

# SCCS consultation response: Crown Estate Scotland Draft Corporate Plan 2020-2023

---

13 November 2019, Rebecca Bell

Scottish Carbon Capture & Storage (SCCS) welcomes the opportunity to respond to this consultation on the draft Crown Estate Scotland Corporate Plan<sup>1</sup>. Our interest in the Scottish Crown Estate is primarily in the opportunities it provides for geological carbon dioxide (CO<sub>2</sub>) storage, and potential impacts of its management on CO<sub>2</sub> transport. Our consultation response therefore focuses on these issues.<sup>2</sup>

## **Strategic objective 1: Support the expansion of Scotland's blue economy, focusing on marine and coastal development.**

We welcome the recognition that the coastal and marine assets will have a growing role to play in creating a net zero emissions economy. Although the description of the marine assets' role in energy and infrastructure focuses on renewable energy generation, we are pleased to see carbon capture and storage (CCS) included in action 6.

### **Geological CO<sub>2</sub> storage**

The Scottish Crown Estate has the capacity to store at least 5.7 Gt CO<sub>2</sub> and potentially 70 Gt CO<sub>2</sub><sup>3</sup>.

For context, Scotland's annual greenhouse gas emissions in 2016 were 38.6 Mt CO<sub>2</sub>e<sup>4</sup>, so 5.7Gt CO<sub>2</sub> is nearly 150 years of Scotland's emissions at current rates.

The capacity for CO<sub>2</sub> storage in the offshore geological subsurface means that the Scottish Crown Estate has the potential to contribute significantly reducing greenhouse gas emissions across Scotland and beyond. CO<sub>2</sub> can be captured from the flue gases of industrial processes, then transported and permanently in the subsurface, preventing it reaching the atmosphere and contributing to climate change.

For many industries, carbon capture and storage (CCS) is the only option available for decarbonisation – without the ability to capture and store their CO<sub>2</sub>, these industries would have to cease production, causing job losses both in the direct workforce and in the supply chain.

---

<sup>1</sup> <https://consult.gov.scot/crown-estate-strategy-unit/2020-23-corporate-plan/>

<sup>2</sup> For background, see our evidence to the Scottish Parliament Environment, Climate Change and Land Reform Committee on the Scottish Crown Estate Bill, available at: [https://www.sccs.org.uk/images/expertise/reports/working-papers/WP\\_SCCS\\_2018\\_03\\_ECCLR\\_Committee\\_evidence\\_on\\_Scottish\\_Crown\\_Estate\\_Bill.pdf](https://www.sccs.org.uk/images/expertise/reports/working-papers/WP_SCCS_2018_03_ECCLR_Committee_evidence_on_Scottish_Crown_Estate_Bill.pdf)

<sup>3</sup> SCCS (2009) Opportunities for CO<sub>2</sub> storage around Scotland – an integrated strategic research study. Available at: <http://www.sccs.org.uk/images/expertise/reports/opportunities-for-co2/CO2-JointStudy-Full.pdf>

<sup>4</sup> Scottish Government (2018) *Scottish greenhouse gas emissions 2016*. Available at: <https://www.gov.scot/publications/scottish-greenhouse-gas-emissions-2016/pages/3/>

In addition, CCS offers the opportunity to produce low-carbon hydrogen in bulk from methane, allowing its deployment in heat and transport, and creating a market for hydrogen from electrolysis as renewable generation capacity increases.

CCS also offers the opportunity to achieve 'negative emissions', for example by storing CO<sub>2</sub> from biogenic sources (BECCS), or captured directly from the air (DACCS). These negative emissions mean that Scotland can meet its 2045 net zero greenhouse gas emissions target while allowing residual emissions where they cannot be avoided, such as from agriculture.

The CO<sub>2</sub> storage resource, which is part of the Scottish Crown Estate, is crucial to the deployment of CCS in Scotland: without it, CO<sub>2</sub> could not be stored in Scotland. The abundance of CO<sub>2</sub> storage capacity in the Scottish Crown Estate (hundreds of years' worth of emissions), combined with the expertise and knowledge that exists in the oil and gas industry and Scotland's research community, means that Scotland is uniquely well placed to develop CO<sub>2</sub> storage, and has advantages over most of the rest of the EU. The use of Scottish CO<sub>2</sub> storage would not have to be limited to storing CO<sub>2</sub> from Scottish industry: CO<sub>2</sub> from sources in the rest of the UK, Europe and beyond could be stored in the pore space of the Scottish Crown Estate – for a fee - providing a long-term source of revenue and supporting climate change mitigation beyond Scotland's borders.

### **Other Scottish Crown Estate assets**

As well as Scotland's CO<sub>2</sub> storage capacity, the Scottish Crown Estate has other assets that could support the development of CO<sub>2</sub> capture, transport and storage, and thus Scotland's net zero ambitions.

For example, work by SCCS has shown that CO<sub>2</sub> transport by ship could be viable for the early stages of CO<sub>2</sub> storage in Scotland, and that Peterhead Port could be upgraded to accommodate CO<sub>2</sub> shipping.<sup>5</sup> CO<sub>2</sub> transport by ship opens up the Scottish storage for use in a business storing CO<sub>2</sub> from other countries in Europe, as well as the rest of the UK – as indicated above, this could be a long-term source of revenue for Scotland.

Peterhead Port has a suitable jetty and is capable of receiving the types of ship that are used for CO<sub>2</sub> transport<sup>6</sup>; however it will need CO<sub>2</sub> offloading and transport facilities to enable it to connect up to St Fergus, where the first CO<sub>2</sub> storage project in Scotland is expected to be developed.<sup>7</sup>

CO<sub>2</sub> can also be transported to offshore storage sites by pipeline on or buried below the seabed, requiring leases from the manager of the Scottish Crown Estate out to the 12 nautical mile limit, and crossing the foreshore where they make landfall.

<sup>5</sup> Detail on transporting CO<sub>2</sub> by ship can be found in *Ship Transport of CO<sub>2</sub> for Enhanced Oil Recovery - Literature Survey*: <https://www.sccs.org.uk/images/expertise/misc/SCCS-CO2-EOR-JIP-Shipping.pdf>

<sup>6</sup> Poster summary of recent research

here: <https://ukccsrc.ac.uk/sites/default/files/documents/event/Peter%20Brownsort%20Cardiff%202019-min.pdf>; full report on shipping for storage in North East Scotland here:

[https://www.actacorn.eu/sites/default/files/ACT%20Acorn%20Expansion%20Options%20Report%201.0%20Rev\\_0.pdf](https://www.actacorn.eu/sites/default/files/ACT%20Acorn%20Expansion%20Options%20Report%201.0%20Rev_0.pdf)

<sup>7</sup> The Acorn project - <https://pale-blu.com/acorn/>

## **Crown Estate Scotland activity on CCS**

The Crown Estate<sup>4</sup> has actively supported development of the CCS industry – including key strands, such as defining the market, addressing policy, market failures and risks, and characterising business opportunities and values – in order to understand the resource potential of the Estate. In doing so, it has made a sizeable investment over several years through projects and collaborations, leading to a broad range of publications and public resources, such as the CO<sub>2</sub> Stored storage evaluation database<sup>5</sup>, which alone represents some £0.5 million investment.

It is important to continue to take a long-term view, managing assets in ways that enable investments that support innovative technologies and industries as they progress to full commercial readiness. It is, therefore, critically important to maintain stability and continuity of service delivery, with adequate resourcing and a single organisation managing seabed and subsurface resources for the whole of Scotland. It is also important to recognise the significant experience and expertise within the existing Crown Estate Scotland staff team.

### **Coastal Asset Strategy**

Action 13 is to “Implement the three-year Coastal Asset Strategy”, but it is not clear whether this strategy has been produced yet, as it does not seem to be published on the Crown Estate Scotland website. There is like to be role in this strategy for ports and harbours, and oil and gas infrastructure, to support climate change mitigation through being repurposed for CO<sub>2</sub> transport and storage purposes, so SCCS would welcome the opportunity to contribute to its development.

### **Investment Strategy**

We welcome that port and deep water facilities have been identified for targeted investment. As we have stated above, in addition to the uses identified in section 5.1, ports are likely to have a key role to play in the development of CCS by allowing CO<sub>2</sub> transport by ship.

### **Additional comments**

We welcome the inclusion in the map on page 7 of the rights to lease the seabed for gas and carbon dioxide storage. Although our primary interest is in CO<sub>2</sub> storage, it is important to recognise that other uses of the geological pore space might also be developed to support Scotland’s net zero greenhouse gas emissions targets, such as geothermal heat extraction, compressed air energy storage, hydrogen storage and methane gas storage.

**Scottish Carbon Capture & Storage (SCCS)** is a partnership of the British Geological Survey, Heriot-Watt University, the University of Aberdeen, the University of Edinburgh and the University of Strathclyde working together with universities across Scotland.

**For more information** contact Rebecca Bell, SCCS Policy & Research Officer

e: [rebecca.bell@sccs.org.uk](mailto:rebecca.bell@sccs.org.uk) t: 0131 651 4647