

# • When the Ocean Enabled Climate Repair Company Control V1.6 Oct 2023

### We must address the most urgent threat: climate tipping points. "1.5° is a physical limit – it is not a political target"\*





#### https://youtu.be/kpMI9YhCMf4

#### Prof Johan Rockström

Director of the Potsdam Institute for Climate Impact Research Stockholm Resilience Centre, Stockholm University

#### **Global tipping Points in the Pipeline\*\***



A simplified engineering style energy balance System can clarify the roll of NetZero, highlight opportunities and prioritise actions



Our global energy system is out of balance, we are currently adding 13 Zeta Joules amount of heat energy to the "Elephant" every year.



NetZero is only the 1<sup>st</sup> step in making sure we maintain a safe planet - there is no reason not to start working on the elephant right NOW

	NetZero: 📥 focus	Stop Heating	Sustaining Temperature
Target	2050	???	???
What it means	<ul> <li>CO2 concentration in atmosphere has reached maximum -&gt; thickest insulation</li> <li>Green stopped shrinking</li> <li>Blue has reached its maximum</li> <li>Elephant is growing fastest</li> </ul>	<ul> <li>Elephant has reached maximum size -&gt; Temperature has peaked</li> <li>Blue is zero</li> <li>Red and green balanced</li> </ul>	<ul> <li>Elephant has reached sustainable size -&gt; Temperature has reached TBC agreed level.</li> <li>Blue is zero</li> <li>We must start cooling NOW. Without active cooling it will take 100s to 1,000s of years to come back down.</li> </ul>
We are here	75021	1,000ZJ	
	$\geq$	Unsafe goal	Goal

>90% of all global warming excess heat is stored in one medium, in water, in our oceans. How do you cool down an Ocean?



Heat pump-based cooling systems are ruled out as they require Earth 2 to dump heat on. We need heat conversion, not relocation



WaterWattS has picked Thermal-to-Chemical heat conversion as its method to convert the excess heat into useful energy.



While we have chosen the Thermal to Chemical conversion path, we encourage all engineers and scientists to look at this specific heat energy transfer challenge and to identify other options that can be scaled. Water self-Ionisation provides a mechanism that can act as catalyst to cool water down and produce Hydrogen, while also releasing CO2



WWS targets 5 delivery location: 2 in the Northern, 3 in the Southern Hemisphere, setting up new sustainable energy industries

#### Global Warm Currents: the WWS Go-to-Market-Strategy requires a warm (red) water feed



The scaled-up vision for 2028 is rigs, that convert ocean heat to hydrogen with optional conversion capabilities and logistics





Offtake agreements will fund the business past TRL6 either with customers directly or through market makers for carbon credits



#### **Voluntary Carbon Credits**

- 1. Go direct: Sell Credits directly (only for large key accounts)
- 2. Advanced carbon market service providers:

puro · earth The world's leading crediting platform for engineered carbon removal

## **+:** Frontier

Advance market commitment with initial \$1B+ target, founded by Stripe, Alphabet, Shopify, Meta, McKinsey **Green Hydrogen** The process "Waste" from Cooling efforts

Offtake agreements will be the cornerstone for WWS's cashflow, selling to key accounts in energy and chemical markets driven by geography supply/demand and logistics considerations.



 $H_2/CO_2$  use

This approach copies the H<sub>2</sub>**green steel** business model who are raising more than EUR5 bn (EUR1.5bn equity/3.5bn debt) secured against committed future production revenue. WWS's Roadmap: The Funding Strategy aims to close a final "Round" A" by '25 to achieve TRL6 enabling revenue generation

TRL 3	5	6 9	•
Q4 '23	Q3 '24	Q4 '25 202	28
<b>Until Now</b> Founder self-funded, boot-strapped with some start-up mentoring income	<ul> <li>Seed: \$8m</li> <li>Use of funds:</li> <li>Design, build and test modular base unit in-house</li> <li>Build AI supported Digital twin</li> <li>Launch gas conversion process development (outsourced)</li> <li>Plan offshore test, permits etc.</li> <li>Key Milestone:</li> <li>quantified KPIs for base unit: Temperature change, Gas</li> </ul>	Round A: \$50m Use of funds: • Build offshore gas processing unit	
Pre-Seed: Ş200k In advanced tech DD conversation with Philantropic cleantech investor under NDA. Existing long-term relationship Use of funds: external tech validation, file IP, progress R&D, recruit launch team Key Milestone: External verification of core tech (targeting Imperial College)		<ul> <li>Ship and deploy base unit &amp; gas processing unit</li> <li>Plan global roll-out, build team</li> <li>Key Milestone:</li> <li>Carbon Credit certification</li> <li>Hydrogen offtake agreements</li> </ul>	

WOXON: one founder, an advisory team and Earmarked future fulltime team members backed by impactful networks

#### Founder

Achim Hoffmann; Dr.-Ing. Chem.Eng. (KIT & Dortmund), Kellogg MBA; dual nationality: Germany, UK.

Ex German Army, ex Fraunhofer Cleantech, ex-McKinsey&Company Duesseldorf&London, ex-VC; repeat founder;

Achim has 20+ years' experience in the early-stage science start-up area with 30 years' experience in water science. His passion is water: uncovering its unique capabilities. Early 2022 he left his VC to develop a water-based cooling concept to gain control over global warming. His is currently focussed on finalising the lab-sized proof-of-concept of the "heat-to-hydrogen" conversion step – WWS's core tech, while getting fund-raise ready.

#### "Earmarked" Key Team-members

A number of potential key team members have already been approached on an international level through existing networks.

During the pre-Seed round firmed up committed will be sought to be ready to operate once Seed Funding is confirmed. The Seed Round will trigger full commitment.

Further team building efforts will start once tech has been validated.

#### **Current Advisors**

#### **Prof Wouter van Dieren**

- Club of Rome, Climate activist, author, politician **Prof Andrew Livingston**
- Pro-Vice Chancellor for Research and Innovation at Queen Mary University London; Chem.Eng.

#### Hans van der Loo

- Energy & Eco-system Expert, ex Shell
- **Dr Peter Collins**
- Experienced CEO and Chairman with 2 Exits

#### Dr David Astles

• Experienced Engineering Start-up CEO, ex Shell



Current work is being done in the "dining room lab" with garage workshop. This will get it to TRL3 enable funding.



This gives an idea about scale of the current module holding frame and the modules, which are at ml scale. Total water volume in those rigs have varied between 1 to 4 litres that are circulated through various combination of modular blocks to test impact of intervention methods.

The goal is to demonstrate that flowing and "manipulated" water can release Hydrogen with some quantification.

Experimental work since early 2022, newCo founded Sep 2023.



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The Ocean Enabled Climate Repair Company

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