

Lighthouse Metal Energy Carrier



Project Description

The success of **iron as a circular fuel** cannot be achieved without a method to **cost-effectively regenerate iron oxide** back into iron powder. Reduction has been done for many years, but not yet in a sustainable way and not with the goal of storing sustainable energy.

The **Lighthouse MEC project** focuses on answering the questions:

- What is the most appropriate regeneration technology?
- Which business case is most suitable to bring the iron fuel technology to the market?

Three reactor prototypes are being developed that employ their sweet spot in the temperature window for iron powder reduction:

Fluidised Bed



500 °C

- ✓ Slow process
- ✓ No sticking
- ✓ Pyrophoric powder?
- ✓ Known technology

Rotating Drum



800 °C

- ✓ Fast process
- ✓ Sticking
- ✓ Pyrophoric powder?
- ✓ Known technology

Entrained Flow

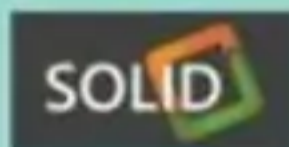
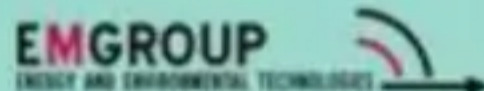
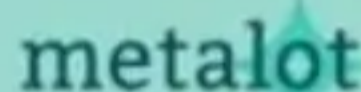
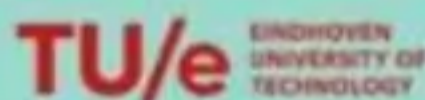


1100 °C

- ✓ Super fast process
- ✓ No sticking
- ✓ Non-pyrophoric powder
- ✓ New technology

1400 °C

Partners



This project has been made possible by financial contributions of Shell and the Province Noord-Brabant.



Provincie Noord-Brabant