Friends of the Earth Liverpool Briefing Sheet

Carbon Capture

Introduction
Capturing carbon has been seen as a key strategy in meeting climate targets in relation to heavy industries with high carbon dioxide (CO2) outputs.

Wirral is going to be affected by two carbon capture and storage (CCS) projects. The Hynet scheme aims to capture carbon from North West industrial sites before pumping it through a pipeline from Stanlow to Point of Ayre and then into rock sites from which gas has been extracted. The other project is Peak Cluster, which intends to capture carbon from Derbyshire cement plants before piping it across Cheshire and Wirral and then out into Morecambe Bay. The UK government has decided to invest £22bn in CCS projects, funded from taxation and energy bill payers.

So what is CCS?
Carbon capture involves capturing CO2 at source and (usually) compressing the CO2 into a liquid before transportation (via pipeline) and pumping into underground rock storage.

So where is it typically used?
In situations where there is intensive CO2 generation from a single source (examples: coal and gas burning power stations and steel and glass production). CO2 can also be captured from most generating activities and from the air.

How is carbon captured?
Usually by a process involving passing exhaust gases over a solvent and subsequent separation of the CO2 from the solvent. Other capture processes involve the use of membranes, dry ice formation and direct air capture.

Is CCF a new technology?
No! CCS has been used throughout the latter part of the 20th century. Most major projects have involved using captured CO2 to force residual oil and gas out of rock strata.

Does it work!?
Hmm. The industry set out baseline capture rates of 90% of CO2 emissions at source, something that has rarely been achieved. In order for a coal-fired power station to achieve emissions below the atmospheric concentration, 99% capture rates are required. One of the globally largest and longest standing CCS operations, Gorgon in Western Australia, aimed to cut greenhouse gas emissions from source (a

liquid gas power plant) by 40%. After 10 years of operation, this has yet to be achieved. In Canada, the target capture rate from the countries' 7 CCS projects has been 90%: to date, only 50% of emissions have been captured.

In summary, is the investment of £22bn of taxpayer's money and the disruption to our local area, worthwhile? Well, let's look at some proper academic research. In 2025, the website sciencedirect published the following:

'The public and private sectors have collectively invested $20-$30bn in CCS over the past 2 decades - much of it justified by the promise of deep emissions reductions, however, this investment has yielded negligible atmospheric impacts'.

The same paper makes the following points about the security of storage: ' Even low leakage rates of 1% per century can drastically erode the long-term efficacy of sequestration (storage). As such, the assumption of permanence forms a fragile pillar of climate policy built more on optimism than on verified performance'. (Rasool and Hashimi, sciencedirect.com, 6th October 2025).

So what do Liverpool Friends of the Earth think about CCS?

- CCS is a long standing technology that has never achieved its targeted results.
- The underground storage of CO2 is unproven.
- The very high CO2 capture rates needed to achieve positive climate impacts is highly expensive and commercial operations are likely to shirk the investment of potential profits required.
- There is a wealth of evidence available about the efficacy of CCS and none of it supports the investment of huge sums of taxpayers'/bill payers' money into these projects.
- The beneficiaries of the taxpayers'/bill payers' money invested in CCS in our region are substantially hydrocarbon companies who have made and are making vast profits from the carbon generating activities that have led to the climate crisis (and who would very much like to convince the government that it's fine to carry on burning their products).

And finally ……. This is what the UK parliament's Committee of Public Accounts had to say about the UK's decision to invest in CCS.
' The Department (for Energy Security and Net Zero) has, over time, reduced its ambition for the amount of carbon that the programme will capture and store. In December 2024, it stated that its ambition to capture and store 20 to 30 million tonnes per year of CO2 by 2030 is no longer achievable. It has not yet set any revised targets'. (UK Parliament Committee of Public Accounts, Eighth report of session, February 2025).