Written evidence submitted by The Carbon Capture and Storage Association  
(OGI0025)

Scottish Affairs Committee: The future of the oil and gas industry

Response by the Carbon Capture and Storage Association

The Carbon Capture and Storage Association (CCSA) is pleased to provide evidence to the Scottish Affairs Committee in response to its consultation on the future of the oil and gas industry. The CCSA brings together a wide range of specialist companies across the spectrum of Carbon Capture, Utilisation and Storage (CCUS) technology, as well as a variety of support services to the energy sector. The CCSA exists to represent the interests of its members in promoting the business of CCUS and to assist policy developments in the UK, EU and internationally towards a long-term regulatory framework for CCUS as a means of abating carbon dioxide (CO₂) emissions.

What challenges does Scotland’s oil and gas industry face, and how can they be addressed? Scotland’s oil and gas industry, along with the wider sector, faces a significant challenge in the face of climate change and the Paris Agreement, to demonstrate its relevance to the future low-carbon economy. Failure to do so has major economic consequences; the oil and gas industry supports over 300,000 jobs across the UK with around 38% based in Scotland¹. Climate change, coupled with declining reserves, means the sector will need to diversify if jobs and skills are to be retained.

The Committee on Climate Change (CCC)’s recent report to Parliament stressed that while decarbonisation has been a success in the power sector there has been little progress in heat and transport². Over the next few years, government will be taking critical decisions on how to effectively decarbonise these sectors; most likely through a mixture of electrification and moving towards low-carbon fuels. Furthermore, the Minister for Energy and Clean Growth, Claire Perry, has asked the CCC to analyse the possibility of increasing the UK’s ambition in line with the Paris Agreement, to aim for net-zero emissions by 2050 (compared to the UK’s legally binding target of 80%)³. In a 2016 study, the UK Energy Research Centre concluded that to meet the current 80% emissions reduction target, only 12% of gas used in the UK in 2010 could remain in the system by 2050 in the absence of CCS⁴.

CCUS provides significant opportunities for the longevity of Scotland’s oil and gas sector. Firstly, decarbonising the use of gas, either through post-combustion capture for gas-fired power plants, or through the creation of hydrogen through Steam Methane Reforming (SMR) or Auto Thermal Reforming (ATR) can enable gas to continue to play a role in a near-zero carbon economy. The government is currently considering the use of low-carbon hydrogen in the existing gas networks as an option for wide-scale decarbonisation of UK heating including industrial use. CCUS will be crucial to producing low-carbon hydrogen at an acceptable cost; currently hydrogen production through electrolysis with renewable energy is significantly more expensive. Low-carbon hydrogen can also provide a solution for transport, especially heavy duty transport such as HGVs and trains.

³ https://www.carbonbrief.org/analysis-uk-to-seek-advice-on-strengthening-long-term-climate-goal
Secondly, CO₂ storage in depleted oil and gas fields will require the expertise and rigorous safety standards of the oil and gas sector. This will enable jobs to be retained as well as creating a new industry for the UK with associated jobs and supply chain benefits.

Thirdly, as well as creating a new CCUS industry to service UK needs, the UK’s geological storage capacity could be used to serve the needs of other countries without a solution for their CO₂. A Summit Power study in 2017 concluded that providing storage services for third country CO₂, plus export of CCS related goods and services could have a positive impact on the balance of trade of £9bn to 2060⁵.

Finally, using captured CO₂ for Enhanced Oil Recovery (EOR) could potentially boost the economic return for Scotland’s oil and gas reserves. However at present offshore EOR is not seen as economically viable for the UK.

**How can Scotland maximise its expertise, technology and infrastructure in oil and gas industry to secure the industry’s future as reserves decline? What support is needed from Government to maximise these opportunities?**

The UK government’s Clean Growth Strategy sets out three commitments: to reduce emissions in the most cost-effective way; to maximise innovation to develop world leading technologies; and to seek the maximum benefits from investment for improving the productivity of the UK economy⁶.

CCUS can contribute significantly to these goals. The Committee on Climate Change has estimated it could cost twice as much to meet the UK’s carbon budgets to 2050 without CCS⁷. The existing expertise and technology from the oil and gas industrial sectors, alongside the vast geological storage opportunities in the North Sea, give the UK a clear competitive advantage in this space.

The Clean Growth Strategy set out a new government work programme on CCUS, based on the ambition to deploy CCUS “at scale” in the 2030s subject to costs coming down sufficiently. The CCUS Cost Challenge Task Force, which was set up by the Minister for Energy and Clean Growth to advise on how this ambition can be achieved, will report to government on the 19th July. The gwill respond with a Deployment Pathway by the end of the year.

In particular the government’s pathway should set out the scale of ambition to allow industry the certainty to develop a pipeline of projects. Crucially it must set out the government’s preferred option for business models for CO₂ transport and storage, and for CO₂ capture for power and industry.

In order for CCUS to be scalable in the 2030s first deployment should take place in the 2020s, to enable a cycle of learning and cost reduction, reduce risk and develop supply chains. The CCC recommends that the first CCUS cluster should be operational by 2026⁸; this requires progress now.

Alongside retention of jobs and skills in the oil and gas sector, there are opportunities to use existing pipelines and related infrastructure for CO₂ storage, which could avoid early closure and related decommissioning costs as well as bringing down the cost of the first CCUS projects. The Acorn CCS project in north east Scotland estimates a £750 million cost saving from the reuse of three offshore and one onshore gas pipelines⁹. The Caledonia Clean Energy Project in Grangemouth estimates a £440m saving from reuse of an offshore pipeline¹⁰.

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⁵ Clean Air – Clean Industry – Clean Growth: How carbon capture will boost the UK economy (Summit Power, 2017)
⁶ Clean Growth Strategy
⁸ Ibid.
⁹ https://www.actacorn.eu/downloads
To ensure these opportunities are not lost, industry and government should undertake a piece of work to identify oil and gas infrastructure at risk of being decommissioned in the next 5-10 years which could be retained for CCUS use in the future; and set out how this could be managed.

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