Successful Impact Assessment of First of a Kind Projects

Shell U.K. Limited (Shell), with SSE Generation Limited (SSE), recently submitted a full Planning Application to Aberdeenshire Council under the Town and Country Planning (Scotland) Act 1997 covering the onshore elements of the proposed Peterhead Carbon Capture and Storage (CCS) Project. ERM led the planning application and EIA/ES for the Project.

First of its Kind

The Peterhead CCS Project would be the world’s first commercial scale full chain CCS Project on a gas-fired power station. The proposed Project would fit a carbon capture plant to an existing gas turbine at SSE’s Peterhead Power Station. Once operational, the plant would capture 90% of the carbon dioxide (CO₂) emissions from the 385 MW gas turbine post combustion. In total, approximately one million tonnes of CO₂ would be captured per year over a period of 10 to 15 years. The captured CO₂ would be compressed and conditioned to remove water and oxygen. It would then be transported 100 km offshore via a combination of new and existing pipelines to the Shell-operated Goldeneye platform in the central North Sea. Once at the platform, the CO₂ would be injected into the Goldeneye CO₂ Store, a depleted hydrocarbon gas reservoir, more than 2 km under the seabed.

The Project has national development status in the Scottish National Planning Framework and sits within the Energetica Corridor, a strategic growth area for energy sector investment.

The planning submission included standard requirements plus those to meet Shell’s internal requirements:

- Environmental Statement incorporating information to inform Habitats Regulations Appraisal;
- Planning Drawings;
- Planning Statement;
- Design and Access Statement;
- Pre Application Consultation Report;
- A Sustainability Report to set out the sustainability performance of the Project and meet Shell’s internal requirements; and
- A Health Impact Assessment in response to feedback received during stakeholder engagement and to meet Shell’s internal requirements.

A separate offshore EIA was submitted to the Department of Energy and Climate Change (DECC) in January 2015.
### Ensuring a Clear Understanding of the Project

Due to the first of a kind nature of the Project, ERM had to work closely with the Project team to develop and communicate a clear understanding of the Project to all stakeholders. Our involvement as an integral part of the public consultation and regulator engagement activities assisted with this process.

Visualisations, including 3D models and photomontages, played an important role to ensure everyone, from the Project team to local communities, could understand the Project. An aerial drone survey of the site proved to be a useful tool for the impact assessment team. Of particular note was the use of the 3D visualisation to work up infographics for the Project, such as the example above. These infographics provided a clear representation of the Project, allowed the detailed project description in the ES to be minimised for the Non-Technical Summary and provided a consistent and visual basis for the full suite of documents supporting the planning application.

Whilst many of these aspects should be undertaken as standard in an EIA, there was heightened importance given the first of a kind nature of this Project.

### Global Collaboration

ERM worked with Shell to combine in-house knowledge regarding aspects of the technology and the proposed Project. The EIA was informed by evidence from other international projects and ERM engaged directly with international organisations. This included detailed technical collaboration with the Norwegian Institute for Air Research (NILU) to help to validate our modelling outputs, drawing from NILU’s experiences at Technology Centre Mongstad.

### Acting on Community Concerns

The potential impact of construction traffic on other road users was a concern raised by the local community. Impacts were proposed to be minimised through development of a construction strategy which would reduce the need for off-site vehicle movements; for instance a concrete batching plant is proposed to be located on site and modular components constructed off-site where possible. Demolition waste from the Project will be reused or recycled with 100% of clean excavated fill material being reused, which would reduce the number of HGV movements required and aligning with Scotland’s Zero Waste Plan. The proposed construction phasing, was rescheduled to reduce the peak flow of construction traffic. The Project also chose to propose a permanent upgrade to the main access junction to the site to improve the safety of right hand turning vehicles.

By refining design parameters and mitigation options with the design team and working closely with statutory consultees regarding assessment methodology, the Project was able to address stakeholder concerns and mitigate impacts whilst progressing a conservative yet robust assessment.

The Environmental Statement and Sustainability Report is available from Shell’s Project Website: http://www.shell.co.uk/energy-and-innovation/the-energy-future/peterhead-ccs-project.html

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