

Collaboration is the key to winning the energy transformation race

Malcolm Crawford and Andy Furlong report back from the 4th UK CCUS & Hydrogen Decarbonisation Summit



BCECA member companies were much in evidence at the [4th UK CCUS & Hydrogen Decarbonisation Summit](#), which took place in Leeds at the end of March.

We gathered in the conference suite at Elland Road stadium under the watchful eyes of Don Revie, Billy Bremner, Jack Charlton, and other memorable names from the heyday of Leeds United's footballing success in the 1960s and 70s. Revie's Leeds are remembered for the energy and determination that was needed to win in an era when football was not for the faint-hearted. Looking around the room at the 200 or so delegates, drawn from a wide range of stakeholders interested in 'Net Zero', the casual spectator might be forgiven for thinking that some of that footballing energy and determination was being usefully channelled towards a different goal.

Post budget optimism

Hot on the heels of a [UK budget statement](#) that included several positive energy policy signals, the participants were upbeat. Many of the UK's burgeoning carbon cluster organisations were in attendance, including [HyNet North West](#) and the [East Coast](#) clusters, which are already progressing on the front-end early engineering design (FEED) front. These cluster schemes, which feature within the UK government's 'Track 1' cluster programme, are at the forefront of the UK's decarbonisation strategy. Others are waiting in the dressing room, including the [South Wales Industrial \(SWIC\)](#) and [Solent](#) clusters. Big emitters, including several of the UK's oil refiners, chemicals producers and steelmakers, were also in the room along with various delegates from technology developers, equipment suppliers, financiers, law firms, higher education and research. Engineering companies from the BCECA ranks included Fluor, McDermott and Wood.

£20 billion for carbon capture?

Given the legally binding 'five-year' carbon budgets mandated by the 2008 Climate Change Act, the UK is widely recognised as a 'Net Zero' pathfinder. The targets agreed in the first three carbon budgets were met, and a 37% reduction in carbon dioxide emissions (against 1990 levels) was delivered by the end of 2022. However, the easier wins are now in the rear-view mirror. The independent [Climate Change Committee](#), which advises UK governments on tackling and preparing for climate change, has expressed doubts over the viability of the fourth carbon budget, which covers the period 2023 – 28. The committee said that the government will have to "introduce more challenging measures" if the UK is to meet future carbon budgets and the net zero target for 2050. The heat is on; thus, the announcement of £20bn for the early deployment of carbon capture, utilisation and storage (CCUS) was at the front of delegates' minds.

No early 'giveaway'

The opening session took a 'big picture' view of the UK's Net Zero strategy. Energy Industries Council (EIC) director of market intelligence, Neil Golding, described the funding announcement as 'serious' but quickly pointed out that the allocation period spanned two decades. Carbon Capture and Storage Association (CCSA) chief executive, Ruth Herbert, was also in a less sanguine mood. She enthused about the 20 projects shortlisted under 'Track 2' of the UK's cluster programme. However, she reminded the audience that the £20bn was missing from the detailed figures in supporting budget documentation. It seems unlikely that developers will receive any direct cash allocation until projects are completed – possibly via a contract for difference (CFD) mechanism linked to costs and volumes of carbon dioxide abated. Notions of an early 'giveaway' were rapidly dispelled.

Frameworks and mechanisms

Nonetheless, Ruth expressed optimism that the much-delayed Energy Bill – currently at Report Stage in the House of Lords and expected to return to the Commons in April - would provide the clarity needed to unlock financial investment decisions (FID). Delegates were also reminded to watch out for the government's response to the [Independent Review of Net Zero](#) carried out by Chris Skidmore MP. This was expected shortly and would provide further signals on the likely direction of travel.

Ruth confirmed her belief that the UK could capture 50 Mta of CO₂ by 2035. However, a successful transition to commercial CCUS depended heavily on policy frameworks and financial mechanisms.

Collaboration

Listening to the lively conversations in the exhibition area, we felt that most attendees believed there was plenty of opportunity to go around and the prospects for order books looked good. Many speakers stressed the need for collaboration. Arup's hydrogen director, Sally Prickett, asserted that we stand on the brink of a pivotal moment for the UK hydrogen economy. She drew parallels with the 'peloton' tactic adopted by world-class competition road cyclists, concluding, "Competition will drive innovation, but don't be combative, be collaborative."

Political momentum is key

The programme featured some informative CCUS project updates. Equinor's vice president of low carbon solutions, Dan Sadler, shared a positive perspective on the prospects for his company to capture up to 30Mta by 2035. Equinor is a participant in the UK's East Coast Cluster, where an FID is expected in 2024. He stressed the importance of robust models for hydrogen infrastructure. The current models exclude transportation and storage arrangements, casting serious doubts over affordability. Dan urged the UK government to narrow the preferred off-takers to focus hydrogen production and identify areas of 'low regret' for storage and transmission to enable immediate progress. "We are in the market-making phase, and political momentum is key", he concluded.

Lean into the risk

Later during day one, a thought-provoking panel discussion addressed the thorny issues of finance, investment, and project risk. The conversation, which included contributions from Credit Suisse, Lloyds Bank, the Low Carbon Contracts Company and the UK Infrastructure Bank, was heavily caveated. The technology developers present were clearly frustrated. Tom White, chief executive of the Leeds University spin-out, C-Capture, argued that the investor community's high perceptions of project risk were at odds with climate change's clear and present dangers. He called for rapid measures to facilitate the delivery of new technology in the UK through de-risking via CFD and other workable mechanisms. Without such interventions, developers would head for places like the US, where policy regimes are more favourable. Some of the financial experts looked a little uncomfortable when Tom said: "This conversation doesn't sound like a climate emergency. We've got to lean into the risk – and that means all of us."

No single solution

Day two of the conference featured a deep dive into different aspects of the hydrogen economy. Current developments around production, transportation and storage were assessed. Exxon Mobil's UK low carbon solutions venture executive, Michael Foley, provided some helpful context with a snapshot of the driving factors behind global energy demand. Exxon Mobil's ['Outlook for Energy 2022'](#) suggests that the world's population will increase by 25% by 2050. Energy demand was projected to grow by 15%. Analysis suggested that the additional carbon impact of developing nations would outstrip the carbon reduction commitments from OECD countries

fivefold. Michael's presentation forecast huge growth in global demand for low-emission solutions, including biofuels, hydrogen-based fuels and world-scale carbon capture applied to power generation and manufacturing industry. "There is no single solution; we need all of these things", he concluded before presenting a short case study of Exxon's role in the proposed ['Houston Hub'](#), which aims to capture 100 Mte CO₂ by 2040, much of it coming from a new 1bn cubic foot/day blue hydrogen production facility at Baytown. Closer to home, Exxon Mobil are also key partners in the UK's Solent and [Scottish](#) carbon cluster schemes.

HyNet leads the way

Two other presentations stood out. [Vertex Hydrogen](#) – a joint venture between Essar Oil UK and Progressive Energy – are playing a core role in delivering what may become the UK's first new low-carbon hydrogen production facility at the Stanlow oil refinery in Cheshire. Vertex's ambitious plan is to deliver around 40% of the UK's 10GW 2030 hydrogen production target. Project manager, Richard Holden, told delegates that, subject to a favourable FID, project start-up is expected before the end of 2024. BCECA members Eni, Johnson Matthey, Kent, and Worley are involved in this work. Part of the HyNet Cluster, the Vertex facility will supply hydrogen to energy-intensive manufacturers in northwest England, including Diageo, Pilkington and Tata.

Water, water everywhere?

The importance of sustainable supplies of high-quality demineralised water for green hydrogen projects was emphasised in a thought-provoking presentation by Colin Robinson, UK business manager at Evides Industriewater. Evides currently supplies demineralised water to 26 industrial customers in the Rotterdam area. However, the demand from Shell's ['Holland Hydrogen 1'](#) 60kTH₂/day electrolyser presents new production, distribution, and quality challenges. Colin offered a convincing account of progress in The Netherlands. However, he had a cautionary word for delegates developing and delivering UK projects. The large-scale roll-out of green hydrogen in the UK cannot be realised without water. He expressed fears that private water companies in the UK are not fully sighted on the potential demand from carbon clusters. Raw water availability in some parts of the UK is already an issue, and abstraction licences should not be taken for granted. "Thinking like a cluster" is essential from the get-go, and every partner in the supply chain needs to apply this approach.

Key takeaways

The level of optimism evident at the start of the conference was still largely intact when the time came for delegates to say their goodbyes. Nonetheless, this optimism had been tempered with a healthy dose of realism – never a bad thing from an engineer's perspective. For BCECA members, the key takeaways can be summarised as follows.

If and when the UK energy transformation really gets going, there will be enough work to keep engineering contractors and their supply chains busy well into the 2030s and beyond. This will likely throw up an entirely new set of challenges around the availability of skills, services and the materials needed to make it happen. Everything everywhere, all at once, might work in the movies, but things are very

different when it comes to infrastructure project delivery. There is a pressing need to get the first big project away, thereby locking in financial commitment and resource. HyNet and the East Coast Cluster are well advanced. Collaboration at every level is critical and aggressive competition between clusters is best avoided. Supply chains are stretched, and requirements and expectations must be communicated early and often. Political bravery and policy stability are needed right now. Certainly, before we descend into the midfield brawls that are a hallmark, not just of Leeds United in their heyday, but also general elections – and we have one in the offing. BCECA will use its collective voice to ensure that UK-based engineering contractors' views are communicated effectively. Our next step will be a careful study of the 1000+ page [Net Zero Growth Plan](#) published by the UK government as this blog went to press.

Delegates departed through the car park where footballing mythology suggests that Don Revie's successor Brian Clough took an axe to his predecessor's desk before setting it ablaze. Fact or fiction, that episode in English football history ended badly. [After 44 days, Clough was gone](#). We cannot allow the energy transformation to suffer the same fate.

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Malcolm Crawford and Andy Furlong provide BCECA's contracted conference and communication management services, respectively.

BCECA is working in partnership with Chameleon Events. We are grateful to Callum Flynn and his team for their successful delivery of the 4th UK CCUS & Hydrogen Decarbonisation Summit.

Dates for the diary

BCECA's 3rd virtual annual conference, *The Energy Transformation Challenge: Making it a Reality*, will take place on 4 October 2023. Look out for programme details and registration information in April.

Chameleon Events 5th UK CCUS and Hydrogen Decarbonisation Summit takes place in Leeds from 6-8 February 2024.

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