OE ENERGY MARKET SNAPSHOT

Midwest States Version – August 2008 Data

- **Special Report**
- **Market Fundamentals**
- **Prices and Market Analysis**

Office of Enforcement
Federal Energy Regulatory Commission
September 2008

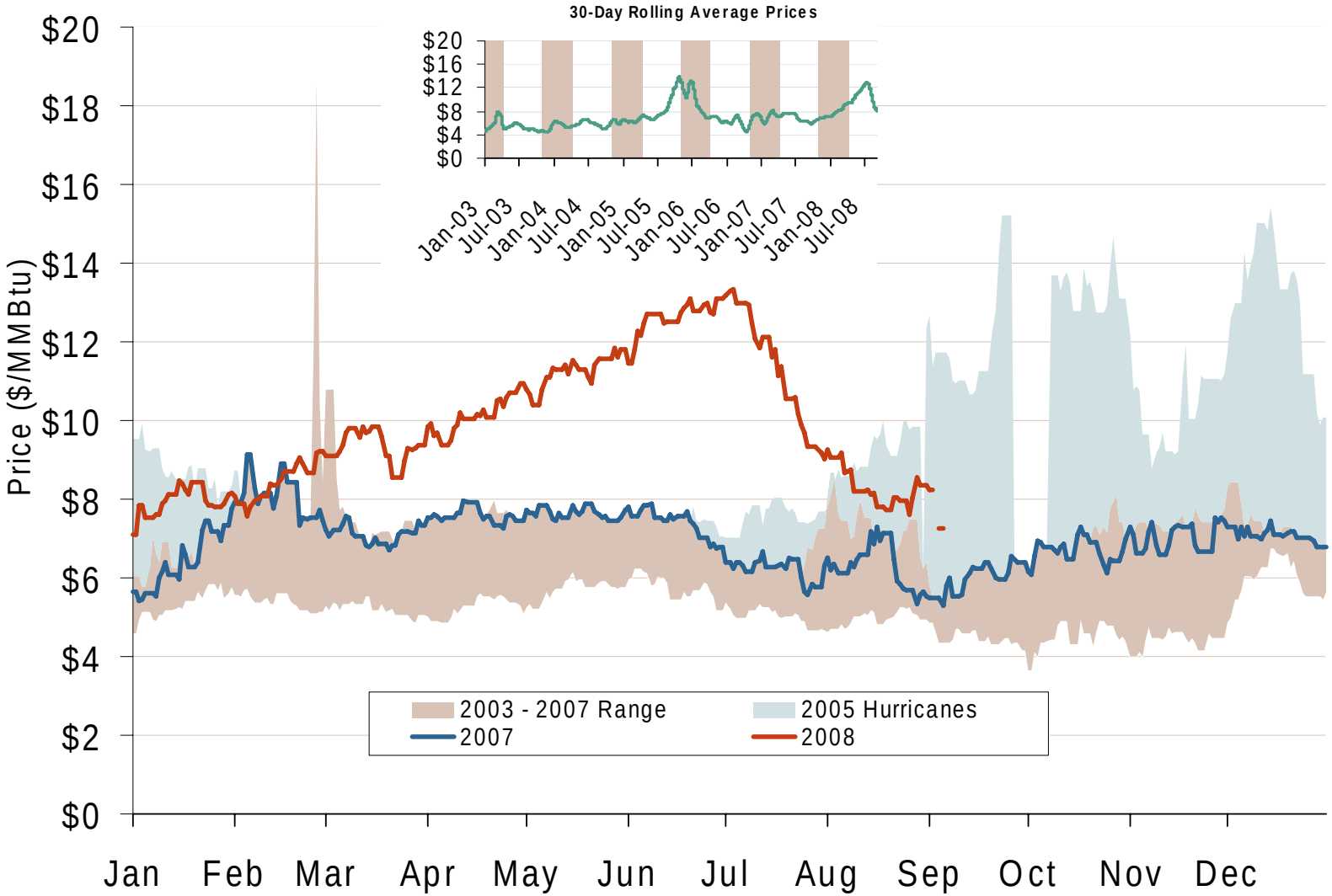
Special Report:

Natural Gas Price Decline II

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

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

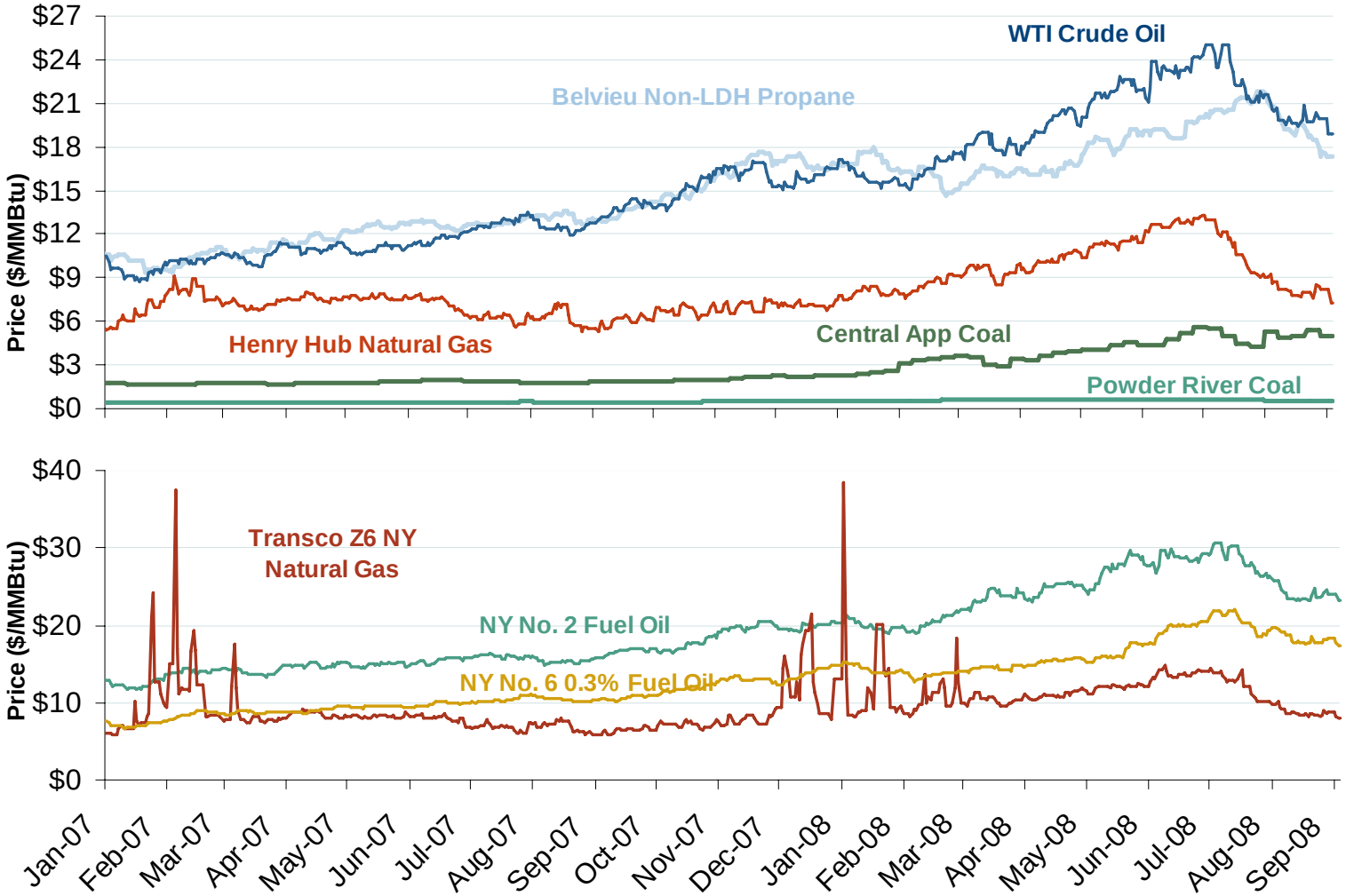
Henry Hub Natural Gas Daily Spot Prices 2007, 2008 and 2003-2007 Year Range



Source: Derived from *Platts* data.

Updated September 5, 2008

Oil, Coal, Natural Gas and Propane Daily Spot Prices

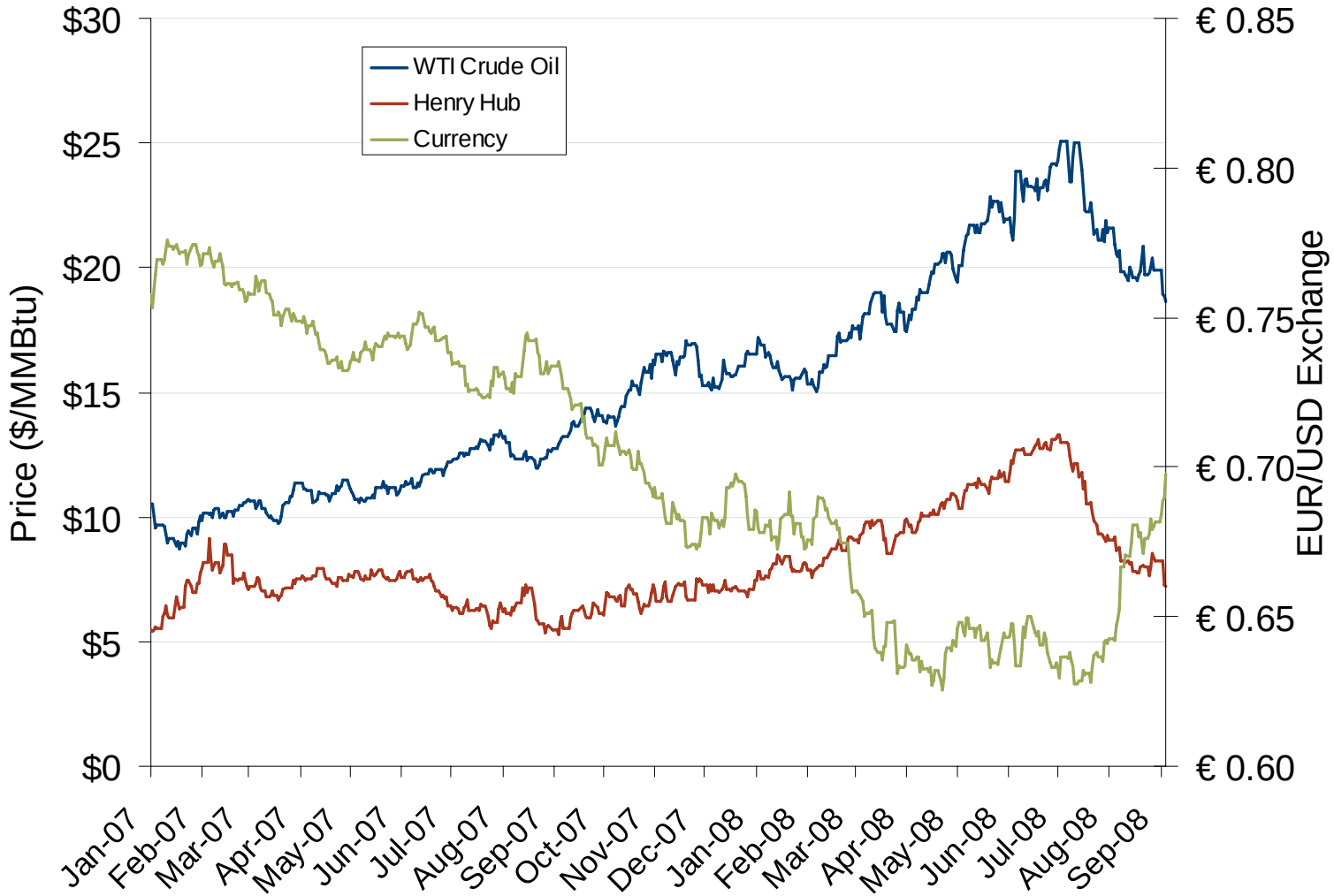


Source: Derived from *ICE* and *Bloomberg* data.

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 September 5, 2008

Oil, Natural Gas and Currency Spot Prices



Source: Derived from *Bloomberg* data.

Updated September 5, 2008

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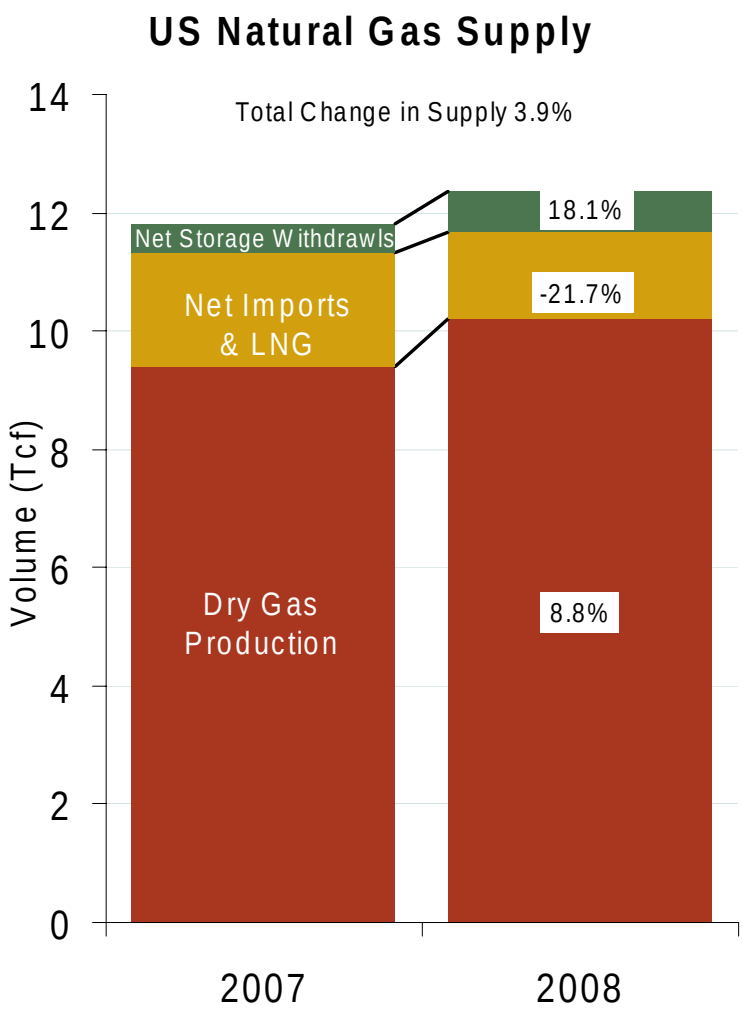
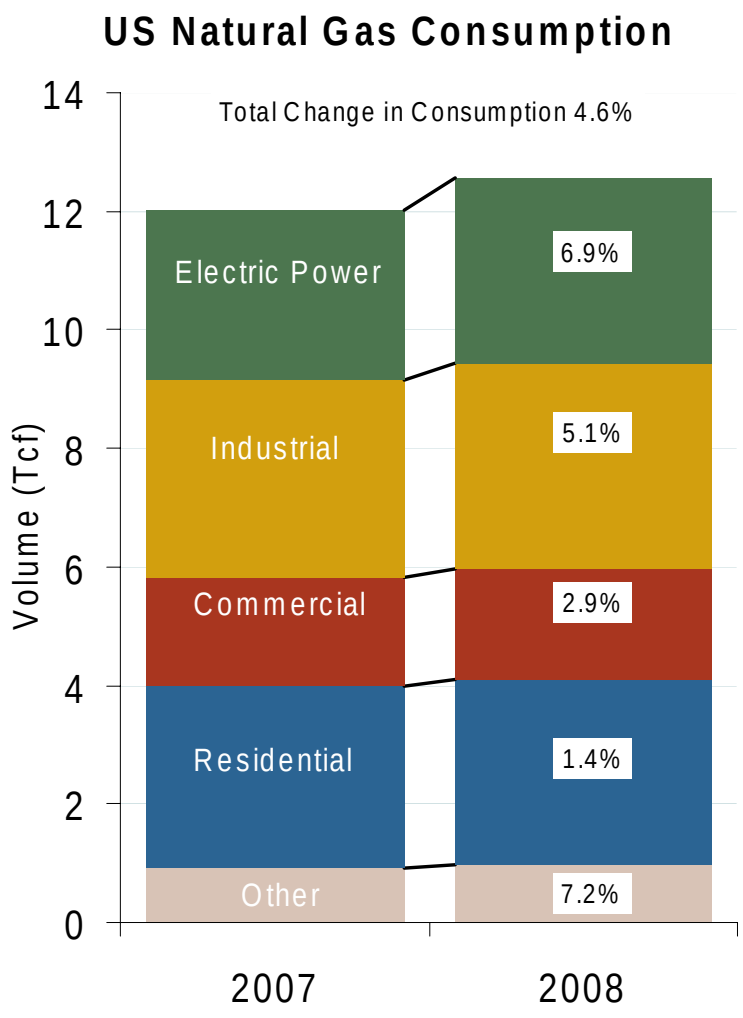
U.S. Natural Gas Supply and Consumption Jan-Jun

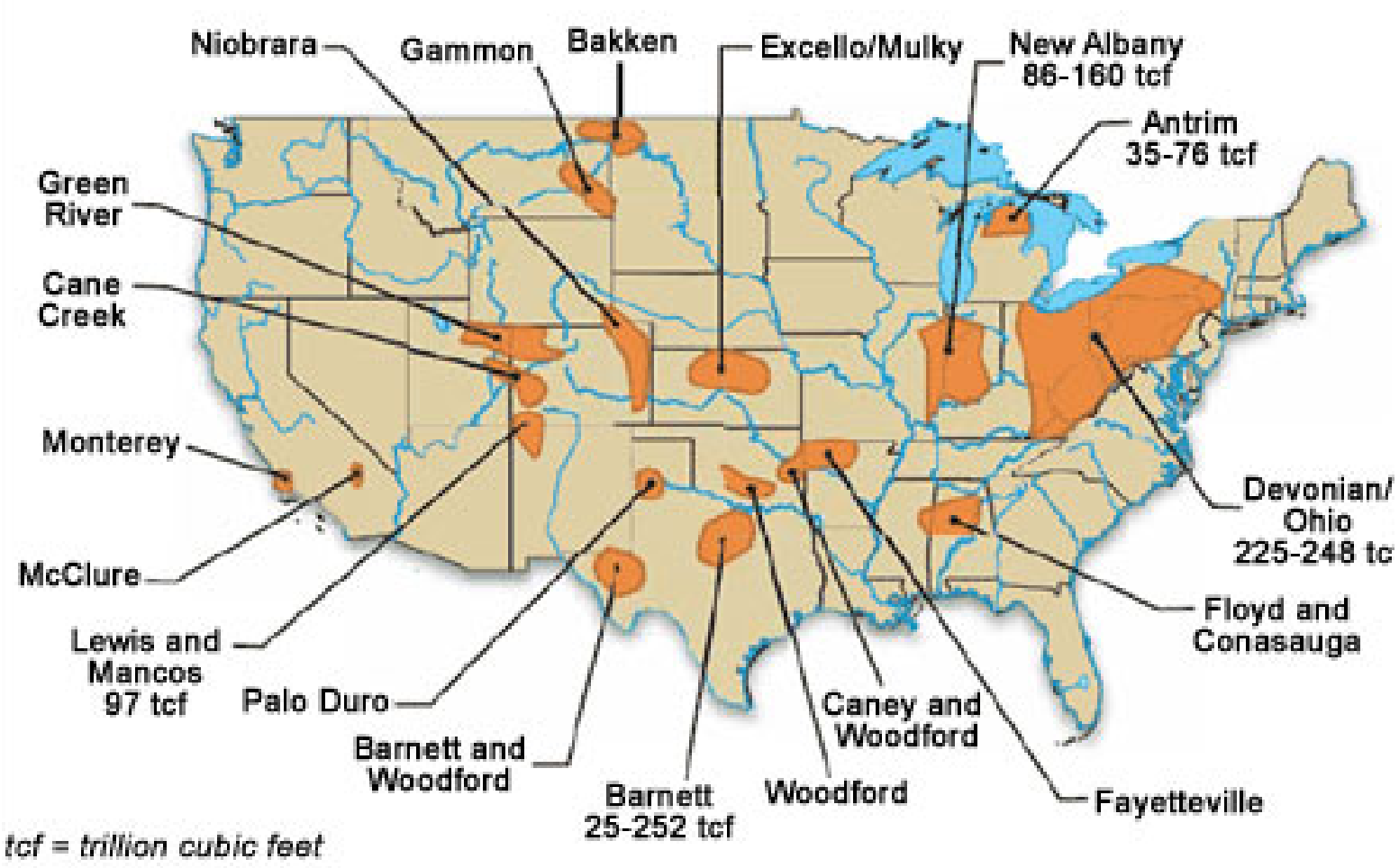




Source: EIA Natural Gas Monthly, August 2008
September 2008 Midwest Snapshot Report

Updated September 9, 2008

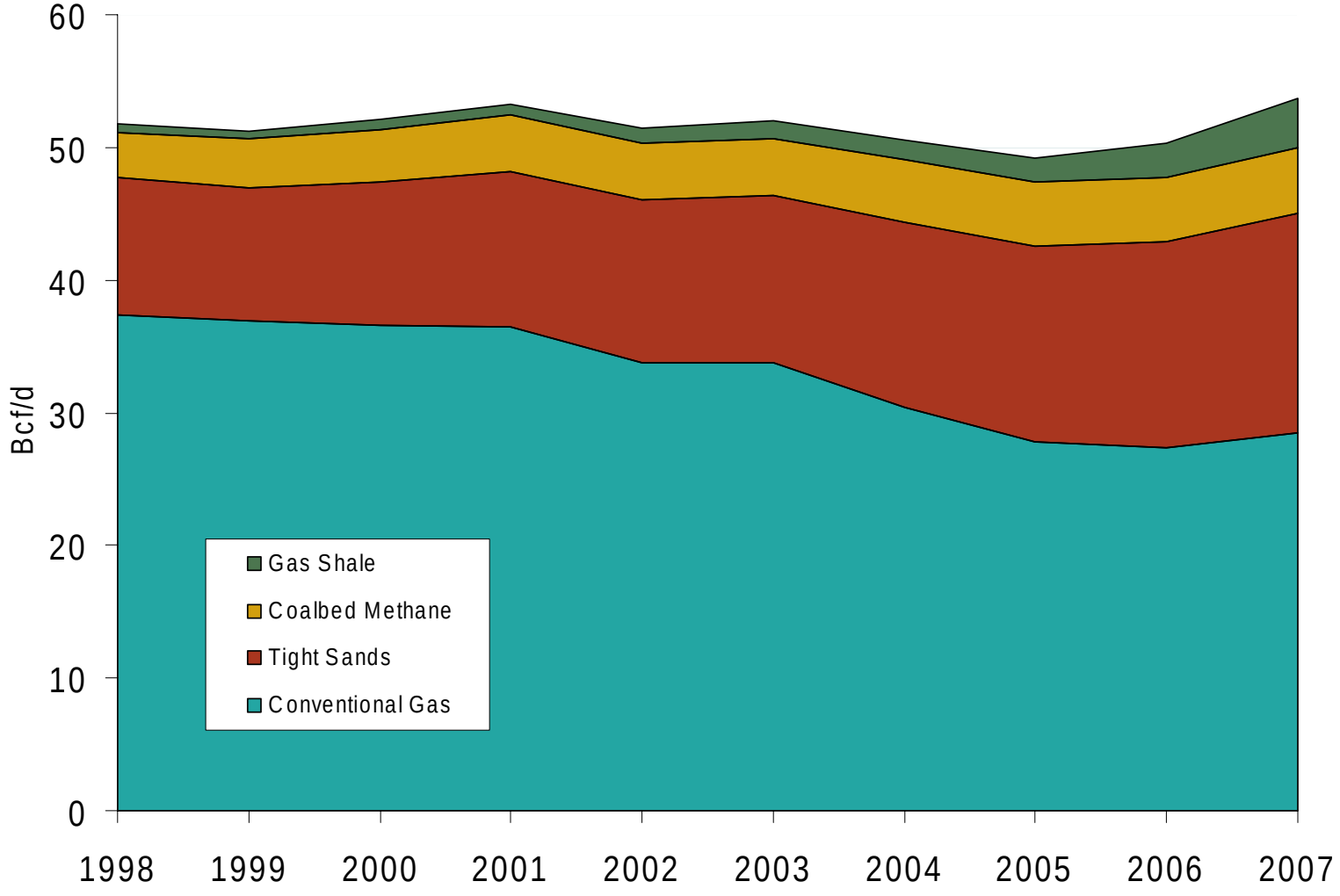
Major US Shale Basins



Source: EIA, Schlumberger.
September 2008 Midwest Snapshot Report

Updated September 5, 2008

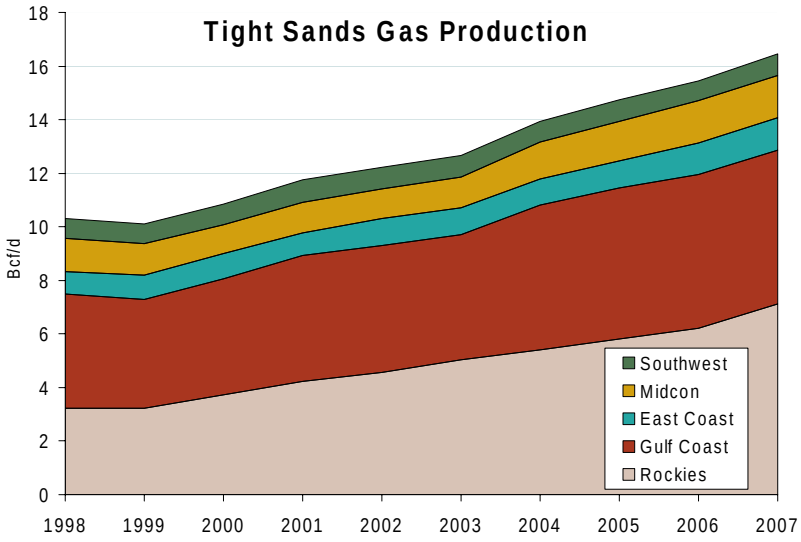
US Natural Gas Production

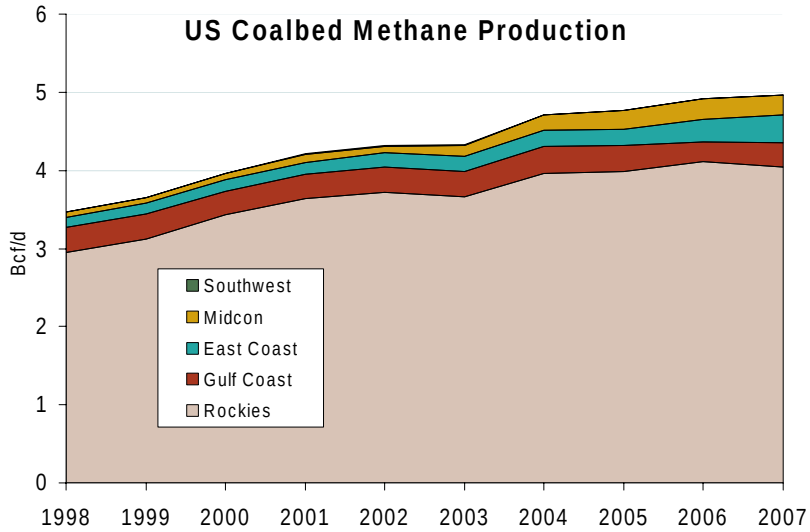


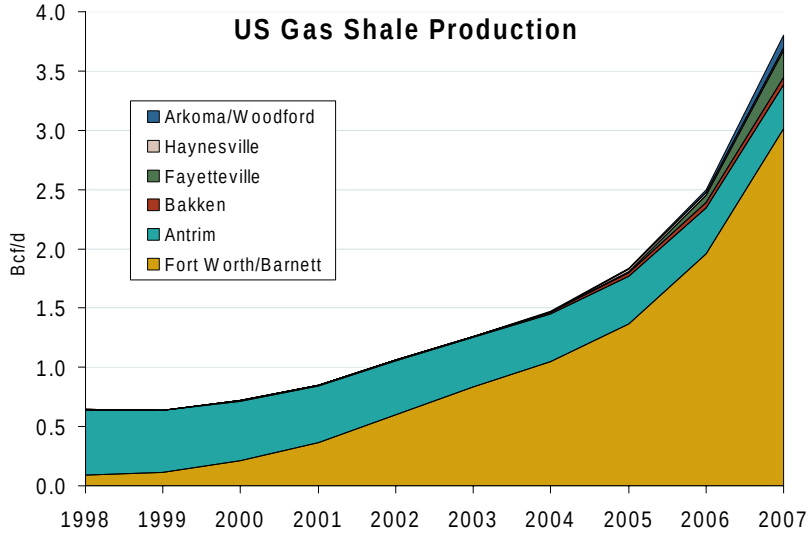
Source: Derived from EIA data.
September 2008 Midwest Snapshot Report

Updated September 5, 2008

"Unconventional" Natural Gas Production



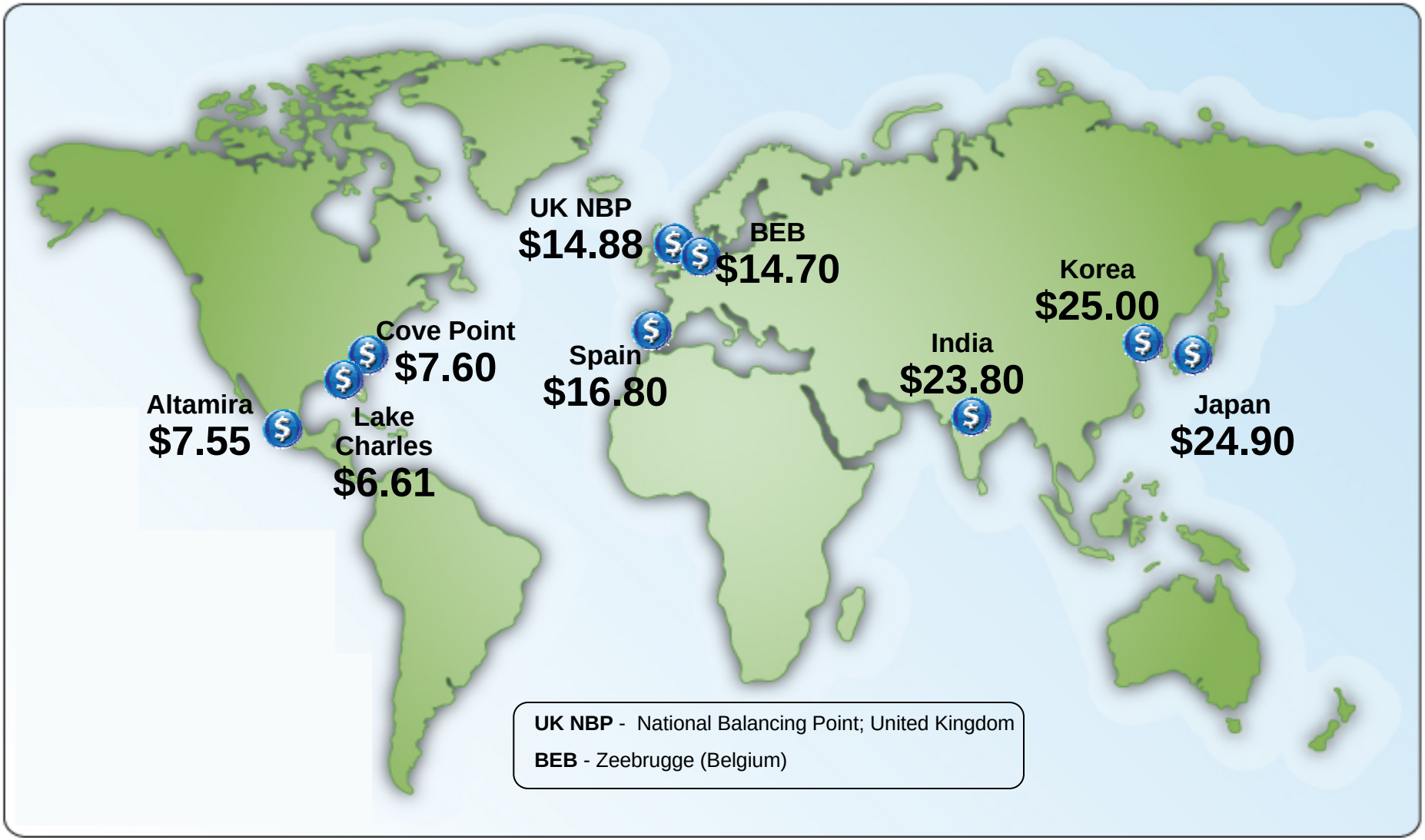




Source: Derived from EIA data.
September 2008 Midwest Snapshot Report

Updated September 5, 2008

World LNG Landed Price Estimates for October 2008



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

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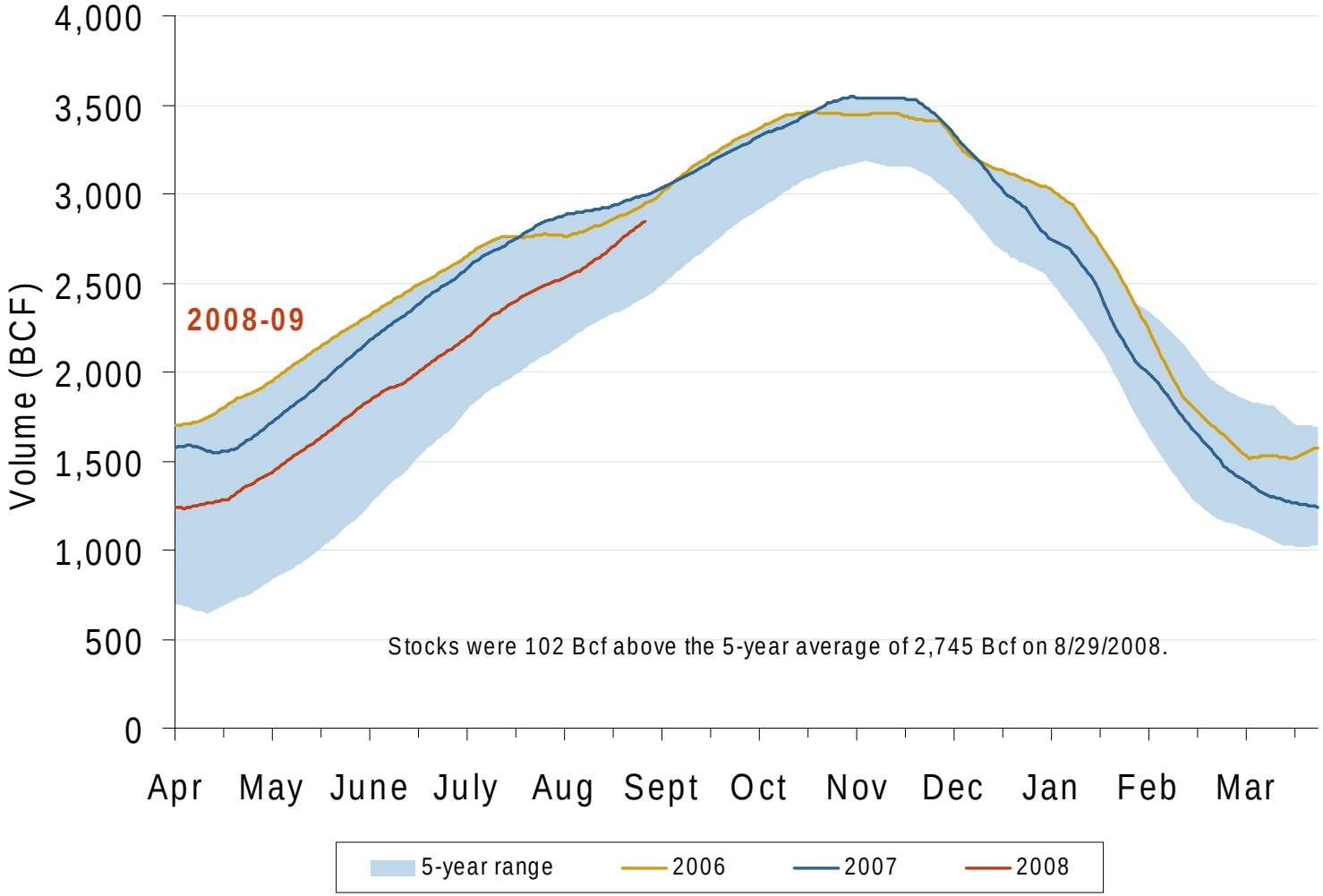
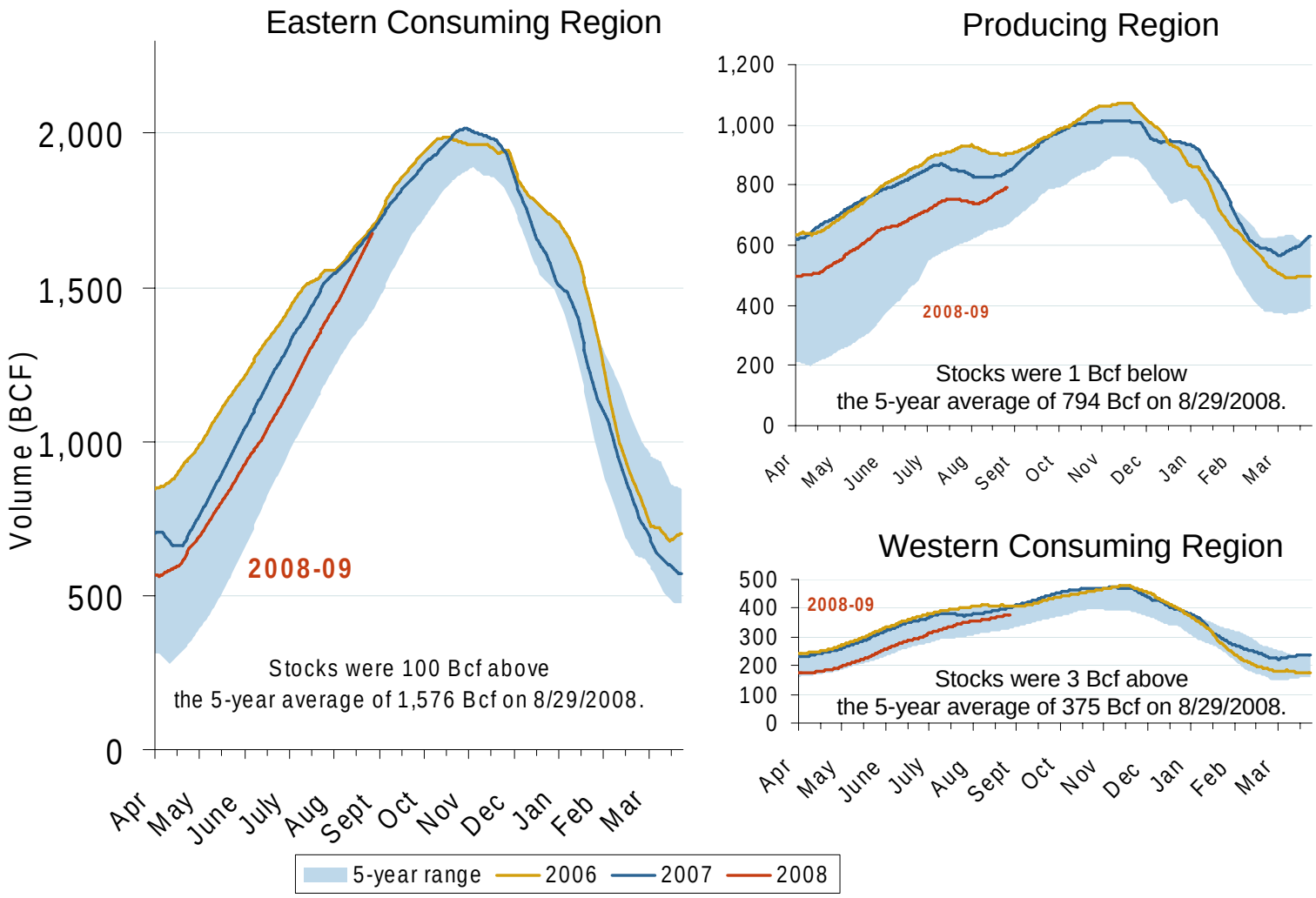
Total U.S. Working Gas in Storage



Source: Derived from *EIA* data.

Updated September 5, 2008

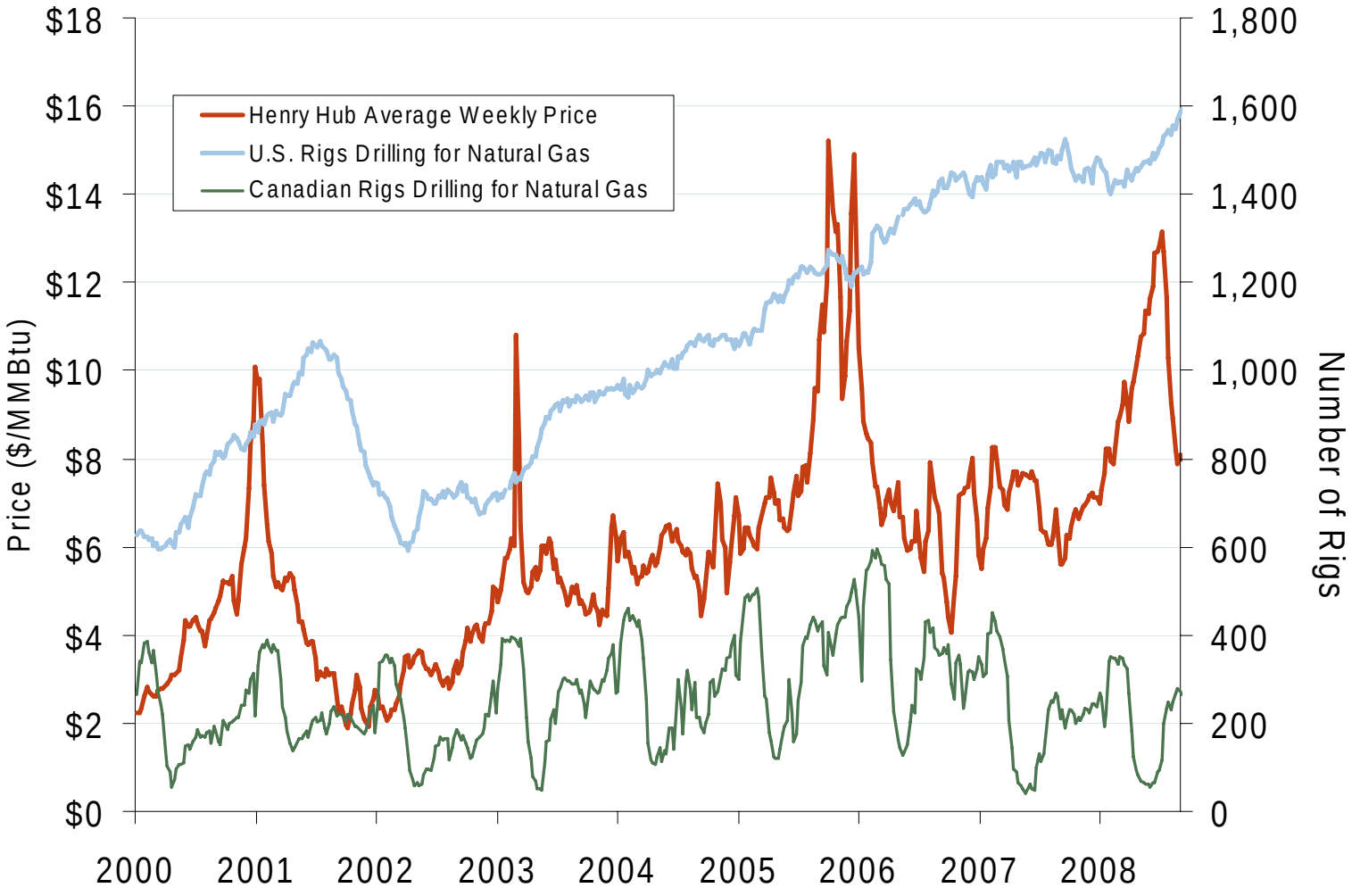
Regional Totals of Working Gas in Storage



Source: Derived from *EIA* data.

Updated September 5, 2008

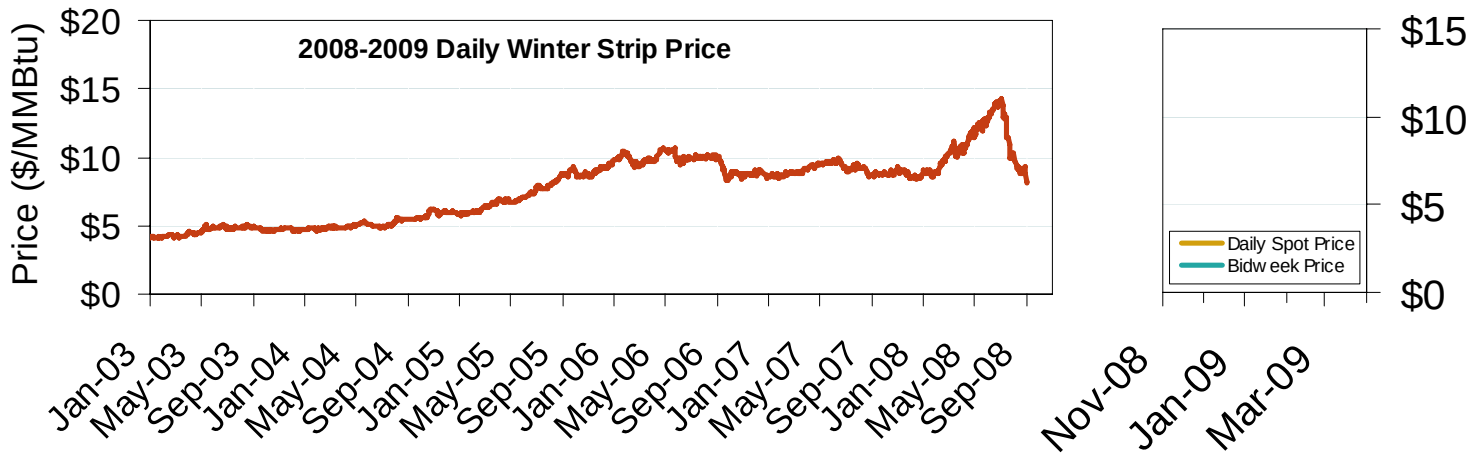
U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices

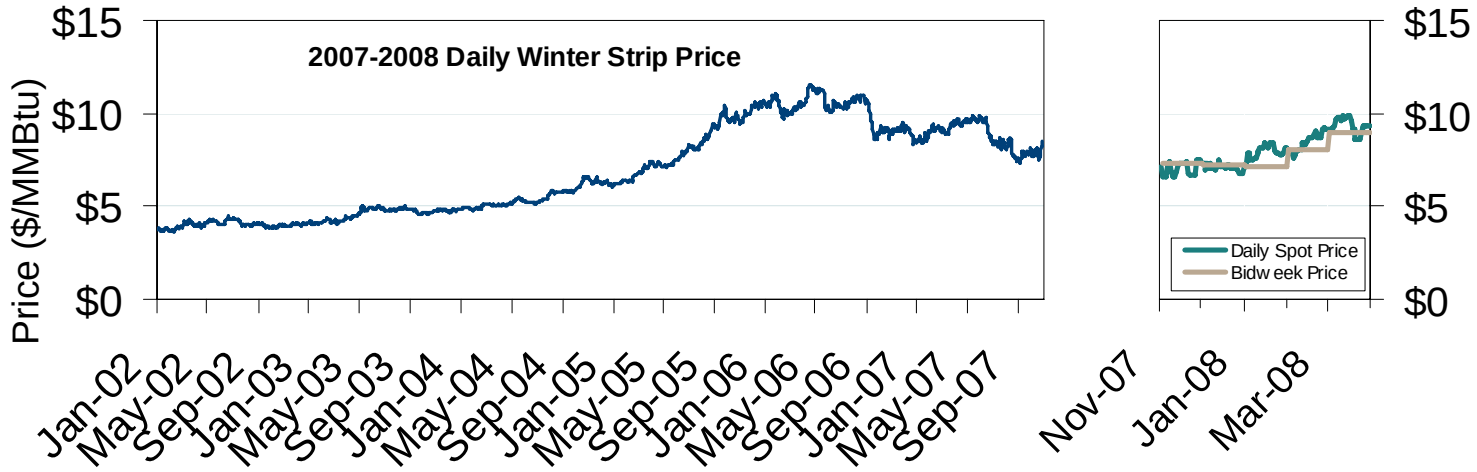


Source: Derived from *Platts* and *Baker Hughes* data.

Updated September 5, 2008

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





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

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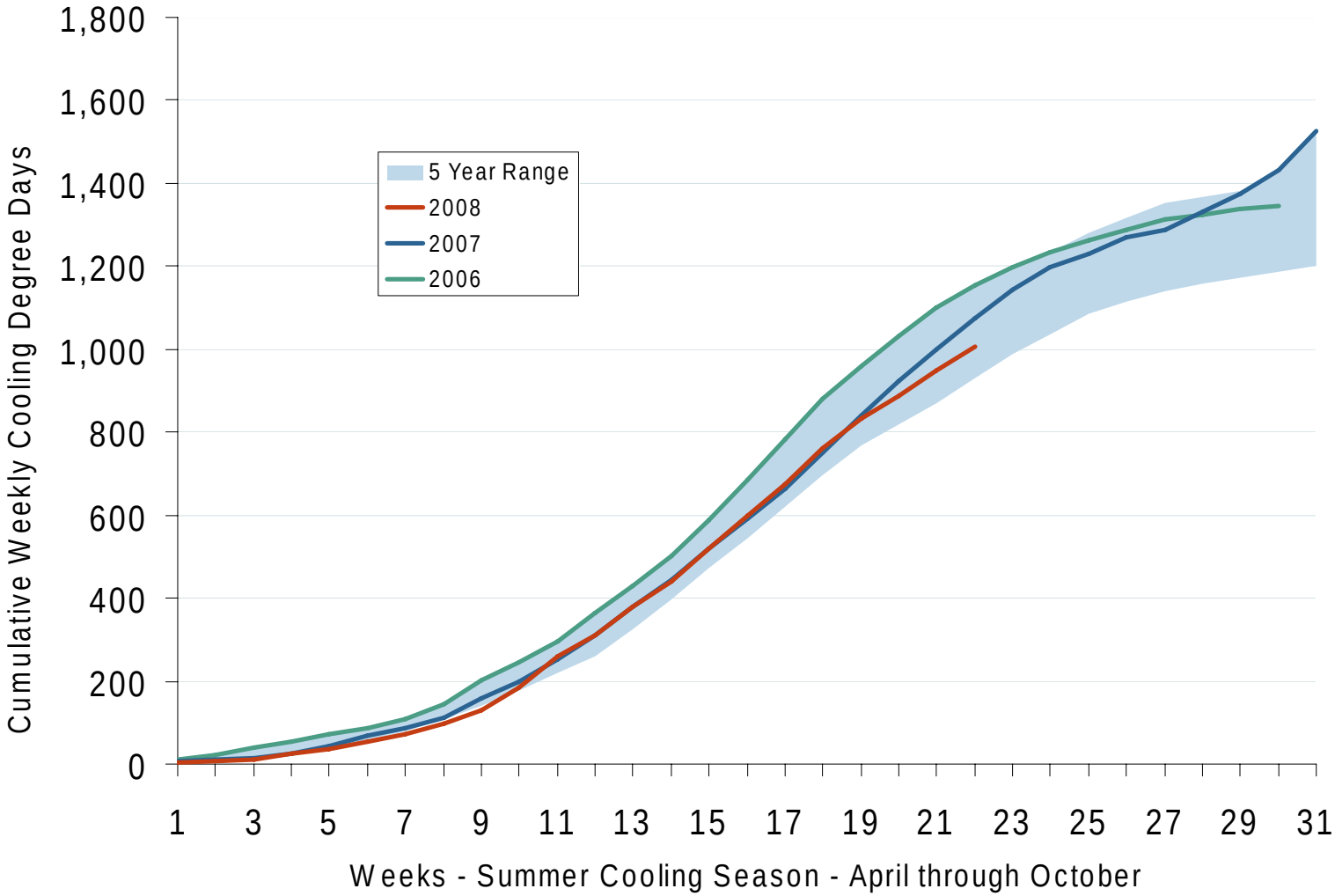
Market Fundamentals

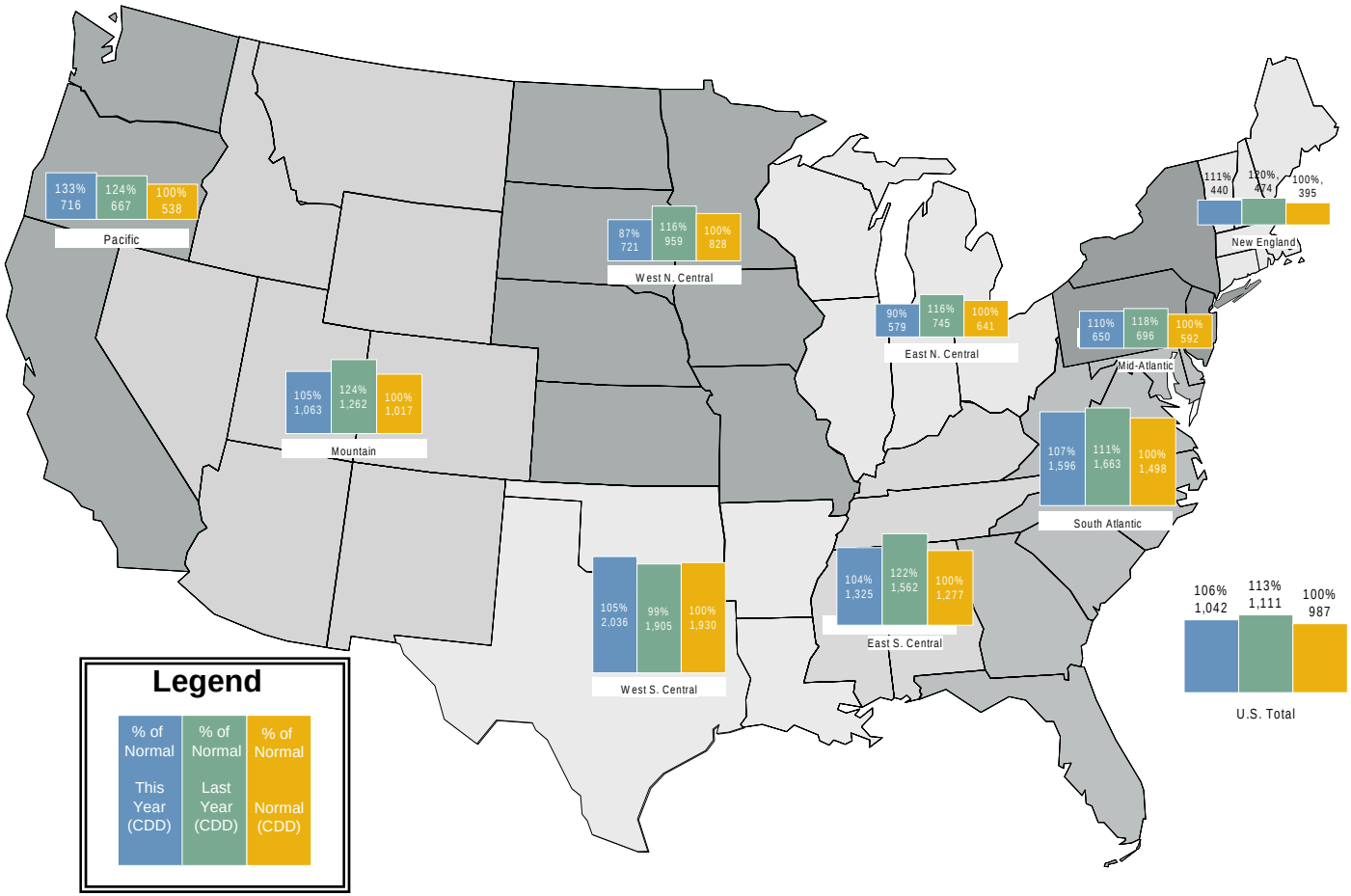
U. S. Summer Cumulative Cooling Degree Days



Source: Derived from *NOAA* data.

Updated September 5, 2008

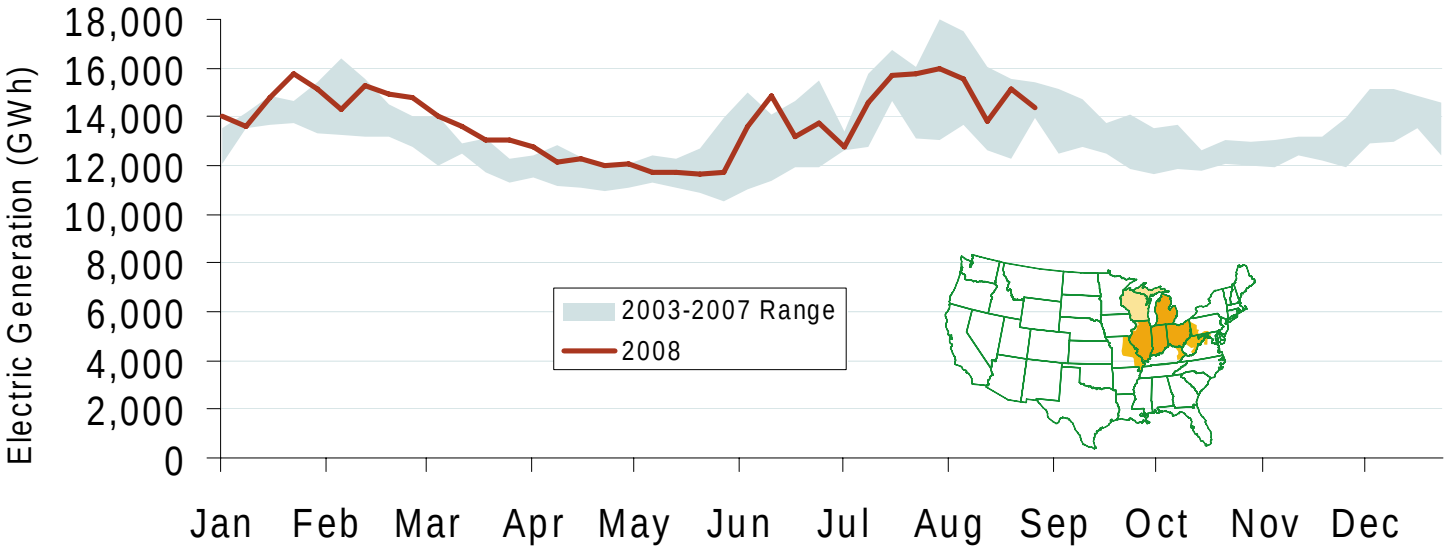
Regional Cooling Degree Days
2008 Through August

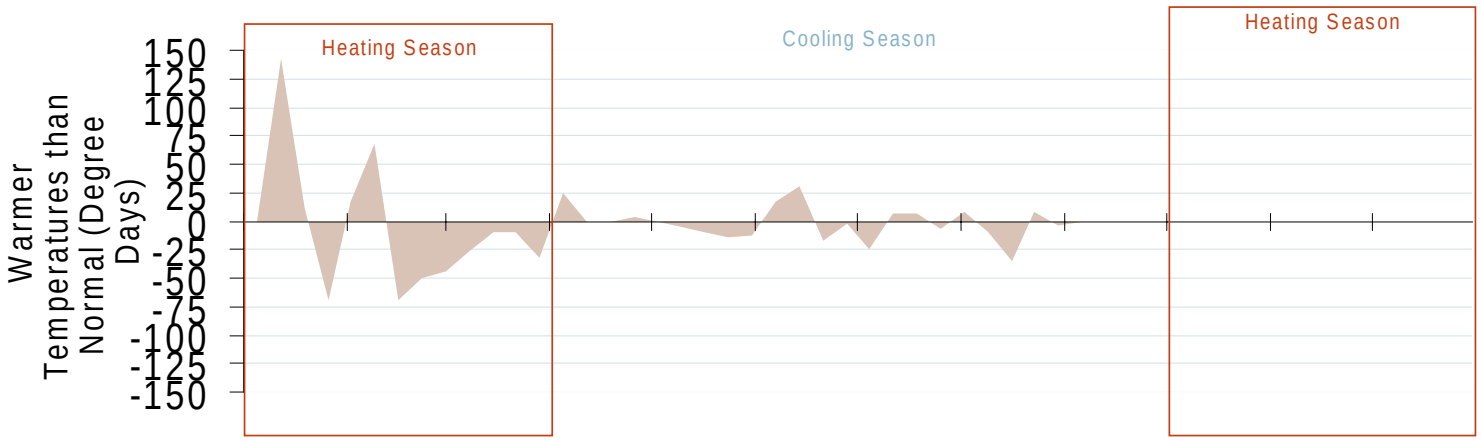


Source: Derived from *NOAA* data. Normal is based on a 30-year average of cooling degree days.

Updated September 5, 2008

Weekly Electric Generation Output and Temperatures Central Industrial Region

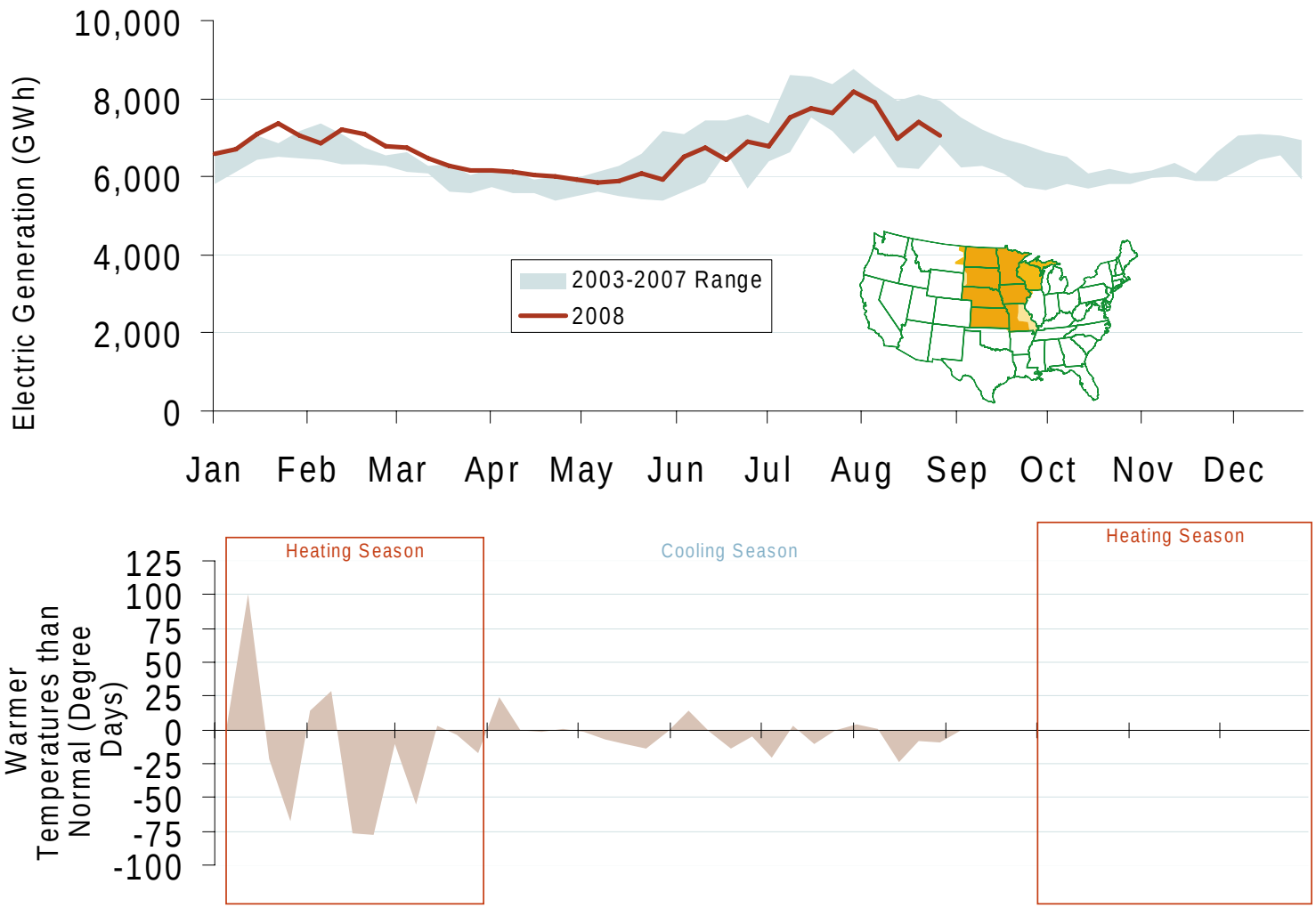




Source: Derived from *EEI* and *NOAA* data.

Updated September 5, 2008

Weekly Electric Generation Output and Temperatures West Central Region

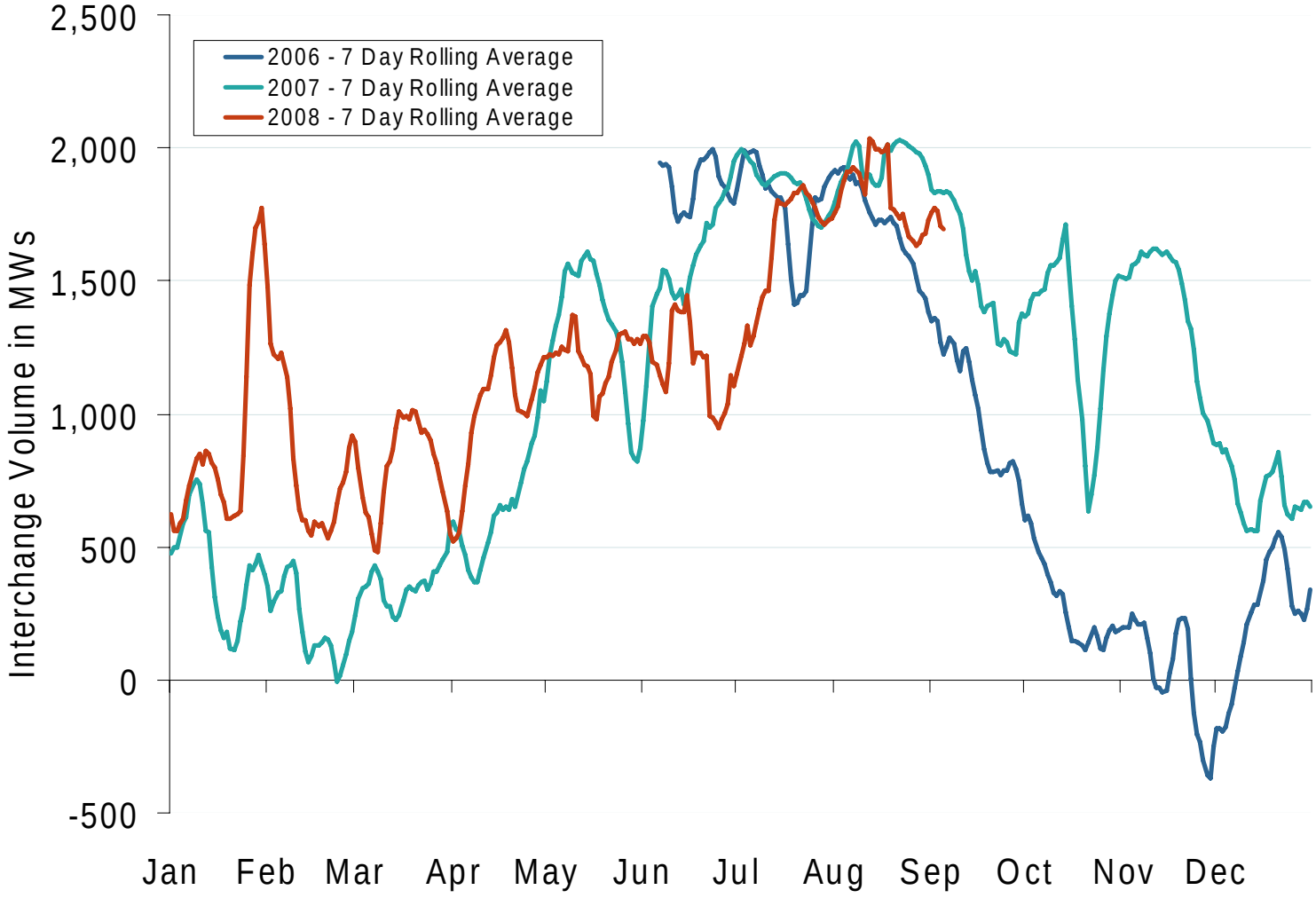


Source: Derived from *EEI* and *NOAA* data.

September 2008 Midwest Snapshot Report

Updated September 5, 2008

Imports into MISO from Manitoba Hydro 2006, 2007, 2008



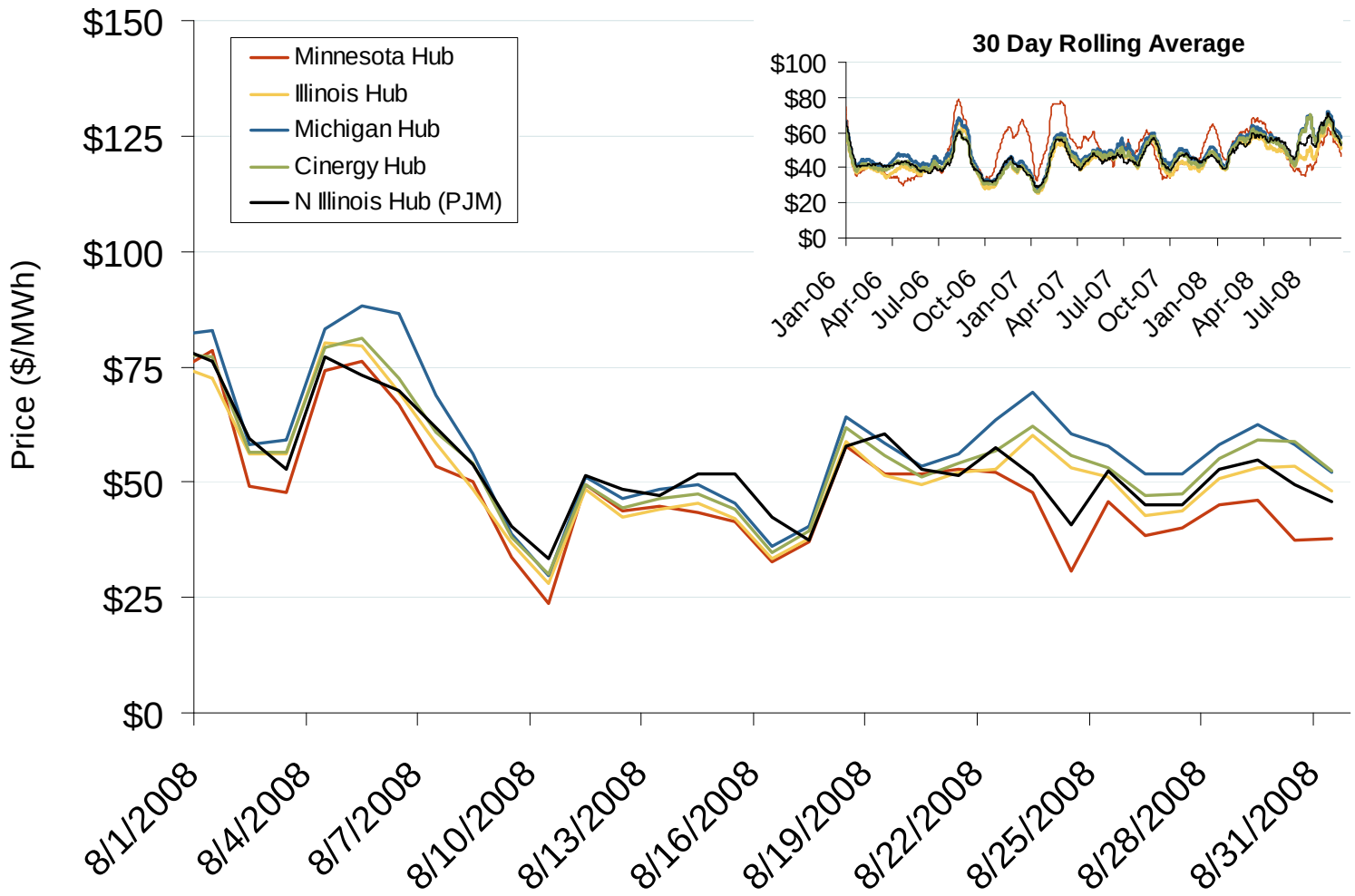
Source: Derived from *MISO* data.

Updated September 5, 2008

Prices and Market Analysis

- **Electric**
- **Natural Gas**
- **Other Markets**

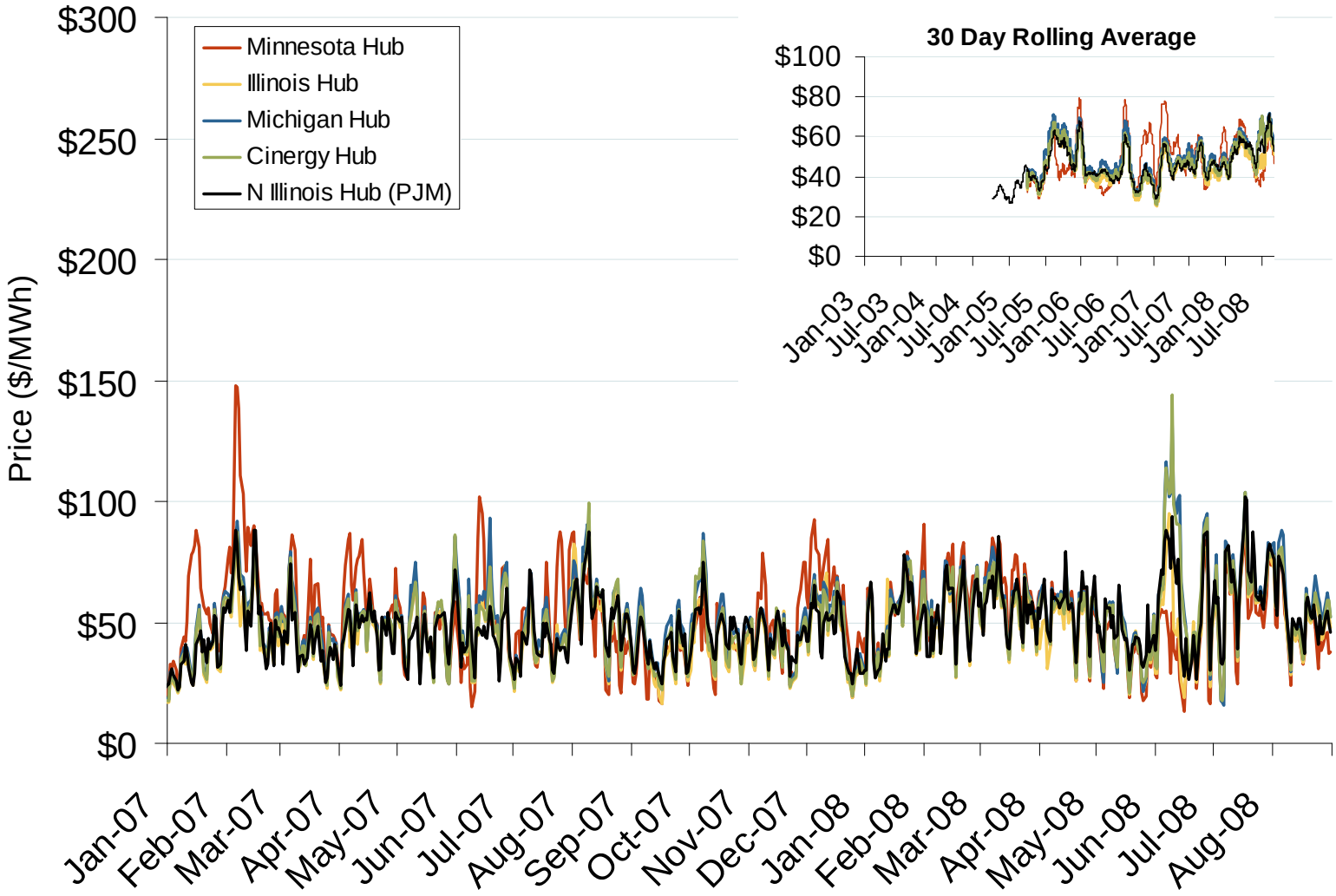
Daily Average of MISO Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *MISO and PJM* data as reported by *Bloomberg*.

Updated September 11, 2008

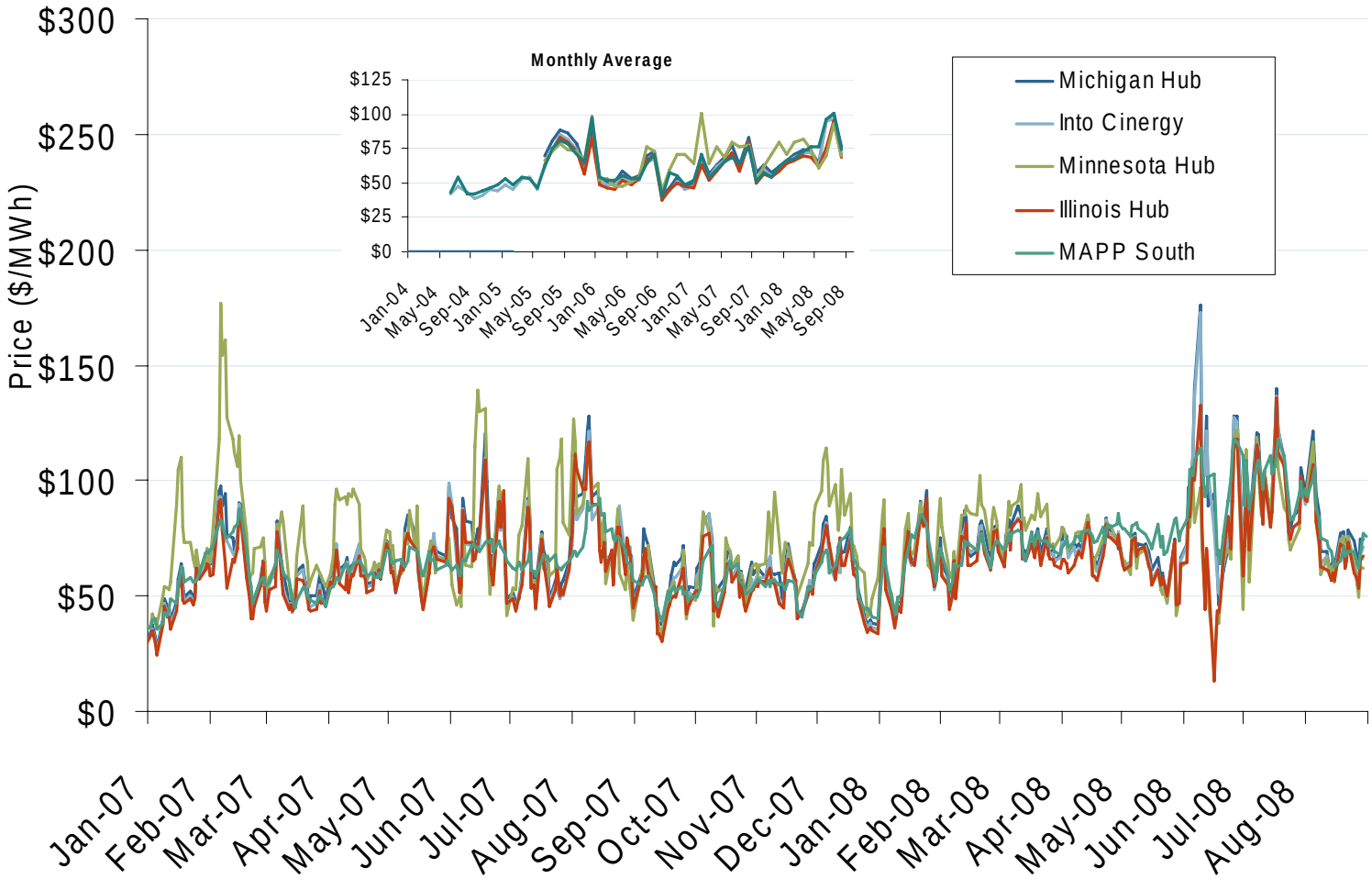
Daily Average of MISO Day-Ahead Prices - All Hours



Source: Derived by *Bloomberg* from *MISO and PJM* data as reported by *Bloomberg*.

Updated September 11, 2008

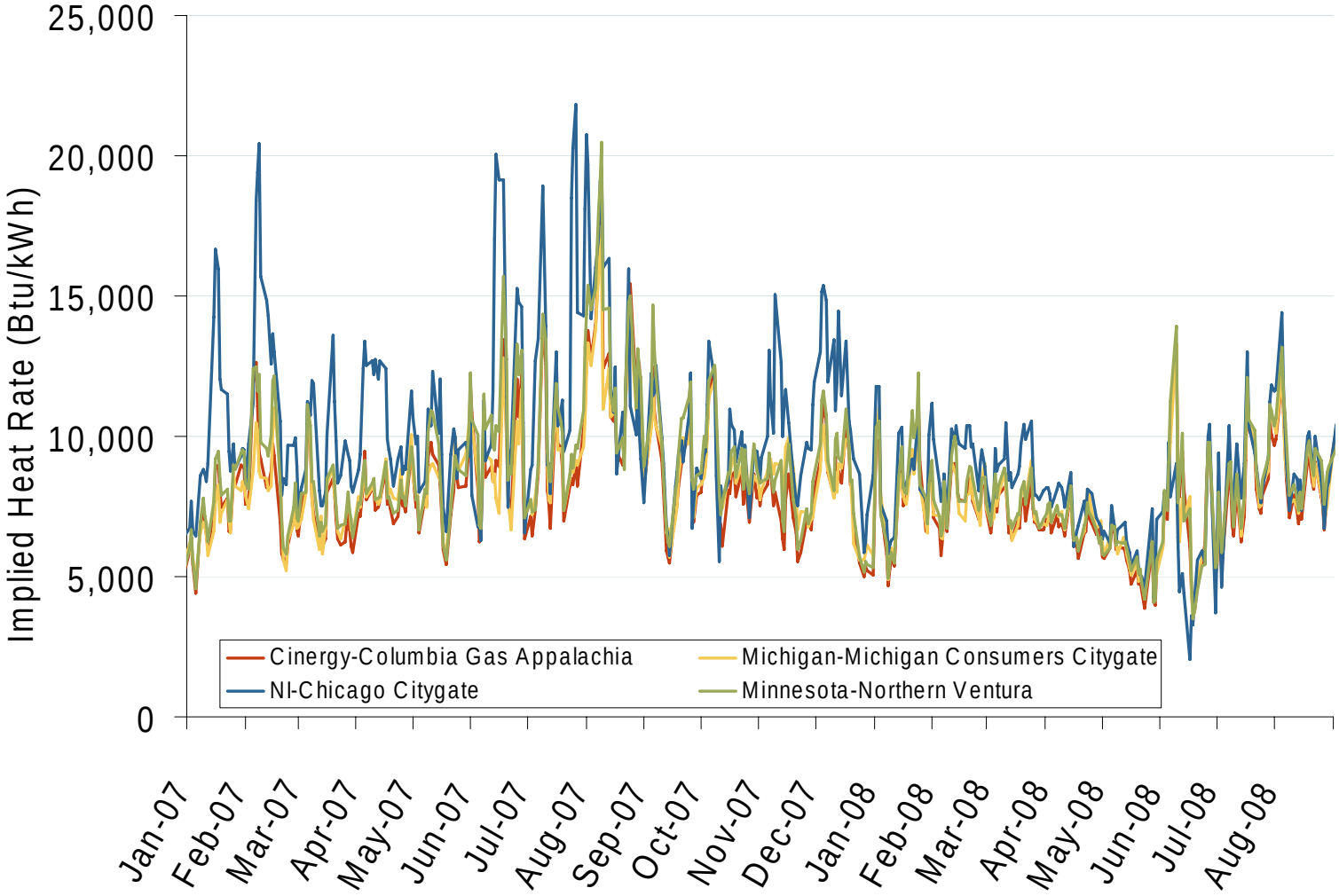
MISO Hub Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated September 5, 2008

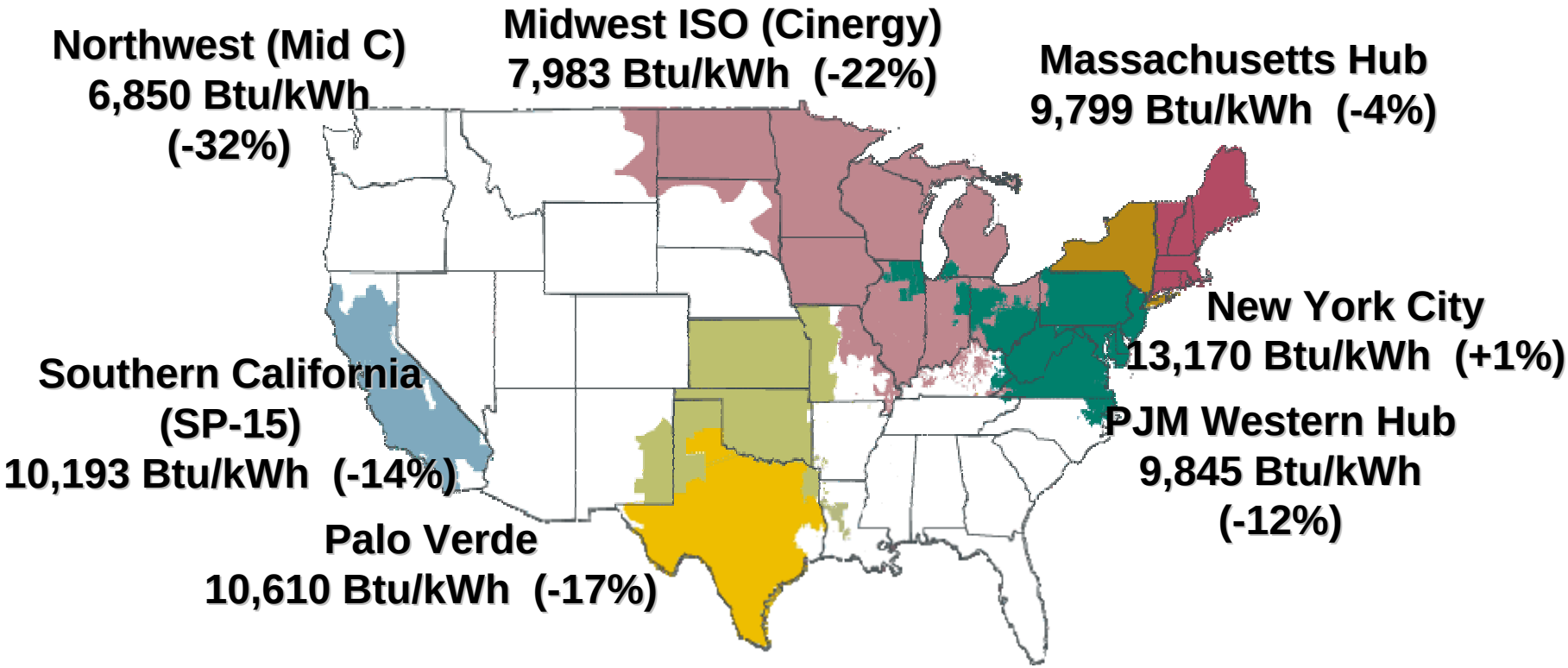
Implied Heat Rates at MISO Hubs



Source: Derived from *Platts* data

Updated September 5, 2008

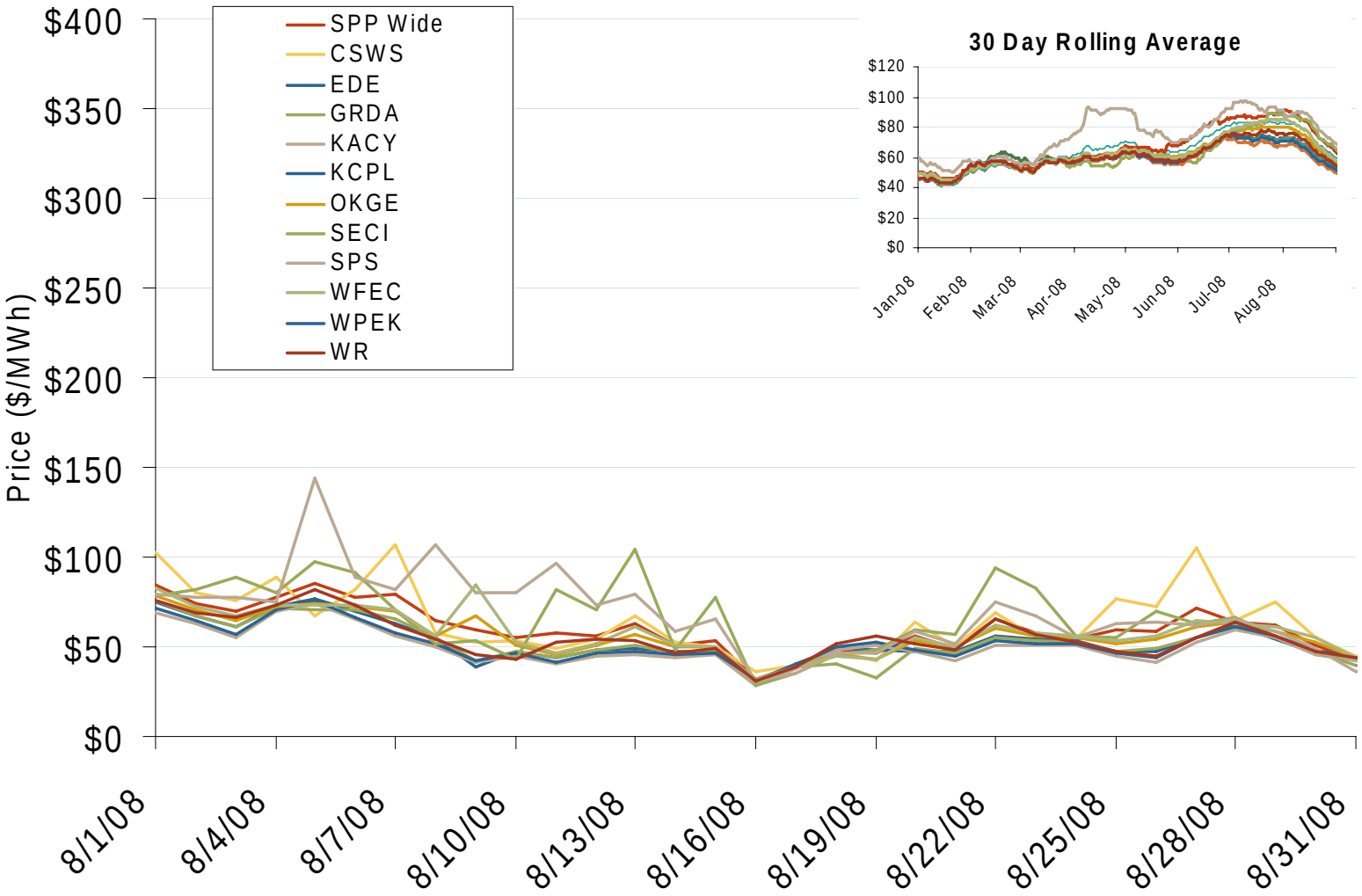
June-August Implied Heat Rates, 2008 vs. 2007



Source: Implied heat rates derived from Platts *Megawatt Daily* data.

Updated September 9, 2008

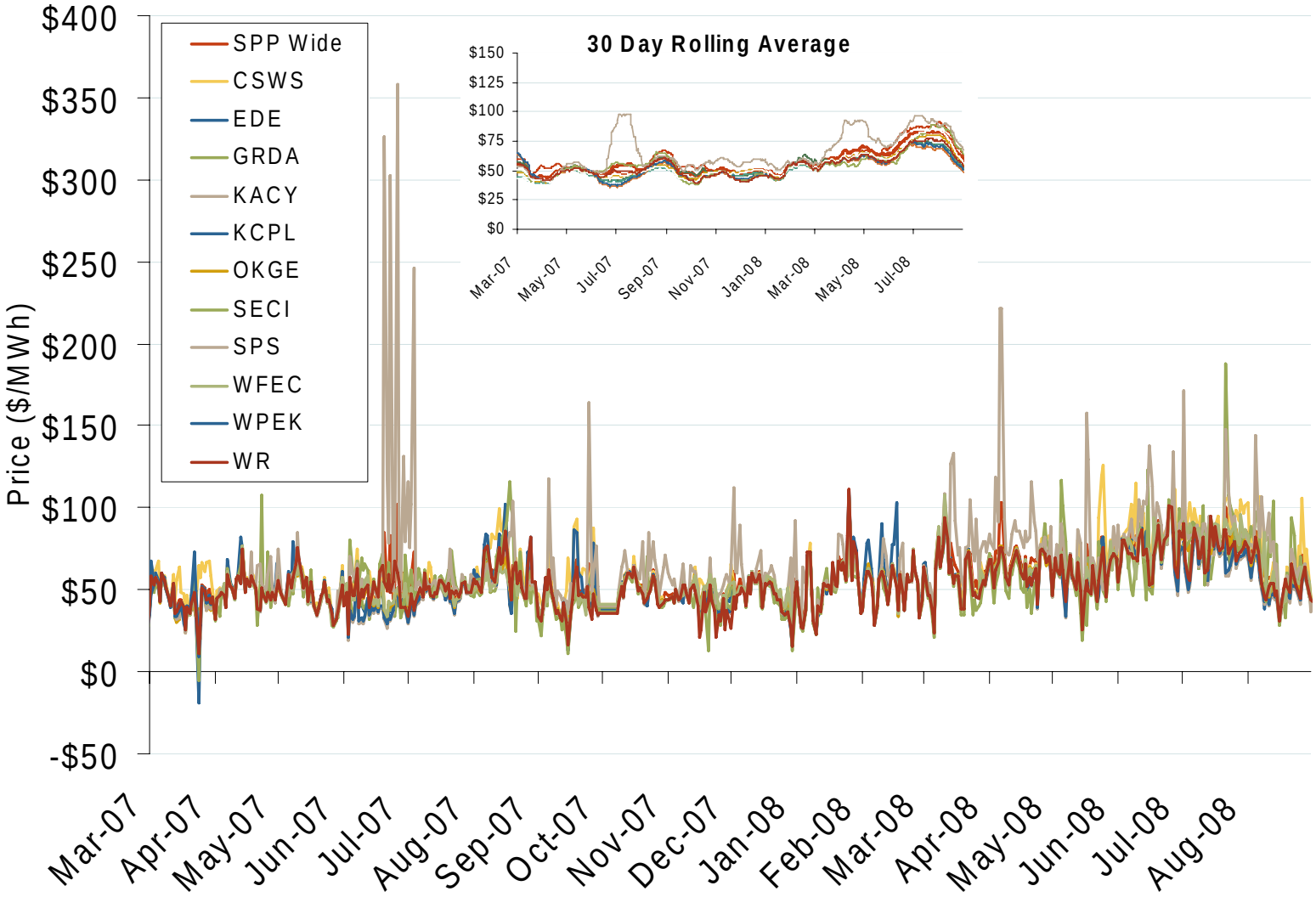
Daily Average of SPP Real Time Prices - All Hours



Source: Derived from *SPP* data.

Updated September 5, 2008

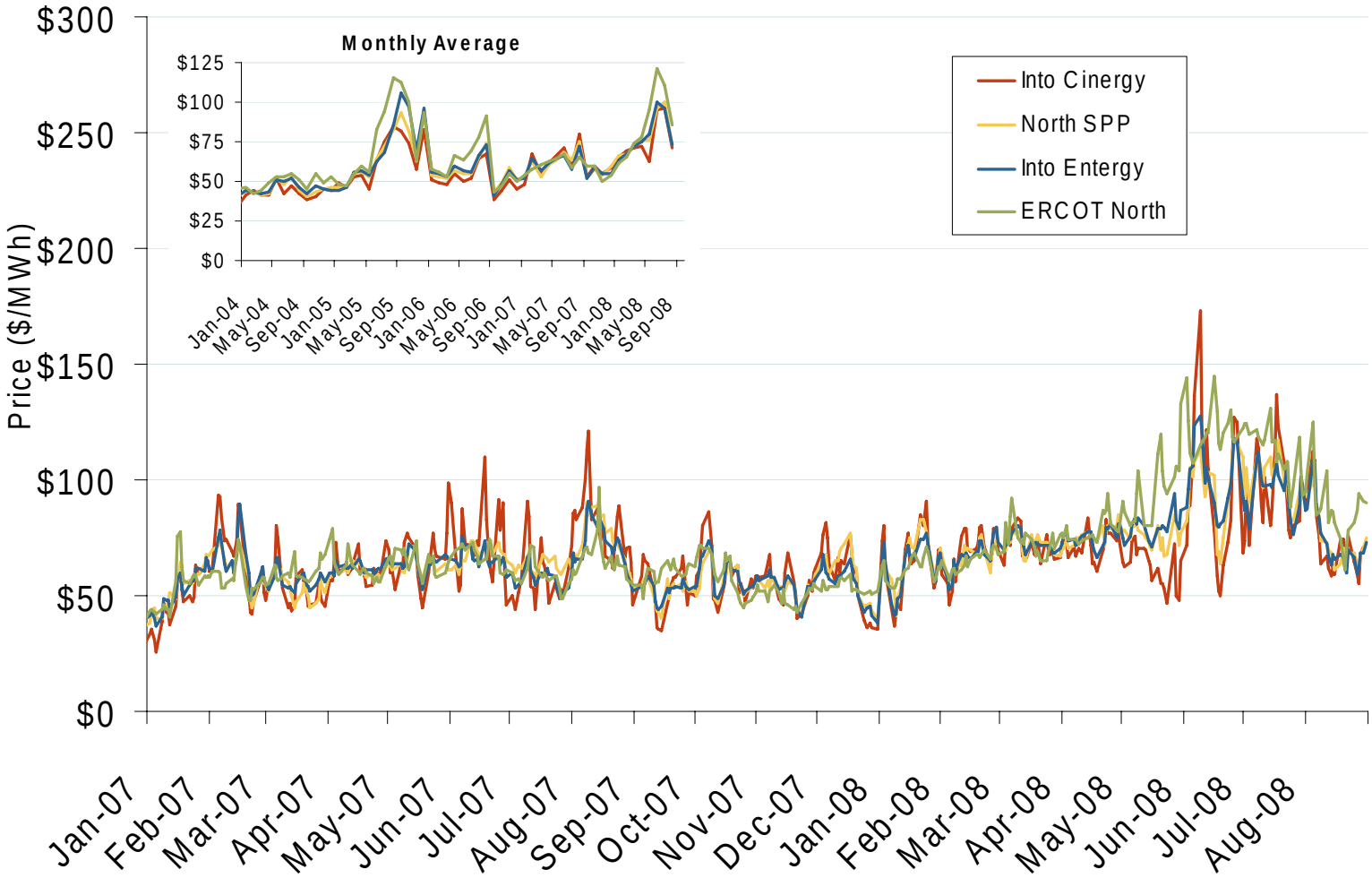
Daily Average of SPP Real Time Prices - All Hours



Source: Derived from *SPP* data.

Updated September 5, 2008

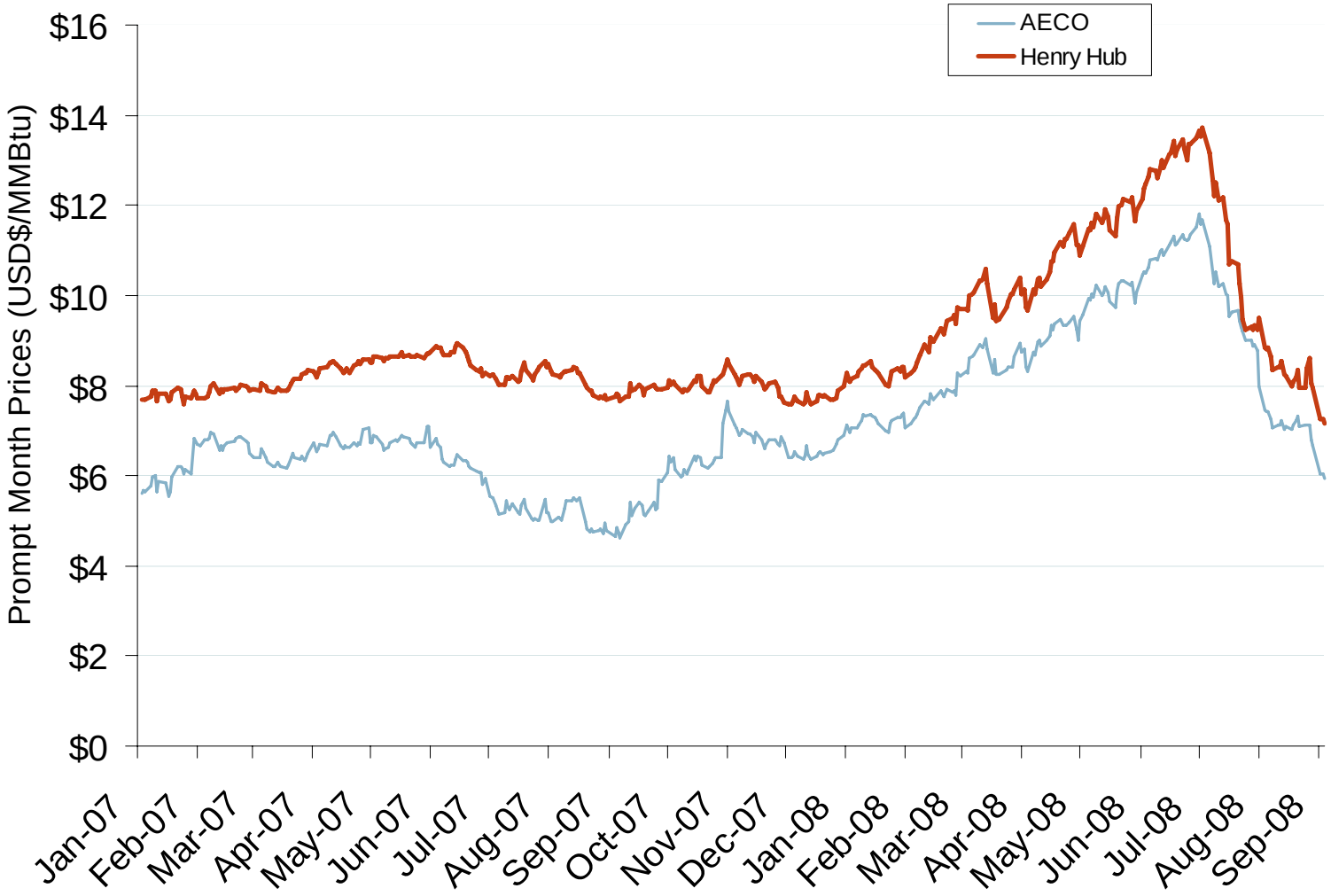
Central Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated September 5, 2008

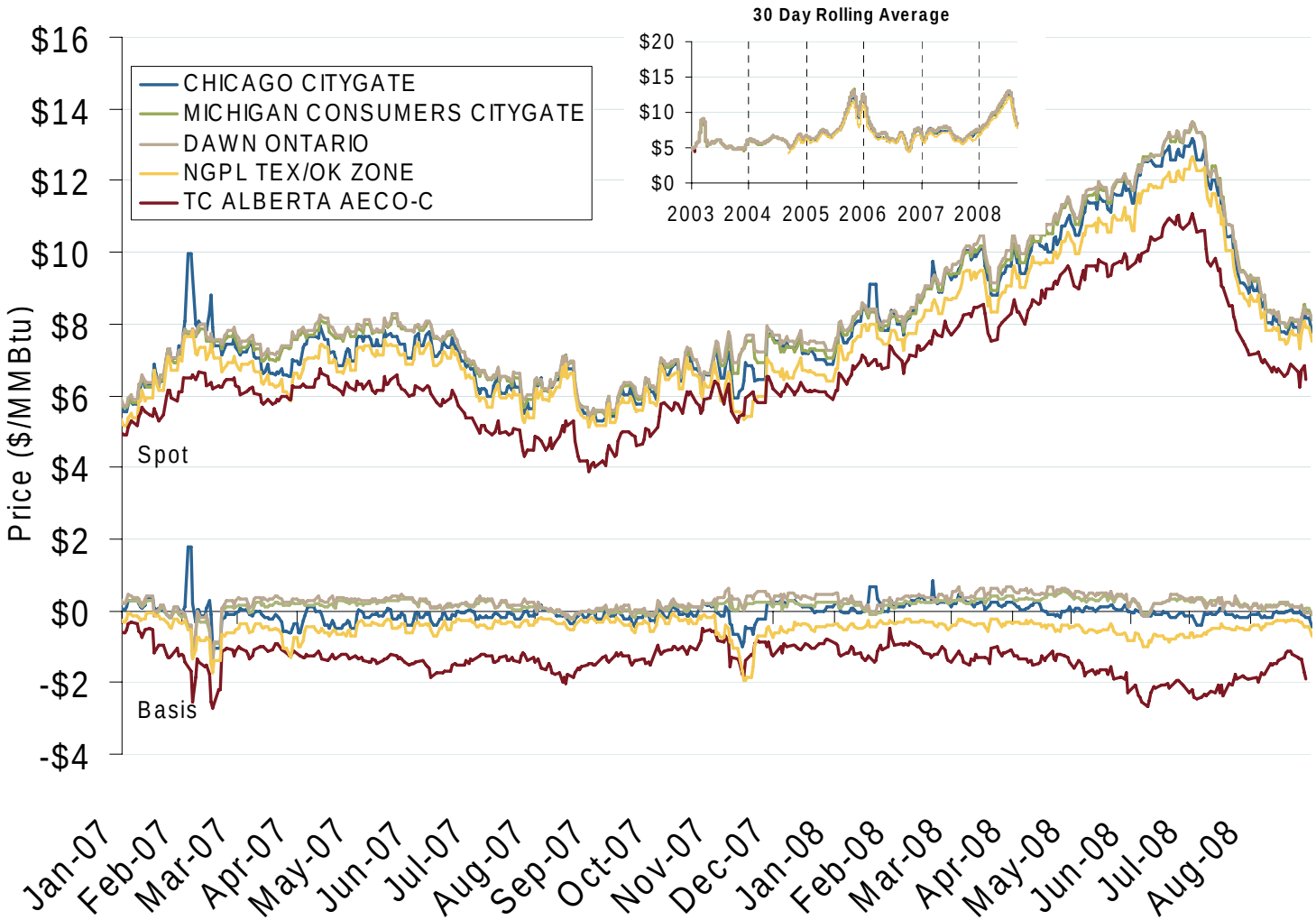
Henry Hub and AECO Prompt-Month Futures Prices



Source: Derived from *ICE* data.

Updated September 5, 2008

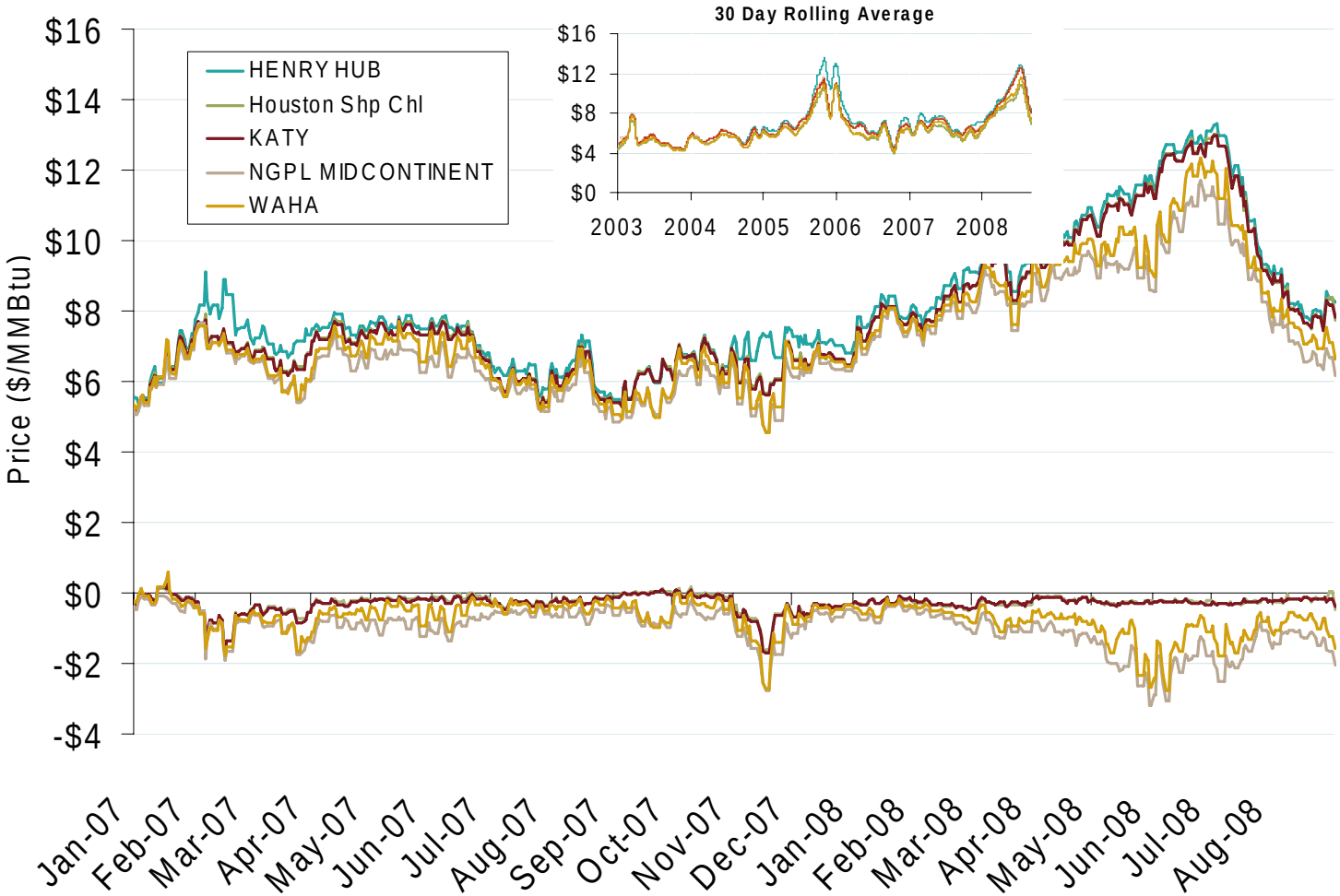
Midwestern Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.

Updated September 5, 2008

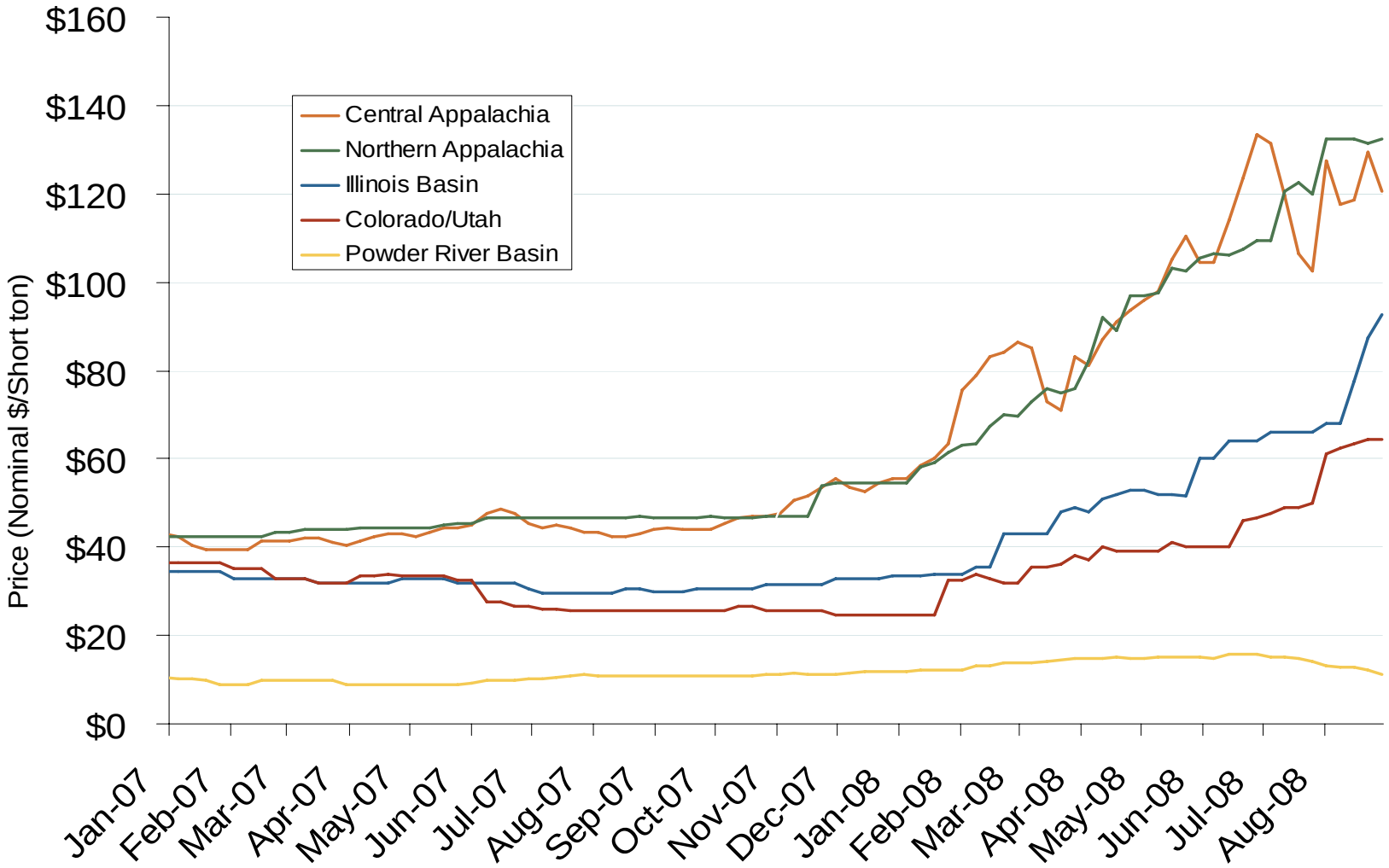
South Central Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.

Updated September 5, 2008

Regional Coal Spot Prices

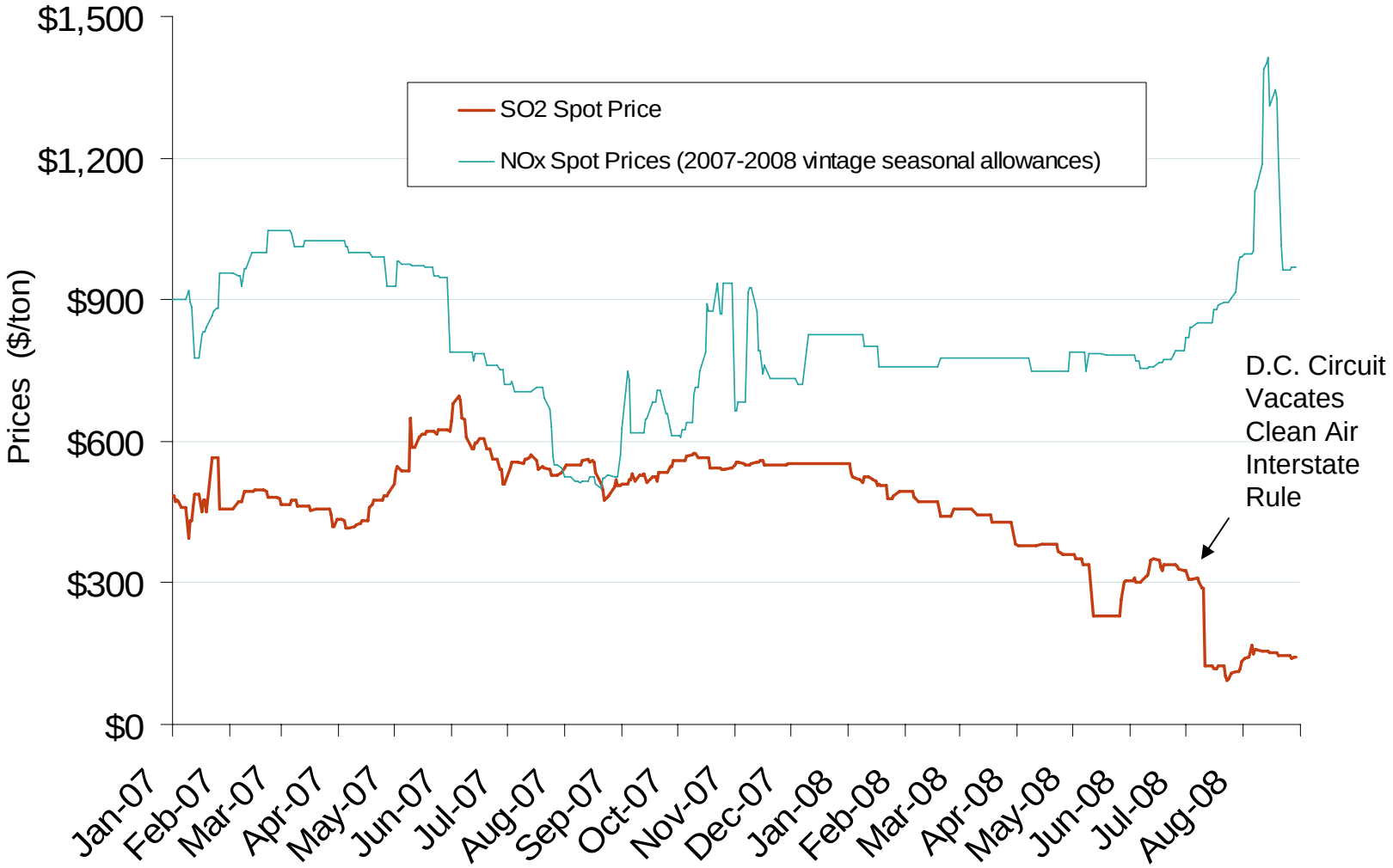


Note: Does not reflect the delivered price of coal; excludes incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.

Updated September 5, 2008

SO_2 Allowance Spot Prices and NOx Seasonal Allowance Spot Prices



Source: Derived from *Cantor Fitzgerald* data.

See notes on following pages.

Updated August 14, 2008

Renewable Energy Portfolio Standards (RPS)

WA: 15% by 2020

OR: 25% by 2025; small utilities 5-10%

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: 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 to include RE in resource plans

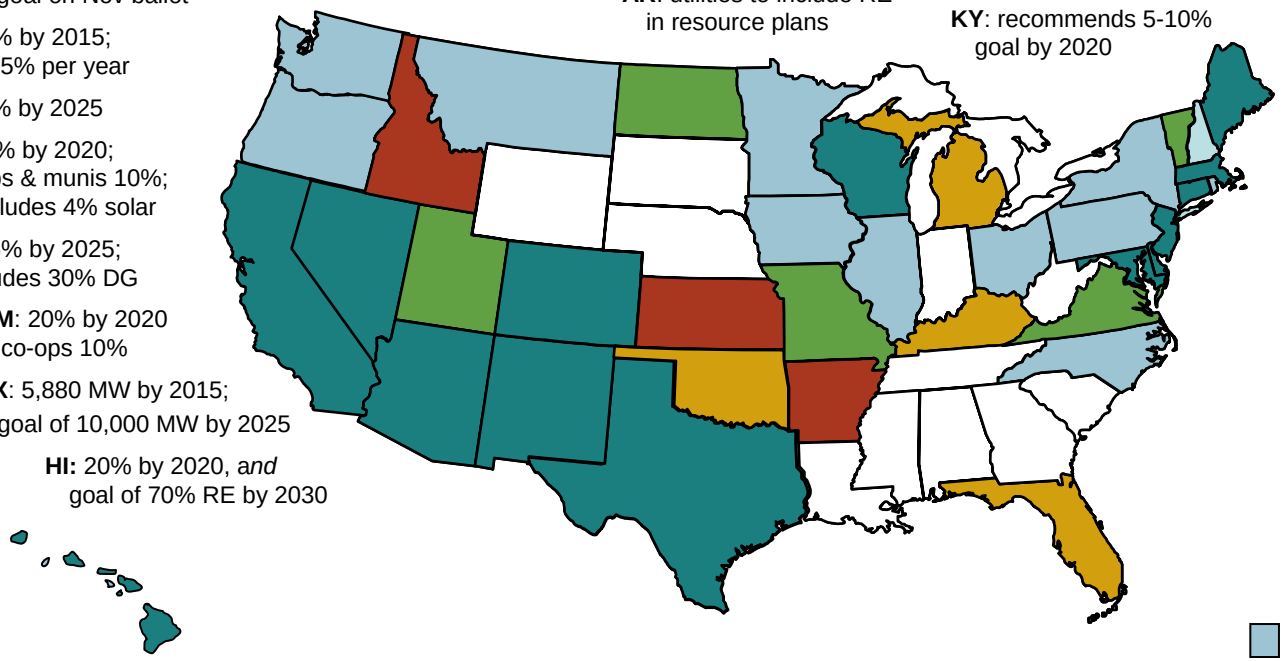
WI: 10% by 2015

IL: 25% by 2025

MI: different bills passed by House and Senate

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: doubles RPS - 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; solar set-aside

NJ: 22.5% by 2020, with 2% solar

DE: 20% by 2019, with 2% solar

DC: doubles RPS - 20% by 2020; no less than 0.4% solar

MD: 20% by 2022, with 2% solar

VA: 12% by 2022

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

FL: law directs PSC to write RPS regulations

- 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; DG is distributed generation; * Iowa has a goal of 1,000 MW of wind by 2010
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.

Updated July 17, 2008

Energy Efficiency Resource Standards (EERS)

ID: evaluating DR, EE, and RE as priority resources

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: different bills passed by House and Senate

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

OH: reduce peak-demand 8% by 2018; effect energy savings of 22% by 2025

WA: must pursue all cost-effective conservation

OR: EE working group developing recommendations and concepts

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

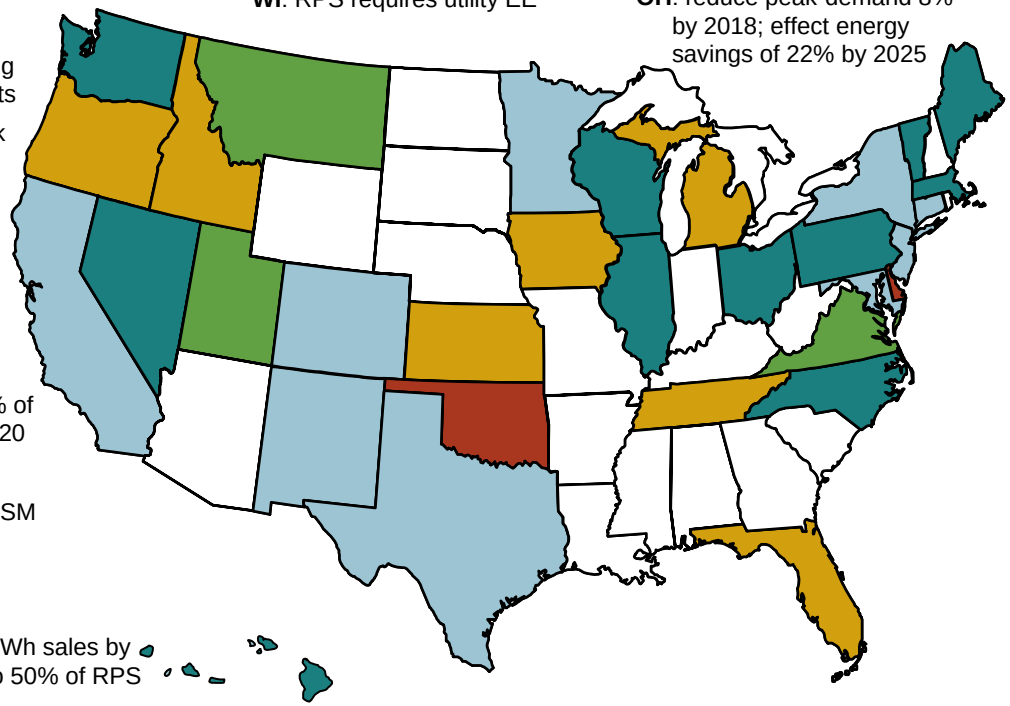
NM: use EE and DR to save 10% of 2005 retail electric sales by 2020

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



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, and a Tier III RPS resource

PA: new funding for EE and RE

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

DE: promote EE and conservation by a Sustainable Energy Utility

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%

FL: PSC must adopt goals to reduce electric consumption and peak demand using EE and DR

- 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

Abbreviations: CHP – Combined heat & power; DR - demand response; DSM - demand side management; DSR – demand-side resources; EE - energy efficiency; E&G: electric and gas utilities; RPS: Renewable Portfolio Standard

Sources: ACEEE, EPA, Regulatory Assistance Project, Union of Concerned Scientists, State regulatory and legislative sites, trade press

Updated August 15, 2008