

## CCSA Supply Chain Working Group Meeting Minutes

11<sup>th</sup> of December 2024

Hybrid Meeting: [CCSA Supply Chain Working Group Meeting - 11th December 2024](#)

No.	Time	Item	Action
1.	10:00	<b>EB-L (Co-chair) – Introductions &amp; Housekeeping</b> <ul style="list-style-type: none"> <li>- Introduction of new attendees</li> <li>- Slides will be made available after the meeting, and the meeting will be recorded.</li> <li>- Reminder of the CCSA competition law notice</li> <li>- Approval of the minutes of September WG meeting</li> <li>- The agenda for the meeting was outlined</li> </ul>	
2.	10:05	<b>MM – CCSA Updates</b> <u>Key CCSA Policy and Publication</u> <ul style="list-style-type: none"> <li>- Published ‘Accelerating a Europe-wide CO<sub>2</sub> storage market’ on 4<sup>th</sup> December</li> <li>- Further publications upcoming; Cost reduction strategies for CCUS, CCUS Business Model Evolution, Markets and Mandates, CCSA Delivery Plan Update.</li> <li>- If require further information on publications, please reach out to Rebecca Bell (CCSA).</li> </ul> <u>CCUS Supply chain – Policy progress</u> <ul style="list-style-type: none"> <li>- Funding for CCUS projects (4<sup>th</sup> of October) and financial close of first CCUS projects (10<sup>th</sup> December).</li> <li>- National Wealth Fund policy paper (14<sup>th</sup> October) – more clarity and commitment to clean energy supply chain is needed, including CCUS supply chains.</li> <li>- Scottish Government strikes deal for GBE (17<sup>th</sup> October)</li> <li>- Autumn budget (30<sup>th</sup> October) – supply chain content was limited.</li> <li>- ‘Scope 3 Emissions reporting’ responses published (21<sup>st</sup> November) – no outline of next steps from government but expecting more detail in due course. CCSA positions in line with the majority of other responses.</li> <li>- ESNZ committee aiming to hold sessions soon regarding 2024 inquiry into Securing the Domestic Supply Chain.</li> </ul> <u>CCUS Supply chain – Next Steps Priorities</u> <ul style="list-style-type: none"> <li>- Further allocation decisions on CCUS projects to create demand certainty for supply chains.</li> <li>- Further engagement is required with ministers to showcase benefits of low carbon technology supply chains to drive investments.</li> <li>- CCSA are looking for clarity on the status of the GIGA fund under the current government.</li> <li>- CfD allocation round 7: Clean Industry bonus – CCSA calling for this in CCUS sector if possible.</li> </ul> <u>Skills &amp; Workforce Planning – Policy progress</u>	Reach out to Rebecca Bell (CCSA) if interested in upcoming CCSA publications.

		<ul style="list-style-type: none"> <li>- Government has greater focus on this area, providing more clarity on their plans.</li> <li>- Skills England Policy paper (24<sup>th</sup> September) – we expect Skills England to be fully formed in Spring 2025; aligning with the Industrial Strategy timeline.</li> <li>- Skills Passporting announcement (17<sup>th</sup> October) is a key milestone; CCSA advocates for its replication in the CCUS and hydrogen sectors.</li> <li>- Baroness Taylor’s response to inquiry into Skills for the Future (23<sup>rd</sup> October) – largely aligns with the positions put forward by the CCSA.</li> <li>- Autumn budget (30<sup>th</sup> October) had a lot of updates around skills – significant funding allocated; scale of challenge understood (more info on slides).</li> <li>- ESNZ Committee examining workforce planning required to deliver clean, secure energy. The CCSA are currently responding to this.</li> </ul> <p><u>Skills &amp; Workforce Planning – Next Step Priorities</u></p> <ul style="list-style-type: none"> <li>- Respond to ESNZ inquiry on Workforce Planning.</li> <li>- Engage with Skills England and Office for Clean Energy jobs; CCSA can assist members in connecting with these key bodies if needed.</li> <li>- Advocate for further Government commitment to skills system reform – for instance with further funding or targeted policy changes.</li> </ul>	
<b>3.</b>	<b>10:25</b>	<p><b>SP – CCSA CCUS Public Perception Strategy</b></p> <p><u>Rationale for Action on Public Perceptions around CCUS</u></p> <ul style="list-style-type: none"> <li>- Media backlash followed 4<sup>th</sup> October funding commitments, with the CCSA issuing rebuttals.</li> <li>- Government aware of public perception challenges around CCUS; only 10% are aware of CCUS, but public perception remains low.</li> <li>- Actions already in place aiming to improve public perception: <ul style="list-style-type: none"> <li>o Members engage in local, regional and national outreach initiatives.</li> <li>o CCSA conducts extensive media outreach.</li> </ul> </li> <li>- Campaign plan: <ul style="list-style-type: none"> <li>o Unify members with coordinated messaging</li> <li>o Educate the public, debunk misconceptions and build support for CCUS</li> <li>o Weekly narrative guidance provided to members</li> </ul> </li> <li>- Current focus: Christmas Season.</li> </ul> <p><u>Campaign objectives</u></p> <ul style="list-style-type: none"> <li>- Raise awareness</li> <li>- Mitigate negative perception</li> <li>- Myth Bust</li> <li>- Highlight key messages</li> <li>- Reframe the discussion</li> <li>- Mobilise action</li> </ul> <p><u>Outcomes to date</u></p> <ul style="list-style-type: none"> <li>- Campaign launched mid-October, seeking greater member participation.</li> <li>- Weekly emails sent on Mondays with guidance for involvement for the week ahead.</li> <li>- Strengthened relations with DESNZ external affairs team, planning a CCUS FAQ page for DESNZ to host.</li> </ul>	<p>Members to provide feedback to SP on CCUS public perception strategy focus.</p>

	<ul style="list-style-type: none"> <li>- Climate scientists submitting rebuttal letters to media.</li> <li>- Focused on promoting engaging advocates for CCUS.</li> </ul> <p><u>Getting involved</u></p> <ul style="list-style-type: none"> <li>- Weekly emails are useful resource– if not receiving this, let SP know. <a href="mailto:sara.price@ccsassociation.org">sara.price@ccsassociation.org</a></li> <li>- Members report back to CCSA if engaging with this content so that CCSA can report back to DESNZ</li> <li>- CCSA welcomes suggestions for the topic for weekly focus emails for 2025.</li> <li>- DESNZ is enthusiastic about the membership’s efforts; MPs are engaging locally, and many are interested.</li> <li>- Ensuring full membership involvement is a priority.</li> <li>- A key narrative to focus on is supply chain and skills.</li> </ul> <p><u>Q&amp;A</u></p> <p>SP: Any comments or thoughts about campaign focus?</p> <p>PH: Even if public awareness of CCUS and climate change initiatives is limited, it is important to highlight the significant potential to create jobs e.g., job creation opportunities in Teeside.</p> <p>SP: Our figure of 70,000 new jobs and retaining 77,000 existing jobs makes it tangible for industry – CCSA will lean into this more in the new year.</p> <p>PH: There will always be sceptics until the technology is proven. Important to put a positive slant with awareness campaign (e.g., with job creation).</p> <p>SP: Absolutely, a positive narrative is what the campaign is centred around.</p> <p>SM: Need case studies for uptake of new jobs in the public domain e.g., Teeside.</p> <p>SP: We want communities to be proud to be working in CCUS.</p> <p>MT:</p> <ul style="list-style-type: none"> <li>- Campaigns should focus on youth, job opportunities, and relatable case studies to drive local engagement.</li> <li>- CCSA focus emails contain a lot of material for members to get involved with.</li> <li>- Regional press is crucial for engaging local communities.</li> <li>- Next year is pivotal for these relevant regions.</li> </ul> <p>SP:</p> <ul style="list-style-type: none"> <li>- Next year, we will shift to a 3-week focus to allow better communications planning – current priority was getting the campaign launched.</li> <li>- Case studies will play a crucial role.</li> </ul> <p>MT:</p> <ul style="list-style-type: none"> <li>- No complaints with the amount of content – member’s responsibility to work through it.</li> <li>- Priority is ensuring clear communication with wider public – 2025 will be key for widespread message dissemination.</li> </ul> <p>EB-L:</p> <ul style="list-style-type: none"> <li>- Use financial close of projects as local success stories, highlighting job creation in regional newspapers.</li> </ul>	
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4.	10:45	<p><b>SL &amp; PJ (KPMG) – Cost Reduction Strategies for CCUS</b></p> <p><u>Recap</u></p> <ul style="list-style-type: none"> <li>- KPMG have conducted research and stakeholder engagement across CCUS value chains analysing different types of capture as well as T&amp;S.</li> <li>- Engaged with over 30 organisations (CCSA members and non-members) through interviews and workshops.</li> <li>- Aimed to identify cost drivers and opportunities across a wide range of topics to help identify areas to reduce cost to deploy CCUS and level of government subsidy.</li> <li>- Target outcomes: cost drivers for CCUS deployment, opportunities for cost reductions across the value chain, recommendations for government to deliver these cost reductions.</li> </ul> <p><u>Cost drivers for CCUS deployment</u></p> <ul style="list-style-type: none"> <li>- Cost drivers for project deployment – three key drivers identifying a need for better allocation and sharing of risk across stakeholders involved in project development:             <ul style="list-style-type: none"> <li>o Risk allocation in supply chain contracting.</li> </ul> </li> </ul>	<p>KPMG and CCSA to consider further work regarding cost reductions</p>

		<ul style="list-style-type: none"> <li>○ Restrictive performance guarantee penalties and technical requirements.</li> <li>○ Uncertainty and delays in permitting and planning.</li> <li>- Cost drivers for policy and market frameworks – four key drivers: <ul style="list-style-type: none"> <li>○ Lack of stable carbon price and market frameworks.</li> <li>○ Barriers to full value chain collaboration.</li> <li>○ Limited access to T&amp;S networks.</li> <li>○ Uncertainty in the value of negative emissions.</li> </ul> </li> </ul> <p><u>Opportunities to reduce costs</u></p> <ul style="list-style-type: none"> <li>- There are key opportunities for cost reductions across different parts of the value chain, across CAPEX, OPEX and WACC.</li> <li>- Wide range of cost reduction opportunities – finer details of cost reductions associated with value chain segments can be found on slides.</li> <li>- Cost reduction predictions were estimated using a wide consensus – however there is a high level of uncertainty so predictions may vary.</li> <li>- The potential of cost reduction is highly dependent on the circumstance of each individual project.</li> </ul> <p>EB-L:</p> <ul style="list-style-type: none"> <li>- 2035 cost reduction percentage estimates – costs are so high we need to be more aggressive with how we reduce our costs.</li> <li>- Would like to discuss this figure further with KPMG.</li> </ul> <p>PJ: Once learnings are shared from Track 1 process, we can get firmer estimates of the potential cost reductions.</p> <p>EB-L: Projects are first of a kind – once there are more projects, we can utilise copy effects, which will be effective in reducing costs.</p> <p>PJ: Agreed – we have tried to capture this in learning rates and sector maturity.</p> <p>MM: Have you been able to separate value chain segments for the capture aspects individually to see where the greatest cost reductions are?</p> <p>PJ: Different stakeholders had different estimates on cost reductions – given high level of uncertainty currently, we didn't have the data to attribute specific cost reductions to specific capture aspects.</p> <p>MM: The estimates are up until 2035; do you expect to see a plateau of cost reductions after this, or how will reductions change beyond this date?</p> <p>PJ: We haven't done too much modelling at this stage – but towards 2035 and beyond we expect a slight plateau of cost reductions.</p> <p>SL:</p> <ul style="list-style-type: none"> <li>- The cost reductions figures are regarding the costs to deploy – the other part of cost reduction was policy costs and how subsidy decreases, which is where there will be larger reductions.</li> <li>- Currently there is uncertainty of the details of policy levers needed to produce a fully commercialised sector without government subsidy.</li> </ul> <p>SM: Other factor in the value rather than cost is the efficiency of these plants – which will improve on 2<sup>nd</sup> and 3<sup>rd</sup> generation projects. Have you been able to quantify this?</p>	
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PJ: It is contributing to overall cost reduction – but we did identify that a main driver of, particularly OPEX, cost reduction was more efficient processes.

Recommendations for government

- Through the key cost drivers we were able to identify government recommendations to deliver most impact on cost reductions in the near term:
  - o Refine the approach to funding allocation.
  - o Accelerate delivery of comprehensive carbon markets both in the UK and internationally.
  - o Deploy public finance through GB Energy and National Wealth Fund.
- Recommendations are in context of CCSA’s previous recommendations to government to accelerate the allocation of Track 1, Track 2, and expansion projects and provide greater allocation funding certainty for project deployment beyond that.
- Each of the three recommendations has implementing actions identified through the analysis.

Q&A

PH: Need to consider innovations, construction changes or technology improvements that bring indirect cost reductions – hard to capture and quantify these cost reductions though.

PJ: We have identified these as part of the analysis.

JM: With contracting strategies and models, can you explain this in further detail? Has your analysis led you to believe a particular form of contract might be more suitable? Can you explain the issue of risk allocation in more detail?

PJ:

- As part of the stakeholder engagement process and additional research we identified collaborative contracting as a key potential mechanism.
- A couple of case studies are included in final report in terms of how this has been applied in oil and gas sector.
- Case studies point towards cost reductions compared to traditional competitive fixed cost contracts due to risk allocation and shared learning and efficiencies allowed through that.
- We can share case studies after the meeting.

JM: That would be appreciated, I will follow up after the meeting.

PH:

- Good point on contracting strategy- first projects are being completed in a competitive manner. With risk at each stage, there is a tendency to stick to traditional forms of contracting.
- EPCs may stick to traditional specifications and methods because the amount of risk being put onto them to deliver projects.
- Will be difficult to move towards collaborative contracts for the first projects.

SL:

- Agreed – there is tension between competition and collaboration.

		<ul style="list-style-type: none"> <li>- Sector is in early stages – will not get benefits of competition yet, but this flows into recommendations for government provided by KPMG.</li> </ul> <p>PJ: Role for government as well as industry in ensuring knowledge of different contracting approaches is shared.</p> <p>EB-L:</p> <ul style="list-style-type: none"> <li>- As a representative of an EPC – lump sums for first of a kind projects raise red flags.</li> <li>- Collaborative or partnership model would make a difference</li> <li>- Not just between emitter and EPC, but also a discussion with financial institutions.</li> <li>- Government could have a role as an intermediary.</li> <li>- Is there follow up work for prioritisation, or identifying of the main drivers?</li> </ul> <p>PJ: Subsequent pieces of work are possible – will wait for learnings and a better understanding of potential cost estimates from Track 1.</p> <p>MS:</p> <ul style="list-style-type: none"> <li>- The initial focus for CCSA is a strong message regarding cost reduction to feed into Spending Review (which will be closing early in February).</li> <li>- Further work includes focusing on how further cost reduction will play out in the market.</li> </ul>	
<b>5.</b>	<b>11:20</b>	<b>Break</b>	
<b>5.</b>	<b>11:25</b>	<p><b>BW &amp; FE &amp; TPG &amp; IH (Rystad Energy) – O&amp;G Supply Chain Opportunities in the Energy Transition</b></p> <p><u>Supply Chain Report (BW)</u></p> <ul style="list-style-type: none"> <li>- The focus was on how to take current supply chain within oil and gas sector into other energy sectors – particularly where there is possibility of transferability of workers and where capital expenditure allows for it.</li> <li>- The research took 5-6 months for completion.</li> <li>- The final report is still the centre of supply chain positioning for OEUK.</li> </ul> <p><u>Analysis for report conducted by Rystad Energy (FE)</u></p> <ul style="list-style-type: none"> <li>- Key findings for supply chain opportunities: <ul style="list-style-type: none"> <li>o Considerable opportunity for the UK.</li> <li>o Domestic opportunities and challenges are present.</li> <li>o Large export potential if successful.</li> </ul> </li> <li>- UK energy spend (CAPEX and OPEX) in new energy verticals is increasing.</li> <li>- By 2031, expect hydrogen, CCS and floating wind jointly to be larger than both bottom fixed wind and legacy oil and gas in the UK – therefore there is the potential for substantial contributors into UK supply chain.</li> </ul>	<p>Reach out to FE and TPG if interested in further detail from Rystad Energy</p>

- With fixed bottom wind, the UK was not able to build a domestic supply chain to deliver the build out of this sector – must not make this mistake with other sectors.
- Shift from OPEX to CAPEX needs – CCS will be CAPEX driven in terms of spend, will be a large switch for energy supply chain in the UK to adapt to.
- An opportunity to lean and depend on UK’s oil and gas strengths in molecule handling and deep-water projects.
- Segments have a capability overlap with oil and gas sector of between 60-80%
- Around 80% of UK CCS expenditure targetable by oil and gas supply chain.
- Different sectors have different issues regarding targetable UK expenditures by supply chain segments e.g., logistics and vessels is primarily a challenge for fixed bottom wind.
- Need to scale fabrication and construction of onshore molecules facilities by 13 times – it will be challenging to deliver. Supply vessels and offshore structures are also a challenge to get in sufficient numbers to satisfy demand.
- If successful in home growing a supply chain industry – for CCS, the global addressable market is £474 billion
- CCS is behind floating offshore wind in terms of focus, but has high UK oil and gas supply chain capability.
- See slides for further details.

Q&A

SM: Presenters mentioned that the driver of the international supply chain wouldn’t be available – did I misunderstand this?

FE: With offshore oil and gas, and bottom fixed wind there is ability to draw on non-UK deliveries (e.g., supply chains) – but with new energy segments these will need to be run out of the UK.

SM: I misunderstood, thank you for clarification.

FE: Should not underestimate flexibility to outsource in order to scale up fast.

EB-L: The fact that floating offshore wind doesn’t need to touch UK soil - is this the driver behind the lack of correspondence between the investment from government and job creation? Or is it more down to the focus towards FIDs and dismissal of supply chain considerations?

FE:

- There was low overlap with oil and gas value chain with bottom fixed wind.
- What is needed to invest is the need for long term timelines with FID visibility (better on CCS side with cluster approach).

		<ul style="list-style-type: none"> <li>- If do not have this then we need recurring award rounds, such as the CfD regime. UK is in better situation than the EU in this regard.</li> </ul> <p>FE: Our advisory team is trying to understand prioritisation of emitters and understanding how to provide more certainty – please reach out if interested. Also, TPG has multiclient offerings which consists of supporting data for the CCS space if interested.</p>	
<b>6.</b>	<b>11:55</b>	<p><b>EB-L – AOB</b></p> <ul style="list-style-type: none"> <li>- Summary of the meeting provided with key takings from the presentations.</li> <li>- Thanks given to all the speakers and contributors.</li> <li>- Next meeting date is TBC for 2025</li> </ul> <p>MM: Dates for next year will be provided shortly, likely to be the same months as 2024 (march, June, September, December).</p> <p>MS: Please reach out to me if needed, great to meet everyone virtually.</p>	<p>MM to confirm next meeting dates in 2025</p> <p>Members to reach out to CCSA UK Director (MS) for introductions if useful.</p>

## Attendees

Name	Organisation	In-person/online
Max Musing	CCSA	In person
Sara Price	CCSA	In person
Mark Sommerfeld	CCSA	In person
Ethan Drake	CCSA	Online
Espen Bagge-Lütken	Aker Solutions	Online
Fredrik Ellekjær	Rystad Energy	Online
Timothy Paul Gillies	Rystad Energy	Online
Ingunn Haldorsen	Rystad Energy	Online
Samuel Levin	KPMG	Online
Piers Johnston	KPMG	Online
Ben Ward	OEUK	Online
Goncalo Cunha	INTERA	Online
Manish Kumar	Bechtel	Online
John McColl	Worley	Online
John McCoubrey	Mitsui	Online
Nawal Nadiah Saifuddin	Petronas	Online
Nur Haryani Hisham	Petronas	Online
Nina Lynn	Navigator Gas	Online
Paul Adamson	Vertex Hydrogen	Online

<b>Paul Herman</b>	Victaulic	Online
<b>Philip Abramson</b>	Goal7	Online
<b>Scott Robertson</b>	Carbon Circle	Online
<b>Steve Martin</b>	2JCP	Online
<b>Mark Tipton</b>	Babcock & Wilcox	Online
<b>Aaron Wu</b>	Slaughter and May	Online
<b>Theodor Pina</b>	Snam	Online
<b>Paul Morgan</b>	SSE	Online