Capturing the value of CCUS
Expert Workshop Summary Report

Paris, 14 -15 October 2019

Table of contents

Context of the workshop

The purpose of this workshop was to have deep exchanges

- on the role of CCUS in fighting climate change,
- on its value to society,
- on the best way to relay its value to the public,
- on new value-based mechanisms to accelerate the deployment of CCUS,
- on examples of business solutions to scale-up CCUS,
- on case studies from various areas,

We had a final session to provide an opportunity for key stakeholders to give their viewpoints.

Around 70 people attended the workshop from around the world. Due to the workshop's location (Paris, France), Europe was overrepresented, with most attendees coming from France, Norway, the UK and the Netherlands, but there were also representatives from Asia, the Middle-East, and North and South America. The attendees also represented various sectors: oil and gas was the most represented sector, but there were also representatives from the bank and insurance sectors, Energy Intensive Industries (Steel, cement, hydrogen production and waste to energy), technical and scientific institutions (science including social and economic sciences), public institutions, governments, consultants in strategic business and communications, and NGOs. Around seven students attended the meeting. For most of those young people them, CCUS was a new topic.

The mix of speakers and panelists discussing CCUS was more representative of the diverse areas of the world and the relevant sectors.

The ambition of the workshop was to make sure that a wide range of different perspectives were shown, and the workshop achieved this goal. Another ambition was to enable interactions between all the attendees. The workshop emphasized trust and interactive elements, so attendees could continue their collaboration and pursue new ideas together in the future.

Key findings/statements

By design, the workshop offered a platform for attendees to express various views regarding CCUS. The presentations and discussions triggered some interesting thoughts, which were reported by the ten people who sent their main take-aways and recommendations after the workshop.

Here are a selection of points which were exchanged:

- Achieving a ratio of captured and stored CO_2 to total emitted CO_2 equal to 100% in 2060, with an intermediate target of 10% in 2030. This is a preferred path to mitigate climate change and keep the global change in temperature at 2°C or below.
- CCUS will be key to decarbonizing Energy Intensive Industries, where electrification is not an option for CO_2 emissions associated to their core processes (up to more than 60% of their total CO_2 emissions in cement) and is not practical for the high heats (above 400°C) which some of those industries require (steel, cement, and chemicals).
- CCUS and other solutions like renewable and nuclear energies will complement each other for power generation decarbonization. The failure to develop thermal power generation with CCUS would result in higher system costs, even with a very fast decrease in the levelized cost of energy (LCOE) from renewables, as it would require very significant overcapacities (compared to a CCUS strategy) to produce the same amount of power generation.
- A low carbon power generation strategy relying on CCUS at the right scale would result in minimal economic and societal disruption by keeping the current power generation units in operation, along with infrastructure and jobs. This point is key in gaining public support for this low carbon solution.
- Delaying the development of CCUS on the grounds that future technologies would result in lower costs would certainly be more costly than developing CCUS today with the current status of the technology.
- Although the impact of relatively conservative estimates of CO_2 avoidance costs via CCUS (around 100 Euros/t) on production costs of cement and steel are very significant (around +70% and +25%, respectively), when considered from more complete value chains (a house and a building instead of cement, and a car instead of steel), the impact on the final product of the value chain is very moderate (less than +0.5% for both houses/buildings and cars).
- Supply-side mechanisms can be envisioned alongside more widely anticipated demand-side mechanisms. They offer the advantages of simplicity, reduced risk of leakage, lower cost of implementation, and direct involvement of fossil fuels producers. They would offer an opportunity to make polluters pay to clean, rather than make polluters pay to pollute. This would result in additional costs moderate enough so fossil fuel producers would still find interest in developing their reserves. Tools like Carbon Sequestration Units (CSU) could be the origin of efficient international trade mechanisms. Supply-side mechanisms based on CSU can create the necessary funding conditions which are today one of the main obstacles to the development of CCUS. A proposal is made to launch a pilot phase via a club of stakeholders.
- Governments will have a role to play to solve the contradiction between urgent investments and remote future impacts on climate change.
- More project developments are key for the credibility of the CCUS industries and for building trust among the relevant stakeholders (from fossil energy producers to citizens). The current lack of projects triggers frustration and is an impediment to trust building.

- There is a lot to improve on the communication side of CCUS: more clarity on costs, more transparency on strategy, more commitments in projects.
- Rebranding the name of CCUS could be a way forward, as long as it provides an honest view of the role of CCUS.
- Working together in order to overcome the perception barriers between the stakeholders is essential to build trust and progress forward.
- The value of CCUS will be significant for countries that consume, produce, export, and import fossil energy, as well as for countries that build, purchase, export, or import significant production from Energy Intensive Industries. The components of this value will vary from one country to another, resulting in potentially different development strategies.
- In a given country, the value of CCUS will be spread between the different stakeholders, which must be taken into account in designing the funding mechanisms, so that the burden is distributed appropriately regarding the value.
- CCUS can be a key contributor to low carbon hydrogen production.

Summary of the presentations and discussions[1]

The role of CCUS in fighting climate change

The role of CCUS in climate change mitigation is essential because net zero emissions must be achieved by 2050. Targeting an evolution of the ratio between CO_2 emissions avoided by CCUS to gross CO_2 emissions is necessary to achieve this. If a ratio of 10% is achieved by 2030, then a 100% ratio would be achievable by 2060.

CCUS in power has to adapt to take into account the strong cost decrease of renewable energies. As these costs continue to decrease, the window for CCUS might close despite the real interest for CCUS. A view was expressed that the battle for new power generation capacities was lost. However, this is not the case for current power generation capacities and many of the emissions of the different energy intensive industries.

Climate change is impacting the current business of insurance companies. It is a major issue today, associated with more damages in some areas than others; fires are an example. These problems will increase with more and more people and small enterprises unable to deal with climate risk. The insurance sector appears today to be more focused on climate change adaptation rather than mitigation.

CCUS is an essential part of global climate change mitigation. Its role will be crucial for energy intensive industries to avoid process CO_2 emissions (which are due to the core process, and represent up to 60% of the total emissions associated with cement production) and CO_2 emissions due to heat above 400°C for which new solutions based on electrification will not be feasible for some years (most heat needs in cement, chemicals and steel industries are in this high temperature range). CCUS in industry offers opportunities in lower-cost investment, establishing markets for low-carbon materials, and developing shared infrastructure to attract investments and reduce costs. Studies show that if CO_2 storage capacities in some areas are insufficient to cope with the emissions from power and Energy Intensive Industries (EII), then it creates more value to allocate the limited CO_2 storage capacities to CO_2 emitted from EII than from power.

Discussion

The Oil and Gas sector should not use an excuse-making strategy that avoids the development of CCUS. If they believe in CCUS, they must pursue it. The Oil and Gas sector should be more active, as this sector is key in developing CCUS. The link between hydrogen production and CCUS should be emphasized as well. Be pragmatic: in some areas, CCUS is largely tied to tackling current facilities like coal power plants. The hidden costs due to the intermittency of renewable energies must not be forgotten and is the main argument for thermal power generation with CCUS to be regarded as essential for a high-quality power generation system (see also B below).

The value of CCUS for society

There is room for renewable and nuclear energy, and there are adequate ways of managing the intermittency and inflexibility of these types of power generation. But to have a cost-efficient power system, fossil-based power generation with CCUS is of great value, despite the widely shared view that CCUS costs are too high to be

[1] The summaries here are supposed to mirror the view of the speakers and of those who participated to the discussions, which can differ substantially from the views of some of the attendants or of the organizers of the workshop.

economical. The LCOE-based methodologies fail to properly take into consideration the full system costs. For example, they ignore the fact that a no-CCUS strategy would result in significant investments in overcapacities and infrastructures, which would otherwise be avoided. Waiting for the maturation of a technology that would result in significant cost decreases would result in value destruction in the event of success for this maturation, and even more so in the event of failure. This value destruction is due to the urgent need to act.

The value of CCUS to society must be demonstrated. A low carbon strategy for power generation that includes CCUS as part of the solution would not only be efficient from an economic point of view, but also for a societal point of view, as described by the Sustainable Development Goals defined by the UN. In particular, a CCUS-based strategy results in less job disruption than a strategy to exclude CCUS. Cost is not the only issue under consideration. GDP growth, as well as employment creation and preservation are key for society and its capacity to accept the development of this low-carbon solution.

The creation of climate-neutral products is affordable. CCUS will be needed for Energy Intensive Industries (EII) to achieve deep decarbonization targets. For example, in EII in Nordic Countries, it is estimated that CO_2 emissions reductions, utilizing CCUS, will be 85% in 2050 compared to 2010, as opposed to the 35% estimate without using CCUS. A 100 $/t cost to avoid CO_2 emissions as envisioned for CCUS and other low carbon solutions would result in extra costs for cement and steel equal to around +70% and +25%, respectively. Although these costs appear to be large, it is not the case when considering the final products the cement and steel are used for. For example, the impact of a 100 $/t cost would be limited to around 0.5% of the cost of the car or the house. This should be much more acceptable for the buyer of the final product than for the buyer of the intermediate ones (steel and cement in this case).

Discussion

The above presentations were based on studies for the UK, Poland, and the Nordic countries, but the speakers made it clear that this would apply to most countries around the world. The rate of development of renewables to achieve net zero emissions without CCUS seems to be a tremendous challenge, particularly when considering the need for overcapacities to cope with intermittency.

The value arguments to improve our communication for CCUS

We need to redefine the way we communicate the value of CCUS. We are facing a lack of trust between the different actors. The oil and gas industry (and OGCI in particular) failed to build trust in its intention to decarbonize. NGOs want projects to be launched. Oil and Gas companies' efforts in low carbon investments are small compared to their total investments. This situation does not help to build credibility for CCUS. Oil and Gas companies need to be clear about storage costs.

Re-message, re-brand CCUS. The public knows very little about CCUS. We need to create excitement about CCUS to create a sense of hope. Today, CCUS is viewed as science fiction. People do not understand how CO_2 is captured and stored, and CCUS is associated with explosion risk in storage. The concept of recycling is appealing to people. CCUS means recycling CO_2, and it also means Reduce, Reuse and Return.

Creating an alliance of champions (AOC). Why is CCUS not happening? Part of the answer is the lack of champions and narrative to support CCUS. Both technical and perception barriers have to be overcome, with the latter being the more difficult one. They are related to our fundamental beliefs. Understanding the common ground is as important

as understanding how the technology works. The AOC exercise is developing new narratives to enable CCUS based on widely shared truths, addressing perceived weaknesses in current narratives, explaining why dialogue is difficult, and providing recommendations on how to advance CCUS at scale. These narratives are living documents.

Which new value-based mechanisms will accelerate the development of CCUS?

Concept of supply-side policies to accelerate CCUS development. Supply-side mechanisms could be developed in addition or in substitution with the currently more developed demand-side mechanisms in which polluters pay. The advantages of this type of mechanisms are the following: 1. easier to handle because there are less producers than consumers; 2. the cost of implementation will be lower; 3. leakage risks are reduced; and 4. the resources of the fossil energy producers will be directly engaged, as they will be the main benefiters of CCUS. Different types of instruments can be applied to this kind of mechanisms, such as taxes, mandates, regulatory/voluntary approaches, and low carbon procurements. Supply side mechanisms and carbon pricing has helped for renewables. They should help for CCUS.

Concept of Carbon Take Back Obligation (CTBO). It is clear that in the long run – after a phase where public support will make the first projects fly – then both producers and consumers will have to pay to develop CCUS. Trust in regard to fossil energy producers is challenged by the fact that the permitting process does not include any climate provision. This results in polarization and divestment policies from the fossil energy industry. A smart supply side policy would: 1. include an obligation to put carbon back in the ground; 2. be comparable with renewable energy standards; 3. give the producer the responsibility to put more and more carbon back in the ground; and 4. make the producers pay. This could be compared to the scheme in which the responsibility of recycling the waste is attributed to the seller of the product. The governments will have flexibility to negotiate tailor-made solutions with the operators.

CCUS obligation certificates: insight from Norway. If the producer was constrained to store a growing part of the CO_2 which is emitted through the production and consumption of the oil which is sold, then, in the example of Norway, the impact of the associated costs would be around 5-20% of the price of the oil. For the oil producer, the implementation of this scheme as a condition to produce would result in a cost that in most cases would not jeopardize the oil field's developments. No single policy is enough to incentivize CCUS. Demand-side carbon pricing alone won't get us there. Scientifically defensible levels of net extraction help protect the value of mineral resources, and this would be a softer alternative to unconditional moratoria on exploration or extraction.

CO_2 storage crediting as a mechanism under the Paris Agreement. The concept of a Carbon Storage Unit (CSU), which would be a proof that a given quantity of CO_2 has been stored safely, would be a welcome solution after the failure to apply the Clean Development Mechanisms to CCUS. This CSU could be traded. A proposal is made to launch a pilot phase via a club of stakeholders.

Discussion

A supply-side mechanism is easier for the public to accept. There is a lot of potential value in developing international collaboration on this topic. Oil and Gas companies, academics, and NGOs should work together to develop this kind of plan.

Developing business solutions to scale up CCUS

Example of the UK. The CCUS Advisory Group was created by the UK government to identify the critical issues for the development of CCUS in the UK, including costs, risks and market-based frameworks. Funding (more than financing) is one of the major issues. It can come from taxpayers, electricity and gas consumers, motor vehicle users, and purchasers of products containing "embedded carbon". Subsidies and high carbon prices will not work, while the obligations to store will make funding available.

Deploying CCUS now and at scale: OGCI's CCUS KickStarter. Policy, legal, regulatory and financial barriers are hampering the development of CCUS. OGCI is implementing its "kickstarter" programme to facilitate large-scale commercial investment in CCUS by enabling multiple low carbon industrial hubs like those in Teesside UK), Northern Lights in Norway, in Rotterdam, in Xinjiang (China) and in the Gulf of Mexico (USA). OGCI is also pursuing activities in Saudi Arabia. The next phase will include Canada, Mexico, South Africa, Egypt, Japan and others. Another phase will include most of continental Europe, Brazil, India, Algeria, Australia and others.

Examples of CCUS case studies

US. There is a solid bipartisan consensus in the country for the development of CCUS. NGOs are supporting the development of CCUS. Under the 45Q tax credit scheme for CO_2 storage and enhanced oil recovery (EOR), commercial projects have to be launched by 2023 so it is urgent to move forward. The priority for the US federal policy agenda is to ensure an effective implementation of these tax credits. The Carbon Capture Coalition has been launched with 70+ members, including industry, NGOs and labour interests in order to achieve economy-wide deployment of carbon capture to reduce emissions, foster domestic energy and industrial production, and support jobs. Integrated Federal-State Policy & Regional Hub development are key to success.

Europe/UK. There is a good match between the increase of hydrogen needs and production and CCUS development. Four studies on hydrogen development in Europe show that: 1. deployment of hydrogen and CCUS in the UK economy would generate £18B in value and over 200,000 jobs; 2. there is sufficient bioenergy to enable net-negative hydrogen production (1040 TWh Hydrogen in 2050) in the most ambitious scenario; 3. hydrogen and CCUS power technologies can cost-effectively replace a significant number of planned power generation assets (£1.2 B/year cost decrease in 2035); and 4. the Humber region could represent an opportunity for early hydrogen deployment with potential demand of 13 TWh/y hydrogen in industry and up to 165 TWh/y in power plants. There are still some policy decisions that need to be made in order to develop activities such as switching from natural gas to hydrogen, switching to biomass, CO_2 capture and storage, negative emissions, electrification…

Gulf Cooperation Council (GCC) Countries. CCUS is among the most important mitigation options in GCC climate strategies. There are two main types of CCUS value in these countries: economic diversification (low carbon production, the export of hydrogen, and CO_2 storage service provisions) and sustainability (unlocking global oil demand and exports, and the decarbonization of domestic power, industry and water desalinization). In today's climate context, CCUS aligns domestic challenges with economic and environmental imperatives, enabling a Circular Carbon Economy. Three CCUS plants are currently in operation in this area: two in Saudi Arabia, and one in the United Arab Emirates. Key requirements to accelerate deployment include a credible carbon scheme and a robust global market for CO_2, absolute commitments on CO_2 storage from other countries, and political and consumer acceptance in key oil markets.

China. Most of China's existing coal power plants were built around 2005, and after. This means that by the 2050s, many of those plants (for a cumulative generation capacity of around 182 GW) will have to utilize CCUS in order to be compatible with a 2°C climate target. Three priorities have been defined: 1. accelerate R&D, demonstration, and promotion of utilization technologies; 2. achieve breakthroughs in the key new capture technologies; and 3. conduct full-chain system integration and large-scale demonstrations. The CNPC-OGCI Xinjiang CCUS Hub is one of the early opportunities with a potential of 3 MtCO2/year by 2030 from chemicals, refineries, and coal power plants. A CCUS support expert committee has been created to support policy decision making, encourage knowledge sharing, and promote project demonstrations and international cooperation.

Different perspectives from key stakeholders

Social perceptions and expectations are key. Oil and Gas are not the right advocates for CCUS. There is a need to find the right organizations to transmit the right message. Governments have to give the public the certainty that CCUS is being developed for the common interest of the whole society. Governments are anticipated to contribute to CCUS funding and other low carbon solutions. Working on CCUS projects will contribute to building trust. OGCI has to prove that it is a contributor to the development of CCUS for the benefit of society. CCUS can start with multiple pathways: Energy Intensive Industries, power generation, Hydrogen….

Main take-aways and discussion points

1. More interactions between the most important stakeholders is identified as a key improvement issue to build trust within and outside the CCUS community.
2. All members of the CCUS community see CCUS as a contributor to value for the society, but on which specific points on the value of CCUS do those in the community fully share views?
    - Evolution of the ratio of captured and stored CO_2 to total emitted CO_2
    - Value of CCUS for power generation:
        - Complementarity with renewable energies
        - Differentiation in the contribution of CCUS between current and future power plants
        - Differentiation between gas and coal power generations
    - Value of CCUS in Energy Intensive Industries
    - Synergies between EIIs and power plants
    - Arguments for not waiting for the maturation of disruptive technologies
    - Socio-economic impacts of CCUS on whole societies
    - How to deal with the fact that the benefits of CCUS will materialize far in the future, while investments are needed now
    - Impact of net zero constraints on the value of CCUS
3. Needs for sustainable business models are identified. New ideas are proposed.
    - Change the value chain perspective to consider the full chain from feedstock to the final product
        - Work with industries (EI) which are big clients of EII, while not being EII themselves, like car or building industries
        - Instead of marketing CCUS itself, market low carbon products
    - Deepen the pros and cons of supply-side mechanisms
        - Oil and gas to be responsible for scope 3 emissions?
        - Risk of antagonizing fossil energy producers and users
    - Which future for high CO_2 prices or taxes and government subsidies?
    - Which types of revenues for storage?
    - Synergies-complementarities/Incompatibilities between business mechanisms
    - Large-scale business models to kick start CCUS to scale up and achieve a few Gt/year industry
4. Communication is key for the development of CCUS, and there is a lot of room for improvement on this field.
    - Be more transparent on costs
    - Merit of rebranding CCUS so that it is more appealing to people and still honest
    - Develop interactions within the CCUS community
5. There are not enough projects in development, triggering frustration and impeding trust building.
    - Preserve Oil and Gas North Sea Infrastructures for future use for CCUS
    - Feasibility of converting some natural gas reserves to hydrogen via SMR or ATR and CCUS
    - Develop hubs and clusters.
    - Develop feedback on projects
6. Specifics to the oil and gas industry
    - Take a stance on supply side mechanisms (covered in business above).
    - Role in delivering CO_2-free hydrogen from natural gas
    - Stronger commitments of the oil and gas sector hand in hand with governments
    - Act more than talk
    - Role in transport and storage

FINAL AGENDA

Capturing the value of CCUS
Expert Workshop

14 -15 October 2019

Cité Internationale Universitaire de Paris, *Salon Honnorat*
17, boulevard Jourdan, 75014 Paris, FRANCE

DAY 1 - Monday 14 October 2019

10.00 – 10.30	**Welcome** *(15min)* **Introductory remarks** *(15min)*	**Jérome Schmitt** *(OGCI)* **Dominique Copin** *(TOTAL)* **Kim ByeBrunn** *(OGCI)*
10.30 – 12.30	**Session 1 - Grounding session** *Aim: Understand the specific role and value of CCUS in climate change mitigation.* Introduction by the Chair *(5min)* • **The challenge of achieving net-zero: the vital role of CCUS** *(20min)* • **How does climate change affect investment strategies?** *(20min)* • **Impact of climate change on insurance activities - from mitigation to adaptation: example of France** *(15min)* • **The central role of CCUS in meeting climate targets** *(20min)* ***Interactive discussion: 40min***	Chair: **Gardiner Hill** *(BP)* **Myles Allen** *(University of Oxford)* **Mark Lewis** *(BNP Paribas)* **François Garreau and David Bourguignon** *(Generali-France)* **Samantha McCulloch** (*IEA)*

14.00 – 15:30	**<u>Session 2:</u> Assessing the socio-economic value of CCUS** *<u>Aim:</u> build the socio-economic value-based arguments for CCUS.* Introduction by the Chair *(5min)* • **Quantifying and qualifying the techno-economic value of CCUS in energy systems transitions** *(15min)* • **Socially equitable transitions to a low carbon economy: the value of CCUS** *(15min)* • **Creating climate neutral products is affordable** *(15min)* ***<u>Interactive discussion:</u> 40min***	<u>Chair:</u> **Dominique Copin** *(TOTAL)* **Niall MacDowell** *(Imperial College of London)* **Piera Patrizio** *(IIASA)* **Filip Johnsson** *(Chalmers University)*
16.00 – 17.30	***<u>Session 3:</u> Sharing the value of CCUS to the public*** *<u>Aim:</u> share our views on how the value arguments can improve our communication to make it compelling for the key stakeholders.* Introduction by the Chair *(5 min)* • **Pathfinder for communicating CCUS: role of the NGOs** *(15min)* • **The need to rebrand CCUS** *(15 min)* • **Creating the Alliance of Champions** *(15min)* ***<u>Interactive discussion:</u> 40min***	<u>Chair:</u> **Kim Bye Brunn** (Shell/OGCI) **Keith Whiriskey** *(Bellona)* **Torund Bryhn** *(Thought Laboratories)* **Ewa Merchel** *(Valence Solutions)*
17:30 – 18.00	**Wrap up and close of Day 1**	**Chairs of Day 1**

DAY 2 - Tuesday 15 October 2019

DAY 2 - PART 1: THE CCUS ENABLERS

Aim: to discuss:

- *The merit of and how to share the burden of implementing CCUS across the value chain;*
- *How to design and implement CCUS value-based policies and business solutions to create investment opportunities for CCUS deployment.*

08.45 – 10.20	**Session 4: Creating new value-based mechanisms to accelerate the deployment of CCUS?** Introduction by the Chair *(5min)* • **Developing supply-side policies to accelerate CCUS deployment** *(15min)* • **Low Impact Fossil Energy: concept of the Carbon Take Back Obligation** *(12min)* • **CCUS obligation certificates: policy overview with insights from Norway** *(12min)* • **CO_2 storage crediting as a mechanism under the Paris Agreement** *(12min)* ***Interactive discussion: 40min***	Chair: **Thomas Berly** *(Consultant TOTAL)* **Wolfgang Heidug** *(KAPSARC)* **Margriet Kuijper** *(Independent)* **Eli Mitchell-Larsson** *(University of Oxford)* **Wolfgang Heidug** *(KAPSARC)*
10.50 – 12.00	**Session 5: Developing business solutions to scale up CCUS** Introduction by the Chair *(5min)* • **Investment frameworks for CCUS development: example in the UK** *(20min)* • **Deploying CCUS now and at scale: OGCI's CCUS KickStarter** *(15min)* ***Interactive discussion: 30min***	Chair: **Lamberto Eldering** *(Equinor)* **Patrick Dixon** *(Independent)* **Al Collins** *(Occidental Petroleum)*

***DAY 2 - PART 2: THE CCUS CASE STUDIES (SESSION 6)* (Chair: Mohammad Abu Zahra)**

Aim: to learn and discuss:

- *How the value of CCUS is considered from one region to another;*
- *How we can develop targeted initiatives and measures, within key regions of the world, to characterise, demonstrate, communicate the value of CCUS and implement CCUS at scale;*
- *How we can improve the communication on the value of CCUS in the different areas of the world.*

13:30 – 15:15	• **Early CCUS deployment opportunities in the US** *(20min)* • **Transforming industry in Europe through CCUS** *(20min)* • **CCUS development in the Gulf Countries** *(20min)* • **Overview of CCUS developments in China** *(15min)* ***<u>Interactive discussion:</u> 30min***	**Brad Crabtree** *(The Great Plains Institute)* **Emrah Durusut** *(Element Energy)* **Tidjani Niass** *(Saudi Aramco)* **Xiaoliang Yang** *(WRI China)*
DAY 2 - PART 3: VALUE OF CCUS – PERSPECTIVES FROM KEY STAKEHOLDERS (SESSION 7) *<u>Aim:</u> to hear:* • *How the value of CCUS may differ from one stakeholder to another;* • *What key stakeholders can do to help demonstrate the value of CCUS and contribute to deploy CCUS at scale.*		
15:30 – 16:30	***Panel Discussion*** • **Syrie Crouch** *(Shell)* • **Allan Baker** *(Societe Generale)* • **Kurt Waltzer** *(Clean Air Taskforce)* • **Adrian Gonzalez** *(Robert Gordon University)*	<u>Chair/Moderator:</u> **Ewa Merchel** *(Valence Solutions)*
16:30 – 17:00	**Final wrap up and what next?**	**Chairs of Day 2 and Dominique Copin** (TOTAL) **Kim ByeBrunn** (OGCI)

Published March 2020

Disclaimer
The views and positions shared at the *Capturing CCS Value Workshop* and in this summary are the presenters' own and not necessarily those of Total or OGCI. OGCI makes no representation as to their accuracy.