



Snapshot

Achievements

- Global license for the use and manufacture of membrane tech
- Partnership agreement with the technology developer to coinvest in commercial manufacturing process
- Secured the building of pilot project with Holcim, the world's largest cement manufacturer, with over 160 manufacturing facilities

Technology

- Developed by major European research institute
- Field proven in two state-funded pilot projects
- Lowest CO₂ capture cost / tonne
- Low cost - compact - energy efficient
- Ideal new-build or retrofit solution
- Ongoing research and development with membrane inventor – making new advances available exclusively to CPT

Management Team

- Highly experienced in management of large, complex projects in the oil and gas industry and in the development and worldwide manufacture of GRP products.
- Skills are directly transferable to the design and construction of carbon capture plants and to the manufacture of the membranes.

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Cool Planet Technologies aims to be a market leader in the large-scale capture of CO₂ from industrial flue gases using class-leading and potentially transformational membrane technology.

Overview

Cool Planet Technologies (CPT) was founded to identify and commercialise technologies that can be employed to help companies meet their Net-Zero objectives.

Our first product is the commercialisation of class-leading technology for the removal of CO₂ from industrial flue gas. We believe that this technology has the potential to transform carbon capture, significantly reducing the cost in comparison with dominant technologies and resulting in smaller plants that consume considerably less energy.

CPT has a global license for the membrane technology, which was developed by a major European research institute (hereafter the 'Institute'). The technology has been demonstrated in the laboratory and piloted in two state-funded coal power projects.

We are working with Holcim, the world's largest cement manufacturer, to up-scale the technology in a pilot project at one of their German plants. The pilot can then be scaled to build a full-scale plant capable of capturing 1.3 million tonnes per year. Lafarge Holcim has over 160 plants where the technology could be retrofitted.

The CPT team's skills lie in the management of large, complex projects in the oil and gas industry and in the development and worldwide manufacture of GRP products. These skills are directly transferable to the design and construction of carbon capture plants and to the manufacture of the membranes.

CPT aims to become a supplier of capture plants based on the membrane technology and manufacturer of the membranes themselves.

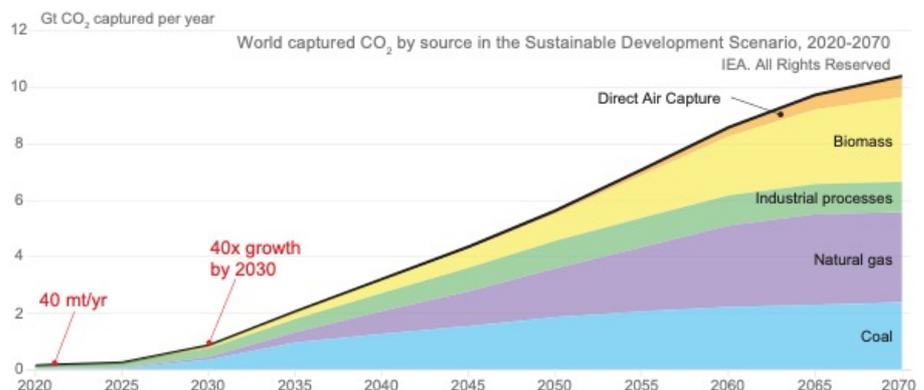
Market

Carbon capture on a huge scale is an essential component of the path to Net Zero. It is the only technology that can reduce emissions in key industrial sectors, for example in the production of cement, that could not otherwise be avoided.

The IEA estimates that carbon capture will expand rapidly from the current level of around 40 mt per year to 1.6 Gt per year by 2030 and then rising to 7.6 Gt by 2050. The market for carbon capture is therefore huge and will continue to grow for the next 50 years.

“Carbon capture, utilisation and storage (CCUS) will need to form a key pillar of efforts to put the world on the path to net-zero emissions.”

IEA Report "Special Report on Carbon Capture Utilisation and Storage" – Sept 2020



The most common capture process is based on the reaction between CO₂ and a chemical solvent, such as compounds of ethanolamine. The process, in common with many other capture technologies, is highly energy intensive as the solvent needs to be heated to release the CO₂. Plants also tend to be very large.

Membrane Technology

The membrane was developed over a 10-year period by the Institute and has a high CO₂ selectivity (meaning it will let CO₂ pass through it but acts as a barrier to other gases).

The membrane technology has been successfully demonstrated in the field on a small scale in two state-funded pilot projects at coal-fired power plants.

The membrane is not “used-up” and or degraded over time provided that it is protected from contaminants. A life span of 5-7 years is projected for CO₂ capture.

CPT and the research institute will collaborate on the development of capture plant based on the current generation of the membrane technology while working on the next generation of the membrane.

Competitive Advantage

Our assessment is that membrane technology key advantages over dominant technologies resulting in smaller plants that consume considerably less energy.

The key competitive advantages are:

- Lowest cost of capture in terms of USD per tonne
- Up to 90% capture with a CO₂ purity of 95% directly from the membrane process
- Low CAPEX plant using ‘off-the-shelf’ equipment
- Low OPEX - efficient, low energy, passive process, no consumables and low operation/maintenance
- Modular system that can be scaled up and down
- Compact plant with low utility requirements
- Flexible - good turndown and fast response time
- Existing plants can be retrofitted with upgraded membranes as the technology develops

Target Markets

Our initial target market is large industrials players in markets where there is the greatest drive to quickly reduce carbon emissions.

- Cement: ~23% CO₂
- Steel: 3-25% CO₂
- Coal fired power plants: ~14% CO₂
- Chemical industry: >10% CO₂
- Other industries: >10% CO₂
- Other energy generation: >10% CO₂

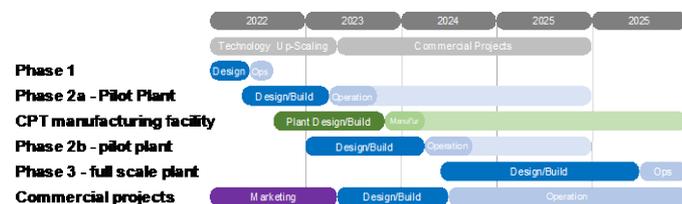
Work Programme and Schedule

The up-scaling of the membrane technology will be conducted during the pilot project in a phased approach.



Phase 1 is designed to calibrate the performance of the membrane at Holcim’s plant with the actual flue gas stream following which the up-scaling will then occur in two stages to demonstrate that the performance of the membrane is maintained with increased scale.

Work on commercial projects could start following the completion of Phase 2a in 2023, meaning that revenue from operations could start in 2024.



Intellectual Property

The manufacturing of the membrane has IP (know-how) associated with it, which will be made available to CPT under license.

The key IP is in the high-density membrane housing jointly being developed by CPT and the Institute.

CPT is currently optimising the process design around the membrane and is currently considering whether the process could be patented.

Management Team



Bengt Carlstrom – President

Over 40 years of international experience in pipe technology, manufacturing and production, corporate management, infrastructure design, development and financing in more than 90 countries.

Extensive experience developing multinational business’ includes Director of Business Development Technocan International Ltd, Canada; Founder/ CEO of Africa Water Management Company, South Africa; President for International Operations of Saudi Arabian Amiantit Management and COO of the Hobas Group in Austria/ Switzerland.

Holder of several patents for the manufacturing of centrifugal and continuous filament winding of GRP pipes.



Andrew Corner – Managing Director

Over 30 years’ experience with EOG Resources, RWE DEA, ATP Oil & Gas, MOSGAS and Conoco.

Project manager for over 20 years with significant experience in the development of SNS fields.

Founded Vision Oil & Gas, an outsourced project management company, which at its peak, had over \$1 billion of projects under management and employed over 30 people.

Founder of Volta Oil & Gas. Andrew holds a BSc in Electronics from the University of Manchester Institute of Science and Technology (UMIST).



Simon Gorrington – Technical Director

Over 40 years’ experience in senior roles at BHP-Billiton, Conoco, NuEnergy, SOCO, Serica, and Kerr-McGee, leading several large offshore projects to production including FPSO’s, platforms, terminals and pipelines.

Technical Director of Corsair Petroleum, and CH+ Resources operating in Vietnam, South East Asia, East Africa, Kazakhstan and the Arctic.

Most recently was COO and then CEO of Andalas Energy and Power plc an AIM listed E&P focused on Indonesia and UK. Simon is a graduate of Chemical Engineering from UMIST and a Chartered Engineer.



Frank Jackson – Finance Director

Frank has developed his career through the resource sector working across the world. He has direct experience in the hydrocarbon sector, as well mining, agriculture and manufacturing where he has initiated and directed the commercial and financial development of major projects and companies.

Frank has an MBA equivalent from the University of Cape Town and is a Fellow of Chartered Governance Institute (FCG), previously the Chartered Institute of Secretaries and Administrators.