



Shell UK would like to thank the Committee for the opportunity to provide written evidence.

What impact has the decision to end the Carbon Capture and Storage Competition had on the Peterhead CCS project?

Shell is disappointed at the withdrawal of funding for the CCS Commercialisation Competition. We were committed to the Competition which in our view represented a valuable joint programme between industry and Government to develop CCS in the UK.

Shell acknowledges that the Government's decision was made in the context of a difficult spending review. The high cost of developing innovative, first-of-a-kind projects like Peterhead CCS, need strong governmental support– as illustrated by the gradual development of other energy technologies in the past –. In the absence of the Competition and potential funding, we reluctantly concluded that there is no longer a future for the Peterhead project in the near term.

If approved, the Peterhead project would have been the world's first CCS facility fitted to an existing gas-fired power plant. It had the potential to bring huge value, placing the UK at the forefront of this vital technology, and developing knowledge for the benefit of a wider industry. More immediately, the Peterhead CCS project would have in of itself been a large scale contributor to the UK's decarbonisation efforts, generating 400MW of clean, reliable, baseload electricity for 15 years, cutting emissions by up to 90%, and capturing, transporting and storing up to 15MtCO₂. In the short to medium term it could also have been an anchor to develop a CCS hub in the region. The project would have provided significant extra transport and storage capacity, access to which could have enabled significant cost-reductions for follow on projects.

Shell nonetheless remains committed to CCS and continues, as do many others, to see the technology as critical to global decarbonisation, complementing other low carbon technologies including renewables and nuclear power. In the short term we are committed to ensuring that the value from the Front End Engineering and Design (FEED) phase of the project will not be lost. In compliance with the rules of the Competition, the learnings and knowledge gathered from the FEED phase have been (or will be in the case of some final reports to be completed) shared with DECC and published on the DECC website.

How does the decision to end the Carbon Capture and Storage Competition impact on the UK CCS Industry?

While it is too soon to draw any conclusions for the long term, and we note the Secretary of State's recent comments that there is still a future for CCS in the UK, the decision to end the commercial Competition is undoubtedly a setback for the UK CCS industry. Importantly it has delayed the



development of the industry given the foregone transport and storage infrastructure that other follow-on projects could have built on.

There is, however, still excellent work going on – for example in terms of research on all elements of the CCS chain. It is important that the learnings and knowledge from the Competition are shared widely as these will be very valuable in terms of maintaining some momentum around CCS. The UK also remains blessed with one of the largest storage resources in the world, the North Sea, and an established offshore industry. As noted by Sir Ian Wood in his Report on Maximising Economic Recovery from the UKCS, CCS projects in the UK could also create a source of CO₂ that may be suitable in future for Enhanced Oil Recovery.

Against this backdrop, with future collaboration between industry and Government, there remains the potential to build a future industry in the UK. Government and industry must now take a step back and look at what models are needed to encourage CCS development and deployment at a rate which will deliver a tangible impact.

The future role of CCS:

Shell remains committed to CCS, as our involvement in projects in other parts of the world shows, and we continue to view CCS as playing a vital role in the transition to a low-carbon energy future.

The UN IPCC and the Committee on Climate Change models both show CCS to be an important aspect of lowest cost pathways to decarbonisation. Recent analysis by Element Energy and Pöry for the Energy Technologies Institute (ETI) recently calculated that without CCS, the additional costs of the pathway to a decarbonised UK economy in 2050 will be £32billion. The IPCC 5th Assessment Report showed that without CCS, the cost of limiting global CO₂ emissions to 450 ppm could increase by 138%.

In the UK context, we note and welcome the Government's intention for gas to remain a key part of the UK energy mix. CCS is the only technology that can decarbonise gas-fired generation, and will continue to provide the flexible generation that is likely to be an essential part of balancing larger volumes of intermittent generation. CCS also has a potentially vital role in decarbonisation of industrial emissions.

Like other low carbon technologies, to be part of the long term solution, CCS needs to come down the cost curve. Recent analysis by Element Energy and Pöry for the ETI shows that in the context of a deployment programme, there is significant potential for CCS cost reductions (reaching costs of below £100/MWh by 2025). This can be achieved in part by making use of transport and storage infrastructure, and in part through the benefits of scaling up the sector. In our view these two key components indicate that CCS cost-reductions must primarily be built-in, as opposed to bought-in.

CCS Projects with Shell involvement:

Quest (Alberta, Canada):

Shell operated venture with joint venture partners Marathon and Chevron), on a heavy oil upgrader facility, which started up in 2015. Pre-combustion capture. Learning and information is being shared



widely. The project captures 1m tonnes CO₂ per year which is injected into a saline aquifer onshore. The project has received financial support from Canadian Federal Government and the Alberta Government.

Gorgon (Queensland, Australia):

Under construction. The asset will be operated by Chevron, with Shell and Exxon-Mobil as joint-venture partners. Gorgon CCS will capture 3-4million tonnes CO₂ per year. The CO₂ is separated from feed gas and stored in a sandstone aquifer underneath an island.

Boundary Dam (Saskatchewan, Canada)

Now in operation. Boundary Dam uses post-combustion CCS on a coal power plant. The plant is run by Saskpower using Shell's Cansolv capture technologies (Shell not a partner). The plant will capture 1million tonnes CO₂ per year.