



Department
of Energy &
Climate Change

Shale gas development in the UK

Edinburgh 12 November 2014

Gas in the UK energy mix

Benefits, how development might proceed

Is it safe and how is it regulated?

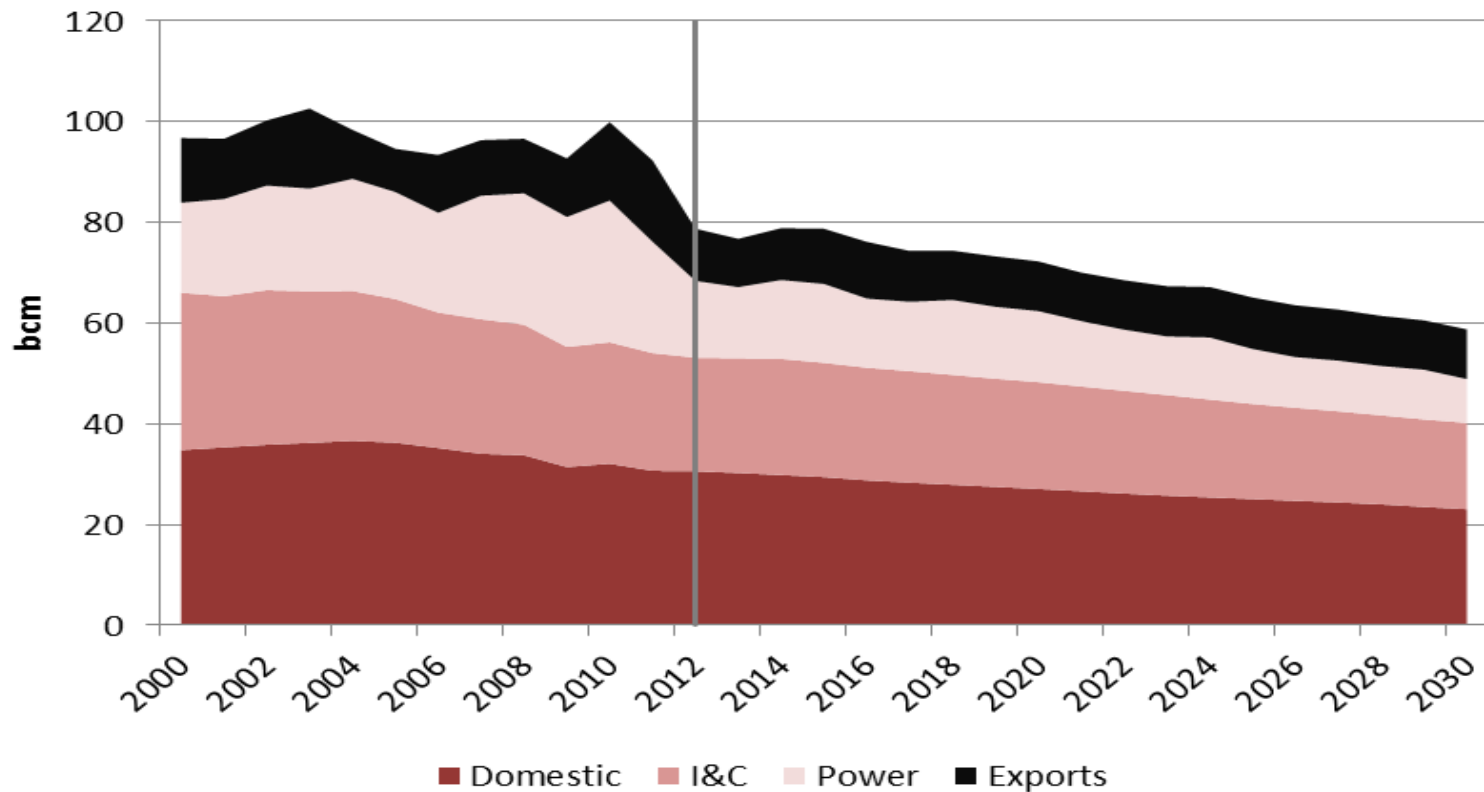
How does it fit with our climate goals?

HMG efforts to encourage development

Public engagement

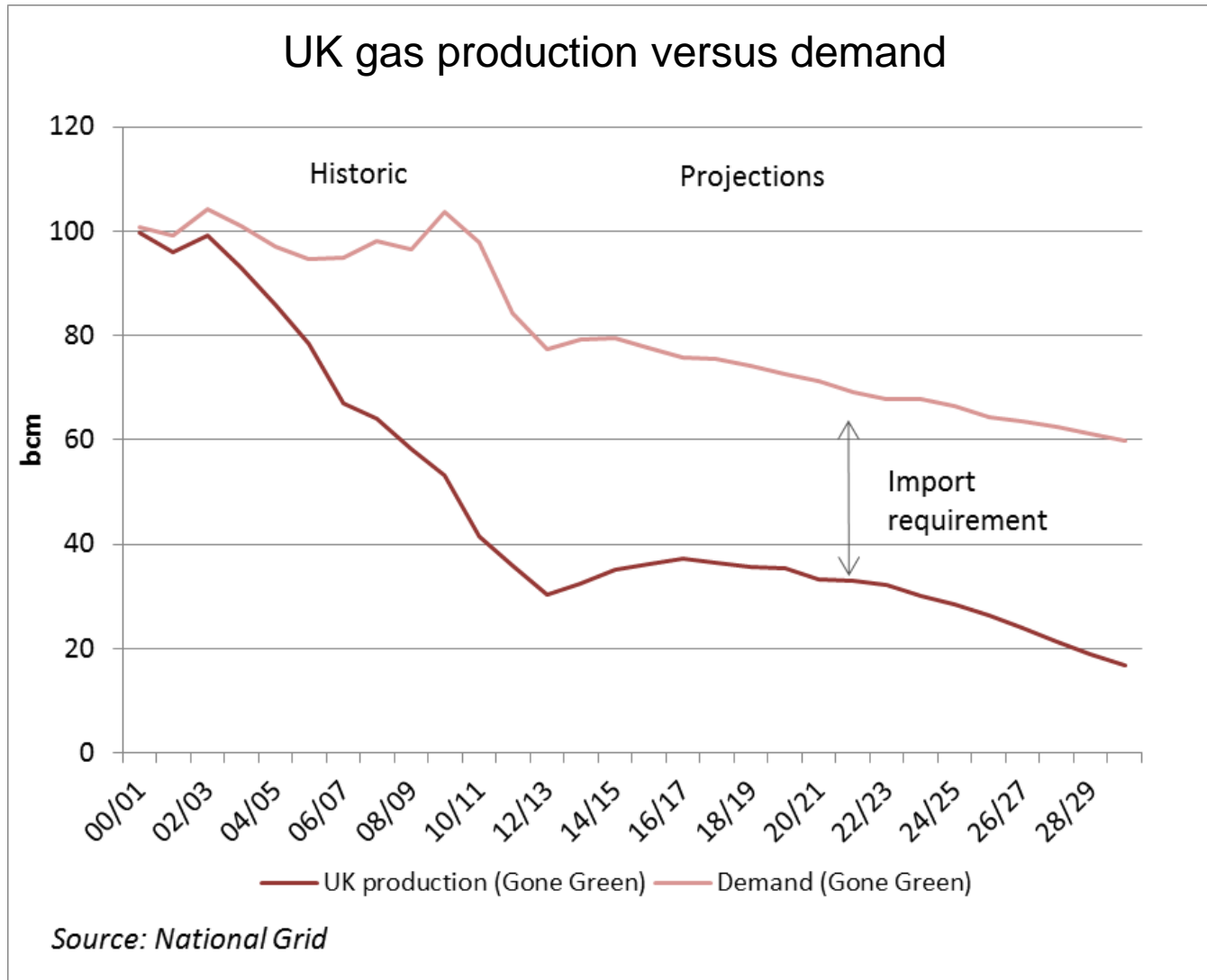
How much gas do we use?

**GB gas demand projection under National Grid
Gone Green scenario**



Source: National Grid

Where do we get gas from?



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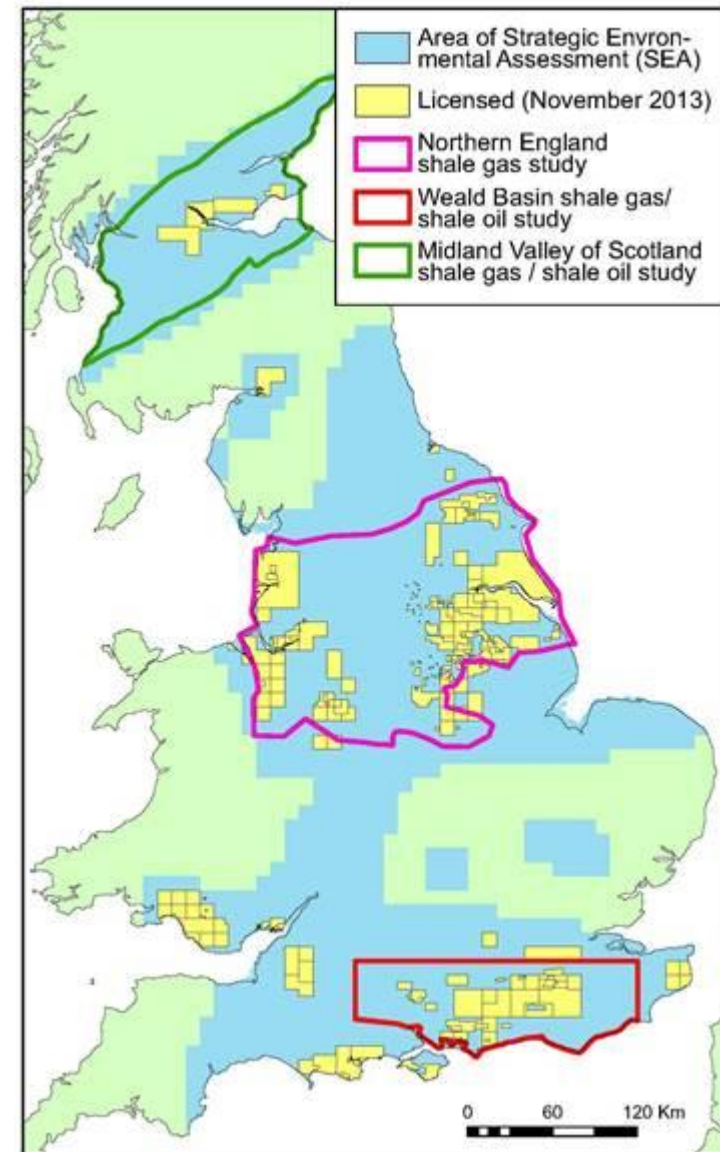
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Potential economic contribution

One scenario: UK Institute of Directors report on UK Shale Gas Potential (2013):

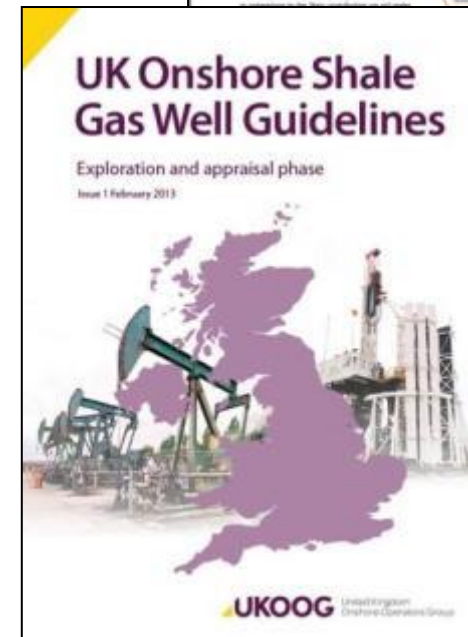
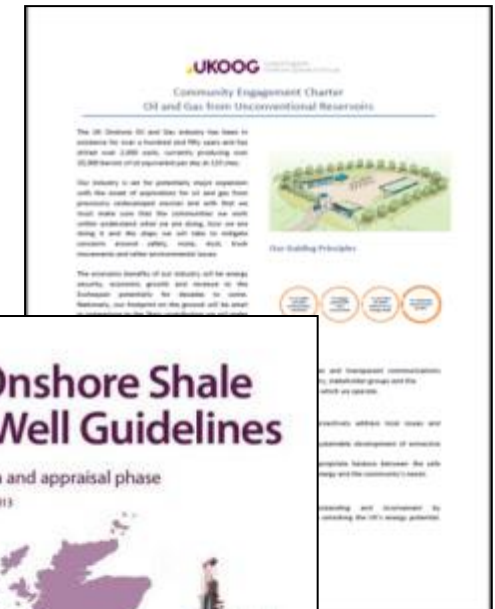
- Production could peak at ~32bcm per year
- Likely decrease use of imported gas
- Could support around 70,000 jobs
- Net benefit to the Treasury in tax revenues



Communities would also benefit

Industry-led Community Engagement Charter

- Engage early: before any planning application
- Exploration stage: £100,000 in community benefits per hydraulically fractured well-site
- Production stage: 1% of revenues to local community
- Annual report: evidence of how Charter has been met
- Regular review: Operators to consult further as industry develops





How might development run?

STAGE 1

Exploration

2-6
MONTHS
APPROX

Exploratory drilling to identify if oil or gas can be produced profitably. The operator may do seismic surveys, samples of the shale rock, one or more fracks and flow testing.

A 'pad' is built and a 30m tall drilling rig is installed. The operator may need to transport equipment, water and chemicals to and from the site.

£100,000 in community benefits provided per well-site where fracking takes place.

STAGE 2

Moving into production

0.5-2
YEARS
APPROX

If the site is suitable for production more wells will be drilled and fracked. Water, chemicals, equipment and material will be brought on and off site and waste water carried away for treatment and disposal.

STAGE 3

Production

20
YEARS
APPROX

Maintenance activity will take place from time to time and further wells may be drilled, but the overall level of activity is likely to decline.

1% of revenues at production stage will be paid out to communities.

STAGE 4

Decommissioning & restoration

COULD HAPPEN AT ANY STAGE

Restoring the site to its original condition. It includes making wells safe for abandonment and the removal of surface installations.

Decommissioning and restoration could happen at any stage if the site doesn't develop into the next one.

AT EACH STAGE:

The industry has committed to early engagement – local communities can expect a continued point of contact and an opportunity for comment and feedback on initial plans. As part of planning permission the planning authority will advertise the planning application package in local media and consult statutory consultees. Local engagement with communities will formally be undertaken at this stage.

These activities can only take place if planning permission is granted by the planning authority, and if other consents or clearances are obtained from the environmental regulator, the Health and Safety Executive and Department of Energy and Climate change.

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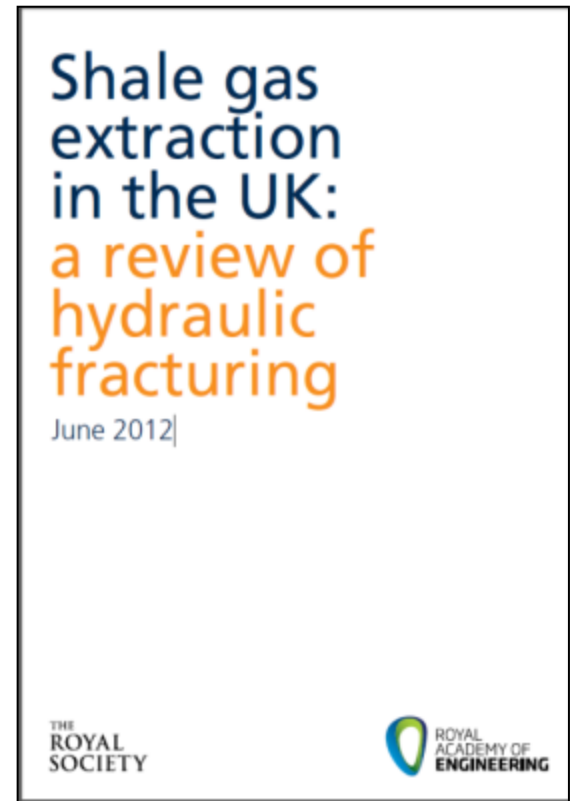
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Is it safe?

June 2012 Royal Academy of Engineering/ Royal Society independent review of the scientific and engineering evidence on risks associated UK shale gas development:

“...risks can be managed effectively in the UK, if operational best practices are implemented and enforced through regulation.”

HMG accepts and is implementing recommendations.

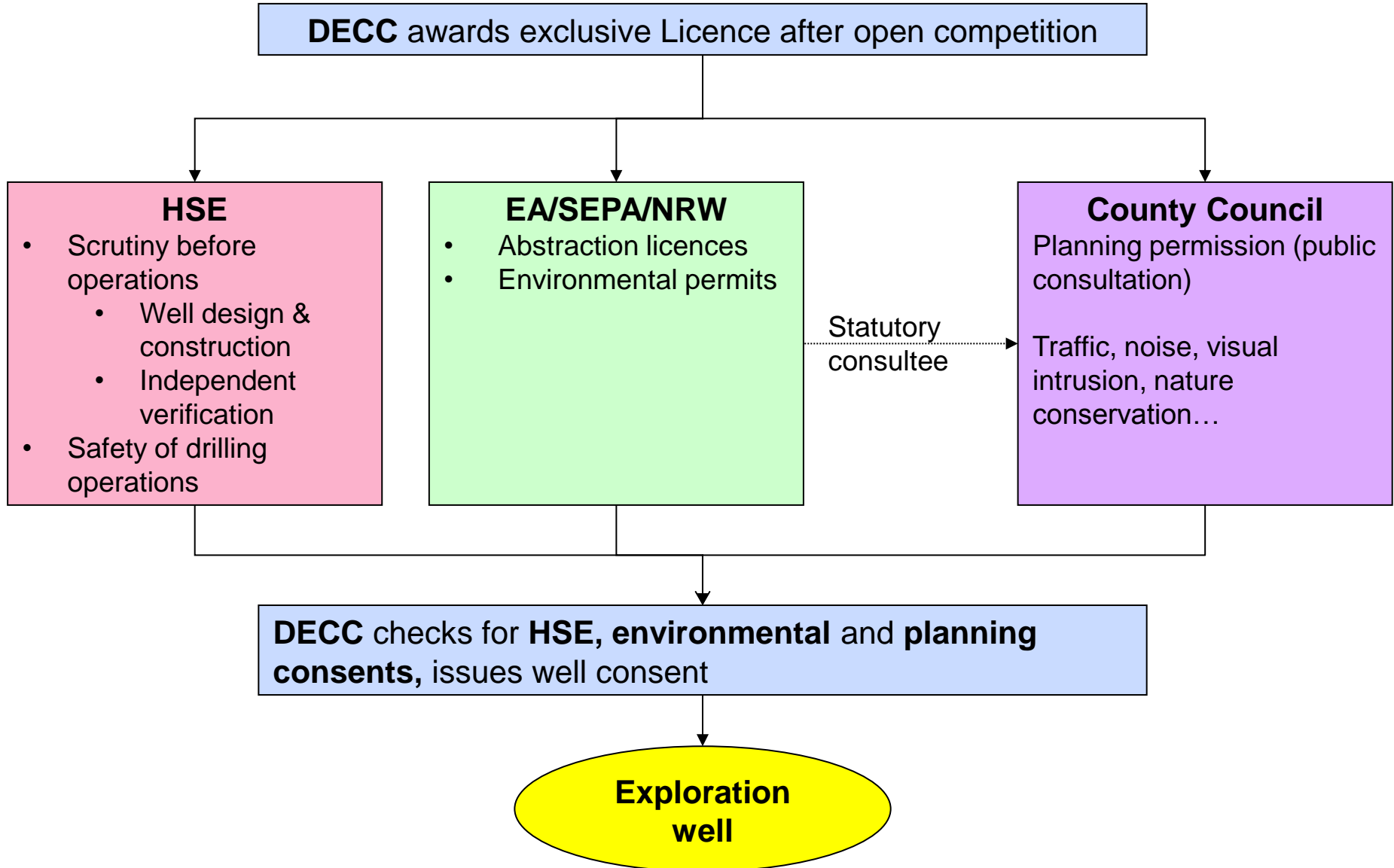


Does it harm public health?

June 2014 report concluded:


- “...potential risks to public health from exposure to emissions associated with shale gas extraction process will be low if the operations are properly run and regulated.
- “Where potential risks have been identified in other countries, the reported problems are typically a result of operational failure and a poor regulatory environment.”

Regulatory process - exploration






Regulatory Roadmap shows detail

- www.gov.uk/government/publications/regulatory-roadmap-onshore-oil-and-gas-exploration-in-the-uk-regulation-and-best-practice


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Onshore oil and gas exploration in the UK: regulation and best practice

Please select the country where the proposed drilling operation is to be located.

			
England	Wales	Scotland	Northern Ireland

[Introduction](#)
[How to use this roadmap](#)
[Frequently asked questions](#)
[Pre-drilling approvals checklist](#)
[Bibliography](#)
[Glossary](#)

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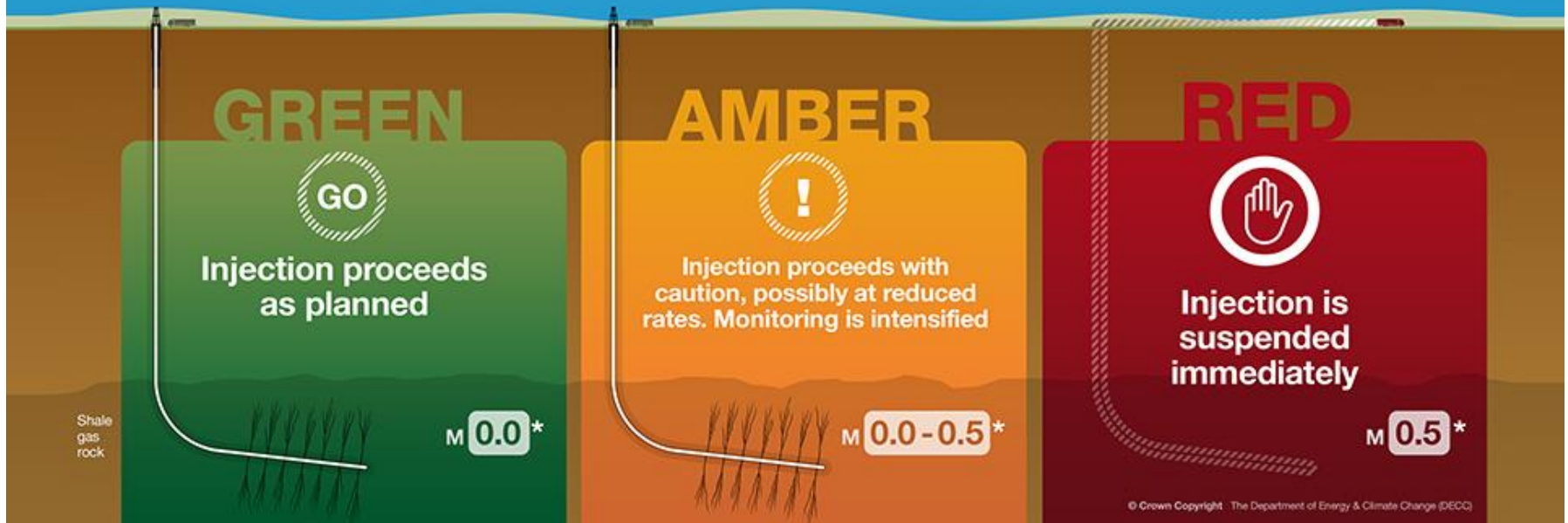
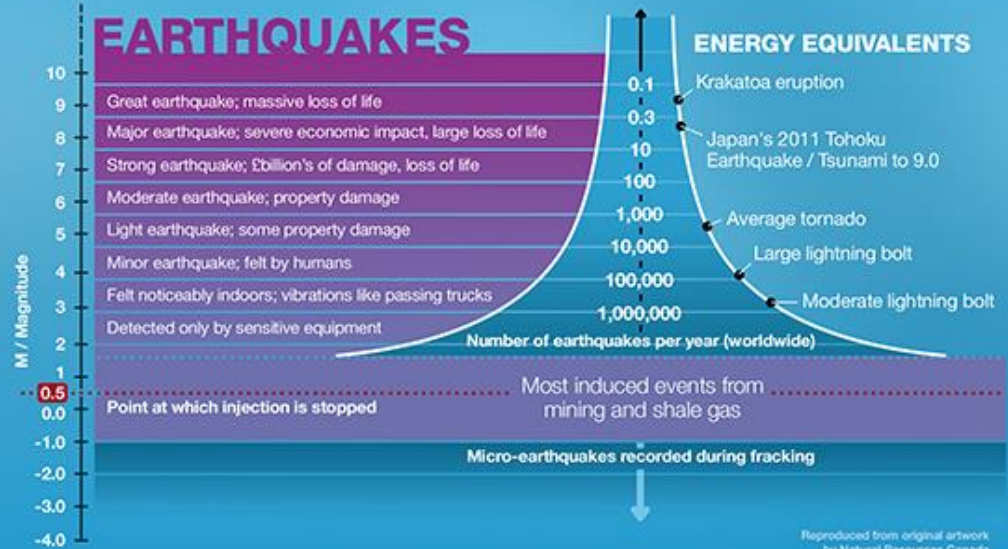
DECC covers seismic regulation

Traffic light monitoring system

Controls are in place so that operators will have to assess the location of faults before fracking, monitor seismic activity in real time and stop if even minor earth tremors occur.

If a magnitude greater than **M 0.5*** (0.5 on the Richter scale) is detected operations will stop and the pressure of the fluid will be reduced. This level should limit further earthquakes, known as 'induced seismicity', which may happen after the pumping is completed.

**subject to review and may change.*



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Mackay-Stone on climate impact

Conclusions

- Shale CO₂ footprint < LNG, comparable to conventional gas sources
- Gas based electricity generation CO₂ footprint significantly lower than coal
- Local GHG emissions from operations a small proportion of the carbon footprint

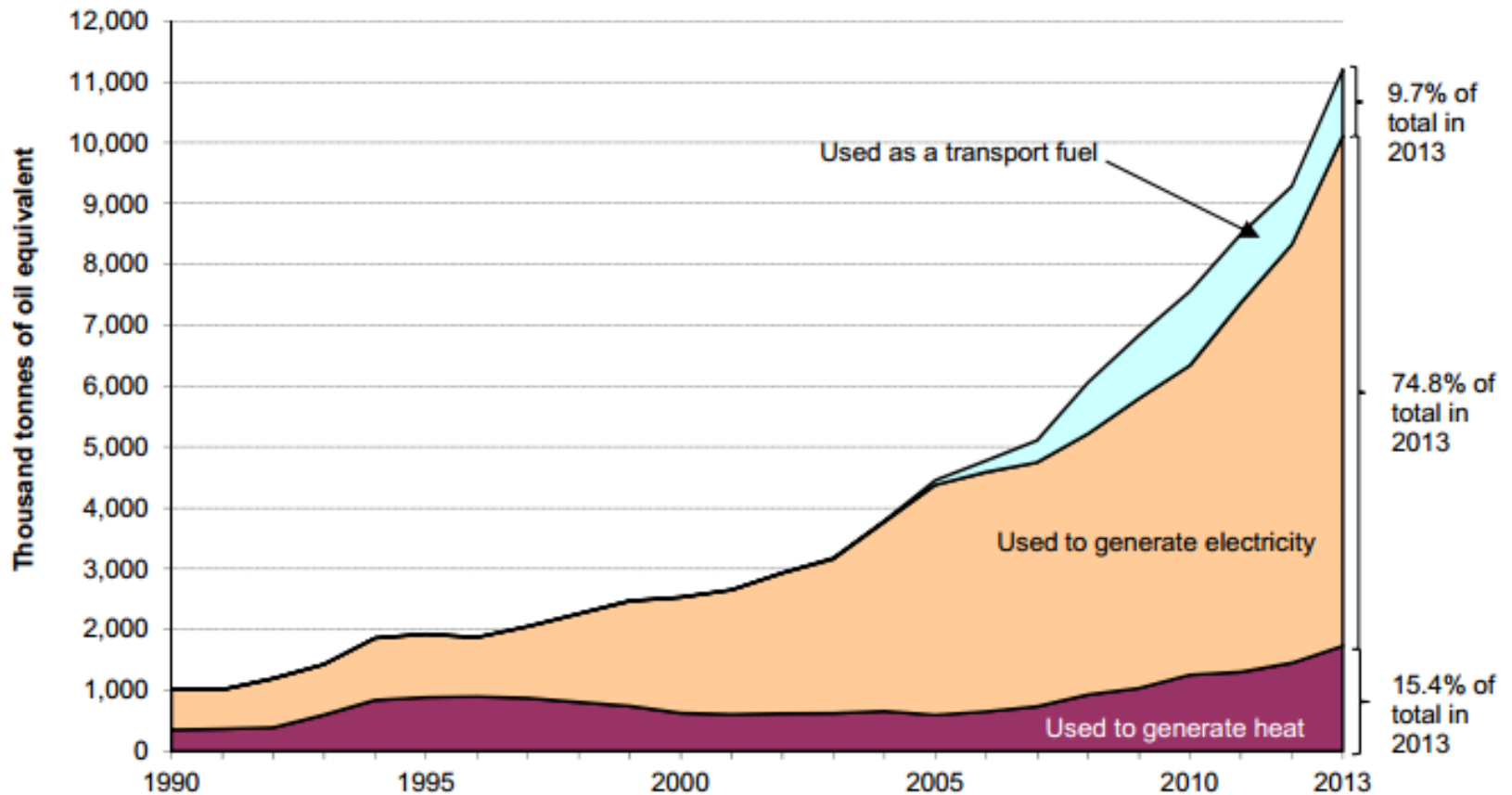
Selected Recommendations

- 'Reduced emissions completions' should be adopted at all stages following exploration
- Monitoring and inspection of GHG emissions throughout process until production techniques fully understood and documented in UK
- Research to develop ever cleaner extraction techniques
- Research to monitor methane emissions



And HMG remains committed to renewables and improved efficiency

Chart 6.1.1: Renewable sources used to generate electricity, heat and for transport, 1990 to 2013



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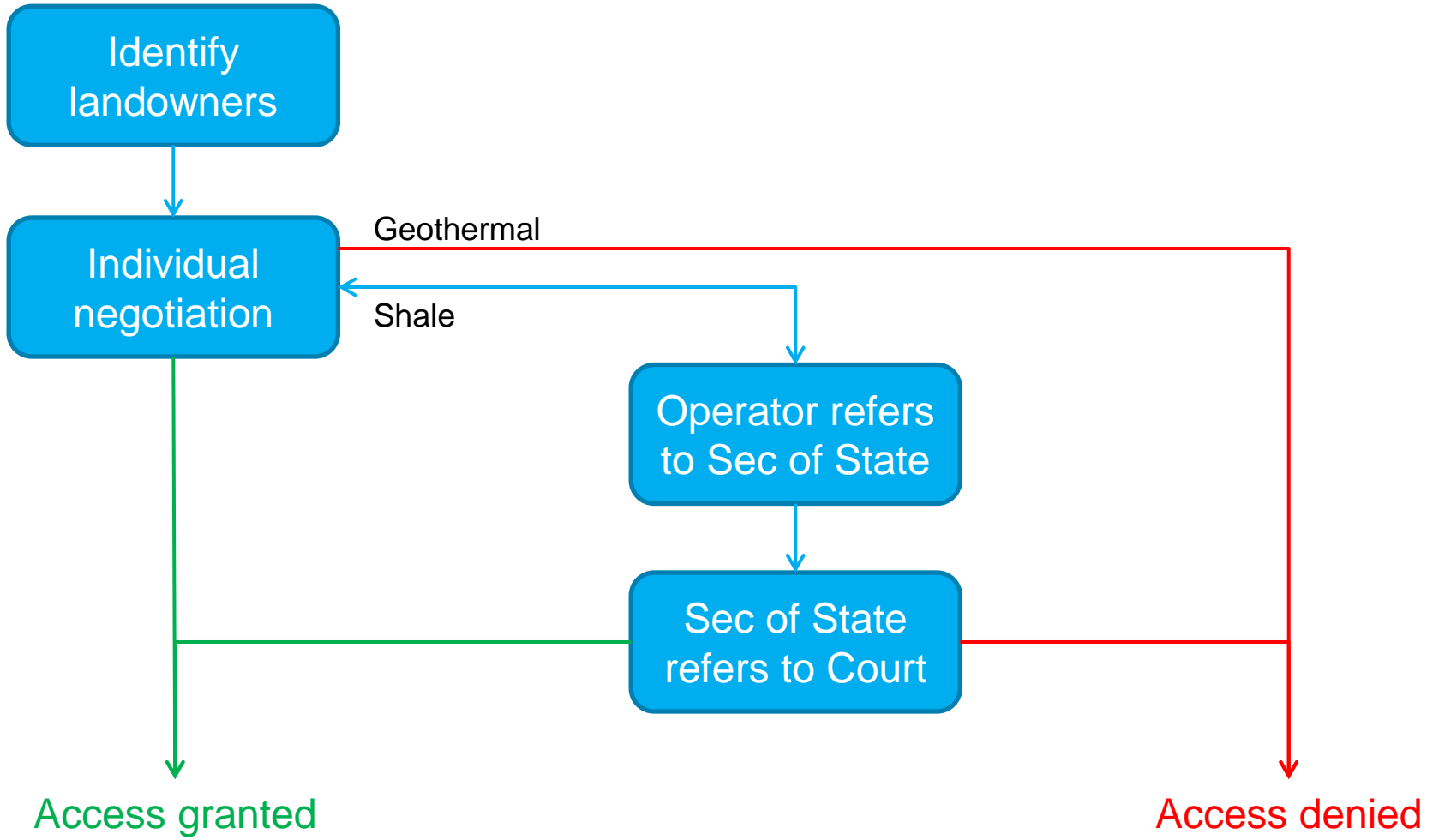
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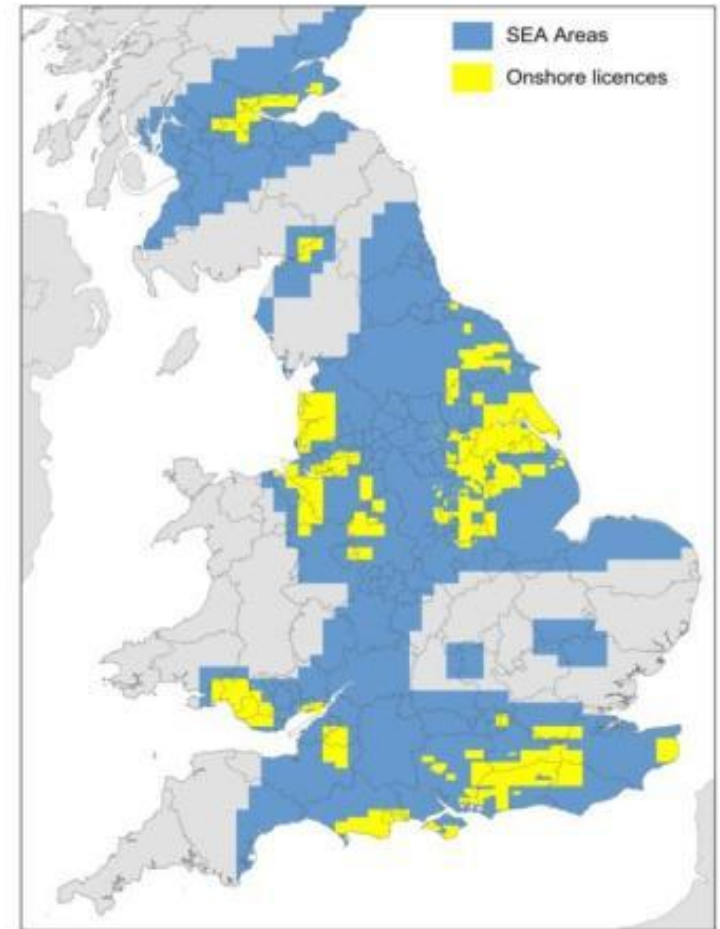
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Current access powers



HMG promotes development

- **Licensing** - DECC conducting a Strategic Environmental Assessment (SEA) and launched 14th licence round. This has now closed and DECC hopes to be able to announce licence offers in the early part of 2015.
- **Tax** – A new planned pad allowance will reduce the tax paid on a portion of a company's income from 62% to 30%.
- **Rates** – Extend 100% business rates retention to shale production sites (in England)
- **Access rights...**



Underground Access proposal

Our proposal currently going through Parliament would ***significantly simplify the existing procedure***, whilst ensuring that key features (such as payment) are retained.

1. Right of underground access

Granting ***underground access to land below 300 metres (nearly 1000 feet) from the surface*** to companies exploring and/or extracting oil, gas or geothermal energy.

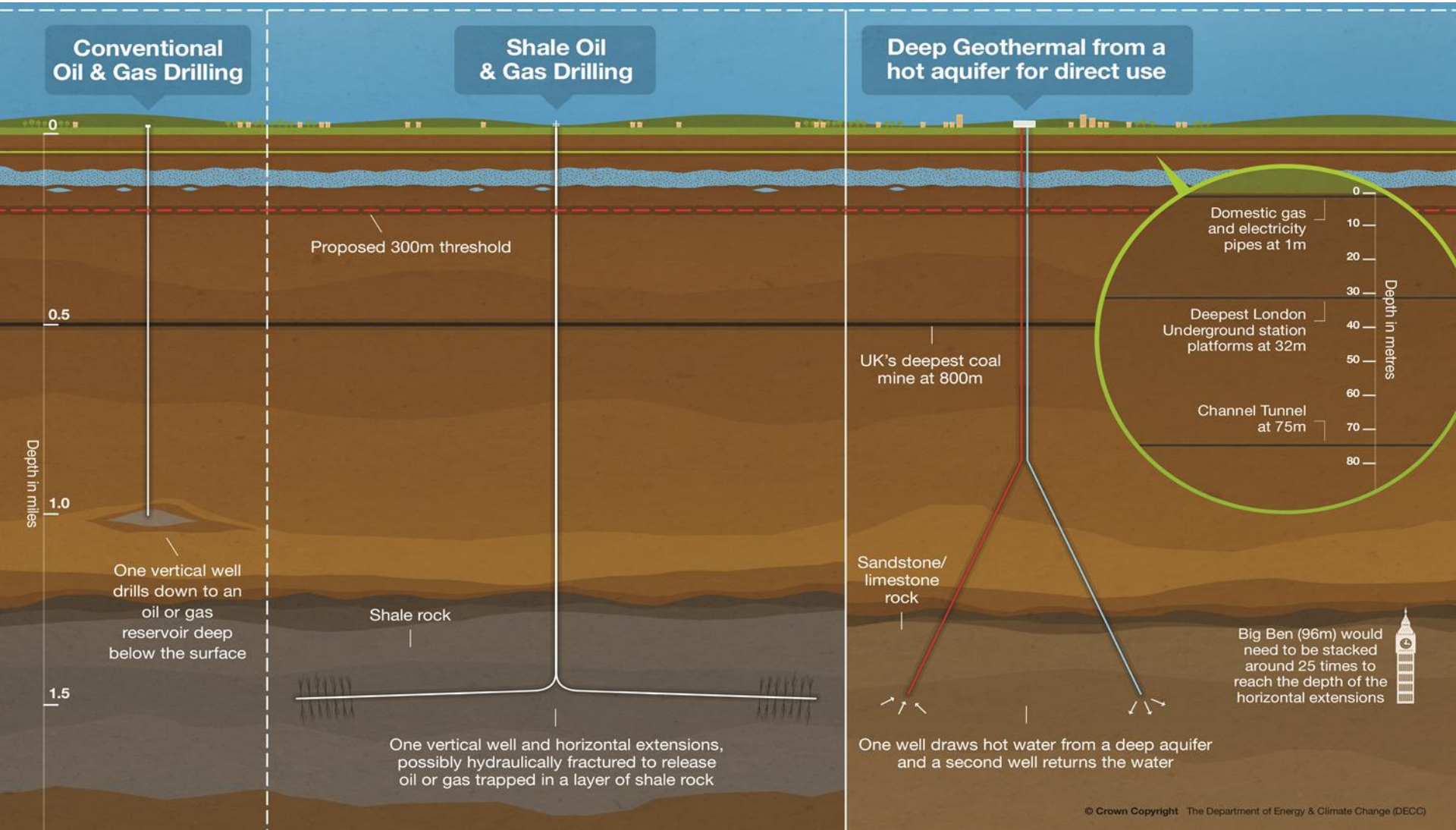
2. Payment in return for Access

People living above underground drilling receive a payment from the company in return for the right of access. Industry has put forward a voluntary offer for a payment system, made at ***community level***. This will be a ***£20,000 one-off payment*** for each unique lateral (horizontal) well that extends by more than 200 metres. [subject to a reserve power]

3. Notification system for the community

The community informed via a ***voluntary public notification***, under which the company outlines matters such as the ***relevant area of underground land, coupled with details of the payment*** made in return for access. [subject to reserve power]

Access rights & depth in context



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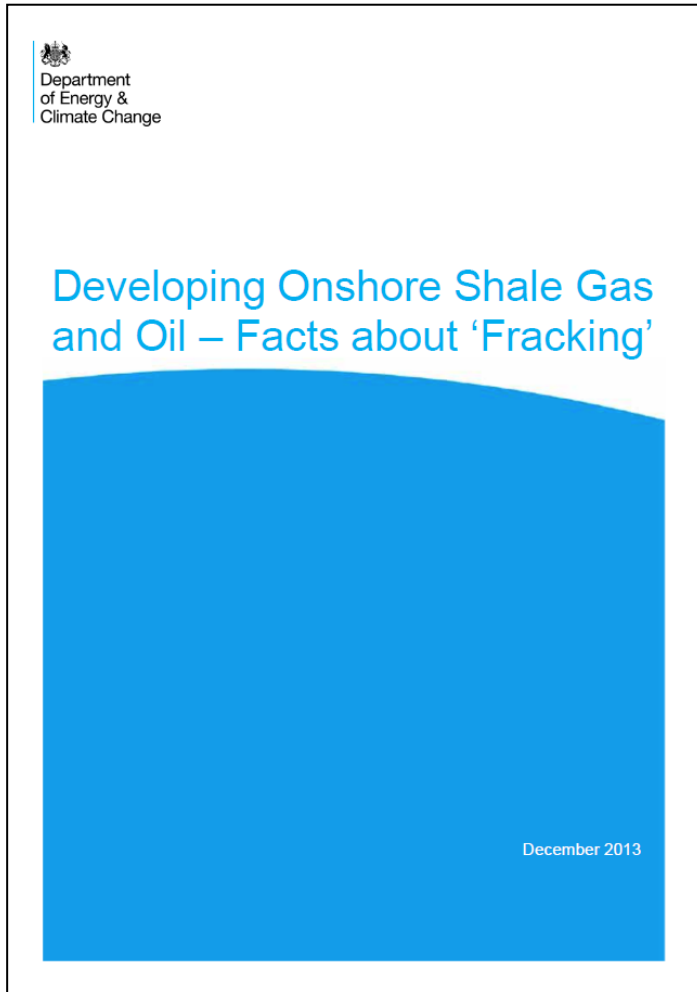
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Informing the public

www.gov.uk/government/news/next-steps-for-shale-gas-production



Plus detail leaflets on:

- Regulation and monitoring
- Planning permission and communities
- Water
- Local air quality
- Understanding earthquake risk
- Safety from design to decommissioning
- Climate change

Conclusions

- **We need gas** - bridge to a low-carbon future, with role to 2050 and beyond
- **UK shale gas** provides potential for energy security, economic growth, job creation and tax revenues
- Industry is subject to **robust regulation**
- Greenhouse gas **emissions** lower than imported LNG
- HMG fostering development
- Industry committed to **early community engagement**
- HMG providing information for constructive debate



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Thank you for listening

www.gov.uk/government/policy-teams/office-of-unconventional-gas-and-oil-ougo
www.gov.uk/oil-and-gas-onshore-exploration-and-production