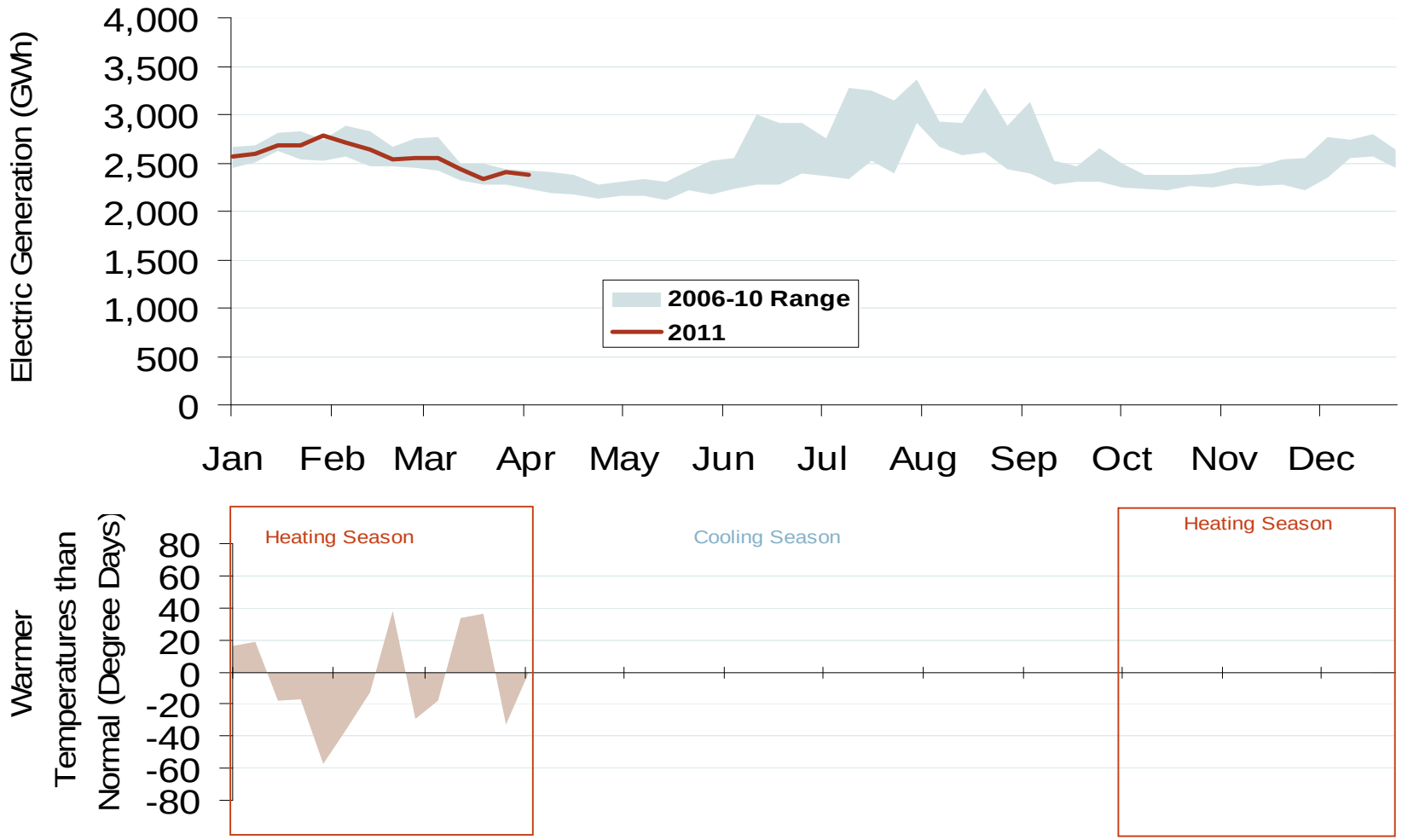
Weekly U.S. Electric Generation Output and Temperatures



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

Updated April 8, 2011

Weekly Electric Generation Output and Temperatures New England Region

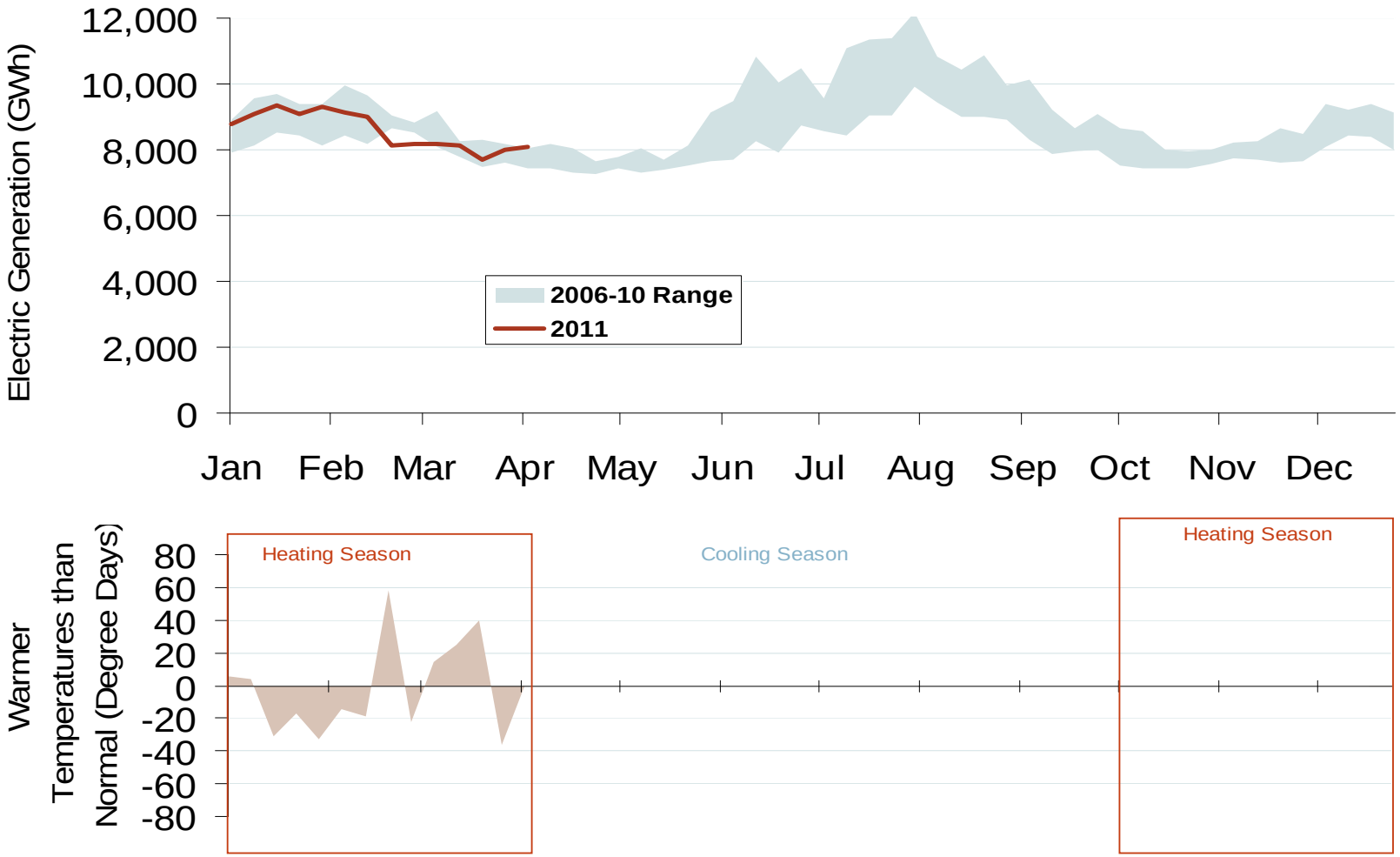


Source: Derived from *EEI* and *NOAA* data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

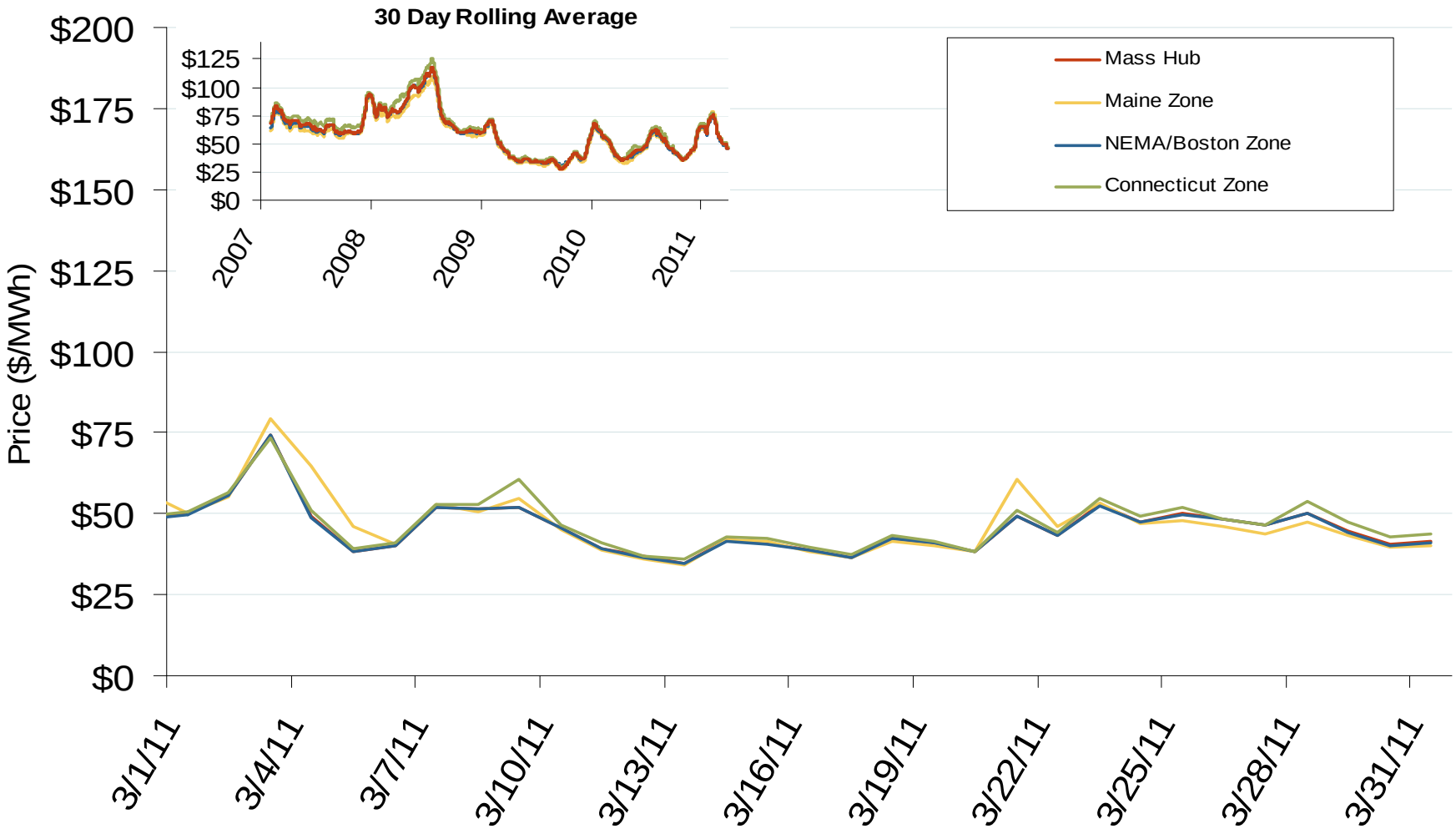
Weekly Electric Generation Output and Temperatures Mid Atlantic Region



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

Updated: March 08, 2011

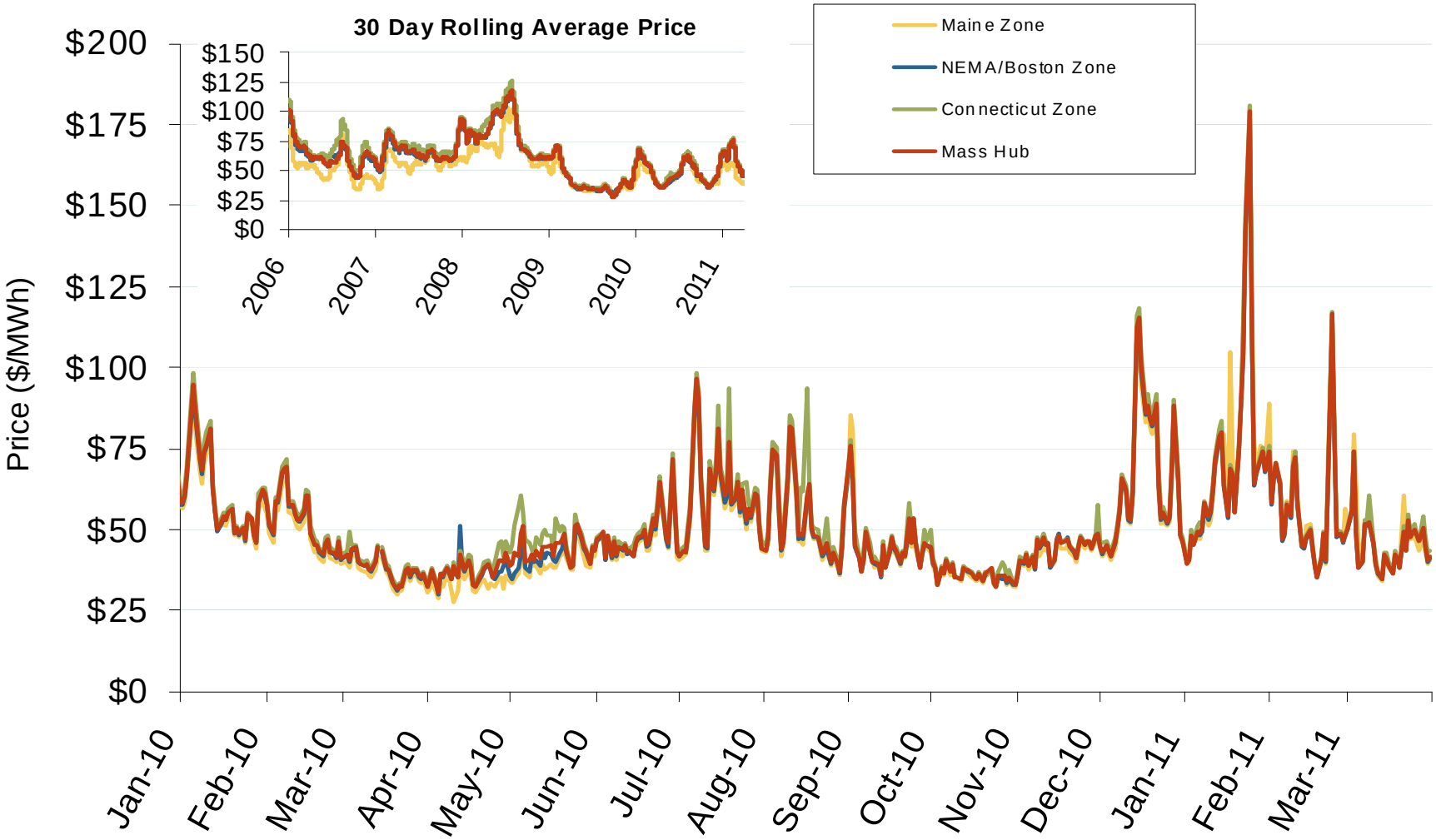
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived from Bloomberg data.

Updated: March 08, 2011

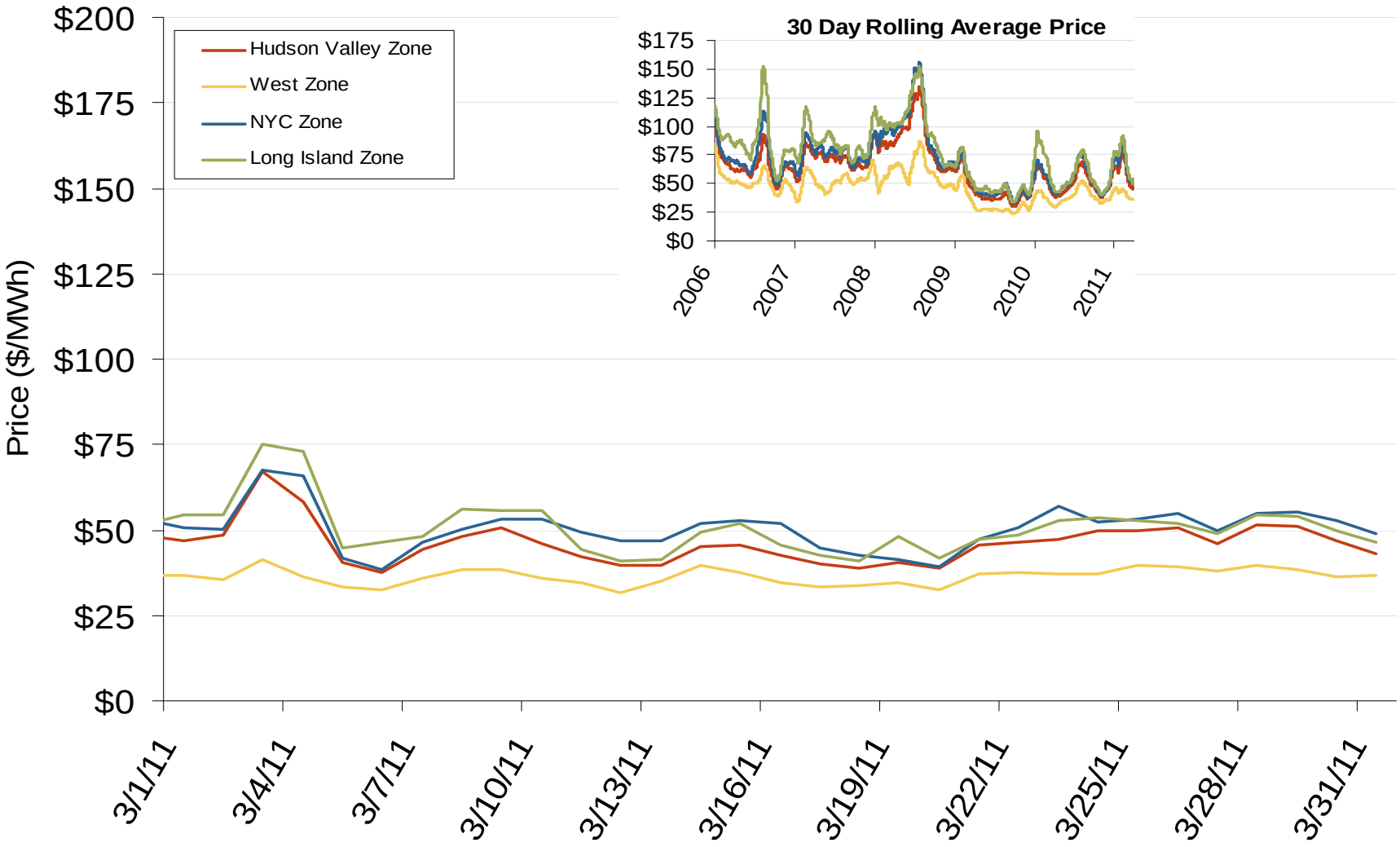
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived from *Bloomberg* data.

Updated April 8, 2011

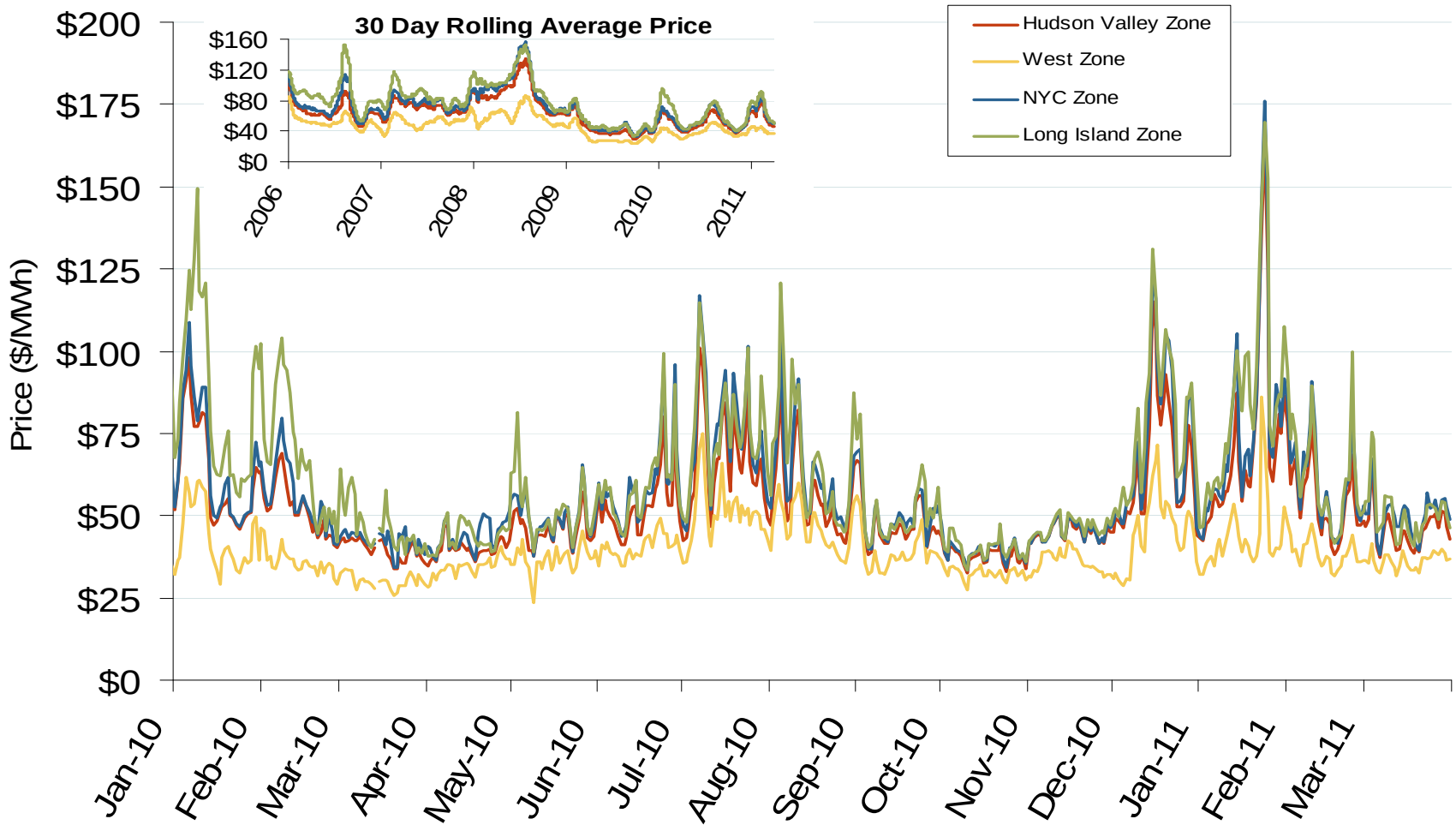
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived from Bloomberg data.

Updated April 8, 2011

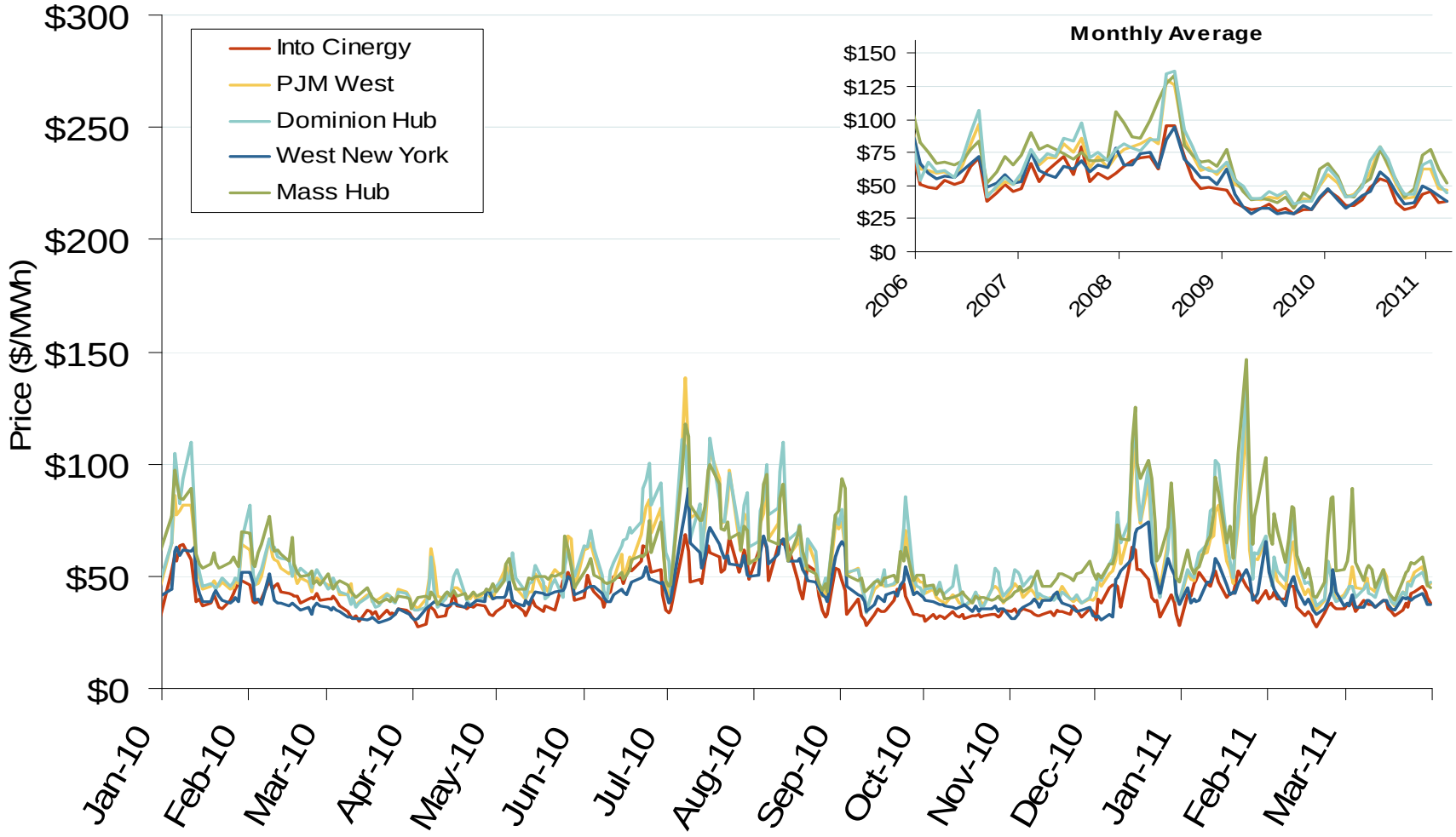
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived from *Bloomberg* data.

Updated April 8, 2011

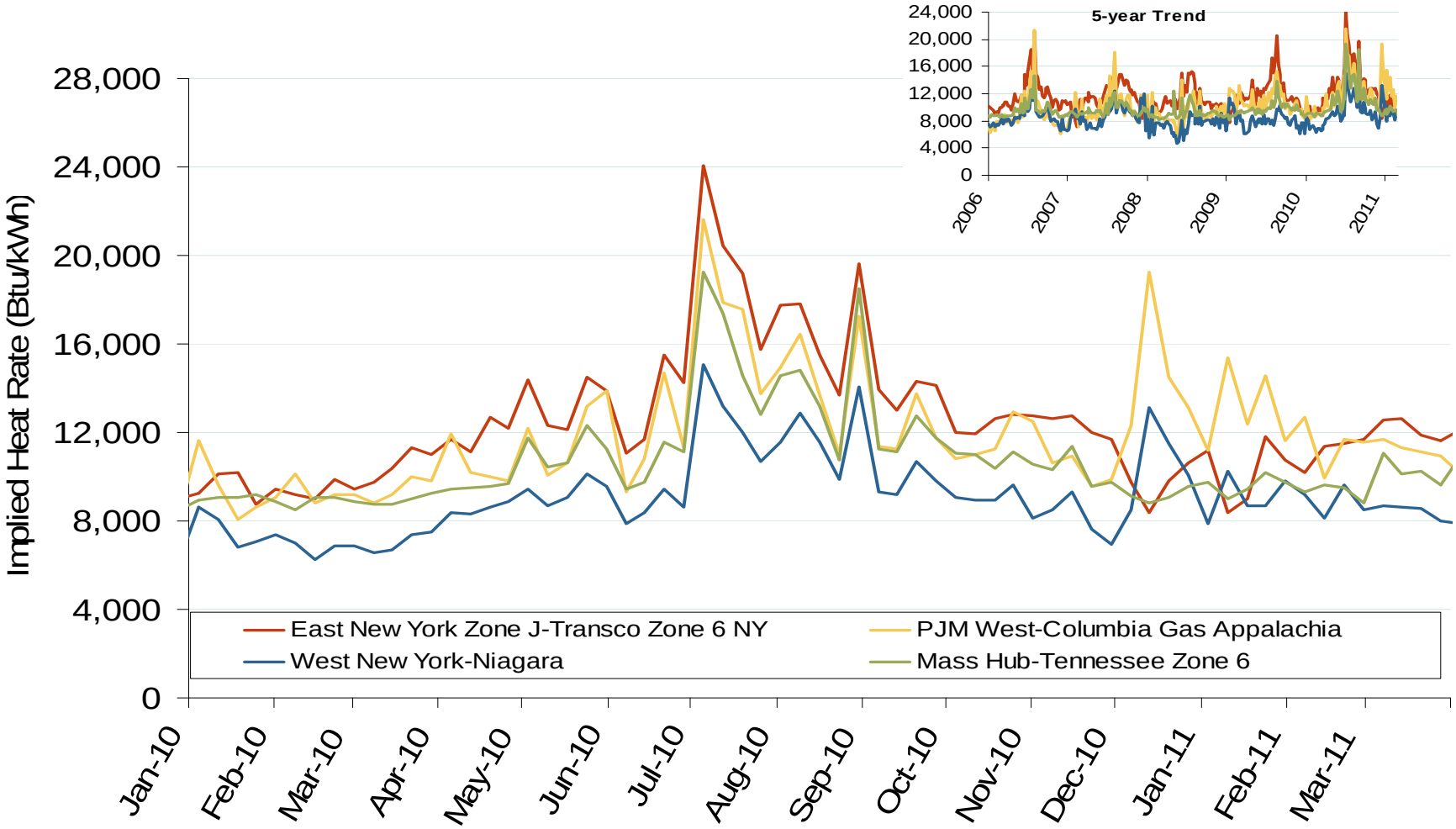
Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated April 8, 2011

Implied Heat Rates at Eastern Trading Points Weekly Averages

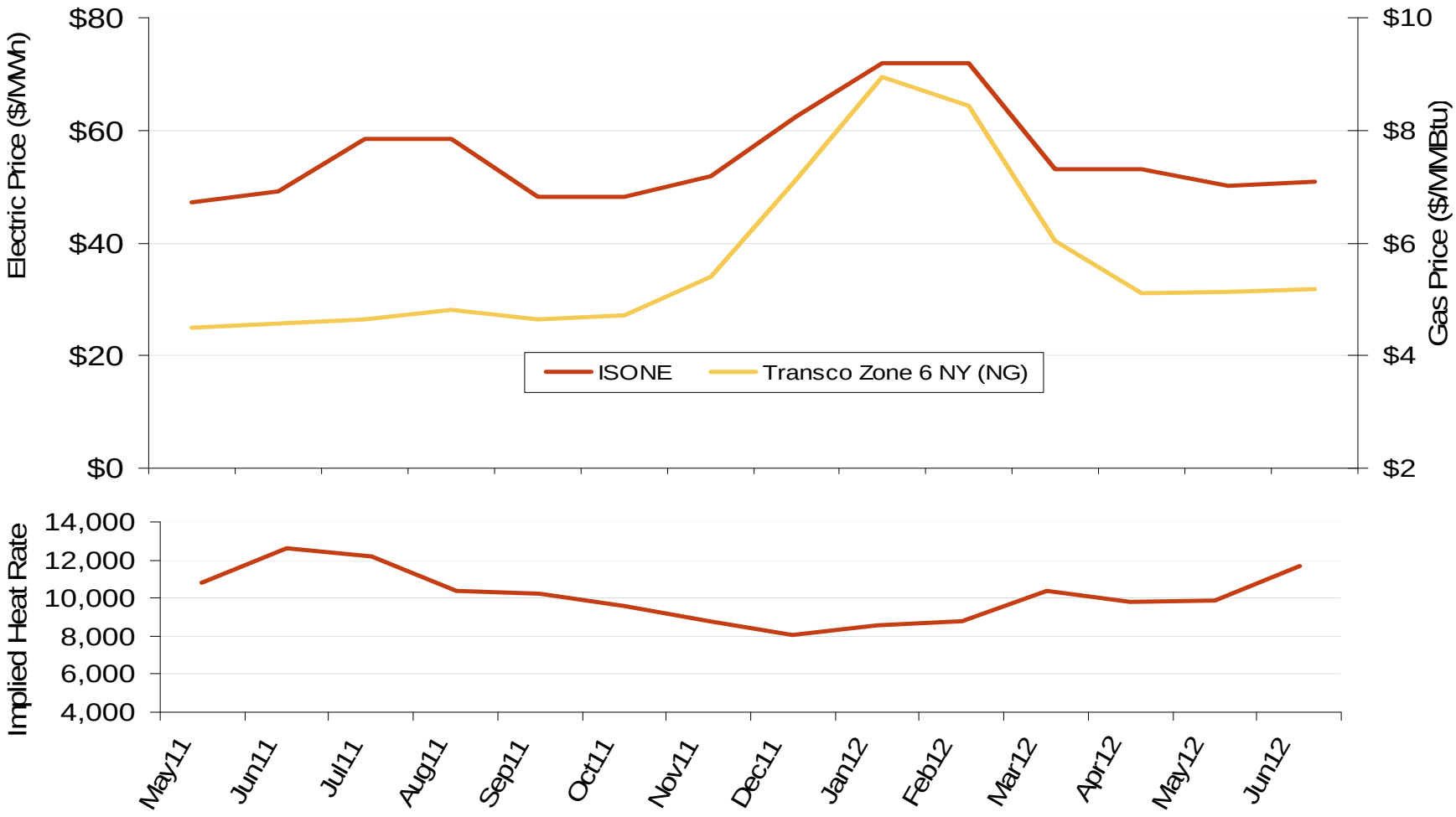


Source: Derived from *Platts* on-peak electric and natural gas price data.

Updated April 8, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

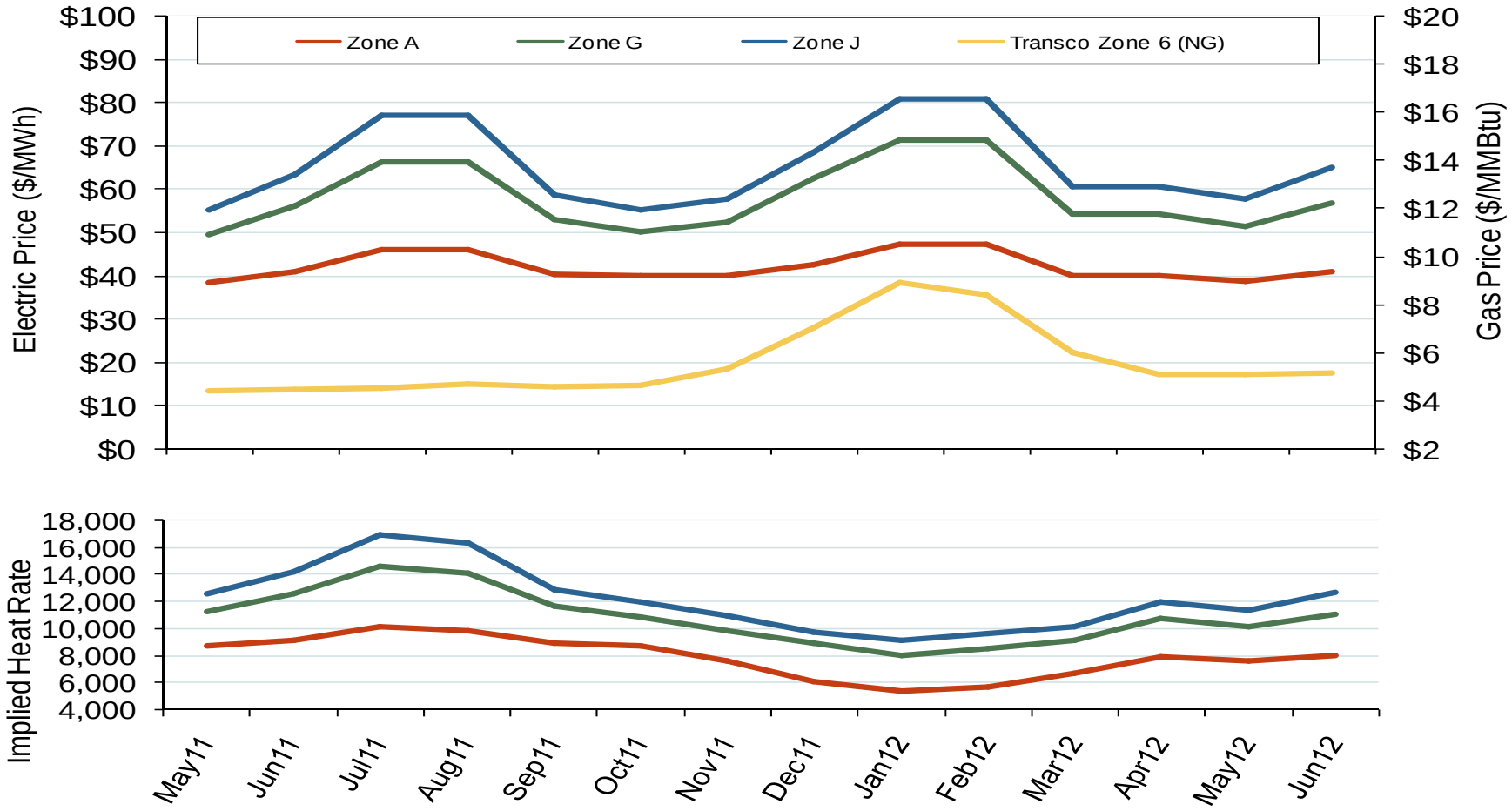
New England Electric Forward Price Curve and Implied Heat Rate



Source: Derived from *Nymex* data

Updated: April 08, 2011

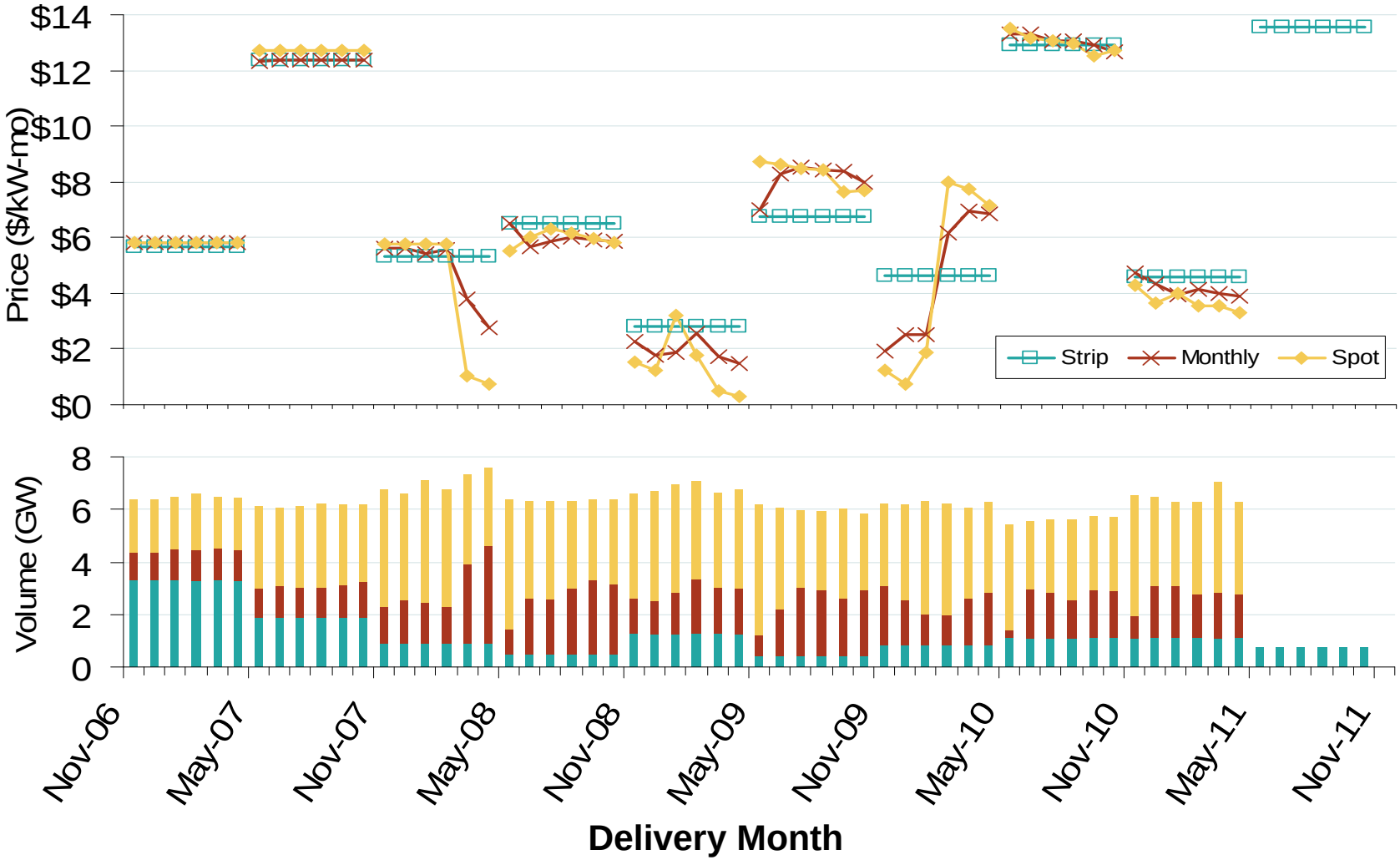
New York Electric Forward Price Curves and Implied Heat Rates



Source: Derived from *Nymex* data.

Updated: April 08, 2011

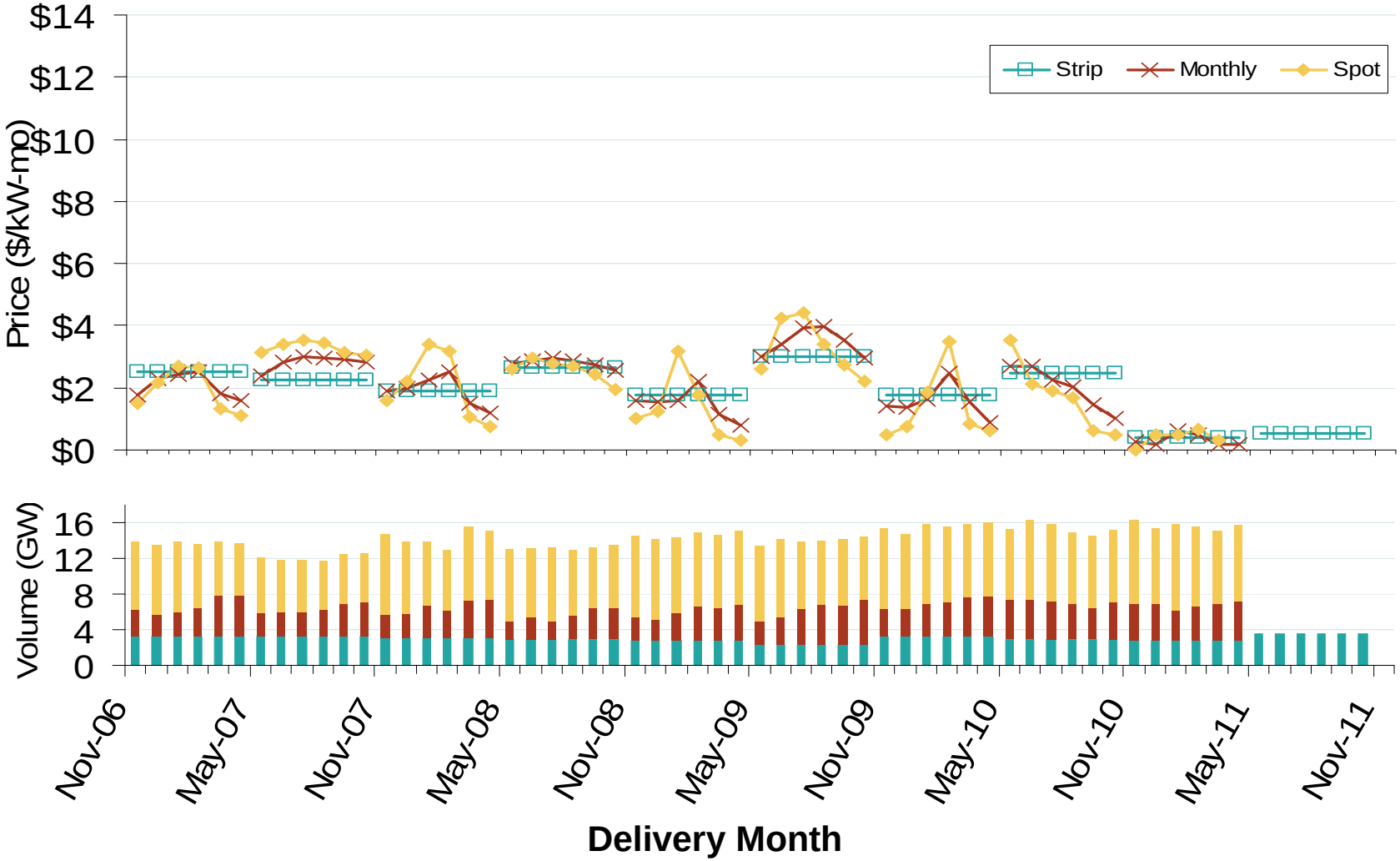
Weighted Average ICAP Clearing Prices and Volumes: New York City



Source: Derived from *NYISO* data.

Updated April 8, 2011

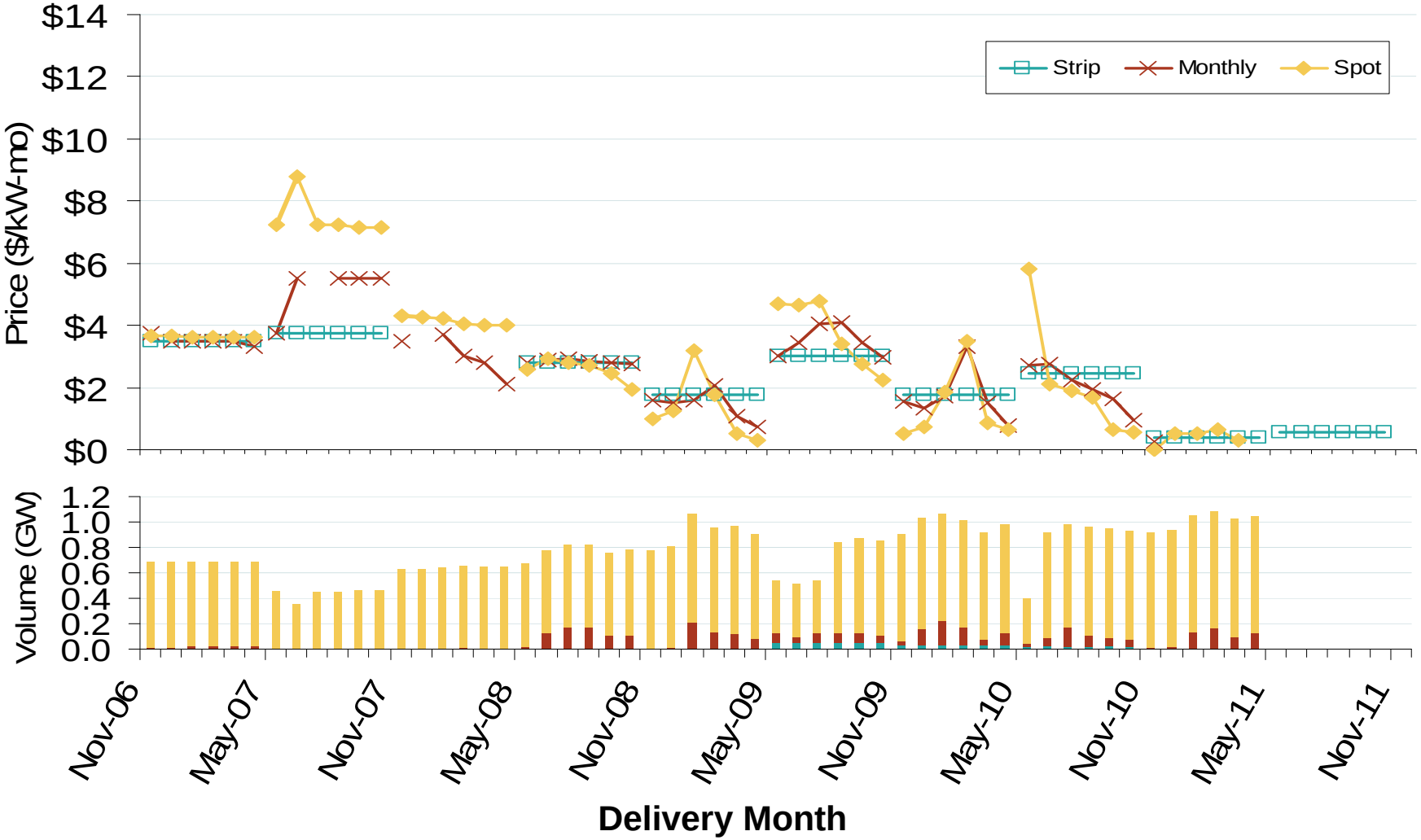
Weighted Average ICAP Clearing Prices and Volumes: New York State, excluding New York City



Source: Derived from *NYISO* data.

Updated April 8, 2011

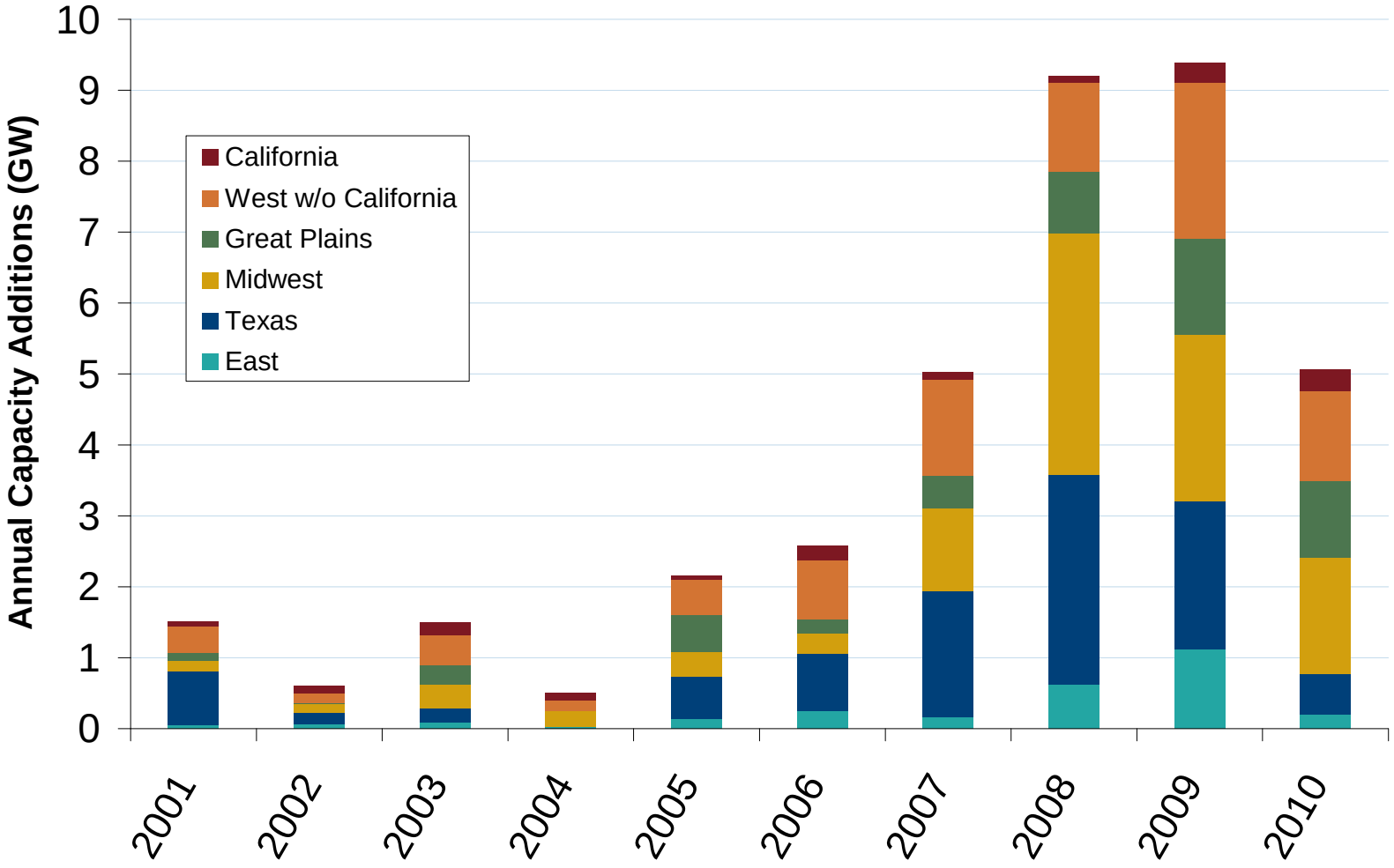
Weighted Average ICAP Clearing Prices and Volumes: Long Island



Source: Derived from *NYISO* data.

Updated April 8, 2011

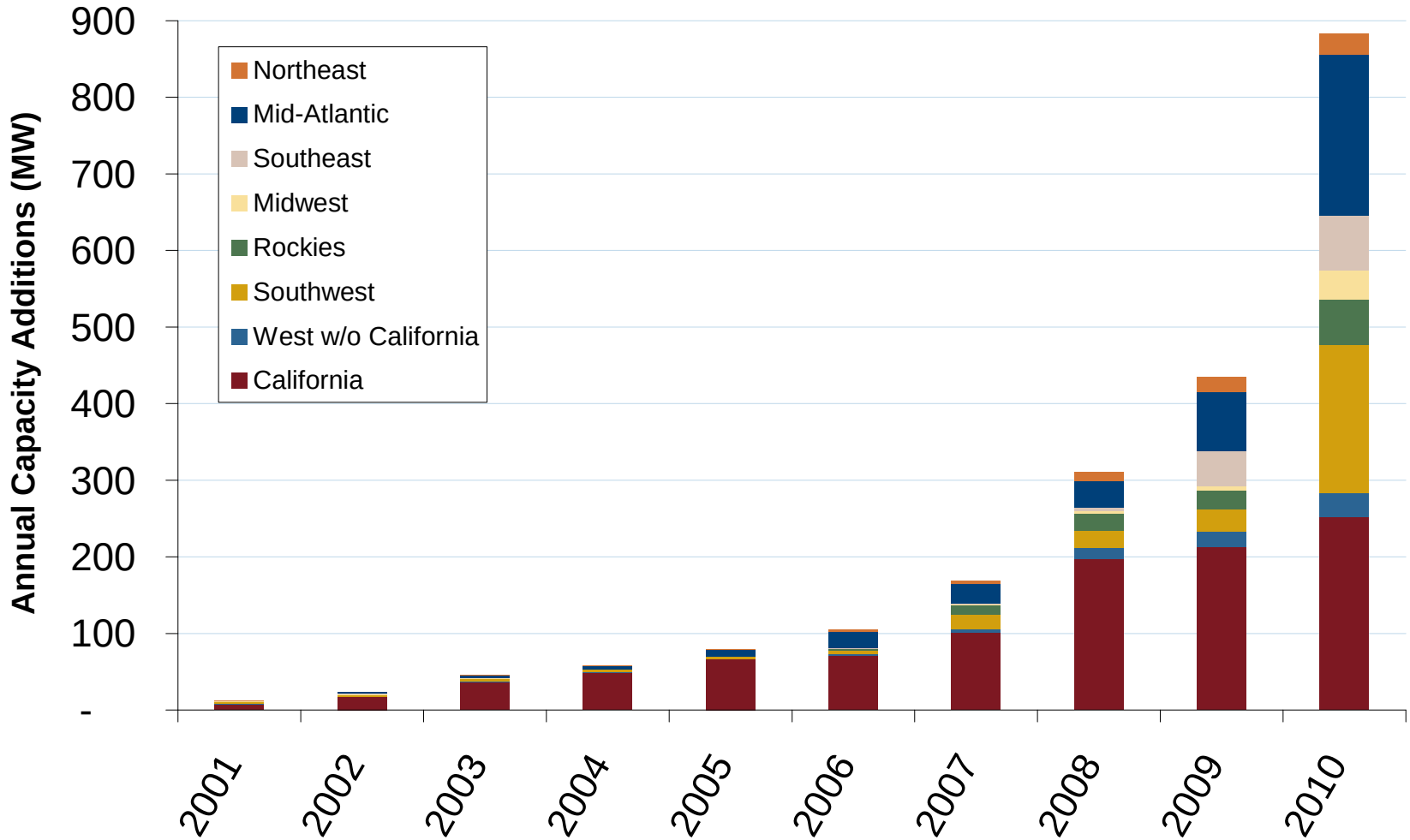
Regional Wind Capacity Growth



West w/o CA: CO, HI, ID, MT, NM, OR, UT, WA, WY
Great Plains: KS, NE, ND, OK, SD
Midwest: IL, IN, IA, MI, MN, MO, OH, WI
East: DE, ME, MA, NH, NJ, NY, PA, RI, TN, VT, WV
Source: Energy Velocity Generating Unit Capacity Dataset
April 2011 Northeast Snapshot Report

Updated April 5, 2011

Regional Grid-Connected Photovoltaic Capacity Growth



Northeast: CT, ME, MA, NH, RI, VT
Southeast: AL, AR, FL, GA, LA, MS, NC, SC, TN, VA
Rockies: CO, ID, MT, UT, WY
West w/o California: HI, OR, WA

Mid-Atlantic: DE, DC, MD, NJ, NY, PA
Midwest: IL, IN, IA, KY, MI, MN, MO, OH, OK, WI
Southwest: AZ, NV, NM, TX

Source: Interstate Renewable Energy Council (IREC)
April 2011 Northeast Snapshot Report

Updated April 5, 2011

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

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, of which 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

CO: DG as 3% of retail sales by 2020; ½ 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

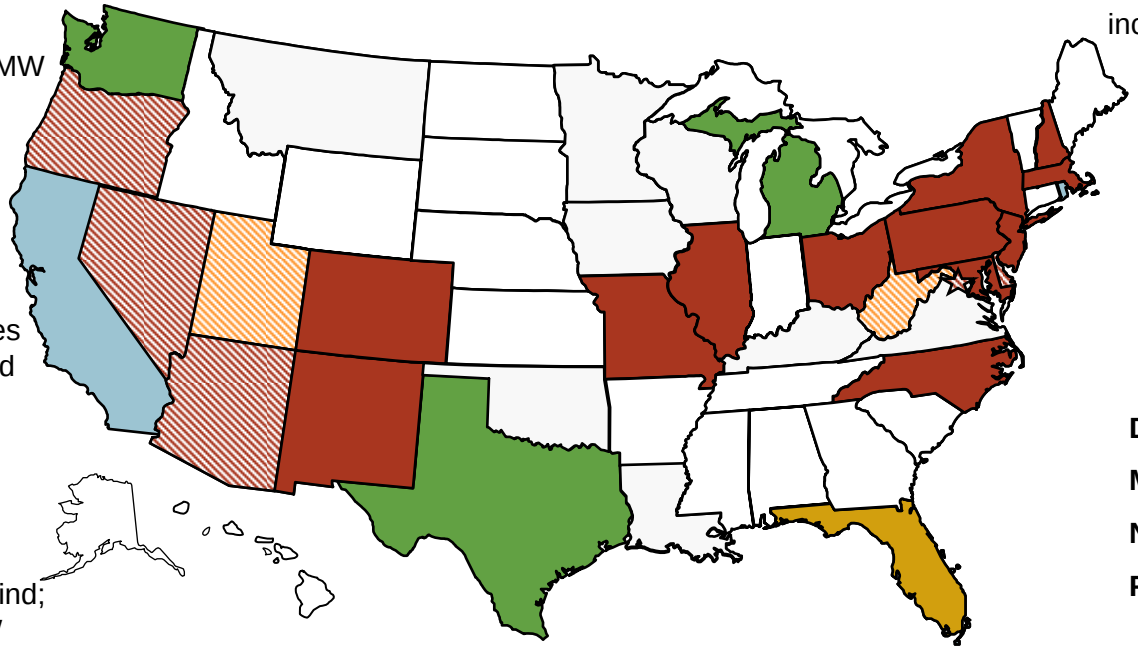
DE: 3.5% PV by 2026

DC: 0.4% solar by 2021 ☆

MD: 2% solar-electric in 2022

NC: 0.2% solar by 2018

FL: solar pilot 2010 - 2014



- 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 and set-aside in an RPS
- Multiplier and set-aside in renewable goal
- Pilot or study

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 specify technology targets in an RPS.
Abbreviations: DG – distributed generation; PV – solar photovoltaic; 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 April 7, 2011

34003

2010 Review of RPS Provisions for Solar and Distributed Generation

Policies incent solar and DG development:

• **16 states** and D.C. have solar or distributed generation (DG) set-asides in their Renewable Portfolio Standards (RPS), to encourage higher-cost technologies so they can move closer to cost parity with other renewable resources.

• **Set-asides** specify what portion of an RPS should come from a specific technology. **Multipliers** increase the value of renewable energy certificates (RECs) awarded for each MWh produced by eligible technologies. Some states have separate solar RECs (SRECs) that can be traded.

• **Three states** have solar targets or programs outside an RPS or renewable goal: California, Florida, and Rhode Island.

• Lawrence Berkeley (LNBL) projected that existing solar carve-outs require 560 MW of solar through 2010 and 8,447 MW by 2025. That development is exclusive of non-RPS goals, such as California's "million roofs" program. LBNL found that multipliers have been less effective in stimulating solar development than set-asides.

2010 results and status:

• Photovoltaic (PV) solar additions were double those in 2009. 883 MW of grid-connected PV were added compared to 435 MW. Solar set-asides played a role in that capacity growth.

• **64%** of 2010 PV additions were in five states: California, New Jersey, Nevada, Arizona, and Colorado. Each of the top 10 states (85% of additions) has a solar policy (as depicted on the solar provisions map).

• **Seven** states added, accelerated or expanded solar policies.

• **43** states, D.C., Puerto Rico and the Virgin Islands offer financial incentives for solar PV. These include tax credits or deductions, rebates, and cash incentives, or property-tax incentives.

State Activities:

• **Texas' PUC** proposed a rule to set targets for renewable technologies, now covered in its RPS by a 500 MW non-wind goal. It includes a solar carve-out that starts at 5 MW in 2014 and rises to 187 MW in 2018. It would also set targets for new biomass and geothermal technologies. (Dec 2010) The PUCT is evaluating comments submitted through March 7, 2011.

• **Massachusetts** revised its solar carve-out, applicable to all retail suppliers. The changes permit out-of-state projects contracted prior to January 2010 and lowered 2010 shortfall compliance payments. Eligible customer-sited projects up to 6 MW must be in-state. MA will hold a clearinghouse auction for surplus SRECs until its 400 MW solar target is met. (Dec 2010)

• **Missouri**'s PSC adopted RPS regulations, which passed by ballot in Nov 2008. The solar carve-out is 2% of incremental RPS obligations, which translates to 0.3% of retail sales by 2021. Utilities must offer minimum rebates of $2/watt for customer-sited solar systems up to 25 kW. (July 2010). Regulations allow, but no longer require, utilities to offer standard-offer contracts for SRECs. (Sept 2010)

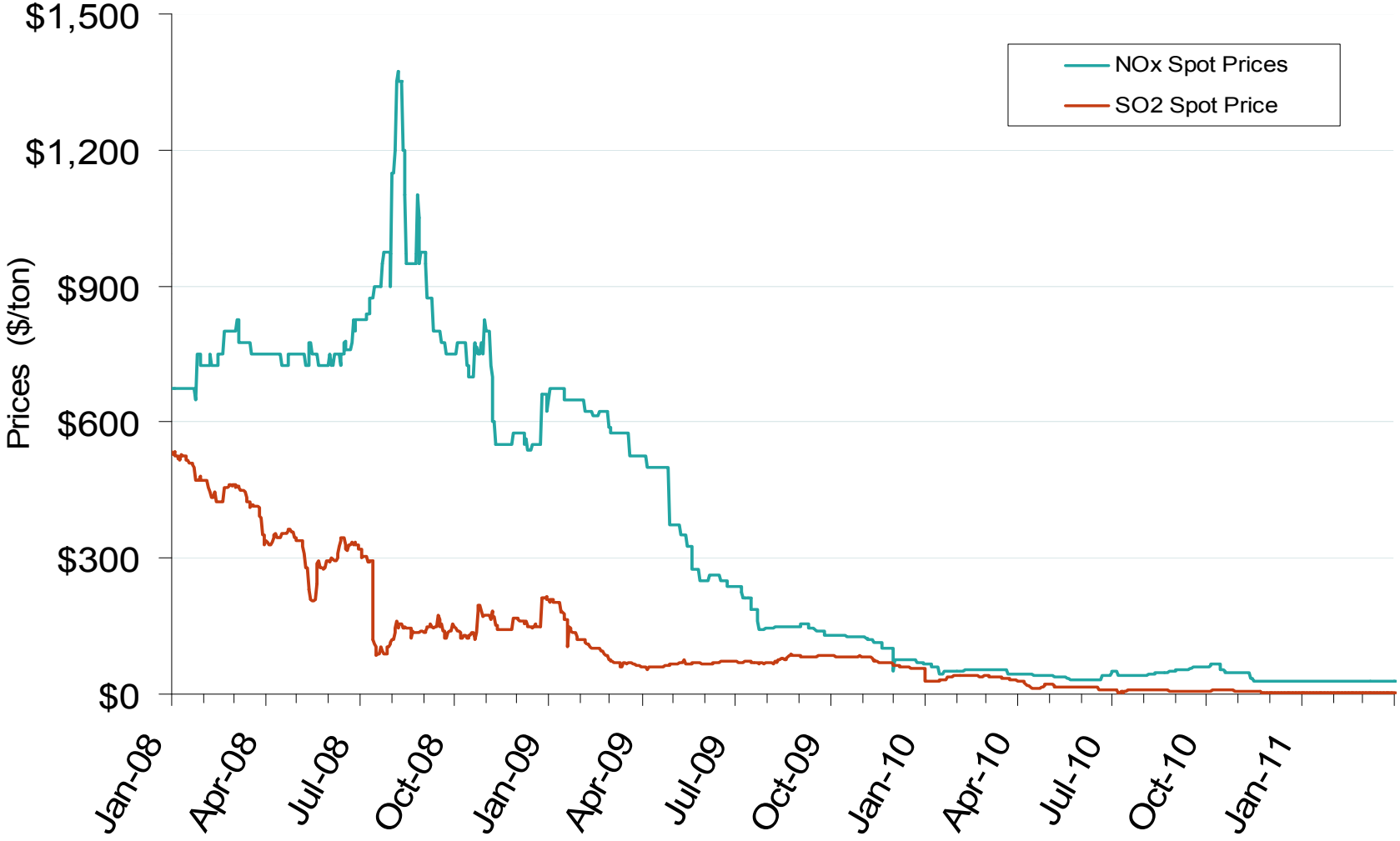
• **Delaware** extended and increased its RPS to 25% by 2025, from 20% by 2019. The law raised the solar PV carve-out to 3.5% by 2025, or about 250 new MW. (July 2010)

• **Florida's PSC** established solar pilots in the 2009 proceedings that set long-term energy savings and peak reduction targets for seven utilities. Compliance utilities submitted plans for solar hot water and PV pilot programs, which will run from 2010 to 2014. (March 2010)

• **New Jersey** restructured its solar carve-out, changing it from a percent of the total energy to a set megawatt-hours target. The intent is to not have future solar capacity decline as conservation policies lower total energy use. (Jan 2010)

Abbreviations: DG – distributed generation; PUC/PSC – Public Utility/Service Commission; PV – photovoltaic; RPS – Renewable Portfolio Standard; SREC – solar renewable energy certificate.

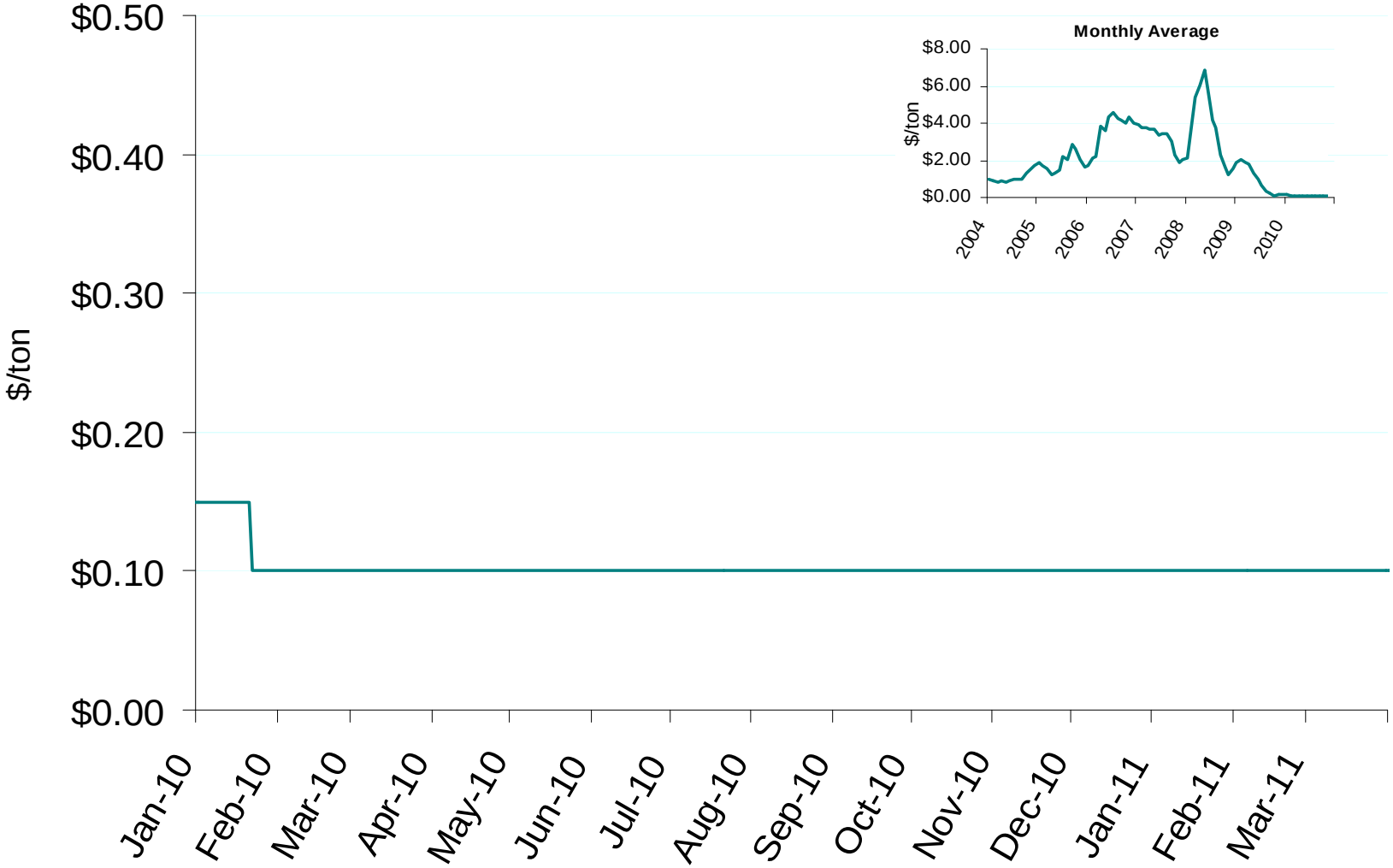
SO2 Allowance Spot Prices and NOx Seasonal Allowance Spot Prices



Source: Derived from *Bloomberg data.*

Updated: April 7, 2011

Chicago Climate Exchange CO2 Index



Source: Derived from *Bloomberg*.

Updated April 8, 2011