Potential Supply of Natural Gas in the United States

Report of the Potential Gas Committee (December 31, 2010)

Washington, DC
April 27, 2011
Organization of Potential Gas Studies

Potential Gas Committee

Larry M. Gring
President/General Chairman

Darrell L. Pierce
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.
Proved Reserves vs Resources

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

- Discovered
- Undiscovered
- Effects of technology
- Effects of economics
Natural Gas Resource Assessment of the Potential Gas Committee, 2010 (mean values)

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Gas Resources</td>
<td>1,739.2 Tcf</td>
</tr>
<tr>
<td>Coalbed Gas Resources</td>
<td>158.6 Tcf</td>
</tr>
<tr>
<td>Total U.S. Gas Resources</td>
<td>1,897.8 Tcf</td>
</tr>
<tr>
<td>Proved Reserves (EIA)*</td>
<td>272.5 Tcf</td>
</tr>
<tr>
<td>Future Gas Supply</td>
<td>2,170.3 Tcf</td>
</tr>
</tbody>
</table>

*Latest available value (dry gas), year-end 2009
PGC Resource Assessment 2010

Total Traditional Resources (mean values) by category

Data source: Potential Gas Committee (2011)
PGC Resource Assessment 2010

Total Traditional Resources (mean values) by category

- Probable (existing fields): 536.6 Tcf
- Possible (new fields): 687.7 Tcf
- Speculative (frontiers): 518.3 Tcf
- Total: 1,739.2 Tcf

* Totals are separately aggregated, not arithmetically additive.

Data source: Potential Gas Committee (2011)
PGC Resource Assessment 2010

Total Coalbed Gas Resources (mean values) by category

Data source: Potential Gas Committee (2011)
PGC Resource Assessment 2010

Total Coalbed Gas Resources (mean values) by category

- Probable (existing fields): 13.4 Tcf
- Possible (new fields): 48.1 Tcf
- Speculative (frontier): 96.2 Tcf
- Total: 158.6 Tcf

Data source: Potential Gas Committee (2011)
PGC Resource Assessments, 1990-2010

Total Potential Gas Resources (Mean Values)

Data source: Potential Gas Committee (2011)
## Regional Resource Assessment Summary

<table>
<thead>
<tr>
<th>PGC Area</th>
<th>Traditional Gas Resources (Mean, Tcf)</th>
<th>Coalbed Gas Resources (M.L., Tcf)</th>
<th>Total Pot. Resources (Tcf, rounded)</th>
<th>Traditional Proportion of Total US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gulf Coast</td>
<td>506.0</td>
<td>3.4</td>
<td>509.3</td>
<td>29.0%</td>
</tr>
<tr>
<td>Atlantic</td>
<td>353.6</td>
<td>17.3</td>
<td>370.9</td>
<td>20.3%</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>344.0</td>
<td>51.9</td>
<td>395.9</td>
<td>19.7%</td>
</tr>
<tr>
<td>Mid-Continent</td>
<td>272.2</td>
<td>7.5</td>
<td>279.8</td>
<td>15.6%</td>
</tr>
<tr>
<td>Pacific</td>
<td>54.0</td>
<td>2.6</td>
<td>56.6</td>
<td>3.1%</td>
</tr>
<tr>
<td>North Central</td>
<td>21.6</td>
<td>11.6</td>
<td>33.3</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>Total Lower 48</strong>*</td>
<td><strong>1,551.2</strong></td>
<td><strong>94.3</strong></td>
<td><strong>1,739.2</strong></td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>193.8</td>
<td>57.0</td>
<td>250.8</td>
<td>11.1%</td>
</tr>
<tr>
<td><strong>Total U.S. (means)</strong>*</td>
<td><strong>1,739.2</strong></td>
<td><strong>158.6</strong></td>
<td><strong>1,897.8</strong></td>
<td></td>
</tr>
</tbody>
</table>

Data source: Potential Gas Committee (2011)

* Separately aggregated totals, not arithmetically additive.
Regional Resource Assessment

- Traditional: 1,739.2 Tcf
- Coalbed: 158.6 Tcf
- Total U.S: 1,897.8 Tcf

**Region**
- Rocky Mountain: 344.0 Tcf, 51.9%
- Pacific: 54.0 Tcf, 2.6%
- North Central: 21.6 Tcf, 11.6%
- Atlantic: 353.6 Tcf, 17.3%
- Mid-Continent: 272.2 Tcf, 7.5%
- Gulf Coast: 506.0 Tcf, 3.4%
- Alaska: 193.8 Tcf, 57.0%

Data source: Potential Gas Committee (2011)
Regional Resource Comparison

Potential Resources, Year-End 2008 (Most Likely values, Bcf)

- **Gulf Coast**: 464,035
- **Rocky Mountain**: 319,112
- **Atlantic**: 301,875
- **Mid-Continent**: 269,245
- **Alaska**: 200,050
- **Pacific**: 49,020
- **North Central**: 27,550

Data source: Potential Gas Committee (2011)
Potential Gas Agency
Dynamics of Resource Appraisal

**Present Resources**
- Probable Resources
- Possible Resources
- Speculative Resources

**Future Resources**
- Proved Reserves
- Revised Probable
- Revised Probable
- Revised Possible
- Probable Resources
- Possible Resources
- Revised Speculative