Growing together towards a friendly planet

Jérôme Ferrier
President IGU
World primary energy demand by scenario 1990-2040

Source: IEA WEO 2014
Energy demand by region 1990-2040

Source: IEA WEO 2014

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
Fuel shares in the global energy mix 2012-2040

Source: IEA WEO 2014
Changes in energy demand by sector and region 2012-2040

Source: IEA WEO 2014

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
Global coal demand by region 1980-2040

Source: IEA WEO 2014
Global CO2 emissions from fossil fuels 1990-2040

Source: IEA WEO 2014
Cumulative CO2 emissions by region 1900-2040

Source: IEA WEO 2014

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
Reduction in CO2 emissions by region in the 450 scenario (Gt)

Source: IEA WEO 2014
World electricity generation by fuel type
2000-2040 (TWh)

Source: IEA WEO 2014

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
Agreed EU headline targets
2030 Framework for Climayer and Energy

-20% Greenhouse Gas Emissions
20% Renewable Energy
20% Energy Efficiency
10% Interconnection

≤ - 40% Greenhouse Gas Emissions
≥ 27% Renewable Energy
≥ 27% Energy Efficiency
15% Interconnection

* To be reviewed by 2020, having in mind an EU level of 30%

New governance system + indicators

Source: EU Commission
EU GHG emission reductions targets 2020 and 2030

EMISSION REDUCTIONS IN ETS AND NON-ETS COMPARED TO 2005

2020 2030

-10% -30%

NON-ETS INCLUDING ROAD TRANSPORT, HOUSING, AGRICULTURE etc.

2020 2030

-21% -43%

ETS INCLUDING POWER/ENERGY SECTOR & INDUSTRY

Source: EU Commission

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
EU shares of sectors in GHG emissions 1990-2030

Source: EU Commission

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
EU power generation capacities by age in 2013

Source: EU Commission

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands
World natural gas demand by sector 2012-2040

Source: IEA WEO 2014

*Industry includes gas used as petrochemical feedstocks and energy consumption in coke ovens and blast furnaces.
**Other includes agriculture and any other non-energy use.
## Remaining technically recoverable gas resources by type and region, in 2013 (Tcm)

<table>
<thead>
<tr>
<th>Region</th>
<th>Conventional</th>
<th>Unconventional</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tight gas</td>
<td>Shale gas</td>
</tr>
<tr>
<td>E. Europe/Eurasia</td>
<td>143</td>
<td>11</td>
<td>15</td>
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<tr>
<td>Middle East</td>
<td>124</td>
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<td>Asia-Pacific</td>
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<tr>
<td>OECD Europe</td>
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<td>4</td>
<td>13</td>
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<tr>
<td>World</td>
<td><strong>468</strong></td>
<td><strong>81</strong></td>
<td><strong>212</strong></td>
</tr>
</tbody>
</table>

Source: BGR (2012); US EIA (2013); USGS (2000); USGS (2012a and 2012b); IEA databases and analysis
Changes in natural gas demand by region and sector 2012-2040

*Industry includes gas used as petrochemical feedstocks and energy consumption in coke ovens and blast furnaces.
**Other includes agriculture and any other non-energy use.

Source: IEA WEO 2014
Inter-regional gas trade by pipeline and LNG 2012-2040

Source: IEA WEO 2014
Pipeline gas and LNG imports in Europe 2012-2040

Source: IEA WEO 2014

Royal Dutch Gas Association KVGN, January 14th, 2015 – Den Haag, The Netherlands