



GES: REVOLUTIONIZING LONG-DURATION ENERGY STORAGE

Università aperta PhD 2024, University of Padova



RESHAPING THE ENERGY TRANSITION

With our green and
Sustainable Energy
Storage System, we build
the future of renewable
energy

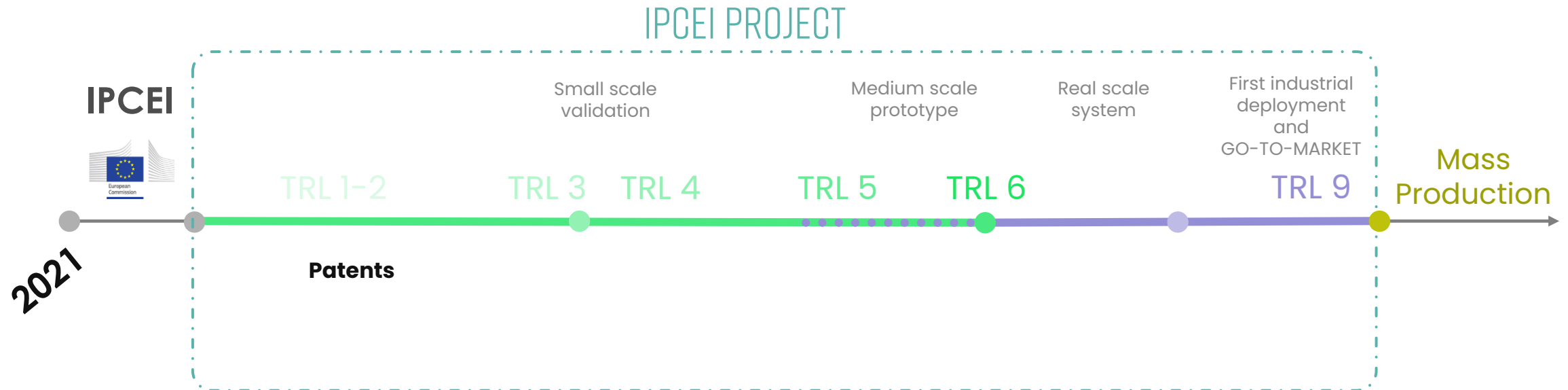


GES ROADMAP AND IPCEI PROJECT

BUDGET: 62 M€ (GES)

DURATION: 6 YEARS

PROJECT: NEW DISRUPTIVE AND COMPETITIVE RFB TECHNOLOGY FROM R&D TO FIRST INDUSTRIAL DEPLOYMENT (FID)





GES BATTERY SUPPLY CHAIN

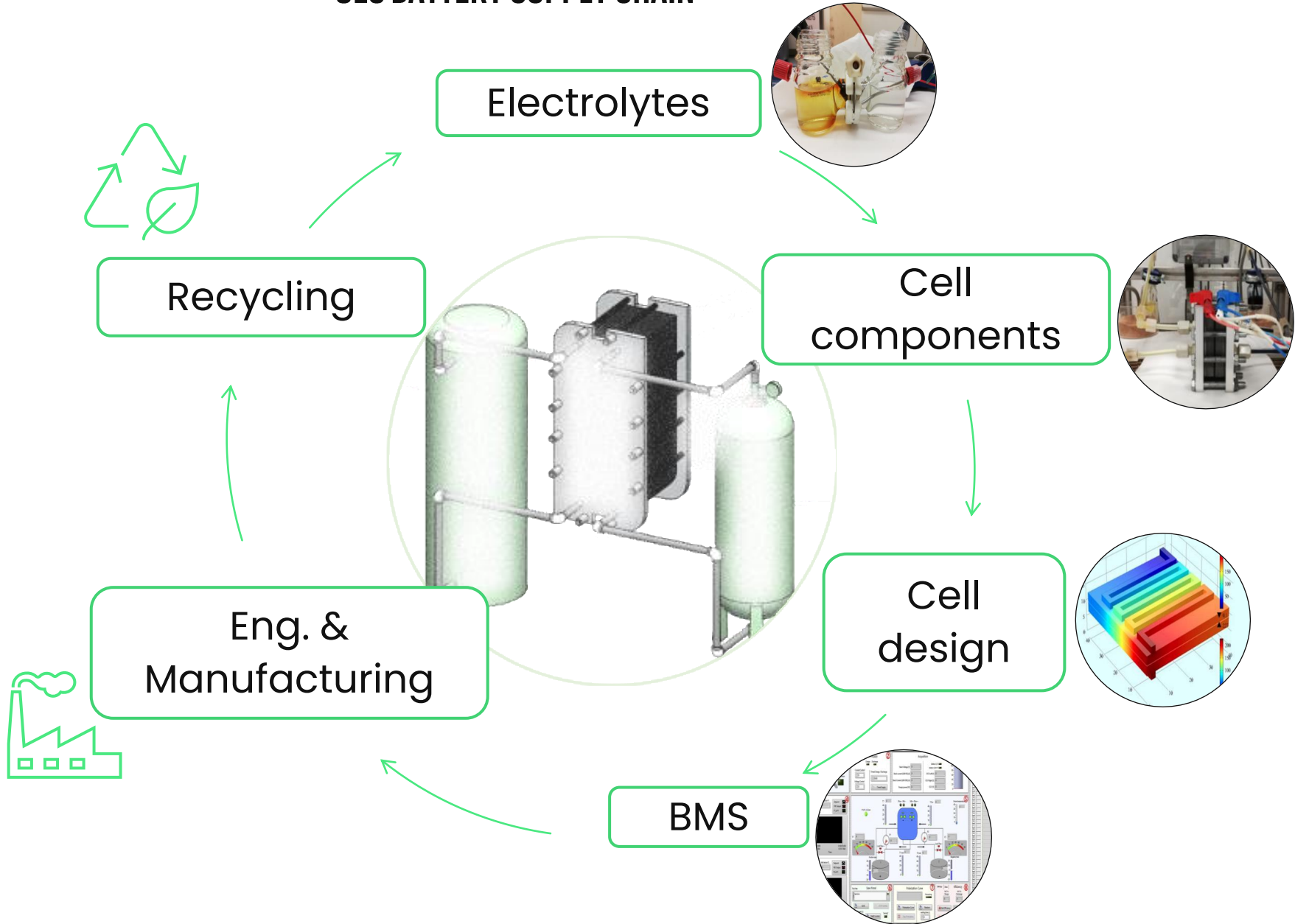


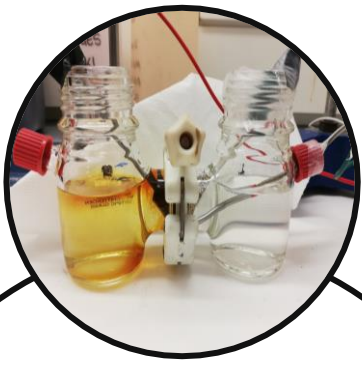
+ TRANSVERSAL COMPETENCES:

Standards & regulations

Health, safety, environment and quality

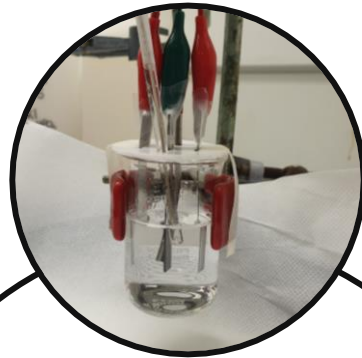
LCA, Sustainability





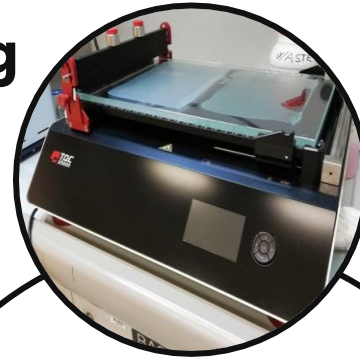
Electrolytes

New redox couples,
EC performance,
additives, ...



Electrodes & Catalysts

Synthesis,
depositions,
treatments,
EC tests...

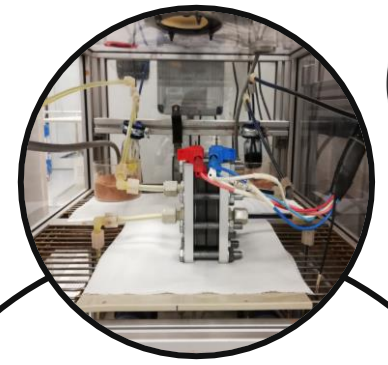


Membranes

Synthesis,
fabrication,
treatments,
characterization, ...

EXPERIMENTAL ACTIVITIES

**Electrochemistry,
Material science,
Chemistry,
Physics,
Engineering**



Prototyping

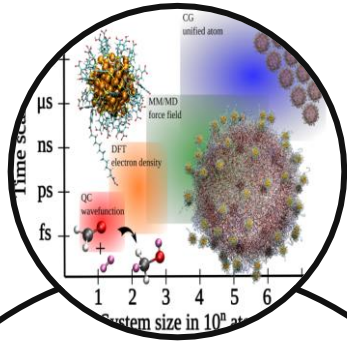
Cell/stack materials,
design and
construction,
BoP,
scale-up, ...





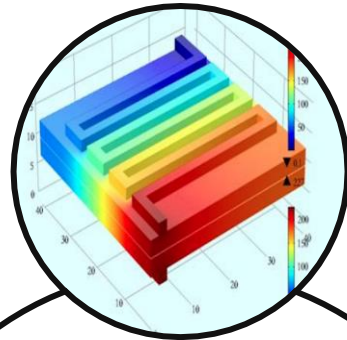
EXP/THEORETICAL ACTIVITIES

Chemistry, Physics, Engineering, Computer science



Computational chemistry

Quantum chemical calculations,
Molecular dynamics,
Cheminformatics

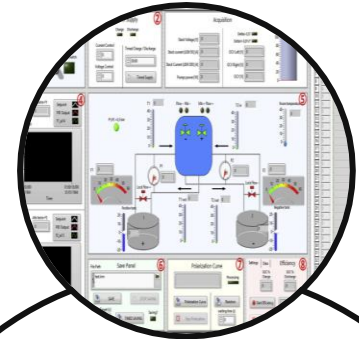


Modelling and simulations

Fluid dynamics,
Electrochemistry,
Cell/stack design, ...

Data analysis

Cell cycling, EIS, ...
(Python)



HW/SW development

Battery management system



GES KPIS

GES goal is to **develop an innovative, high-performance, and sustainable flow battery for long-duration energy storage.**

1 High energy density >75Wh/l

The high energy density enables significantly reduced size and weight compared to traditional flow batteries

5

Lifetime > 10k cycles

This number of cycles makes the GES battery a long-term asset which, based on its usage characteristics, can exceed 20 years

2

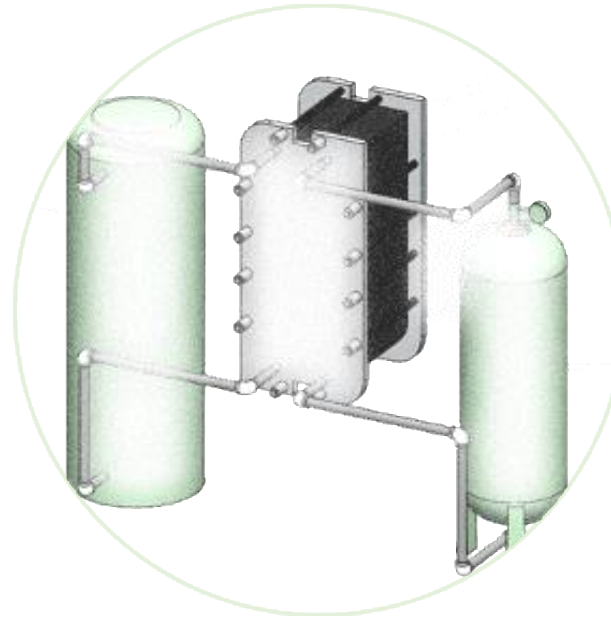
Energy efficiency >85%

Energy efficiency is higher compared to the state-of-the-art of flow batteries and fuel cells

3

LCOS in MP <0,02 Eur/kWh/cyc

A low LCOS makes the product highly competitive, outlining a profitable and long-lasting investment



6

Room temperature

In addition to direct impact on safety, operating at room temperature enables use in different environments, both indoor and outdoor

7

Maintenance

The battery architecture allows the replacement of individual components quickly and with limited costs

4

Self-discharge rate close to zero

It is a distinctive feature of this technology, enabling the system to be used in applications that anticipate disconnection from the electricity grid for long periods

8

High Sustainability & Recyclability

Environmental impact to be at minimum



CONTACTS

LOCATIONS

REGISTERED OFFICE

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Italy

OPERATIONAL HEADQUARTER

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Progetto Manifattura
38068, Rovereto (TN)
Italy

SOCIAL AND MEDIA



<https://it.linkedin.com/company/green-energy-storage>



Intervista al Presidente Pinto su Radio24 –
L'economia delle piccole cose [link](#)



Intervista al Presidente Pinto sul Corriere della
sera [link](#)



Intervista al Presidente Pinto su SkyTG24
Progress [link](#)

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