Potential Supply of Natural Gas in the United States

Report of the Potential Gas Committee (December 31, 2012)

Washington, D.C.
April 9, 2013
Potential Gas Committee

• 100 Volunteer geoscientists & petroleum engineers

• Biennial assessments—since 1964—of the *Technically Recoverable* U.S. natural gas endowment

PGC Resources + EIA Proved Reserves = *Potential Future Gas Supply*

Learn more about the PGC: http://www.potentialgas.org
Organization of Potential Gas Studies

**Potential Gas Committee**

Natalie H. Reagan  
President/General Chairman

Larry M. Gring  
Chairman, Board of Directors

Develops assessment policy and procedures, directs and manages studies of natural gas resources, recruits personnel and supervises work, prepares reports on natural gas resources.

**Potential Gas Agency**

Colorado School of Mines  
(supported by industry)

Dr. John B. Curtis, Director

Approves criteria and methods, insures maintenance of standards and objectivity, reviews and evaluates reports, publishes final assessments of gas resources.

Potential Gas Agency  
Colorado School of Mines
Proved Reserves vs Resources

- Known gas reservoirs
- Existing economic conditions
- Existing operating conditions

- Discovered
- Undiscovered
- Effects of technology
Dynamics of Resource Appraisal

Present Resources

- Probable Resources
- Possible Resources
- Speculative Resources

DRILLING & APPRAISAL

Future Resources

- Proved Reserves
- Revised Probable
- Probable Resources
- Revised Possible
- Proved Reserves
- Probable Resources
- Possible Resources
- Revised Speculative
Natural Gas Resource Assessment of the Potential Gas Committee, 2012 (mean values)

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Gas Resources</td>
<td>2,225.6 Tcf</td>
</tr>
<tr>
<td>Coalbed Gas Resources</td>
<td>158.2 Tcf</td>
</tr>
<tr>
<td>Total U.S. Gas Resources</td>
<td>2,383.9 Tcf</td>
</tr>
<tr>
<td>Proved Reserves (EIA)*</td>
<td>304.6 Tcf</td>
</tr>
<tr>
<td><strong>Future Gas Supply</strong></td>
<td><strong>2,688.5 Tcf</strong></td>
</tr>
</tbody>
</table>

* Totals are subject to rounding.

* Latest available value (dry gas), year-end 2010
PGC Resource Assessments, 1990-2012

Total Potential Gas Resources (Mean Values)

Data source: Potential Gas Committee (2013)
PGC Resource Assessment 2012

Total Traditional Resources (mean values) by category

Data source: Potential Gas Committee (2013)
PGC Resource Assessment 2012

Total Traditional Resources (mean values) by category

Probable (existing fields)  708.5 Tcf
Possible (new fields)       952.3 Tcf
Speculative (frontier)     558.7 Tcf
Total*                     2,225.6 Tcf

* Separately aggregated value.

Data source: Potential Gas Committee (2013)
Total Coalbed Gas Resources (mean values) by category

Data source: Potential Gas Committee (2013)
Total Coalbed Gas Resources (mean values) by category

- **Probable (existing fields)**: 14.2 Tcf
- **Possible (new fields)**: 48.3 Tcf
- **Speculative (frontier)**: 95.8 Tcf
- **Total**: 158.2 Tcf

*Separately aggregated value.

Data source: Potential Gas Committee (2013)
Regional Resource Comparison

Potential Resources, Year-End 2012 (“Most Likely” values, Bcf)

Regional Comparison

- **Atlantic**: 594,720
- **Gulf Coast**:
- **Rocky Mountain**: 350,000

**Categories**

- **Onshore Traditional Resources**
- **Deep (15,000-30,000 ft)**
- **Shallow (0-15,000 ft)**
- **Coalbed Gas Resources**
- **Offshore Traditional Resources (all water depths)**

Potential Resources = Probable + Possible + Speculative (arithmetically additive)

* No resources or negligible quantity assessed.

Data source: Potential Gas Committee (2013)
Regional Resource Assessment

Data source: Potential Gas Committee (2013)

U.S. Traditional (mean)* 2,225.6 Tcf
U.S. Coalbed (mean)* 158.2 Tcf
Grand Total U.S. (mean) 2,383.9 Tcf

Regional Breakdown:

- Rocky Mountain: 421.3 Tcf (Traditional), 51.9 Tcf (Coalbed)
- Pacific: 54.4 Tcf (Traditional), 2.6 Tcf (Coalbed)
- North Central: 269.5 Tcf (Traditional), 8.0 Tcf (Coalbed)
- Mid-Continent: 20.8 Tcf (Traditional), 11.6 Tcf (Coalbed)
- Atlantic: 741.3 Tcf (Traditional), 17.3 Tcf (Coalbed)
- Gulf Coast: 521.0 Tcf (Traditional), 3.4 Tcf (Coalbed)
- Alaska: 193.8 Tcf (Traditional), 57.0 Tcf (Coalbed)

* Separately aggregated from all province data.
Regional Resource Assessment
Summary

<table>
<thead>
<tr>
<th>PGC Area</th>
<th>Traditional Gas Resources (Mean Value, Tcf)</th>
<th>Traditional Proportion of Total US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>741.3</td>
<td>33.4%</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>521.0</td>
<td>23.4%</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>421.3</td>
<td>19.0%</td>
</tr>
<tr>
<td>Mid-Continent</td>
<td>269.5</td>
<td>12.1%</td>
</tr>
<tr>
<td>Pacific</td>
<td>54.4</td>
<td>2.5%</td>
</tr>
<tr>
<td>North Central</td>
<td>20.8</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total Lower 48 U.S.</strong>*</td>
<td><strong>2,011.4</strong></td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>193.8</td>
<td>8.7%</td>
</tr>
<tr>
<td><strong>Total U.S. Traditional</strong>*</td>
<td><strong>2,225.6</strong></td>
<td></td>
</tr>
</tbody>
</table>

Data source: Potential Gas Committee (2013)

* Separately aggregated total. Area means are not arithmetically additive.
Influences on Future Gas Supply

- Resource Base
- Environmental Issues
- Skilled Workforce
- Technology
- Gas Price
- Pipeline Capacity
- Regulatory & Land Issues
- Rig Availability

Sufficient Supply to Meet Demand