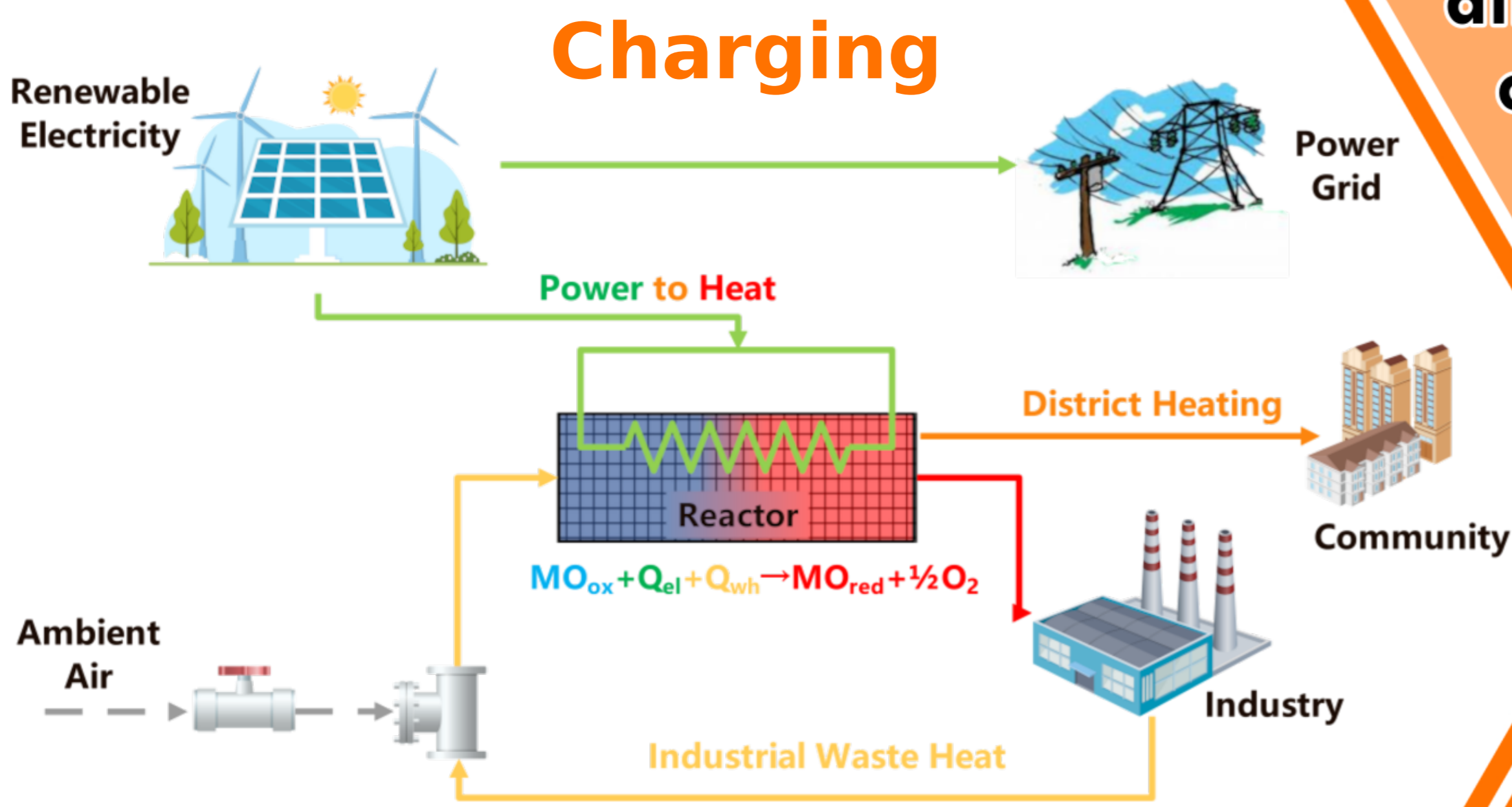


High-Temperature Thermochemical Heat Storage System for Industry

1 System

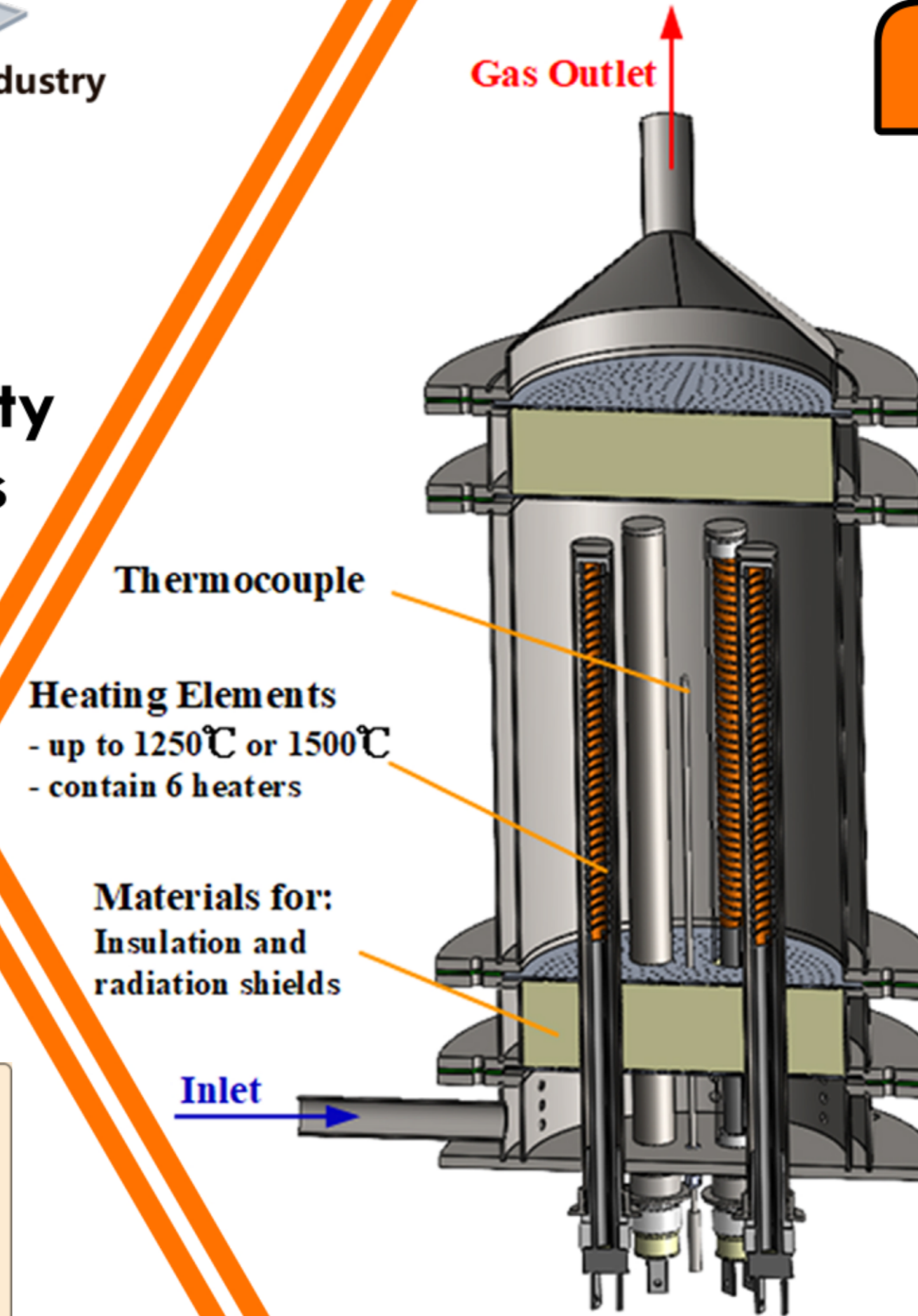


Using **metal oxides**, the renewable electricity and industrial waste heat can be stored as heat and released at more than **1000°C** when it's needed for industrial heating.

Our Goal

Funded by Horizon Europe, HERCULES aims to establish one **lab-scale prototype** of thermochemical heat storage system for stable and sustainable industrial heating, and finish the modeling, experiments and assessments of it.

2 Reactor



Experimental validation of small-size reactor models

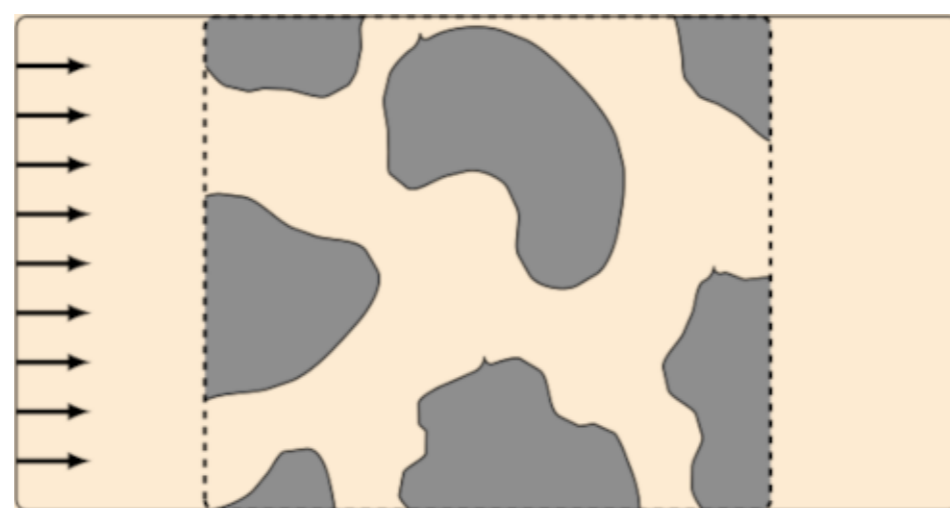
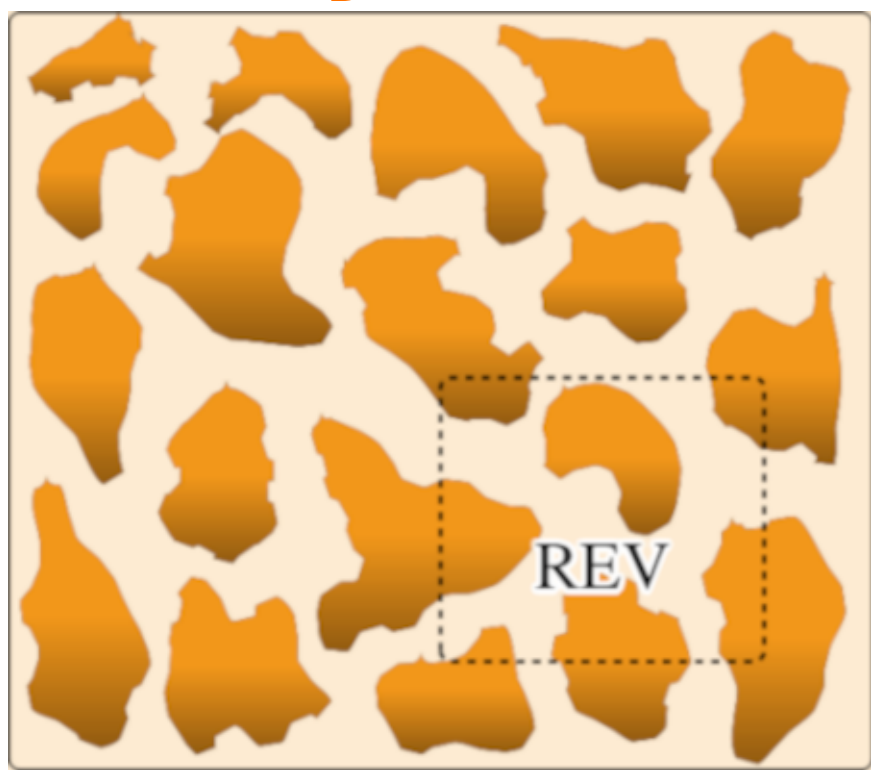
Target reactor modeling, optimization and fabrication

Target reactor performance experiments

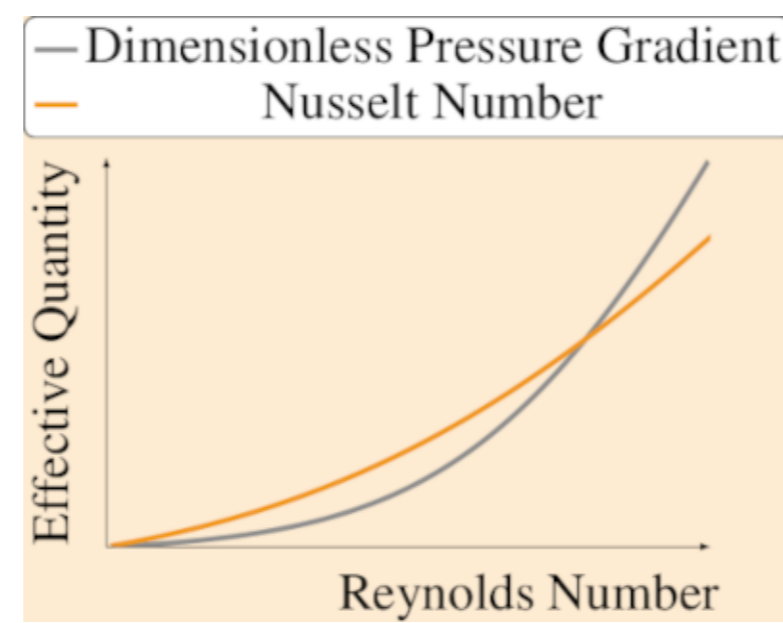
Both charging and discharging reactions occur in the reactor. **CFD modeling** and **experiments** will be carried out to optimize design and ensure good overall performance.

3 Material

Physical



Numerical



Averaged

Numerically analyzing the geometrical material properties and response to various **transport phenomena** on a **mesoscopic level** is crucial in understanding the storage capabilities and maximization of the storage potential on a macroscopic level.

Team



UNIVERSITY OF TWENTE.

From left to right: Tianchao, Jaimy, Zhen, Abhishek



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