Welcome to our public exhibition where you will be able to learn more about Egdon Resources and our plans for developing the well site we operate on land at Lodge Farm, north Wressle.

This operation will be considerably smaller than work we have previously carried out on the site and this exhibition will explain the plans alongside information on the work undertaken so far in more detail.

You can also find out about the local authority planning process and measures we take to ensure that we minimise our impact on the environment and neighbouring communities.

Egdon team members are on hand to provide any information you need and to answer any questions.

A beam pump or ‘nodding donkey’ used to pump fluids to the surface during a production test-phase.
Egdon is a British onshore oil and gas exploration and production company, established in 1997. Following the Government’s recent awards under the 14th Onshore Oil and Gas Licensing Round we will have 42 licences which enable us to explore for and produce oil and gas in a number of onshore locations across the UK. We have several producing sites in the East Midlands, the North East and the South Coast.

Our work in the UK involves exploring underground for areas with the potential to contain oil and gas, collectively known as hydrocarbons, then undertaking drilling and testing operations to determine if there are sufficient volumes of oil and gas in place to develop a site for longer-term production.

Our commitment to being a good neighbour is integral to the way we operate and we work closely with nearby communities to understand local concerns, mitigate any potential disruption and keep people updated about our operations.

We also strive to ensure that our impact on the surrounding environment is minimised by fully assessing each site prior to construction, building in robust pollution prevention measures and continually monitoring our operations in line with strict industry regulations.

Egdon is a member of UKOOG (United Kingdom Onshore Oil and Gas), the representative body for the onshore oil and gas industry in the UK, which promotes best practice in all operations. UKOOG has also established a community engagement charter which encourages open and transparent communication between the industry and neighbouring communities.
Oil and gas are important energy sources for the country, powering our homes, vehicles and many essential industries. However with reserves in the North Sea declining, together with the increasing issues and cost of importing energy, it is critical that the UK provides its own source of home-grown energy.

Oil plays a vital role in the production of all manner of plastics and products we use every day, from computers to detergent bottles, while gas provides the main source of energy for heating our homes and businesses.

Technological advances, electric vehicles, increased energy efficiency and energy from renewables will all affect the way energy is produced and used. But, in spite of these advancements, they are unlikely to have any significant impact on the UK’s energy mix for many years and security of supply remains a key issue for the country. Our work to produce oil and gas will help to provide the UK with secure energy supplies, reduce the need for imported oil and deliver local economic benefits.
A 3D seismic survey of the local area in 2012 revealed numerous potential oil and gas bearing rock formations beneath the site and, in June 2013, we received temporary planning permission from North Lincolnshire Council to drill an exploratory conventional oil well at Wressle.

The site was constructed in 2014 and exploratory drilling of a single well took place down to a depth of 2,240m during that summer. Results indicated that three separate reservoirs - the Ashover Grit, the Wingfields Flags and the Penistone Flags formations - had oil or gas present.

During 2015, two separate test phases were undertaken to evaluate whether there were commercially-viable quantities of oil or gas present. These tests were successful and indicated that it may be possible to recover more than two million barrels of oil.

Production at Wressle is currently expected to be phased, with initial development focused on the Ashover Grit oil reservoir.
Where is the site?

Our Wressle site is located at Lodge Farm to the north of Wressle and falls within our PEDL180 licence area. It is under the jurisdiction of the nearest Minerals Planning Authority, North Lincolnshire County Council.

The site was carefully selected in 2013 because it is technically feasible to drill between the surface location and the underground target formations.

It is situated on private land within an existing working farm area, and is relatively remote in terms of visibility from Broughton Common, Broughton and Wressle. The site is well-screened by woodland and hedges, is not near any environmentally sensitive areas and is about 0.5 miles away from public footpaths and bridleways.

As such, the site has minimal impact on the closest residential communities and the environment.

The site location map below shows the site, together with the approved route for HGV traffic.
The next stage

The main site is already built, so we plan to add some enhanced environmental protection facilities and install the equipment needed to produce oil from the well. The installed facilities will be very similar to the picture below – there will be a pump unit, storage tanks, a gas flare and associated production equipment. We expect that there will be some gas produced along with the oil, so we intend to use this to generate electricity and export it back into the main electricity distribution system.

During the test in 2015 it was apparent that the oil in the deepest producing formation, the Ashover Grit, did not flow to its full potential due to the impact of the drilling mud on the sandstone.

To overcome this issue, we plan to undertake one or all of a number of standard oil field operations:

- Drilling of a short side-track well
- Radial Drilling
- Proppant Squeeze
- Acidisation

These are summarised as follows:

**Drilling**

A drilling operation to drill out from the existing well, horizontally, into the oil-bearing rock to increase production.

**Radial Jetting**

Drilling of drain holes using high-velocity fluid jets through a rotating nozzle, creating small boreholes of 1-2 inch diameter, each up to 100m in length within the producing formation.

**Proppant Squeeze**

A slurry of sand and gelled water is pumped under pressure to create channels of communication (fractures) in the near wellbore, and the sand then acts as the “proppant” to support the fractures and enable oil flow.

This is a small-scale standard oilfield operation which historically has taken place elsewhere in Lincolnshire (e.g. nearby Crosby Warren well). It should not be confused with high volume hydraulic fracturing (“fracking”) that is proposed in other areas for shale gas or oil – this part of Lincolnshire does not have the specific rock-formations that contain shale gas or oil. The area of rock that would be affected by this process extends in a radius of a few tens of metres from the wellbore.

**Acidisation**

A low concentration of acid solutions can be used to “clean” the formation for production. This would involve small volumes of dilute acids being injected into the well, left to “soak” for a few hours and then flowed back for collection and disposal.

It is likely that we will undertake one of the above processes then begin production, with the other options over a period of time. Once complete, we are confident that this will result in flow from the formation reaching its full potential.
How will activities at Wressle affect me?

We work hard to have excellent working relationships with the communities in which we operate and our recent work near Louth and Laughton is testament to this approach.

Traffic

We have set out below some key details in relation to the different development phases, in terms of how long the activities will take and the likely number of HGV movements. HGV movements will only be permitted during daytime hours, with restrictions at weekends and on bank holidays and there will be an approved HGV route to the site.

Although the information below details the HGV movements that may be associated with each activity, the actual operation activities will be:

1. Civils/construction
2. Installation of production equipment
3. One of the standard enhancement techniques: side-track well drilling, radial drilling, proppant squeeze or acidisation
4. Production

Noise

We do not expect any noise impact on nearby properties. We received no complaints on noise impact during the drilling and testing in 2014 and 2015, and we will be undertaking noise monitoring during the operational phases to ensure that we do not breach any statutory noise thresholds.

Lighting

Once production starts, there may be the need for 24hr operation for the first few weeks, so low-level lighting would be needed to ensure safety. However it is unlikely that this will be intrusive or will impact on local properties given the existing natural screening around the site. During normal production operations the site would be manned during the daytime with lighting only required during winter months or when there is an urgent operational need.

We monitor noise to ensure there is no impact on our neighbours.
We are proud of our record on environmental issues and have an established Environmental Management System that covers all of our operational activities. Some of our key protection measures are detailed below.

**Land**

All of our sites are built to high standards of environmental protection, using an impermeable membrane (specialist clay-based or plastic sheeting) under the site surface to ensure that the land beneath is completely unaffected by our operations. In addition, containment ditches around the site are designed to contain fluids. All storage tanks will be located inside purpose-built bunds, designed to approved construction standards and sized to ensure that they can contain all oil in the unlikely event of a leak.

**Watercourses**

A specialist surface water interceptor will be installed to prevent any flood risk and ensure that any discharged water is clean. The local stream will be monitored for water quality.

**Groundwater**

We will be installing a number of groundwater monitoring boreholes on the site, to a depth of c.50m. This will enable us to sample and analyse groundwater quality both before and during our operations to ensure that activities on site are not having any detrimental impact.

**Air Quality**

We intend to use any gas to generate electricity which will be exported back into The National Grid. A small flare will also be installed as a backup. There will be a monitoring process in place to measure and quantify any emissions from the site.
Environmental protection

All of our operations will be undertaken in line with conditions imposed through the Environmental Permitting Regulations and planning permission. We will also be subject to regular inspections and audits of our activities by the local authority, Environment Agency and the Health and Safety Executive. This is to verify that we are managing the site in accordance with all legal and regulatory requirements and not adversely impacting on the surrounding environment.

Any chemicals that we propose to use in our operations will be subject to a process of review and approval by the Environment Agency before they can be used.

The environmental permitting process in the UK is thorough and stringent, and we have many years’ experience in designing, building and operating onshore oil and gas sites to the highest standards. The joint approach of a rigorous permitting regime and our commitment to environmental protection means that you can be confident that our sites will be managed responsibly and professionally.
Environmental studies

For each site, we commission a number of studies and assessments to examine the potential effects of our planned operations. These typically include:

• Noise
• Ecology
• Landscape and visual impact
• Traffic and transport
• Flood risk, geology and pollution control

The studies are undertaken by respected, independent environmental specialists and will be submitted as part of our planning application. As the assessments are independent they help inform the planning decision process and may feed through into specific planning conditions to manage potential impacts.

In addition, a specialist hydrogeological risk assessment can be used to understand the sub-surface and to ensure a full assessment of any potential risks to underground aquifers and groundwaters. This work feeds into any requirement for monitoring boreholes, where the quality of the groundwater beneath the site can be monitored both before and during operations.
Safety

As a responsible operator, Egdon is committed to high standards of health, safety and environmental performance. As a member of UKOOG, the representative body for the UK onshore oil and gas industry, we are committed to ensuring that the highest standards of industry practice are maintained across all of our sites.

All of the operations we undertake on our sites are designed and managed with robust and interlinked safety management systems to ensure that there are limited risks to people, both on site and in the local community, and the environment. A full safety risk assessment is undertaken that identifies all of the key risks and this feeds into all of the control and mitigation measures and procedures that we implement on site.

We use skilled, knowledgeable and professional contractors with many years' experience in onshore oil and gas production, and we have been drilling and operating onshore oil and gas sites for many years, with an excellent safety record.
What happens next?

We plan to submit a planning application within the next few weeks to seek planning permission to facilitate the development of the site into a longer-term oil production facility.

Our operations at Wressle will not, either now or in the future, involve the process of hydraulic fracturing (“fracking”) for shale gas or oil. This part of Lincolnshire does not have the specific rock-formations that contain shale gas or oil.

We will seek approval to produce from the site for 10-15 years. The actual timespan for production depends on oil volumes and how they decline over time, so we will also seek permission to drill an additional well in the future, if one is needed, to enhance production rates.

Following the submission, you will be able to view the application and submit comments to the council’s planning department. Any comments received will be considered alongside the application, feeding into the decision as to whether or not to grant consent.

The onshore oil and gas industry is stringently regulated by the Oil and Gas Authority (OGA) Health and Safety Executive (HSE) and the Environment Agency (EA), so detailed plans will need to be submitted to enable the review and issue of a number of permits and approvals that need to be in place before any operations can begin on site. The Environmental Permit process is also open to public comment, so all documents submitted will be available to view and we will make these available via our website:

www.egdon-resources.co.uk/project-sites/wressle

We strive to be good neighbours and your views are important to us. We are keen to understand your thoughts about this exhibition, and to listen and address any questions or concerns you may have so please feel free to approach the Egdon team members here today.

Thank you for attending our exhibition, we hope that you have found it informative.