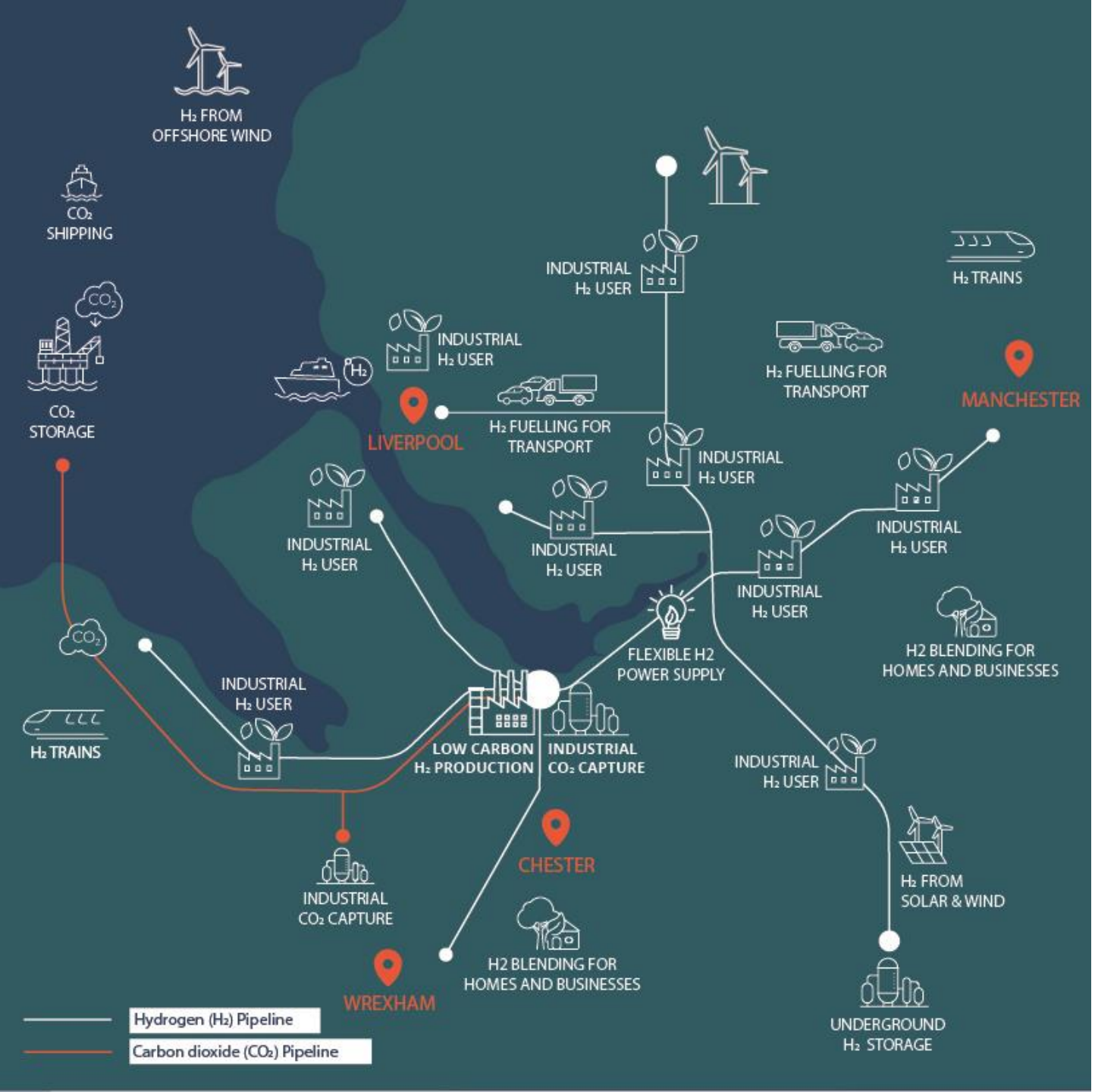
Liverpool Bay CCS: Transitioning of Oil and Gas to CO2 Transport and Storage

Martin Currie, Energy Transition Manager

Eni UK presentation: OEUK Conference May 24th 2022



The HyNet North West Project vision

- *CO_2 transport and storage infrastructure, delivering CO_2 to safe, permanent storage in Liverpool Bay.*
- *Facilities to capture CO_2 emissions from new & existing industry.*
- *Low-carbon hydrogen production plants, with CO_2 capture.*
- *A hydrogen distribution network, delivering hydrogen to industrial consumers.*
- *Hydrogen buffer storage in underground salt caverns.*

CCUS Evolution in Liverpool Bay

T&S Project Evolution to date

- ***2016 ETI/DEC Storage Appraisal*** *Hamilton Gas field identified as a top UK CO2 storage site*

- ***2019 Feasibility studies*** *Eni begins to collaborate technically with HyNet*

- ***Dec 2019*** *Eni UK applies for CO2 Appraisal and Storage licence*
- ***Oct 2020*** *OGA awards Eni UK CO2 Licence CS004*

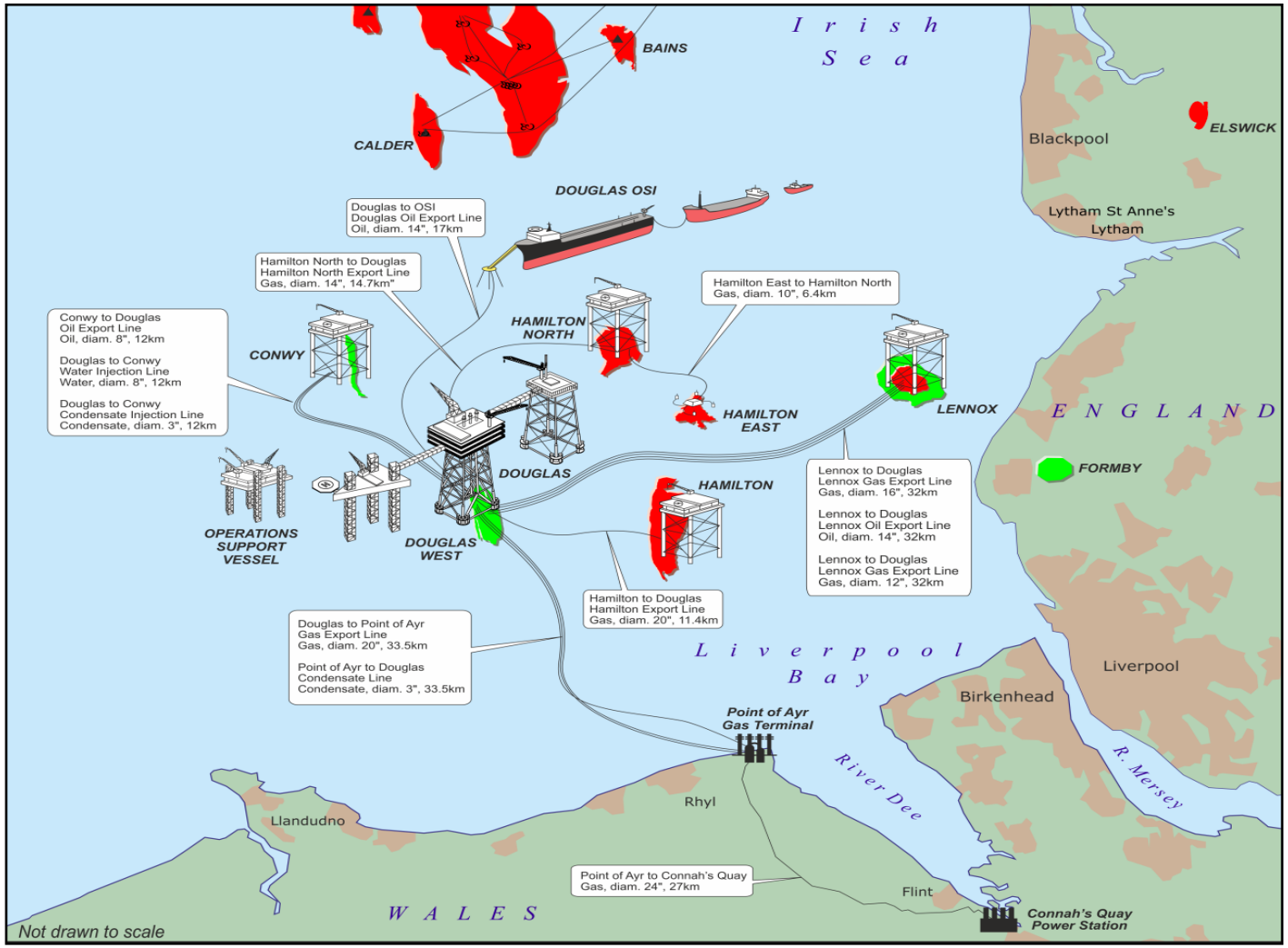
- ***2020/2021*** *Concept definition studies*

- ***Feb 2021*** *UKRI funding award to support PRE-FEED/FEED*

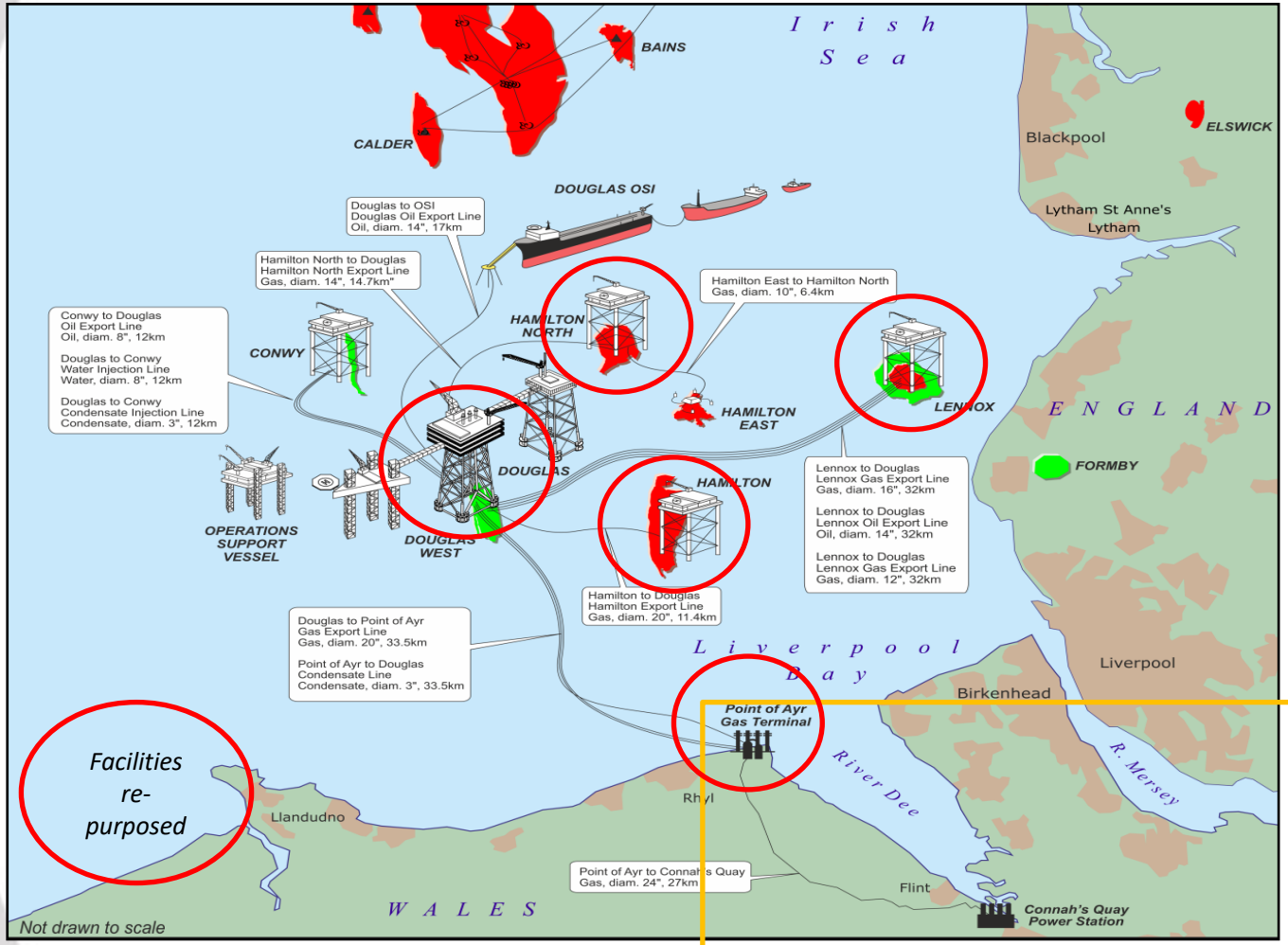
- ***June 2021-*** *FEED ongoing*

- ***July 2021*** *Eni UK submits phase-1 application on behalf of Hynet NW cluster*
- ***October 2021*** *Nominated by UK Government as a Track-1 CCUS cluster candidate*

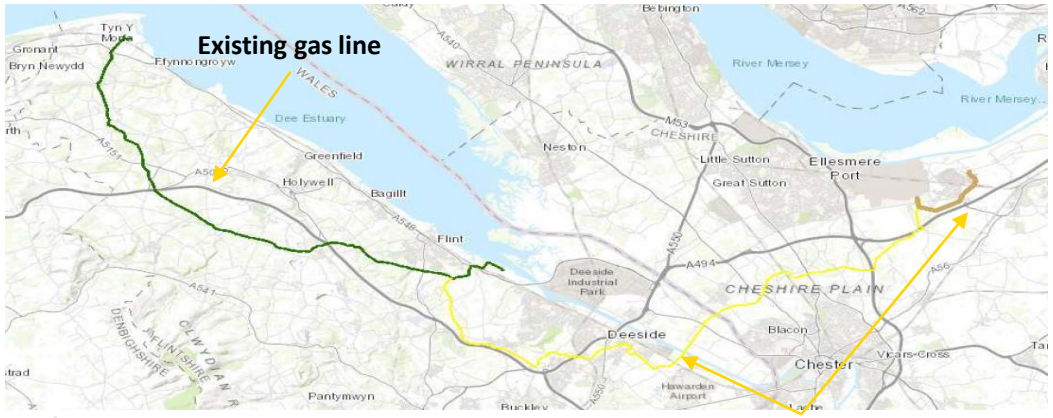
Liverpool Bay Field Platforms and Existing Infrastructure



Hynet Industrial Cluster – T&S Infrastructures



- *The conversion of the Liverpool Bays assets into CCS facilities involves reuse of the existing offshore platforms and pipelines.*
- *Four existing offshore platforms will be re-purposed for the LBA CSS Project and operate as normally unmanned*



New build CO2 lines

- *Onshore system consists of re-use of a gas pipeline and construction of two new-built pipes*

Fully integrated asset Decommissioning and CCS construction strategy followed to maximise cost synergies

Re-purposing of existing Oil and Gas Assets

Project foresees re-purposing of Eni operated oil and gas assets and infrastructure

- *Depleted gas fields (which are well understood)*
- *Offshore platforms*
- *Wells (side-track existing wells)*
- *Onshore pipeline between Connah's Quay and Point of Ayr*
- *Offshore pipeline between Point of Ayr and Douglas Platform + inter-field pipelines*

Exemplar for Oil and Gas Industry in energy transition..

Hynet T&S: Key Features

The T&S system for Hynet offers key benefits:

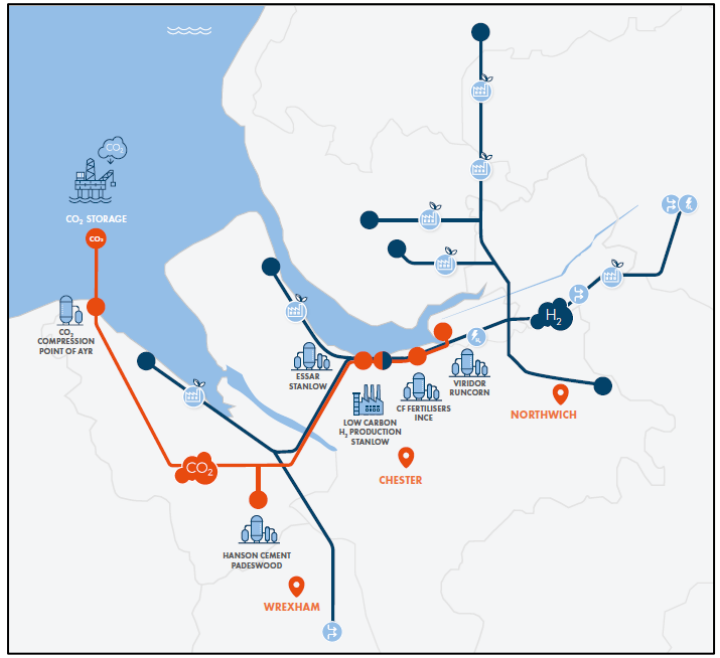
- ***Location*** — *Adjacent to large industrial and population centres. Access to existing CO_2 emitters and supportive of a future regional hydrogen hub*
- ***Low Risk*** — *Multiple fields (redundancy) and proven subsurface knowledge*
- ***Low Cost*** — *Extensive re-utilisation of existing infrastructure*
- ***Time to Market*** — *Very competitive lead time to start up*
- ***Flexibility*** — *Low initial cost and expansion will be demand-driven*

Excellent unit cost for the project → Competitive Time to Market *(First UK CCUS project)* → Easy implementation using existing assets

Stakeholder Engagement: Emitters and Hydrogen

Emitters

- *19 MOUs signed (interest in using T&S infrastructure)*
- *10MTpA base of volume capacity*
- *Led by regional demand:*
  - *Refining*
  - *Fertiliser production*
  - *Cement manufacturing*
  - *Energy from waste*
  - *Biofuel production*



Hydrogen

- *New build H2 Production facility – Stanlow Refinery*
- *CO2 capture part of process*
- *Supply of low carbon H2 to refinery, progressing to fuel switching for industrial users*
- *>20 MoU's signed between H2 producer and industrial customers*

Hynet NW – Progress Status and Update

FEED Phase

Front End Engineering Design progress > 50%
with completion expected in Q4 2022

Permitting

*Onshore – **Development Consent Order** for new pipeline application by **Q3 2022***

*Offshore – **Engagement** with UK regulators **ongoing** (OGA, OPRED, HSEx, etc.)*

Procurement

Market enquiries for all major packages ongoing
*All **major packages procurement cycles** ready to be launched **from Q3 2022***

Emitters engagement

***6 additional** MOU's signed since November for a total of **more than 40 MOU's** with emitters and hydrogen customers*

Schedule Overview - T&S System development roadmap

- ***Key Project Milestones***

Track 1 Application Approval
October 2021

FID
By 2023

Project Start Up
1 to 2 MTPA
(Free flow)
By 2025

Project Ramp up to
4.5 MTPA
2026 to 2027

10 MTPA
Expansion
2030's onwards

Project Benefits

- ***£ 2.8 Billion for the UK*** *of gross value added in the period* ***2022-30*** *and* ***£ 110m GVA per annum*** *from operational expenditure beyond 2030.*
- ***Several B£ invested in the clean energy***
- ***Manufacturing jobs and high skilled jobs protected***
- ***Creating 6,000 permanent jobs*** *in the NW region:* ***a future workforce for a green industrial revolution***
- ***Emission intensity reduction****: significant improvement as early as 2025 vs the current emission intensity*

HyNet NW Cluster: Key messages

Game Changing

By 2030's:

- 10Mtons of CCUS out of the 20-30Mtons UK ambition
- 80% of UK H_2 target
- 50% of regional natural gas use displaced
- 25% of regional emissions abated

Fast & Deliverable

- Tracked 1 in Oct 2021
- Start-up in 2025
- First stage capacity 4.5MtpA
- 10MtpA expansion
- Demand led with > 40 companies

Competitive

- Well characterized storage
- Infrastructure re-use reduces cost by ca.50%
- Simplified deliverability due to existing infrastructure

Benefits

- Gross Value Added: 2.8B£ by 2030
- Delivers 6000 jobs/year for the first 10 years
- Protects 350,000 jobs of the Hard to Abate Sectors
- Hydrogen economy enabler in the Region