TERGEO

Water

TerGeo shall provide an environmentally friendly water plant, which year after year shall provide freshwater, without any significant operation and maintenance or energy cost.

Problem

“Climate change, increasing water scarcity, population growth, demographic change and urbanization are already challenges for water supply systems. By 2025, half of the world's population will live in water shortages.”

The major factors pushing the expansion of the desalination market are dwindling of water resources under the impact of changing rainfall patterns, rising temperatures, and over-exploitation.

Solution

It exists different types of energy consuming desalination plants. Larger plants are often using electricity or fossil fuel. Solar powered smaller sized plants are operation and maintenance (O&M) demanding. TerGeo uses an innovative process for desalination of seawater where tidal-, wave-, solar-, and wind energy are used. No electricity is produced, and no active components are used. The differentiator to other technologies is the mix of energy resources in the construction where very little Opex is needed.

The end-product will be for irrigation, potable or industrial water usage.

Why now and why TerGeo

- TerGeo has developed a technology for producing water that requires little maintenance with the usage of local, renewable energy sources only.
- TerGeo has the goal to being able to produce 1 m^3 for less than 1 $ in average. This price is considerably lower than the average price on the market.
- By using renewable energy sources only, the solution is detached from the fluctuation of energy- and fossil fuel prices.

Market Size/Potential

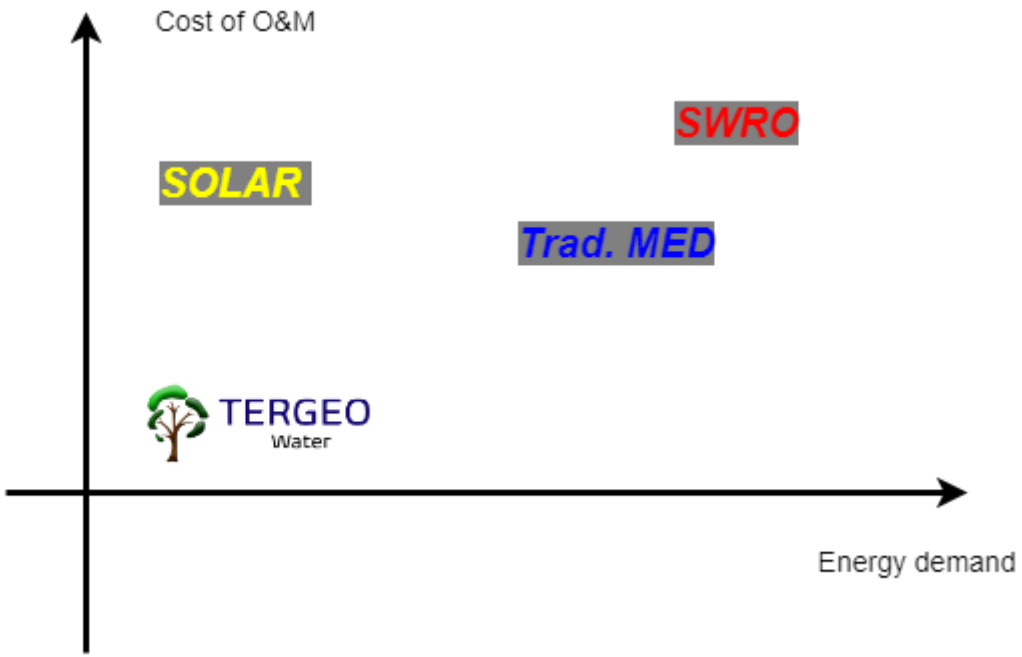
- Middle East & Africa dominate the regional markets, but a higher growth rate in Southeast Asia.

- The growing necessity of treating seawater to safeguard freshwater supplies is predicted to drive demand for seawater desalination technology.

- The global desalination market is projected to be US$ 32.02 billion by 2027, from US$ 19.29 billion in 2021. CAGR of 9.0%

Product

- The most applied technology is the SWRO. Apart from energy, a drawback with SWRO is that the membrane gets foul and needs frequently to be replaced.
- Typical Energy costs account for 40-60% of the total desalination cost.
- The renewable energy solutions like solar power are in most cases used in small and medium sized plants and require high service and maintenance.
- TerGeo has negligible Energy and O&M costs.



Business Model

- TerGeo will sell the plants and not the water, as asset sales or through licensing or lease agreements.

- Different sales strategies will be applied for different markets, including agent/partner networks, reseller and direct sales.

The Team

Ulf Hårderup, M.Sc. (Mechanical engineering /Thermo, Energy), MBA CEO
M.Sc. at Lund University, Sweden, MBA Universitad de Barcelona Serial entrepreneur in technology and telecom industry. Experienced director with a demonstrated history of working internationally in the maritime industry. Versatile sales, marketing and operations manager.

Kamal Rezk, Ph.D., Senior Lecturer in environmental and energy systems at Karlstad University Ph.D. in fluid mechanics with emphasis on CFD-modelling. Research area is focused on turbulent and multiphase flow modelling where examples of application areas are wave power, aeration of wastewater as well as vacuum drying of tissue paper. Have four years of industrial experience from Siemens energy and Rolls Royce marine (now Kongsberg Maritime) as a research engineer in heat transfer modeling and hydrodynamic modelling, respectively.

Bengt Sundén, Professor Emeritus at Lund University He has published more than 600 articles in well established and highly ranked scientific journals. In addition, more than 400 articles have been presented and published at international conferences. He has edited 30+ books and written four major textbooks on heat transfer. The h-index is 60 (Scopus) and the number of citations is more than 17000. The research concerns fundamental and applied topics in thermal fluid science.

Wamei Lin, Ph.D., Senior Lecturer in environmental and energy systems at Karlstad University Wamei Lin, a senior lecturer in Department of Engineering and Chemical Sciences, Karlstad University. Previously, she worked as a thermal design engineer in AVVID and SWEP companies. Her research concerns numerical heat/mass transfer and computational fluid dynamics; multiphase fluid simulation, waste heat recovery from industry, optimization and design of energy network systems; and new heat exchangers design. She has published 7 journal papers and 12 conference papers.

Where are we now and the funding

- ✓ TerGeo AB is a start-up founded in 2021.
- ✓ A feasibility study has been carried out. This study has shown that the principles are working in theory.
- TerGeo is looking for funds for phase 1, to carry out the performance of deep analysis of the different components, materials, throughput etc.
- In Phase 2 a prototype will be developed and tested together with a digital twin in a laboratory at Karlstad University and applications for the IPR.
- Phase 3 – Industrialization

TerGeo is looking for seed funding for Phase 1 of € 300k, for 1-3 a total of € 900k is expected.

Contact

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