

wood.

Energy Transition



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Aberdeen, Scotland

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Agenda

- Introduction to Wood
- Hydrogen (Make, Move it, Use it)
- World-class CCS track record
- Carbon Utilisation
- Final Remarks



We are a world leading consulting and engineering company across energy and materials markets.

160+

year history

c35,000

people

60+

countries

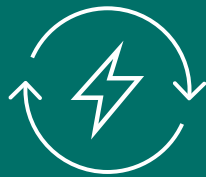
c\$5.5bn

revenue

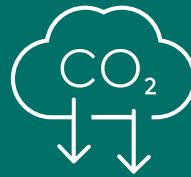
Unlocking solutions to critical challenges. Areas of expertise:



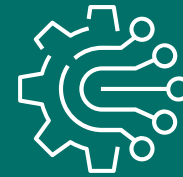
Energy Security



Energy Transition



Decarbonisation



Digital Delivery

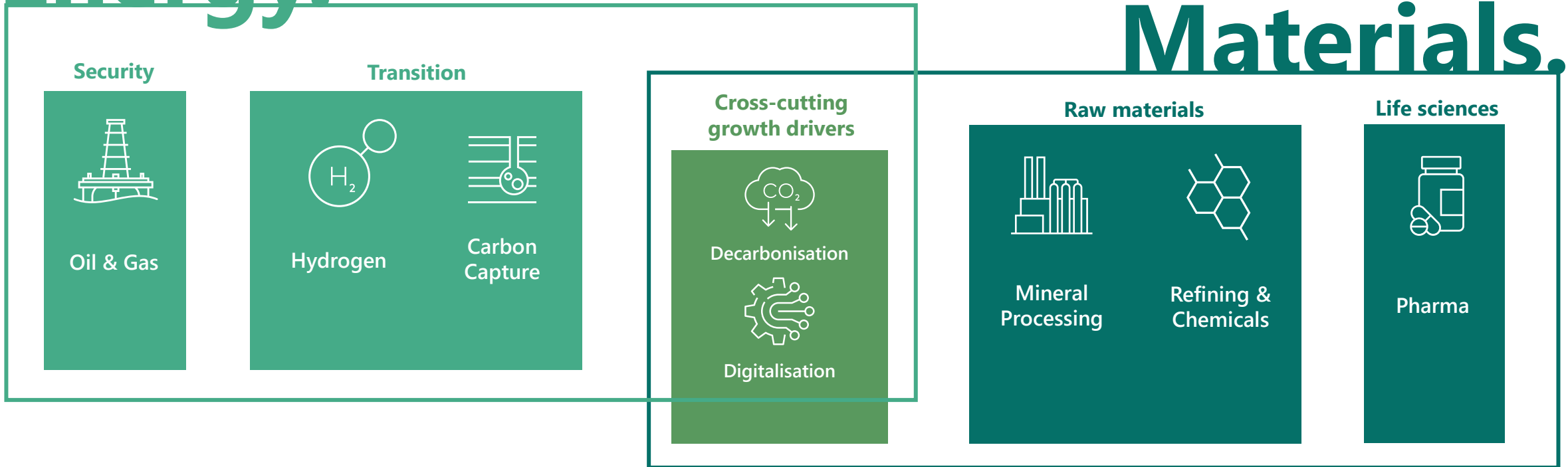


Circular Economy

At the heart of Wood's growth strategy

Energy.

Materials.



Hydrogen

Underpinning future low-carbon industries

Enabling the hydrogen revolution

Make it

Proprietary blue hydrogen technology solutions that **capture 95% of CO₂ emissions** and investing in bio-hydrogen

Move it

Study project to assess **technical readiness of cryogenic pipelines and offloading assets** for a range of different H₂ vectors

Use it

Applying hydrogen in a range of sectors including **hydrogen powered ferries** on Scotland's West coast



In hydrogen, we bring full-chain expertise

Make it – insight across the hydrogen production cycle

Gas production - infrastructure design, gas treating and export for hydrogen production.

Renewables - full design and advisory services for wind and solar power generation.

Engineering integration - balance of plant design / delivery for hydrogen production plants.

Technology licensing - engagement with all major hydrogen production licensors, as well as electrolyser OEMs

Brownfield integration - specialised in complex projects integrating carbon capture technology into existing hydrogen production facilities, as well as greenfield blue hydrogen production.

Our expertise across both an **integrated hydrogen value chain** and at every stage of an **asset's life cycle** provides a strong platform as a solution provider.

Move it – long heritage in energy vectors and transport

Pressurised networks - extensive experience in design of onshore and subsea pipeline systems, including FEED for 100% H₂ networks.

Material selection - technical experts assure the integrity of equipment & infrastructure at all stages.

Flow assurance - in-house flow assurance tool calibrated for hydrogen transportation.

Blended networks - experience defining acceptable blending levels in brownfield infrastructure.

Transportation vectors - experience in liquid hydrogen, ammonia & organic carriers.

Our heritage in **pipeline design**, asset integrity management and **integrated energy systems** positions us to play a key role in **defining H₂ distribution solution**.

Use it – matching hydrogen producers with off-takers

Offtake routes - advise blue hydrogen producers on potential offtake routes.

Fuel switching - support industries in switching to hydrogen (power, refining, petrochemicals, mining, cement and steel).

Export and trade - help clients understand policy and legislation around exporting blue hydrogen.

Cost competitiveness - understand underlying business case which can drive fuel-switching – can match against production costs.

By supporting both hydrogen producers and off-takers, we can offer insight into, and **optimise the full value chain**.

Creating an integrated energy hub built around green hydrogen

Spain

- Landmark development in Europe that will produce 2GW of renewable hydrogen by 2030
- Project supported as part of a JV agreement
- Scope includes feasibility and concept design of different configurations for supply and production of products
- Other elements of project include:
 - Electrolysis & steam reforming
 - Hydrogen storage facilities
 - E-Ammonia and e-Methanol plants
 - CO₂ capture plant
 - Utility consumption inc. balance of plant support



Repurposing the one of the largest gas distribution network to transport hydrogen

Confidential client:

- Detailed study to assess feasibility of repurposing 5,000+ km of natural gas pipeline to transport hydrogen instead
- Considered range of hydrogen blending options (0%-100%) based on the most up-to-date hydrogen codes
- Assessed materials and suitability for repurposing and developed a repurposing strategy for the pipelines and associated components and infrastructure
- Specialised and multi-disciplinary team (pipelines, materials, process and flow assurance) and use of Virtuoso[®]



Carbon Capture and Storage

An important technological option for reducing CO₂ emissions in the energy sector

We have an excellent track record in CCUS

200+ studies
completed across the globe.

40+ years
experience in this space.

Total portfolio could save
gigatons of CO₂

Helping to deliver one of the
world's largest CCS hubs in the Middle East.

Capturing 95% of CO₂ emissions from industrial facilities on US Gulf Coast.

Designed & built key parts of
CO₂ pipeline network now operational in UAE.

FEED contractor for
CO₂ and H₂ pipelines for major UK industrial clusters

Designing **400km CCS pipeline** in Canada to capture emissions from six largest oil sands producers.

Deploying proprietary Wood tool to maintain system integrity on one of the
world's largest CO₂ injection facilities.

Leading a joint industry partnership (JIP) to **set CO₂ specification guidelines** for effective and economic CCS chains.

We have a compelling, full-chain offer

We bring technical and commercial solutions that enable clients to safely capture CO₂, transport and permanently store it, or unlock value by re-using it for alternative purposes.



Emissions

Capture



Liquefaction



Transportation



Compression

Storage



Utilisation

Capture CO₂ from:

- Power generation
- Industries (e.g. cement, glass, bricks)
- Refineries
- Hydrogen production

Conditioning:

- Compression, dehydration and additional purification
- Temporary storage onsite or direct connection to pipeline

Transportation via:

- Pipeline
- Road
- Ship
- Rail

Store or use:

- Store permanently in geological storage
- Use CO₂ in industry e.g. food products, fire suppression
- Utilise CO₂ for methanol production, methanation, etc.

Delivered one of the largest CO₂ capture facilities ever completed in North America

USA

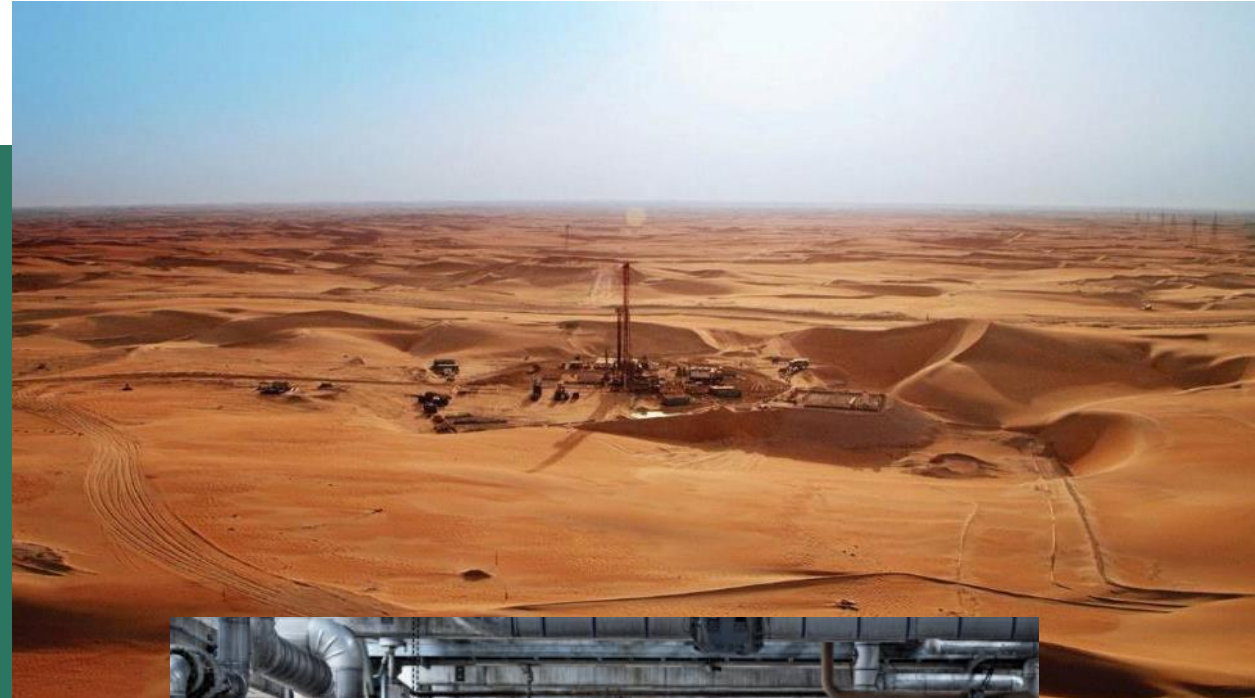
- Operational for more than a decade
- Captures 5m metric tons of CO₂ per annum
- First-of-a-kind separation technology design increased gas processing efficiency and output quantity
- Unique project execution approach
- Wood scope included:
 - Concept / Study / Pre-FEED
 - FEED and detailed design
 - Project management
 - Procurement support
 - Inspection



Designing two of the world's largest carbon capture and sequestration hub

Confidential projects:

- Wood designed the greenfield dehydration and compression facilities and the large pipeline network, including >600+km dense-phase CO₂ pipelines for these two projects.
- These projects will remove up to 80m tons per year of CO₂ – this will be sequestered within onshore geological storage sites.
- These pre-FEEDs, FEEDs were being delivered by 300 engineers from across Wood's global Projects and Consulting teams



Managing performance and operational integrity on the largest CO₂ injection system in world

Australia

- Virtuoso® is an industry-leading flow assurance solution with 20+ years of in-field performance in oil & gas
- It's being successfully deployed on the largest operating CO₂ injection system in the world
- It can model, simulate, and monitor real-time combined flow of wet CO₂ from the outlet of compressors to the bottom of the injection well
- The phase behaviour of wet CO₂ can create challenges for pipeline transport. Virtuoso empowers the pipeline owner to manage these risks, protecting both the pipeline and gas user



Leading on R&D and knowledge development

Setting CO₂ specification guidelines for CCUS chains

- Wood is leading a Joint Industry Project (JIP) to define an industry accepted set of guidelines to set the CO₂ specification for effective and economic CCS chains.
- This covers different CO₂ sources and transport options and aims to build better understanding on the impact of impurities.
- Actively involved in research on CO₂ rich fluids – we have published 50+ journal and conference papers in the last decade.



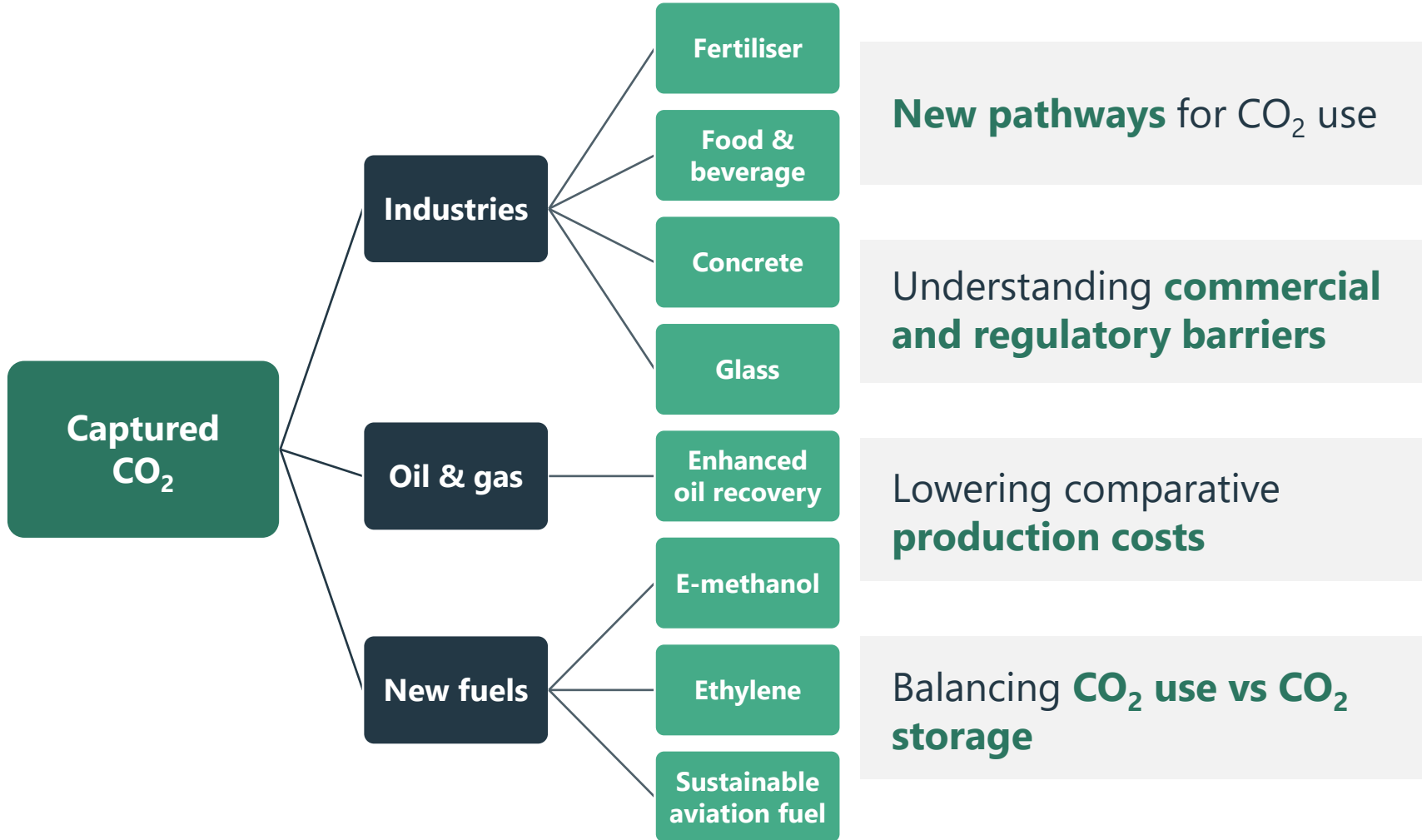
11 distinct work packages

9 leading operators

7 industry, academic and research partners



Unlocking value through the utilisation of CO₂



★ Wood supports [INPEX Corporation](#) to advance decarbonisation projects across the globe ★

🌐 Japan - delivering concept design for a carbon dioxide transportation network. This project will contribute to broader decarbonisation and energy transition initiatives in the country.

🌐 United States – delivering a feasibility study for INPEX's blue ammonia facility on the Houston ship channel which will export ammonia to meet growing demand for sustainable fuels.

🌐 Australia – providing engineering support for an onshore carbon capture and storage pipeline in Darwin, reducing emissions from liquefied natural gas (LNG) operations.

Final remarks

- CCS will play **a critical role** in delivering a lower-carbon future.
- It's not just about capturing CO₂ – the **transport and storage piece is equally important**.
- We have **an excellent track record** globally.
- We're already working on **landmark and pioneering CCS projects** in the Middle East.
- We're **actively building capability in the region** to support our growth ambitions.
- We author **CCS practice guidelines** and support the development of **industry standards**.

We bring **technical and commercial solutions** that enable clients to safely **capture CO₂, transport and permanently store it**, or unlock value by **re-using it for alternative purposes**.

The background of the image is a close-up, vertical view of wood grain. The colors are a mix of deep teal, forest green, and light sage green, creating a rich, textured appearance. The grain lines are vertical and vary in thickness and color intensity, giving it a natural, organic feel.

wood.

Design the future.