

## **Feasibility Study for Acorn CO<sub>2</sub> SAPLING Transport Infrastructure Project**

In December 2017, the transport infrastructure elements of the Acorn CCS project were awarded European Project of Common Interest (PCI) status.

- [Projects of Common Interest \(PCIs\) are key cross border infrastructure projects that link the energy systems of EU countries. They are intended to help the EU achieve its energy policy and climate objectives: affordable, secure and sustainable energy for all citizens, and the long-term decarbonisation of the economy in accordance with the Paris Agreement.](#)
- [Click here for more information on PCI](#)

PCI projects are afforded a number of benefits, one of which is eligibility to bid for Connecting Europe Facility funding.

- [The Connecting Europe Facility \(CEF\) is a key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at a European level. It supports the development of high performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy and digital services.](#)
- [This fund is managed by the Innovation and Networks Executive Agency \(INEA\) of the European Commission.](#)
- [Click here for more information on CEF funding](#)

Acorn CCS submitted a bid to this CEF fund at the start of the 2018 and was the first CO<sub>2</sub> project in Europe to successfully achieve all criteria to be awarded funding. On 16<sup>th</sup> July 2018, the European Commission published a list of successful CEF applicants ([click here for news story](#)).

On November 28<sup>th</sup> 2018 Acorn CCS was able to announce match funding from the UK Government Department for Business, Energy & Industrial Strategy, the Scottish Government, Total E&P Ltd and Pale Blue Dot Energy Ltd. ([click here for news story](#))

### **The Initial CEF Funded Project**

The CEF funding will enable Acorn CCS to complete a comprehensive feasibility study for all the transport infrastructure elements of the Acorn CCS project.

- **Timing:** This comprehensive feasibility study into the transport infrastructure elements of Acorn CCS will take over 9000 manhours and will run until March 29<sup>th</sup> 2019.
- **Scope:** The project will involve detailed technical and economic analysis activities that will result in an optimal programme to establish the project's transport infrastructure, detailing its cost, addressing and quantifying technical issues and risks and developing a model for its technical and commercial operability.

The project incorporates four key workstreams:

#### **Workstream 1: Offshore Pipeline Transport Feasibility**

Assessment of the technical feasibility and business arrangements to enable the re-use of three existing offshore pipeline and associated facilities that have not yet been decommissioned.

**Workstream 2: Ship Based CO<sub>2</sub> Import / Export Feasibility**

Determination of the technical feasibility and operational arrangements to enable import and export of CO<sub>2</sub> through Peterhead Port.

**Workstream 3: Onshore Pipeline Transport Feasibility**

Development of the technical feasibility and business arrangements to enable the re-use of the onshore pipeline known as 'Feeder 10' for CO<sub>2</sub> transport.

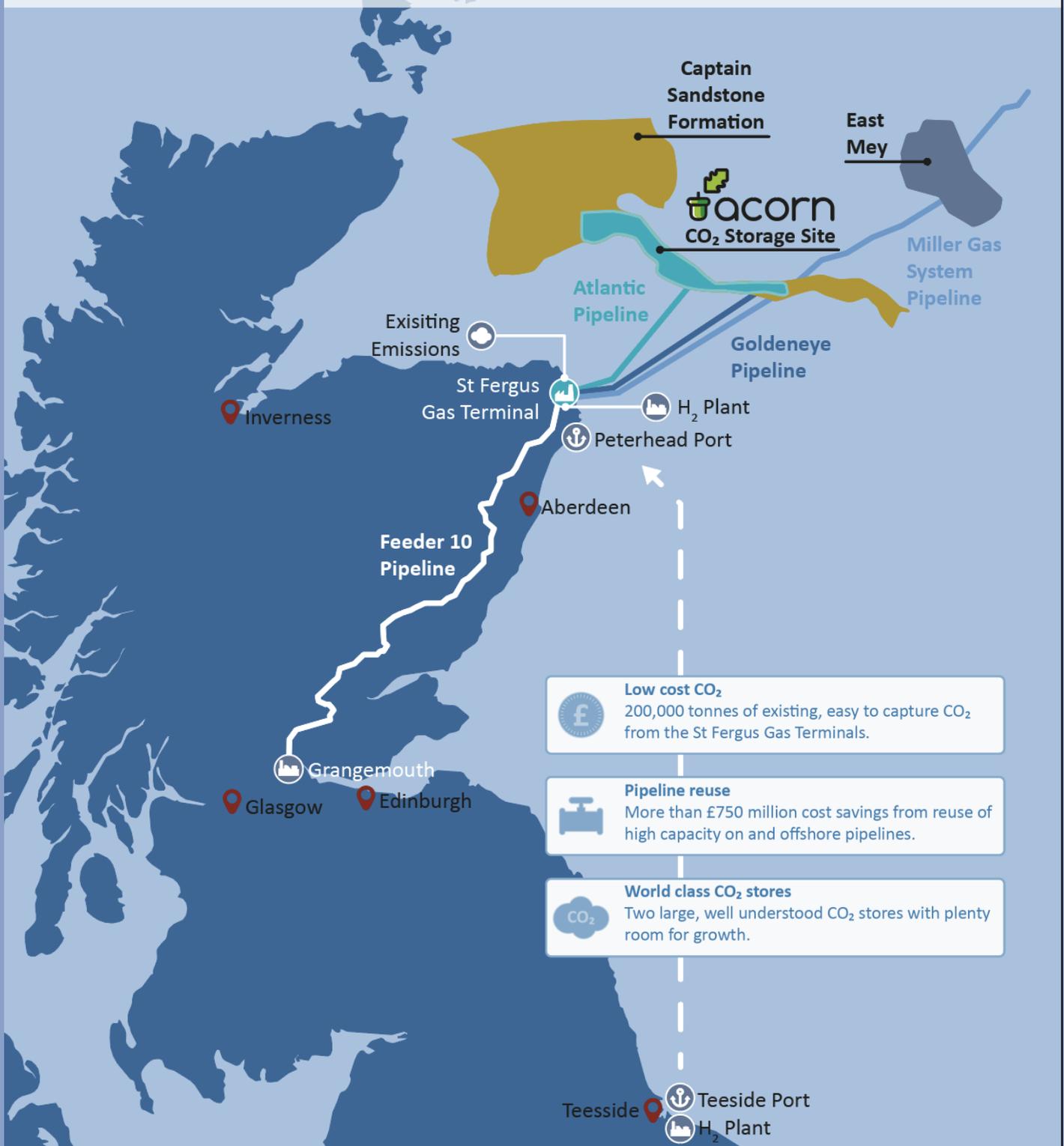
**Workstream 4: Feasibility Study Management**

Project management of the overall Project including project planning, cost control, reporting, procurement, management of suppliers, management of contractors, invoicing and payments.

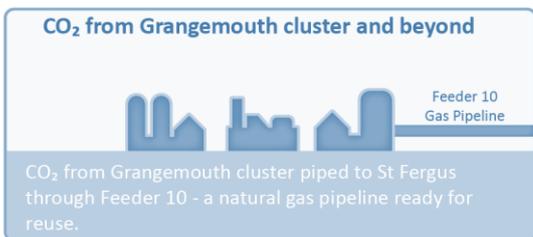
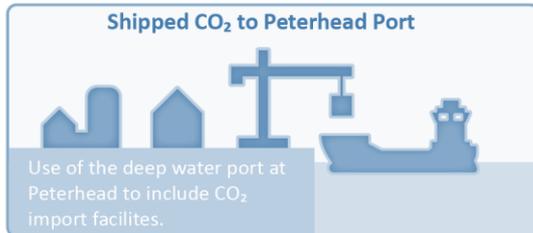
In addition to this a further key workstream around project decision support is being delivered in parallel. This involves the assessment of the feasibility of the full Project and preparation of material to support the decision on the next step into front end engineering and design (FEED), the final design stage before committing to constructing and operating a project.

From this combined effort, a strong and investible business case will arise.

- Acorn CCS has nearly completed all the other feasibility work required for this project, so the transport infrastructure study is the last piece of the puzzle that will enable a decision to be made in early 2019 concerning progressing to the FEED stage.
- The funding which has been made available has allowed the Acorn CCS project to maintain a project development timeline that could allow a final investment decision and Acorn CCS construction to begin in the early 2020's.
- This provides a genuine option to support the UK and Scottish Government ambitions articulated in the Clean Growth Strategy - the option to deploy CCUS at scale during the 2030s, subject to costs declining sufficiently.



Acorn is a low-cost, low-risk CCUS project, designed to be built quickly, taking advantage of existing oil and gas infrastructure and a well understood offshore CO<sub>2</sub> storage site. The project is located at the St Fergus Gas Terminal – an active industrial site where around 35% of all the natural gas used in the UK comes onshore.



Acorn is a catalyst for supporting growth and creation of new industrial opportunities in the north east of the UK and beyond:

- a major hydrogen and CCS hub at St Fergus
- an economic opportunity for the deep-water port at Peterhead
- an international CO<sub>2</sub> storage hub in the Central North Sea.

**With the right support, Acorn could be operating in the early 2020s.**

## HOW DOES IT WORK?

Initially, Acorn will use the easy to capture CO<sub>2</sub> from within the St Fergus Gas Terminal, but the project is designed to support rapid growth for other large-scale emission sources in the region. Acorn has been awarded European Project of Common Interest (PCI) status, making its infrastructure elements eligible for funding under the Connecting Europe Fund (CEF).

Acorn is currently assessing three large gas pipelines which can be repurposed to take CO<sub>2</sub> offshore, and an onshore gas pipeline that connects St Fergus to Central Scotland. These pipes alone, offer the UK CCUS industry savings in the region of £750 million in capital costs when compared to commissioning new pipes. Upgrades to Peterhead Port, would allow national and international shipping of CO<sub>2</sub>. The Acorn CO<sub>2</sub> storage site is part of a huge sandstone formation (the Captain Sandstone), located 2km below the North Sea seabed. It is a well-known site that benefits from lots of performance data from recent oil and gas activity and has been thoroughly examined to ensure safe and permanent storage of CO<sub>2</sub>.

The Acorn infrastructure feasibility work has been funded by the EU, UK and Scottish Governments, as well as industrial partners Total E&P UK and Pale Blue Dot Energy. There is also a growing interest from industry in the project and its link to hydrogen.