OE ENERGY MARKET SNAPSHOT

Northeast States Version – September 2008 Data

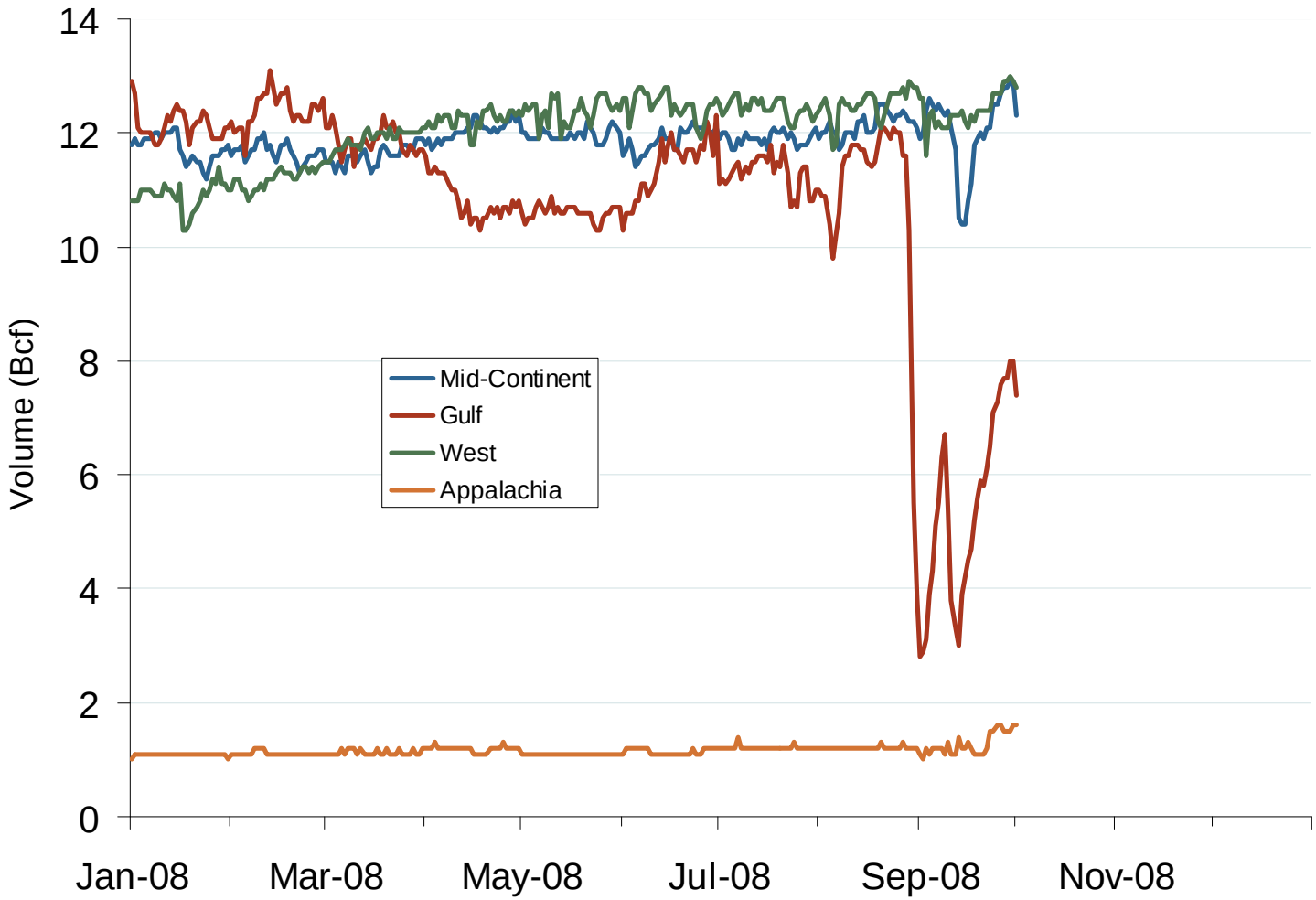
- **Special Report**
- **Electricity Markets**
- **Natural Gas and Fuel Markets**

Office of Enforcement
Federal Energy Regulatory Commission
October 2008

Special Report:

Hurricane Update

Regional Natural Gas Production for 2008



Source: Derived from *Bentek* data.

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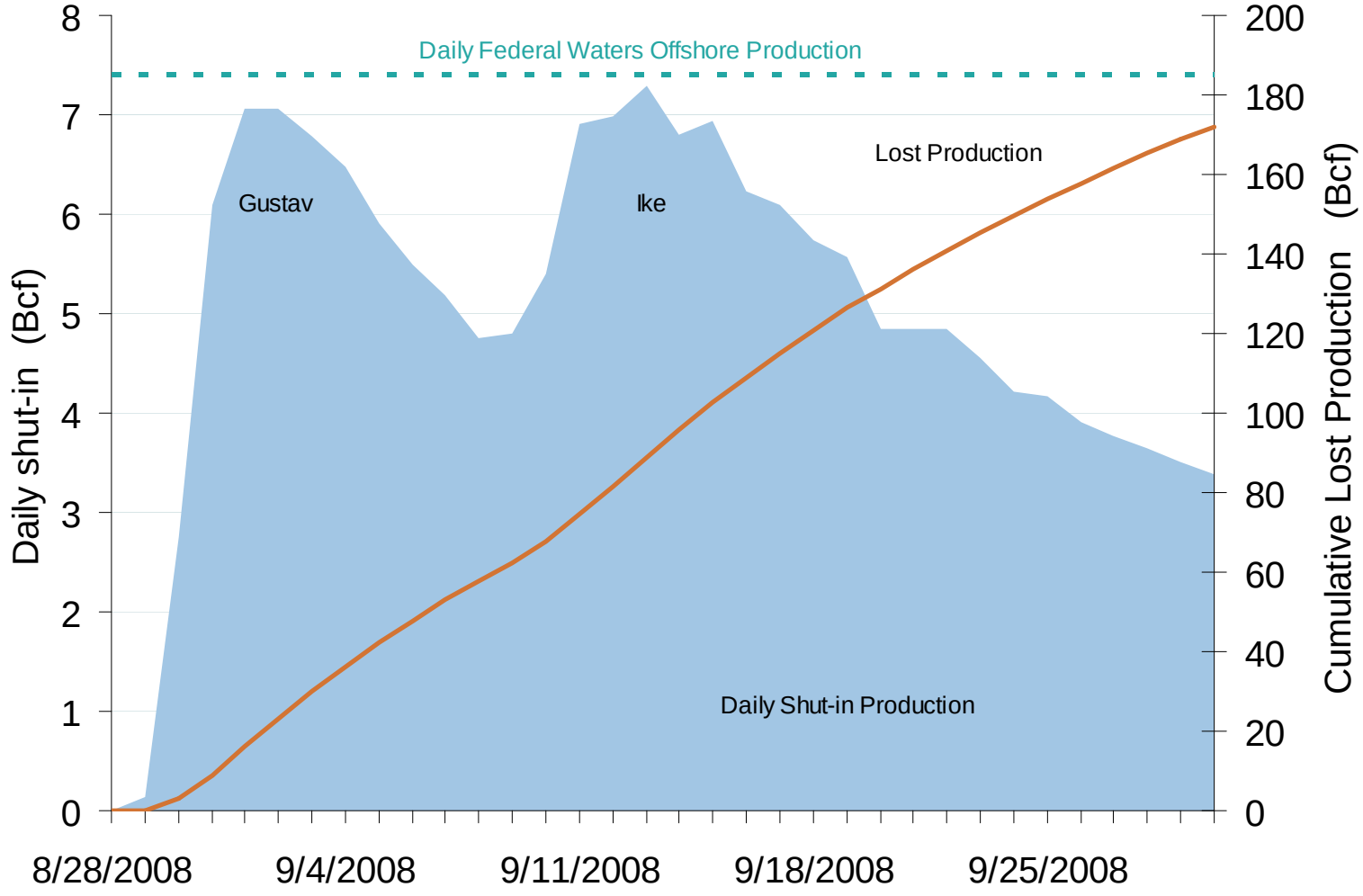
OCS Daily Shut-in and Cumulative Lost Natural Gas Production- Gustav/Ike



Source: Derived from *Minerals Management Service* data.

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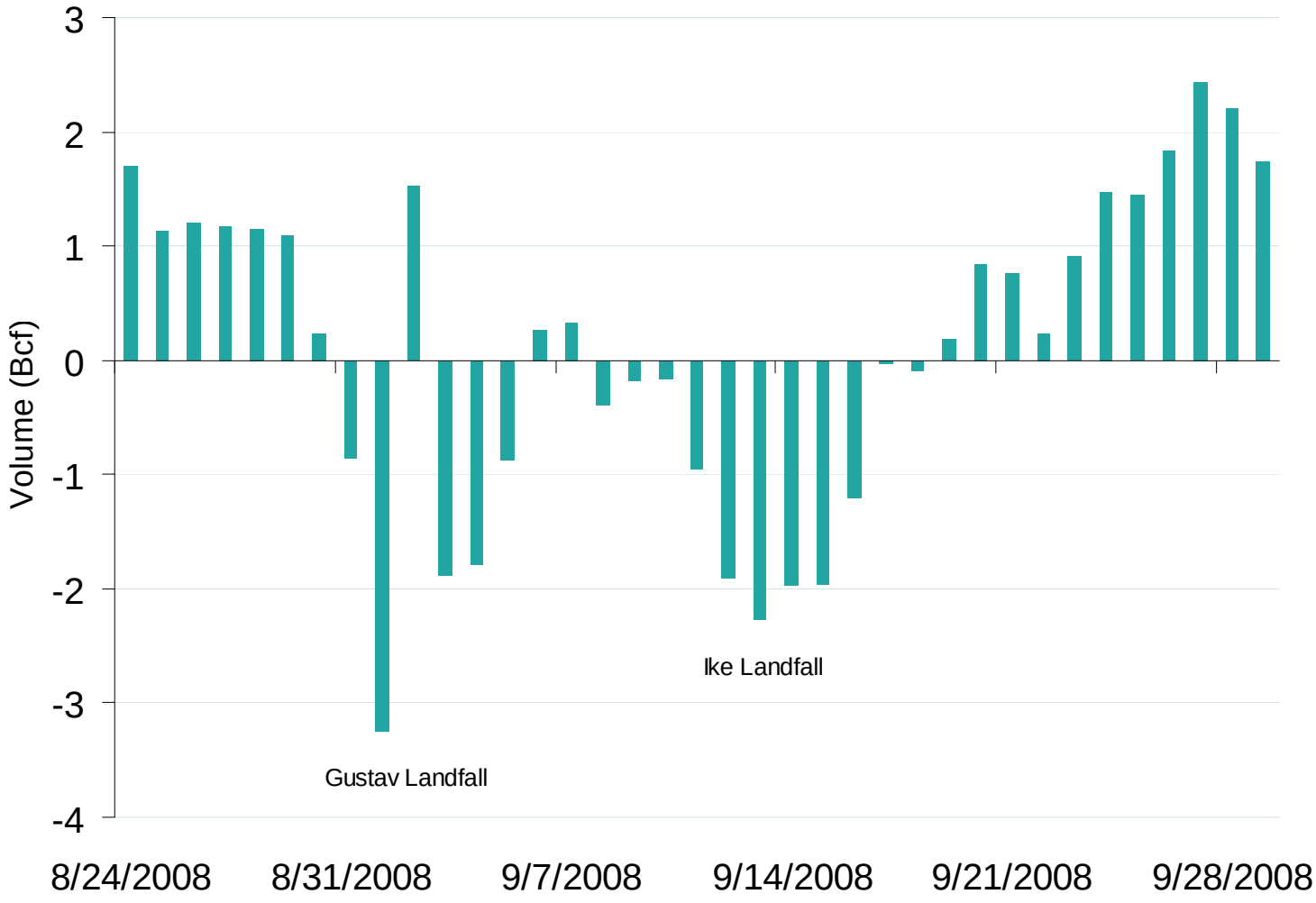
Producing Region Storage Injections During Recent Hurricanes



Source: Derived from *Bentek* data.

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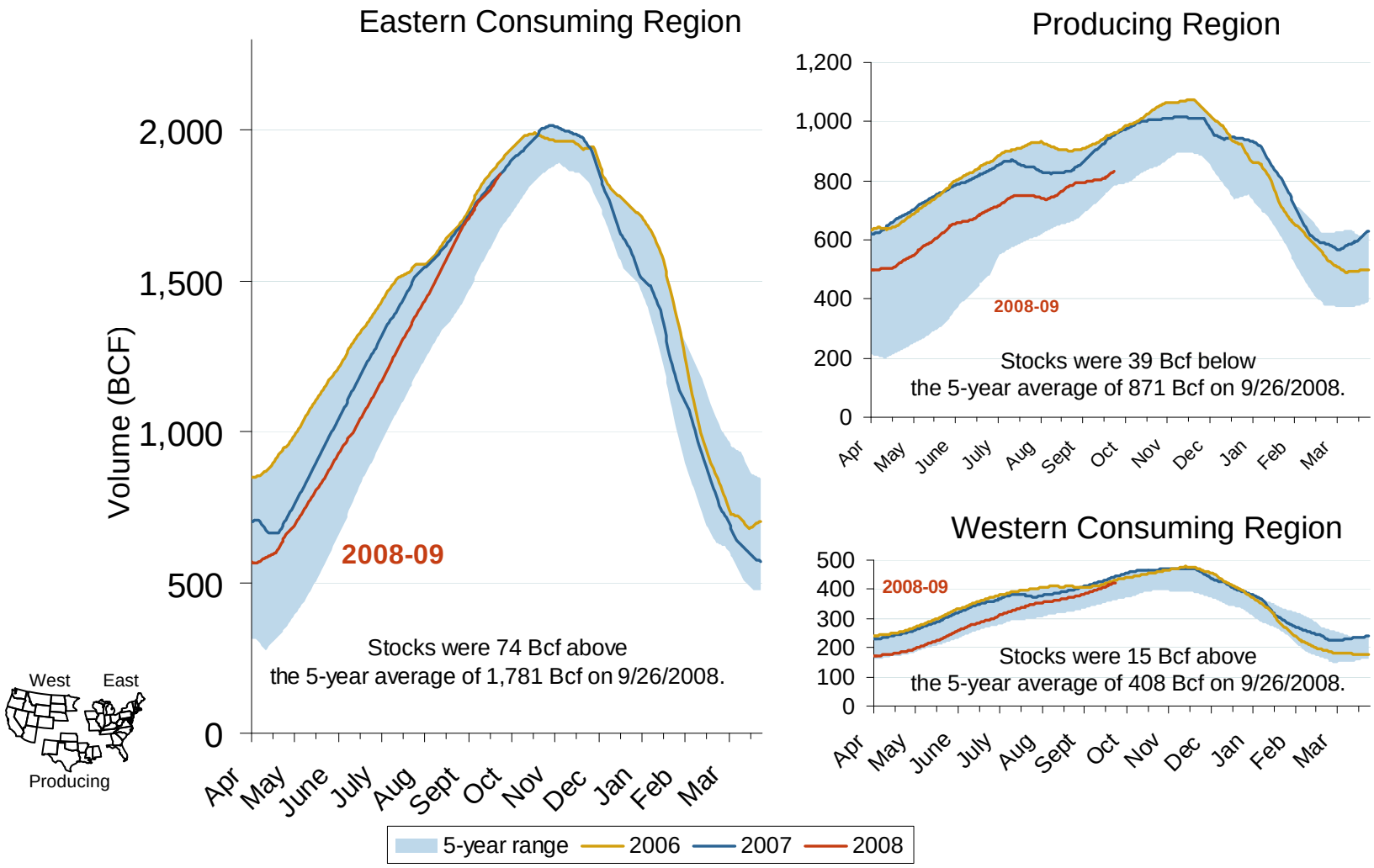
Regional Totals of Working Gas in Storage



Source: Derived from *EIA* data.

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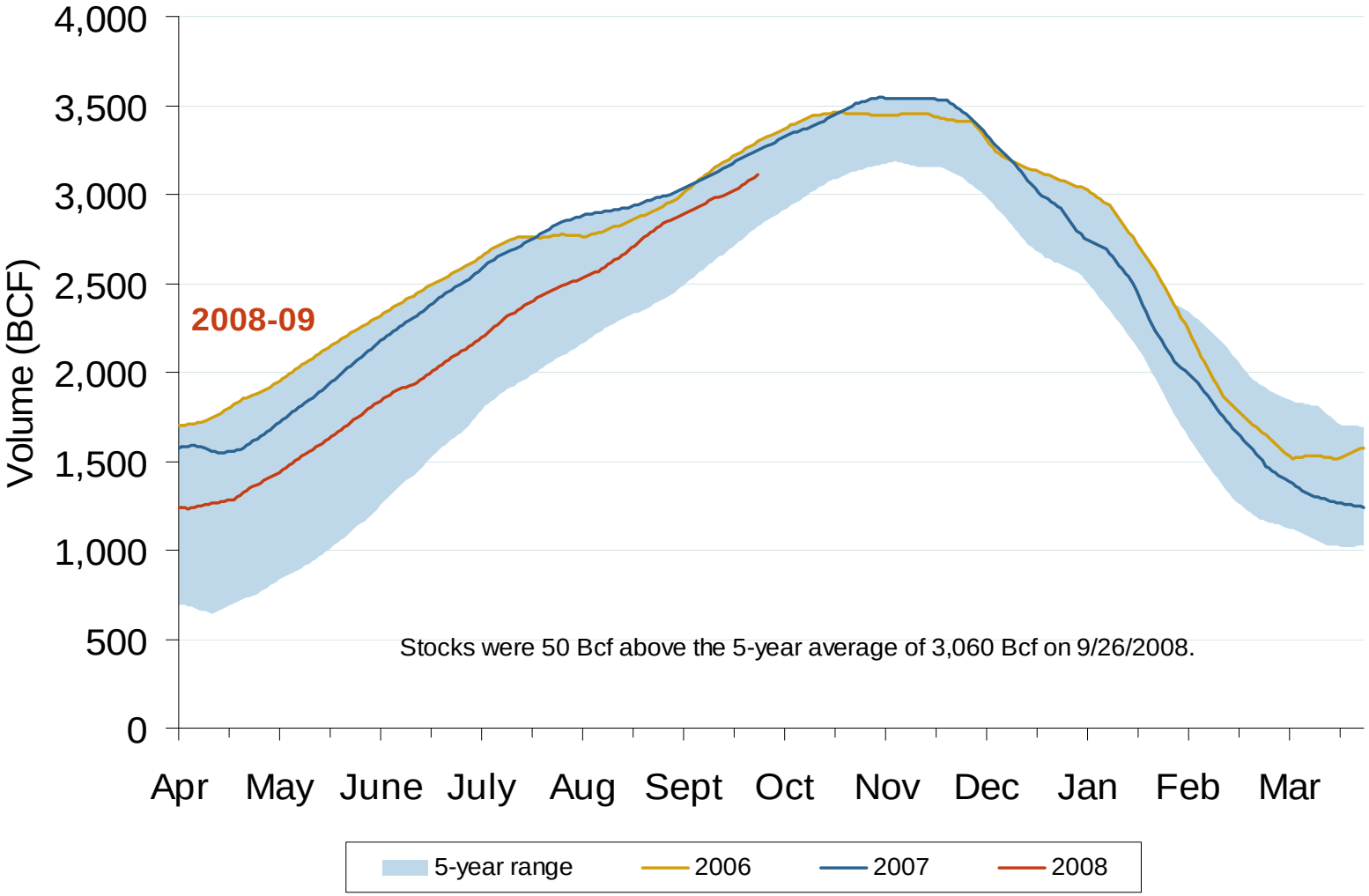
Total U.S. Working Gas in Storage



Source: Derived from *EIA* data.

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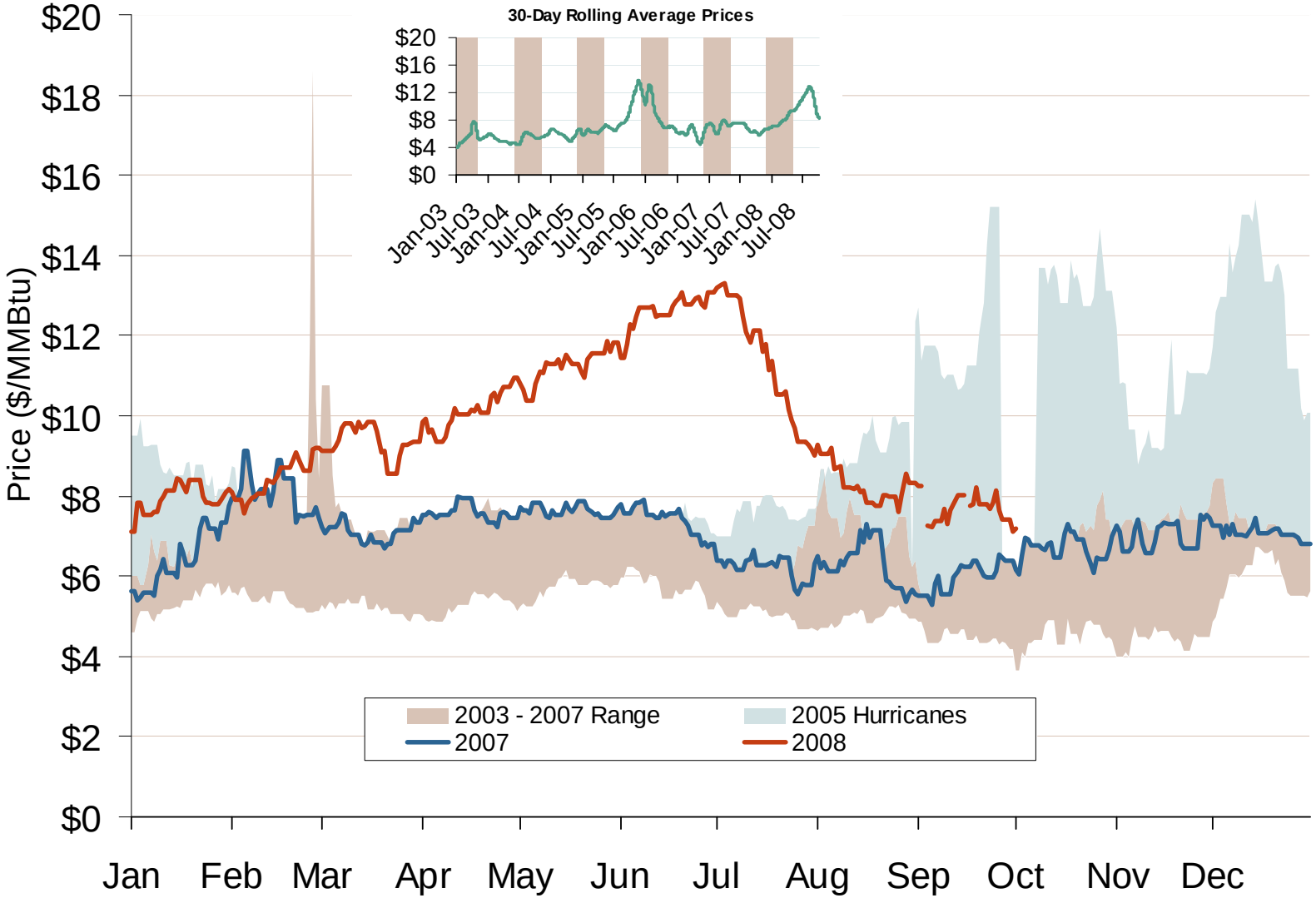
Natural Gas Market Overview: 5 Year Range of Henry Hub Spot Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

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



Source: Derived from *Platts* data.

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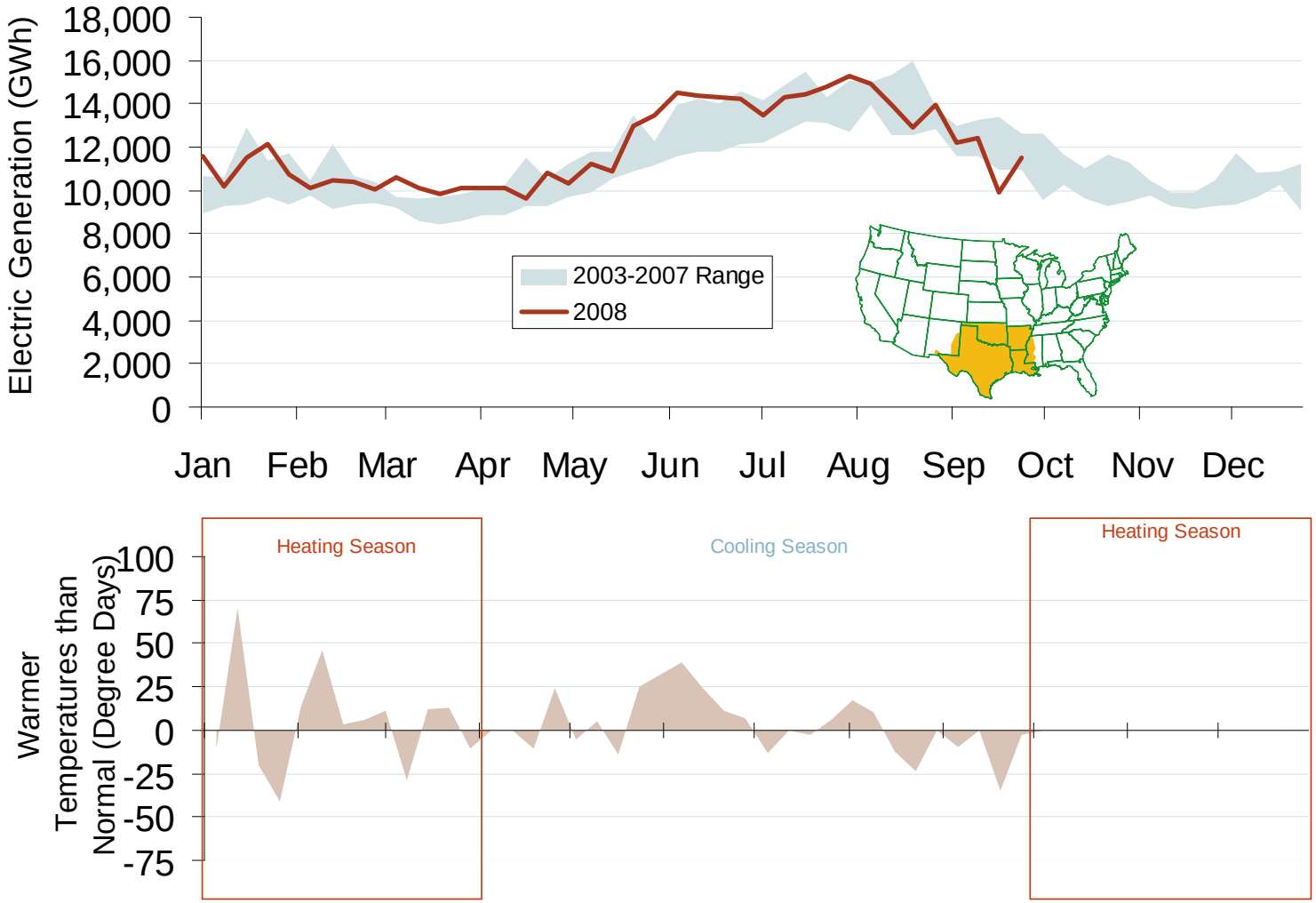
Weekly Electric Generation Output and Temperatures South Central Region



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

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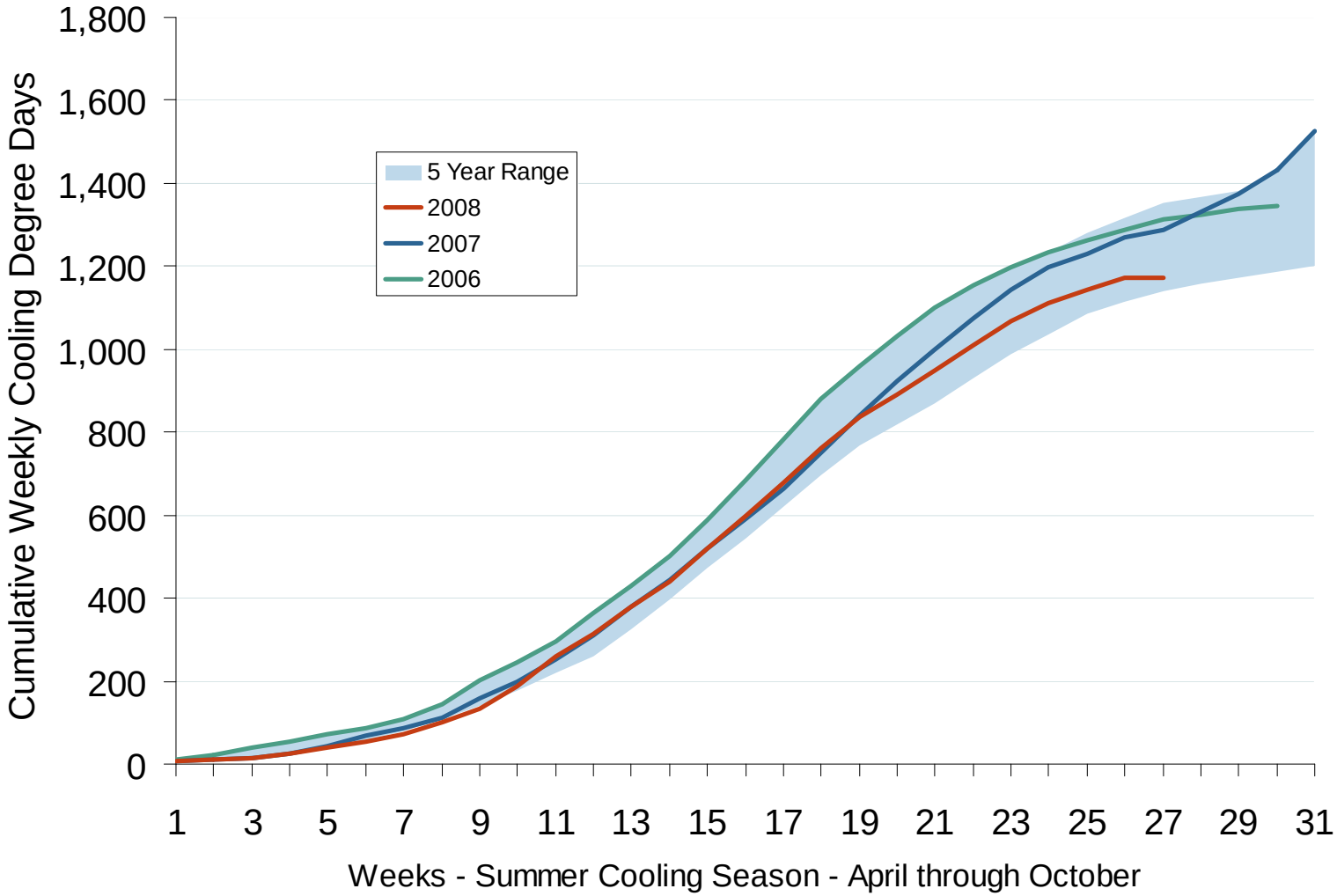
Electricity Markets

U. S. Summer Cumulative Cooling Degree Days



Source: Derived from *NOAA* data.

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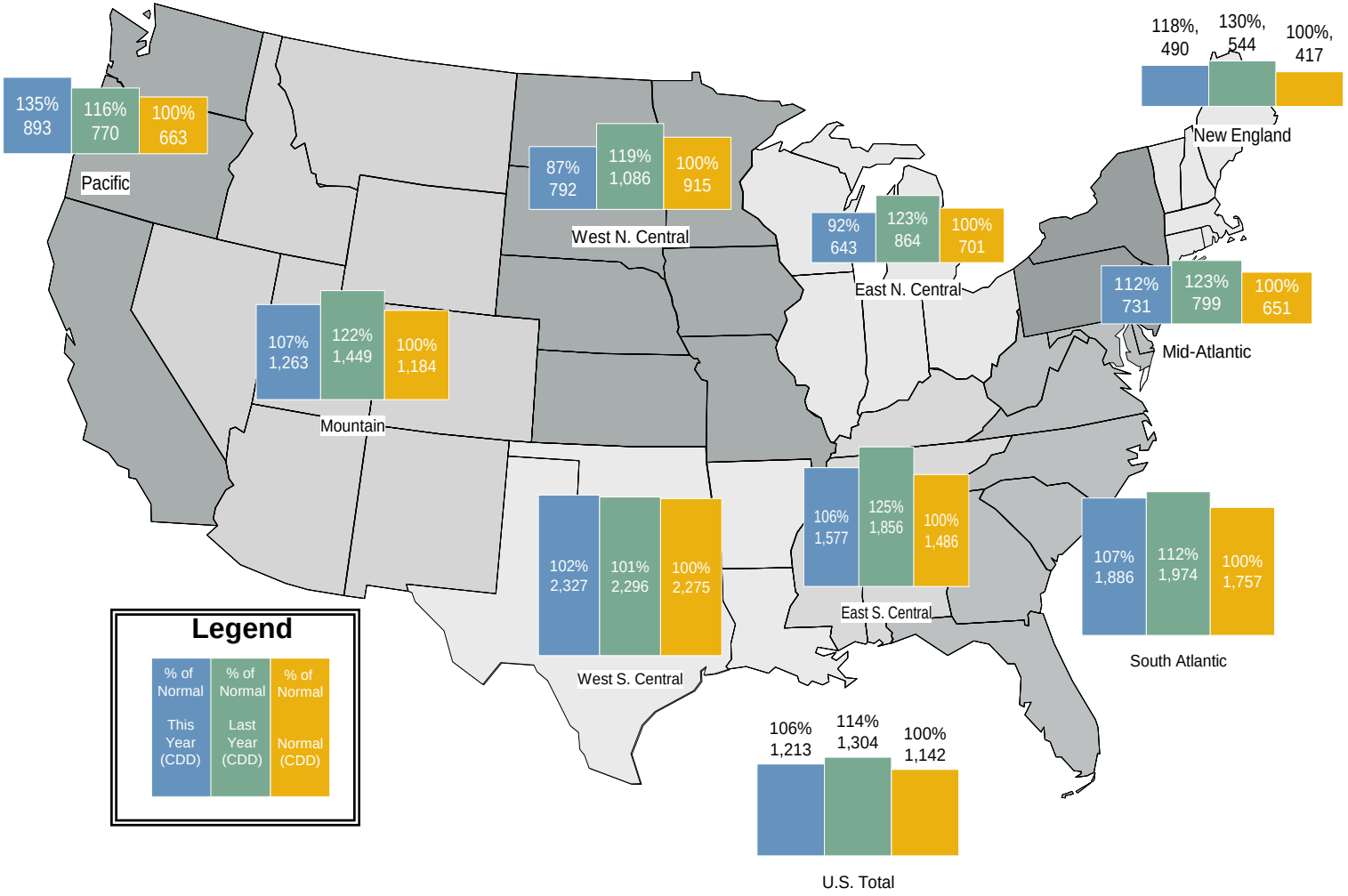
Regional Cooling Degree Days
2008 Through September



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

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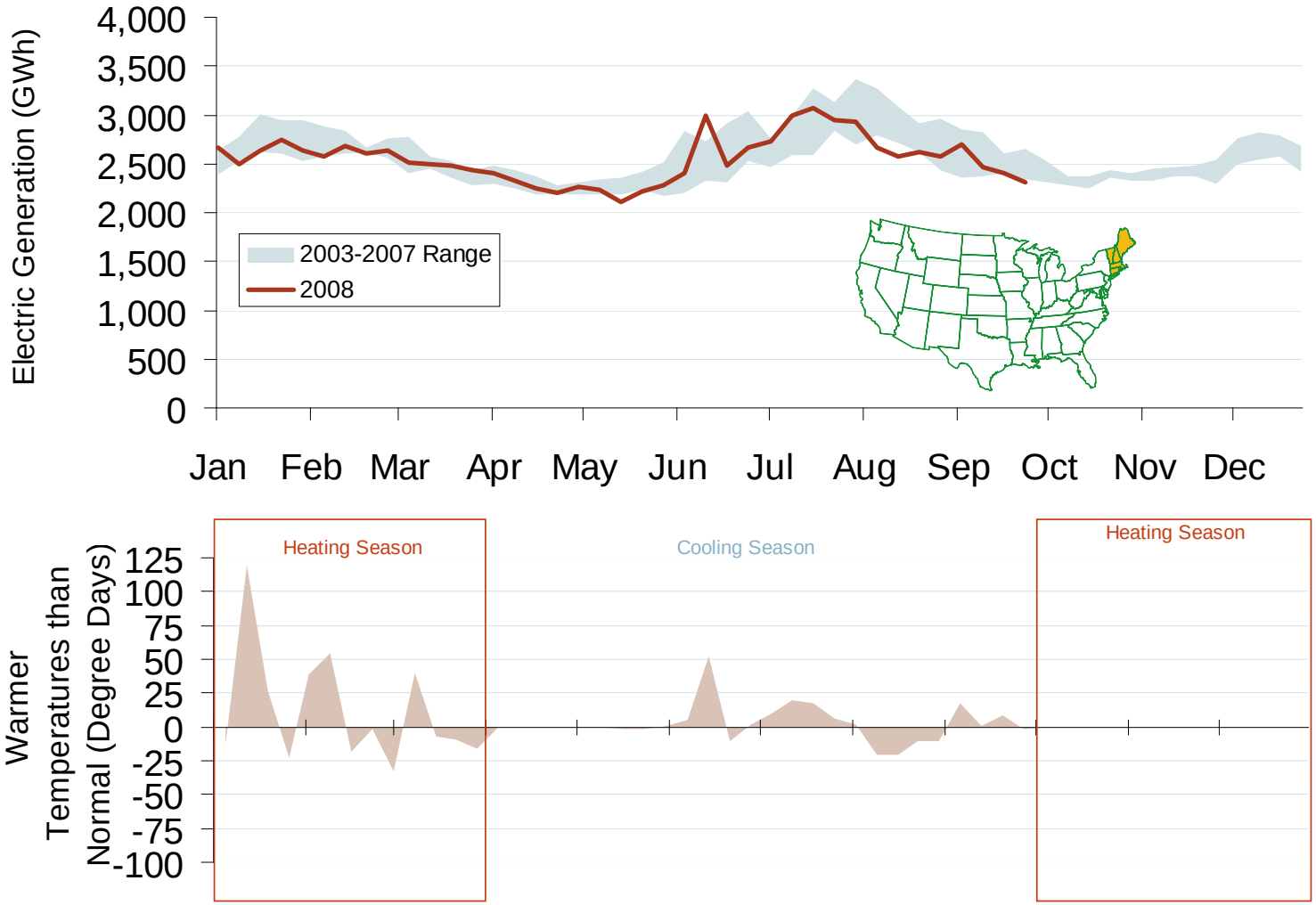
Weekly Electric Generation Output and Temperatures New England



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

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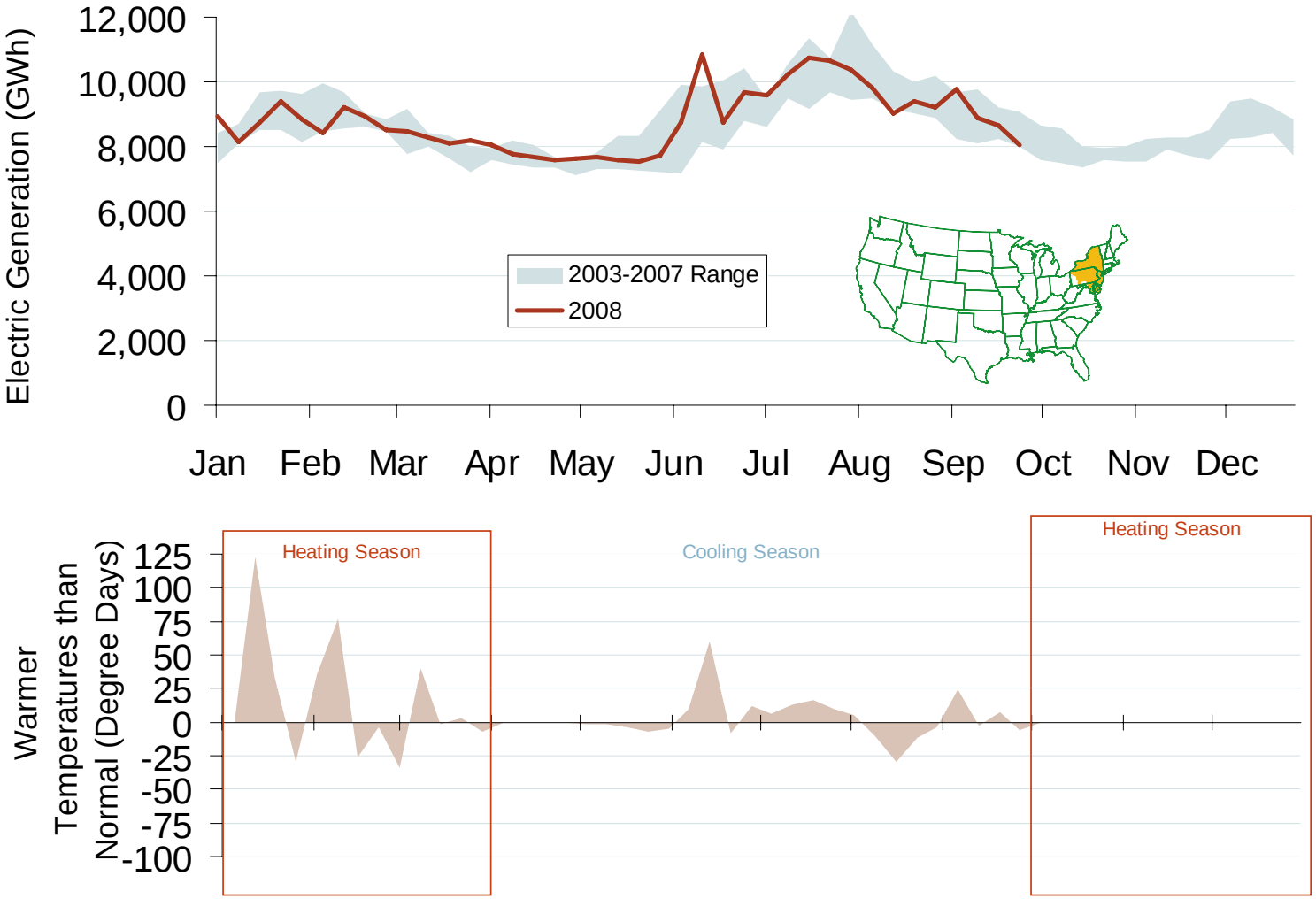
Weekly Electric Generation Output and Temperatures Mid Atlantic Region



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

October 2008 Northeast Snapshot Report

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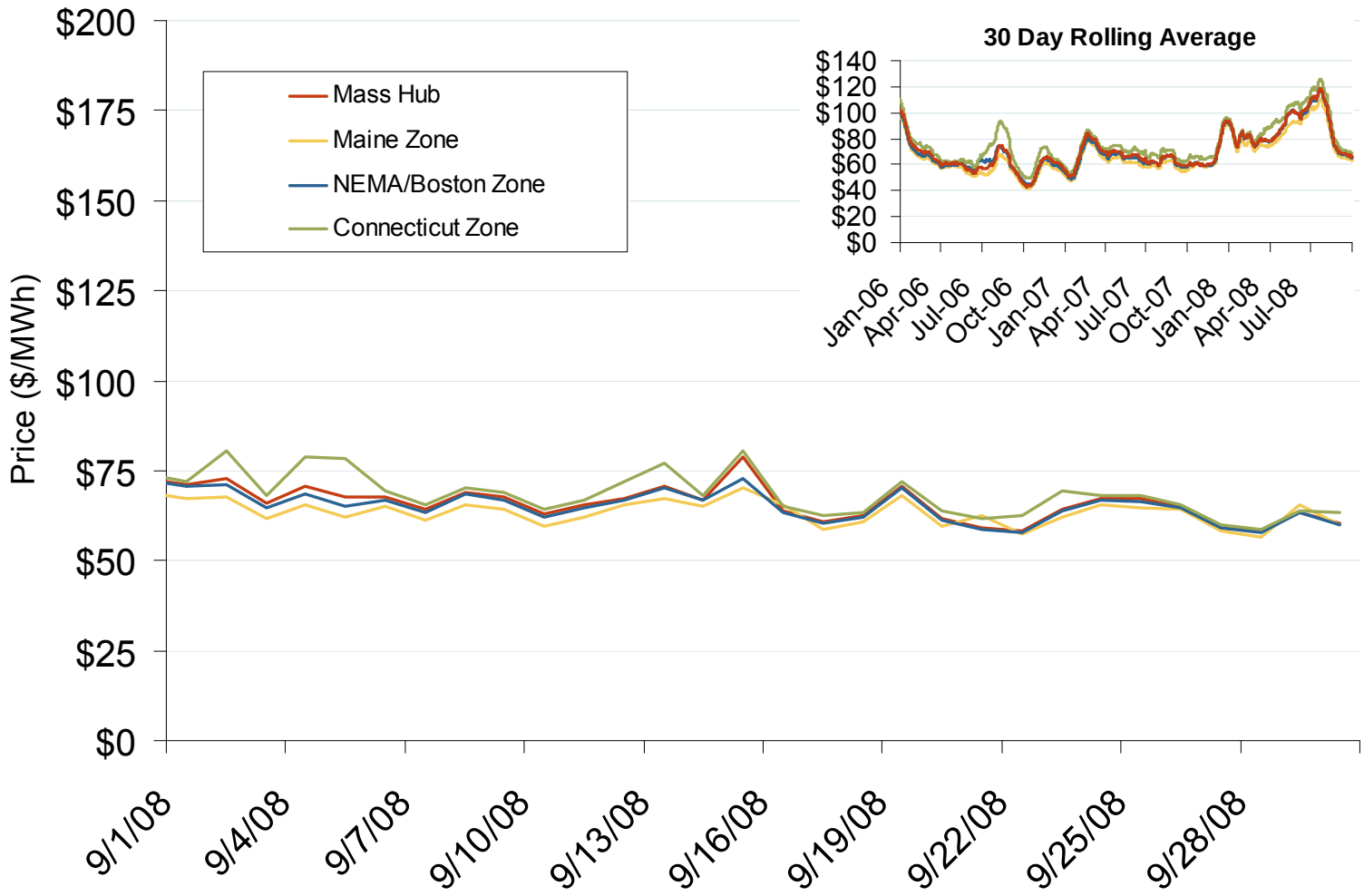
Daily Average of ISO-NE Day-Ahead Prices - All Hours



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

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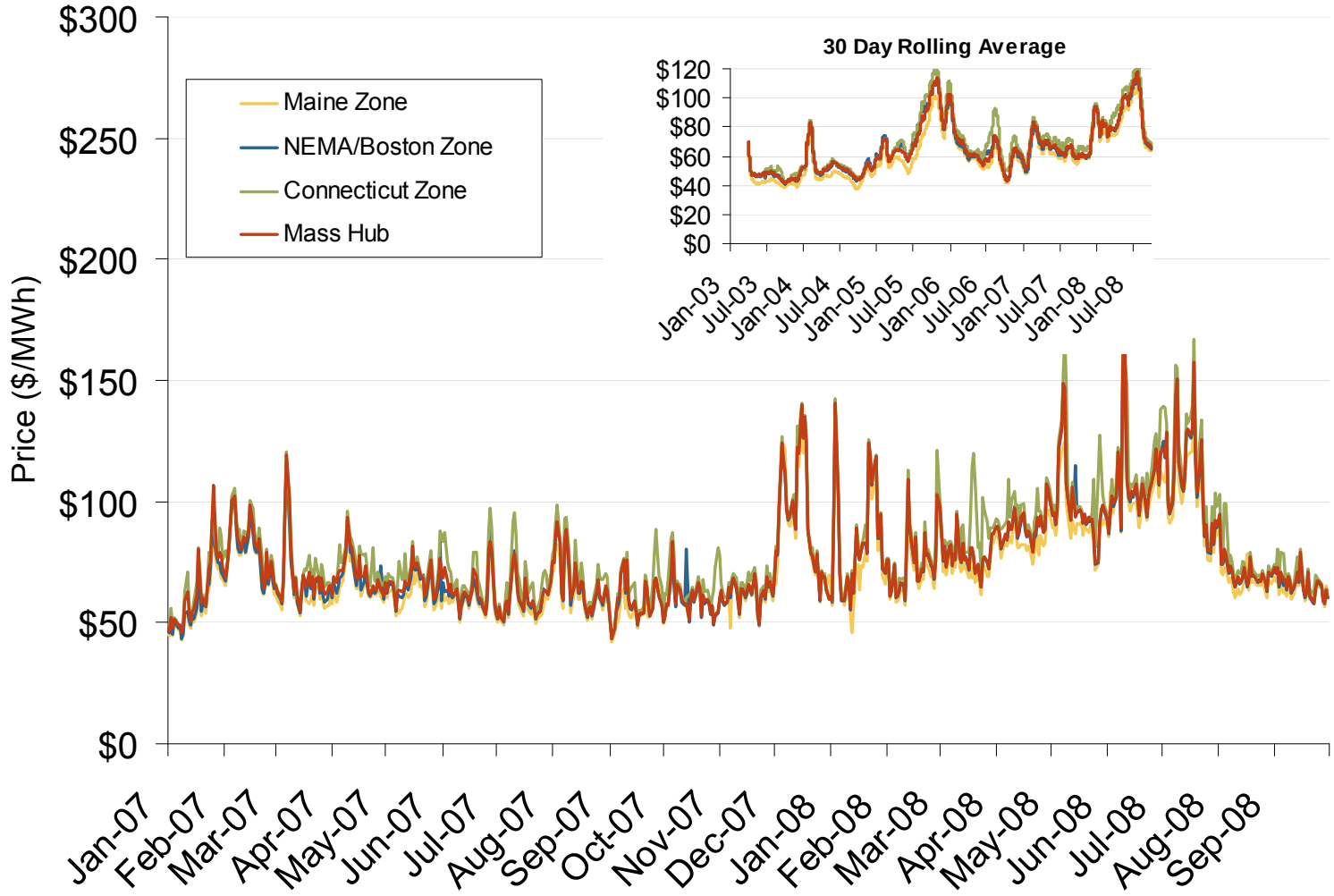
Daily Average of ISO-NE Day-Ahead Prices - All Hours



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

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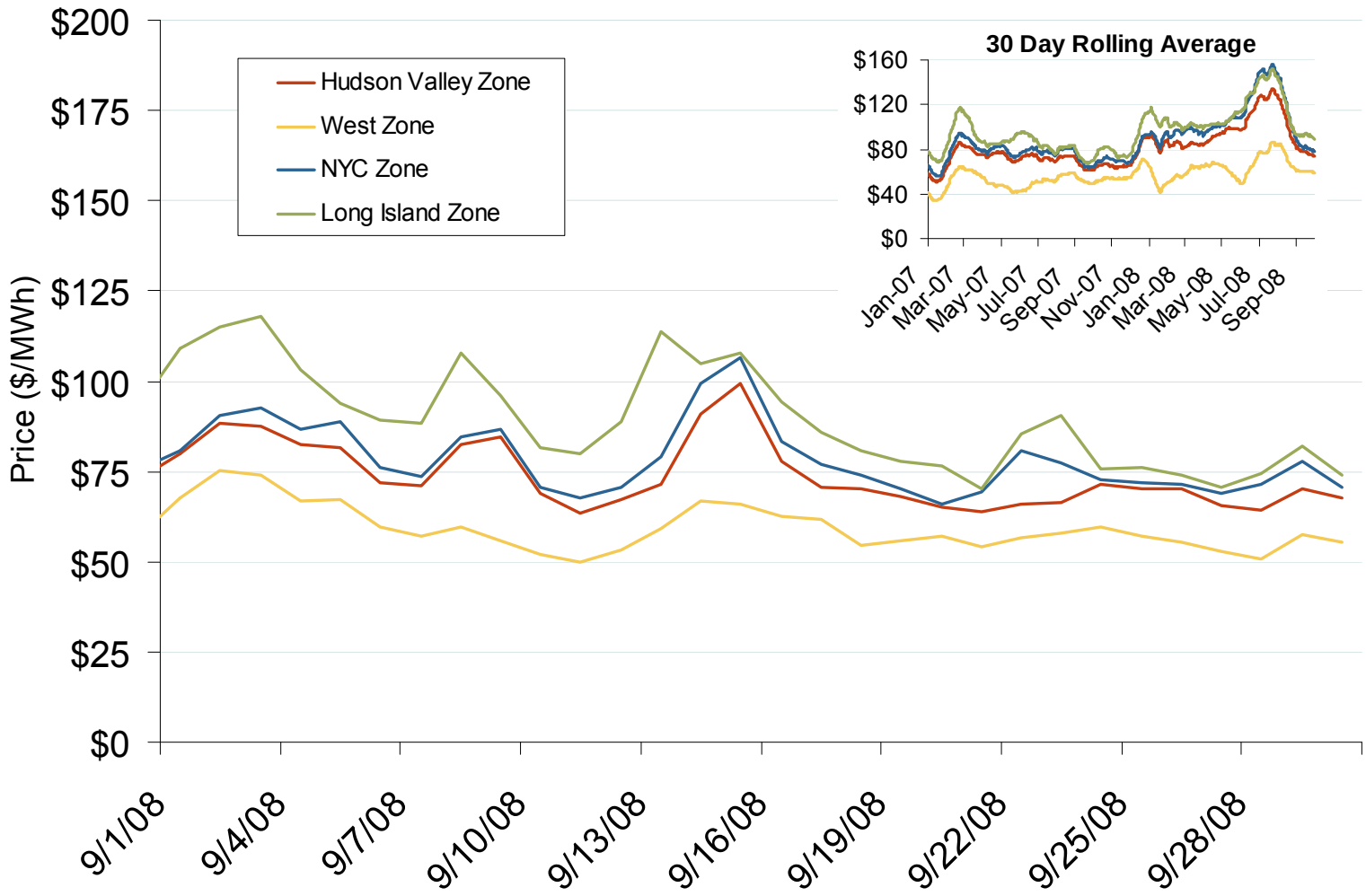
Daily Average of NYISO Day-Ahead Prices - All Hours



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

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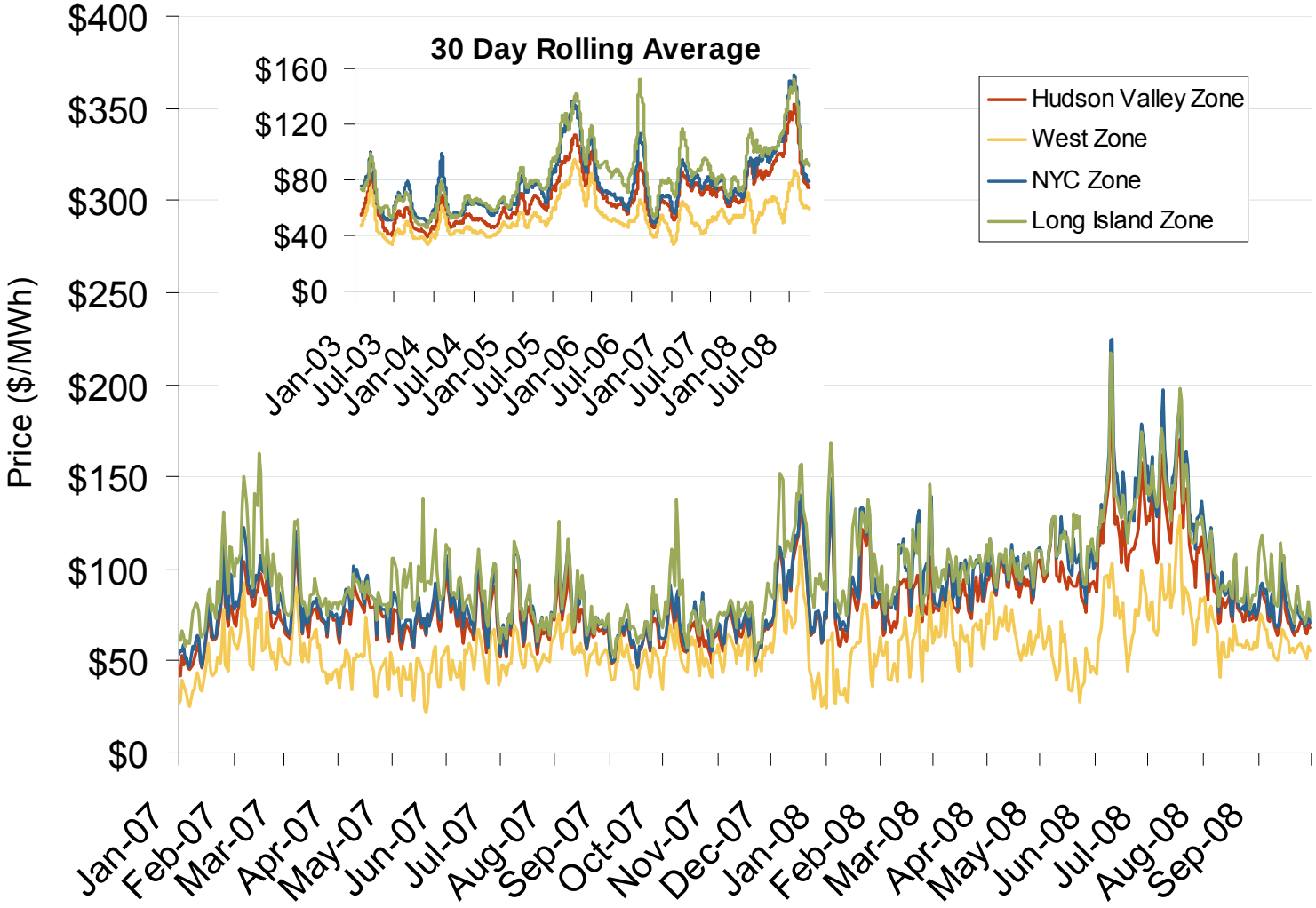
Daily Average of NYISO Day-Ahead Prices - All Hours



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

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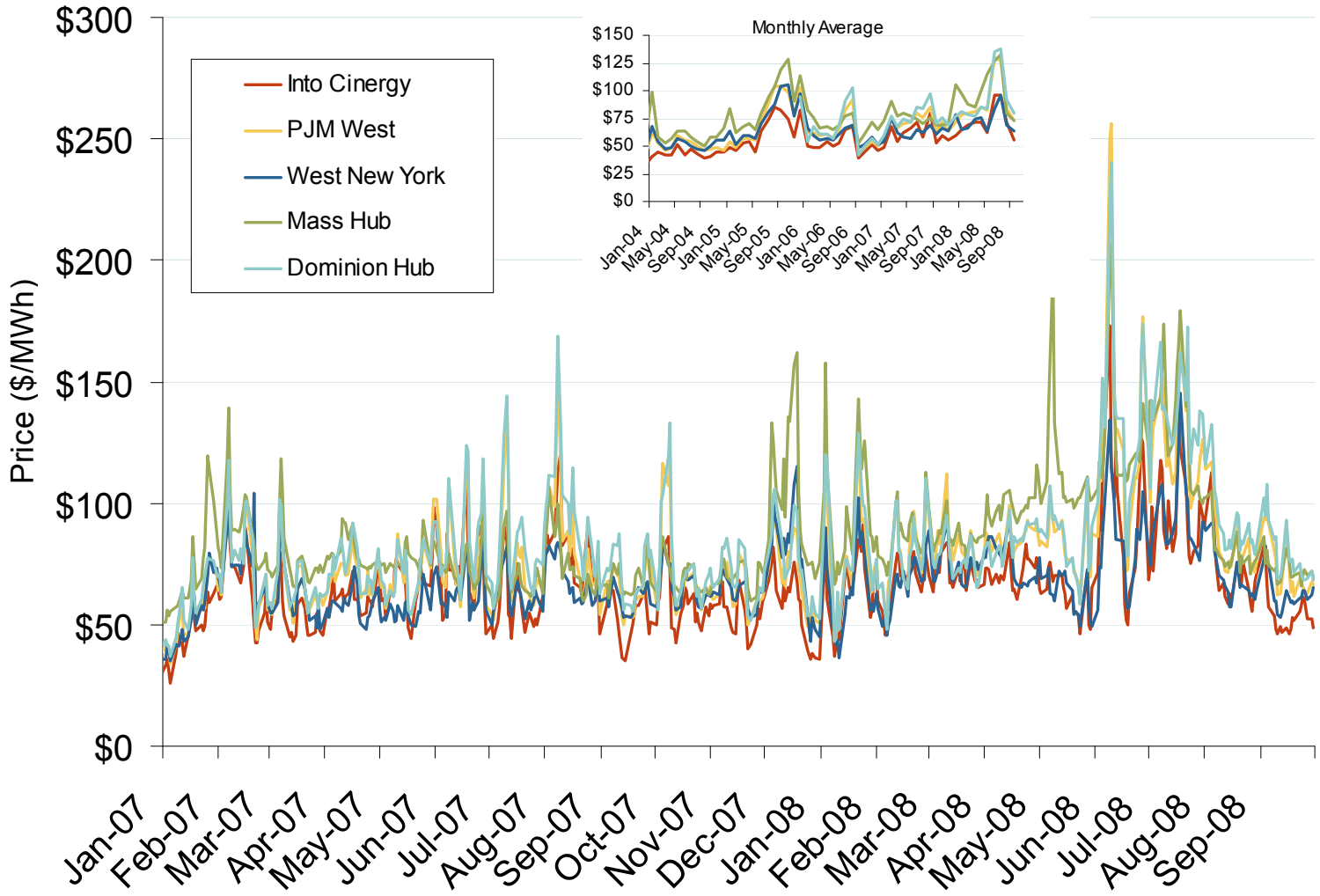
Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

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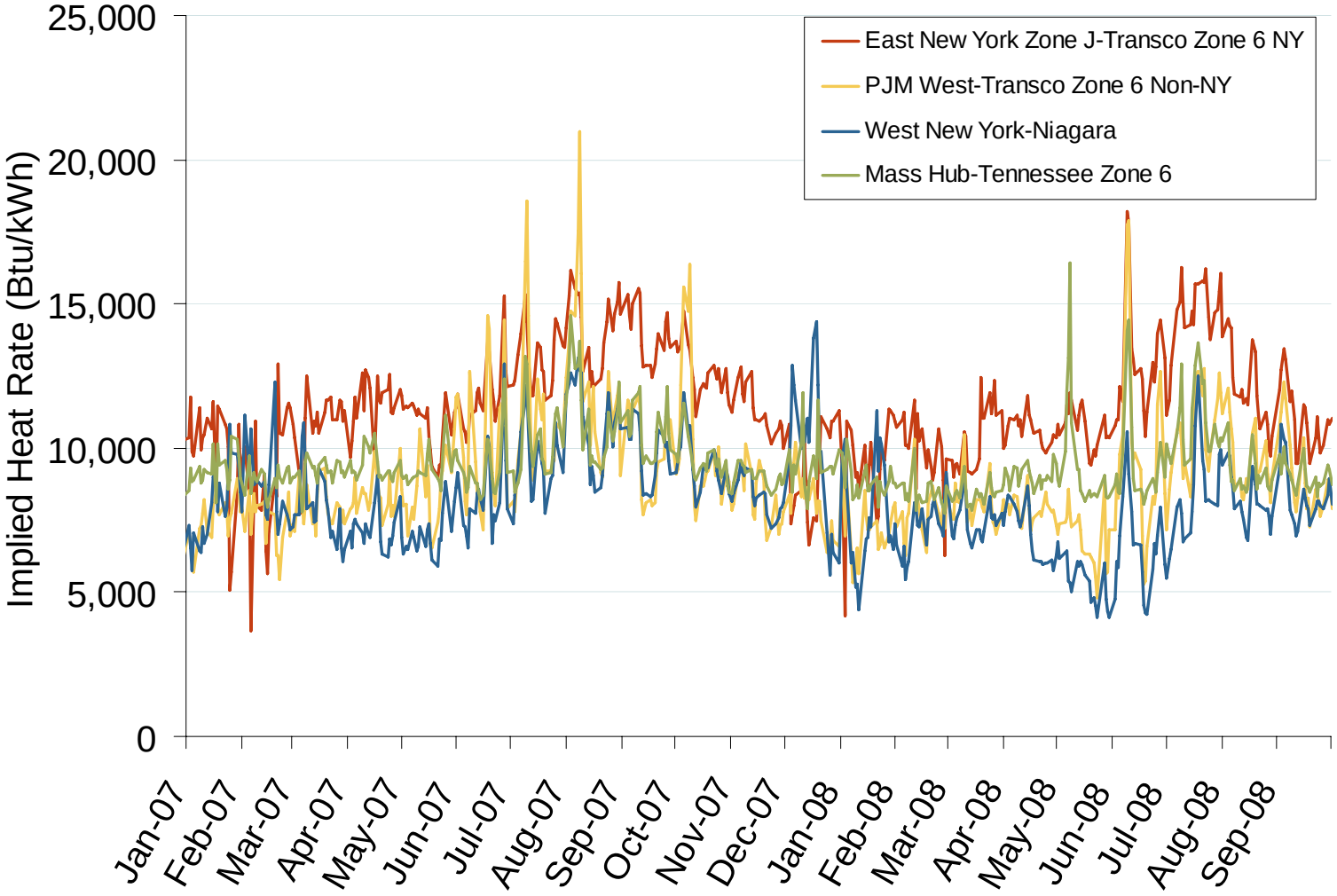
Implied Heat Rates at Eastern Trading Points



Source: Derived from *Platts* data

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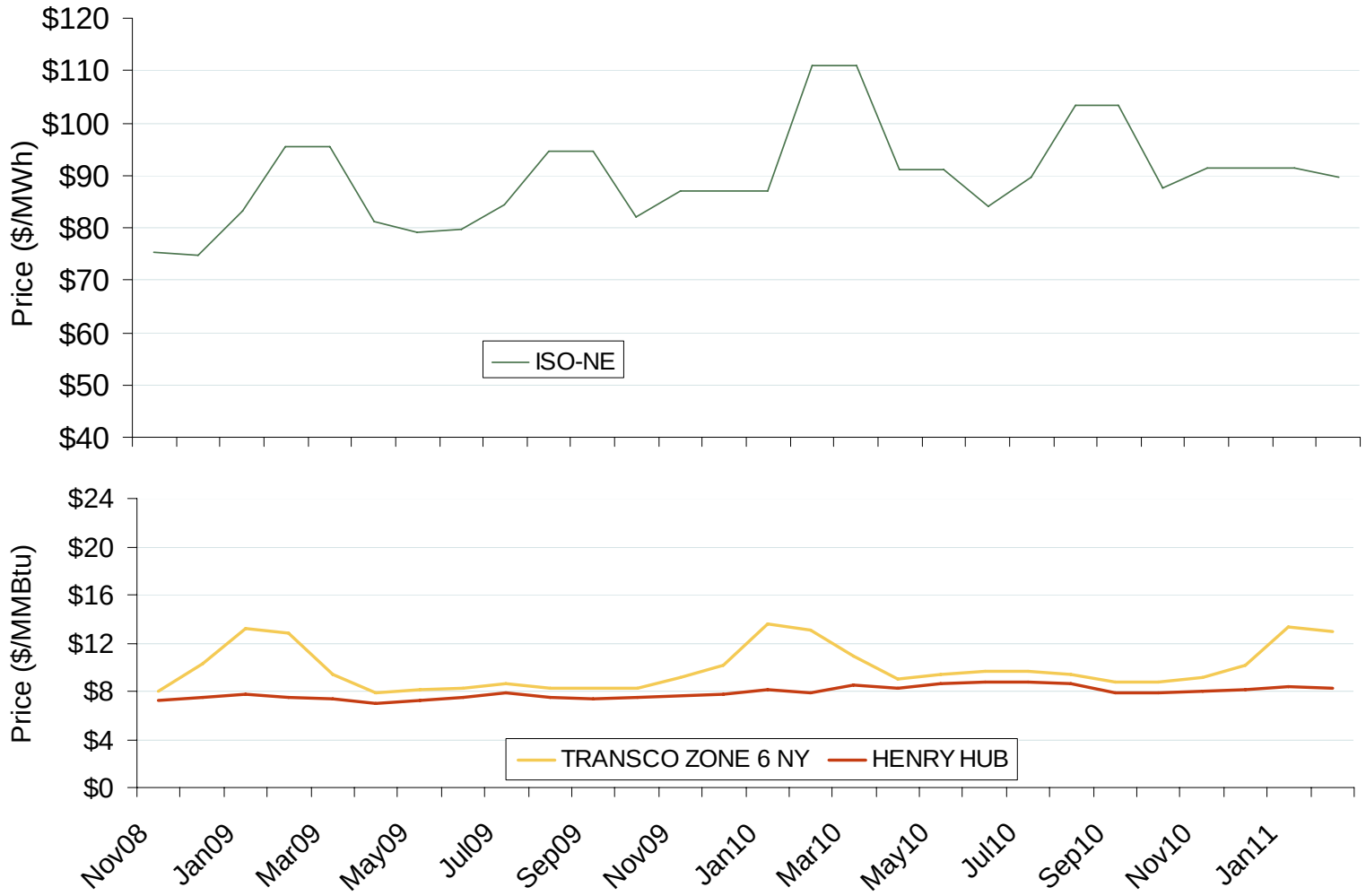
New England Electric Forward Price Curve and New York and Henry Hub Natural Gas Forward Curves



Source: Derived from *Nymex* data.

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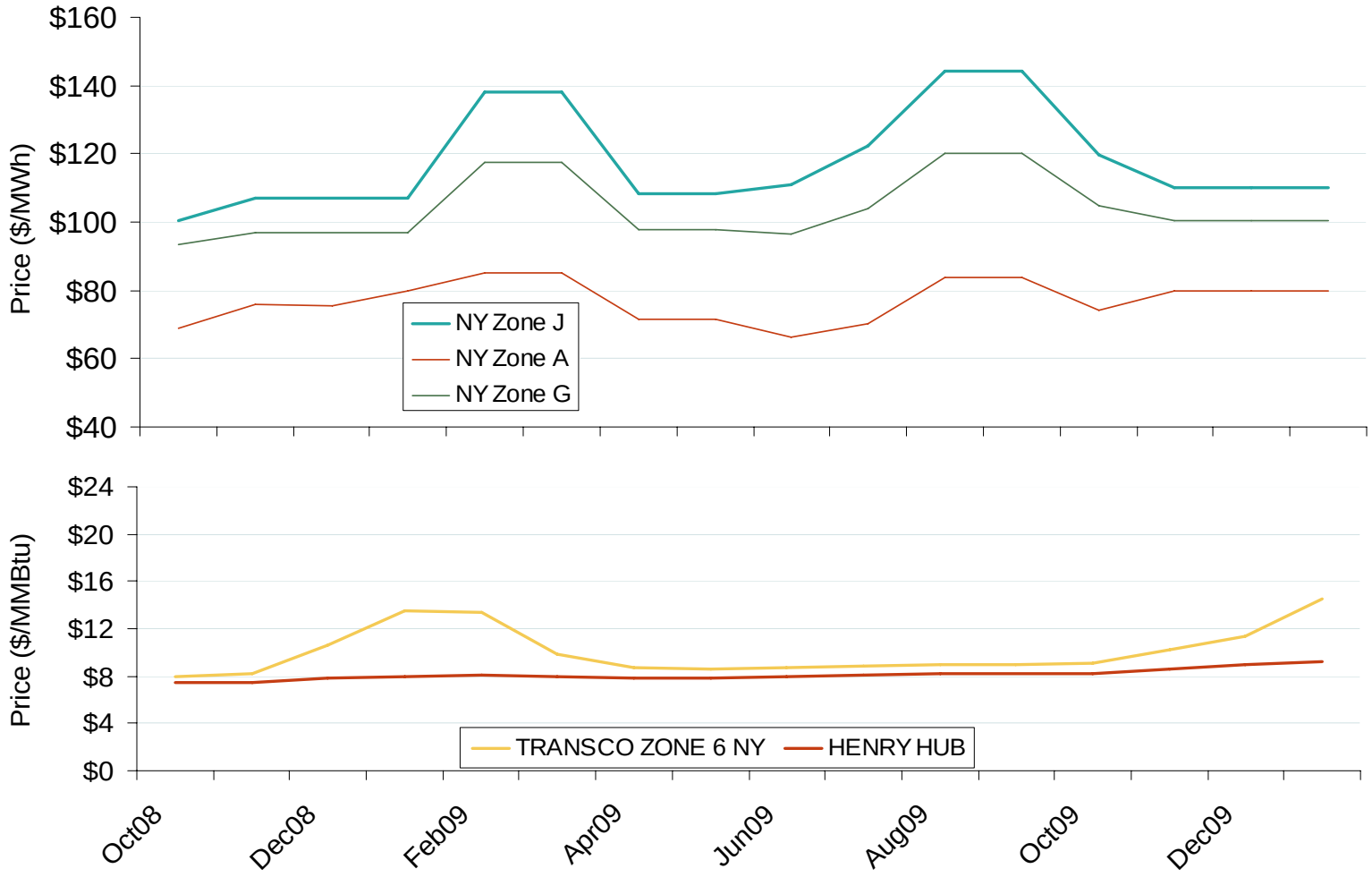
New York Electric Forward Price Curves and New York and Henry Hub Natural Gas Forward Curves



Source: Derived from *Nymex* data.

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Renewable Energy Portfolio Standards (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 of 33% by 2020; 50% goal on Nov ballot

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 of 10,000 MW by 2025

HI: 20% by 2020, *and* goal of 70% RE by 2030

MT: 15% by 2015

ND: 10% by 2015

KS: voluntary utility goal: 20% wind by 2020

OK: studying RPS, RE transmission, cost-recovery

MN: 25% by 2025 Xcel 30% by 2020

IA: 1,105 MW by 2011*

MO:11% by 2020; ballot initiative for mandate

AR: utilities should include RE in IRPs

WI: 10% by 2015; Governor's goal of 25% by 2025

IL: 25% by 2025

MI: 10% by 2015, and new RE capacity: 1,100 MW by 2015

OH: 12.5% by 2025, with 0.5% solar

KY: recommends 5-10% goal by 2020

ME: 40% by 2017

NH: 23.8% BY 2025

VT: 25% by 2025

MA: 15% by 2020; goal of 250 MW solar by 2017

RI: 16% by 2019

CT: 23% Class I/II by 2020 4% Class III by 2010

NY: 24% by 2013

PA: 8% Tier I, 10% Tier II by 2020; 0.5% solar set-aside

NJ: 22.5% by 2020, with 2% solar

DE: 20% by 2019, with 2% solar

DC: 20% by 2020; with 0.4% solar

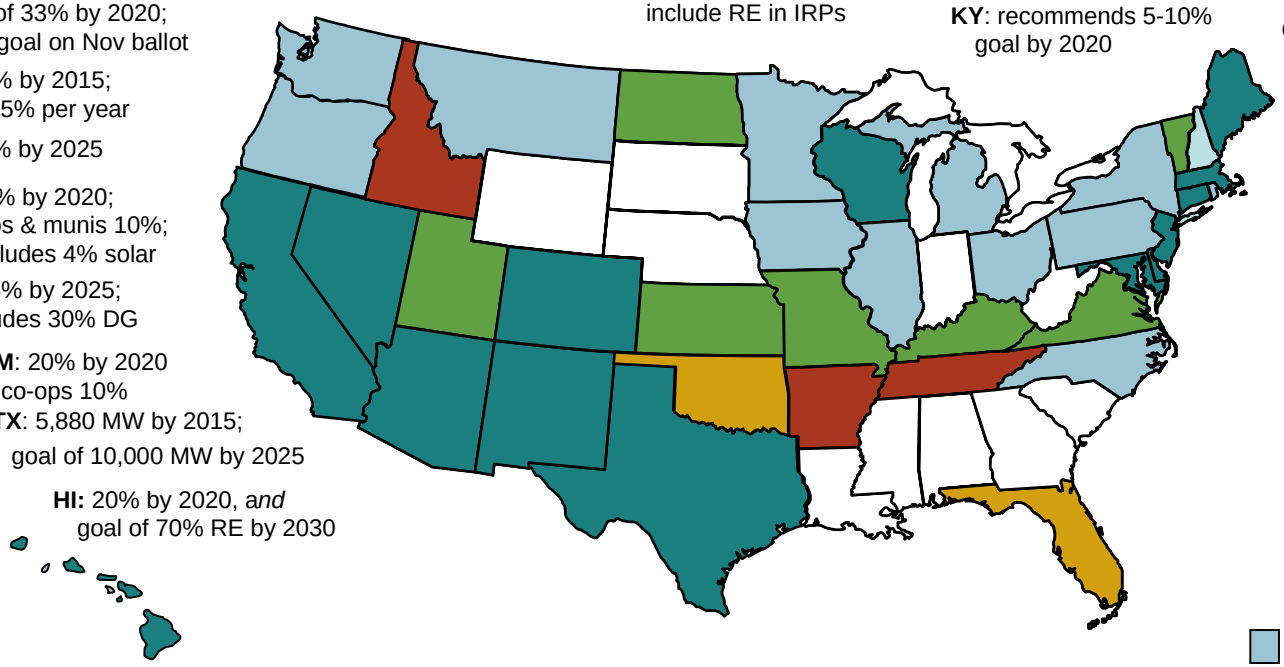
MD: 20% by 2022, with 2% solar

VA: 12% by 2022

TVA: Plan to examine renewable and clean energy potential*

NC: 12.5% by 2021 co-ops & munis: 10% by 2018

FL: PSC drafted RPS; will vote in Oct.



- RPS
- Strengthened/ amended RPS
- Voluntary standards or goals
- Proposed RPS or studying RPS
- Other renewable energy goal

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, and the Union of Concerned Scientists.

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Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Energy Efficiency Resource Standards (EERS)

ID: Energy Plan puts conservation – DR and EE – as priority resource

MT: state agency reduction initiative: save 20% by 2010

MN: reduce fossil fuel use 15% by 2015 through EE, RE

IA: utilities must establish EE goals by end of 2008

WI: RPS requires utility EE

MI: annual incremental savings: 1% of prior year's sales by 2012

IL: reduce energy 2% by 2015 (EE) and 0.1% from prior year (DR)

OH: reduce peak-demand 8% by '18; 22% energy savings by '25

PA: new funding for EE and RE

ME: 10% new EE by 2017; in RPS goal as 2nd priority

VT: EE & RE to meet 2007-12 growth; new EE fund

MA: meet 25% of capacity and energy with DSR by 2020

NY: 15% electric use reduction by 2015; doubles EE funding

CT: 4% savings by 2010; a Tier III RPS resource

NJ: reduce consumption 20%, and reduce peak 5,700 MW by 2020

DE: EE, RE, DG, and DR are priority resources before new gen

DC: Sustainable Energy Utility charged with reducing peak-demand and energy consumption

MD: reduce peak-demand and per cap electricity use 15% by 2015

VA: reduce 10% of 2006 sales by 2022 with EE, DR

NC: EE to meet up to 25% of RPS to 2011; later to 40%

TVA: reduce peak demand 1,400 MW by 2012 with EE, DR *

FL: PSC to adopt goals to reduce electric consumption, peak demand

WA: must pursue all cost-effective conservation

OR: IOUs required to have EE in IRP & assess cost-effectiveness

CA: IOUs reduce MW 10%, peak demand (MWh) 12% by 2013; munis 10% by 2017

NV: use EE for up to 25% of RPS by 2015

UT: EE incentives in RPS goal

CO: save 40 MW and 100 GWh annually to 2013

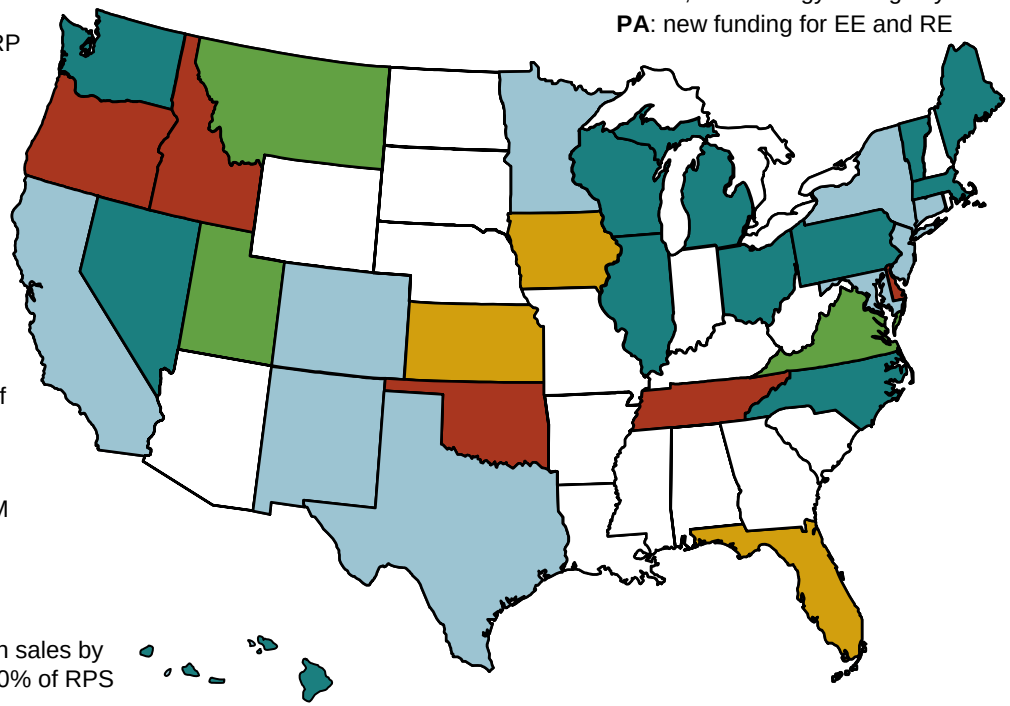
NM: use EE and DR to save 10% of 2005 retail electric sales by 2020

KS: studying for E&G utilities

OK: PSC approved quick-start DSM programs, including EE

TX: 10% of load growth, beyond 2004, based on prior 5 years

HI: 20% of MWh sales by 2020; up to 50% of RPS



- EERS by regulation or law (separate from RPS)
- Energy efficiency part of an RPS law, rule, or goal
- Voluntary standards (in or out of RPS)
- Energy efficiency goal proposed / being studied
- Other energy efficiency or demand-side rule or goal

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

* TVA's "EE and DR Plan" is from the Public Power Authority, and is not a state policy.
Abbreviations: CHP – Combined heat & power; DG – distributed generation; DR - demand response; DSM - demand side management; DSR – demand-side resources; EE - energy efficiency; E&G: electric and gas utilities; IRP – integrated resource plan; RPS: Renewable Portfolio Standard
Sources: ACEEE, EPA, Regulatory Assistance Project, Union of Concerned Scientists, State regulatory and legislative sites, trade press

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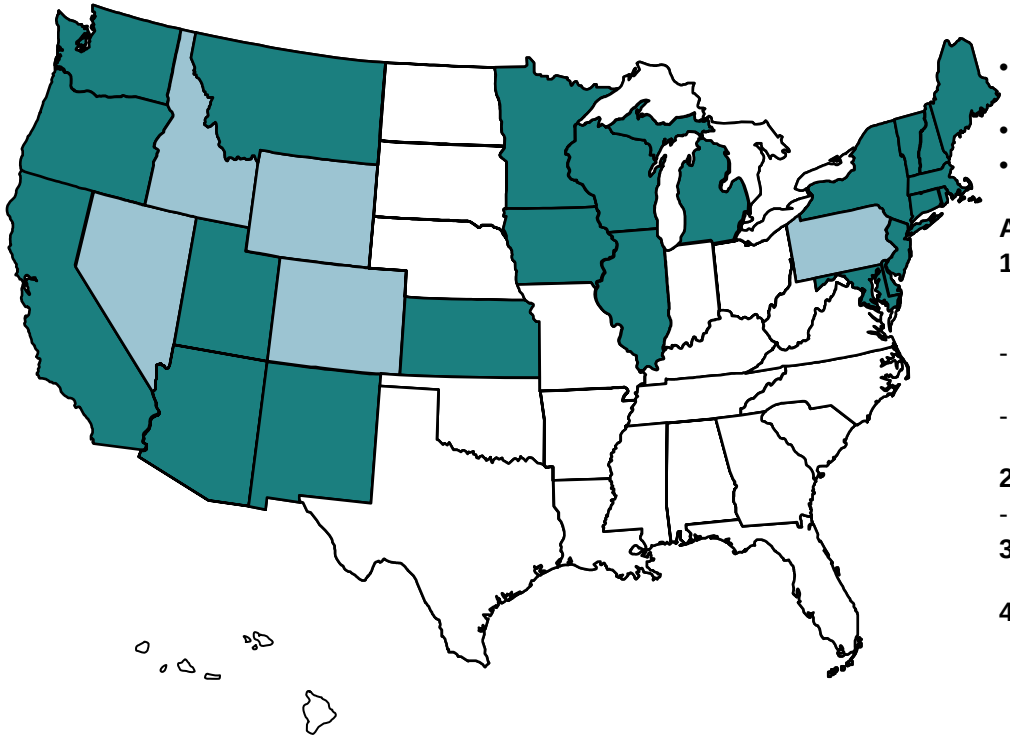
Regional Greenhouse Gas (GHG) Initiatives

Western Climate Initiative (WCI):

- Created Feb 2007 to reduce regional GHG.
- Partners include 7 U.S. states and 4 Canadian provinces; observers include 5 states and 1 province
- Design announced for market-based, multi-sector cap-and-trade program (Sept 2008):
  - 15% CO_2 reduction below 2005 levels by 2020
  - Covers 90% of regional emissions
  - Phase I to take effect Jan 2012
  - Phase II will begin 2015
- Will develop a regional GHG registry

Midwest Greenhouse Gas Accord:

- Established Nov 2007; 6 states, 1 province: IA,IL, KS, Manitoba, MI, MN, WI.
- Working group's *preliminary* GHG policy recommendation: 15 – 25% reductions by 2020



Regional Greenhouse Gas Initiative (RGGI):

- Established Dec 2005; ten U.S. states participate; 1 state and 4 Canadian provinces are observers.
- First mandatory market-based effort to cap and reduce power-sector CO_2 emissions.
- 10% CO_2 reduction by 2018 covering over 200 plants
- Takes effect Jan 2009
- 188 million allowances to be auctioned through 6 auctions

Auctions:

1. **9/25/08:** 12.5 mil. tons of allowances cleared at $3.07/allowance, raising $38.5 million.
   - 6 states each auctioned 1/6 of their allowances: CT, MA, ME, MD, RI, VT
   - these 6 will offer 16.6% at next 5 auctions
2. **12/17/08**: first 6 states plus NY, NJ
   - new states auction 20% in 5 auctions
3. **3/18/09**: prior 8 states plus NH, DE: new states auction 25% in 4 auctions

4 to 6: All ten states on same percent basis as prior auctions. Dates will be: 6/17/09**;** 9/16/09; 12/16/09

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

Participant in regional GHG initiative

Observer to regional GHG initiative

***** Alaska is an observer to the WCI; Kansas is listed both as a partner to the MGGA and an observer to the WCI

Abbreviations: GHG – Greenhouse gases; CO_2 – Carbon Dioxide; PUC – Public Utility Commission

Sources: regional initiatives website, trade press, ESAI

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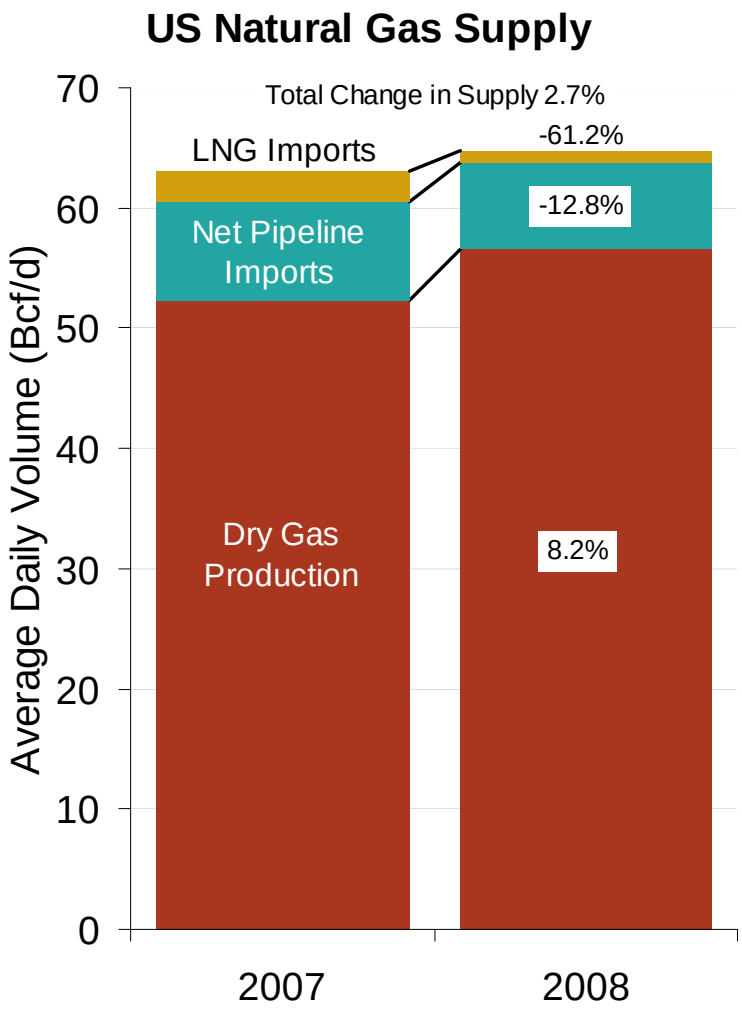
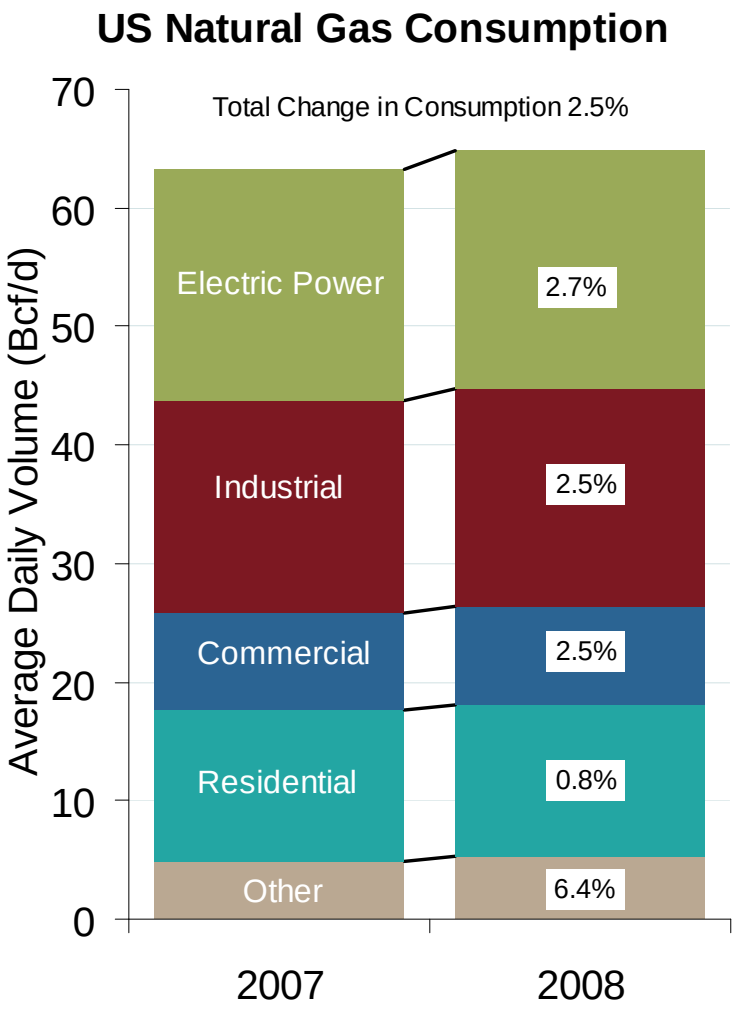
Natural Gas and Fuel Markets

U.S. Natural Gas Supply and Consumption January-September





Source: Derived from Bentek data.
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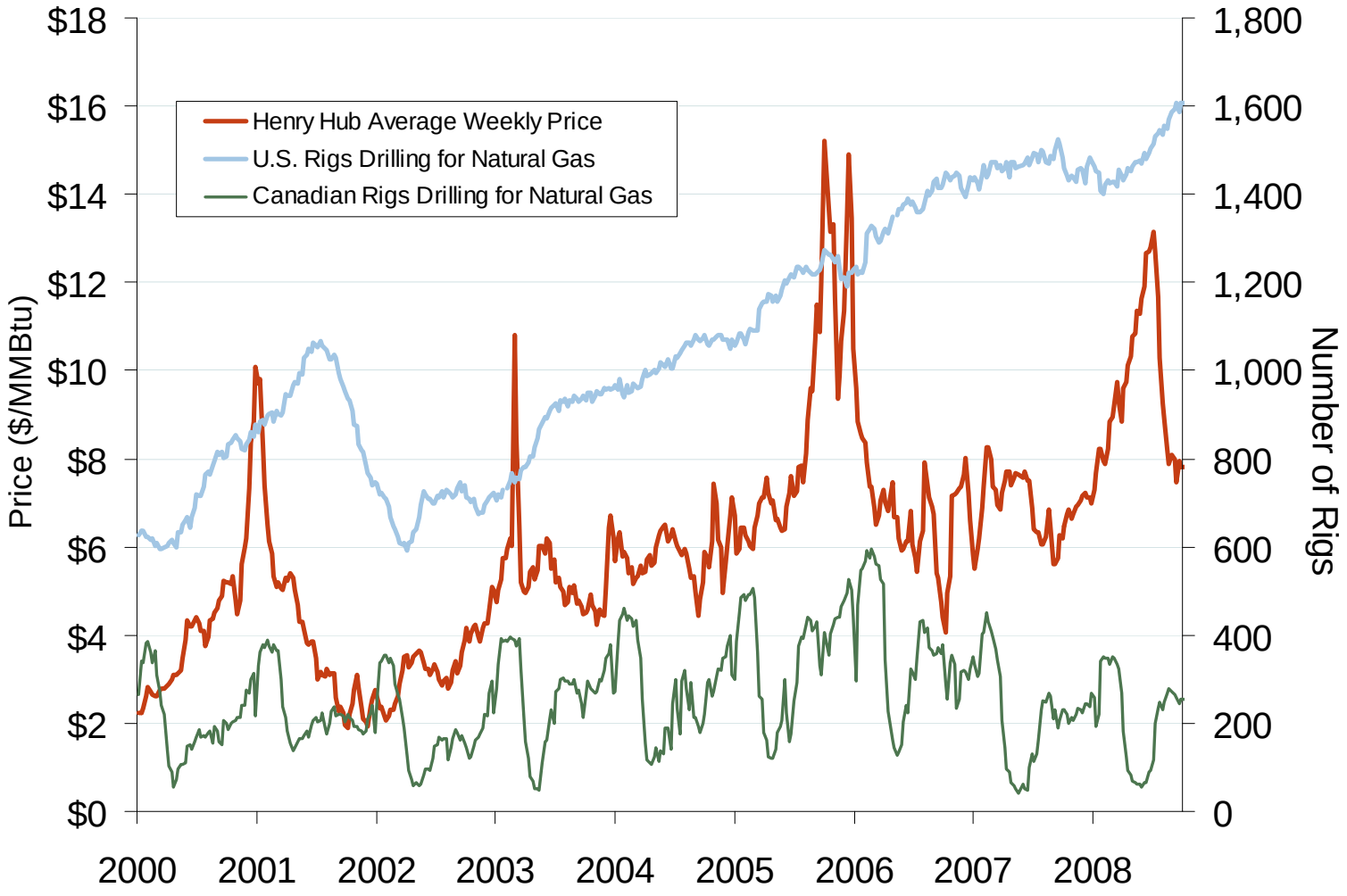
U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices



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

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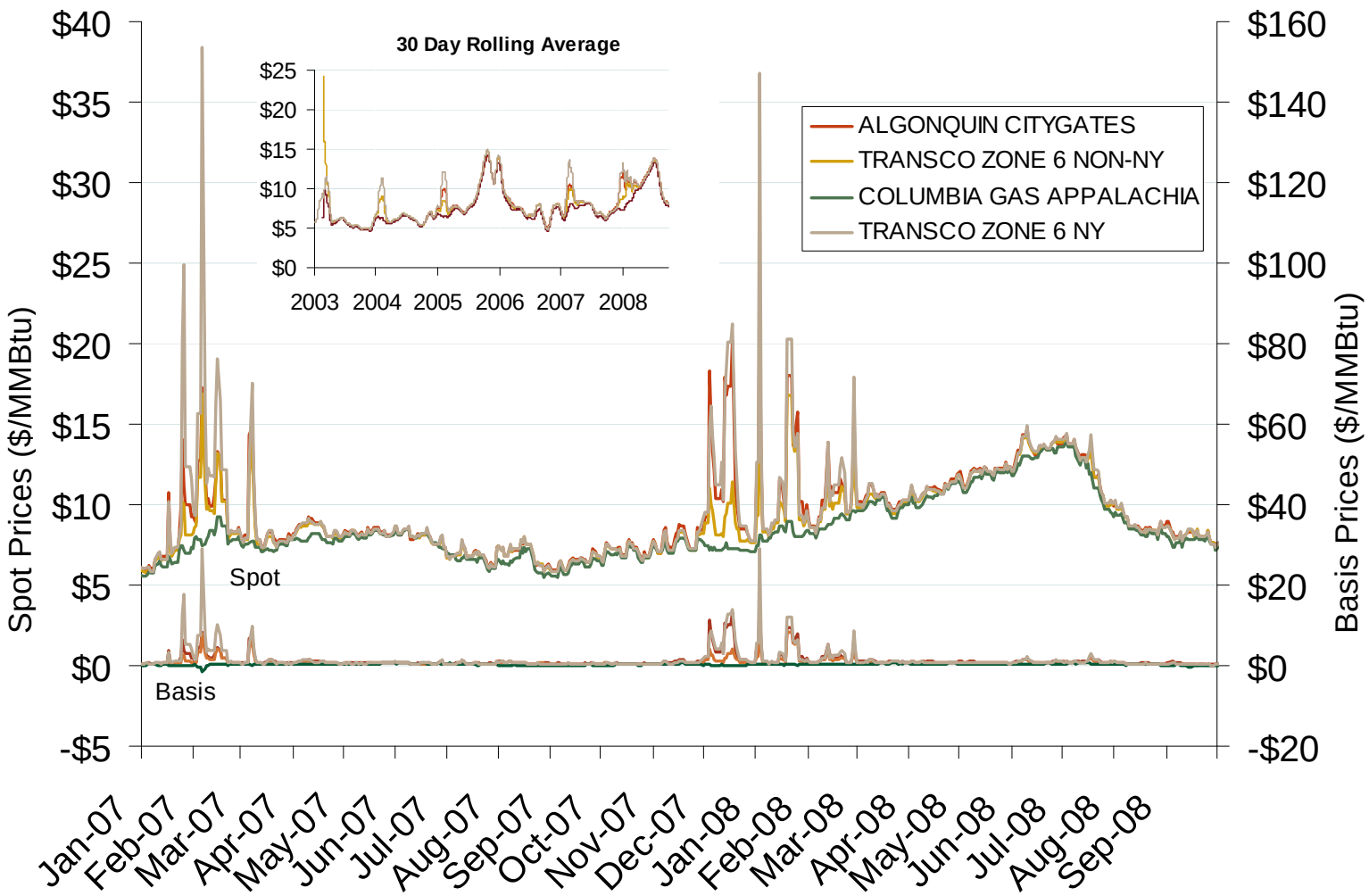
Northeastern Spot Prices and Basis



Source: Derived from *Platts* data.

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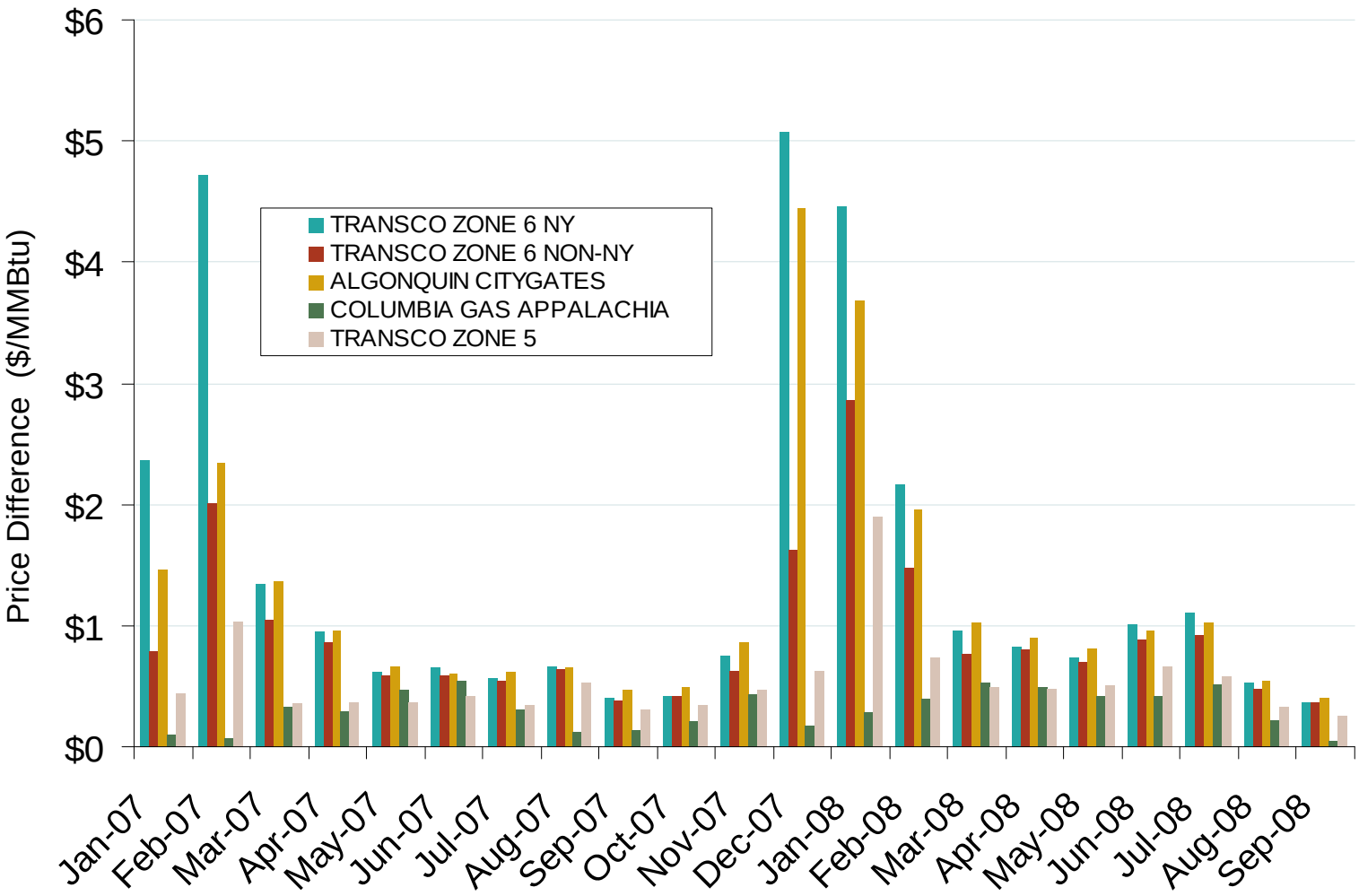
Northeastern Monthly Average Basis Value to Henry Hub



Source: Derived from *Platts* data.

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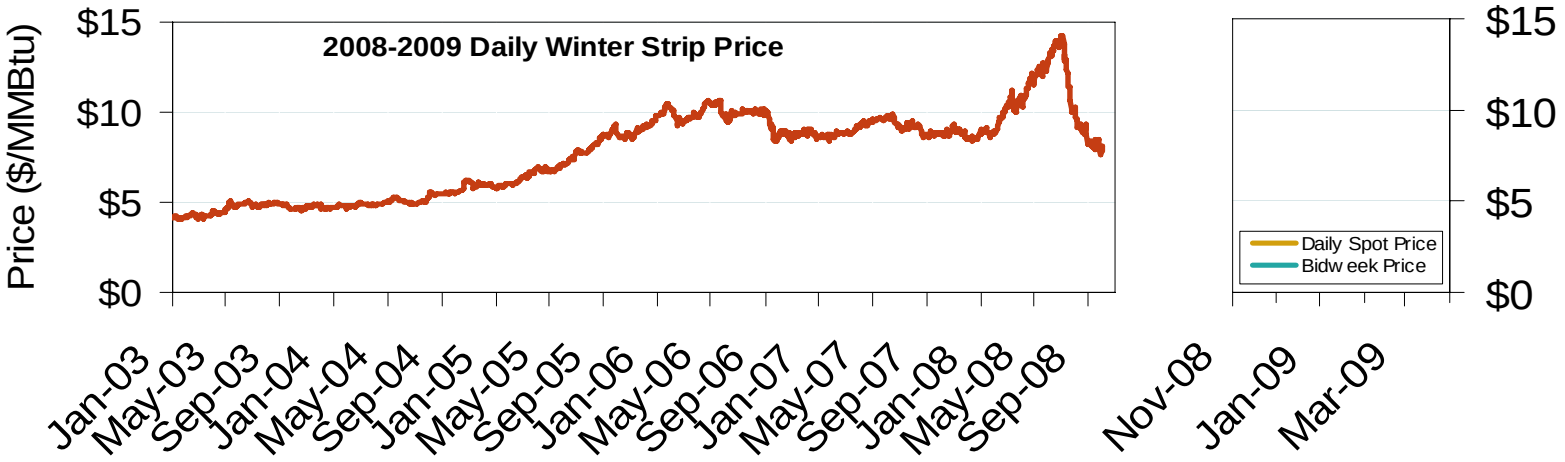
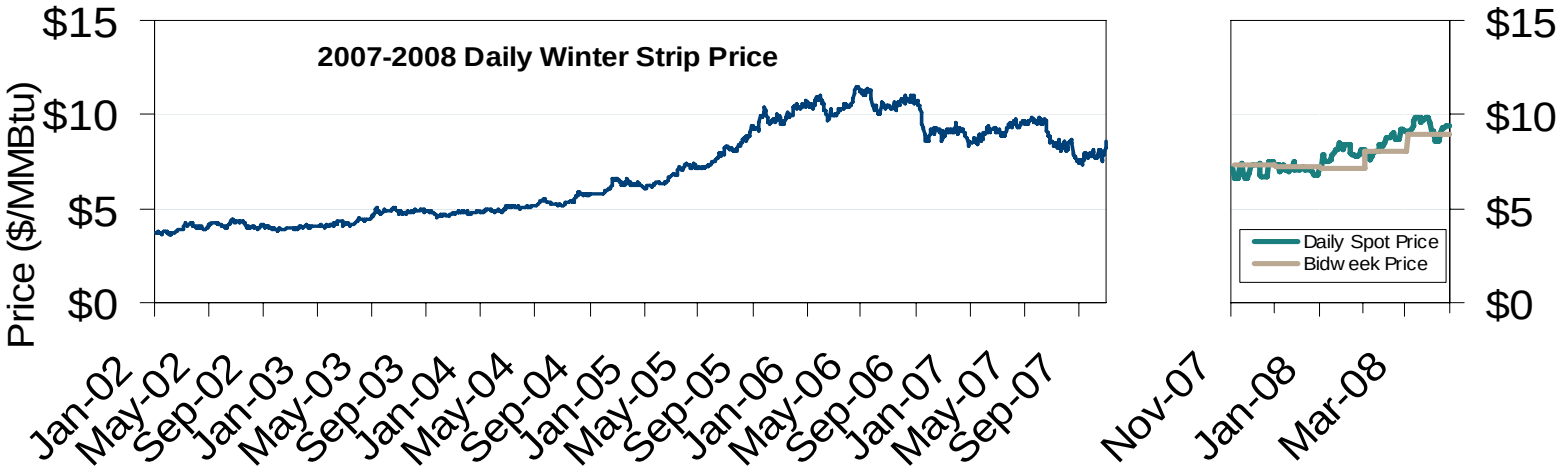
Natural Gas Winter Futures Strip and Daily Henry Hub Spot and Bidweek Prices





Source: Derived from *Platts* and *Nymex* data.

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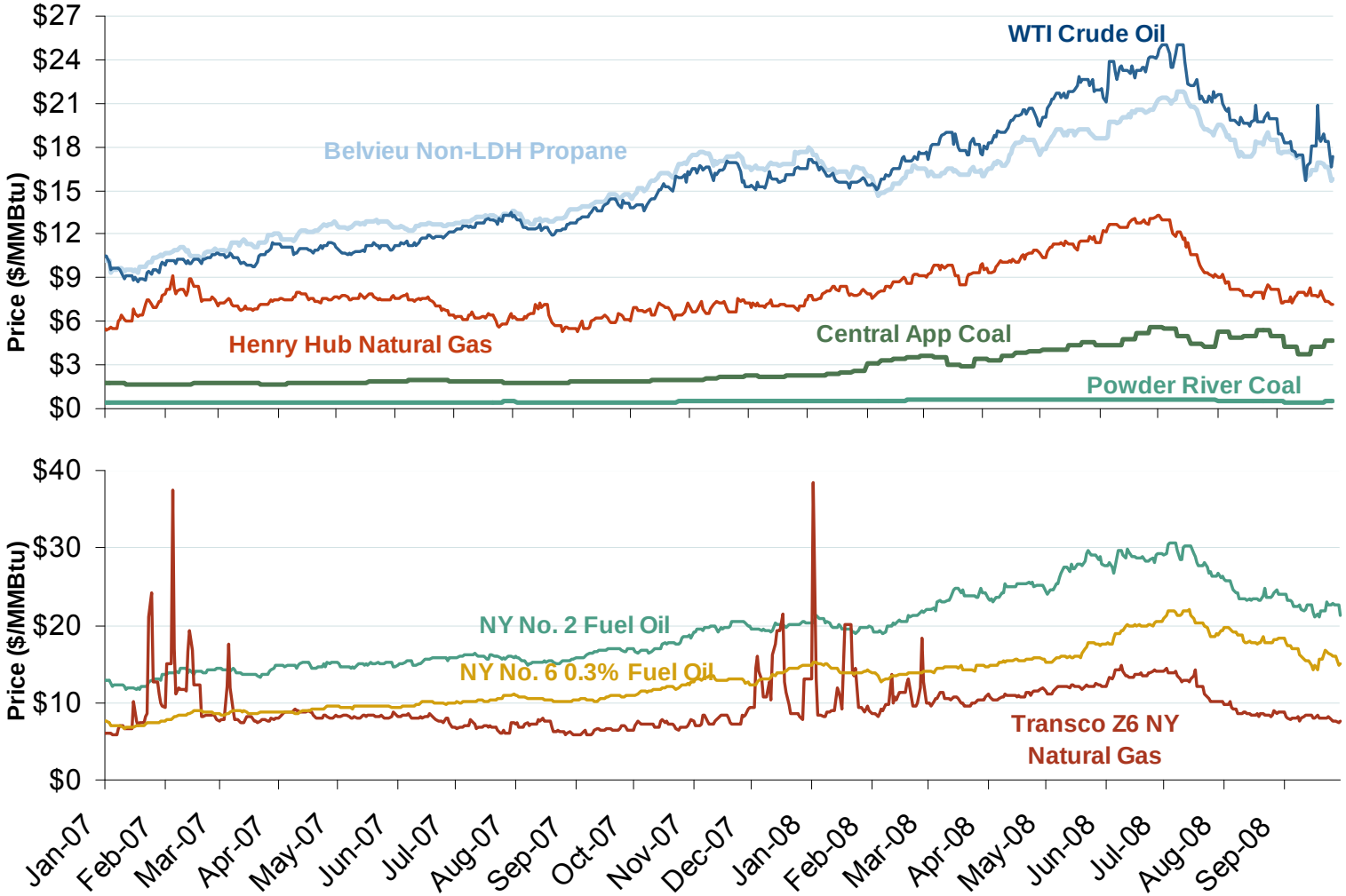
Oil, Coal, Natural Gas and Propane Daily Spot Prices



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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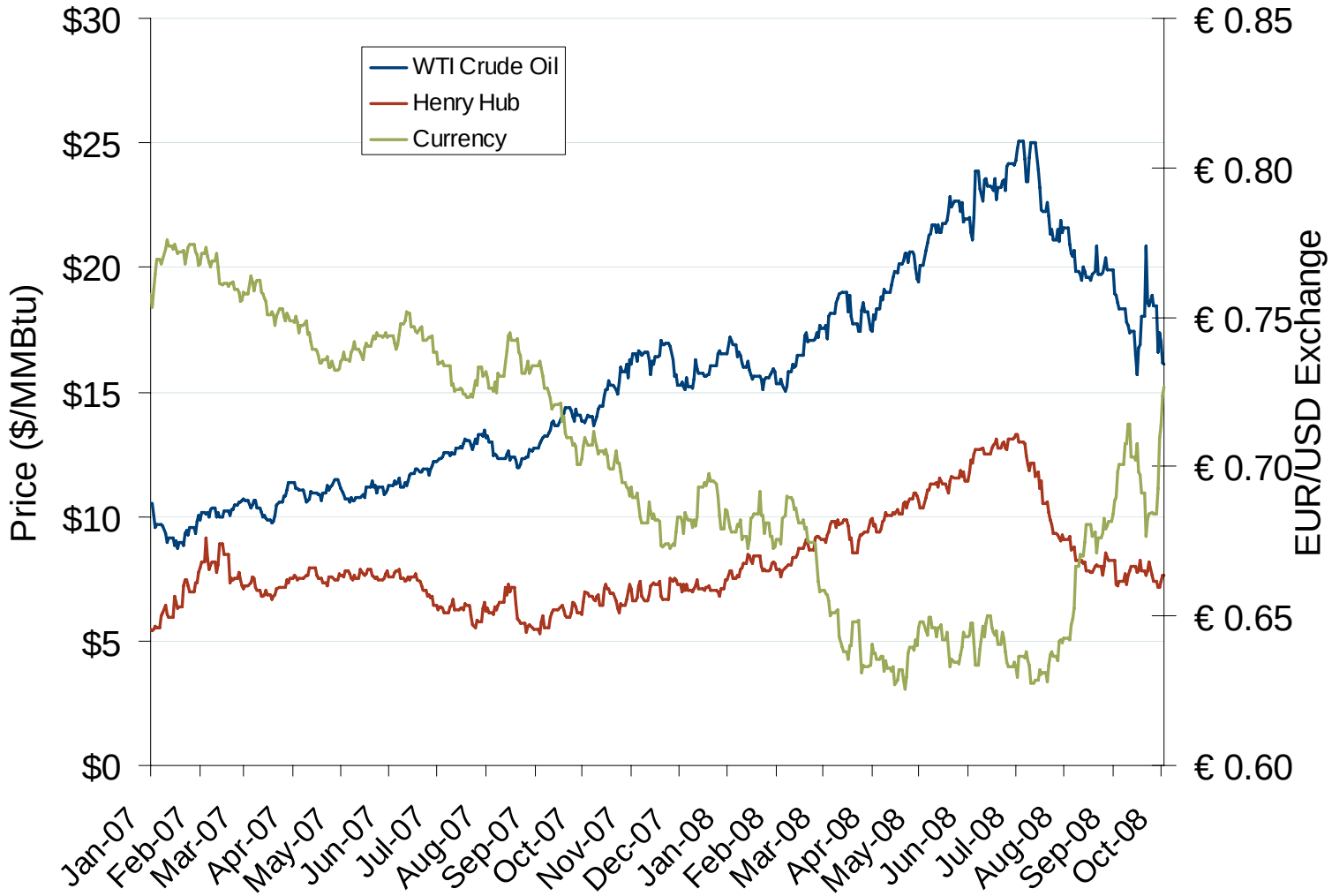
Oil, Natural Gas and Currency Spot Prices



Source: Derived from *Bloomberg* data.

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World LNG Estimated November 2008 Landed Prices

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

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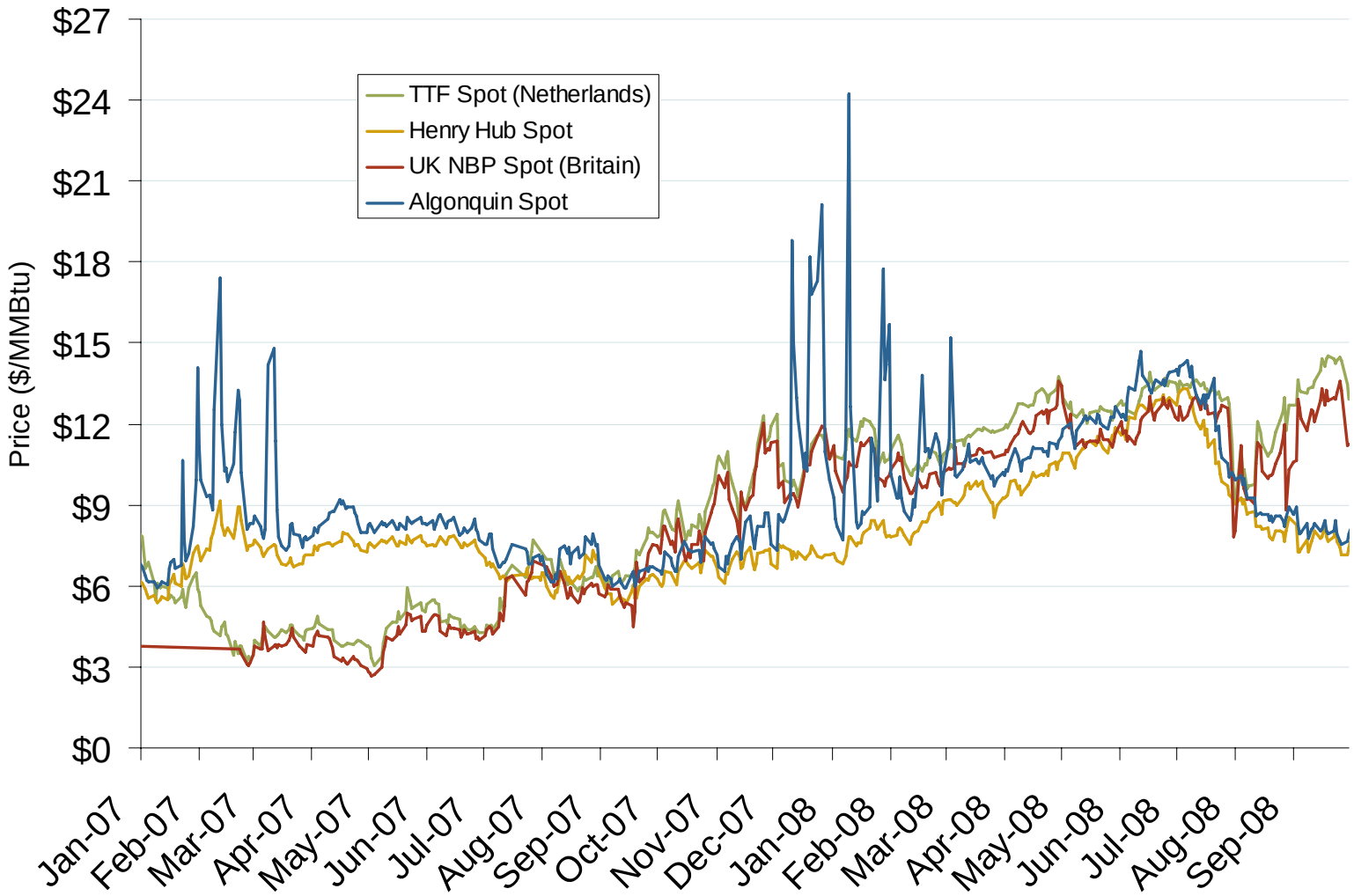
Atlantic Basin European and US Spot Natural Gas Prices



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

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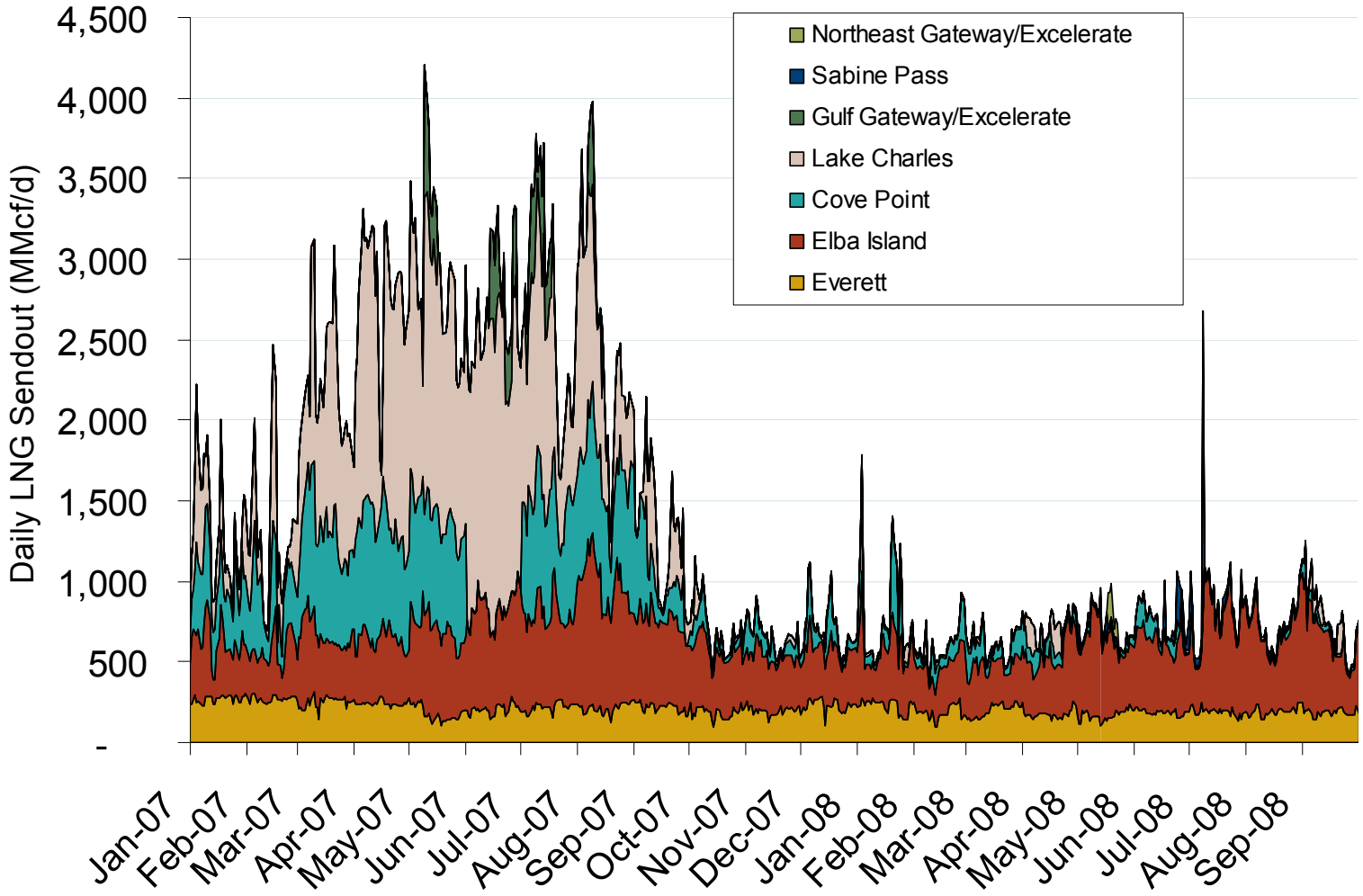
Daily Gas Sendout from Existing U.S. LNG Facilities



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.

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