Bright Future for Natural Gas

Supply, Markets -- and Policy Challenges

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United States Energy Association
WWW.NGSA.ORG
Who is NGSA?

- Represents major producers and suppliers of domestic natural gas
- Promotes benefits of competitive natural gas markets, resulting in reliable and efficient transportation and delivery, increased supply and demand
- Celebrating 50th Anniversary in 2015
Size of U.S. Recoverable Natural Gas Resource Doubled in Last Decade

Shale resources remain the dominant source of U.S. natural gas production growth

U.S. dry natural gas production

Source: EIA, Annual Energy Outlook 2015 Reference case
Looking Forward: Bright Future for Natural Gas
Focus On Electric Demand

Long-term structural increase in demand becoming evident in 2015 as MATS Rule Kicks In

2015: 126 Retiring Coal Plants

- 66 plants Run at 0-20%
- 44 plants Run at 21-60%
- 16 plants Run at 61-90%

Summer 2015: Natural gas demand up 0.5 Bcf/day due to coal retirements

Source: Energy Ventures Analysis 2015 Summer Outlook, June 2015
Focus On Industrial Demand:
Natural Gas Spurring 66 Major Industrial Projects 2015–2020

$117 Billion Investment to Build
Increase of 3.9 Bcf/d

51
New Projects
37 Petrochemical
11 Fertilizer
3 Steel

15
Expansions
11 Petrochemical
4 Fertilizer

Data Source: Energy Ventures Analysis, June 2015
Photo courtesy: Chevron U.S.A. Inc., 2015 (Pascagoula)
U.S. LNG Exports to Grow

Average Bcf/day

<table>
<thead>
<tr>
<th>Year</th>
<th>LNG exports</th>
<th>Mexican exports</th>
<th>Canadian exports</th>
<th>U.S. consumption</th>
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</thead>
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<td>2015</td>
<td>0.1</td>
<td>2.4</td>
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<tr>
<td>2016</td>
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<td>2.9</td>
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<td>2017</td>
<td>2.5</td>
<td>3.2</td>
<td>3.3</td>
<td>79</td>
</tr>
</tbody>
</table>

Source: Energy Ventures Analysis, 2014 Long-term Outlook Fuelcast
CHALLENGES???
Challenges: Environmental Opposition  Petitions and Protests
Create Era of Unprecedented Activism at FERC
Putting Methane Emissions in Context
2012 Natural Gas Production Accounts for 0.6% of U.S. Greenhouse Gas Emissions

Measured in million metric tons carbon dioxide equivalent (MMTe)

2012 Greenhouse Gases

Carbon Dioxide
82%

Methane
9%

Natural Gas Systems
2.1%

Natural Gas Production
0.6%

SUMMARY: Bright Future for Natural Gas

- Abundant natural gas supply continues growth
- Efficiency and technology improvements continue - What’s next?
- Growing market opportunities include electric, industrial, exports, marine, rail
- New pipeline and storage infrastructure