OE ENERGY MARKET SNAPSHOT
National – Data Through March 2015

Office of Enforcement
Federal Energy Regulatory Commission
April 2015
Agenda

● 2014 State of the Markets
● National Slides
● Infrastructure Report
2014 State of the Markets Report
State of the Markets
Highlights

- Extreme temperatures early in 2014 had lasting impacts
- Natural gas prices decline through the year, while oil prices plunge
- Natural gas production reaches new records and storage recovers
- Northeast natural gas prices disconnect from Henry Hub
- Organized markets continue to evolve: California ISO launches EI M, SPP begins DAY 2 Market, and Entergy joins MISO
- RTOs and utilities adjust to changing resource mix
- Markets performed well in early 2015 despite extreme weather
Average NG Spot Prices
Higher in 2014

- Pricing Point
  - BOLD – 2014 price
  - Green – % increase from previous year
  - Red – % decrease from previous year

Source: Derived from Ventyx, ICE Data & Platts data
U.S. NG Demand Sets New Record

Source: Derived from Bentek Energy data
Record Injections
Replenished NG Storage

Source: Derived from Energy Information Administration data
NG From Shale Drives
2014 Production Records

- Eagle Ford
- Barnett
- Woodford
- Fayetteville
- Haynesville
- Marcellus
- Conventional and Other

Source: Derived from Bentek Energy data
On-Peak Day-Ahead 2014 Electric Spot Prices

Source: Derived from SNL and PLATTS data

$ = Average 2014 Spot Price
% Increase from 2013

Mid-Columbia $39 3%

Palo Verde $42 13%

NP 15 $52 17%

Indiana Hub $48 26%

SPP $40 18%

Mass Hub $76 18%

ERCOT North $45 20%

NYISO ZJ $73 19%

Into Southern $42 22%

PJM West $63 38%

Indiana Hub $48 26%

$ = Average 2014 Spot Price
% Increase from 2013

Source: Derived from SNL and PLATTS data
Electricity Demand Flat in 2014

Source: Derived from EIA data
Extreme Weather Tests
Energy Markets in 2015

Source: The University of Illinois WW2010 Project
Market Readiness Moderates Weather Impact

Forced Outages in PJM

Source: Derived from PJM data
Markets Perform well During 2015 Winter

Source: Derived from ISO data

$/MWh On-Peak Average RT Prices

Jan. 2014

Feb. 2014

Jan. 2015

Feb. 2015

ISO-NE
NYISO
PJM

Source: Derived from ISO data
Winter 2015 NG Prices Lower than in 2014

Source: Derived from Intercontinental Exchange data
2015 State of the Markets Report

National Slides
NOAA Apr 2015 Through Jun 2015 Outlook

THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID AMJ 2015
MADE 19 MAR 2015
Cumulative HDDs by City
November 2014 – March 2015

Source: Bloomberg Weather (summed daily)
Cumulative CDDs by City
November 2014 – March 2015

Source: Bloomberg Weather (summed daily)

Updated 4/8/2015
Spot Power Prices
Average Monthly ($/MWh)

March

- Mid-Columbia: $19 (57%)
- Indiana Hub: $33 (42%)
- PJM West: $45 (49%)
- NYISO ZJ: $58 (53%)
- Mass Hub: $69 (46%)
- NP 15: $33 (35%)
- Palo Verde: $25 (48%)
- ERCOT North: $31 (55%)
- Into Southern: $30 (29%)

$ = Average March 2015 On-peak DA Price
% Decrease from 2014
Source: Derived from ISO/RTO and SNL Data
Spot Natural Gas Prices
Average ($/MMBtu)
November 2014 – March 2015

Source: ICE

Updated 4/8/2015

<table>
<thead>
<tr>
<th>Pricing Point</th>
<th>Average ($/MMBtu)</th>
<th>Change from previous year</th>
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<tbody>
<tr>
<td>AECO Citygate</td>
<td>$2.58</td>
<td>-48%</td>
</tr>
<tr>
<td>CGI</td>
<td>$3.00</td>
<td>-46%</td>
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<tr>
<td>El Paso Permian</td>
<td>$3.01</td>
<td>-39%</td>
</tr>
<tr>
<td>SoCal Border</td>
<td>$3.15</td>
<td>-43%</td>
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<tr>
<td>HSC</td>
<td>$3.11</td>
<td>-40%</td>
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<tr>
<td>Henry Hub</td>
<td>$3.21</td>
<td>-38%</td>
</tr>
<tr>
<td>FGT-Z3</td>
<td>$3.49</td>
<td>-38%</td>
</tr>
<tr>
<td>Transco Z6-NY</td>
<td>$4.63</td>
<td>20%</td>
</tr>
<tr>
<td>Columbia TCO</td>
<td>$6.68</td>
<td>-44%</td>
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<tr>
<td>NW Sumas</td>
<td>$4.85</td>
<td>1%</td>
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<tr>
<td>Algonquin Citygate</td>
<td>$9.17</td>
<td>-42%</td>
</tr>
<tr>
<td>NY Citygate</td>
<td>$6.68</td>
<td>-44%</td>
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<tr>
<td>NGPL Tex-Okla</td>
<td>$3.08</td>
<td>-60%</td>
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<tr>
<td>PG&amp;E Citygate</td>
<td>$3.49</td>
<td>-38%</td>
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<tr>
<td>Columbia TCO</td>
<td>$4.63</td>
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</tr>
</tbody>
</table>

BOLD – This Year
Green – % increase from previous year
Red – % decrease from previous year
Spot Natural Gas Trading Volumes
Average (MMBtus)
November 2014 – March 2015

Source: ICE

Updated 4/8/2015
National Natural Gas Market Overview: U.S. Supply and Consumption

U.S. NG Supply and Demand Year to Date - Mar 2014 vs. Mar 2015

US Natural Gas Supply
Total Change in Supply  9.1%

- Net Dry Gas Production: 8.9%
- Net Pipeline Imports: 5.9%
- LNG Imports: 139.8%

US Natural Gas Demand
Total Change in Demand -0.1%

- Residential/Commercial: -4.1%
- Industrial: -0.6%
- Generation: 15.2%

Note: Balance includes all amounts not attributable to other categories.
Source: Derived from Bentek Energy data

Updated: April 2014
Regional Imports from Canada

Source: Derived from Bentek Energy data

Updated: April 2014
Total U.S. Natural Gas Demand All Sectors

Source: Derived from Bentek Energy data, derived from interstate pipeline flow and modeled data.

Updated: April 2014
U.S. Natural Gas Consumption for Power Generation

Source: Derived from Bentek Energy data
EIA National Storage Inventories by Region

- East Storage Level
- West Storage Level
- Production Area Storage Level
- 5 Year Average

U.S. Storage Levels (Bcf)

<table>
<thead>
<tr>
<th>Month</th>
<th>East Storage Level</th>
<th>West Storage Level</th>
<th>Production Area Storage Level</th>
<th>5 Year Average</th>
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<tbody>
<tr>
<td>Apr-13</td>
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<td>Jun-13</td>
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<td>Aug-13</td>
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<td>Oct-13</td>
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<td>Dec-13</td>
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<td>Feb-14</td>
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<td>Apr-14</td>
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<td>Jun-14</td>
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<td>Oct-14</td>
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<td>Dec-14</td>
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<td>Feb-15</td>
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<tr>
<td>Apr-15</td>
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Notes:
Source: Derived from Bloomberg Data

Updated 4/8/2015
EIA National Storage Inventories

Source: Derived from Bloomberg Data

Notes:

Updated 4/8/2015
EIA Regional Storage Inventories

**EAST**

**WEST**

**PRODUCING**

Source: Derived from Bloomberg Data

Update 4/8/2015
Monthly U.S. Dry Gas Production – Lower 48 States

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

Updated: April 2014
Rigs by Type

Source: Derived from Bloomberg data

Updated 4/8/2015
National Natural Gas Market Overview: Rig Count

Gas vs Coal

Source: Derived from Bloomberg data

Updated 4/8/2015
Daily Gas Sendout from Existing U.S. LNG Facilities

Notes: 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 flows to the Freeport LNG which flows via intrastate pipelines and flows to the Mystic 8 and 9 power plants.

Source: Derived from Bentek Energy data

Updated: October 2014
World LNG Estimated March 2015 Landed Prices

Note: Includes information and Data supplied by IHS Global Inc. and its affiliates ("IHS"); Copyright (publication year) all rights reserved. Updated April 2014
Historical and Future World Gas Prices

Source: Derived from Bloomberg data

Updated 4/8/2015
WTI vs Brent Crude Oil Price

Source: Derived from Bloomberg data

Updated 4/8/2015
Infrastructure Report
### Natural Gas Highlights

#### Natural Gas Activities in March 2015

<table>
<thead>
<tr>
<th>Status</th>
<th>No. of Projects</th>
<th>Storage Capacity (Bcf)</th>
<th>Deliverability (MMcf/d)</th>
<th>Capacity (MMcf/d)</th>
<th>Miles of Pipeline</th>
<th>Compression (HP)</th>
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<tbody>
<tr>
<td><strong>Pipeline</strong></td>
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<tr>
<td>Placed in Service</td>
<td>3</td>
<td></td>
<td>529.0</td>
<td>21.7</td>
<td>21,500</td>
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<tr>
<td>Certificated</td>
<td>5</td>
<td></td>
<td>864.0</td>
<td>101.4</td>
<td>90,554</td>
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<tr>
<td>Proposed</td>
<td>13</td>
<td></td>
<td>12,409.0</td>
<td>684.2</td>
<td>694,996</td>
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<td><strong>Storage</strong></td>
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<tr>
<td>Placed in Service</td>
<td>1</td>
<td>1.7</td>
<td>0.0</td>
<td></td>
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<tr>
<td>Certificated</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Proposed</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
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<td>0</td>
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<tr>
<td><strong>LNG (Import &amp; Export)</strong></td>
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<tr>
<td>Placed in Service</td>
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<td>0</td>
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<td></td>
<td>0</td>
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<tr>
<td>Certificated (Import/Export)</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Proposed (Export)</td>
<td>4</td>
<td>37.90</td>
<td>6,320</td>
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Electric Generation Highlights

New Generation In-Service (New Build and Expansion)

<table>
<thead>
<tr>
<th>Primary Fuel Type</th>
<th>March 2015</th>
<th>January – March 2015 Cumulative</th>
<th>January – March 2014 Cumulative</th>
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<tbody>
<tr>
<td></td>
<td>No. of Units</td>
<td>Installed Capacity (MW)</td>
<td>No. of Units</td>
</tr>
<tr>
<td>Coal</td>
<td>0</td>
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<tr>
<td>Natural Gas</td>
<td>2</td>
<td>176</td>
<td>5</td>
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<tr>
<td>Nuclear</td>
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<tr>
<td>Oil</td>
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<tr>
<td>Water</td>
<td>1</td>
<td>21</td>
<td>1</td>
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<tr>
<td>Wind</td>
<td>1</td>
<td>98</td>
<td>8</td>
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<td>Biomass</td>
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<tr>
<td>Geothermal Steam</td>
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<td>0</td>
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<tr>
<td>Solar</td>
<td>0</td>
<td>0</td>
<td>30</td>
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<tr>
<td>Waste Heat</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>295</td>
<td>45</td>
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Electric Transmission Highlights

<table>
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<tr>
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<tr>
<td>230</td>
<td>5.0</td>
<td>44.0</td>
<td>5.0</td>
<td>642.9</td>
<td>4,050.3</td>
<td>7,383.9</td>
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<tr>
<td>345</td>
<td>0.0</td>
<td>64.8</td>
<td>58.7</td>
<td>1,547.8</td>
<td>3,318.7</td>
<td>5,579.5</td>
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<tr>
<td>500</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>62.0</td>
<td>3,175.3</td>
<td>9,403.6</td>
</tr>
<tr>
<td>Total U.S.</td>
<td>5.0</td>
<td>108.8</td>
<td>63.7</td>
<td>2,252.7</td>
<td>10,544.3</td>
<td>22,367.0</td>
</tr>
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</table>

Transmission Projects with a High Probability of being completed by March 2017

New Transmission Projects by Voltage
Infrastructure Report

Office of Energy Projects Energy Infrastructure Update
http://www.ferc.gov/legal/staff-reports.asp

(see “Energy Infrastructure” tab)