SHALE GAS (FRACKING) Working Group

Briefing - Licensing and Council Controls

Merseyside Environmental Advisory Service

Purpose of the Presentation

1. Brief introduction for Working Group
2. Overview of Licensing
3. Overview of Regulatory Framework
4. Summarise the Regulatory role of Sefton Council (Planning)
5. To facilitate discussion

What is Shale Gas?

- Shale Gas is Natural Gas (methane)
- It's called shale gas because it is found trapped in shale rock
- Shale is a sedimentary rock with high organic content
- In the right conditions of temperature and pressure, the organic content is converted to natural gas
- Known as 'unconventional' resource because the gas is not found collected in natural reservoirs

GAS MATURE SHALE

BGS Study of Bowland Shale: 37.6 trillion m^3 'gas in place' (median estimate). Recovering 10% would supply c.39 years of current UK gas usage.

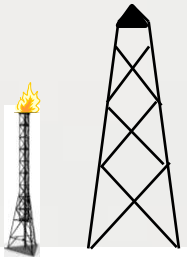
Why is it Relevant to Sefton / LCR?

How is Shale Gas Extracted?

- By drilling a vertical well to into the shale deposit
- Then directional horizontal drilling along the shale bed
- Then ‘hydraulic fracturing’ (‘fracking’) to create and keep open fissures in the rock
- Collecting the gas that escapes into the well from the open fissures

Well Pad Dimensions

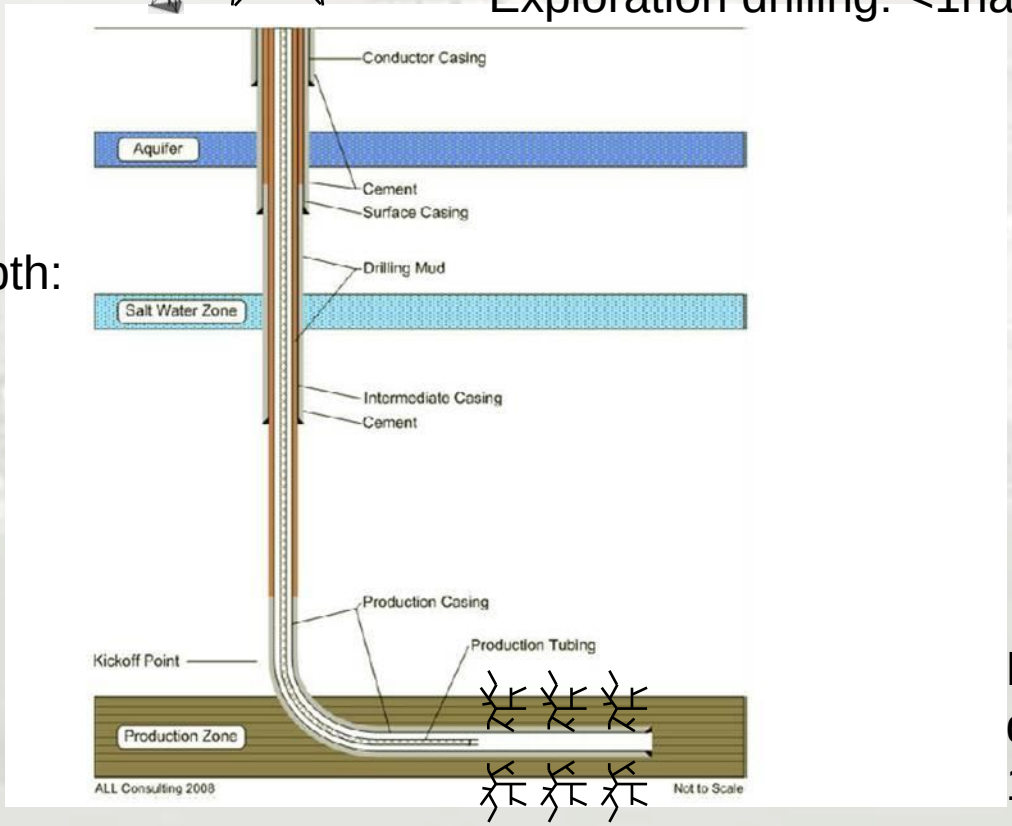
Structures:
Drilling – 20m rig
Production – 10m flare



Production: 2-3ha.

Fracking: 2-3ha. pad
+ up to 5ha. storage

Exploration drilling: <1ha.



Vertical drilling depth: upper shale unit 2.5 kilometres and 150m thick.

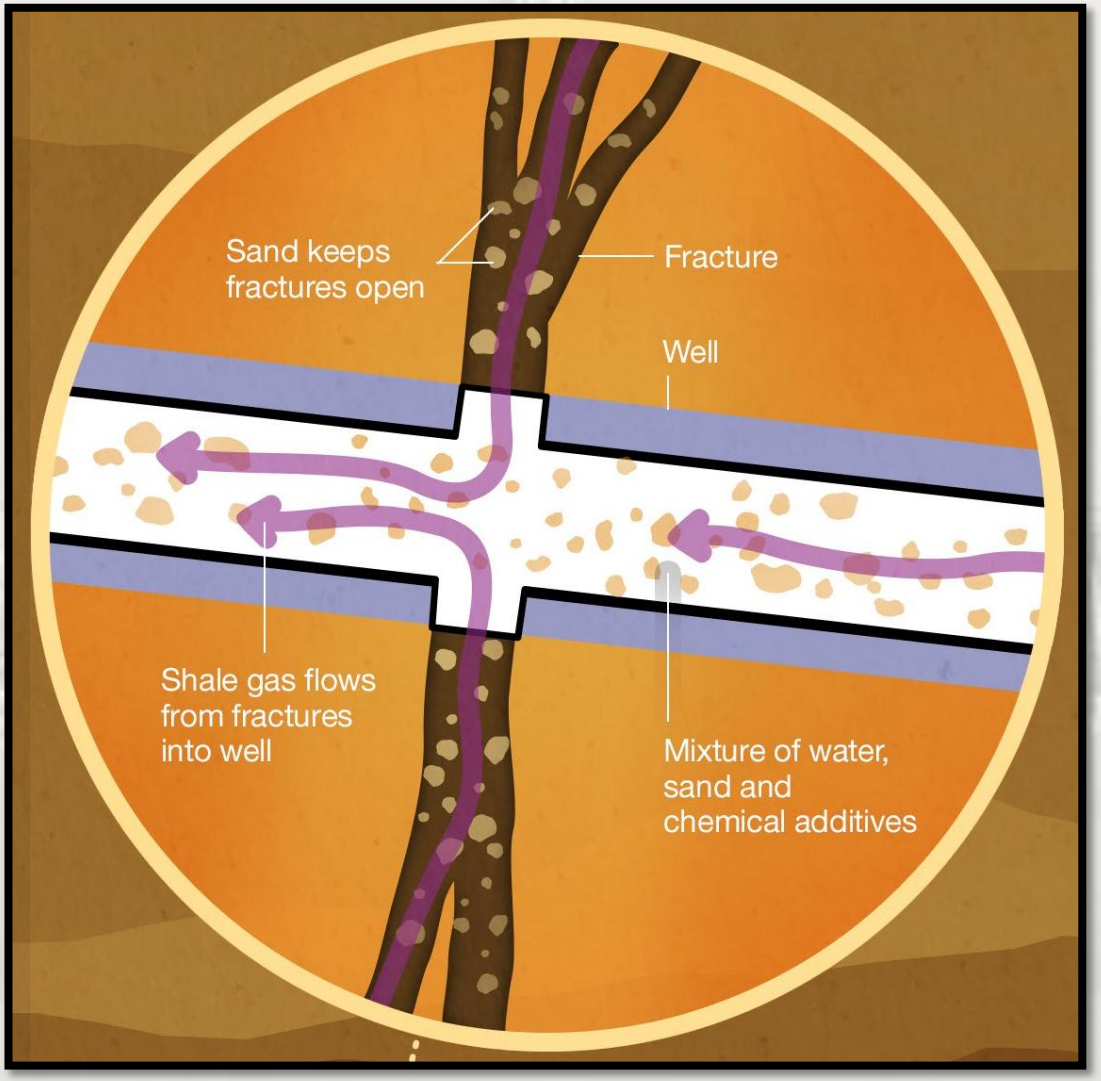
Vertical drilling depth: lower shale unit >3 kilometres and 1000m thick.

Horizontal drilling distance: max. 1.5km currently

Fracturing: ca. 200-400m <u>in all directions</u>

Fracking: What Does it Involve?

Hydraulic pressure:<=5000 psi



What Does a Shale Gas Site Look Like?

Cuadrilla operation at Preese Hall Farm

What Does a Shale Gas Site Look Like?

Cuadrilla site at Banks, near Southport (West Lancashire Borough)

10-well production pad on the Fylde (Cuadrilla – artist's impression)

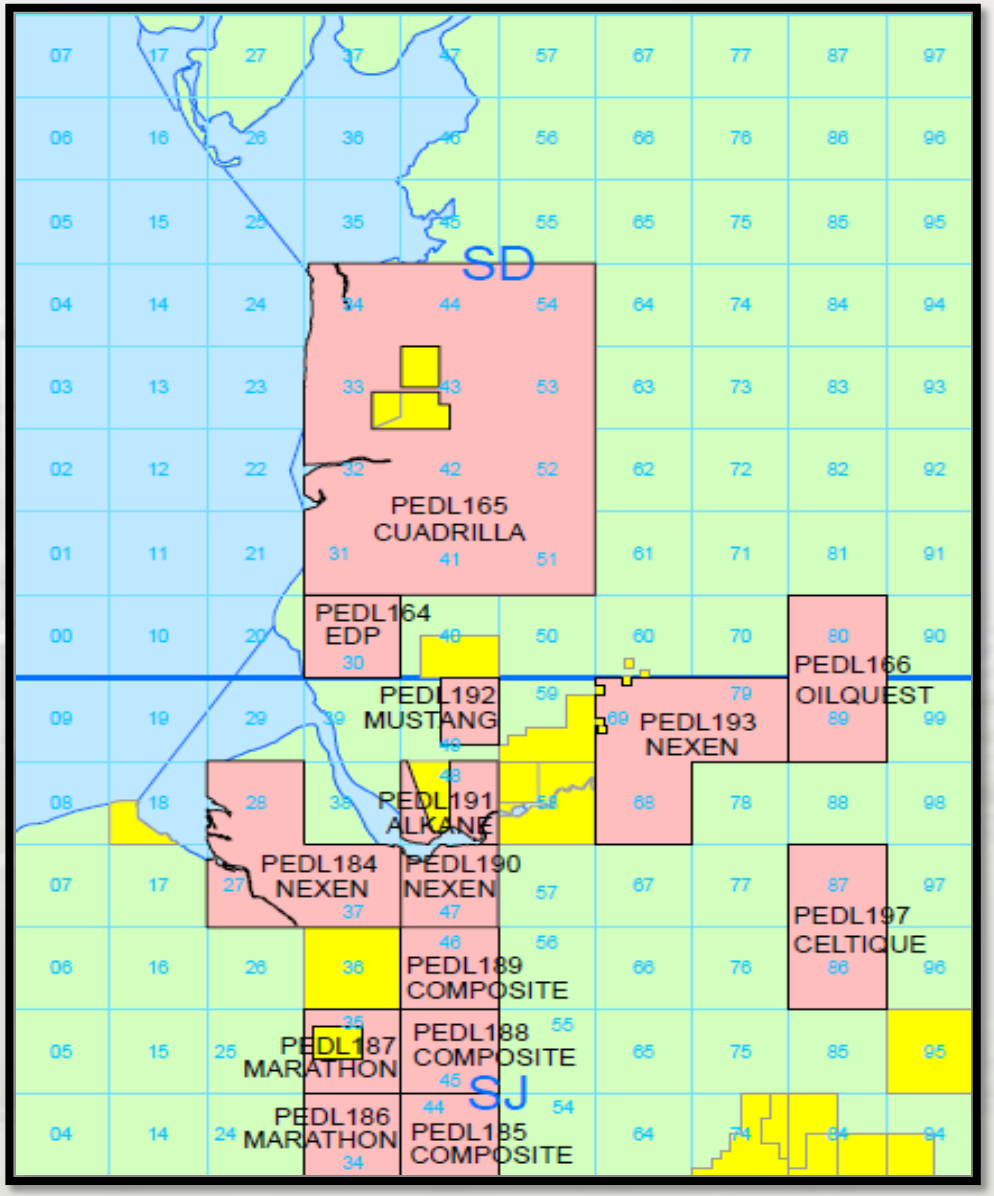
Shale Gas - Impetus

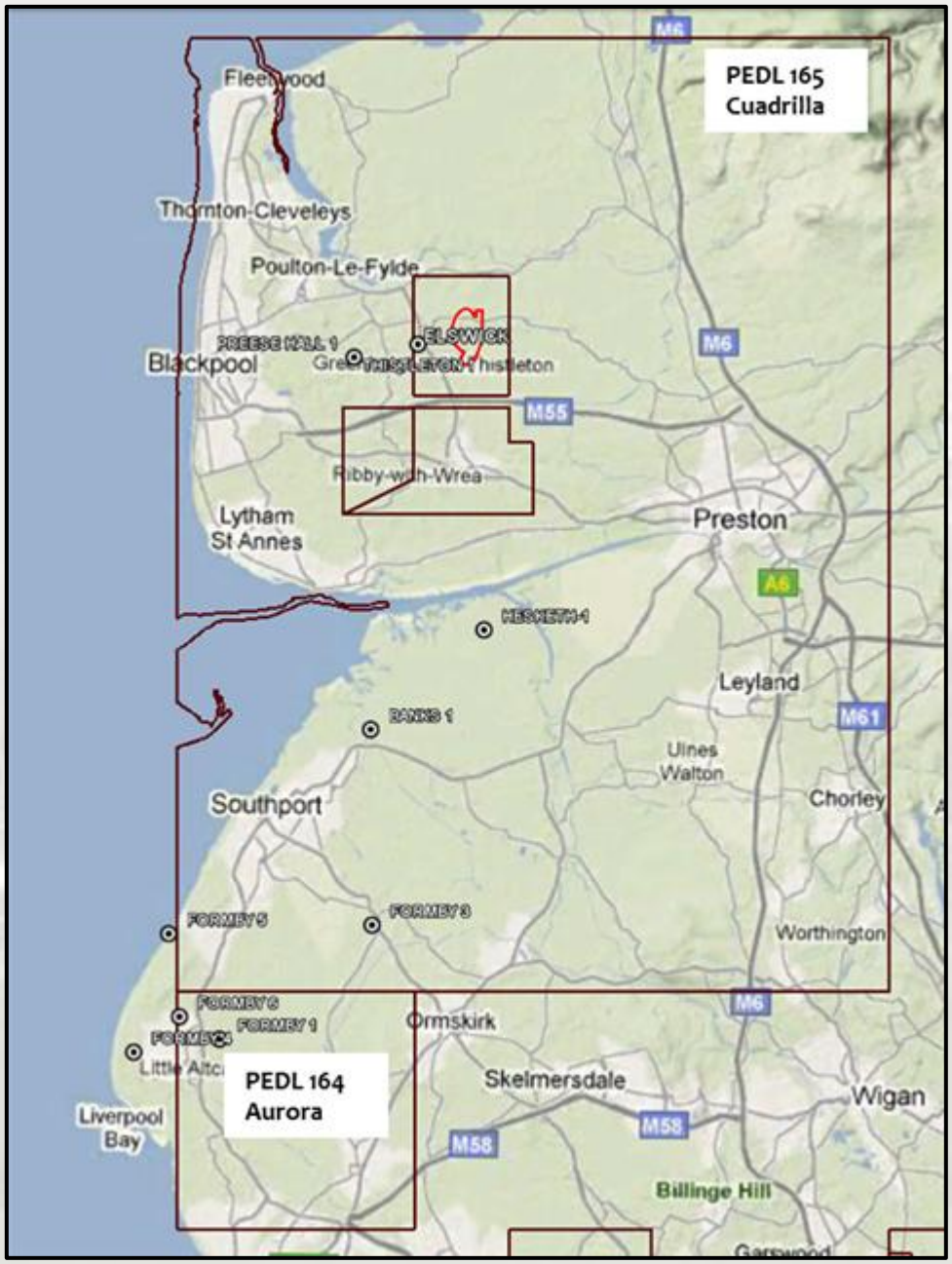
"Shale gas is part of the future. And we will make it happen." – George Osborne (2013 Budget Speech)

"A key part of our long term economic plan to secure Britain's future is to back businesses with better infrastructure. That's why we are going all out for shale. It will mean more jobs and opportunities for people, and economic security for our country" – David Cameron (quoted on the DECC web site)

Why is it Relevant to Sefton / LCR?

BLOCKS ALREADY LICENSED





Aurora Resources and PEDL 164

"The play is characterised by very thick prospective shales, up to 10x thicker than in most US shale plays."

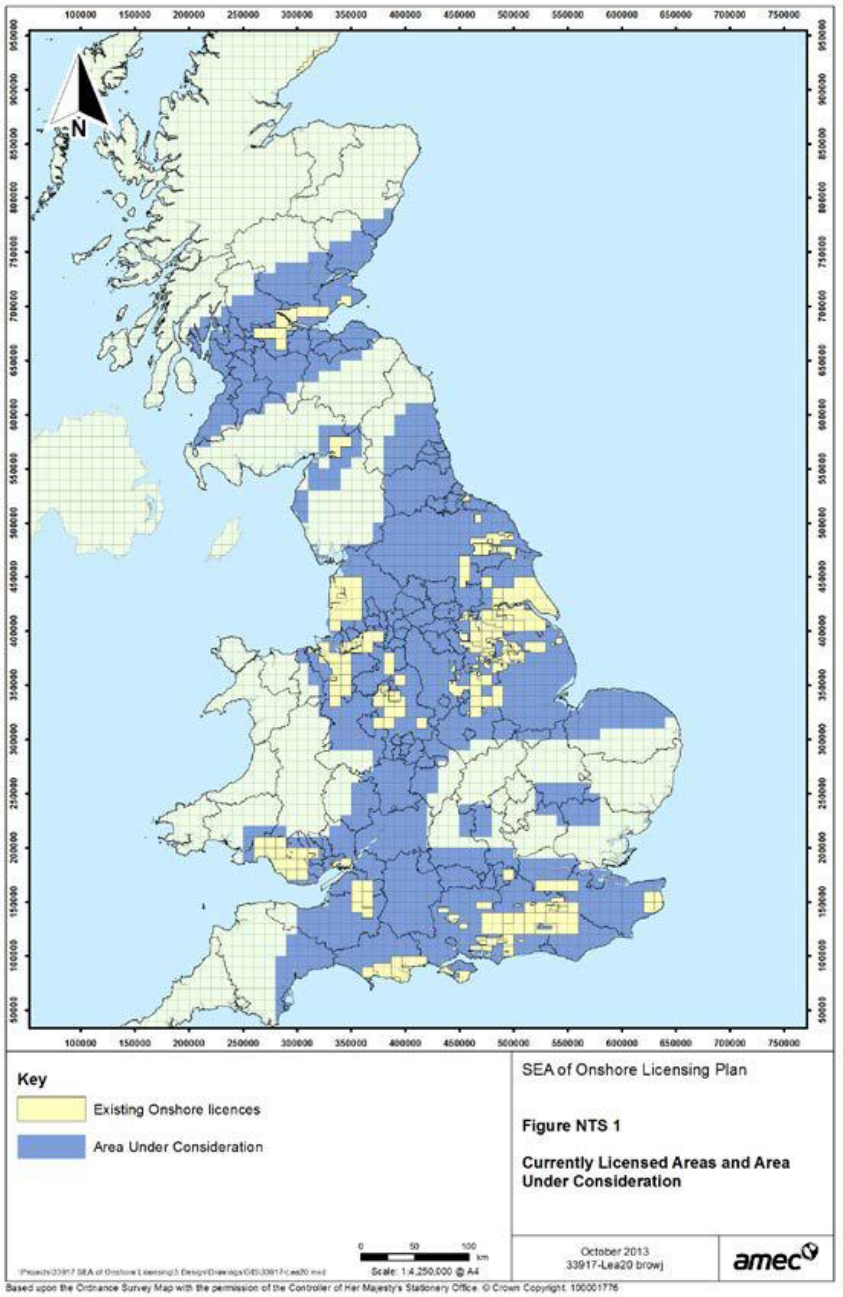
"Recent geochemical analysis conducted by Aurora Petroleum has confirmed the presence of both oil and gas prone source rocks within the shale section."

Seismic survey proposed in the Summer of 2014, will take place in 2015.

Shale Gas – New Licensing Round

- Most of Sefton already covered by existing licenses.
- New licensing round closed on 28th October 2014.
- Closed bidding process.
- DECC announcement of award of licences in ‘early 2015’.

Plan taken from “Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing – Environmental Report” (Amec Environment and Infrastructure UK Ltd, December 2013)



Why is Shale Gas Controversial?

Concern over Environmental & possible Health Impacts:

- Pollution – e.g. Flaming tap water (USA)
- Induced seismicity (earthquakes) – e.g. Blackpool

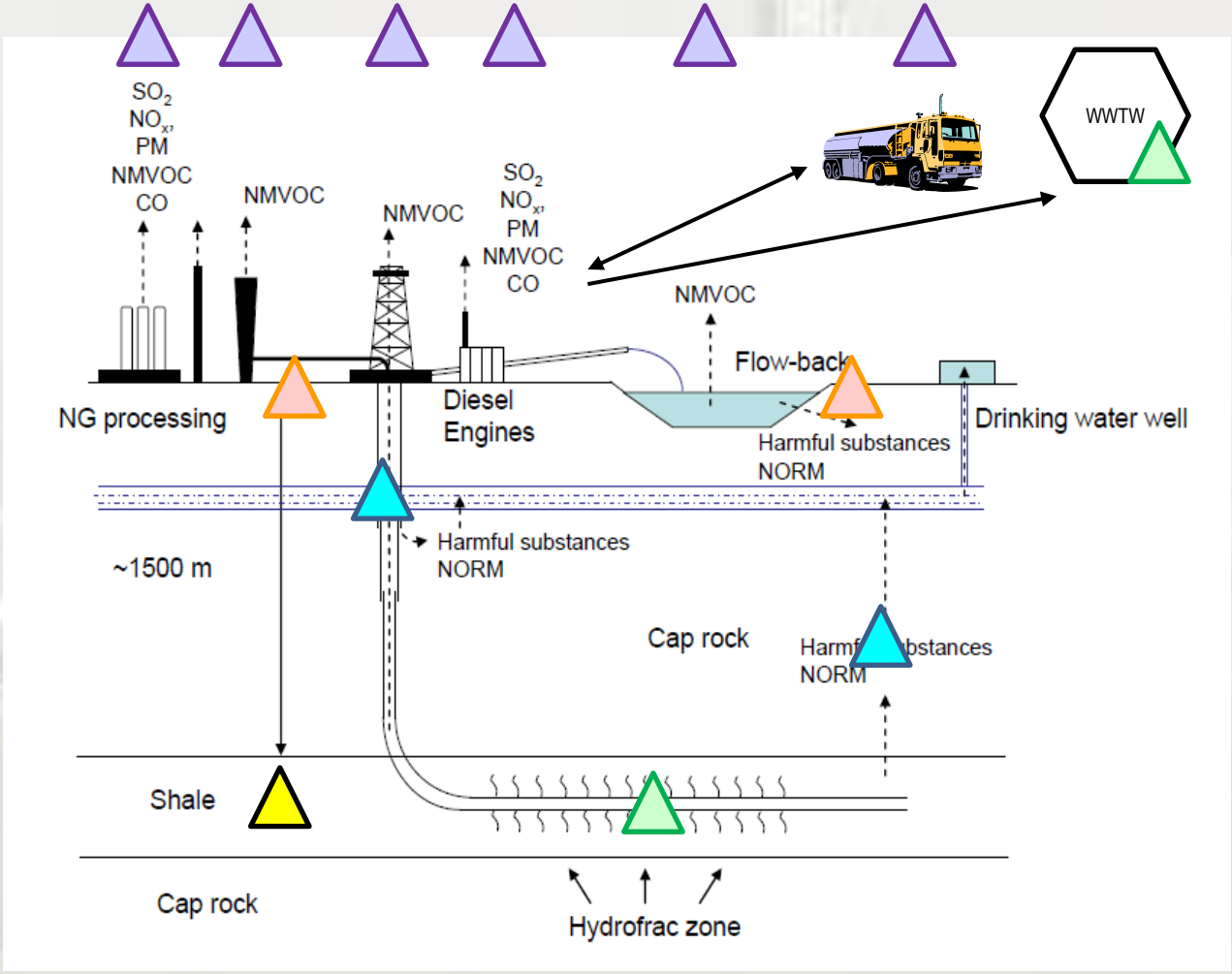
More generic local concerns, such as:

- Green Belt & countryside
- Visual intrusion, noise
- Flaring and gas emissions
- Traffic – construction, waste water, export of gas
- Water consumption
- Loss of agricultural land
- Electricity connection
- Competing land use
- Health and well-being

3 stages:
Exploration – Appraisal – Production

- Exploration checks for the presence of gas.
- Appraisal tests potential for commercial operations.
- Production takes gas for commercial purposes.
- A single site can require repeated drilling and fracking operations to be exploited to its full potential. Industry seeks to create a continuous flow of gas.

SPECIFIC ENVIRONMENTAL IMPACTS



- Groundwater contamination
- Contamination at the surface
- Emissions to atmosphere
- Water use & disposal
- Unintended seismicity

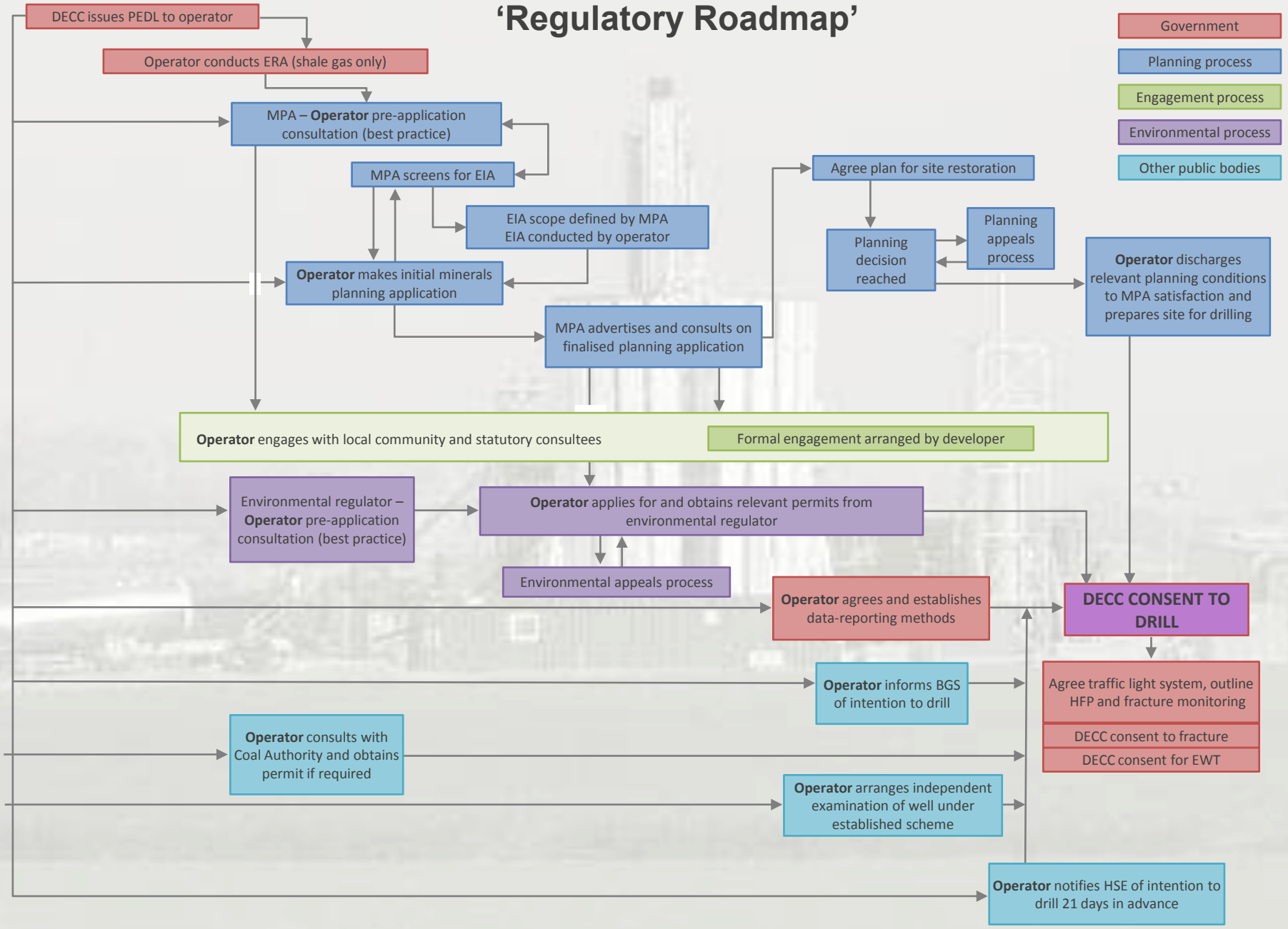
What Does the National Planning Policy Framework Say?

"When planning for onshore oil and gas development, including unconventional hydrocarbons, clearly distinguish between the three phases of development (exploration, appraisal and production) and address constraints on production and processing within areas that are licensed for oil and gas exploration or production" (para 147)

Planning Practice Guidance – Other Regulators

- DECC - issues Petroleum Licenses, gives consent to drill under the Licence has responsibility for monitoring seismic activity.
- Government can issue consent for Nationally Significant Infrastructure Projects (PINS) e.g. multiple shale gas development.
- There are also permitted development rights for operators such as seismic survey.
- Environment Agency – Environmental Permitting to protect water resources, ensure appropriate treatment and disposal of mining waste, emissions to air, and suitable treatment and management of any naturally occurring radioactive material.
- Health and Safety Executive - regulates the safety aspects of all phases of extraction.
- The Coal Authority, Natural England, British Geological Survey and Hazardous Substances Authorities may also have roles, depending on circumstances.

The Regulatory Process – From the DECC 'Regulatory Roadmap'



New Planning Practice Guidance

"*Planning permission is one of the main regulatory requirements that operators must meet before drilling a well, for both conventional and unconventional hydrocarbons*."

"*The Planning and other regulatory regimes are separate but complementary… the focus of the planning system should be on whether the development itself is an acceptable use of the land, and the impacts of those uses, rather than any control processes, health and safety issues or emissions themselves where these are subject to approval under other regimes*."

Planning Practice Guidance for Onshore Oil and Gas, CLG, July 2013

What Minerals Planning Authorities <u>Should Not</u> Consider

- Need or alternative energy supply sources
- Risk to groundwater (Environment Agency)
- Mitigation of seismic risk (DECC)
- Well design and construction standards (HSE)
- Operation of equipment on site (EA/HSE)
- Waste and waste water management (EA)
- Use of chemicals (Environment Agency)
- Flaring and venting (DECC/Environment Agency)
- Integrity of decommissioned wells (HSE)

Development Management Principles

- Mineral Planning Authorities such as Sefton will have a role, through the Planning system, as one of the principal regulators of the industry.
- **MPAs are not expected to duplicate** work carried out by other regulators such as the Environment Agency.
- Information requirements need to comply with national policy e.g. validation lists or be justified through the Local Plan.
- Operator required to produce Environmental Risk Assessment (ERA) to inform pre-app discussions.
- **Planning consent needed at each stage -** exploration, appraisal and testing, production.
- Planning decisions can only be based on matters material to determination of the application before them.

Sefton Council's Role in Decision Taking

- Award of a Licence Block still requires planning consent for exploration, appraisal and production activities.

- Minerals Planning Authority and Competent Authority.

- Normal consultation procedures apply.

- Sefton could set out its expectation of industry through its Local Plan policy e.g. assessments and information.

Mineral Planning Applications

- EIA screening (EIA unlikely for exploratory phase);
- Competent Authority Under Habitats Regulations;
- Minerals Planning Application submitted – issues may include:
  - Location;
  - Water;
  - Noise;
  - Traffic;
  - On-site storage;
  - Waste;
  - Site Restoration and aftercare

  - Groundwater (primarily EA);
  - Induced seismicity (primarily HSE).

Could Sefton Set Out It's requirements for Shale Gas and other Minerals Applications?

Yes – through adopted local plan minerals policy.

BUT

Must comply with National policy / framework or be locally justified and found to be sound.

Thank You

Any Questions?

Planning Policy Response

- Local Plan minerals policies should cater for potential shale gas (and other hydrocarbon) development through:
  - Evidence base – resources
  - Evidence base – prior history
  - Evidence base – constraints
  - Proposals maps

"This approach will allow minerals planning authorities to highlight areas where proposals for hydrocarbon extraction may come forward, as well as managing potentially conflicting objectives for use of land"

Para 21,Planning Practice Guidance for Onshore Oil and Gas, CLG, July 2013