



Source: Energy Transformation

# Shale Gas in Europe

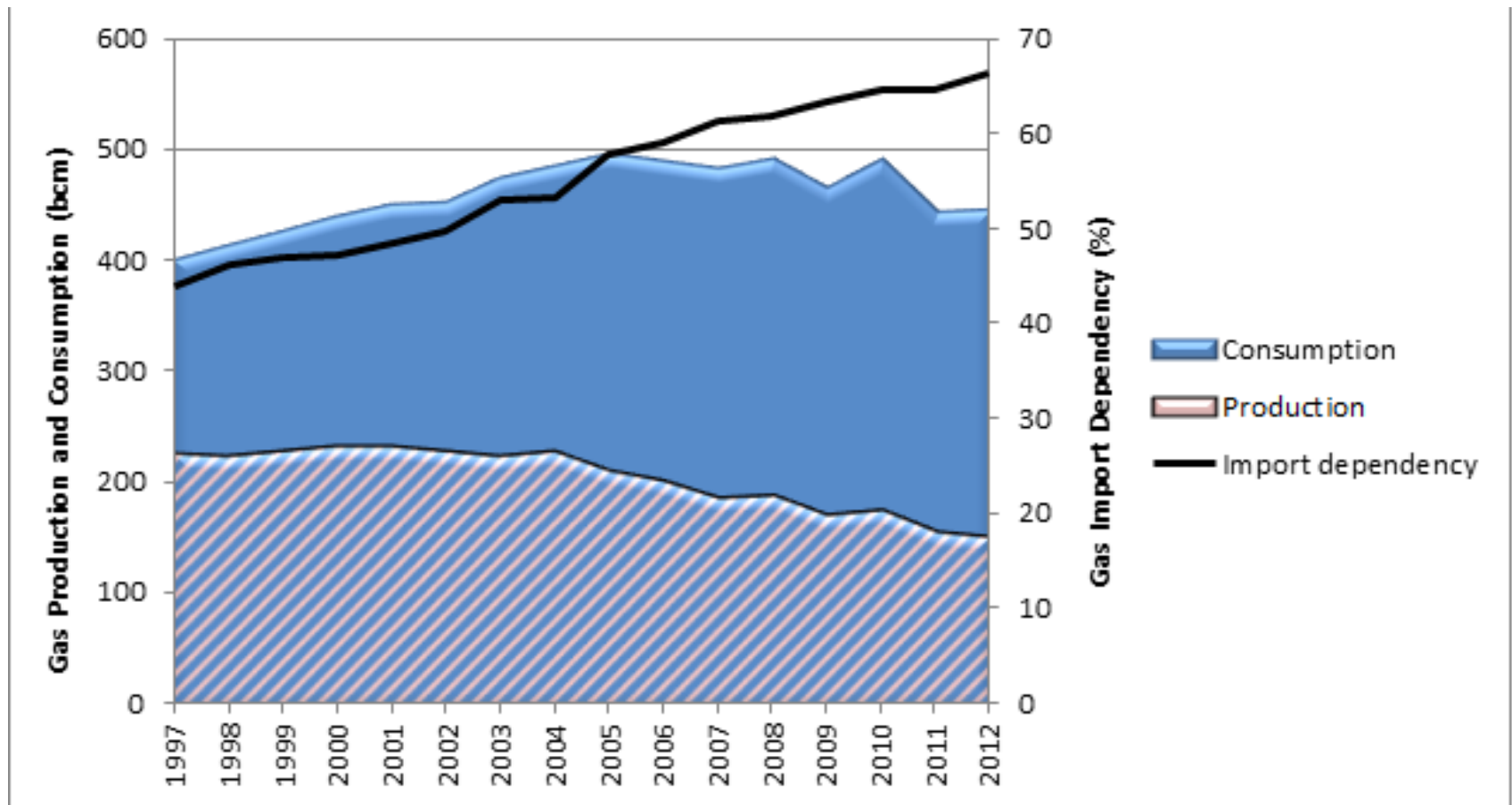
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**Pittsburgh, 21 March 2014**

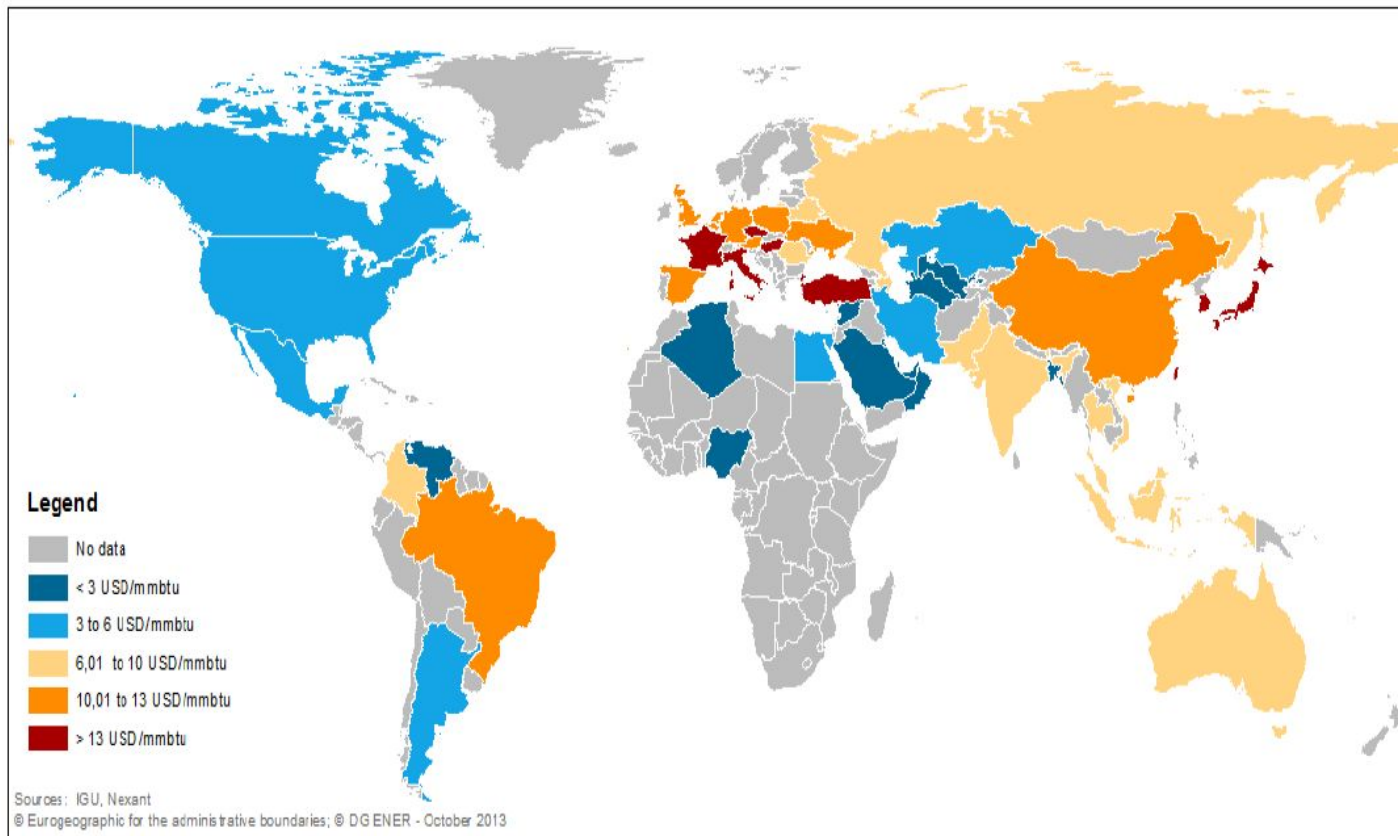
# EU: Rising Import Dependency



Source: Eurostat, BP Statistical Review of World Energy 2013

# Competitiveness Challenge

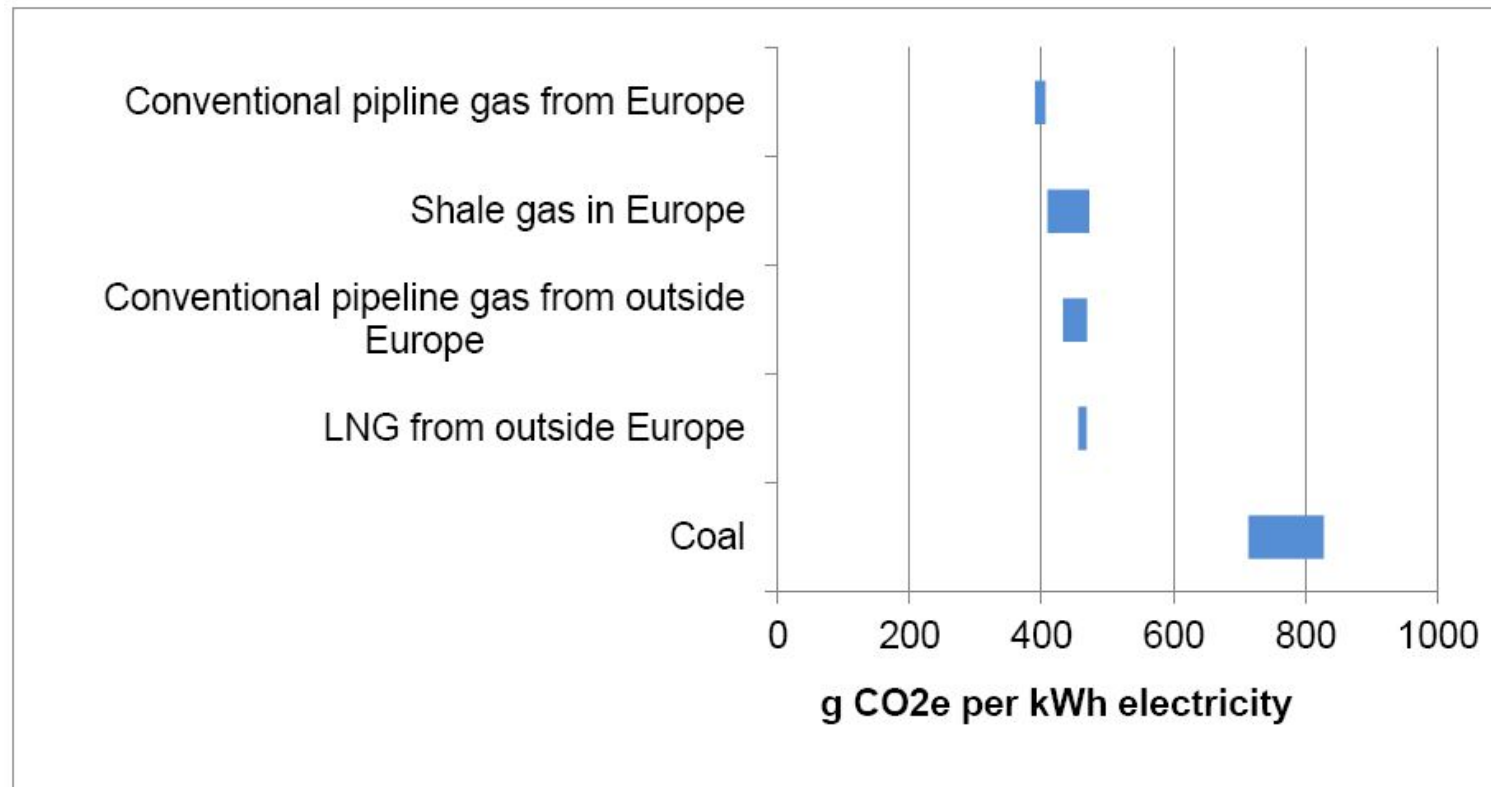
Average wholesale gas prices in 2012 (US\$/mmBtu)



Source: International Gas Union and Nexant. Wholesale Gas Price Survey – 2013 Edition

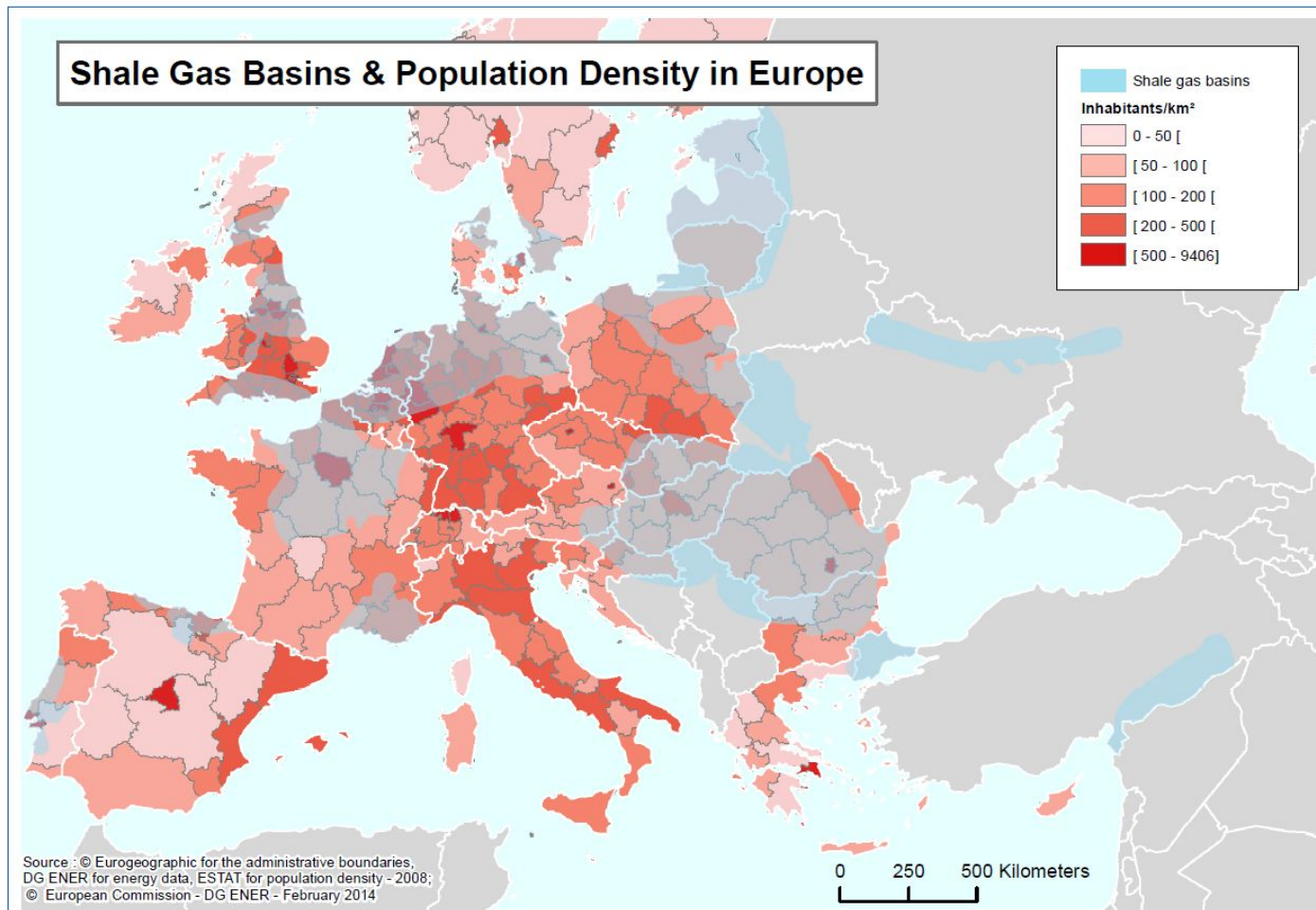
# Impact on Climate

## Lifecycle emissions from coal and gas fired electricity generation



Source: Climate impact of potential shale gas production in the EU. AEA et.al., 2012. Report for EC DG CLIMA.

# Shale Gas: Potential in Europe?



- **Technically recoverable resources:**  
**Best estimate: 16 trillion cubic metres**
- **Economically recoverable potential unclear**

# European Commission Initiative

- Adopted by European Commission on 22 Jan 2014:
  - Communication: policy context
  - Recommendation: minimum principles

[\[http://ec.europa.eu/environment/integration/energy/unconventional\\_en.htm\]](http://ec.europa.eu/environment/integration/energy/unconventional_en.htm)

- Recommendation: non-binding for Member States
- August 2015: report on effectiveness of approach
- Scope: "high volume hydraulic fracturing"
  - $\geq 1000$  cubic meters water per fracking stage or
  - $\geq 10,000$  cubic meters water per well

# Proposed Measures (inter alia)

- Strategic environmental assessment before licensing
- Underground risk assessment
- Adequate infrastructure, integrated approach
- Avoiding flaring, venting only for safety reasons
- Use of best available techniques
- Independent verification of well integrity
- Baseline study, monitoring and reporting
- Transparency

# Follow-up and Next Steps

- **Exchange of information:**
  - Identification of Best Available Techniques (BAT)
  - Good regulatory practices
- **Improve registration under REACH**
- **European Science and Technology Network**
- **Research on environmental impacts and risks under Horizon 2020, preferably including US/CAN partners**
- **Assess implementation of Recommendation and review the effectiveness of the approach in 2015**