Carbon capture and storage

Is carbon dioxide capture key to achieving the 2050 climate goals?

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Climate Action Plan goals and CDR strategy

- 51% reduction in GHG by 2030
- Carbon neutrality by 2050
- EPA states that we will need CO2 Removal
  - For ‘Hard to Abate’ sectors to get to net zero
  - For the operation of a stable and reliable power system
  - To deal with CO2 emissions overshoot

How are we doing on decarbonising?

- 2023 GHG emissions lowest in 3 decades

BUT

- 2030 emission reduction target will be missed and will be exceeded by 17% to 27%

The CDR strategy

- No specific targets for CDR in Climate Action Plan
- EPA estimates that gap will be between 50.1 Mt and 80.3 Mt by 2030

Activity	Goal	Implementation
Afforestation	1 Mt p.a.	8k hectares p.a.
Peatland Restoration	3.2 Mt by 2050	33k hectares identified
Carbon Capture Utilisation and Storage	Not defined. 17 Mt p.a. in high deployment.	CCUS tech in industry
Soil Carbon and Sequestration	Increase cover crops in tillage to 50k hectares by 2030 Improve management of 45k hectares of grasslands	Sustainable farming practices

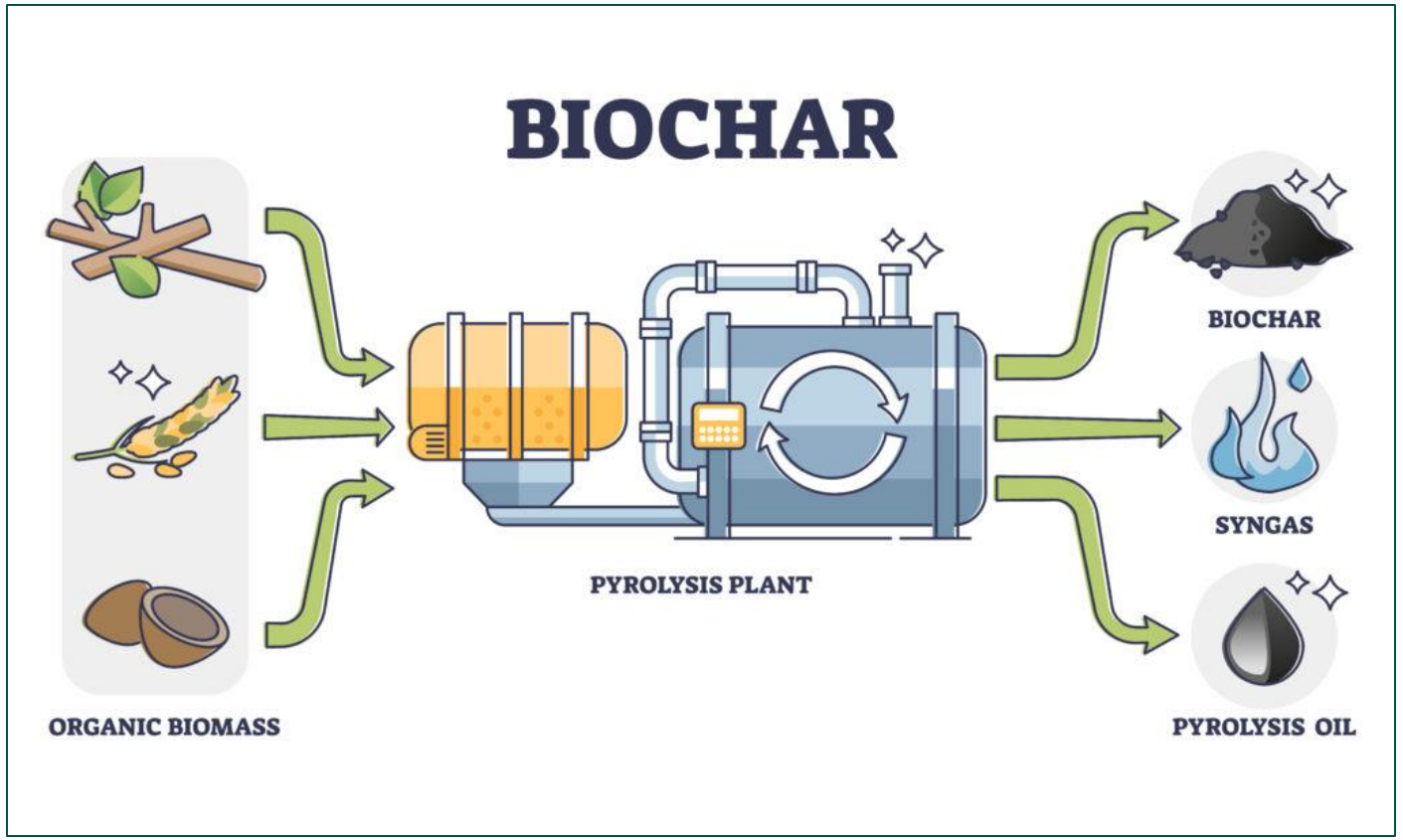
How are we doing on CDR?

Activity	Progress	Comment
Afforestation	Avg. planting 2,652 hectares p.a.	Afforestation scheme delay Bureaucracy and regulation Economics
Peatland Restoration	19,700 hectares restored	Deliberate and careful
Carbon Capture Utilisation and Storage	Modest activity on CCUS Late 2020's at earliest	Cost Technology Low EUA price / market interference No sustainability premium Lack of storage / use Lack of transport infrastructure
Soil Carbon and Sequestration	Research and pilot projects	Economics Training

What can be done to accelerate CDR?

Activity	Comment
Afforestation	Increase Native Tree Area Scheme derogation from 1 hectare to 10 hectares Eliminate afforestation requirement after 50 years subject to sequestration
Carbon Capture Utilisation and Storage	SEAI main recommendations • Plan for offshore transport and storage • Drive full scale project in core CCUS sectors • Investigate potential of CCU routes (cement and synthetic fuel)
Soil Carbon and Sequestration	In Ireland we have the largest operating biochar plant in Europe

What is biochar?



Biochar is made by heating organic materials in the absence of oxygen to produce a stable, carbon-rich substance. Biochar can store carbon in soil and industrial products.

Arigna's transition from Black to Green

1900s
Mining

1980s – 90s
Low Smoke Coal Manufacturer

2010
Sustainable Fuel R&D

2012
7k MT pa Pyrolysis Reactor

2017
Harvest Flame

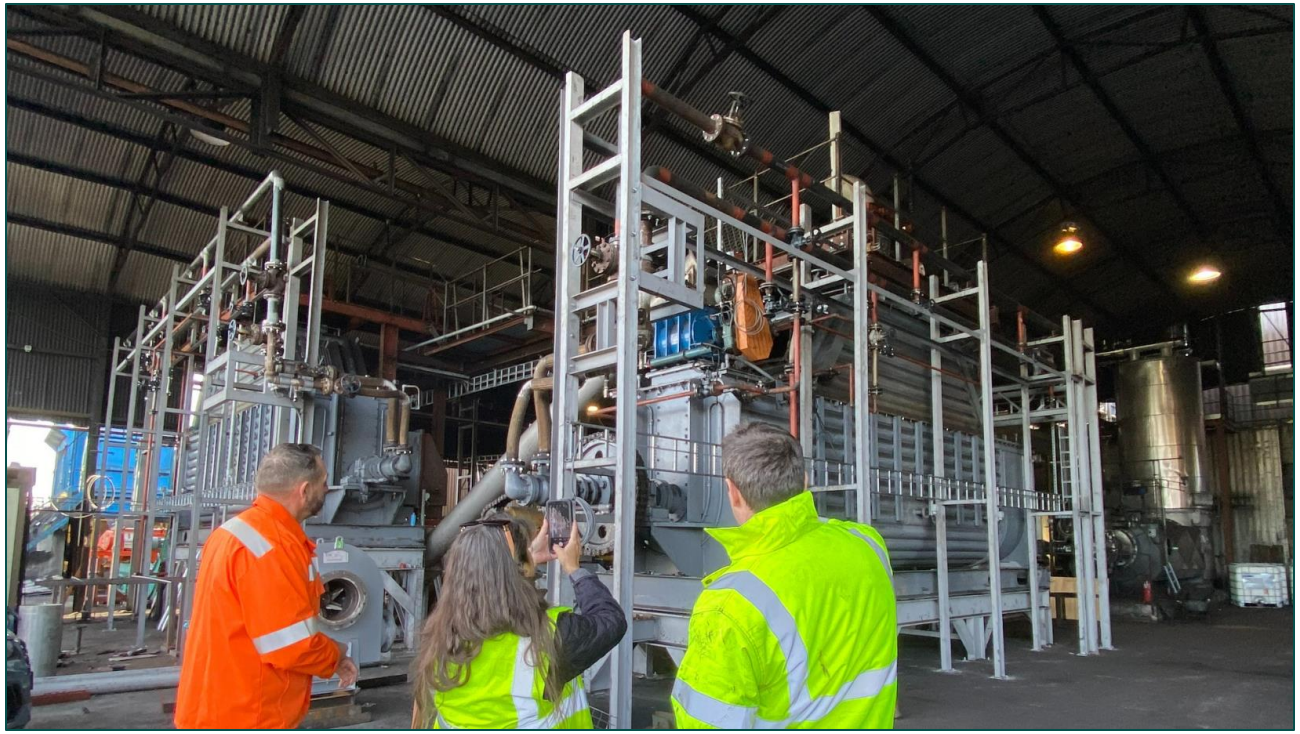
2023
35k MT pa Pyrolysis Reactor

Opportunities

- Domestic solid fuel markets
- Industrial fuel market
- Anaerobic digestion
- Agriculture
- Horticulture
- Non-structural building materials

Conclusion

- Decarbonisation significantly behind target
- CDR increasingly important to achieving climate action plan
- Existing CDR strategies will be insufficient
- Biochar can be part of the CDR solution
- Arigna has the largest biochar production facility in Europe
- Capability to produce large quantities of high-quality biochar for many sectors



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Questions?

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