Carbon Capture & Storage Association

Carbon Capture Usage and Storage

Get CCUS Done: Policy Update

11th December 2019

Chris Gent
Carbon Capture and Storage Association

Who are we

Carbon Capture & Storage Association

Role and objectives

- To assist policy developments in UK, EU and internationally towards a long-term regulatory and incentive framework for CCS
- To raise awareness of CCS as a vital tool in fighting climate change and delivering sustainable long-term clean growth
- To enable the CCS industry to speak with one voice
- Focus on commercial-scale projects
- Technology neutrality (industry, power, hydrogen , BECCS, capture type etc)

zep zero emissions platform

IMPACTS9

Carbon Capture & Storage Association

CCS & the 2019 General Election

CCS & the 2019 General Election

<u>CCS</u>:
"invest £800 million to build the first fully deployed carbon capture storage cluster by the mid-2020s."

<u>Hydrogen</u>:
"support gas for hydrogen production …, as important parts of the energy system…."

Net-zero: 2050

<u>Industry</u>:
"invest **£500 million** to help energy-intensive industries move to low-carbon techniques."

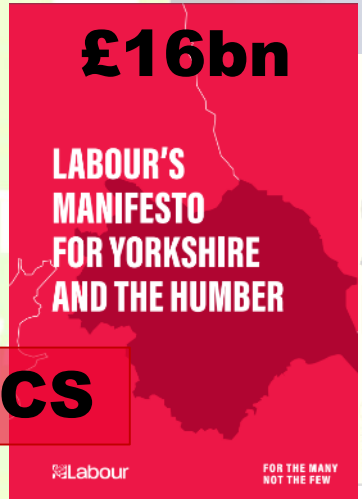
£1.2bn funding is additional to currently available funds

CCS & the 2019 General Election

"Invest to reduce the costs of renewable and low-carbon hydrogen production"

"£250 billion will directly fund the transition through a Green Transformation Fund"

Thirty Recommendations by 2030



H_2 and CCS

CCS & the 2019 General Election

"Reduce emissions from industrial processes by supporting carbon capture and storage and new low-carbon processes for cement and steel production."

Tackling the Climate Emergency, Policy Paper 139

"CCS recognised as playing an important role in meeting net zero funding will be provided under the 'emergency climate budget'"

"Zero carbon heat strategy recognises the expected role of CCS and H2"

"CCS & negative emissions in power still required"

£86 billion for climate measures

CCS & the 2019 General Election

"We want Scotland to be a leader in the development of Carbon Capture and Storage (CCS) technology, which has the potential to create thousands of jobs while helping to fight climate change."

Net-zero: 2045

STRONGER FOR SCOTLAND

Net-zero: 2030

"Start deployment of a CCS system that can deal with CO2 emissions from manufacture of iron, steel and cement."

£800m for Carbon Capture research

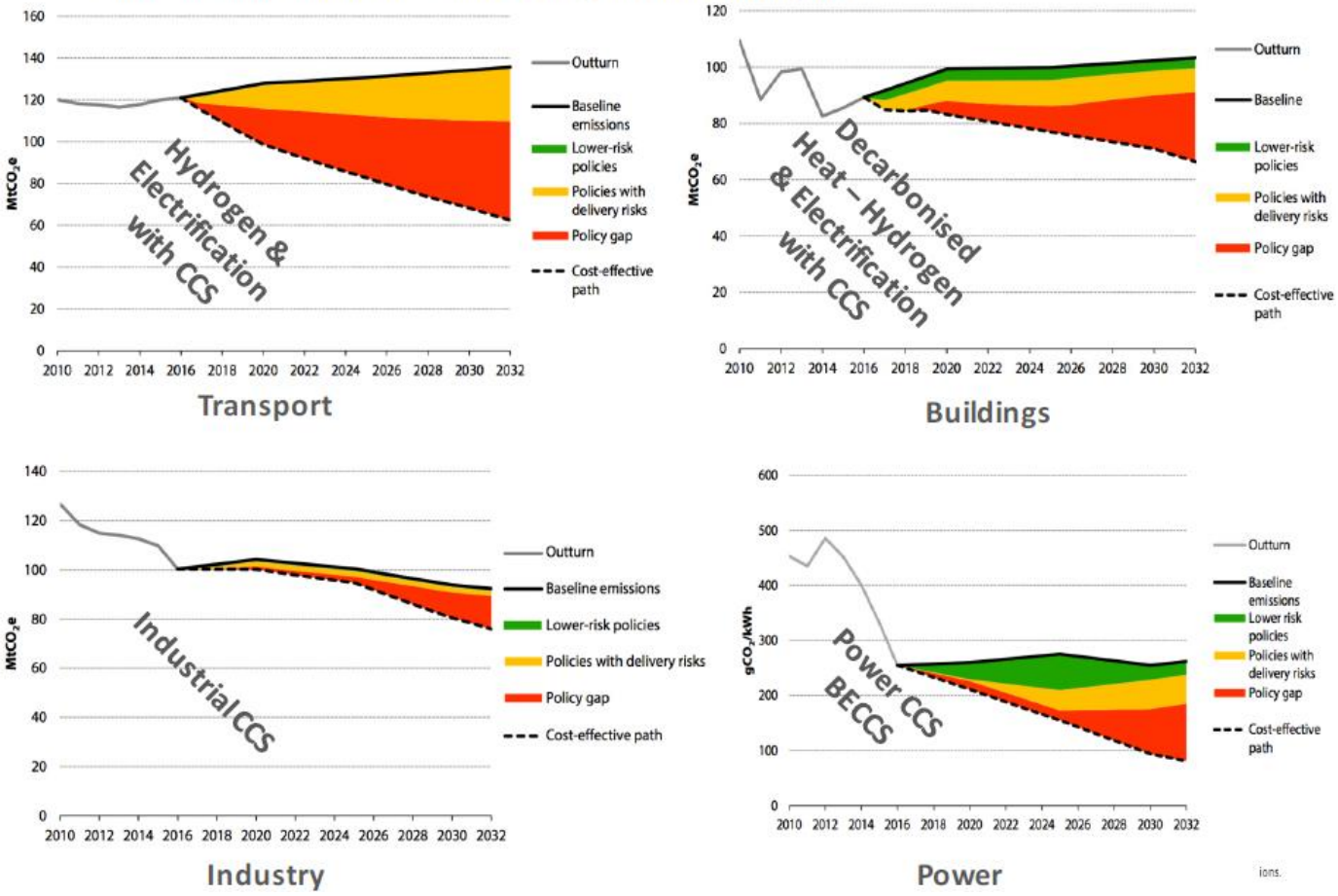
CCS & the General Election

CCUS For the Many Not the Few

Carbon Capture & Storage Association

CCS: It's Time for Real Change

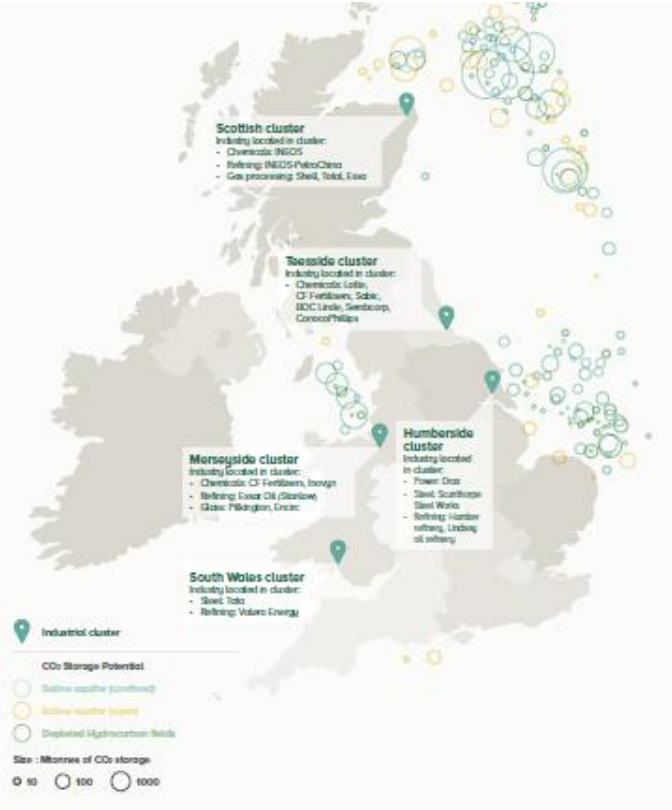
Source CCC analysis based on BEIS (2017) Energy and Emissions Projections



UK opportunity: Regional growth

- Deploying projects in regional clusters will drive down costs and maximise value by allowing multiple emitters to access shared infrastructure

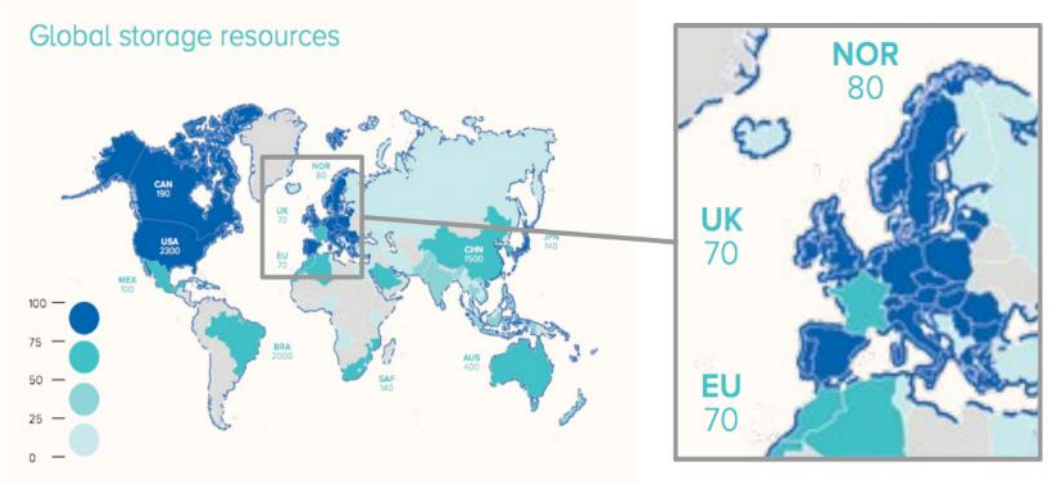
- Will support heavy industry as the UK transitions to a low carbon economy and help retain the almost one million jobs (direct and indirect) in steel, cement, refining, chemicals, ceramics and glass



- Teesside, Yorkshire & the Humber, the North West, Scotland and South Wales suited to clusters with closely located power and industrial facilities and access to large offshore CO_2 storage capacity

UK opportunity: Unleash Britain's Potential

- Geological assets, industrial infrastructure and skills capability means the UK has competitive advantage and could become Europe's leader in CCUS
- The UK has one third of Europe's storage capacity, and as much as the other EU member states combined
- The UK could replicate the success of the offshore wind industry and go even further by ensuring that the CCUS supply chain (and associated jobs) are kept in the UK



Map showing the storage capacity in gigatonnes CO_2 of the UK vs Europe and the Rest of the World

UK opportunity: Decarbonisation

- Because CCUS reaches the harder to decarbonise sectors the technology can play a critical role in reducing emissions in the most cost-effective way

- Committee on Climate Change: **UK may need to store at least 75 and potentially up to a maximum of 175 $MtCO_2$ each year by 2050**.

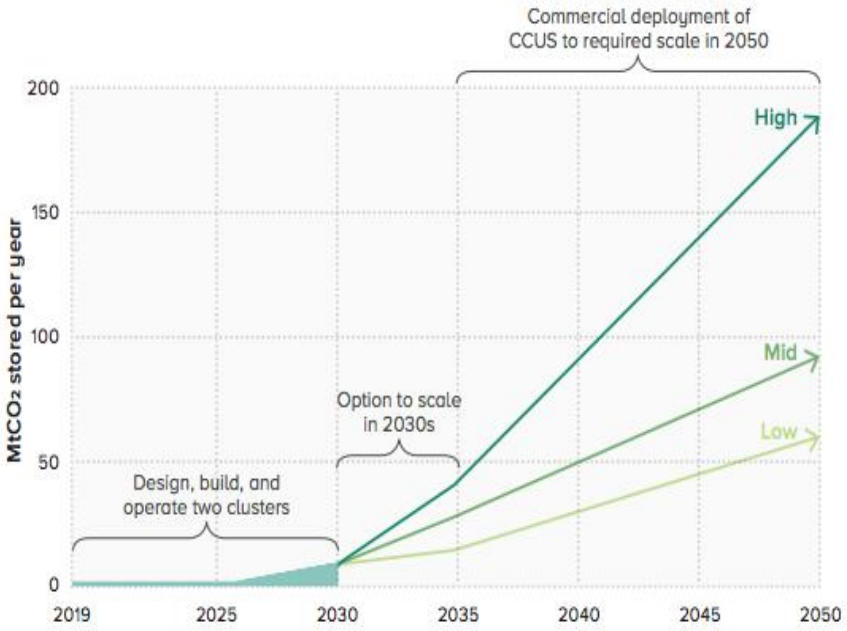


Chart showing required build out rates of CCUS capacity in three phases to 2050

- CCS is “a necessity not an option” for reaching net zero – accelerated action required first cluster mid-2020s

Recent CCUS Developments

October 2017: Clean Growth Strategy sets out ambition for UK to become a world leader on CCUS technologies

July 2018: Cost Challenge Taskforce called on Government to establish at least two regional CCUS clusters by 2025

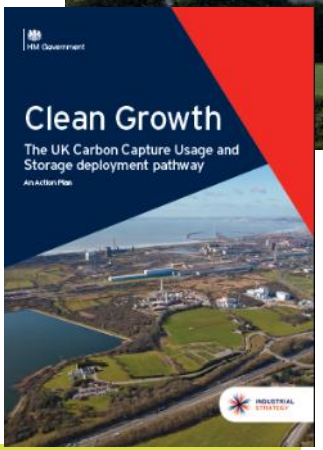
November 2018: Government published the CCUS Action Plan - commits to delivering the first CCUS project by the mid-2020s

December 2018: Industrial Strategy Mission establish the world's first net-zero industrial cluster by 2040 (£170m committed)

March 2019: CCUS Advisory Group established to advise on CCUS investment framework

April 2019: BEIS Select Committee published report calling for Government to commit to 3 clusters operational by 2025

September 2019: BEIS CCUS Business Model consultation closes



Carbon Capture & Storage Association

UK projects: Building a Brighter Future

Cadent

Decarbonised H_2 for industry, Merseyside

acorn

Low-cost, using existing infrastructure, Scotland

TEESSIDE CO_2 LLECTIVE

A NEW INDUSTRIAL FUTURE FOR THE UK

CCS equipped industrial zone, Teesside

drax

equinor

nationalgrid

BECCS & H_2, Humberside

OGCI CLIMATE INVESTMENTS

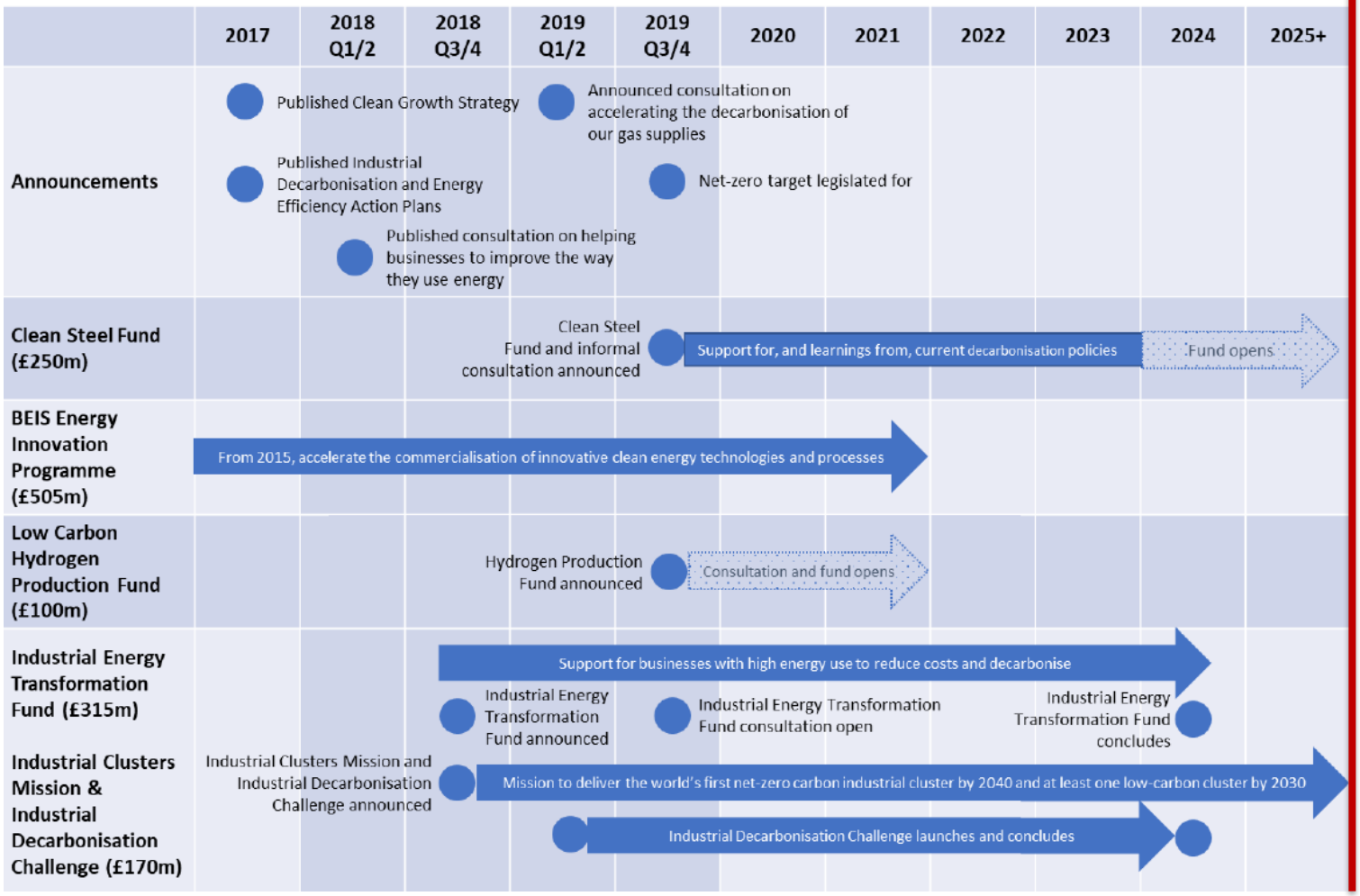
OIL AND GAS CLIMATE INITIATIVE

Gas power plant with CCS, Teesside

Carbon Capture & Storage Association

Current potential funding for CCUS

21%



Carbon Capture & Storage Association

Near-term priorities (6 – 9 months)

Political commitment to a credible level of CCUS in the 2020s

- Govt accept CCC advice and adopt policy of at least 10 $MtCO_2$ stored p.a. by 2030.
- In 2020s develop CO_2 infrastructure in all key storage regions (Central & Southern North Sea and East Irish Sea) and neighbouring industrial clusters to underpin deep decarbonisation in 30s and 40s.

Policy decisions to create a route to market for CCUS

- 1Q 2020: Announce instruments to support the investment across CCUS value chain.
- 1H 2020: Publish 'Heads of Terms' with key principles underpinning CCUS business models and respective roles / responsibilities - allows projects progress into FEED.
- 1H 2020: Publish business model implementation timeline consistent with CCUS project timelines to enable progress to Final Investment Decision (FID).

Funding to support CCUS project development

- Investment ~£300 – 400 million to 2023/24 up to four projects to FID – substantial private sector investment if progress on political commitment & route to market.
- Funding announced for decarbonisation of industry, H2 and CCUS could provide a substantial proportion however must be accessible otherwise alternatives required.

The Potential Role of Government post Election

Development support for CCUS Clusters

- Government should make certain that sufficient funding is provided to **explicitly support CCUS development** costs

Capital support for CO2 transport and storage infrastructure

- Initial capital grant from HMG can **largely remove cross chain risk**
- Initial capital grant from HMG **can support the oversizing of T&S assets** to reduce early project risk and allow for future tie-in
- Maximising **infrastructure re-use** and decommissioning opportunities:
  - HMG support for incentivising high P&A practices for wells in strategic reservoirs
  - HMG support for mothballing strategic assets

Support for CCUS markets

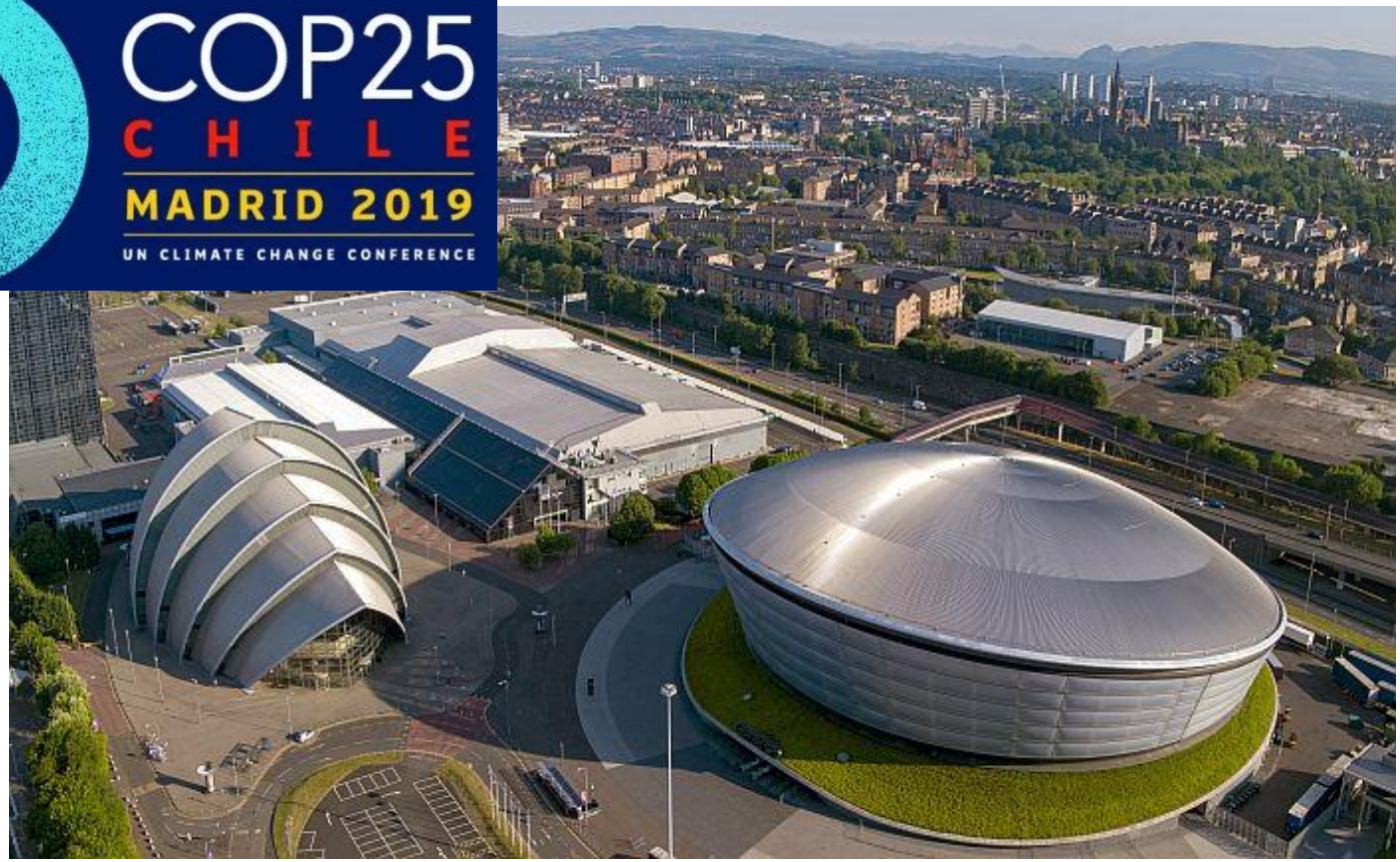
- *Industry*: OPEX support
- *Power*: CfD funding source clarity
- *Hydrogen*: Interim support as markets establish

Carbon Capture & Storage Association

COP26: A Global Climate Platform

TIME FOR ACTION

COP25
CHILE
MADRID 2019
UN CLIMATE CHANGE CONFERENCE



Glasgow's SEC

Carbon Capture & Storage Association

The European Union

©BBC

EU Projects: Stronger for Europe

Carbon Capture & Storage Association

ERVIA

Port of Rotterdam

Port of Antwerp

Shell

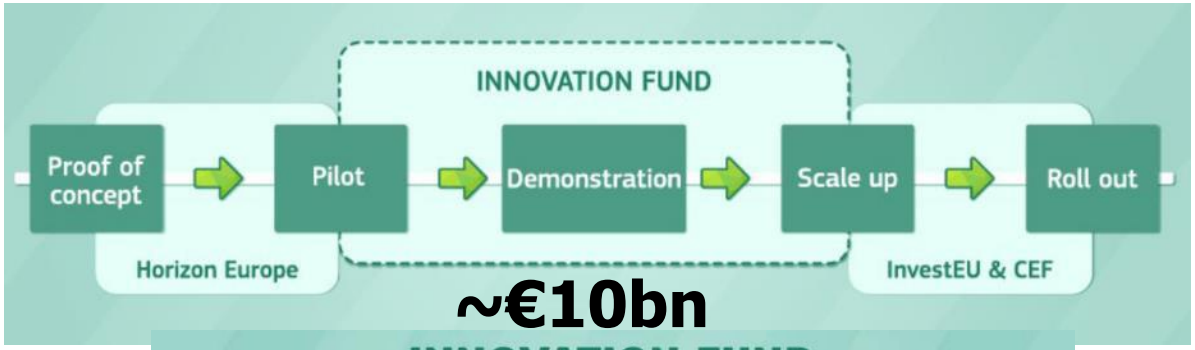
equinor

TOTAL

Port of Amsterdam

Adapted version of map from the report "Industry in a changing climate" (Bellona Europa, 2018).

Funding Mechanisms for CCUS in Europe



~€10bn

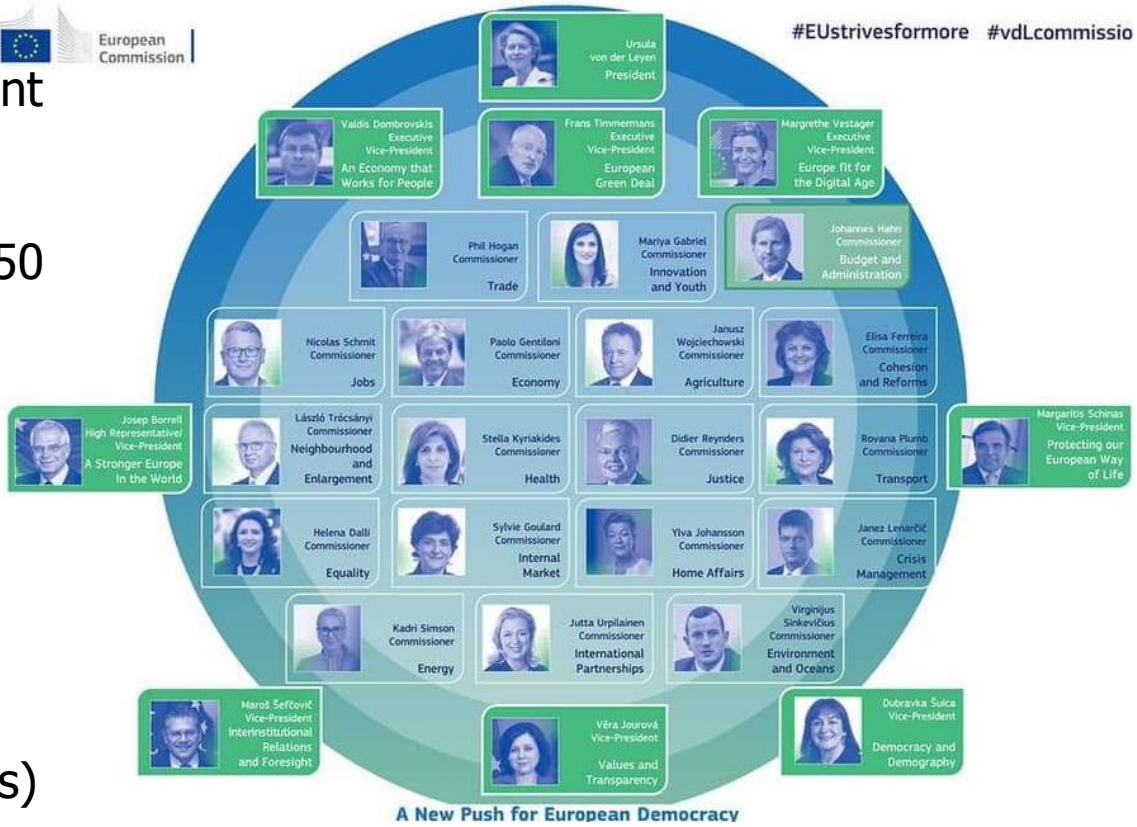
~€100bn

?€bn

EU Green New Deal: Unleashing a Green Economic and Social Revolution

- EU Industrial Strategy
- Sustainable Europe Investment Plan
- Just Transition Fund
- European Climate Law on 2050 Neutrality
- Increased 2030 target (40 – 50/55% GHG reduction)
- Climate Investment Bank

- ETS Review
- Carbon Border Tax
- CO2 removal incentives
- Decarbonisation package (gas)



Green Finance and Lending Policy

Sustainable Taxonomy:

"If CCS enables an economic activity in the manufacturing [& electricity generation] sectors to meet its screening criteria, the installation of **CCS technology can be considered Taxonomy eligible** once the screening criteria has been met"

Energy Lending Policy:

"[by 2022]… the Bank will phase out support to energy projects reliant on **unabated** fossil fuels"

European Investment Bank

Carbon Capture & Storage Association

Conclusion: If Not Now, When?

- Political landscape for CCUS is shifting
- Cross-party support for CCUS is a first for the CCUS community
- 2020 will be a vital year to keep the ball rolling
- Unprecedented support through many funding mechanisms
- UK has an opportunity to lead CCUS globally
- Europe & the Green New Deal will drive forward climate policy which the UK cannot ignore

House of Commons

Business, Energy and Industrial Strategy Committee

Carbon capture usage and storage: third time lucky?

Twentieth Report of Session 2017–19

Report, together with formal minutes relating to the report

Ordered by the House of Commons to be printed 2 April 2019