Methanox to accelerate tackling methane emissions on natural gas powered ships following successful capital raise anchored by Tharisa plc

London, 27 February 2025: Methanox, a pioneering joint venture between Dr Patrick Cullen (Queen Mary University of London), Dr Paul Balcombe (Queen Mary University of London), and Professor Andrew Beale (University College London) and Prosemino Ltd., has secured a £1.5 million investment from Tharisa plc, the funds being dedicated to accelerating methane emissions reductions from natural gas powered ships.

Often overlooked and misunderstood, unburned methane emissions, particularly at lower engine loads, can substantially diminish the environmental advantages of using natural gas over traditional marine fuels. Recent research into these methane emissions, including a wide-ranging study by Dr Balcombe (Balcombe et al. Environmental Science & Technology 2022), has shown that methane slippage from natural gas-powered vessels is much more significant than originally anticipated.

And with increasing scrutiny from regulators and no commercialised product on the market addressing this critical issue, Methanox aims to fill this gap, establishing itself as a key innovator in maritime emissions mitigation by developing new catalytic converters.

“Methane is up to 120 times more potent than CO_2 in terms of global warming” says Dr Balcombe, Co-founder of Methanox, “Reducing methane emissions is vital to have any chance of meeting our global climate targets.”

The outsized effect of methane on global warming means that Methanox will look to address 0.24% of global CO_2e emissions on up to 2,600 ships. Technology development will be taking place at the UK Catalysis Hub in the Research Complex at Harwell, Oxford.

The latest funding commitment from Tharisa comes at a pivotal moment, as the EU prepares to ramp up regulations targeting methane emissions from shipping. With the funding committed, in situ vessel testing of the Methanox designed catalytic converters could be deployed as soon as the second half of 2025.

Tharisa is an innovative integrated resource group of platinum group metals (PGMs), and chromite concentrates committed to advancing the energy transition and decarbonisation of global economies. Tharisa’s investment underlines its dedication to sustainability, aligning with its broader vision of becoming a next-generation mine-to-megawatt resource group. Tharisa’s new energy initiatives include a 15-year Power Purchase Agreement with Etana for the procurement of wheeled renewable energy and a 40 MW solar project, supporting its goal to reduce its carbon footprint by 30% by 2030 and achieve net carbon neutrality by 2050.

“We are committed to reducing the impact on the climate of our business. As a large PGM producer, we see this opportunity as one of the many ways we can support these efforts that

in time utilises metal from our operations" says Andrew Henwood, Executive: Corporate Finance of Tharisa. "Our commitment to finding sustainable energy solutions is evident not only in this funding opportunity but also in our other energy opportunities including long duration energy storage solution Redox One, based in Dortmund, Germany."

"We think that catalysis has a key role to play in decarbonisation of shipping" say Prof. Andrew Beale, Co-founder of Methanox and UK Catalysis Hub Co-director.

"With emissions trading schemes such as EU ETS and others on the horizon, shipowners will have to either reduce their methane emissions or pay for their emissions. Our goal is to develop a commercial technology, installed with minimum disruption to ship availability, that not only reduces methane emissions, but also helps customers avoid these penalties." says Dr Patrick Cullen, Co-founder and CEO of Methanox.

Methanox is supported by Prosemino, the UK's first climate tech venture builder that invests, builds and scales early-stage startups with dedicated lab space specialising in electrochemistry and advanced materials.

Dr. Gyen Ming Angel, Director of Venture Building at Prosemino says "At Prosemino, we specialise in taking cutting-edge science out of the lab and into the world. Methanox is a perfect example - bringing together top-tier catalysis research with entrepreneurial drive to solve an urgent emissions challenge in shipping."

Dr Patrick Cullen will be taking a leave of absence from his university position to fill the CEO role whilst Dr Paul Balcombe and Prof Andrew Beale will act as consultants and directors. With Tharisa's and Prosemino's support and the expertise of its founders, the company is well-positioned to drive meaningful change in an industry under increasing pressure to address its environmental footprint and will allow natural gas powered ships to comply with methane regulations.

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About Methanox:

Methanox are a startup company developing catalytic converters for natural gas powered ships founded by materials and emissions scientists. Their goal is to mitigate methane emissions on dual fuel natural gas / diesel ships without the need for onerous changes in ship infrastructure. Methanox could save 0.24% of global CO_2e emissions per year if installed on up to 2,600 ships. They are funded by Tharisa and Prosemino.

About Tharisa

Tharisa is an integrated resource group critical to the energy transition and decarbonisation of economies. It incorporates exploration, mining, processing and the beneficiation, marketing, sales, and logistics of PGMs and chrome concentrates, using innovation and technology as enablers. Its principal operating asset is the multi-generational Tharisa Mine, located in the south-western limb of the Bushveld Complex, South Africa. Tharisa is also developing the Karo Platinum Project, a low-cost, open-pit PGM asset located on the Great Dyke in

Zimbabwe, while simultaneously focusing on beneficiation in the form of chrome and PGM alloys. A 15-year Power Purchase Agreement with Etana for the procurement of wheeled renewable energy and a 40 MW solar project under construction will ensure that Tharisa Minerals' drive to reduce its carbon footprint by 30% by 2030 is well within reach, forming a major part of a roadmap to become net carbon neutral by 2050. Redox One is accelerating the development of a proprietary iron chromium redox flow long-duration battery utilising the commodities we mine. Tharisa plc is listed on the Johannesburg Stock Exchange (JSE: THA) and the Main Board of the London Stock Exchange (LSE: THS).

About Prosemino

Prosemino creates, builds, and supports startups to tackle the net-zero challenge, offering a new model to fast-track innovations to commercial reality. Founded in 2020 by leading innovators in energy technologies, our mission is to protect the environment and lower the cost of energy. At the heart of Prosemino are our unique and specialised labs, equipped with the technical equipment needed to make the most innovative ideas a reality. These labs enable us to push the boundaries of innovation, accelerating the path to net-zero goals.

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