



**SCCS**

# **Planning policy and the deployment of Carbon Capture and Storage in Scotland**

**Response to the Consultations on**

**NPF3 and SPP, July 2013**

*Chris Littlecott, Policy Research Associate,  
Vivian Scott, Policy Research Associate,  
Professor R Stuart Haszeldine, Director,  
Scottish Carbon Capture and Storage*

## Summary of Recommendations

**Recommendation 1:** The Peterhead and Grangemouth CCS projects should be designated as National Developments irrespective of progress with the UK's CCS Commercialisation Programme.

**Recommendation 2:** The CO<sub>2</sub> pipeline route from Grangemouth to St Fergus should be explicitly identified as a National Development in its own right, in support of the CCS projects at Peterhead and Grangemouth and the wider acceleration of CCS deployment across Scotland.

**Recommendation 3:** Explicit attention should be given to the opportunities for investment in CO<sub>2</sub> transportation via both shipping and pipelines in the St Fergus-Peterhead area, and for early action to develop a CO<sub>2</sub> capture cluster in support of storage characterisation efforts.

**Recommendation 4:** The Forth region should be designated as a National Development zone for CO<sub>2</sub> capture from industry and power generation.

**Recommendation 5:** The potential use of Feeder 8 for CO<sub>2</sub> transportation within the Forth region (and beyond into Northern England) should be identified in the Major Issues report, with a view to being accelerated to National Development status in the next NPF process.

**Recommendation 6:** Cockenzie and Longannet should maintain their National Development status as part of a strategy of accelerating deployment of CCS in support of a decarbonised power sector. Any permitting or development of new thermal power generation capacity at either location should be accompanied by specific actions to deploy CCS, ideally from the outset.

**Recommendation 7:** The development of offshore CO<sub>2</sub> infrastructure and storage locations should be identified as a key enabler of CCS deployment in NPF3, supporting current proposals for onshore investment in key hub locations such as St Fergus and Peterhead.

**Recommendation 8:** The SPP should explicitly incorporate consideration of CCS as a key enabler of the low-carbon economy, for both industry and power generation. Specific planning principles should be identified that advance the identification and deployment of CO<sub>2</sub> infrastructure in line with the intent of NPF3.

# 1. Introduction

- 1.1 This document provides a response from Scottish Carbon Capture and Storage (SCCS) to the Scottish Government consultations on National Planning Framework 3 (NPF3) and Scottish Planning Policy (SPP). We first provide some introductory remarks on the current policy framework, and the greater need for investment in enabling infrastructure for CCS. We then comment on the approach taken in each consultation document, and provide responses relevant to specific questions.
- 1.2 SCCS is the largest carbon capture and storage research group in the UK. With internationally renowned researchers and state-of-the-art facilities, we are unique in our connected strength across the full CCS chain. We provide a single point of coordination for all aspects of CCS research, ranging from capture engineering and geoscience to public engagement, policy and economics. Founded in 2005, SCCS is a partnership of the British Geological Survey, University of Edinburgh and Heriot-Watt University working together with universities across Scotland. SCCS is funded by the Scottish Funding Council (SFC) and the Energy Technology Partnership (ETP).

## 2. CCS and the Scottish Policy framework

- 2.1 The Scottish Government has been a consistent and proactive supporter of CCS over the past decade. In addition to its technological, engineering and geological potential, Scotland is recognised internationally for its strong capabilities on CCS spanning academia, business, government and regulators.
- 2.2 Within the UK, the Scottish Government is recognised as being a strong advocate in support of CCS, providing significant political support to the sector. This contrasts with the situation in leading English regions keen to develop CCS. Through the development of the Scottish CCS Roadmap and other initiatives, the Scottish Government has helped position Scotland as an attractive location for potential investment in CCS.

### CCS and electricity generation

- 2.3 The recent draft of the Report on Proposals and Policies 2 (RPP2) and the final version of the Electricity Generation Policy Statement (EGPS) both follow previous consideration of CCS in Scotland by noting that “Our 2020 energy targets set out our aim to make significant progress toward decarbonisation by 2020 (in line with those of the EU)” including an intention to “demonstrate carbon capture and storage (CCS) at commercial scale in Scotland by 2020 with full retrofit across conventional power stations thereafter by 2025-30.”<sup>1</sup>
- 2.4 Furthermore, the draft RPP2 highlights the adoption of the power sector decarbonisation target of 50g/kWh by 2030 (as recommended by

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<sup>1</sup> Draft RPP2, 4.1.3

the Committee on Climate Change) and notes that “This target is non-statutory, but will be used to guide our overall policy approach and will set the context for planning decisions under Section 36 of the Electricity Act going forward.”<sup>2</sup>

- 2.5 In this context, the draft RPP2 and EGPS set out a scenario for power sector emissions reductions to 2030 that includes 2.5GW of upgraded thermal capacity. This assumes that 2GW of new unabated gas plant would come online by 2020 (replacing existing coal generation capacity) together with 500MW of CCS. A further 500MW of CCS is added by 2025, and an additional retrofit of CCS to existing gas equivalent to 600MW is added by 2027. This is stated as providing 1.6GW of CCS together with 1.6GW of unabated capacity.<sup>3</sup>
- 2.6 It should be noted, however, that there continues to be uncertainty as to whether Longannet power station will cease operations by 2020. Recent suggestions that Longannet could continue generating to 2025 or beyond have raised concerns about the impact this would have on Scotland's emissions reduction goals.<sup>4</sup> We return to the questions of CCS deployment and new thermal generating capacity in section 4 below.

## CCS on industrial sources of CO<sub>2</sub> emissions

- 2.7 Additionally, the potential deployment of CCS on industrial sources of emissions was noted in passing in the draft RPP2:

Paragraph 6.2(3) states

“By 2027, we will have made significant progress in transforming energy use in industry and business - transforming the way energy and resources are used, through energy and resource efficiency measures and low carbon technologies such as CCS and fuel switching.”

Paragraph 6.4.19 states

“For some industrial processes, greenhouse gas emissions are an intrinsic part of the chemistry and can only be mitigated through innovative options such as carbon capture and storage. In the longer term, the deployment of sustainable biomass and further carbon, capture and storage should be able to address remaining combustion and the carbon dioxide component of process emissions.”

- 2.8 At present, however, it does not appear that any specific policies or proposals are identified in the draft RPP2 to advance the deployment of CCS on industrial sources of CO<sub>2</sub> during the period 2013-2027. Our response to the RPP2 consultation noted that this required attention.
- 2.9 In the discussion below we highlight how planning policy can assist in accelerating the deployment of CCS for both electricity generation and industrial emitters.

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<sup>2</sup> Draft RPP2, 4.2.3

<sup>3</sup> Draft RPP2, Box, p75 and discussion on p76

<sup>4</sup> <http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-23342626>

### 3. Enabling actions to accelerate CCS

- 3.1 It is being increasingly recognised that access to CO<sub>2</sub> transport and storage is an essential enabler of the cost-effective deployment of CCS at scale. Projects in the USA and Canada have been able to move forward more rapidly in part due to the existence of CO<sub>2</sub> pipelines and readily available storage options as a result of decades of experience with CO<sub>2</sub>-EOR.
- 3.2 The UK's CCS Cost Reduction Taskforce<sup>5</sup> has highlighted the importance of access to CO<sub>2</sub> transport and storage as an essential means of both reducing capital costs and the effective de-risking of investment for follow-on projects. Previous work by SCCS has highlighted the benefits associated with clusters of emitters sharing access to clusters of CO<sub>2</sub> storage formations.
- 3.3 The Central North Sea is the best location geologically for the development of such storage clusters,<sup>6</sup> however early efforts to prove and validate this CO<sub>2</sub> storage are essential. Such actions are additionally underlined as a key enabler for CCS in the International Energy Agency's recent CCS Roadmap.<sup>7</sup>
- 3.4 The provision of CO<sub>2</sub> transport and storage infrastructure is further highlighted as an essential enabler for the deployment of CCS on industrial emitters, which are typically not of a scale that would enable them to bear the costs of a full point-to-point CO<sub>2</sub> chain. This analysis is supported by the review of costs undertaken for BIS and DECC,<sup>8</sup> and by recent studies on behalf of specific industry sectors.<sup>9</sup>
- 3.5 The policy approach to CCS in the UK (and indeed EU) to date has been centred on the power sector as a means of undertaking the demonstration of CCS at commercial scale (via financing support) to be followed by deployment (driven by the carbon price). To date, this approach has not been successful in the absence of a clear and enduring business case. Furthermore, this 'electricity first' approach has overlooked the potential catalytic role that could be played by accelerated efforts to advance CCS via high-value, low-cost industrial projects.
- 3.6 In particular, some industrial sectors such as gas processing or the production of ammonia or ethylene provide low-cost and readily available streams of CO<sub>2</sub>. These can be used to kick-start the testing of CO<sub>2</sub> storage formations and the development of enabling CO<sub>2</sub>

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<sup>5</sup> <https://www.gov.uk/government/publications/ccs-cost-reduction-task-force-final-report>

<sup>6</sup> [Central North Sea - CO<sub>2</sub> Storage Hub: Enabling CCS Deployment in the UK and Europe](#), SCCS, 2012

<sup>7</sup> <http://www.iea.org/publications/freepublications/publication/name,39359,en.html>

<sup>8</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/175504/bis-13-745-the-costs-of-carbon-capture-and-storage-for-uk-industry-a-high-level-review.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/175504/bis-13-745-the-costs-of-carbon-capture-and-storage-for-uk-industry-a-high-level-review.pdf)

<sup>9</sup> See for example the recent strategy for the UK cement industry for reducing emissions to 2050 [http://cement.mineralproducts.org/documents/MPA\\_Cement\\_2050\\_Strategy.pdf](http://cement.mineralproducts.org/documents/MPA_Cement_2050_Strategy.pdf)

infrastructures (including both pipeline networks and transportation of CO<sub>2</sub> by ship).

- 3.7 This emerging approach seeks to directly address practical barriers to investment in CCS, reduce risk, and enable economies of scale. In taking a proactive approach, it also recognises that CCS deployment is an indispensable technology for boosting low-carbon competitiveness and enabling job retention from energy intensive and process industries. It entails a shift in policy making from a narrow focus on the delivery of point-to-point 'demonstration' projects to the development of the broader enabling infrastructure that can catalyse private sector investment in multiple CCS projects across industry and power generation sectors.
- 3.8 This approach also recognises the need for strategic leadership and planning policy as an enabler of CCS as a network industry, and that this must be driven in anticipation of future high(er) carbon prices rather than in response. SCCS therefore highlights that Scottish planning policy should be expected to play a strategic and enabling role to support CCS deployment over the coming decades.
- 3.9 Due to the long-lived nature of infrastructure, power generation, and industrial process investments, NPF3 must effectively embed CCS considerations within spatial planning policy. While we understand that governments are keen to avoid 'picking technology winners', the deployment of CCS depends on a willingness to pick geologies (for CO<sub>2</sub> storage) and geographies (for infrastructure development and economies of scale).

## 4. CCS in the draft NPF3

- 4.1 SCCS welcomes the focus of NPF3 on enabling the achievement of sustainable economic growth and the transition to a low-carbon economy. Clarity of purpose in pursuing a low-carbon economy and energy system is essential if CCS is to be deployed at scale. The continued emphasis on meeting this challenge is a positive demonstration of Scottish Government intentions for planning policy. The reiteration of energy sector targets in paragraph 2.4 is supported – the scale of the climate change challenge is such that aggressive deployment of renewables and CCS must proceed in parallel.
- 4.2 The consultation draft of NPF3 has a particularly positive focus on infrastructure, and a welcome willingness to consider proactive investments: in support of electricity generation from renewables, heat use and transportation. We suggest that this approach should also be followed for CCS in the final version of NPF3, and return to this below.

### A focus on enabling infrastructure

- 4.3 The focus on supporting the deployment of offshore renewables via onshore infrastructure is similarly applauded as a necessary step in achieving a step change in deployment. We recommend that a

parallel dedicated approach should be undertaken for the enabling infrastructure required for CCS deployment.

- 4.4 We strongly support the inclusion of the Peterhead and Captain CCS projects as National Developments.<sup>10</sup> We hope that both of these projects will be supported by the UK CCS Commercialisation Programme and Electricity Market Reform measures respectively. However the slow progress of UK government procurement processes and history of past efforts leads us to caution that it would not be wise to assume that sufficient financing or policy attention will be provided at UK level to achieve this outcome. We believe that it will be necessary for further supportive measures to be implemented by the Scottish Government, with planning policy providing significant opportunities for action.

**Recommendation 1: The Peterhead and Grangemouth projects should be designated as National Developments irrespective of progress with the UK's CCS Commercialisation Programme.<sup>11</sup>**

- 4.5 The outcome of the selection of two competing preferred bidder projects in the DECC CCS Commercialisation Programme is that there is now a de facto development race between Eastern England and Scotland to advance CO<sub>2</sub> infrastructure and storage capabilities. If Scotland is to maintain its overall attractiveness for investment in CCS (and counteract the disadvantages of higher transmission costs) it must look at how it can leverage both the favoured bidder and reserve projects to maintain momentum across a range of projects and build economies of scale.
- 4.6 The rapid acceleration of efforts on CO<sub>2</sub> transportation infrastructure and the characterisation of CO<sub>2</sub> storage options would provide significant value added to the Scottish CCS 'offer', enabling the de-risking of power sector projects and the achievement of associated cost reductions. They would also provide a means of supporting the continued development of projects such as the reserve projects at Grangemouth (and potentially at Teesside too – see 4.21 below).
- 4.7 At present, however, the drafting of Question 4 and paragraphs 2.41 and 2.42 (and associated box) is unclear, and can be interpreted as suggesting that the development of the (Feeder 10) CO<sub>2</sub> pipeline from Grangemouth to St Fergus is tied to the development of the Captain project.<sup>12</sup> Instead, we agree with National Grid that this pipeline route is of such strategic importance for the decarbonisation of industrial emitters of CO<sub>2</sub> that it should be explicitly identified as a National

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<sup>10</sup> We note that Question 4(a) does not explicitly refer to CCS at Peterhead, but this is sufficiently clearly stated in the rest of the Major Issues Report.

<sup>11</sup> We note that the Assessment of Proposed National Developments Report explicitly notes that the designation of these projects is 'subject to outcome of DECC competition'. This is an uncertain basis for the development of strategic spatial planning guidance and should be avoided if possible.

<sup>12</sup> This impression is further exacerbated by the use of a dashed line on accompanying maps – we realise that the intention is to distinguish CO<sub>2</sub> from electricity infrastructure, but this could be better clarified in the final document.

Development in its own right (including its potential for integrated with the CO<sub>2</sub> transport hub proposed for St Fergus).

**Recommendation 2: The CO<sub>2</sub> pipeline route from Grangemouth to St Fergus should be explicitly identified as a National Development in its own right, in support of the CCS projects at Peterhead and Grangemouth and the wider acceleration of CCS deployment across Scotland.**

## CO<sub>2</sub> transport and import by ship

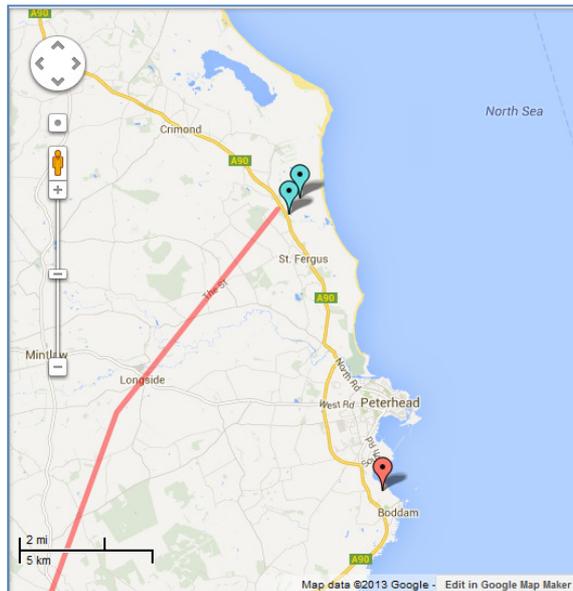
- 4.8 We would further add that the identification of Peterhead port as a location for interconnection, renewables manufacture and as a base for their deployment offshore should be accompanied by reference to its potentially similar role as an enabler for CO<sub>2</sub> transport by ship.
- 4.9 During the initial period of CO<sub>2</sub> storage characterisation, the option to create a CO<sub>2</sub> import terminal at Peterhead should be actively investigated, even if by means of temporary facilities to enable the CO<sub>2</sub> imports needed to test more than one CO<sub>2</sub> reservoir. That would place Scotland in a leading UK and EU position on storage, forging links with high-carbon regions on Continental Europe.
- 4.10 CO<sub>2</sub> transportation at scale during the subsequent CCS deployment phase can be undertaken both by pipeline and ship. Especially in the earlier stages of CCS deployment CO<sub>2</sub> shipping may play a significant role, e.g. importing CO<sub>2</sub> from the continent at a lower capital cost than building pipelines and providing greater flexibility. Peterhead port has previously been examined by Scottish Enterprise<sup>13</sup> as a potential location for a CO<sub>2</sub> import terminal from which a pipeline could connect to St Fergus. NPF3 should therefore incorporate the possibility of establishing permanent CO<sub>2</sub> import facilities at Peterhead port as part of its broader identification of development opportunities.
- 4.11 Of additional relevance for Scottish planning policy is the identification in the BIS/DECC study of the Forth and St Fergus as shoreline hubs for CO<sub>2</sub> infrastructure and / or clustering that have high potential. As yet, specific policy measures to take forward this analysis have not been identified by UK government, and would best be secured via explicit recognition in Scottish policy.
- 4.12 Furthermore, the presence of gas processing and refinery operations close to St Fergus also provides the opportunity of accelerating CO<sub>2</sub> capture from relatively accessible sources of emissions, as identified in Figure 1 below. This should also be included in respect to the Aberdeen and North-East Area for Coordinated Action.

**Recommendation 3: explicit attention should be given to the opportunities for investment in CO<sub>2</sub> transportation via both shipping and pipelines in the St Fergus-Peterhead area, and for early action to develop a CO<sub>2</sub> capture cluster in support of storage characterisation efforts.**

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<sup>13</sup> <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/PQR/PeterheadCO2ImportationStudyPreliminaryFindings.pdf>

**Figure 1 – Peterhead and St Fergus CCS cluster opportunities**



**CO<sub>2</sub> Emissions (2011):**

Peterhead power station – 2.32Mt

St Fergus gas plant – 0.27Mt

SAGE gas terminal – 0.23Mt

Plus opportunities for import of CO<sub>2</sub> from Continental Europe via Peterhead port.

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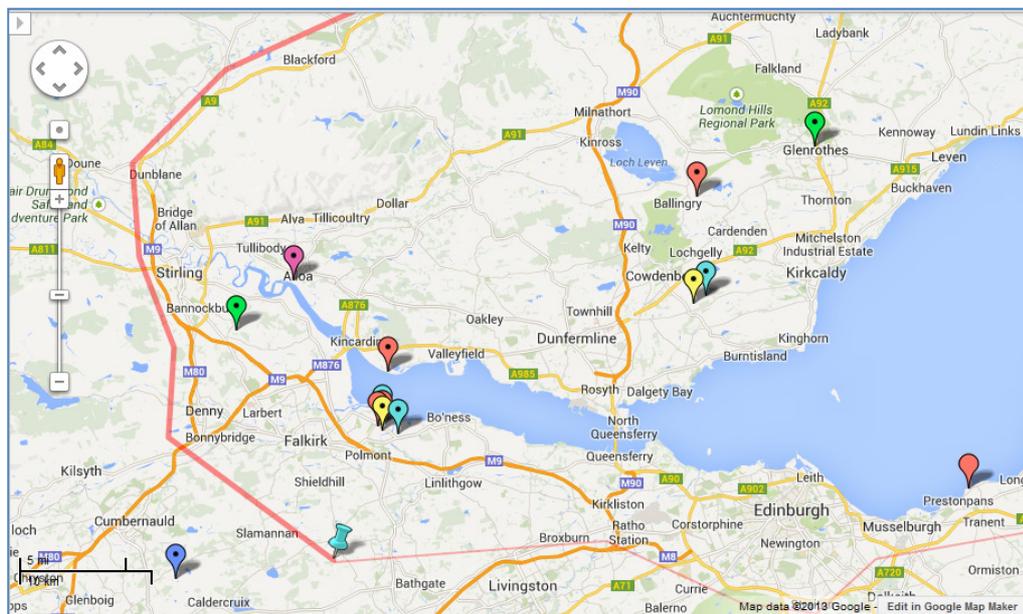
**CCS on industry and cluster potential**

- 4.13 As identified above in paragraph 3.4 early action to capture CO<sub>2</sub> from industrial emitters is desirable as a means of accelerating the characterisation of CO<sub>2</sub> storage and as a means of securing appropriately located CO<sub>2</sub> transport infrastructure to enable broader deployment at scale.
- 4.14 This will be essential for low-carbon competitiveness and job retention, particularly in sectors where no technological alternatives exist. In addition to thermal power generation, CCS will also be required for large industrial sources of CO<sub>2</sub> e.g. Grangemouth refinery, Mossmorran fractionation plant and Dunbar cement works in order to meet emissions reduction goals. The deployment of CCS on industry will be required at scale during the coming 20 to 30 years, so should be subject to greater prominence in the NPF.
- 4.15 Different industrial sectors will move at different timescales according

to the ease and cost of capture and the impact on competitiveness of trade-exposed industries. All industrial emitters will however require access to CO<sub>2</sub> transport and storage solutions, the proactive provision of which will help address traditional competitiveness concerns and boost job retention and low-carbon competitiveness by removing CO<sub>2</sub> from production processes.

- 4.16 Indeed, given that the free allocation of ETS allowances for industrial sectors is being phased out from 2013 onwards, we believe that such an approach could rapidly become a valuable option that would enable industrial emitters to maintain production capacity within Scotland. Over 4,000 skilled jobs are associated with existing sites with high potential for industrial CCS.<sup>14</sup> If these industries remain high-carbon, these associated jobs will be at risk. More positively, a proactive approach to CO<sub>2</sub> infrastructure will enable Scotland to not only maintain those jobs but also attract new industrial investment, beating EU and UK high carbon competition.
- 4.17 NPF3 correctly identifies the Forth region as a potential focal point for investment in CCS. Figure 2 below highlights emitters of over 100,000Kg CO<sub>2</sub> in 2011. Collectively, the industrial emitters identified here totalled 5.9Mt of CO<sub>2</sub> in 2011 – over 10% of emissions from the economy as a whole. This concentration of emissions rises further to 15.5Mt once emissions from Longannet and Cogenzie power stations are also included. The subsequent closure of Cogenzie will reduce emissions by around 1Mt pa from this level, but would rebound were an unabated gas plant to be commissioned in future.

**Figure 2 – location of CO<sub>2</sub> emitting sources in Forth region**



- 4.18 As the largest cluster of industrial and power generation emissions in

<sup>14</sup> Initial SCCS analysis, further work currently in progress.

Scotland, we recommend that NPF3 should accelerate actions to enable CCS on industry in the Forth region. This effort should be advanced in support of, but in parallel to, the continued development of the Captain project and the future deployment of CCS at Longannet and Cockerzie. In the early years, sufficient 'spare' capacity should be available in the existing converted Feeder 10 natural gas pipeline, while in future further pipeline routes may be desired to connect the Forth region to St Fergus, other North Sea storage sites and CO<sub>2</sub> emitters from elsewhere in Scotland and Northern England.

- 4.19 At a practical level, the welcome inclusion of heat mapping in NPF3 should therefore be supplemented by CO<sub>2</sub> mapping to enable consideration of synergies for the deployment of CCS and industrial heat use and / or district heating. This would highlight how there are existing clusters of industrial emitters that could be considered for early inclusion in efforts to accelerate the provision of CO<sub>2</sub> transportation and storage options, particularly for the Forth region and the St Fergus-Peterhead area.<sup>15</sup>
- 4.20 Question 16 asks whether the Grangemouth Investment Zone should be designated as a National Development. NPF3 highlights its importance as a location for expanded freight handling capacity, and mentions its role as a centre for low carbon energy and chemicals sciences. We support this designation of Grangemouth and underline the importance of the low-carbon energy and industrial production elements of its potential future development. We further highlight that synergies should be explicitly sought with the broader opportunity for CO<sub>2</sub> capture across the Forth region, as Grangemouth is likely to be at the heart of a regional CO<sub>2</sub> infrastructure.

**Recommendation 4: The Forth region should be designated as a National Development zone for CO<sub>2</sub> capture from industry and power generation.**

## Connection to Northern England for transportation of CO<sub>2</sub>

- 4.21 Current natural gas feeder pipelines connect St Fergus to the Forth Region (Feeder 10), and further south to Teesside (Feeder 8). NPF3 should consider the use of the existing Feeder 8 pipeline for conversion to connect possible industrial or power plant CCS activity in Teesside into a Scottish CO<sub>2</sub> transport and storage network. The alternative option of shipping CO<sub>2</sub> from Teesside to onshore transportation hubs in Scotland would be well covered by our proposed designation of Peterhead port as a hub for CO<sub>2</sub> imports.
- 4.22 At present, the development of the Feeder 8 pipeline would likely follow on from, and connect to, CO<sub>2</sub> infrastructure in the Forth region.

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<sup>15</sup> We note that DECC is taking forward work on industrial CCS via its industrial heat strategy.

Indeed, use of Feeder 8 may be desired to assist the deployment of CCS on sites to the South-East of the region such as Cockenzie power station and Dunbar cement plant.

**Recommendation 5: The potential use of Feeder 8 for CO<sub>2</sub> transportation within the Forth region (and beyond into Northern England) should be identified in the Major Issues report, with a view to being accelerated to National Development status in the next NPF process.**

### Baseload electricity generation requirements

- 4.23 Question 4 asks 'Is there also a need for Longannet and Cockenzie to retain their national development status as part of a strategy of focusing baseload generation on existing sites?'. No reference is made to CCS in the question, while paragraph 2.44 suggests there is a need for flexibility in the designation. However the accompanying box clearly states the expectation that CCS would be fitted at both plants by 2030.
- 4.24 We note that the scenario for CCS deployment set out in the draft RPP2 and EGPS combines both the construction of new build CCS plants and the construction of unabated gas generation that is progressively retrofitted with CCS technology. As noted in the EGPS, this latter approach differs from the current requirement for any new coal power station to fit CCS to at least 300MW of capacity, which thereby requires that investors in new coal power stations actively develop CCS from the outset.
- 4.25 All new plant over 50MW must be 'capture ready' but as yet there is no firm requirement for the retrofit of CCS technology. Instead, investors are required to consider whether future carbon prices will incentivise this. However currently expected prices for carbon under the ETS (and indeed the UK's Carbon Price Support mechanism) remain insufficient to incentivise such investments. This does not yet therefore provide a clear and credible route to the retrofit of any new gas capacity during the 2020s, which is at odds with the intentions of Scottish Government policies on power sector decarbonisation and CCS deployment.
- 4.26 Furthermore, the existing commitment of the Scottish Government to a (non-statutory) decarbonisation target of 50gm/kWh by 2030 already strengthens the case for accelerated action to deploy CCS at scale and to minimise investment in unabated fossil generation, particularly if there is an absence of a clear pathway to the retrofit of CCS.
- 4.27 As a consequence, we suggest that further action is required to enable the pursuit of CCS projects at Longannet and Cockenzie, potentially incorporating part- or full coverage of CCS from the outset, rather than solely as retrofit. Such an approach may have benefits in respect to investment decisions and access to Contracts for Difference payments.

- 4.28 Our recommendations above for National Development designation for CO<sub>2</sub> infrastructure and a Forth region CCS zone are therefore also intended to be used as enabling actions in support of the deployment of CCS at Cockenzie and Longannet.
- 4.29 Given the recent history of opposition to unabated coal, and increasing concerns over unabated gas (including direct action tactics), we would caution that planning policy and thermal generation investment decisions need to be clearly seen to be coherent with climate policy objectives. Current 'capture readiness' requirements are not sufficient for this purpose, requiring additional efforts to ensure CCS deployment will ensue.
- 4.30 Paragraph 213 of the draft SPP is helpful in this respect, in noting the need for infrastructure to be 'already in place of committed within the development's lifetime'.

**Recommendation 6: Cockenzie and Longannet should maintain their National Development status as part of a strategy of accelerating deployment of CCS in support of a decarbonised power sector. Any permitting or development of new thermal power generation capacity at either location should be accompanied by specific actions to deploy CCS, ideally from the outset.**

### Offshore pipeline and platform infrastructure

- 4.31 Oil and gas operations in the North Sea have established a considerable infrastructure accessing and connecting fields to shore. While we recognise that the development of offshore CO<sub>2</sub> infrastructure will be largely a matter for marine permitting processes, we suggest that NPF3 should more clearly identify the potential re-use of this infrastructure for CO<sub>2</sub> transport and storage, including via extending the production lifetimes of existing fields through CO<sub>2</sub>-EOR.
- 4.32 The current draft of NPF3 makes reference to the decommissioning of existing North Sea energy infrastructure, and the deployment of offshore renewables and electricity interconnectors. We would add that the reuse of existing infrastructure and development of new capacity for CCS deployment should be similarly considered.

**Recommendation 7: The development of offshore CO<sub>2</sub> infrastructure and storage locations should be identified as a key enabler of CCS deployment in NPF3, supporting current proposals for onshore investment in key hub locations such as St Fergus and Peterhead.**

### Implications of Enhanced Oil Recovery

- 4.33 Initial work undertaken by SCCS on public perceptions of CO<sub>2</sub>-EOR has highlighted how it is perceived as complicating the view of CCS as a low-carbon technology option. This finding is in line with the approach outlined in draft RPP2 section 3.5.12 in respect to the importance of perceptions of consistency for engaging and influencing behaviour of citizens.

- 4.34 Media coverage has already highlighted the perceived inconsistency between efforts to decarbonise the electricity sector while maximising oil and gas production. This has also been linked to the perceived need for greater action on transport and heat within the draft RPP2.
- 4.35 The publication of the Scottish Government's report on 'Maximising the return from Oil and Gas in an Independent Scotland' makes further reference to the potential use of CO<sub>2</sub> -EOR. Were this to take place, we would anticipate that additional associated emissions reductions onshore may be necessary to maintain momentum for decarbonisation outcomes and address perceptions of policy inconsistency. This adds further value to the potential acceleration of large scale emissions reductions from electricity generation and industrial sources of emissions.

## 5. CCS in the draft SPP

- 5.1 We support the overarching policy framework reaffirmed in the draft SPP, particularly the Policy Principal 17(4) and its reference to infrastructure and the transition to a low-carbon economy.
- 5.2 We are concerned, however, at the near total absence of reference to CCS in the draft SPP, compared to significant attention to the implications of planning policy for renewables and heat.
- 5.3 Paragraph 209 appears to suggest that the hierarchy of energy options would prioritise (ii) 'electricity and heat recovery' over (iii) 'electricity and heat from renewable and non-renewable fuel sources where greenhouse gas emissions can be significantly reduced.' This hierarchy appears confused as to its treatment of CHP and fuel sources, and should more clearly define what is different between the two elements of the hierarchy, and the potential implications for CCS deployment. In our view, projects that are able to deploy CCS in combination with electricity generation (and potentially in association with heat recovery) should of course be preferable to unabated projects. This remains true even for biomass projects, as these offer the potential for negative emissions.
- 5.4 The sole reference to CCS in the draft SPP comes in paragraph 213, which states '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.' As per the discussion in 4.30 above, this would further suggest that planning policy should more closely integrate the permitting and / or development any new thermal generating capacity with the development of CO<sub>2</sub> infrastructure, over and above any existing requirements to be 'capture ready'.
- 5.5 The SPP consultation does not include any specific questions on CCS. It does however include questions regarding the further development of heat networks and the relationship with electricity generation.

Question 15 specifically asks whether heat networks should be developed in advance of the availability of renewable or low-carbon sources of heat. As per our comments on NPF3, we welcome this kind of proactive approach, and believe that it should also be extended to CCS – via mapping of CO<sub>2</sub> emissions and the practical development of CO<sub>2</sub> infrastructures.

**Recommendation 8: The SPP should explicitly incorporate consideration of CCS as a key enabler of the low-carbon economy, for both industry and power generation. Specific planning principles should be identified that advance the identification and deployment of CO<sub>2</sub> infrastructure in line with the intent of NPF3.**

## 7. Conclusions

- 7.1 Scotland is uniquely placed to apply and grow a major carbon capture and storage sector as part of its decarbonisation strategy. The Central North Sea offshore of Scotland contains the largest and most diverse CO<sub>2</sub> storage potential in the EU. Developing CCS in Scotland is an opportunity to build on and sustain its process industries and the offshore industries sector, while making efficient use of existing hydrocarbon infrastructure both on and offshore.
- 7.2 The UK and European CCS policy landscape is in a period of change, with new approaches to the commercialisation of CCS being considered. Scotland is ideally placed to reap the benefits of accelerated action to develop CCS for both industry and power generation.
- 7.3 Action on the early appraisal of CO<sub>2</sub> storage formations and the development of shared CO<sub>2</sub> transport infrastructures would be key enabling measures that strengthen Scotland's attractiveness as a location for investment in CCS. They would additionally provide an effective means of reducing CO<sub>2</sub> emissions from across the economy on a timescale that matches the period covered by RPP2.
- 7.4 A proactive spatial planning policy can be a key enabler of CCS deployment. The draft NPF3 and SPP documents provide a positive sense of direction and a welcome willingness to consider investments in enabling infrastructure. Further specific attention to accelerating CCS is required for the final versions.
- 7.5 SCCS will be pleased to provide further clarification and / or input as desired to the ongoing consideration of these issues.