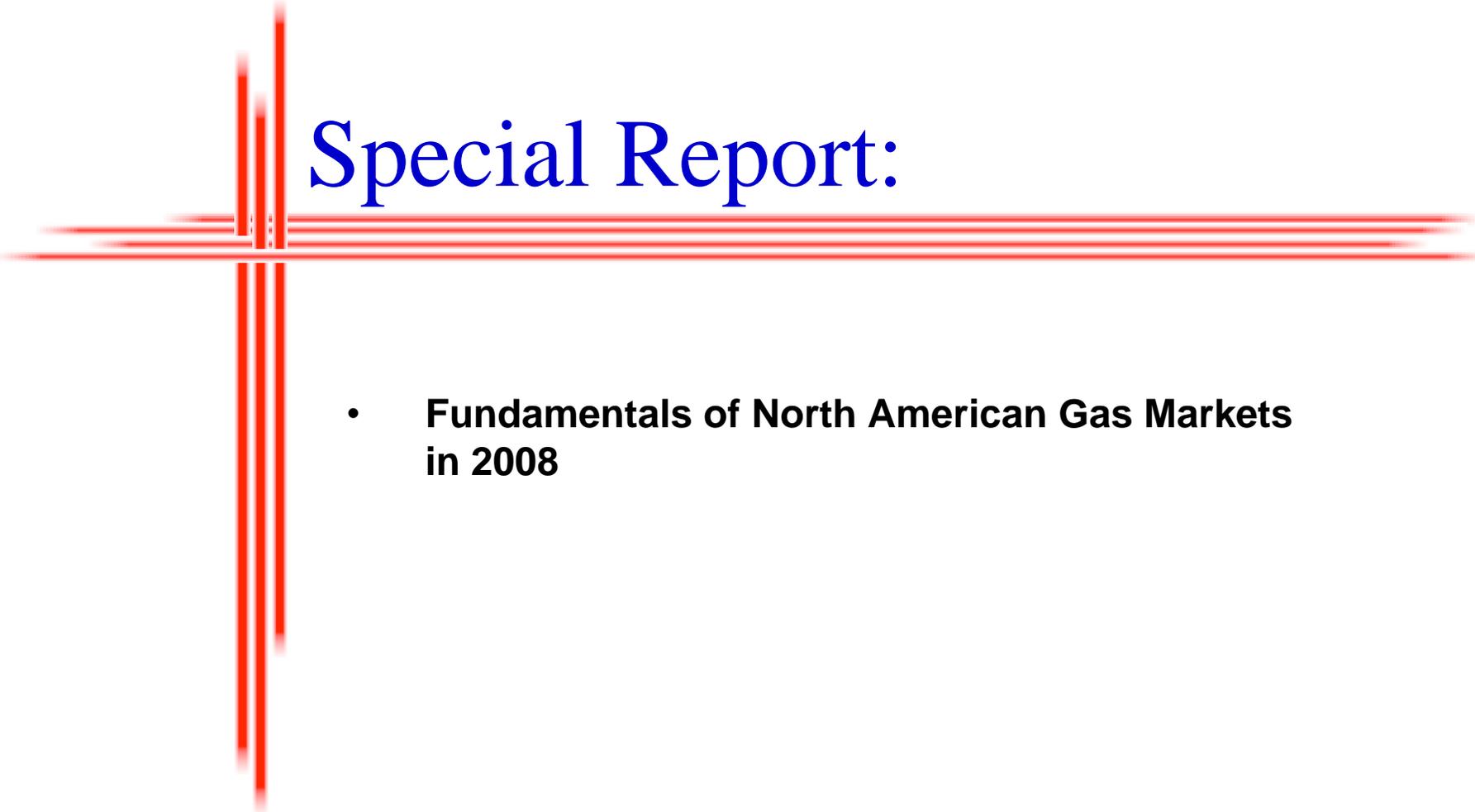


OE ENERGY MARKET SNAPSHOT

Northeast States Version – December 2008 Data

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

Office of Enforcement
Federal Energy Regulatory Commission
January 2009



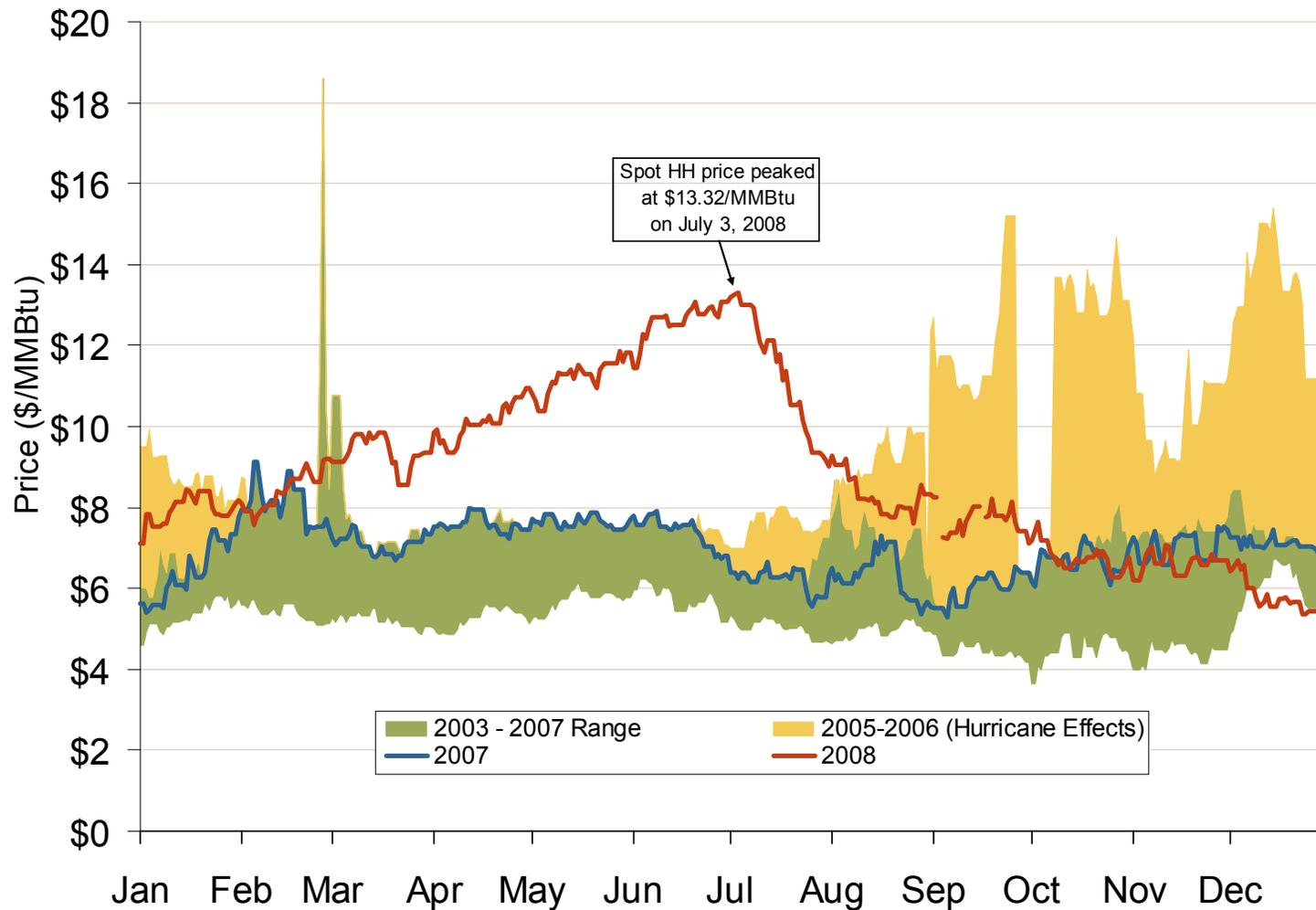
Special Report:

- **Fundamentals of North American Gas Markets in 2008**

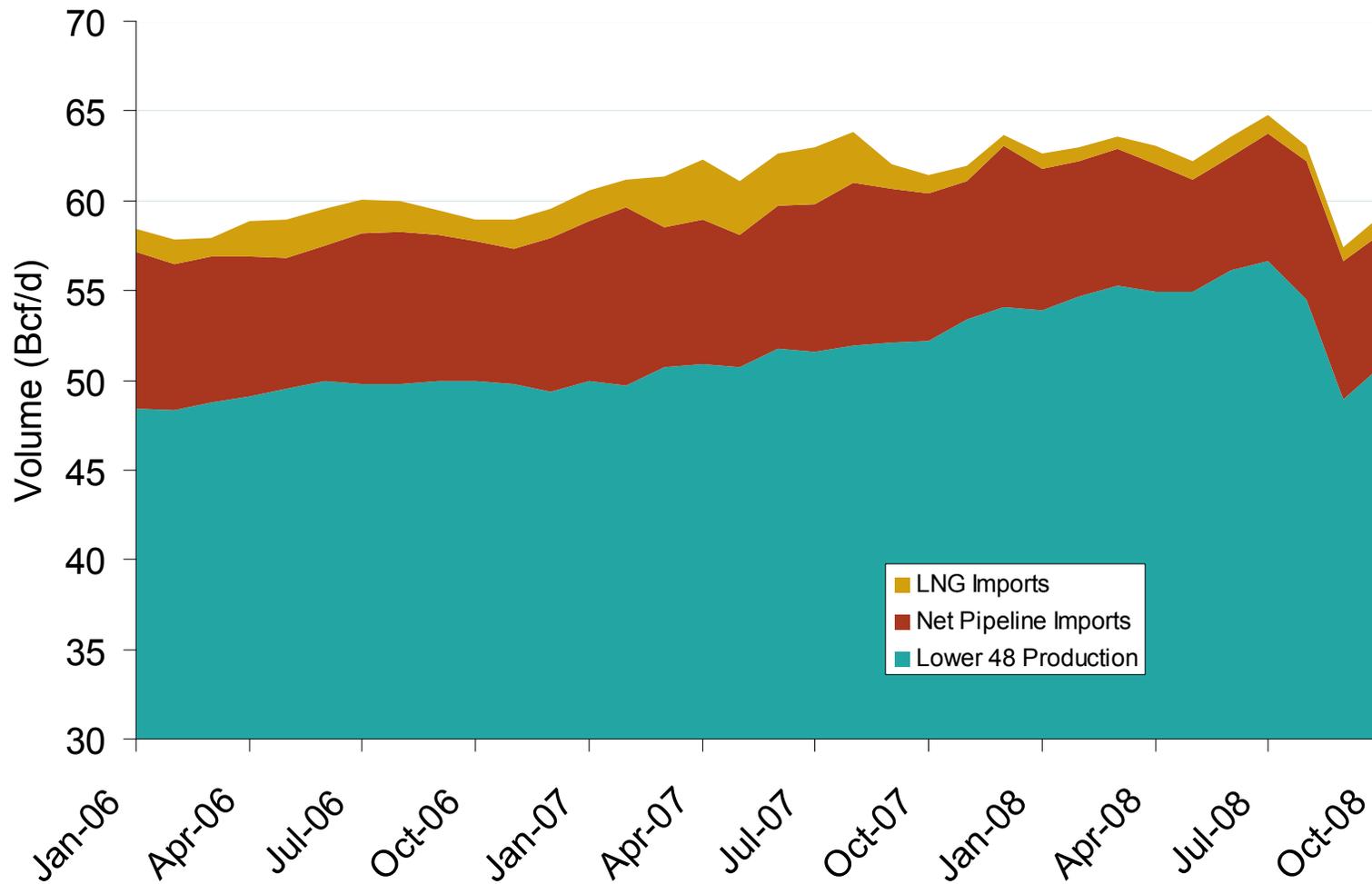
2008 Gas Market Fundamentals

- Summer prices reach record highs, then collapse below 5-year average.
- Domestic production up again in 2008.
- Gas consumption growth is primarily due to very high January demand.
- Despite biggest January storage withdrawals in more than 10 years, overall inventories approximate the 5-year average.
- Cool summer helped to reduce consumption growth.
- September hurricane damage defers 300 Bcf of production, but does not prevent gas price collapse.
- Overall gas balance indicates well-supplied market for most of 2008.

Henry Hub Natural Gas Daily Spot Prices Prices Climb Far Outside the 2003-2007 Range

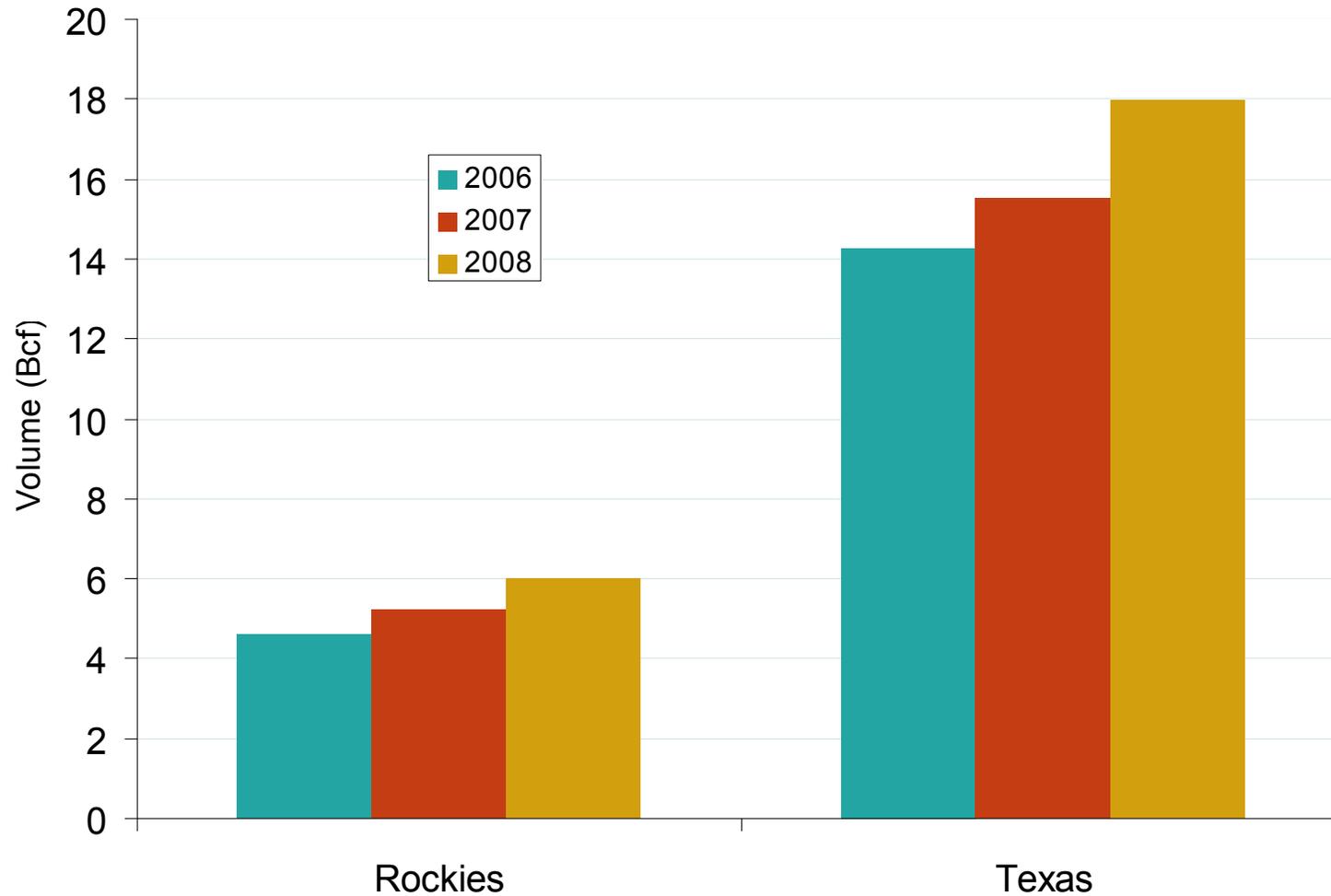


US Gas Supply (Production and Imports) Shows Robust Growth



Source: Derived from EIA, *Monthly Energy Review*.
January 2009 Northeast Snapshot Report

Robust Production Growth Led by Texas and the Rockies

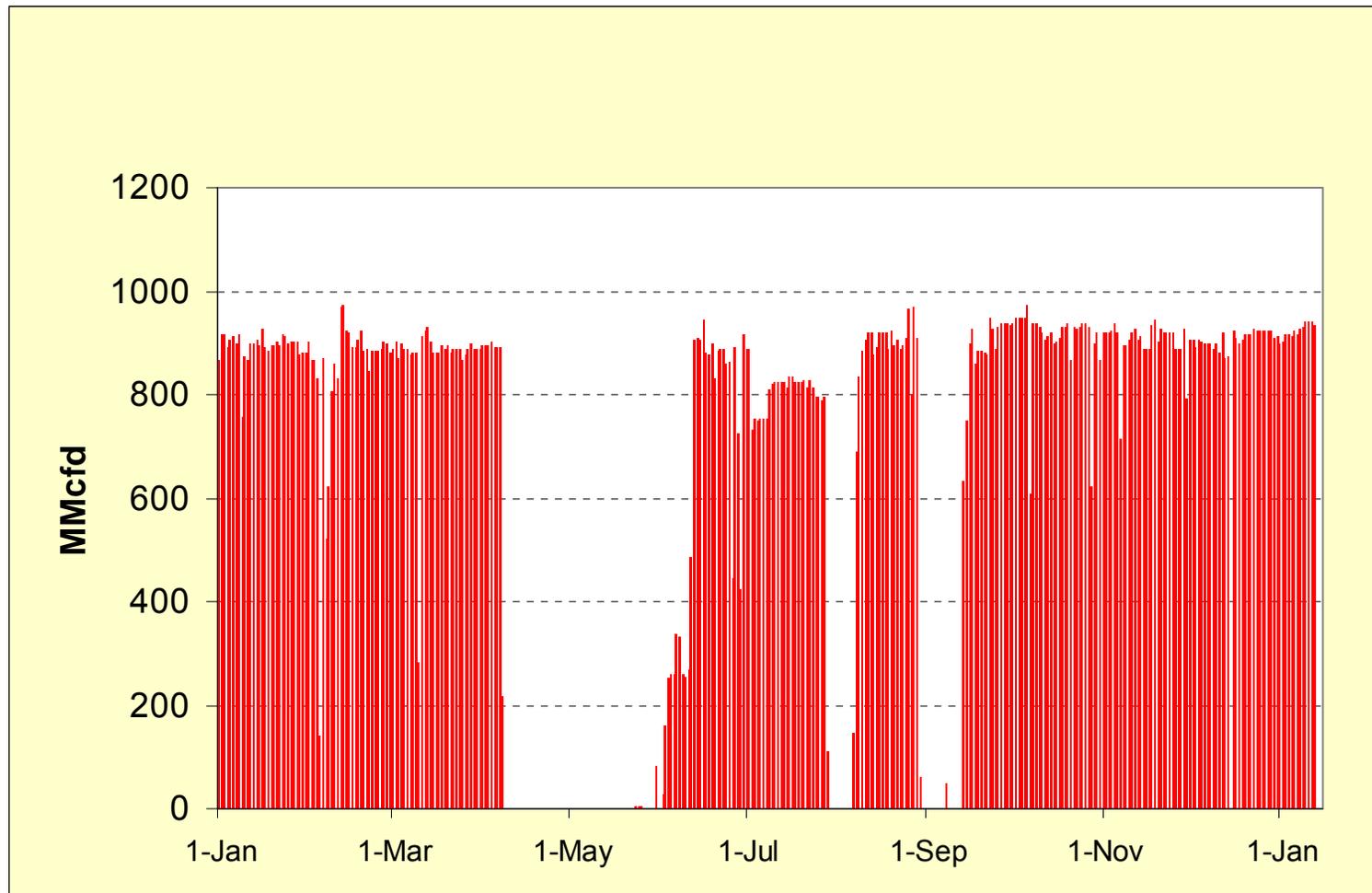


Note: Rockies includes Colorado and Wyoming.

Source: Derived from Bentek Energy data.

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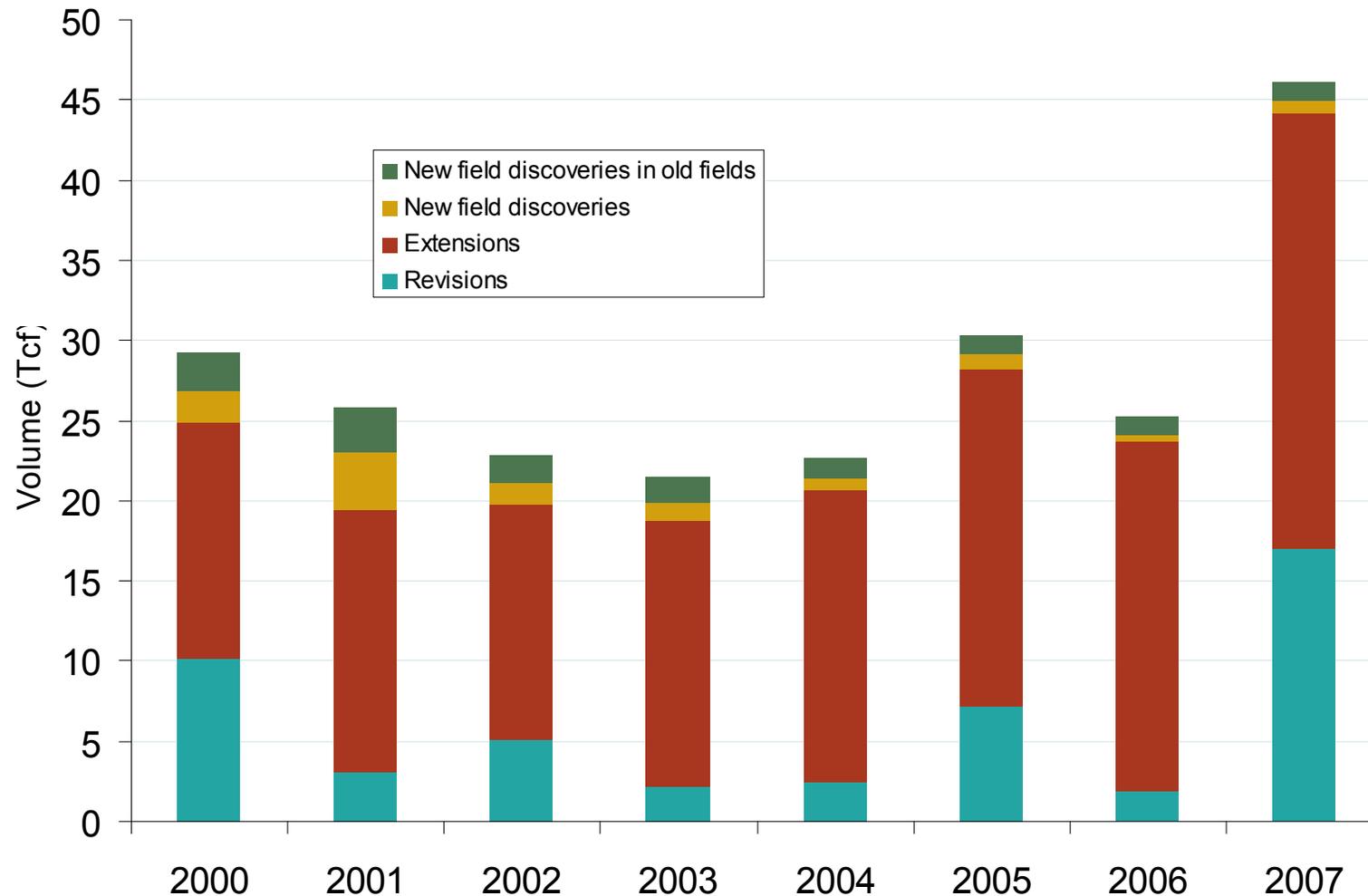
Outages Temporarily Reduced Independence Hub Gas Supplies



Source: Derived from Bentek Energy data.

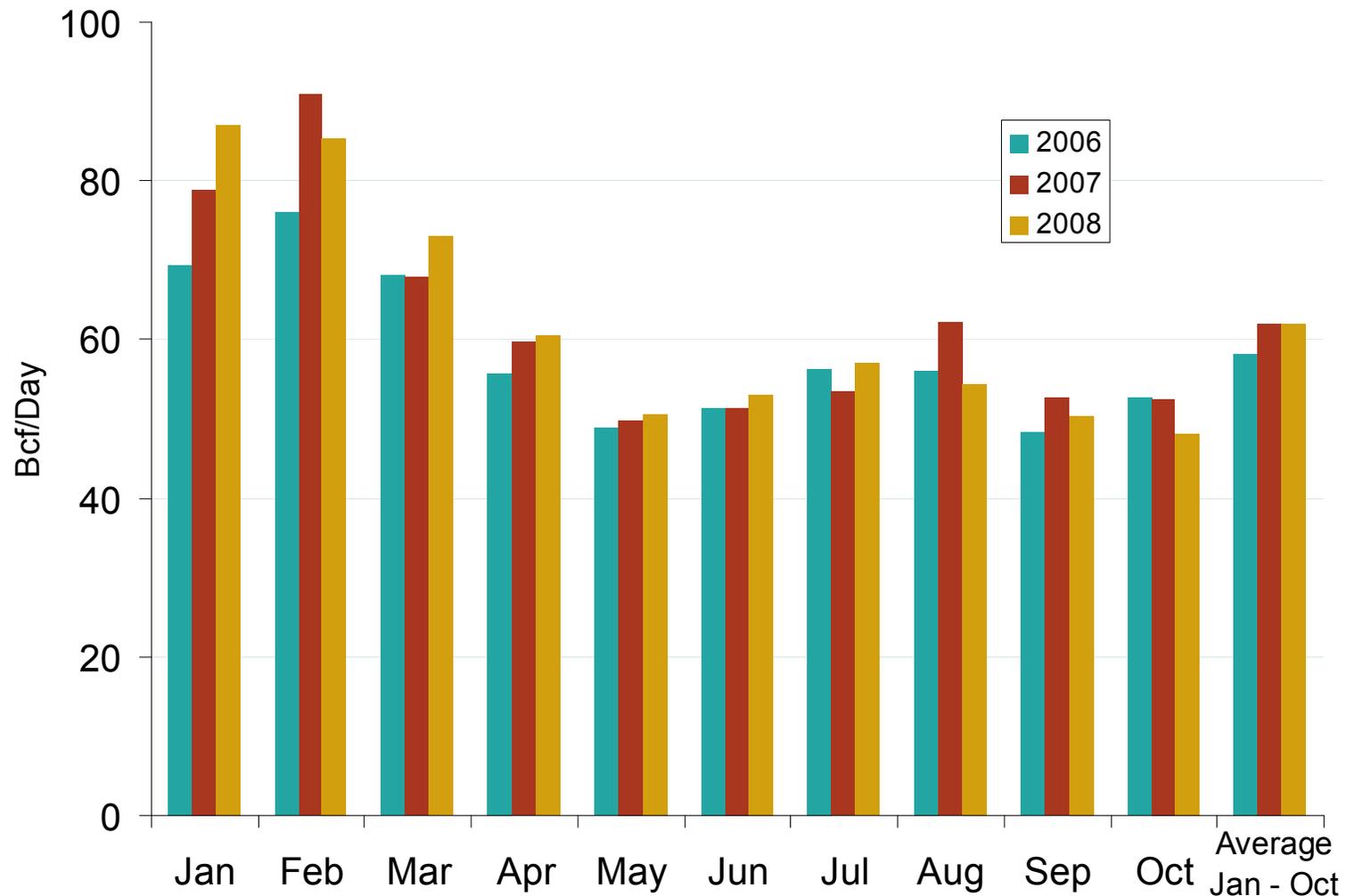
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Large Natural Gas Reserve Additions in 2007 Lead to Highest Reserves Since 1974



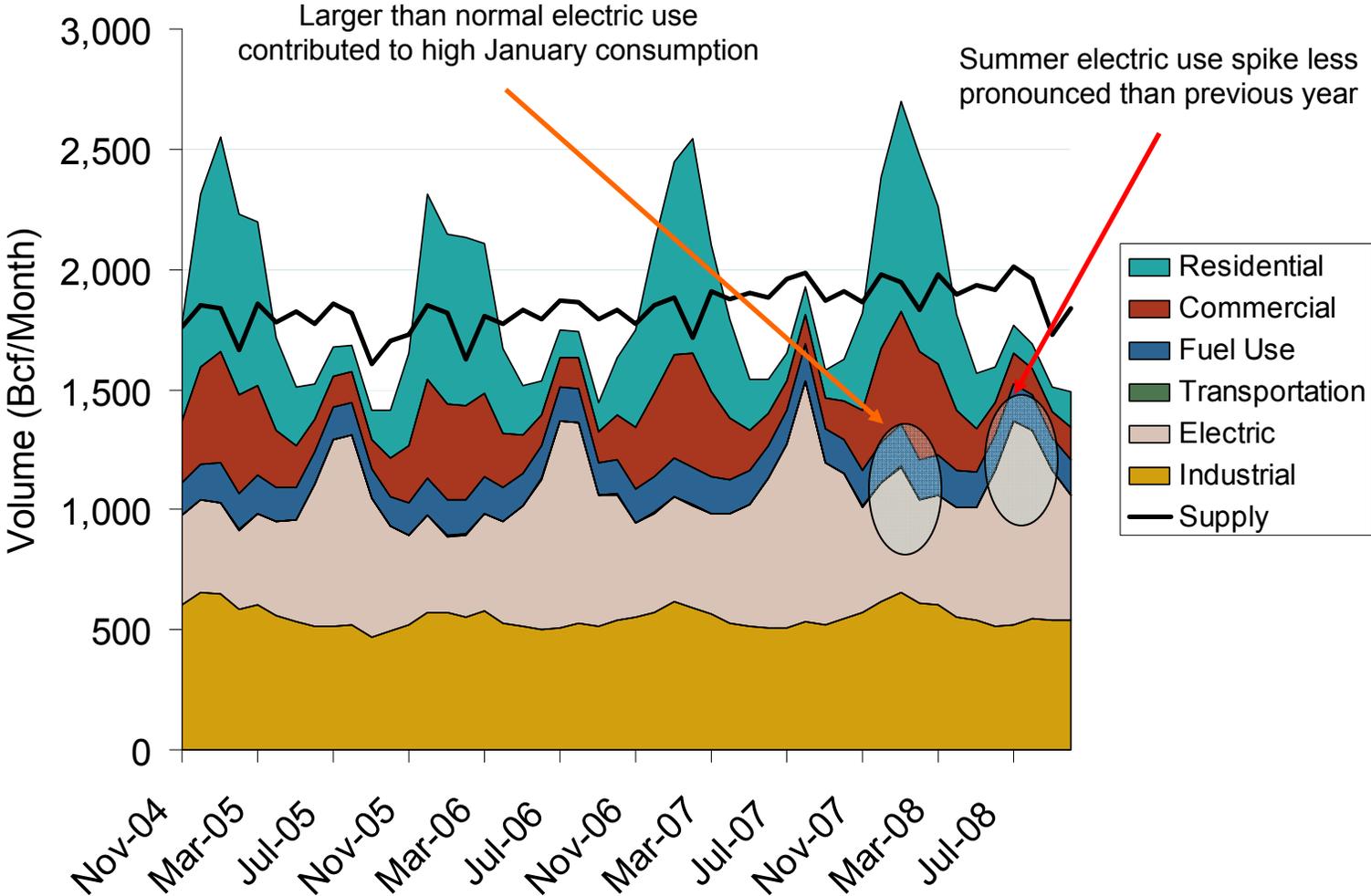
Source: Derived from EIA, *Annual Reserves Report*.
January 2009 Northeast Snapshot Report

High January Gas Consumption Boosts Consumption Growth in 2008



Source: Derived from EIA, *Monthly Energy Review*.
January 2009 Northeast Snapshot Report

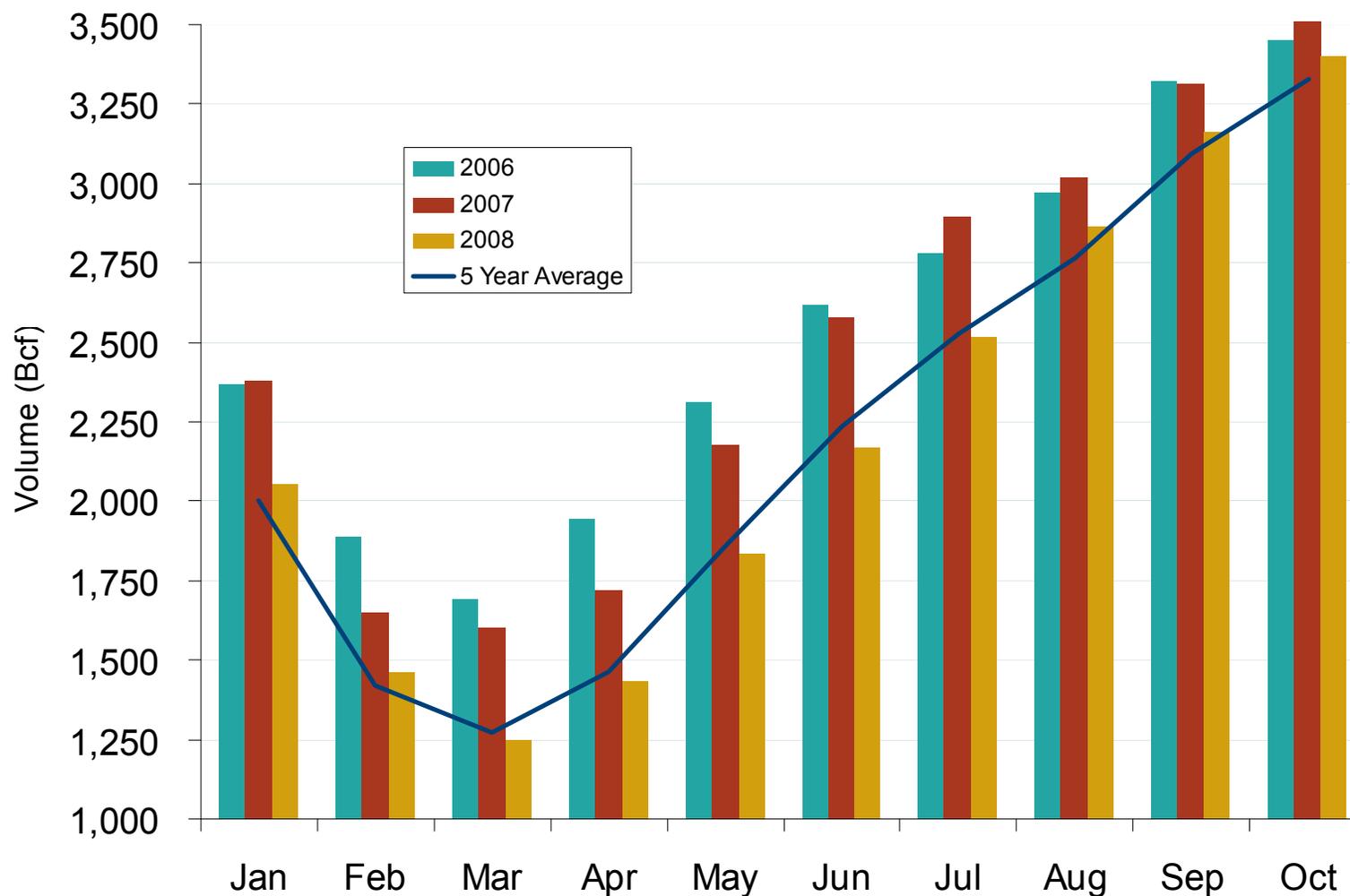
US Gas Consumption by Sector 2004-2008



Note: Supply includes lower 48 state production, net pipeline imports, and LNG imports.

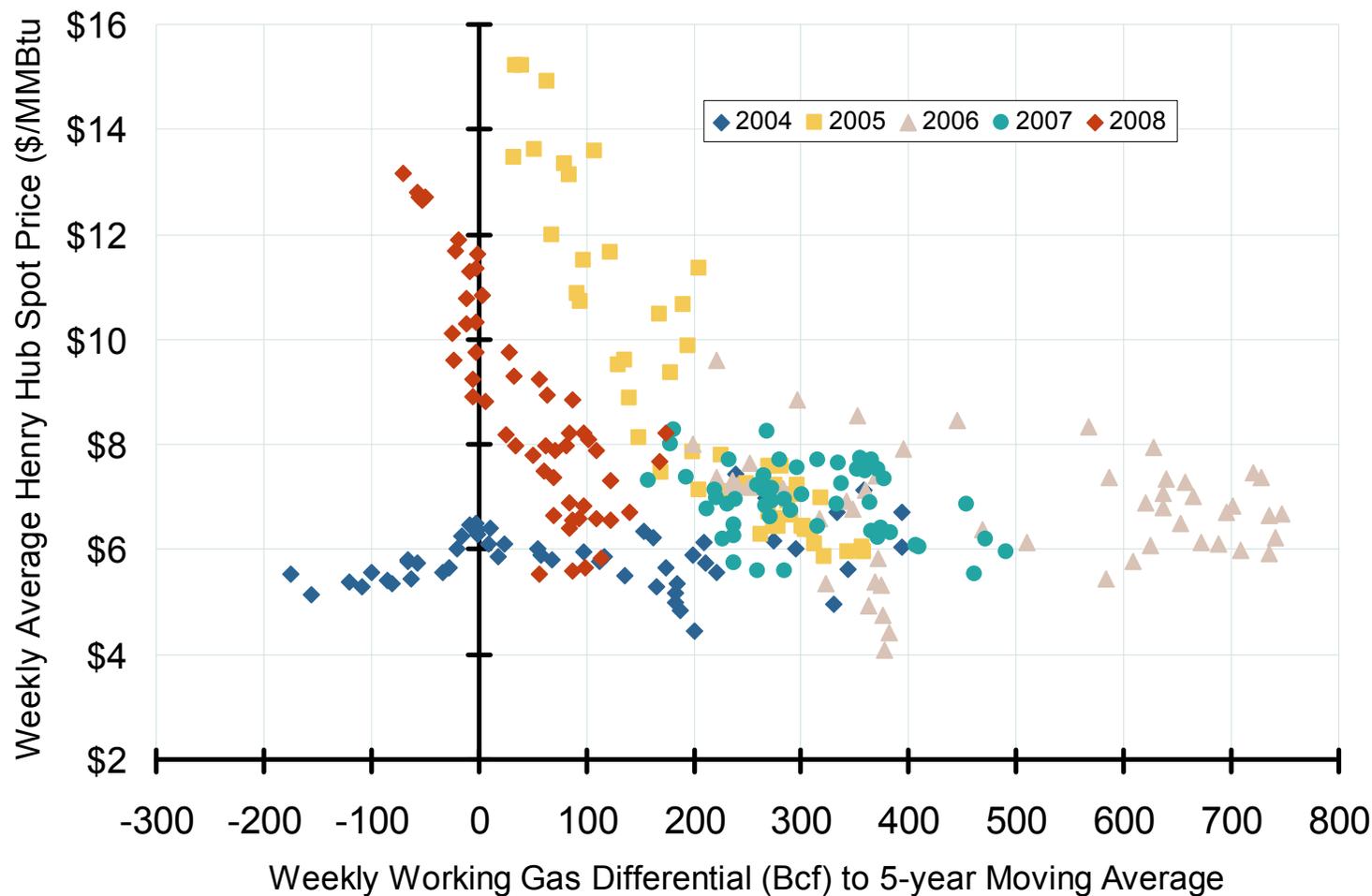
Source: Derived from EIA, *Monthly Energy Review*.

US Gas Inventories Approximate the 5-Year Average, But Were Below 2006-2007 Inventories

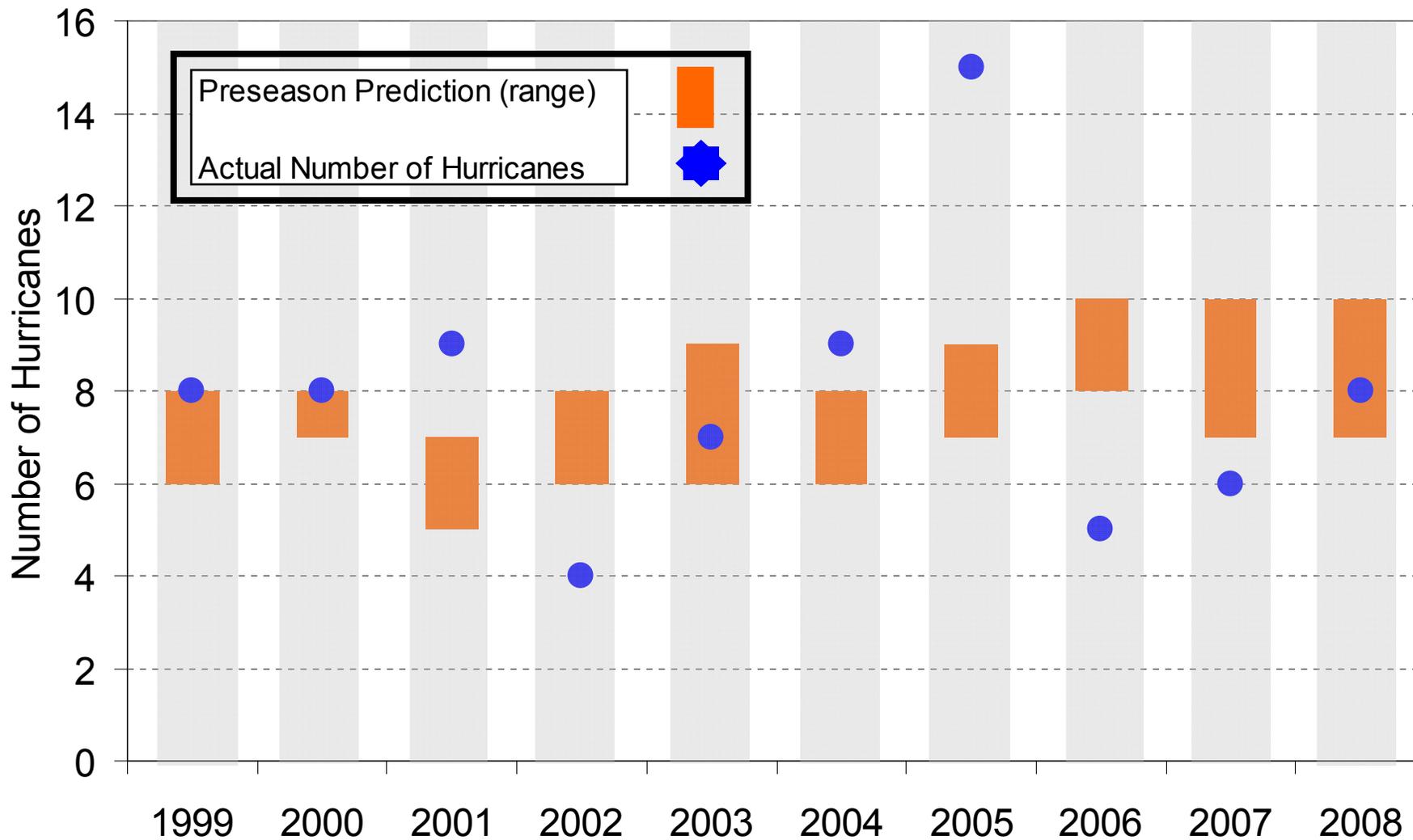


Source: Derived from EIA, *Monthly Energy Review*.
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Departures from Average Gas Inventories and Prices

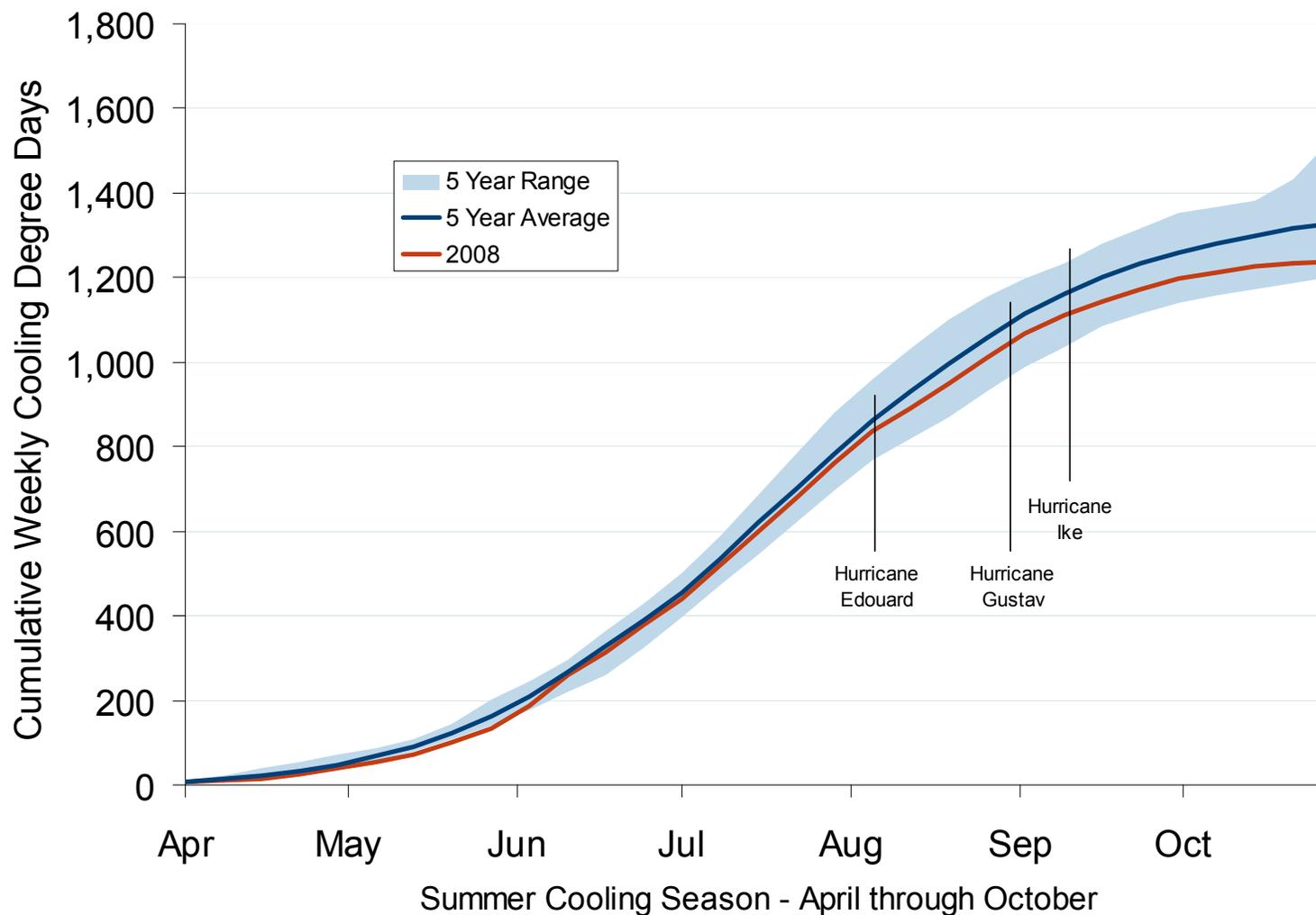


NOAA Forecasts for Above Average Hurricane Season



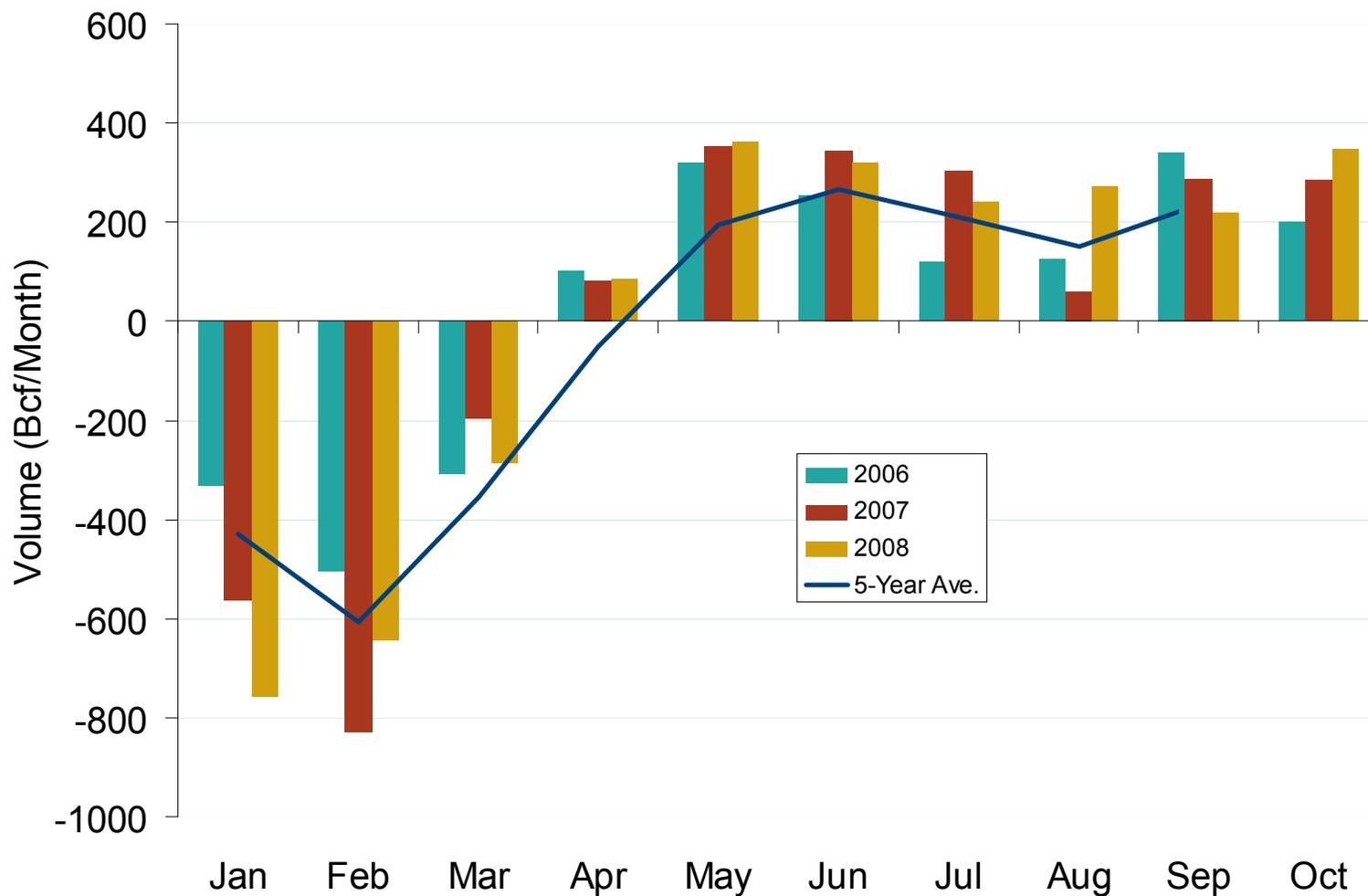
Source: Derived from NOAA data.
January 2009 Northeast Snapshot Report

Summer of 2008 Was Cooler Than the 5-Year Average



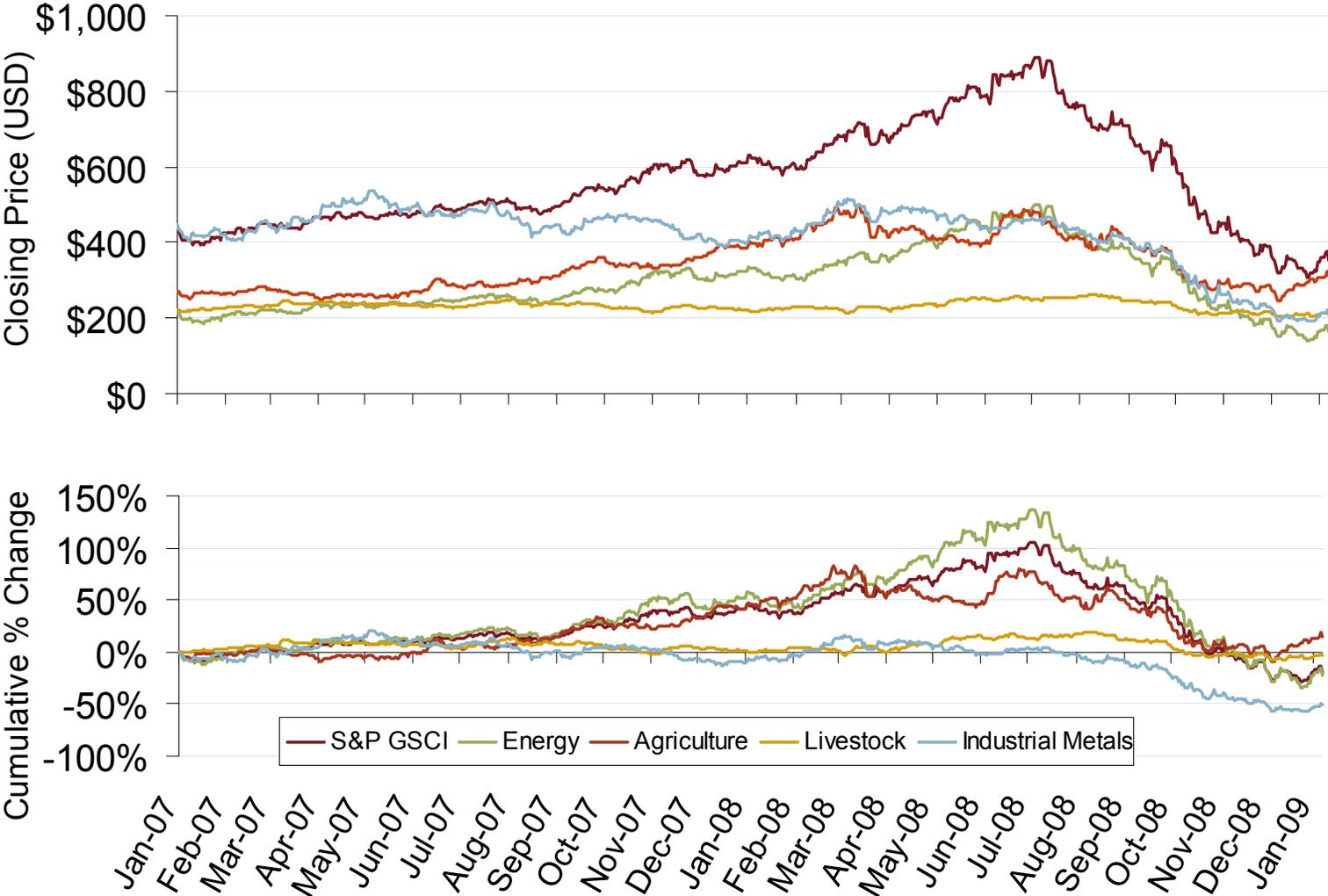
Source: Derived from NOAA data.
January 2009 Northeast Snapshot Report

US Gas Supply and Demand Balance Gas Market Well Supplied in 2008



Source: Derived from EIA, *Monthly Energy Review*.
January 2009 Northeast Snapshot Report

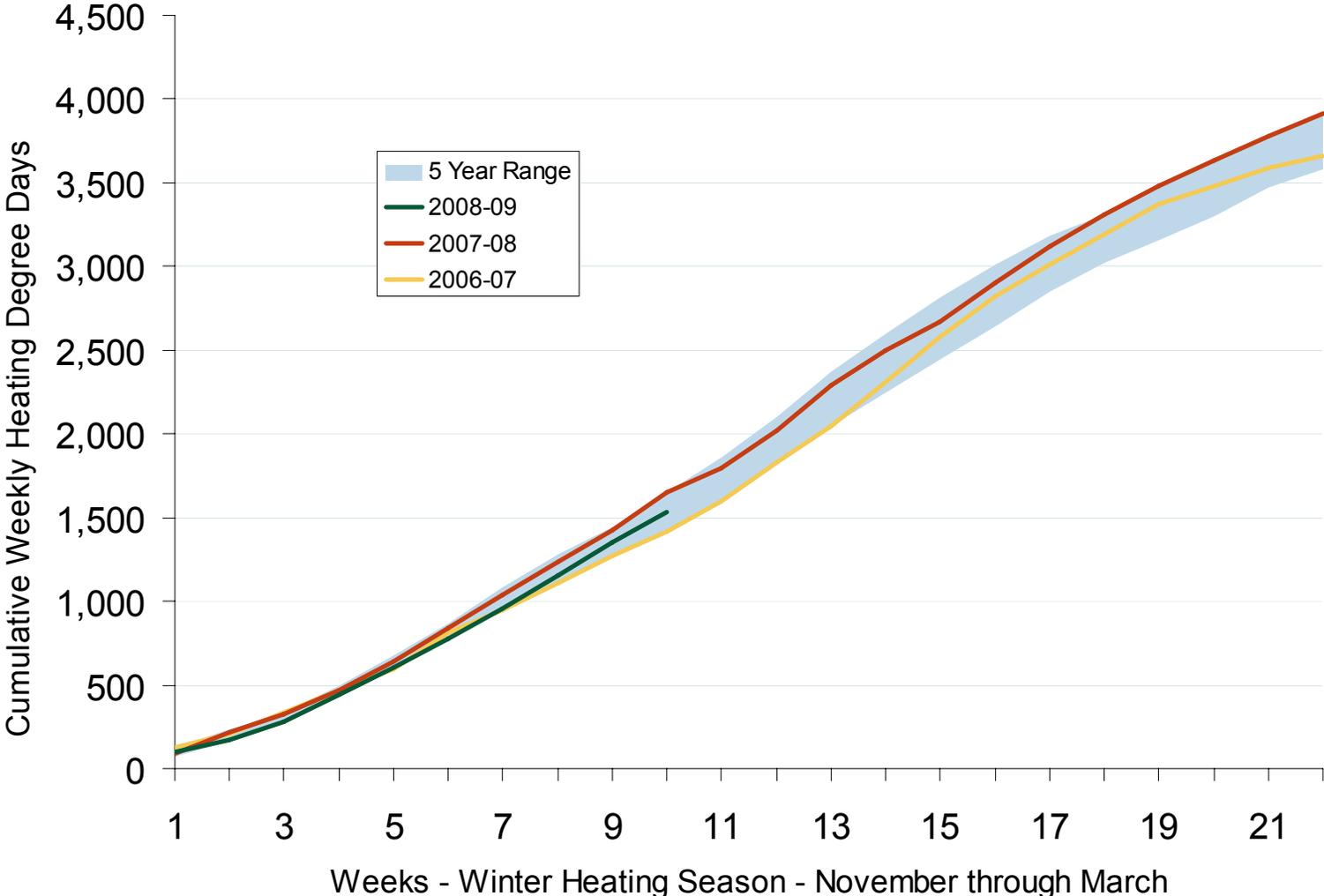
S&P Goldman Sachs Commodity Index Official Closing Price





Electricity Markets

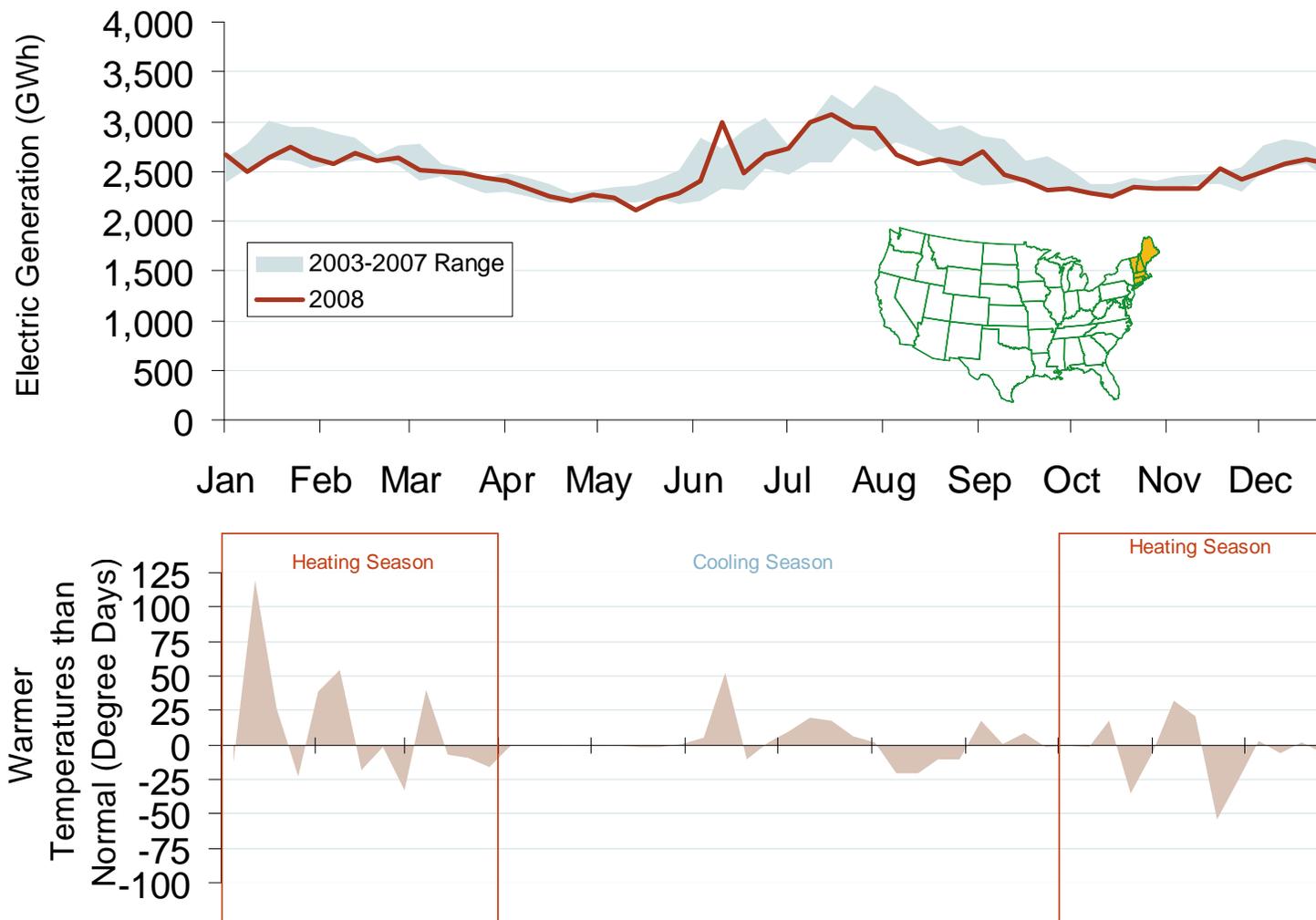
U. S. Winter Cumulative Heating Degree Days



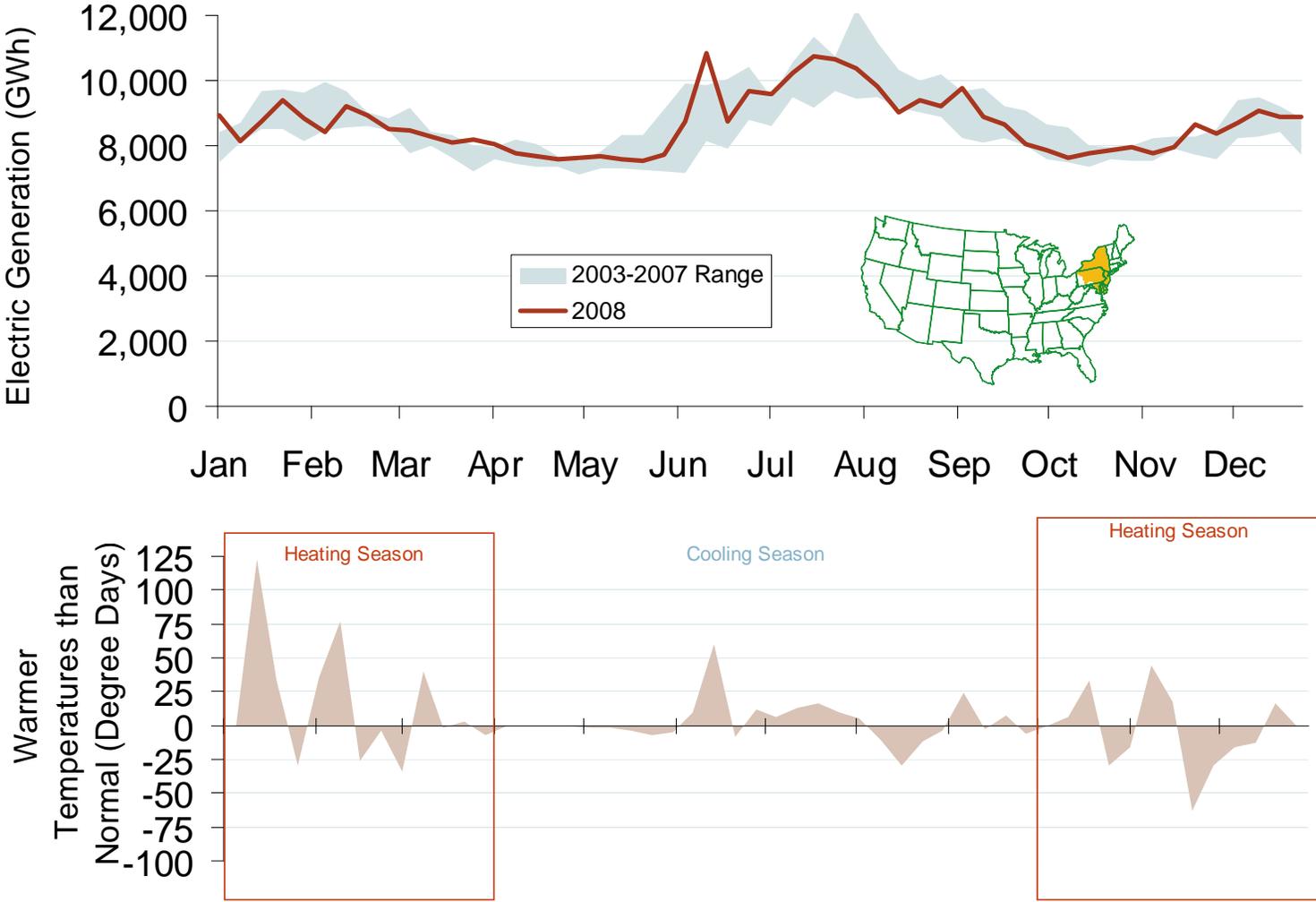
Source: Derived from NOAA data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

Weekly Electric Generation Output and Temperatures New England



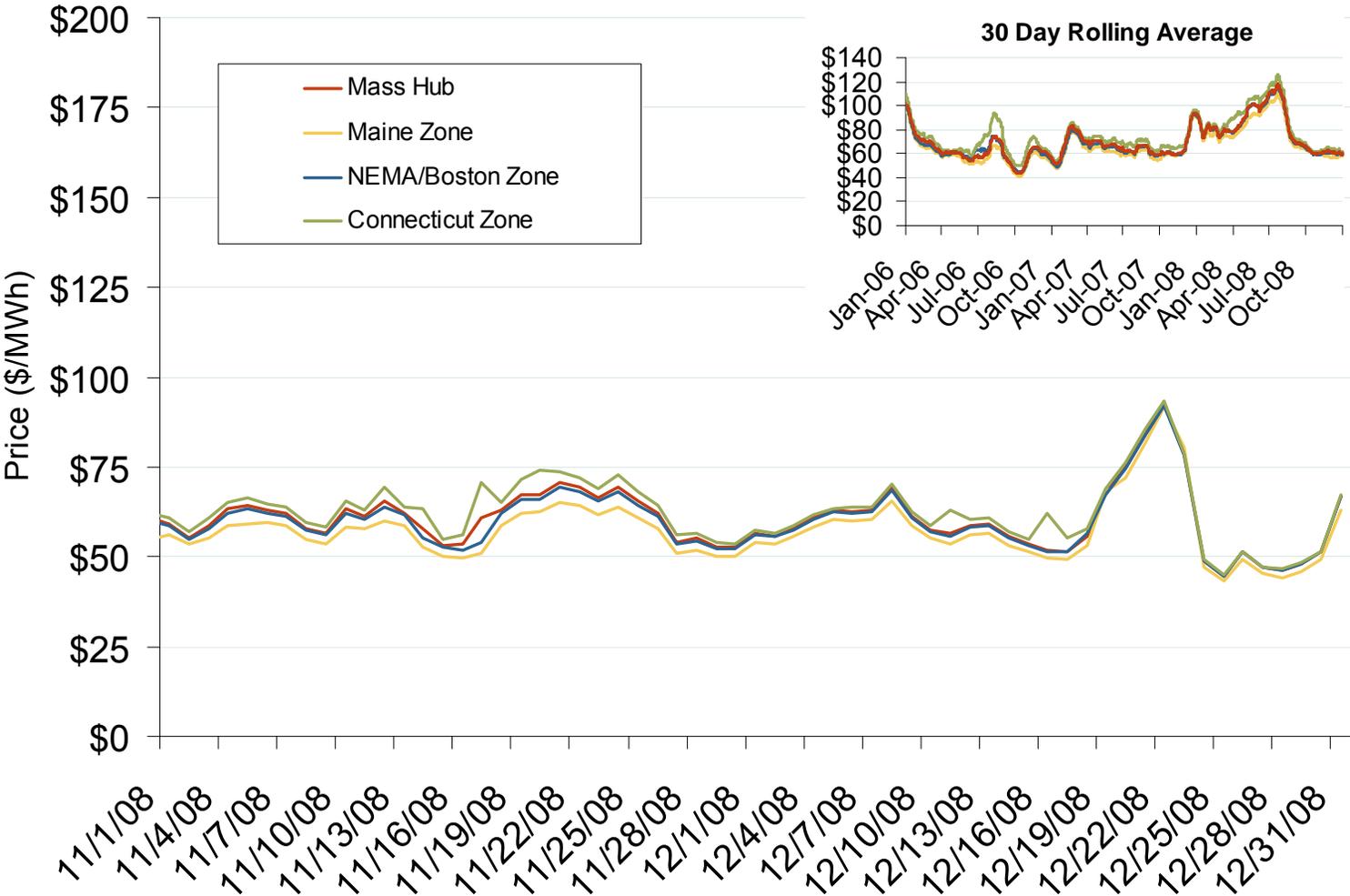
Weekly Electric Generation Output and Temperatures Mid Atlantic Region



Source: Derived from *EEI* and *NOAA* data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

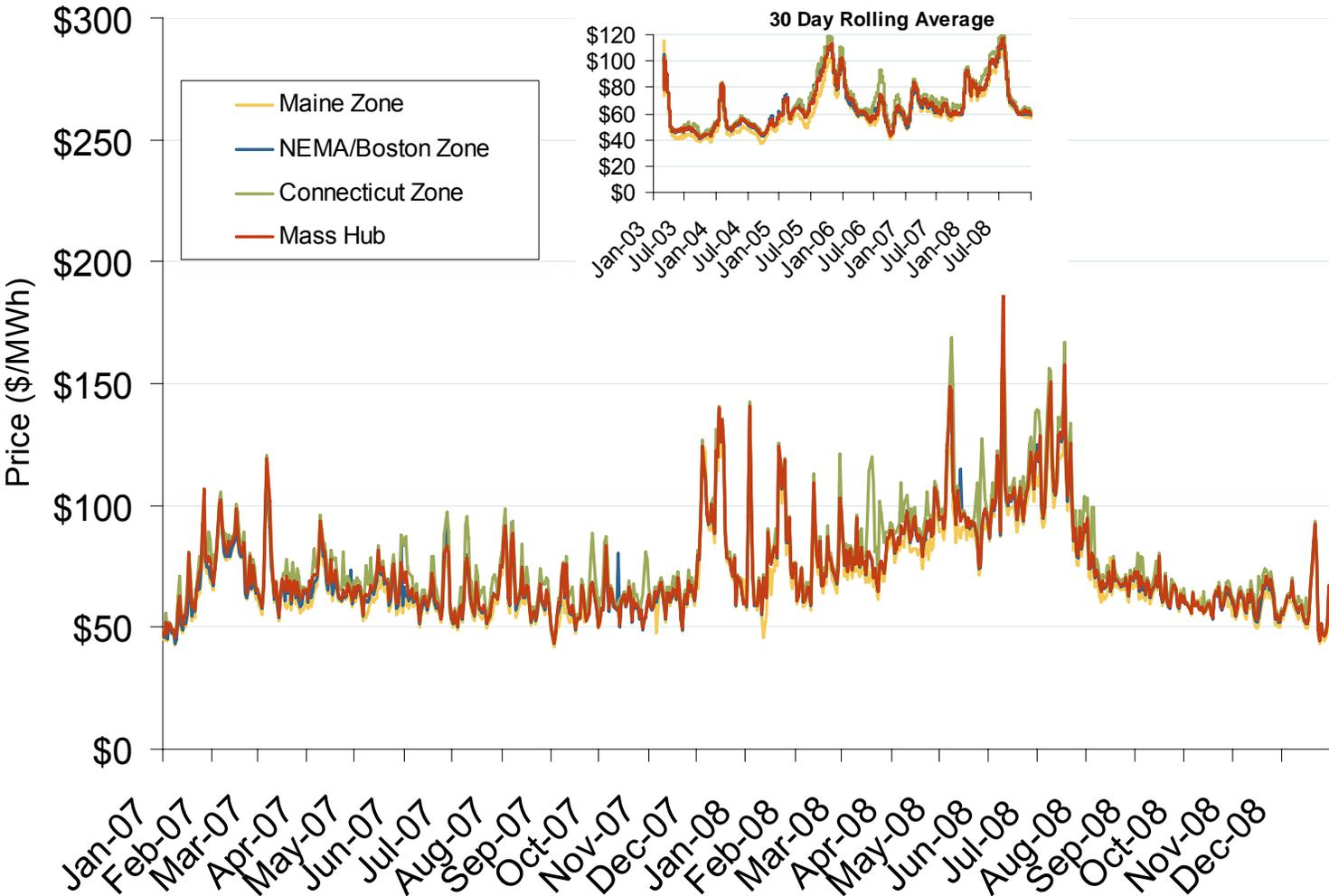
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from ISO-NE data as reported by Bloomberg.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

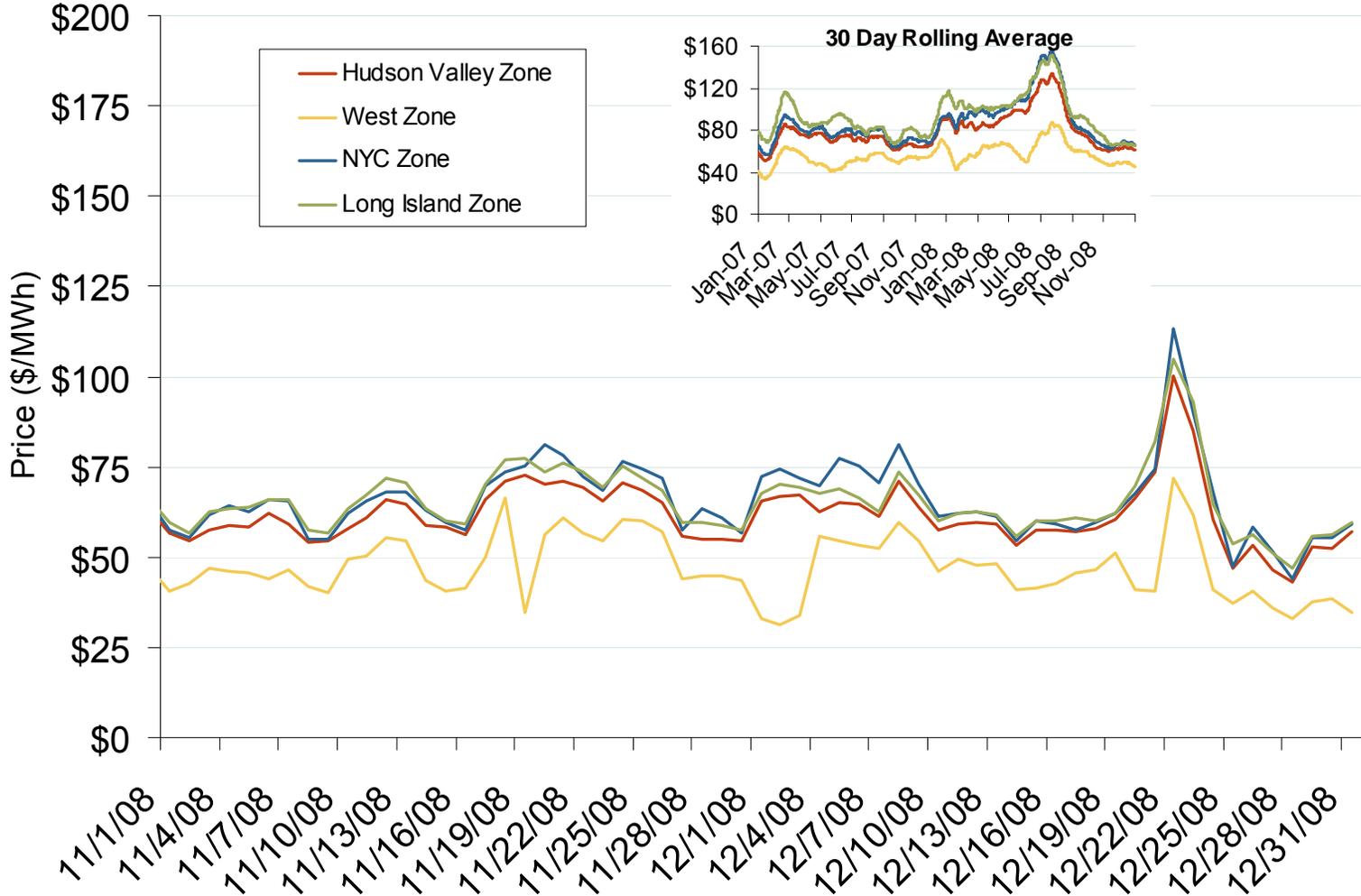
Daily Average of ISO-NE Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from ISO-NE data as reported by Bloomberg.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

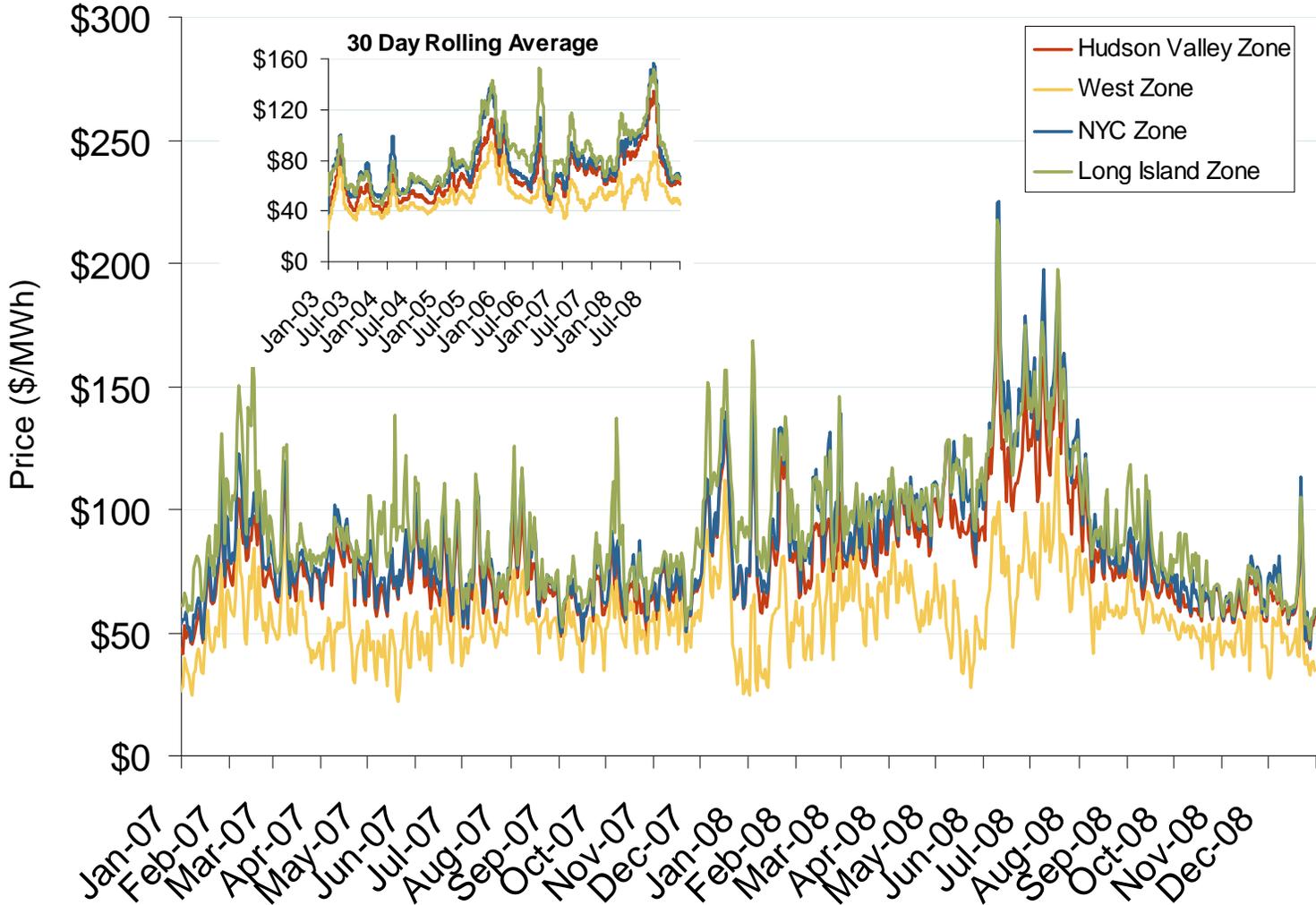
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from NYISO data as reported by Bloomberg. January 2009 Northeast Snapshot Report

Updated January 9, 2009

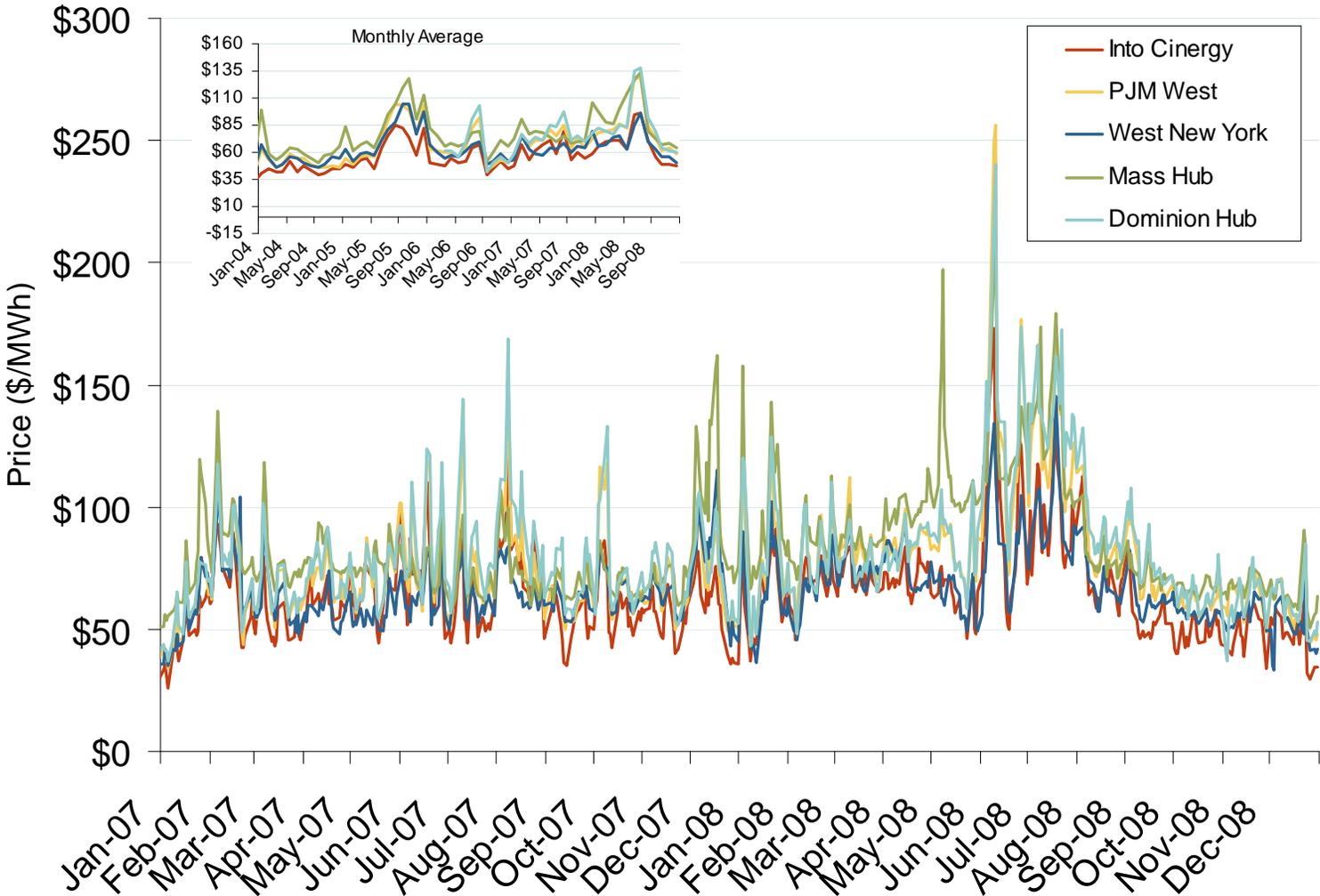
Daily Average of NYISO Day-Ahead Prices - All Hours



Source: Derived by Bloomberg from NYISO data as reported by Bloomberg.
January 2009 Northeast Snapshot Report

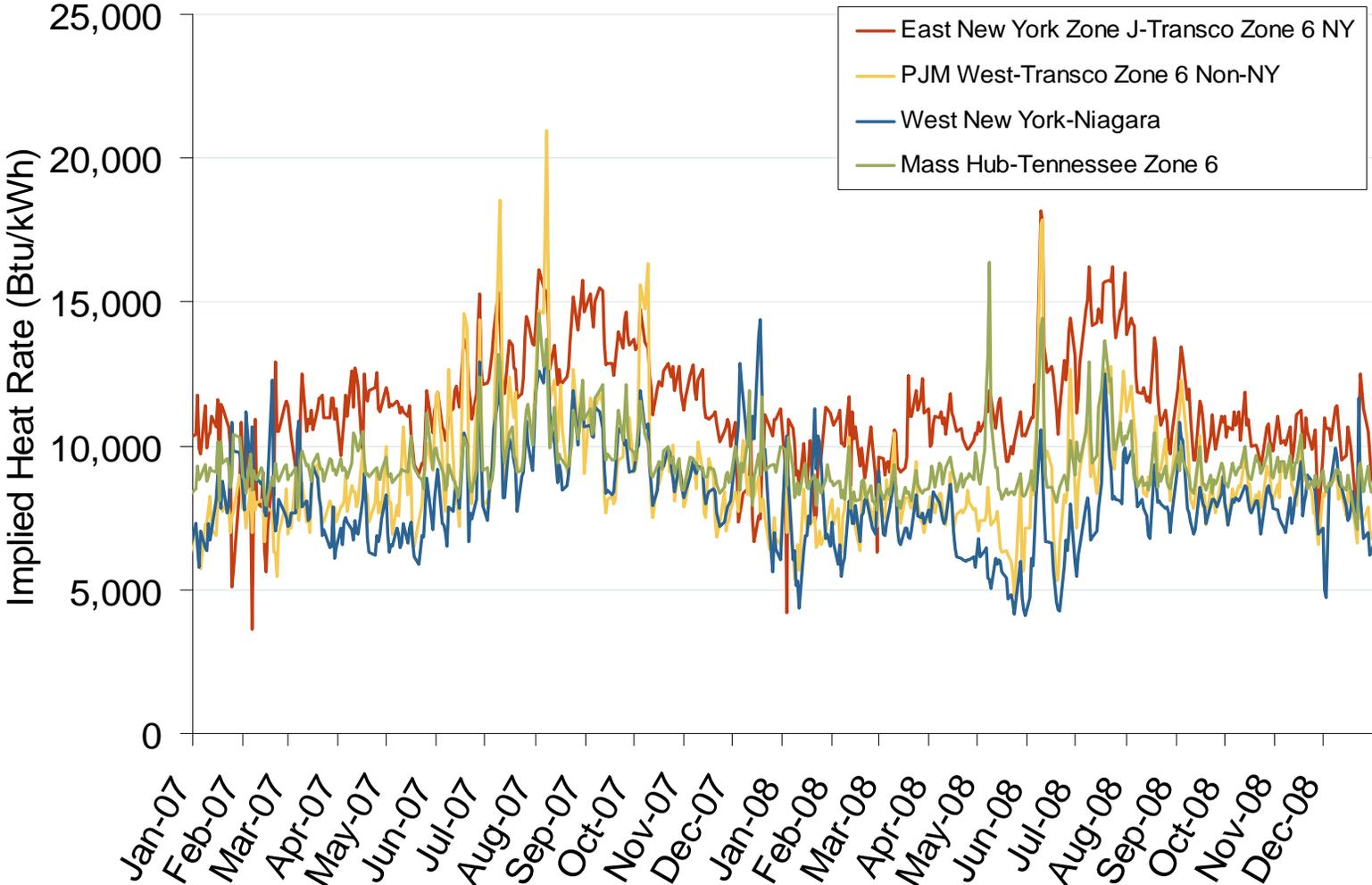
Updated January 9, 2009

Eastern Daily Bilateral Day-Ahead On-Peak Prices



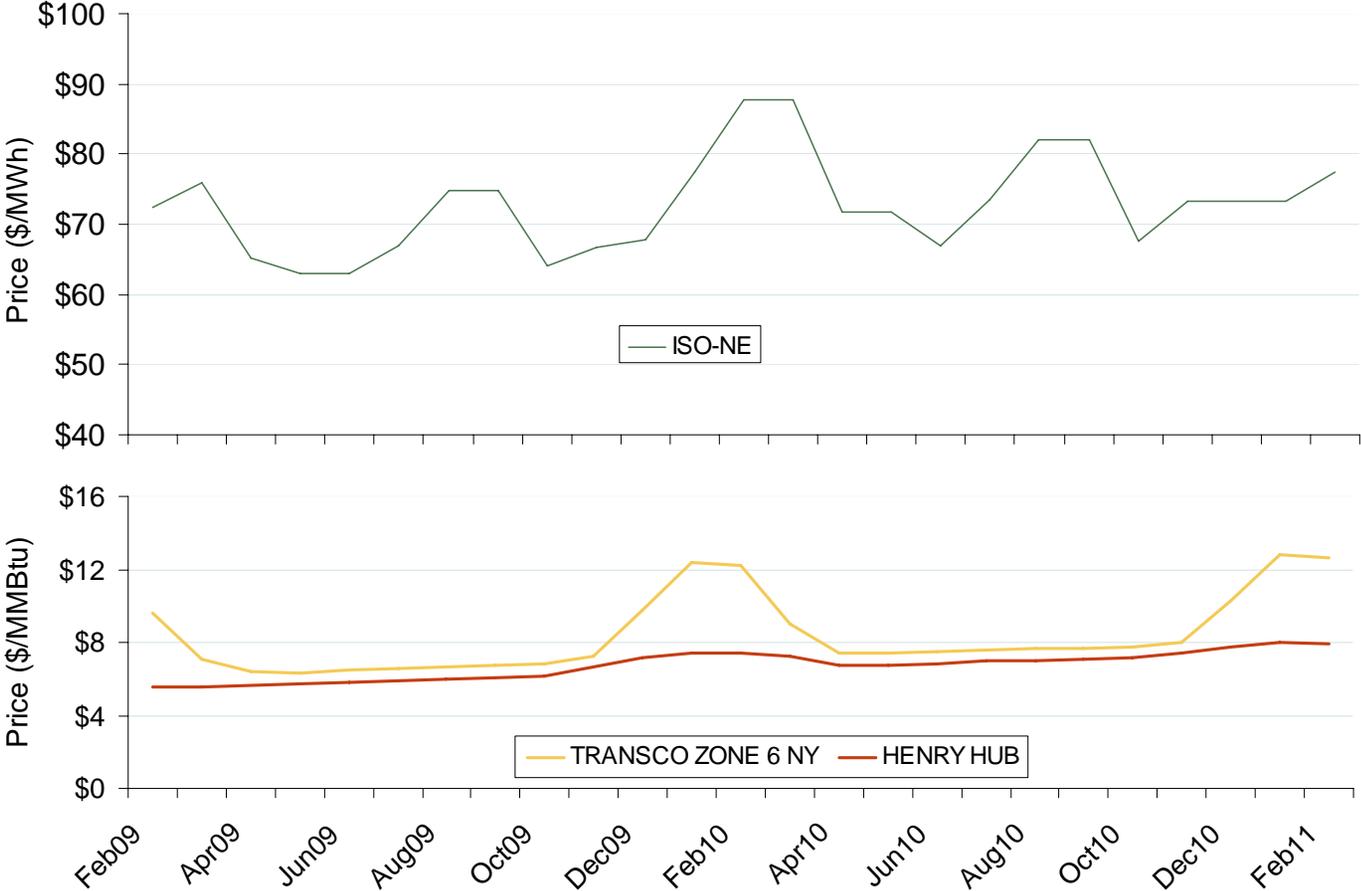
Source: Derived from *Platts* data.
January 2009 Northeast Snapshot Report

Implied Heat Rates at Eastern Trading Points



Source: Derived from *Platts* data
January 2009 Northeast Snapshot Report

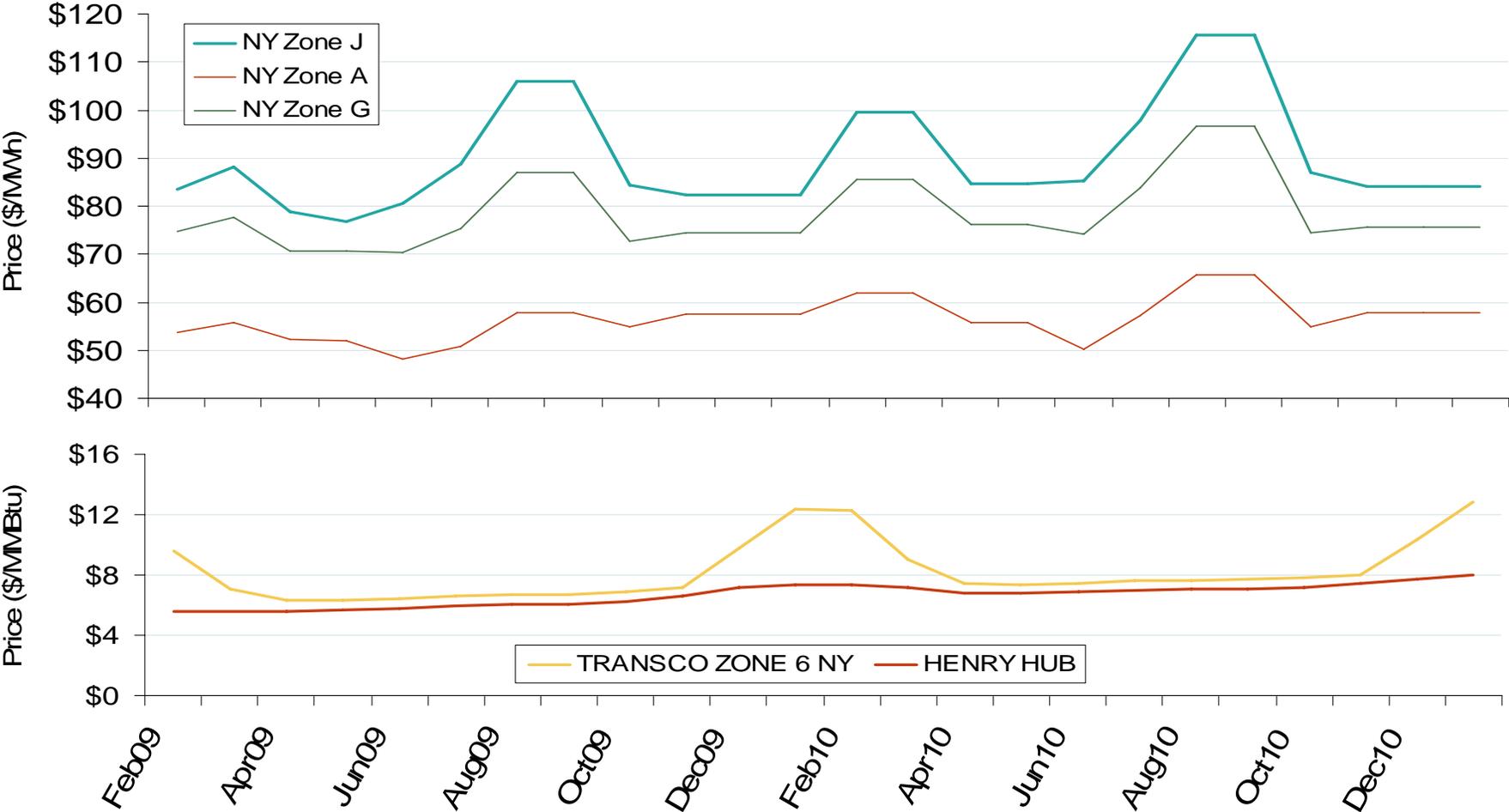
New England Electric Forward Price Curve and New York and Henry Hub Natural Gas Forward Curves



Source: Derived from Nymex data.
January 2009 Northeast Snapshot Report

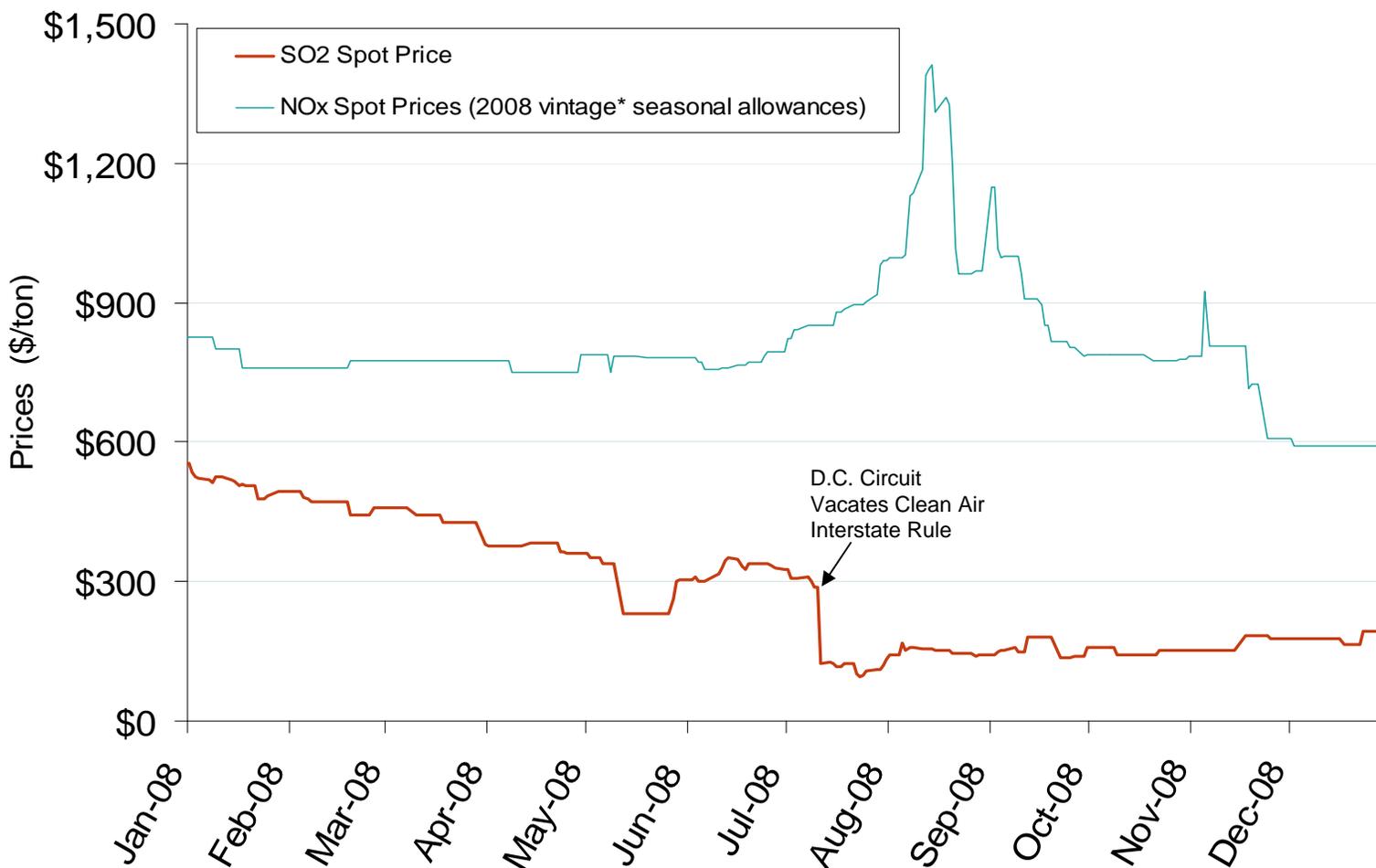
Updated January 9, 2009

New York Electric Forward Price Curves and New York and Henry Hub Natural Gas Forward Curves



Source: Derived from Nymex data.
January 2009 Northeast Snapshot Report

SO₂ Allowance Spot Prices and NOx Seasonal Allowance Spot Prices



Source: Derived from *Cantor Fitzgerald* data.

* Earliest year an allowance may be applied against emissions.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

Renewable Energy Portfolio Standards (RPS)

28 states and D.C. have an RPS

WA: 15% by 2020
OR: 25% by 2025; small utilities 5-10%
ID: Priority to DR, EE, and in-state RE
CA: 20% by 2010; goal: 33% by 2020
NV: 20% by 2015; solar 5% per year
UT: 20% by 2025
CO: 20% by 2020; co-ops & munis 10%; includes 4% solar
AZ: 15% by 2025; includes 30% DG
NM: 20% by 2020; co-ops 10%
TX: 5,880 MW by 2015; goal: 10,000 MW by 2025

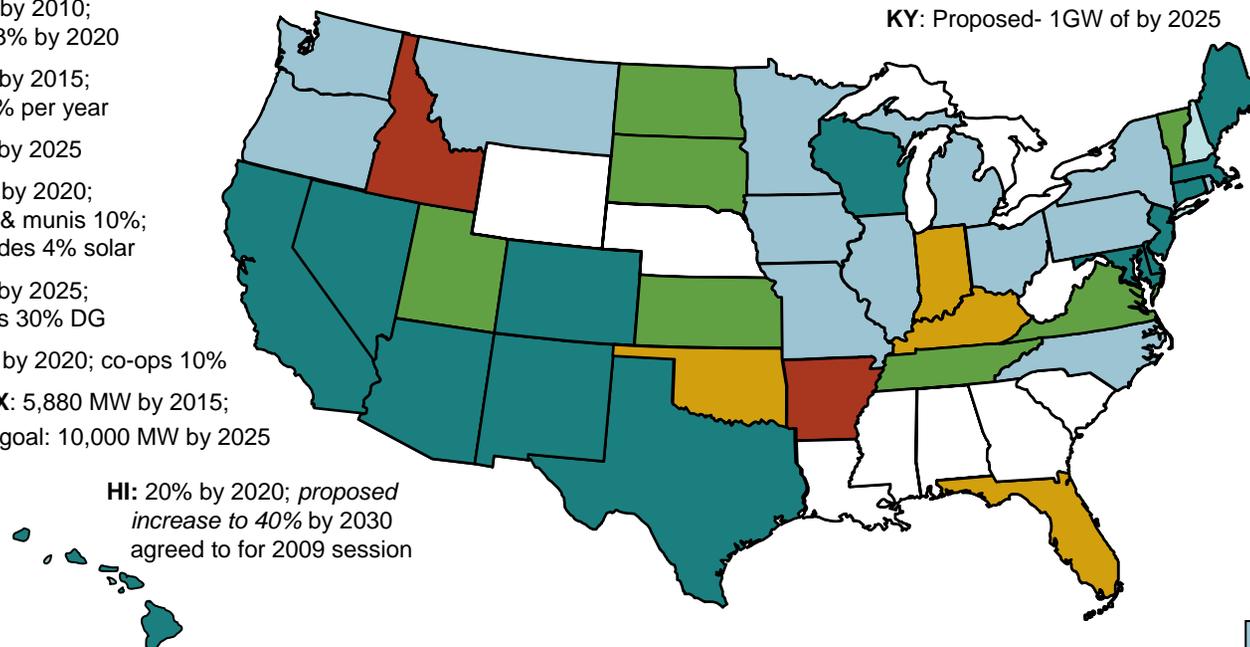
MT: 15% by 2015
ND: 10% by 2015
SD: 10% by 2015
KS: 20% wind by 2020
OK: Studying an RPS

MN: 25% by 2025
 Xcel 30% by 2020
IA: 1,105 MW by 2011*
MO: 15% by 2021; at least 2% solar
AR: Utility IRPs to include RE

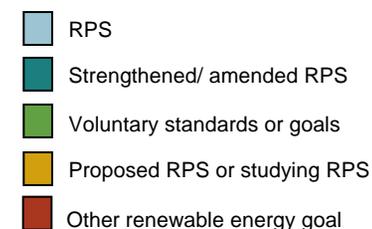
WI: 10% by 2015
IL: 25% by 2025
MI: 10% by 2015, and new RE capacity: 1,100 MW by 2015
OH: 12.5% by 2025; 0.5% solar
IN: Introduced- 25% by 2026

KY: Proposed- 1GW of by 2025

ME: 40% by 2017
 goal: 3 GW wind by 2020
NH: 23.8% BY 2025
VT: 25% by 2025
MA: 15% by 2020; goal: 250 MW solar by 2017
RI: 16% by 2019
CT: 23% Class I/II by 2020
 4% Class III by 2010
NY: 25% by 2013
PA: 8% Tier I, 10% Tier II by 2020; 0.5% solar set-aside
NJ: 22.5% by 2020; 2% solar
DE: 20% by 2019, with 2% solar
DC: 20% by 2020, with 0.4% solar
MD: 20% by 2022, with 2% solar
VA: 12% by 2022
TVA: 50% of generation from zero- or low-carbon sources by 2020*
NC: 12.5% by 2021
 co-ops & munis: 10% by 2018
FL: PSC draft RPS: 20% by 2020



HI: 20% by 2020; *proposed increase to 40% by 2030 agreed to for 2009 session*



Updates at: <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-rps.pdf>

Notes: Alaska has no RPS; * Iowa has a goal of 1,000 MW of wind by 2010; TVA's "Renewable Energy and Clean Energy Assessment" is from the Public Power Authority; it is not a state policy.

Abbreviations: DG: distributed generation; DR: demand response; EE: energy efficiency; IRP: integrated resource plan.

Sources: Derived from data in: EEI, EIA, LBNL, PUCs, State legislative tracking services, Database of State Incentives for Renewables and Efficiency, Pew Center, and the Union of Concerned Scientists.

Updated January 13, 2009

Renewable Energy Portfolio Standards

- **A Renewable Portfolio Standard (RPS)** requires a percent of energy sales or installed capacity to come from renewable resources.
- **29** states and D.C. have renewable energy standards.
- **Six** states have renewable goals without financial penalties: UT, ND, KS, MO, SD, VA, and VT.
- **Sixteen** states include energy efficiency in their RPS or renewable goals; more are considering energy efficiency additions or companion bills.
- Recent state policy developments include:
 - **Indiana** introduced an RPS. Similar bills were introduced before, but did not pass. (Jan 7)
 - **New York** Governor Patterson called for increasing the RPS to 30% by 2015, and decreasing electric use by 15% through EE measures, dubbing his plan “45 by 15.” (Jan 7)
 - **Delaware’s** Energy Advisory Group recommended expanding the RPS to include two large munis and co-ops and evaluating whether to increase the RPS to 20% by 2020. (Jan 8)
 - **Florida’s PSC** approved a draft RPS that now goes to the legislature to be ratified. (Jan 9)
 - **Kansas** Governor Sibelius’ 2009 legislative plan includes codifying the voluntary RPS. (Jan 9)
 - **Wisconsin** and **Hawaii** announced in late 2008 they would seek to amend and strengthen their RPS’s in the 2009 legislative session.

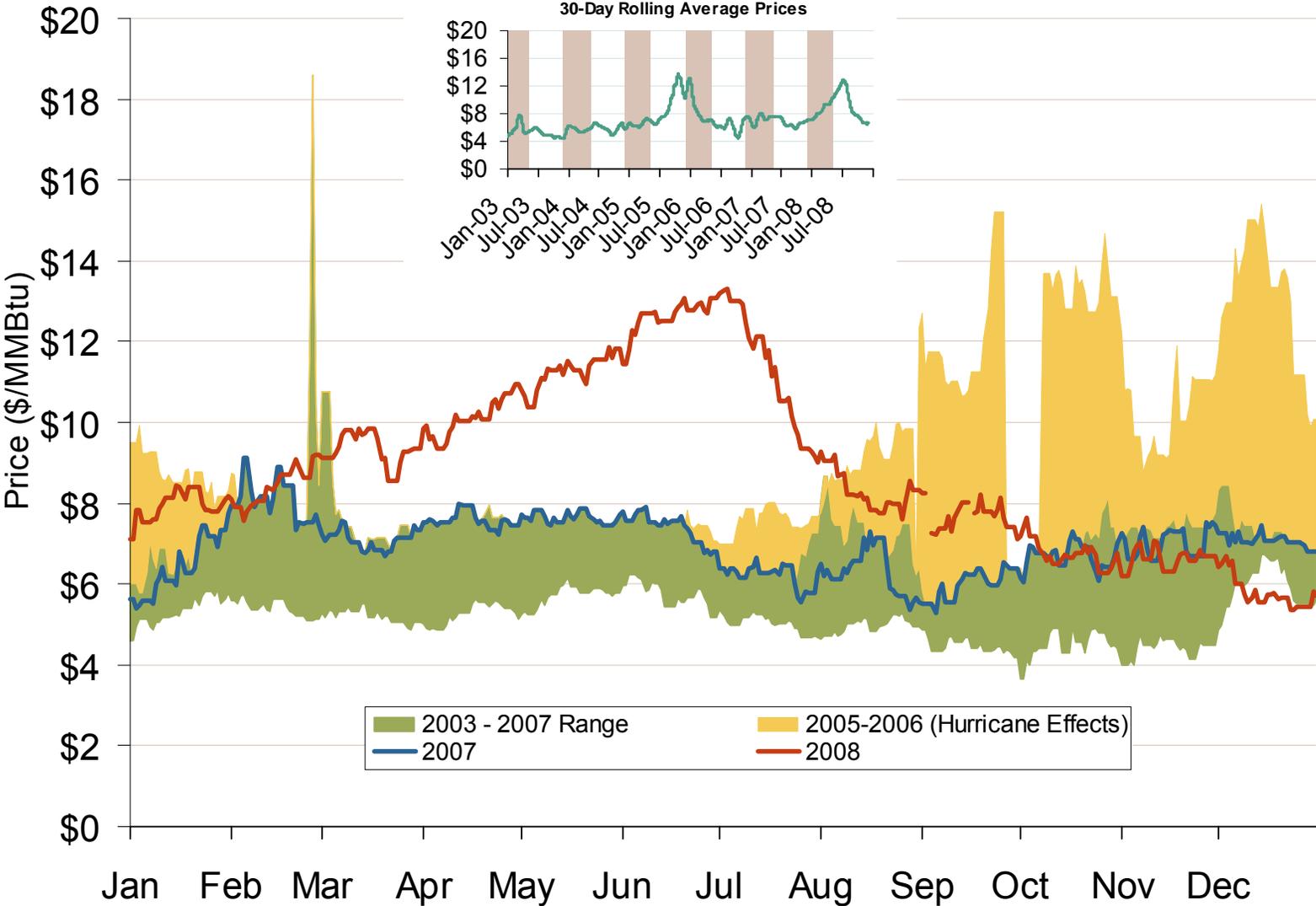
OVERVIEW OF 2008 RPS DEVELOPMENTS:

- **Three states passed a new RPS:** Ohio, Michigan, and Missouri. Ohio’s and Michigan’s were by state legislation; Missouri’s was the third RPS to pass by ballot (after Colorado and Washington state).
- **Five jurisdictions amended or strengthened** existing standards: Washington, D.C.; Maryland; Massachusetts; Minnesota; and New Hampshire.
- **Four states** with an existing goal or RPS strengthened them: ME, VT, CA, HI. Maine enacted an installed wind goal. Vermont increased its goal to 25% RE by 2025. California’s goal, set by Executive Order, is to increase RE to 33% by 2020. Hawaii set a goal of 70% of energy from renewable sources by 2030.
- **Four states** adopted a voluntary RPS or renewable goal: SD, UT, KS, and FL. South Dakota (Feb) and Utah (April) and enacted goals without non-compliance penalties. An MOU between the Governor and Kansas utilities created its goal. Florida’s goal, via Executive Order, is for utilities to produce 20% from RE, but its PSC approved a draft RPS (Jan 9) that will be sent to the legislature by Jan 30.
- Kentucky and Oklahoma are working to establishing a renewable standard by legislation in 2009. In 2008, OK passed a bill allowing recovery of wind-related transmission costs.
- Several states issued major energy plans or draft plans with goals encompassing renewable energy, energy efficiency, and greenhouse gas reduction, including Kentucky, New Jersey, New York, and Vermont.



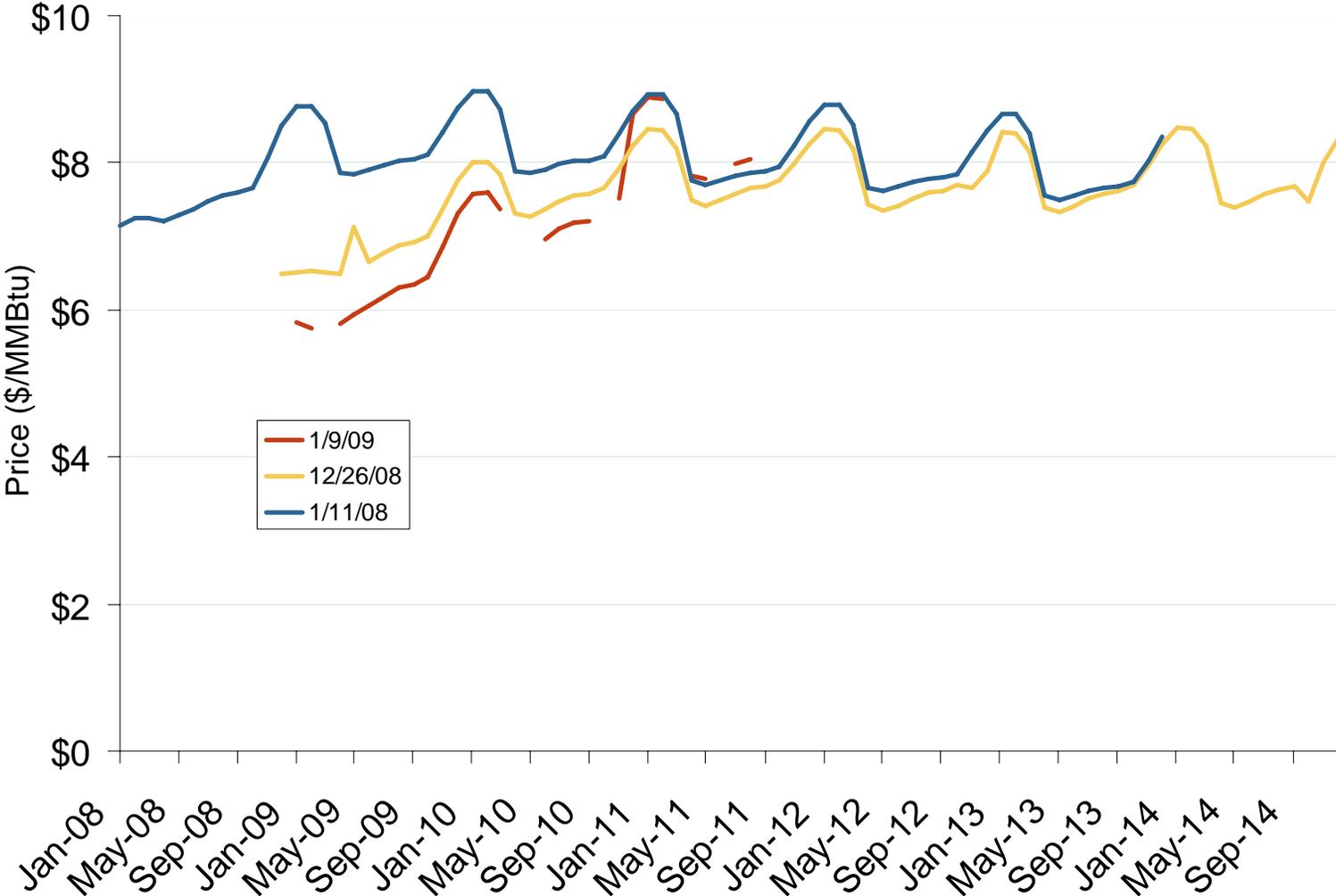
Natural Gas and Fuel Markets

Henry Hub Natural Gas Daily Spot Prices 2007, 2008 and 2003-2007 Year Range



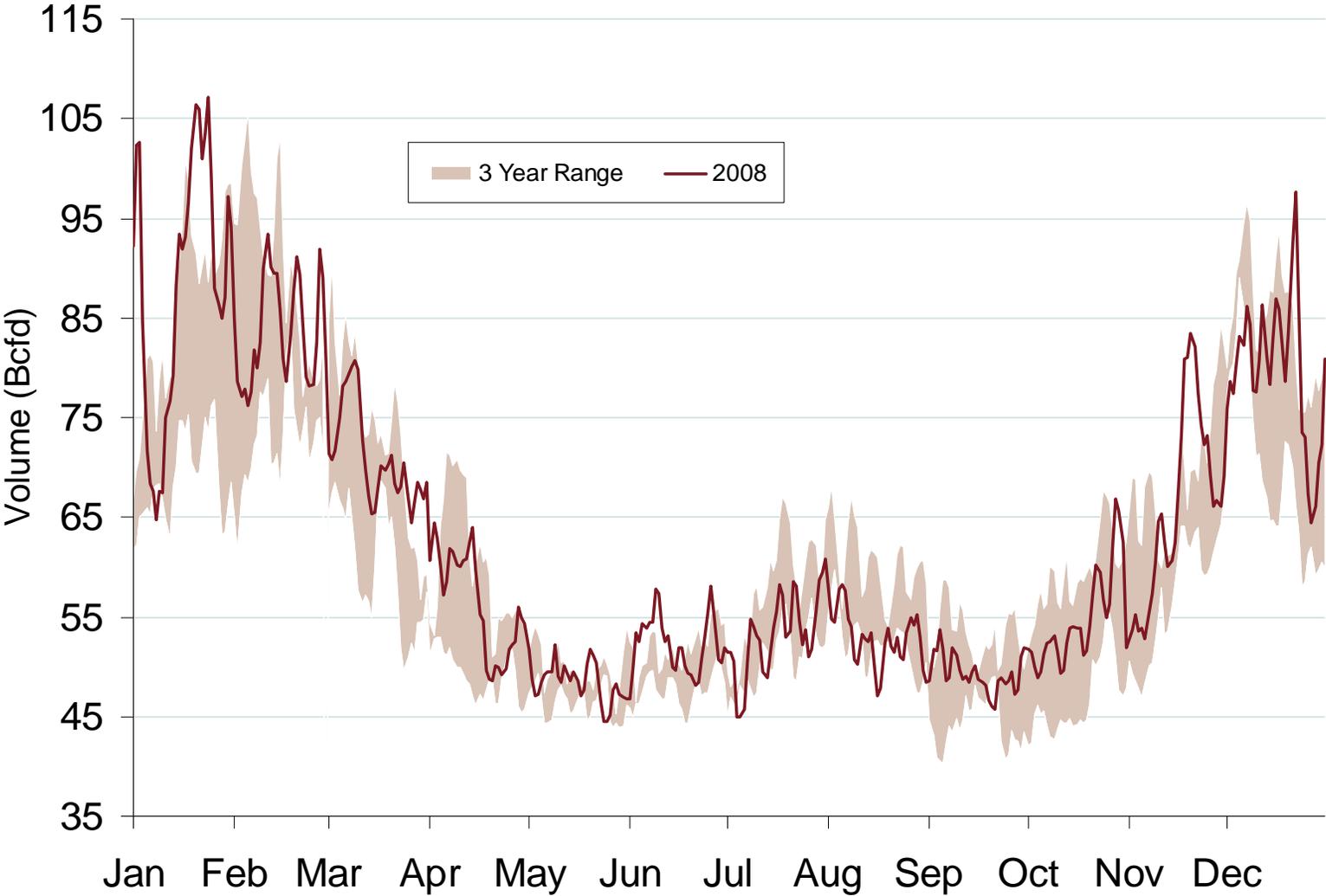
Source: Derived from *Platts* data.

NYMEX Natural Gas Forward Price Curve



Source: Derived from NYMEX data.
January 2009 Northeast Snapshot Report

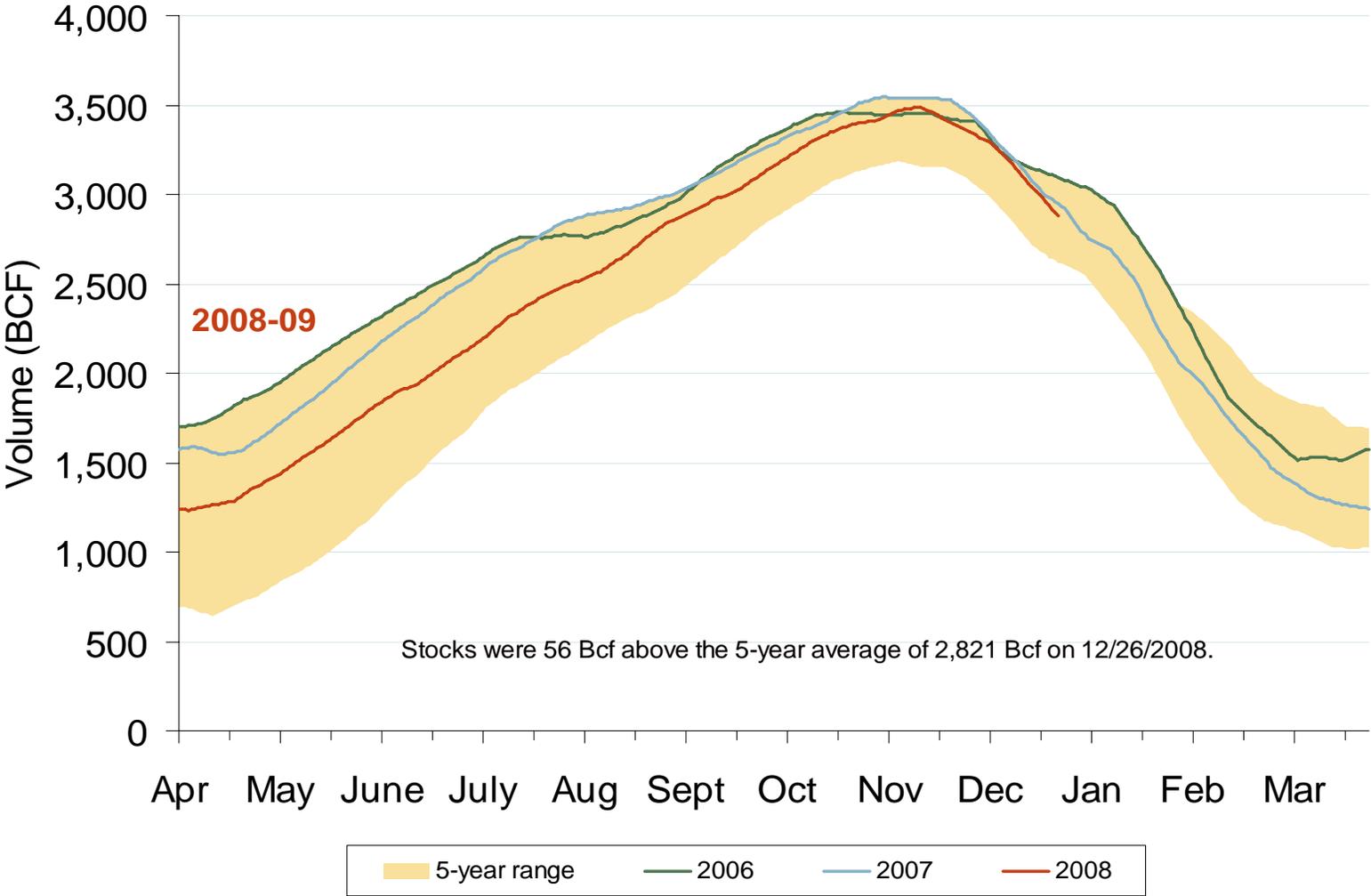
Total U.S. Natural Gas Demand (All Sectors)



Source: Derived from *Bentek Energy* data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

Total U.S. Working Gas in Storage

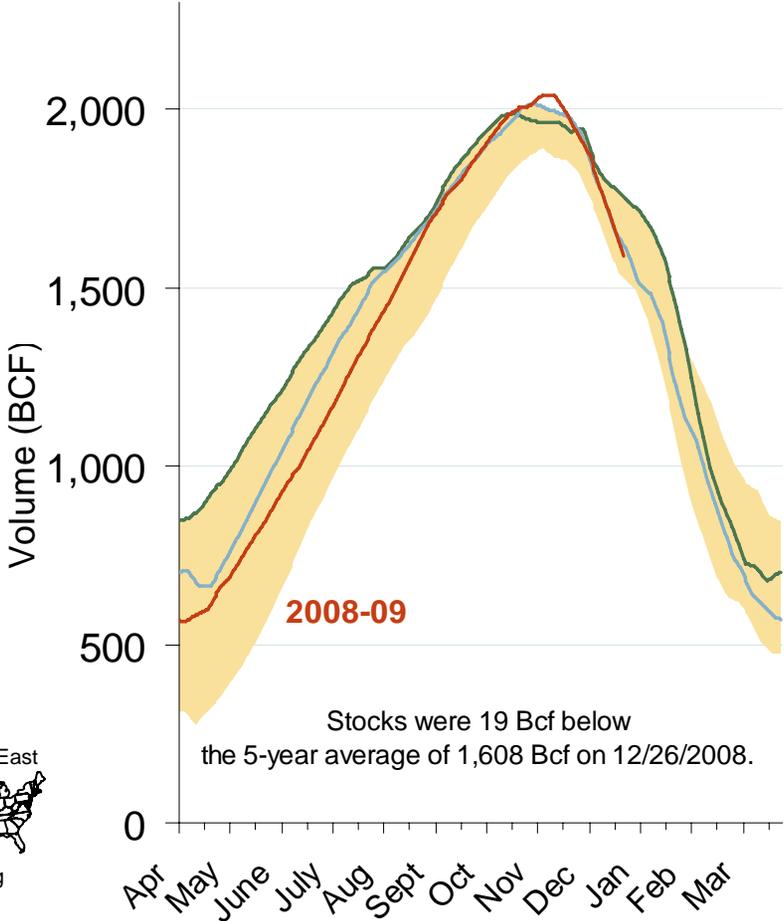


Source: Derived from EIA data.
January 2009 Northeast Snapshot Report

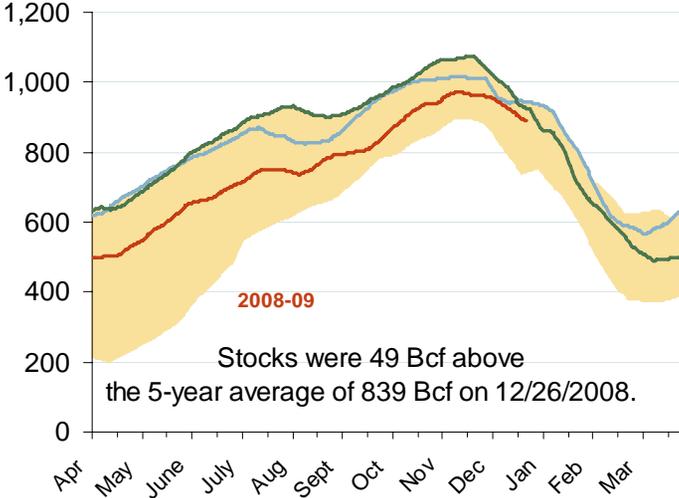
Updated January 9, 2009

Regional Totals of Working Gas in Storage

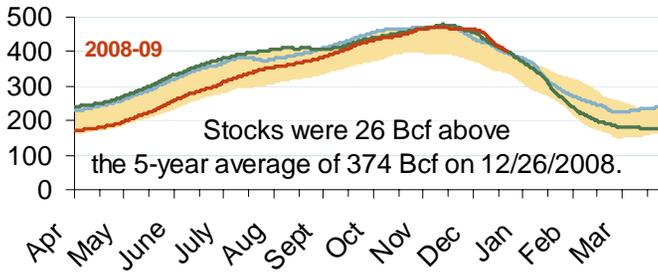
Eastern Consuming Region



Producing Region



Western Consuming Region

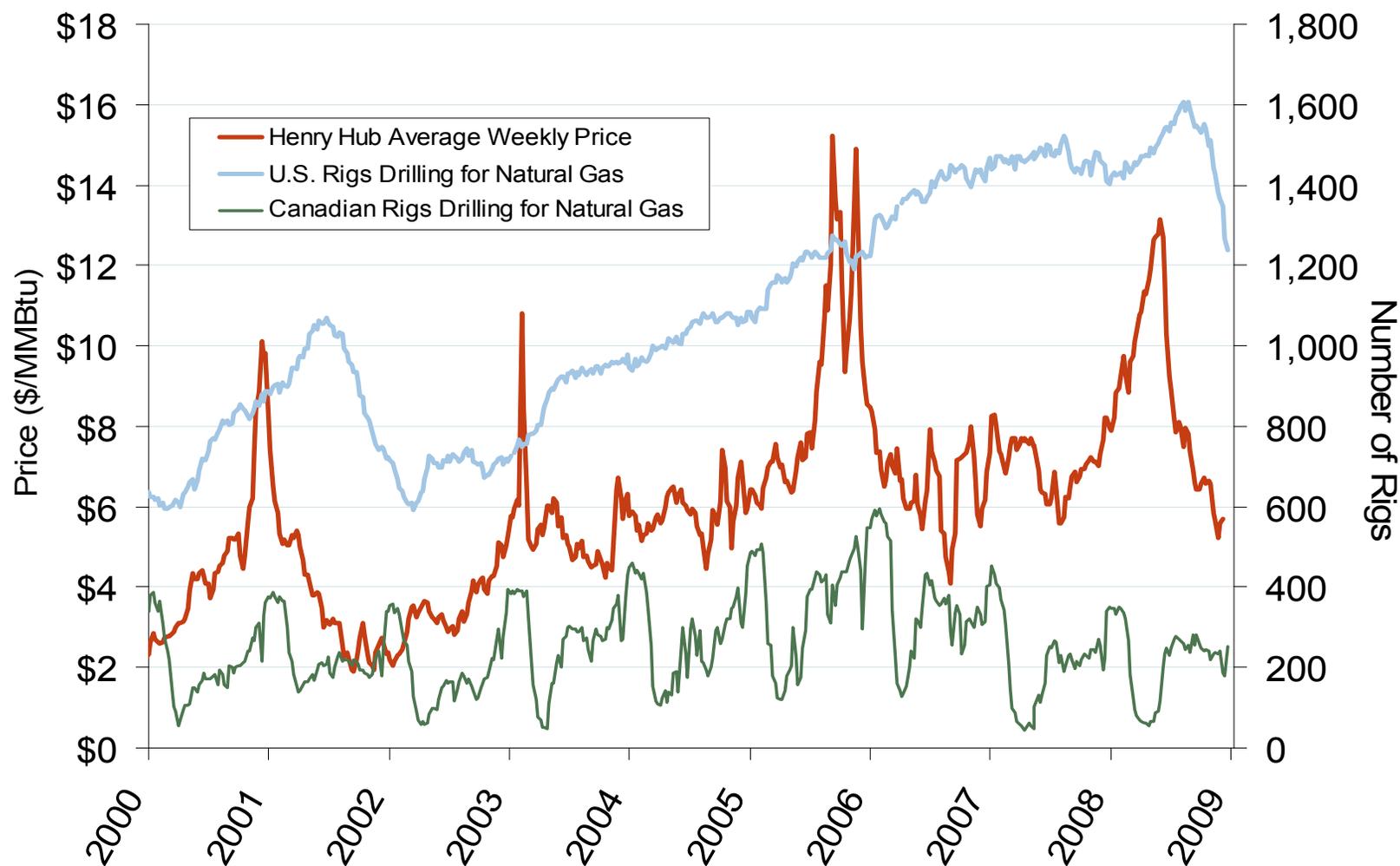


5-year range 2006 2007 2008

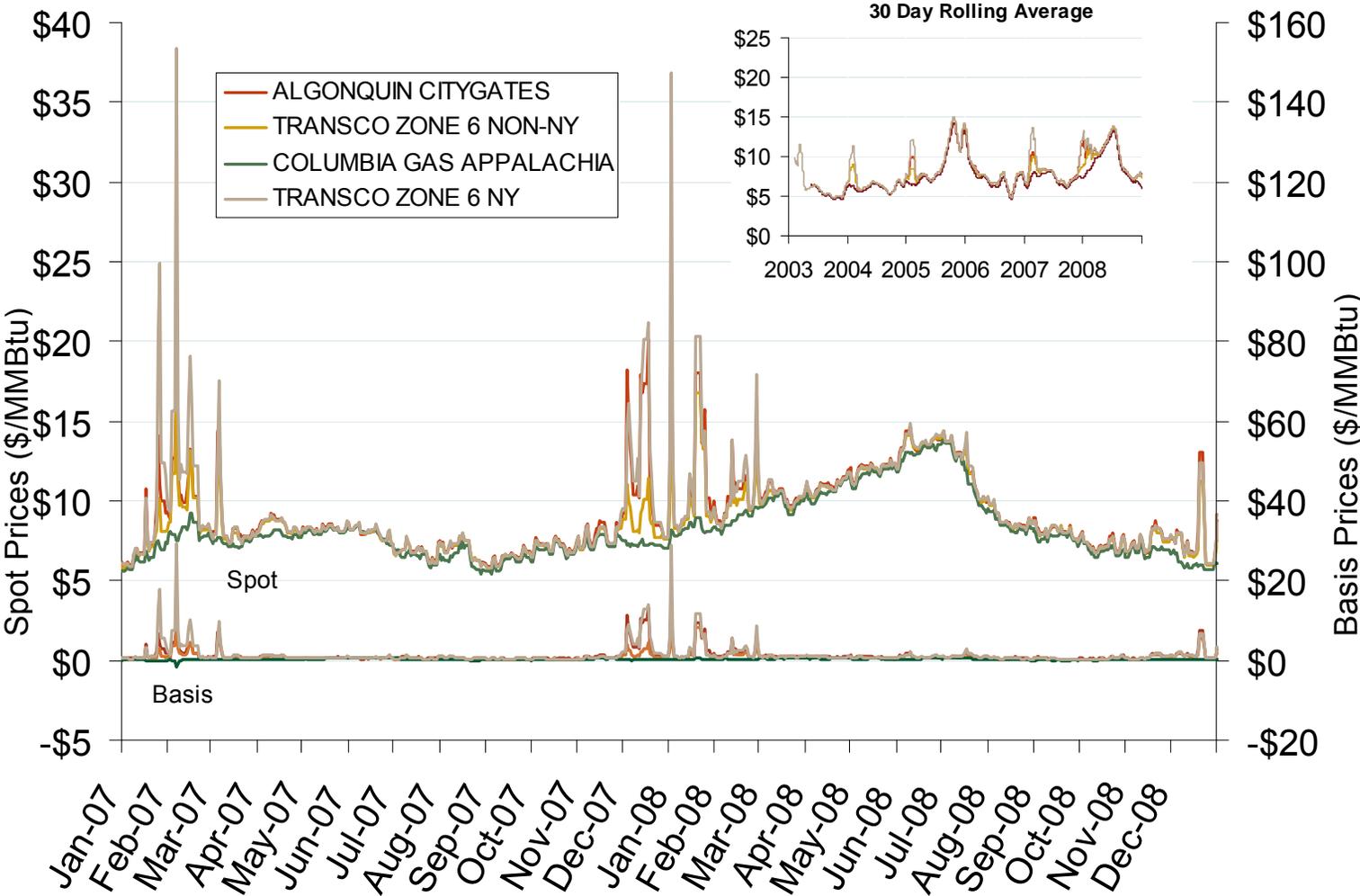
Source: Derived from EIA data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

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



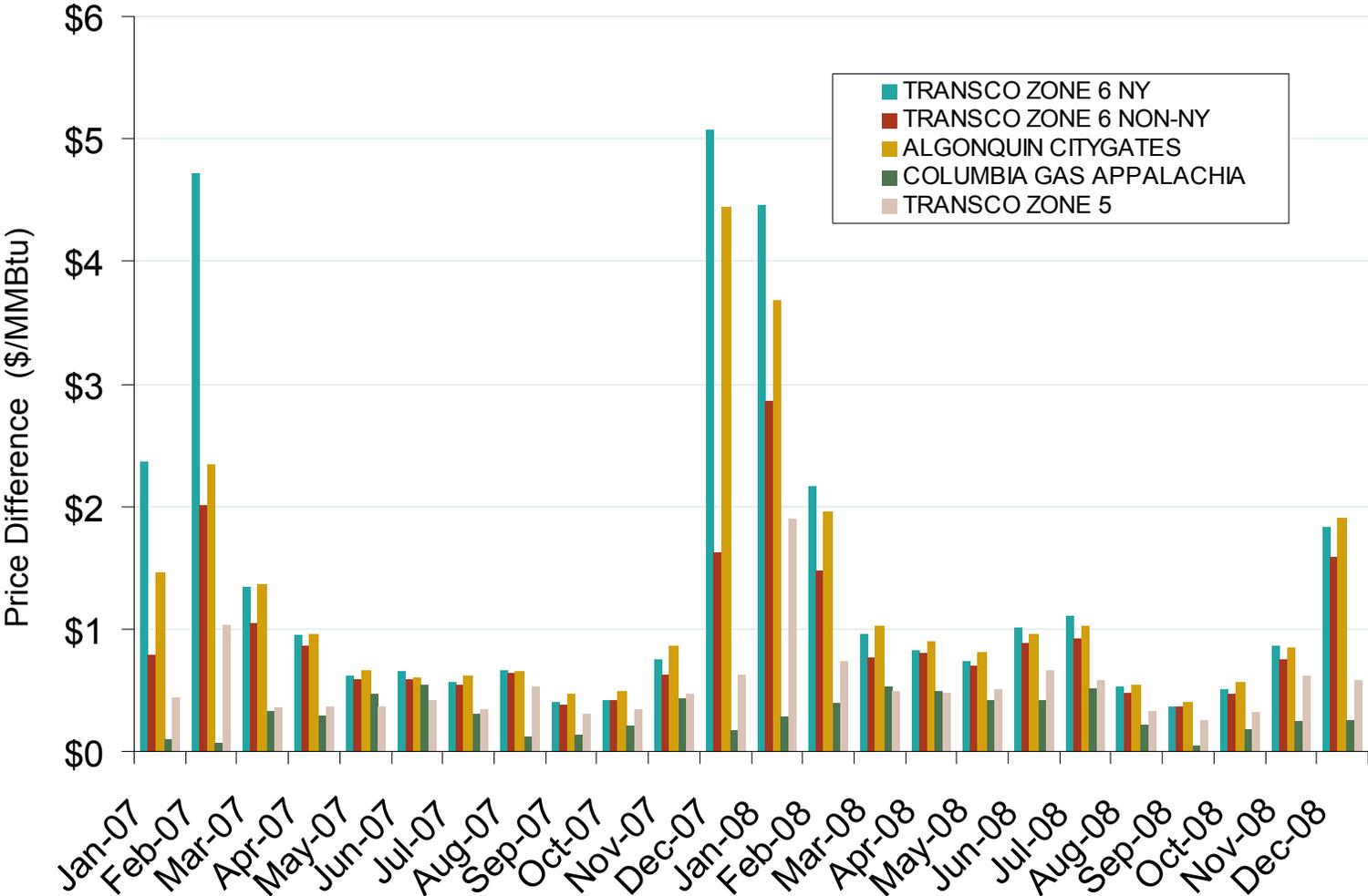
Northeastern Spot Prices and Basis



Source: Derived from *Platts* data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

Northeastern Monthly Average Basis Value to Henry Hub



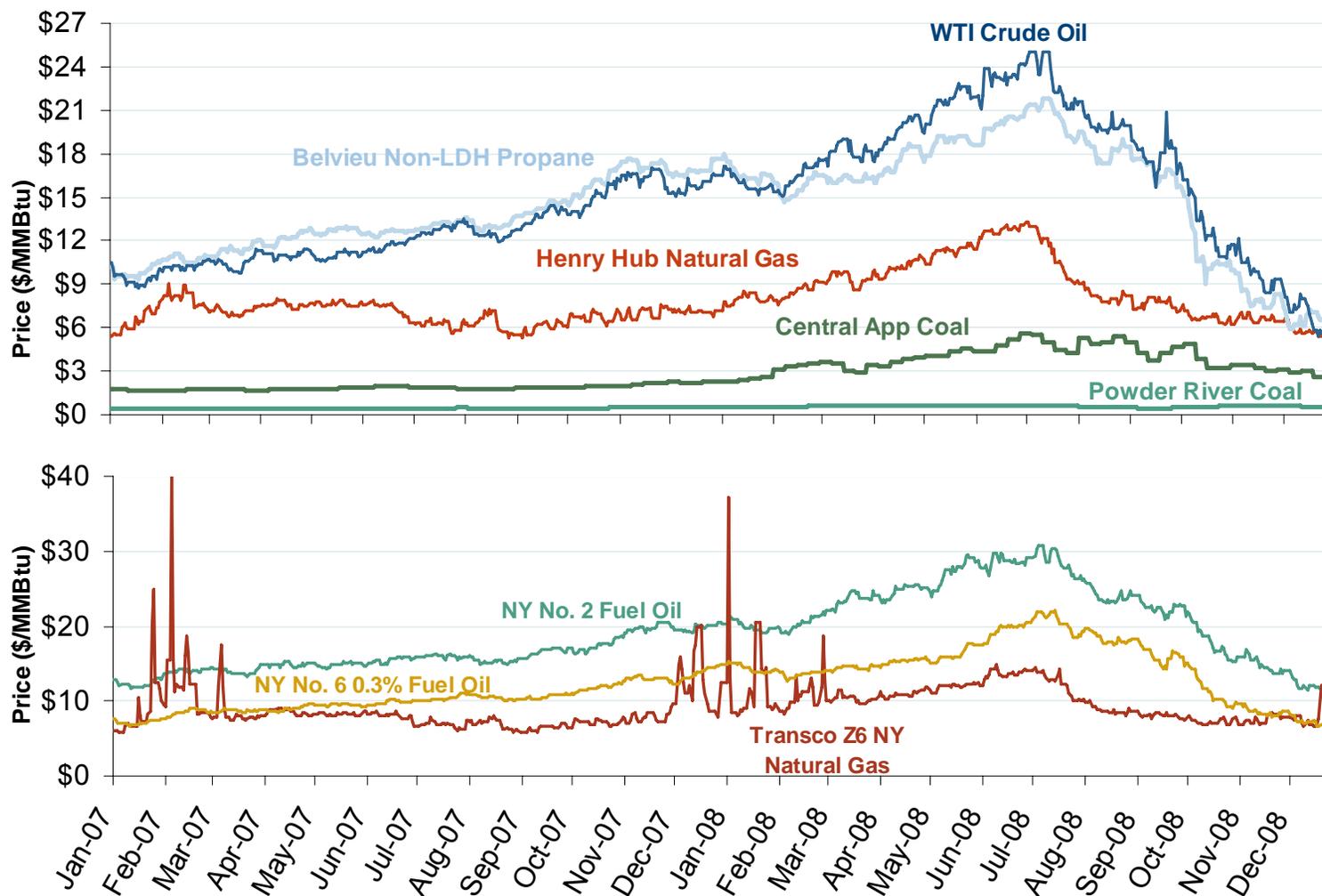
Source: Derived from Platts data.
January 2009 Northeast Snapshot Report

Natural Gas Winter Futures Strip and Daily Henry Hub Spot and Bidweek Prices



Source: Derived from *Platts* and *Nymex* data.
January 2009 Northeast Snapshot Report

Oil, Coal, Natural Gas and Propane Daily Spot Prices

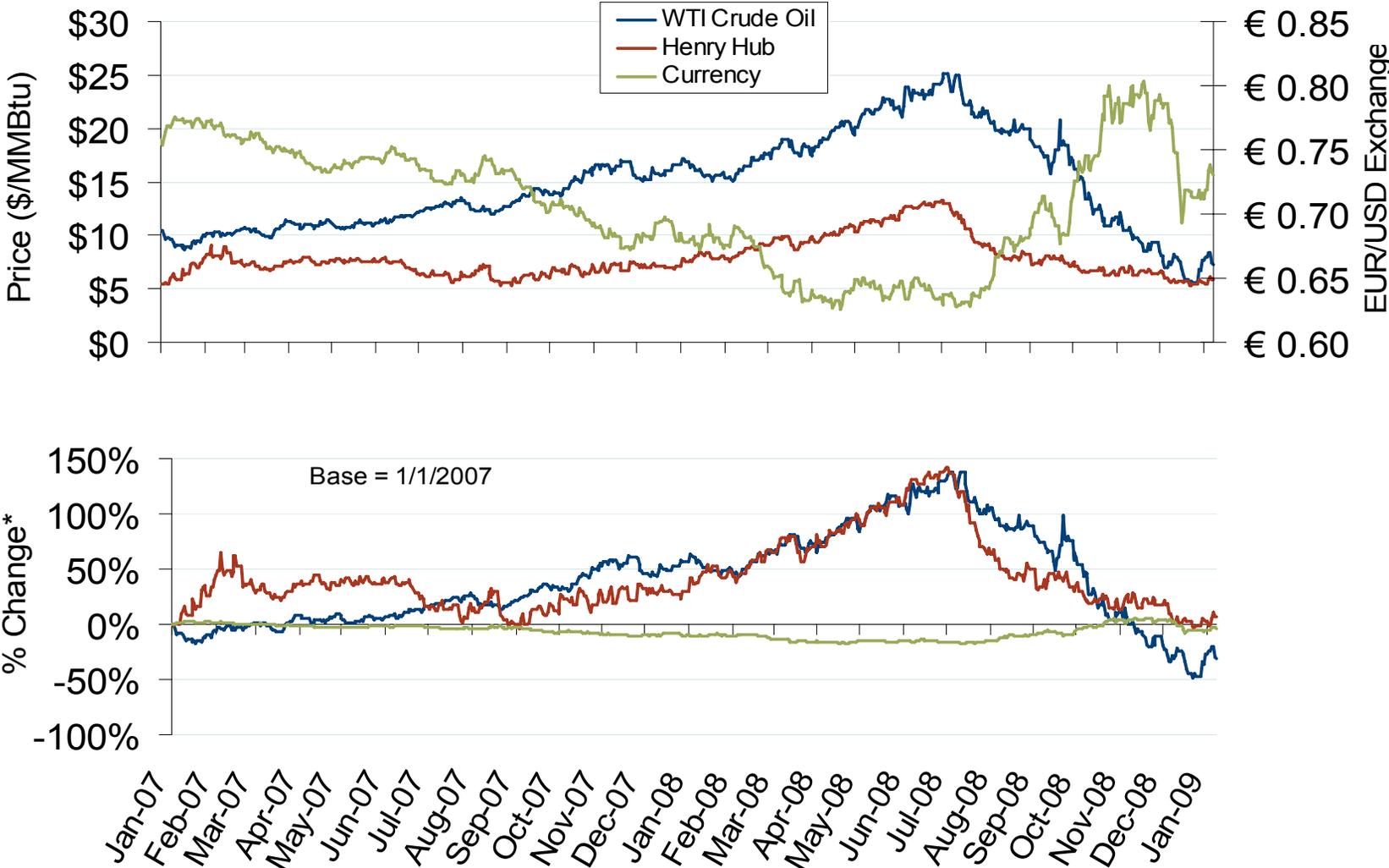


Source: Derived from ICE and Bloomberg data.

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 January 9, 2009

Oil, Natural Gas and Currency Spot Prices



Source: Derived from *Bloomberg* data.

Updated January 9, 2009

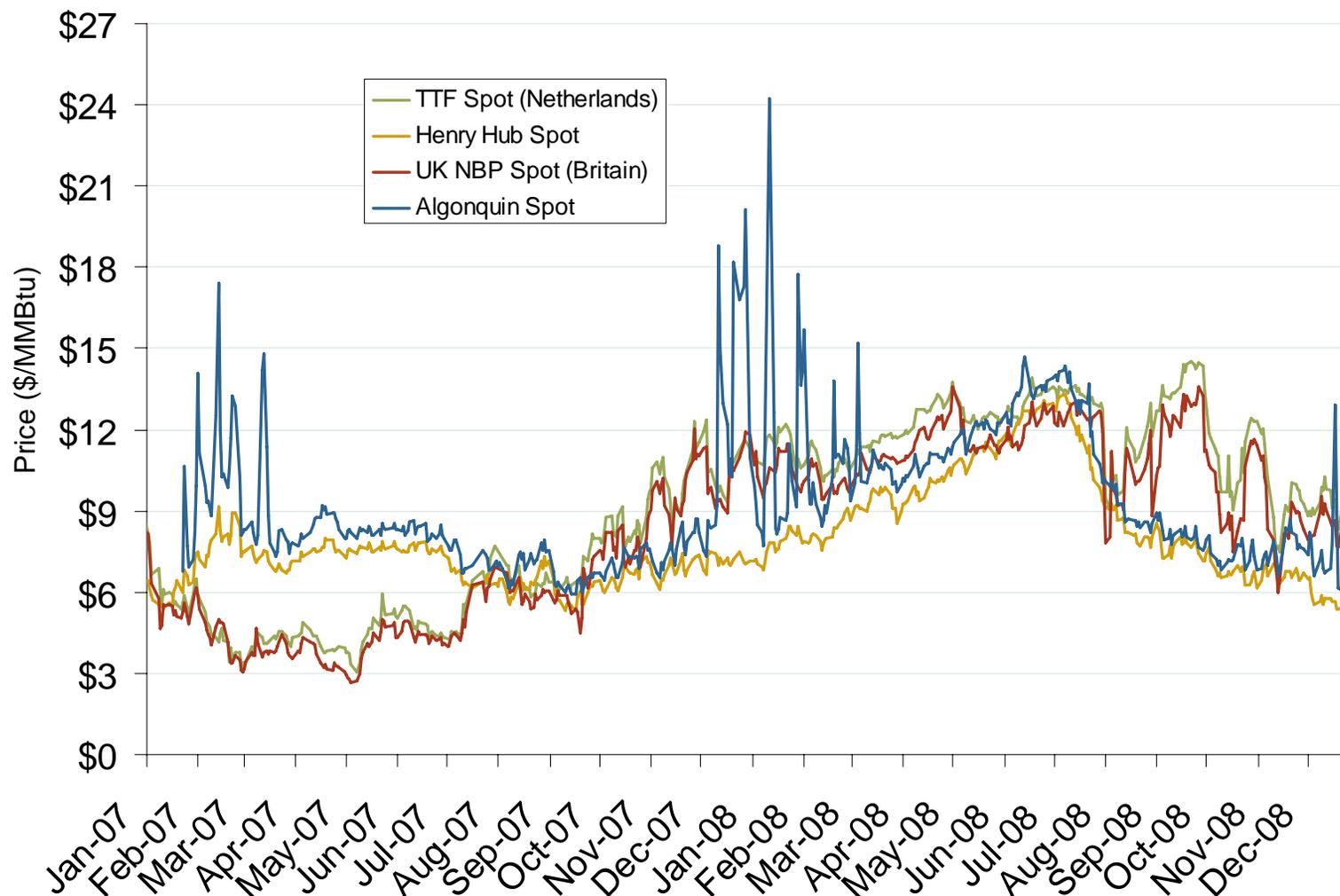
World LNG Estimated January 2009 Landed Prices



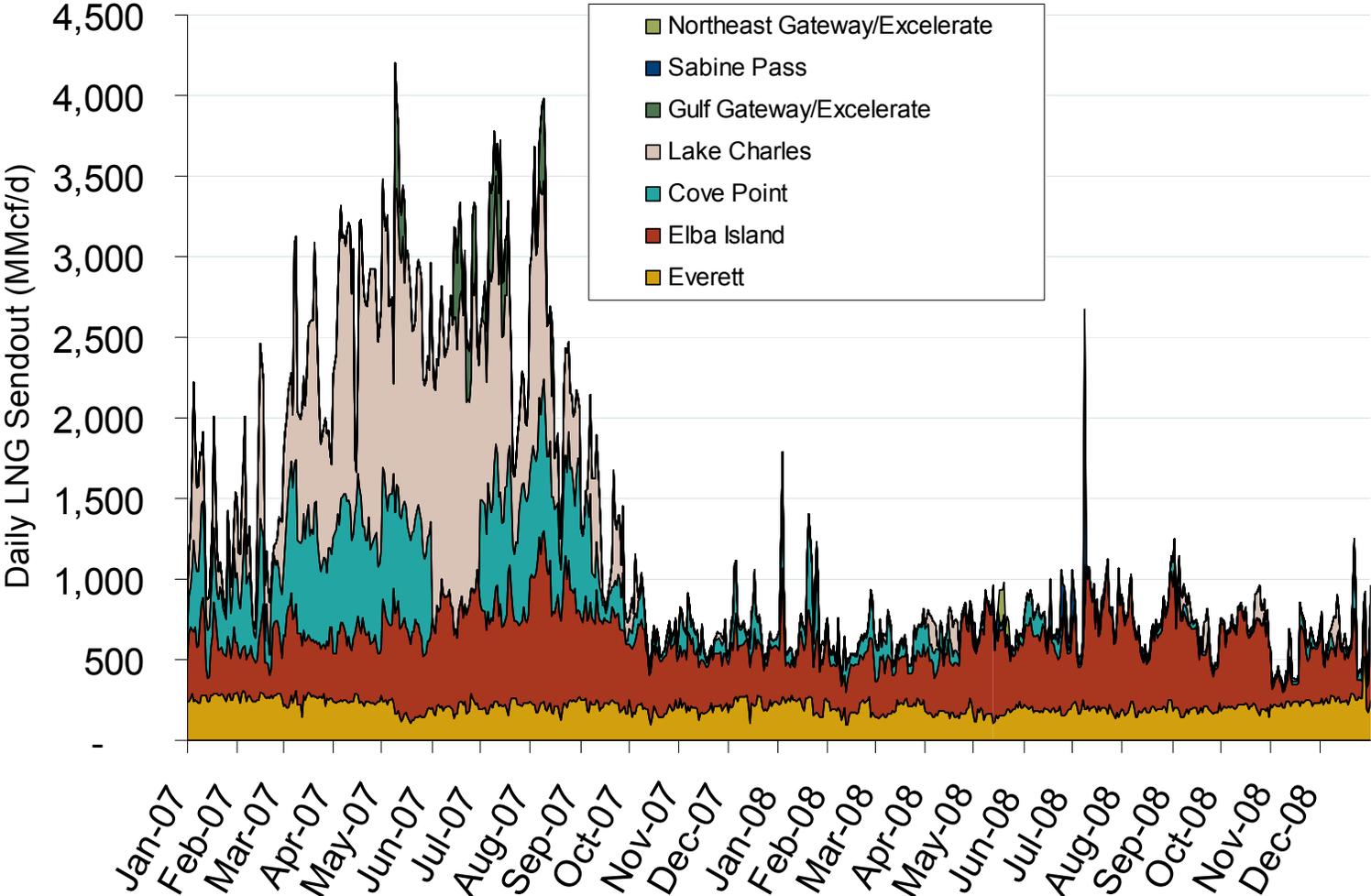
Source: Waterborne Energy, Inc. Data in \$US/MMBtu.
January 2009 Northeast Snapshot Report

Updated January 9, 2009

Atlantic Basin European and US Spot Natural Gas Prices

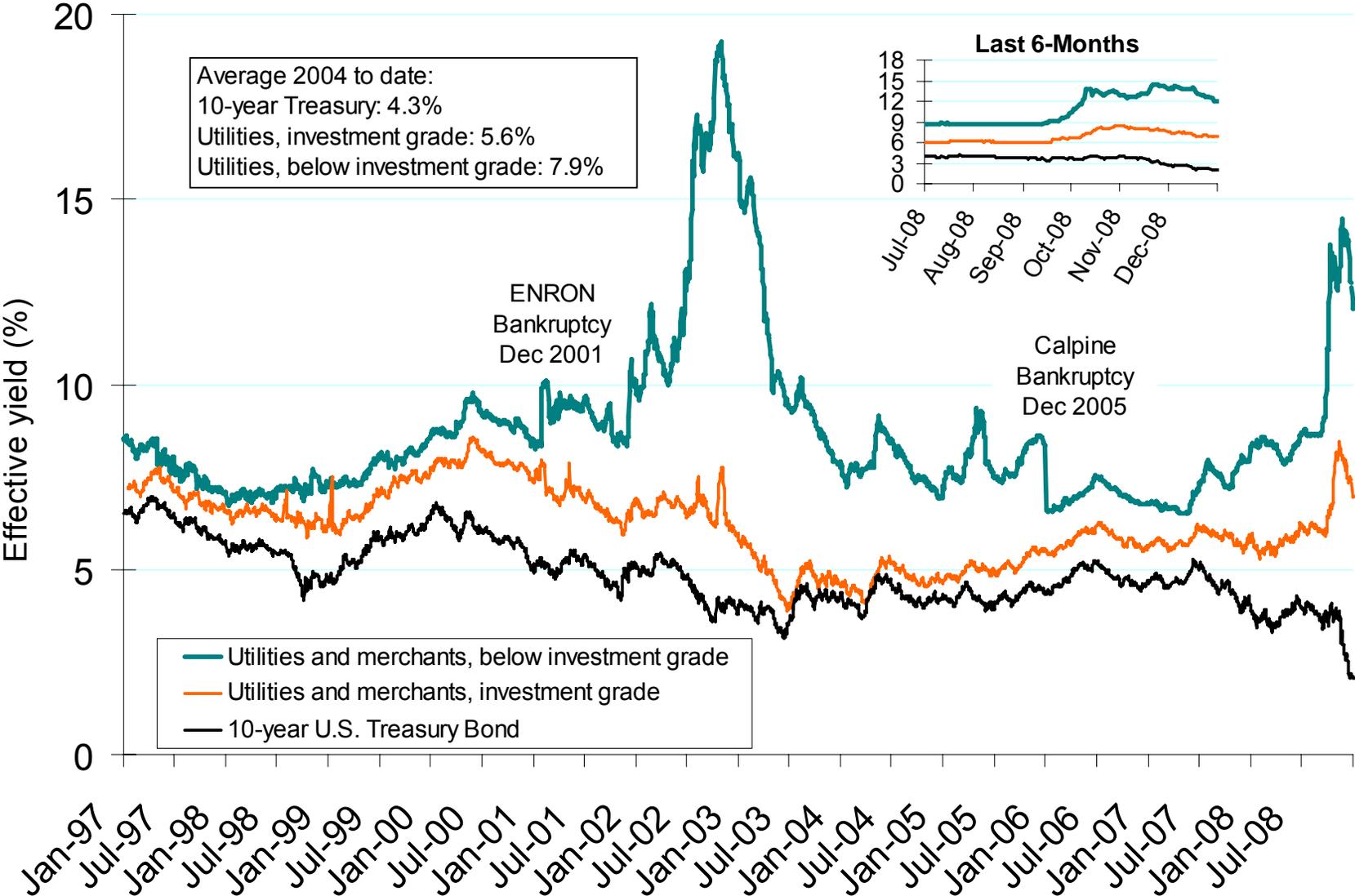


Daily Gas Sendout from Existing U.S. LNG Facilities



Source: Derived from *Bentek* data. Excludes Everett LNG delivered via truck and consumed by the Mystic plant as well as Freeport LNG which flows via intrastate pipelines.
January 2009 Northeast Snapshot Report

Yields of Utilities, Merchants and Ten Year Treasury Bonds



Source: Derived from Merrill Lynch Index U.S Corporates, Gas and Electric Utilities and Bloomberg data.
January 2009 Northeast Snapshot Report

Updated January 9, 2009