

# Independent Expert Scientific Panel on Unconventional Oil & Gas

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# Remit

- Panel was convened by the Scottish Government in September 2013
- Broad scope to report on the scientific evidence relating to potential for unconventional oil and gas in Scotland
  - A robust, well researched evidence base relating to unconventional oil and gas upon which the Scottish Government can reliably base future policy in this area;
  - A well-developed narrative on the environmental and regulatory issues associated with the potential development of unconventional oil and gas in Scotland;
  - An assessment of the potential resources available to Scotland.

# Issues Reviewed in the Panel Report

- The potential magnitude of such resources in Scotland and their commercial potential
- The global status of unconventional oil and gas exploitation and whether the technology exists to allow such resources to be extracted safely
- The key environmental, public perception and public health challenges surrounding the exploitation of unconventional hydrocarbon resources
- Whether the current regulatory framework in Scotland is adequate to cope with the safe development of such resources
- Fit with Scottish Government GHG targets
- Successful and constructive engagement with communities

# Unconventionals in Context

- United States energy transformation – importer to exporter
- Care in drawing conclusions from US experience
- Transformation in US Chemical Industry - relevance to Scottish context
- Declining North Sea feedstocks an issue – unconventionals could make economics of Scottish chemical companies more favourable

# Unconventional Oil & Gas

- Reservoirs of low permeability
- Technological advances
  - Directional drilling
  - Hydraulic fracturing

# Technical Challenges

- Expert Scientific Panel identified eight key technological areas that could pose important challenges in developing such potential reserves
  - Drilling
  - Hydraulic Fracturing
  - Seismicity
  - Well Integrity
  - Gas Production
  - Water Sourcing
  - Wastewater Disposal
  - Well Abandonment

# Unconventional Oil & Gas

- Environmental and societal challenge
- Compatibility with Scottish Government greenhouse gas (GHG) targets

# Environment and Societal Challenges

- Industrial processes typically involve some environmental impacts
- For social license, require effective and meaningful community engagement
- Risk assessment approaches risk 'framing out' public concerns from debates
- Sustained and meaningful community engagement beneficial to all



# Scottish Government GHG Targets

- Situation unclear, but:
- If un conventionals displace North Sea gas, no significant effect
- If used as petrochemical feedstocks, minimal impact

# Summary of Findings

- There could be positive economic impacts from the development of an unconventional oil & gas industry in Scotland
- Scotland's geology suggests that there could be significant reserves of unconventional oil and gas with the greatest potential reserves likely to be in the Midland Valley
- Likely that an unconventional oil and gas industry could be developed at scale in Scotland
- None of the technical challenges identified are insurmountable
- Regulatory framework largely in place to control potential environmental impacts
- The development of an unconventional oil & gas industry is likely to impact society
- Meaningful public engagement is absolutely necessary