NATURAL GAS OUTLOOK TO 2020

The U.S. Natural Gas Market --
Outlook and Options for the Future

February 2005
Independent source of information, research and programs on energy and environmental issues that affect public policy
Past Studies

Fueling the Future (2001)

Meeting the Gas Supply Challenge (2002)

Current Studies

Safety Performance & Integrity of the Natural Gas Distribution Infrastructure

Public Policy and Real Energy Efficiency
Ample natural gas resources exist
Demand is growing
Supply access and infrastructure are being constrained
Prices are rising and volatile
High prices are detrimental
Average Annual U.S. Energy Use
97 TCF (equivalent)

- Petroleum: 38%
- Natural Gas: 24%
- Coal: 23%
- Nuclear: 8%
- Hydroelectric & Renewables: 7%

Source: National Petroleum Council
Actual and Projected Natural Gas Consumption

[Graph showing actual and projected natural gas consumption for residential, commercial, industrial, and power generation sectors from 1997 to 2019.]
Maturing Resource Base

- Billion Cubic Feet
- Gas Well Completions
- Ttl Gas Additions
- Gas Wells

- 1990-2004
- 0-35000
- 0-25000
Major Portions of the Gas Resource Base Are Not Accessible

Approximately 29 trillion cubic feet (TCF) of the Rockies gas resources are closed to development and 108 TCF are available but severely restricted.
Rising and Volatile Prices

NYMEX Henry Hub Futures
Daily Settlement Prices (April/90-Jan/05)
Natural Gas Outlook to 2020

- Analyzes the effects of key policy variables
- Analyzes effects on supply availability
- Outlines supply impact on natural gas markets
## Scenario Assumptions

<table>
<thead>
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<th>Expanded Policies</th>
<th>Existing Policies</th>
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<tr>
<td>Drilling Moratoria</td>
<td>Unchanged</td>
<td>Relaxed</td>
<td>Unchanged</td>
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<tr>
<td>Intermountain West Access</td>
<td>Unchanged</td>
<td>Increased</td>
<td>Unchanged</td>
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<tr>
<td>Alaskan Pipeline</td>
<td>2014</td>
<td>2014</td>
<td>Not Built</td>
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<tr>
<td>LNG in 2020</td>
<td>18 Bcf/d</td>
<td>23 Bcf/d</td>
<td>5.3 Bcf/d</td>
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<td>New Gas-Fired Generation</td>
<td>60 GW</td>
<td>30 GW</td>
<td>60 GW</td>
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Sources of U.S. Natural Gas Supply
2003

22.5 Quads

Lower-48 18.7

Canada 3.3

LNG 0.5
Expected Sources of U.S. Natural Gas Supply

2020

- Lower 48: 19.0 Quads
- LNG: 6.8 Quads
- Alaska: 2.7 Quads
- Canada: 2.3 Quads

30.7 Quads
Alaska

- Potential supply from existing reserves
- Congress recently passed legislation that includes tax credits, depreciation provisions, loan guarantees and expedited approval process to construct a pipeline from Alaska to the Lower-48
LNG Imports Face Challenges

Expected Policies
LNG Imports

Import Terminals

BCFD
0 2 4 6 8 10 12 14 16 18 20

Existing
Potential

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Study Implications

• Under no scenario will natural gas markets return to the 80’s-90’s era of supply surplus and low, stable prices

• Policy makers and industry decision makers need to act immediately

• Failure to take action will lead to more instability and cost U.S. consumers billions of dollars in additional energy costs
Actual and Projected Natural Gas Prices (Henry Hub)

Nominal $/MMBtu

Five Year Averages


Expected Policies

Expanded Policies

Existing Policies

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### Scenario Projections

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<td>More Industrial; Less Electric Gen</td>
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<td><strong>2020 Prices</strong></td>
<td>$8.15</td>
<td>$5.47</td>
<td>$13.76</td>
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<tr>
<td><strong>Average</strong></td>
<td>$6.72</td>
<td>$5.50</td>
<td>$9.43</td>
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<td>(2004-2020)</td>
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* Nominal
# Impact to Consumers

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Over $120 Billion in additional cost in 2020
Impact to Consumers

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$1 Trillion in additional cost over 15 years
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$575 Billion in savings over the 15 years
Conclusions

• Today’s decisions about supply, infrastructure, and efficiency will govern future gas prices

• Existing Policies “status-quo” scenario must be avoided

• Work hard to make the Expanded Policies scenario a reality
Needed Policy Actions

- Pursue new natural gas supply strategies
- Pursue energy diversity
- Ensure the Alaskan Pipeline and adequate LNG terminals are built
- Promote real conservation and efficiency
Needed Policy Actions

• Promote additional drilling with advanced technology

• Remove policy and regulatory constraints for drilling and infrastructure
  (Dec 2004 DOE/Argonne Nat’l Lab Study “Environmental Policy and Regulatory Constraints To Natural Gas Production”)

• Align energy strategies with environmental and national economic interests
American Gas Foundation

www.gasfoundation.org