Siemens Energy is a

# global leader in energy technology

**~1/6**

of global electricity generation is based on our technology.

**101,000**

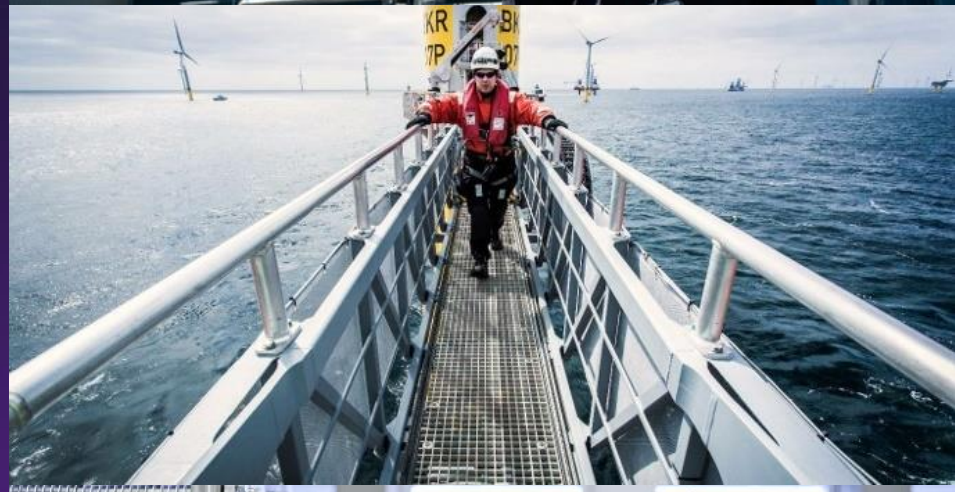
employees work as a team to energize society.[1]

We are present in

**>90** countries.

We invest around

**€1.2bn** annually in research and development.



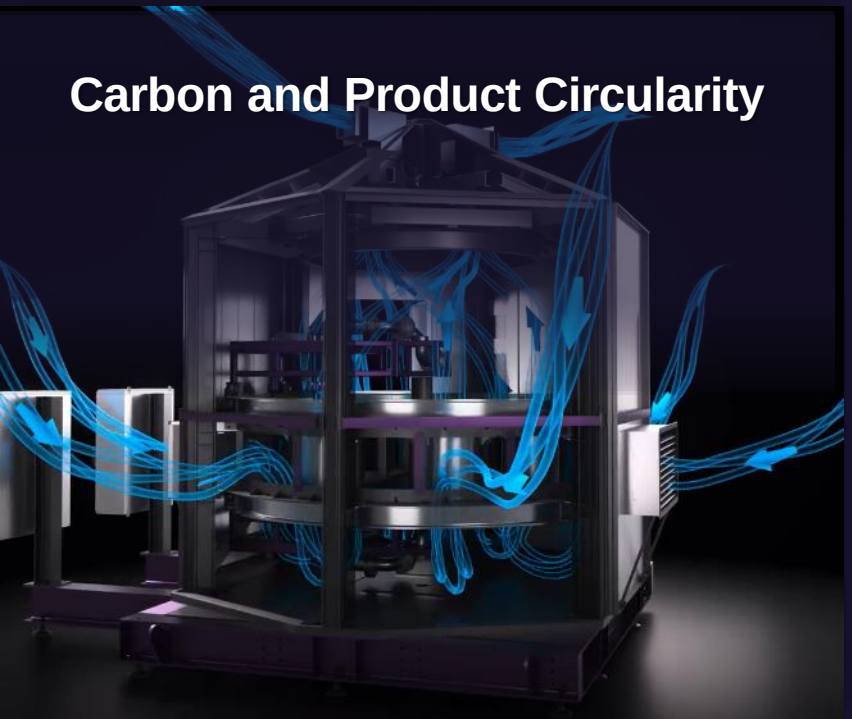
**1** Number of employees as of December 31, 2024

We focus innovation on

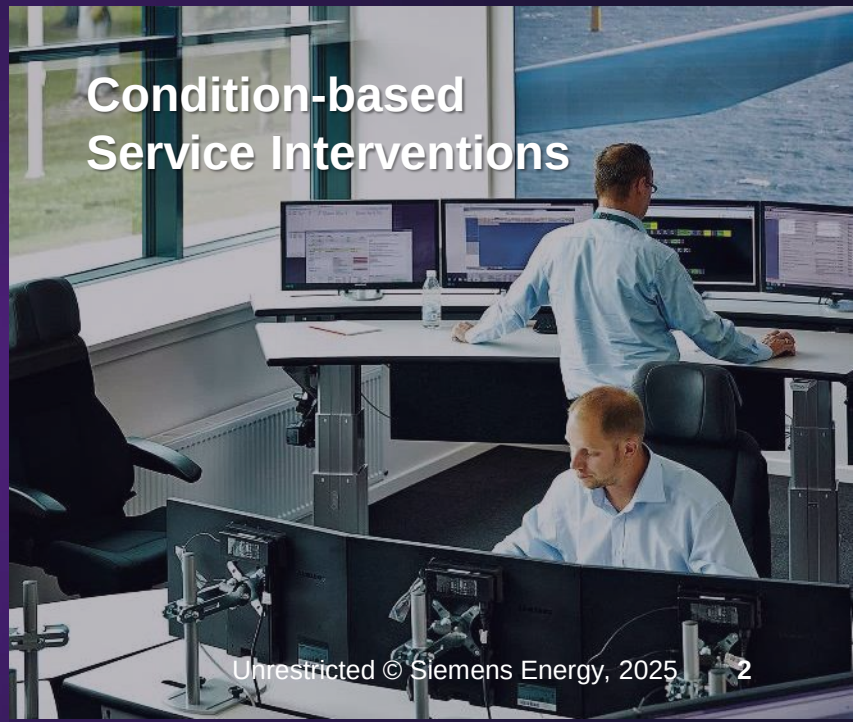
# Five **fields of action**

to shape the energy world of tomorrow

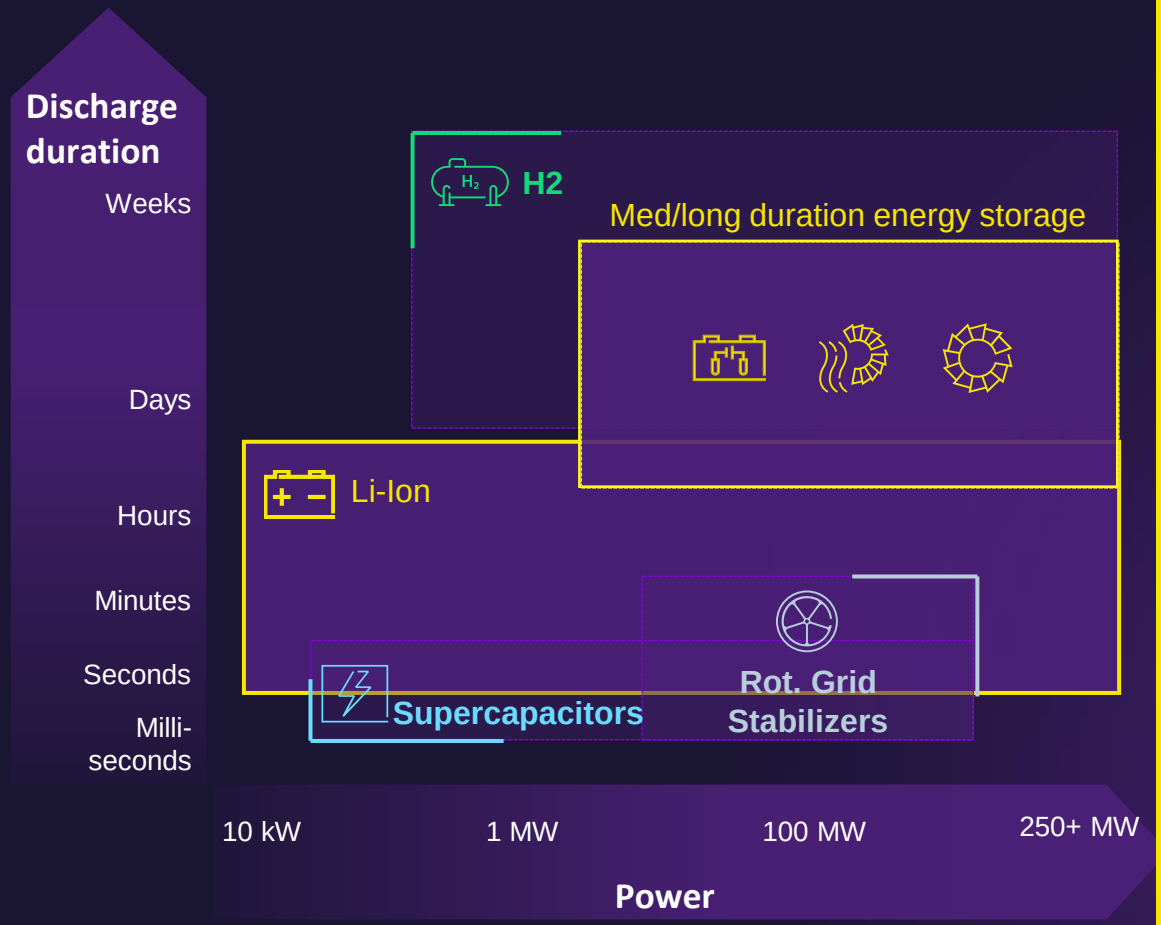








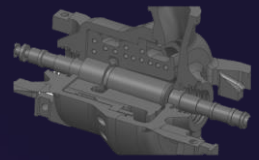
# We apply expertise in rotating machinery, electrical systems, and electrochemical processes to advance energy storage




## Compressed Air Energy Storage (adiabatic & diabatic)

Explore **air storage options,** e.g. tunnels, pipelines, submerged etc

## TES & TMES[1] (through various partnerships)



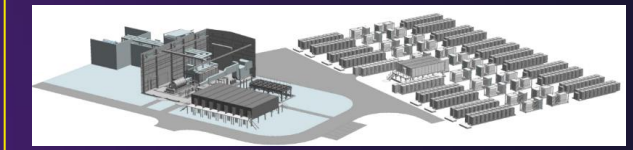
**Steam** and **CO2 compressors** and **expanders**

**Induction Heater** (next slide)

## Redox-flow batteries (RFB)

- Partnering for Vanadium batteries for **Utility Applications**
- RFB stack development within the German-funded project **MultiFlow**


## Li-ion batteries



**63 MW/158 MWh** Battery Energy Storage System **(BESS)** + Sync-hronous Condenser installed at **Shannonbridge (Ireland)**



1) **TES:** Thermal Energy Storage; **TMES:** Thermal-Mechanical Energy Storage

# New Technology: MW-Scale Induction Heater

## Enables electrification of high temperature industrial heat, and scalable thermal energy storage

- Highly scalable due to **Medium Voltage** 11kV-22 kV, applying well-proven tech.
- Electrical components are..
  - ..maintained below 150 °C
  - ..not exposed to fluid (non-contacting)
- Heats **fluids**, **gases** and **two-phase** flows

**Characteristics**

**Temperature**
100 – 1,000 °C

**Power/Unit**
5 – 100 $MW_{th}$

**Efficiency**
>99%

Pressure Limit
>250 bars

500kW Demonstrator used to successfully heat Air and Oil


Ex. Use Cases: **Brownfield decarbonization** & **industrial heat storage**