

# Fourth National Planning Framework

## SCCS response to Call for Ideas

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April 2020, Rebecca Bell, SCCS Policy & Research Officer

### 1 Key points

Carbon capture and storage (CCS) is going to be an essential if Scotland is to meet its net zero greenhouse gas emissions targets<sup>1</sup>. NPF4 must support this by:

- Identifying a Scottish CCS cluster as a national development
- Requiring all new developments with emissions over a certain threshold to be built CCS-ready, and to connect to the CO<sub>2</sub> transport storage network when possible
- Recognising CO<sub>2</sub> transport and storage as essential infrastructure

### 2 Carbon capture and storage

Carbon capture and storage will be a key contributor to Scotland's response to the global climate emergency. There is no credible scenario for meeting net zero targets that does not include CCS.

Emissions from industry account for around 20% of Scotland's greenhouse gas emissions: this is comparable to emissions from transport (~30%) and residential (i.e. heat: ~15%).<sup>2</sup>

The Committee on Climate Change (CCC) has said that, in order to reach net-zero emissions, industry must be largely decarbonised.<sup>3</sup> The two measures it proposes for achieving that are carbon capture and storage (CCS) and low-carbon heat. Note that the CCC found that both of these will be required, they are not alternatives to each other:

- *“Reaching net-zero GHG emissions requires extensive changes across the economy, with complete switchovers of several parts of the UK capital stock to low-carbon technologies and development of new industries for carbon capture and storage and low-carbon hydrogen production. Major infrastructure decisions need to be made in the near future and quickly implemented.”*
- *“CCS, low-carbon hydrogen and electrification must be fully deployed in industry alongside efficiency.”*

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<sup>1</sup> Committee on Climate Change (2019) *Net Zero – The UK's contribution to stopping global warming*. Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

<sup>2</sup> Scottish greenhouse gas emissions 2017, Table B1: <https://www.gov.scot/publications/scottish-greenhouse-gas-emissions-2017/pages/3/>

<sup>3</sup> Committee on Climate Change (2019)

- *“A significant low-carbon hydrogen economy will be needed to help tackle the challenges of industry, peak power, peak heating, heavy goods vehicles, and shipping emissions. CCS will have a larger role, including in industry and at scale in combination with biomass.”<sup>4</sup>*

CCS is a suite of technologies to prevent carbon dioxide reaching the atmosphere. It consists of three broad stages:

- Capture, where the CO<sub>2</sub> is separated from other gases emitted by an industrial plant, and compressed
- Transport, where it is taken from the plant to the storage site (pipeline and ship are both likely to be used in Scotland).
- Storage, where it is injected into porous rocks around a kilometre below the seabed, where it is permanently trapped and stored.

The method of CO<sub>2</sub> capture will depend on the industrial process it is applied to, while transport and storage should be standardised and developed as a shared infrastructure that can be used by any CO<sub>2</sub> emitter.

The location of Scotland’s industry (mostly around the central belt and the east coast, but with a number of outliers) and its storage sites (below the North Sea) is such that onshore and offshore pipelines will be needed for CO<sub>2</sub> transport, as well as upgrades to port facilities. This means that CCS is likely to be a planning issue for most local authorities in Scotland, either because of high-emitting industries within their boundary, or the need for CO<sub>2</sub> transport infrastructure to cross their area.

### **3 National Development proposal**

We fully support the proposal Carbon Capture Utilisation and Storage (CCUS) Network to support industrial decarbonisation, thermal generation, and the production and transmission of large-scale low-carbon and renewable hydrogen (attached with this submission).

As detailed in the proposal, such a national development would enable Scotland’s industries to decarbonise to meet the 2045 net zero greenhouse gas emissions target. It would also open up opportunities for decarbonisation elsewhere across the economy: by enabling bulk production of low-carbon hydrogen, and by allowing greenhouse gas removals through bioenergy with CCS, capture and storage of other forms of biogenic CO<sub>2</sub> (for example from fermentation or biorefining), and direct air capture.

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<sup>4</sup> Committee on Climate Change (2019)

## 4 Carbon-capture readiness

At present, Scottish Planning Policy (SPP) only requires CCS in the context of energy projects:

“171. Proposals for energy generation from non-renewable sources may be acceptable where carbon capture and storage or other emissions reduction infrastructure is either already in place or committed within the development’s lifetime and proposals must ensure protection of good environmental standards.”<sup>5</sup>

This requirement for CO<sub>2</sub> capture, or CO<sub>2</sub> capture readiness, should be applied to all new developments that are expected to have CO<sub>2</sub> emissions above a certain threshold – for example 100kT CO<sub>2</sub> / year - and the use of CCS, once available, should be mandatory – unless comparable emissions removal or avoidance can be demonstrated by other means.

This should apply to emissions of CO<sub>2</sub> from both fossil and non-fossil sources, to maximise the potential for greenhouse gas removals. This would build on the existing requirement in SPP that “Development plans should support opportunities for integrating efficient energy and waste innovations within business environments.”<sup>6</sup>

The availability of CO<sub>2</sub> storage, and transport to it from a point(s) onshore should be the primary consideration in determining whether CO<sub>2</sub> capture and storage infrastructure is available: CO<sub>2</sub> can be transported by road or rail, so even if there is no pipeline or shipping available to a development, it should still be possible to transport the CO<sub>2</sub>. However, development of a CO<sub>2</sub> transport system should nonetheless be a planning priority.

## 5 CO<sub>2</sub> transport and storage infrastructure

Greenhouse gas emissions from industry will need to be reduced to near-zero if Scotland and the UK are to meet their net-zero targets.<sup>7</sup> Since high-emitting industries are a major employer in Scotland<sup>8</sup> and provide essential materials for economic growth, this decarbonisation must not simply be achieved by closing down industry, and therefore options for decarbonisation must be considered in any infrastructure assessment.

CO<sub>2</sub> transport and storage infrastructure would provide CO<sub>2</sub> take-away service to industry, enabling plants to capture their CO<sub>2</sub> in the way that best suits their process, then pass it on to the operator of a shared transport and storage infrastructure for safe and permanent storage.

SCCS is very concerned that infrastructure for industrial decarbonisation was not recognised as a priority in the recent Key Findings report of the Infrastructure Commission for Scotland,

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<sup>5</sup> Scottish Government (2014), *Scottish Planning Policy*, available at: <https://www.gov.scot/publications/scottish-planning-policy/>

<sup>6</sup> Scottish Government (2014)

<sup>7</sup> Committee on Climate Change (2019)

<sup>8</sup> “The GVA of Scottish manufacturing, of which the EII (energy-intensive industries) form the core, totalled £12.7bn in 2016 while employment totalled 179,300”. Scottish Government (2019) *Decarbonising Scotland's industrial sectors and sites: discussion paper*. Available at <https://www.gov.scot/publications/decarbonising-scotlands-industrial-sectors-sites-paper-discussion-scottish-energy-intensive-industries/pages/2/>

and we urge the Scottish Government to prioritise its development through the planning system.

The existing requirement that “Local development plans should locate development which generates significant freight movements, such as manufacturing, processing, distribution and warehousing, on sites accessible to suitable railheads or harbours or the strategic road network”<sup>9</sup> could be adapted to require local development plans (or their equivalent under the new planning regime) to locate new development with significant CO<sub>2</sub> emissions on sites accessible to a CO<sub>2</sub> transport network.

Scottish Carbon Capture & Storage (SCCS) is a research partnership of the British Geological Survey, Heriot-Watt University, the University of Aberdeen, the University of Edinburgh, the University of Strathclyde and the University of Glasgow with associate member the University of St Andrews. SCCS researchers are engaged in innovative applied research and joint projects with industry and government to support the development and commercialisation of carbon capture and storage as a climate change mitigation technology.

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<sup>9</sup> Scottish Government (2014)