

Metal Based Renewable Energy Storage

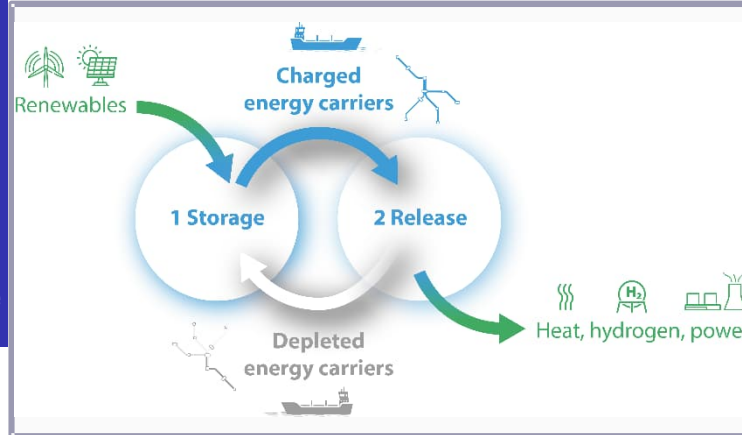
Renewable energy as a commodity like oil, gas and coal for global trade and loss-free storage

STATUS QUO

Current approaches to storing renewable energy are only suitable for short periods of days to weeks. Energy storage over longer periods, as well as transport, is carried out using carbon-based fossil fuels. The currently much-discussed alternatives, hydrogen and ammonia, do not scale well and pose a high risk potential, which must be reduced at great technical expense.

OUR TECHNOLOGY

We have developed a process for transferring renewable energy to metals. These become an easy-to-handle, solid energy carrier, minimizing the potential for danger. Metal energy carriers can be stored for years without loss and are easy to transport. The achievable storage densities are many times higher than those of battery storage systems and are in the same order of magnitude as traditional fossil fuel storage systems.



BENEFITS

- CO₂-free energy supply
- Import of affordable renewable energy
- Circular, secure energy carrier without losses

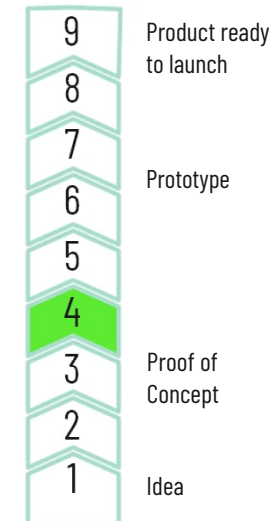
APPLICATION POSSIBILITIES

The technology enables the implementation of seasonal energy storage and offers the possibility of storing renewable energy in strategic reserves. It also facilitates the defossilization of energy supply and hydrogen production, as well as global trade in renewable energy.

COMMERCIALIZATION OPPORTUNITIES

There are various possibilities for cooperation between the industrial partner and TU Darmstadt: from an exchange with the know-how carriers of the technology up to a close cooperation in case of further development needs. The technology is protected by intellectual property rights and can be used by the industry partner after a sale or licensing agreement.

CURRENT STAGE OF DEVELOPMENT TECHNOLOGY READINESS LEVEL (TRL)



The technology development is at Level 4:
The process for storing energy and the process for extracting hydrogen and heat work reliably on a kilogram scale in our laboratory reactor. Similar processes are in commercial use.

YOUR CONTACT PARTNERS AT TU DARMSTADT



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