The UK Dispatchable Power Agreement (DPA): Enabling CCS for Power Applications

Dr James Bain - RWE

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Purpose of the DPA

- Applying CCS Technolgies impacts plant performance.
  - Historic perspective that it hurts operational economics.
  - Yet, provides a means of decarbonising dispatchable assets.
  - Provide confidence to generators in their investment.
- The UK initially proposed to achieve a Net Zero Power industry by 2035 (Conservative Government).
- New Labour Government (5th of July) campaigned and aim to deliver Net Zero Power industry by 2030.
- Sustainable Investing: instil confidence among investors and attracts domestic and international entrants to the market.
- Economy: create value in UK economy and provides high-value jobs.
- Market and Flexibility:
  - Market based policies that minimise distortions in existing market.
  - Aims to be compatible with existing market framework.
- Value for money:
  - Value for tax-payers/consumers
  - Risk-adjusted fair returns to investors for FOAK technology.
- Intended to provide support for a market to develop until the market is established.

Function of DPA

- Effectively, the DPA provides a return on the investment which would not be recuperated otherwise.
- Due to the additional CAPEX, OPEX and reduced plant performance associated with CCS – the DPA provides a payment to address the delta between unabated operation and the capture of CO_2 through CCS.
- Thus, incentivising the uptake of CCS projects.
- CCS-plant will dispatch ahead of higher carbon intensity assets (unabated) but will remain behind nuclear and renewables in dispatch merit order.
- Private law, commercial contract with the Low Carbon Contracts Company (LCCC).
- Selective term between 10-15 years – opens competitiveness.
- Aim: 2 clusters 2020's and 4 clusters by 2030. 20-30Mt/yr captured and 5GW of low carbon energy.

Payment Mechanism

- **Availability Payment (AP)** used to incentivise the availability of low carbon, non-weather dependent dispatchable power generation.
  - Function akin to capacity payment – paid for existing.
  - Aim: to provide a stable income for investor to recuperate the extensive CAPEX required to deliver Power-CCS.
- **Variable Payment (VP)** used to provide the generator with support for the additional OPEX required to operate, it will cover the change in costs (when compared to reference plant) such as:
  - Higher gas costs (i.e. efficiency loss)
  - Lower CO_2 costs (due to capture)
  - Transport and Storage (T&S) Flow Charge
  - Other additional Variable Costs.

Application Process

- Not every project that applies will ascertain funding – competitive process.
- Each generator applying will submit a "bid price"
  - The contract award not entirely based on bid price.
  - Also has a strategic geographical element to it.
- Launch > Submission: circa. 3 months
- Submission > Negotiations: circa. 3 months.
- Negotiations: 24 months.

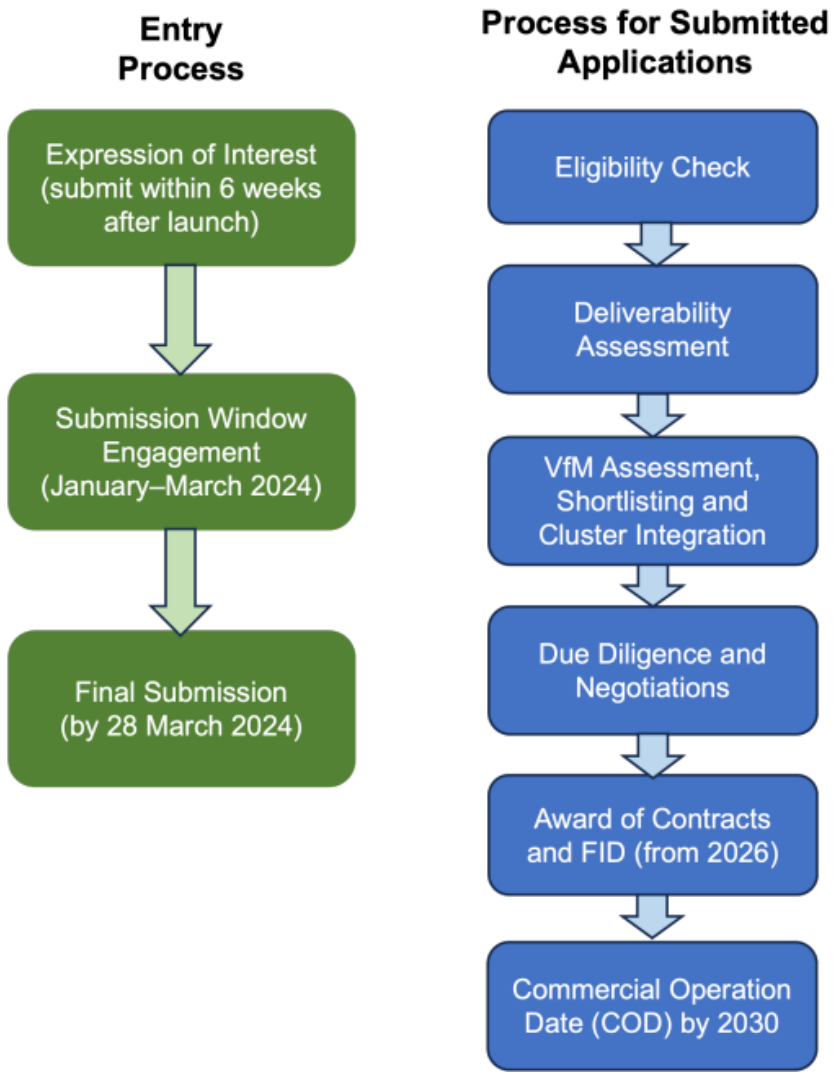

Fig 1 – *Track1x process, subject to change.*

Application Process

- Following the agreement date, the generator must satisfy various requirements.
- Initial condition Precedent (ICP) - satisfied within 18 months of agreement date – 10% of total project pre-commissioning costs actual spend.
- Operational Conditions Precedent and Longstop Date Performance Test.

Table 1 – *OCP and LDP criterion*

Criteria	OCP Performance Test	Longstop Date Performance Test
NDC	85% of the Net Dependable Capacity Estimate	90% of the Net Dependable Capacity Estimate
Start Up Times	125% of the Start Up Time Estimates	125% of the Start Up Time Estimates
CO_2 Capture Rate	10 percentage points lower than the CO_2 Capture Rate Estimate (with a floor of 80%)	5 percentage points lower than the CO_2 Capture Rate Estimate (with a floor of 85%)
Plant Net Efficiency	90% of the Plant Net Efficiency Estimate	95% of the Plant Net Efficiency Estimate

Track Process

- Track 1 – announced:
  - HyNet – Liverpool Bay
  - North East Cluster – Teesside.
  - Expected to take FID Q4 2024.
- Projects are defined as anchor and build out:
  - Anchor, establishes the industrial cluster within that location.
  - Build-out, smaller projects that are established following the development of the initial infrastructure.
- Track 2 – awaiting application opening.

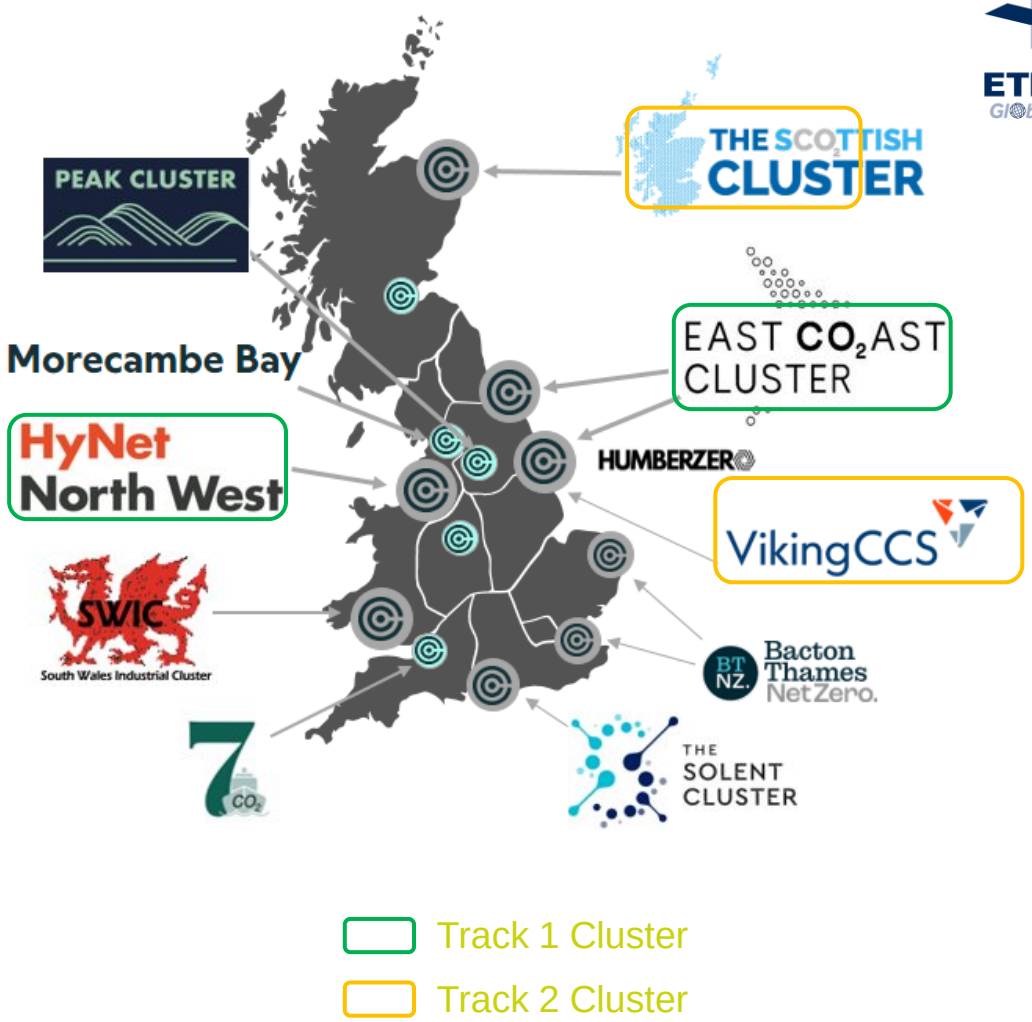

Fig 2 – *Industrial cluster Locations.*

Conclusion

In today's presentation we have covered:

- The UK's DPA to enable the confident investing and dispatch of CCS technologies to establish a CCS industry in the UK.
- The purpose of the DPA.
- How the DPA functions in supporting the deployment of CCS.
- The payment mechanisms that support CCS' dispatch.
- An overview of the application process.
- Track Process on-going in the UK currently.

Final note: CCS enables blue H2, blue H2 enables H2 to Power.

Thank-you!