

**Interreg
Europe**



Co-funded by
the European Union

Repower Industries

Innovation in the energy context

Interregional Workshop / stakeholder contribute

Omar Perego

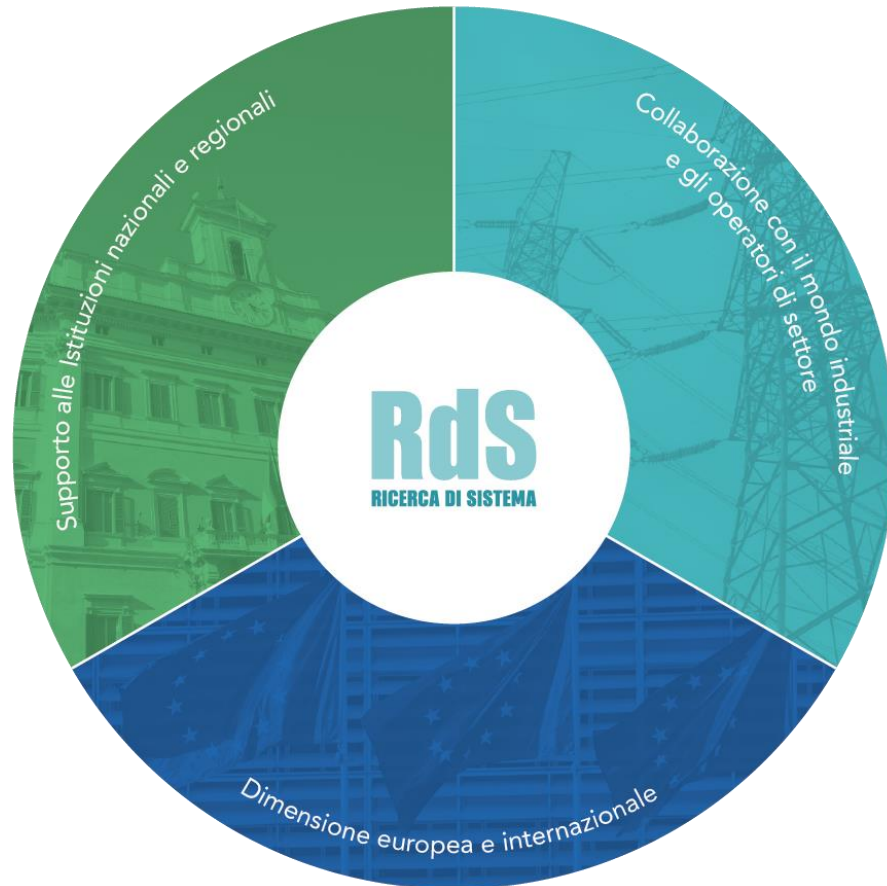
RSE - Project Manager

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3 December 2024 | Milano

RSE about us

RSE S.p.A., Energy System Research, is a company indirectly controlled by the Ministry of Economy and Finance through its only shareholder **GSE S.p.A.**.



Departments cover all the “energy value chain”

- SFE – Sustainable Development and Energy Sources
- SSE – Energy Systems Development
- TGM – Materials and Generation Technologies
- TTD – Transmission and Distribution Technologies

TOTAL

personnel

~ 380



average age

46 years

PERIOD 2019-2022

new hiring

200+



average age

33 years

PREMISES and LABS

Laboratories

50+

Milano, Piacenza, Roma



RSE Global presence



RSE has been involved into about **100 research projects** funded by different European programmes, **coordinating about 20** among them. Cooperation agreements have been signed with about **1000 partners**.

RSE supports the European Commission in pursuing the objectives of the energy transition, through the implementation of the "**Clean Energy Transition Partnership**"

In order to **support national institutions and stakeholders**, RSE is also part of several European initiatives such as: European **Technology and Innovation Platforms** (ETIP), European **Partnerships**, European **associations** and **clusters**.

RSE takes part in various Technology Collaboration Programs activated by the IEA (**International Energy Agency**), coordinating, in particular, the initiative ISGAN - International Smart Grid Action Network.

RSE has been active since the beginning in **Mission Innovation (MI)** and leads the Green Powered Future Mission.



Repower Industries objectives

Promoting better policies for Industrial **energy independence** and **security**.

Focus areas:



Increasing **RENEWABLE** use



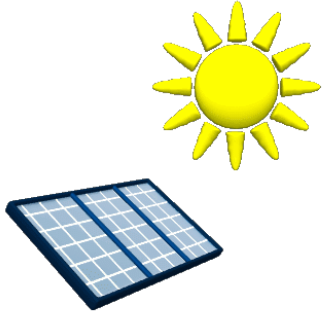
Increasing **ENERGY EFFICIENCY**



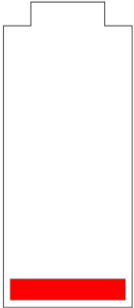
STORAGE green energy

Raw Materials crisis

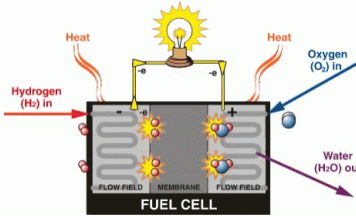
All the technologies for the **industrial energy & digital transition** are dependent on **Critical Raw Materials** (CRM) – also Nuclear will be. It's the same for the thermoelectrical traditional technologies, depending on **oil and gas**



CRM in **PV**: **B, Ge, Si, Ga, In**
(semiconductors and dopants)



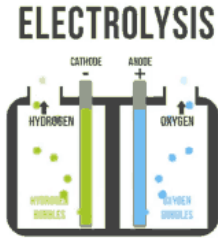
CRM in **Battery**:
C, Li, Nb, Co, Si, Ti
(anode and cathode materials)




CRM in **Fuel Cell**:
Pt, C, Sr, Ti, Co, Pb
(anode and cathode materials and catalysts)



CRM in **electric motor**: **B, D, Nd, Pr, Si** (electronic components, permanent magnetic materials)



CRM in **electrolyser**:
Ir, La, Sc, Y, Zr
(materials for electrodes and membranes)



CRM in **electrical components**: **Cu, Si** (materials for electrical and electronic components)

«**Raw Materials crisis**» will be the new crisis, as large as the recent «**gas crisis**»

Challenges at EU and national level

Regulation across EU

Critical Raw Materials Act

Priority actions to reduce supply risk of CRM by diversifying, establishing strategic agreements, mitigating risks, investing in research and innovation, and promoting circularity

Net Zero Industry Act

Initiative aiming at supporting industries to achieve net-zero emissions by encouraging investment in green technologies, simplifies regulations and strengthens EU supply chains

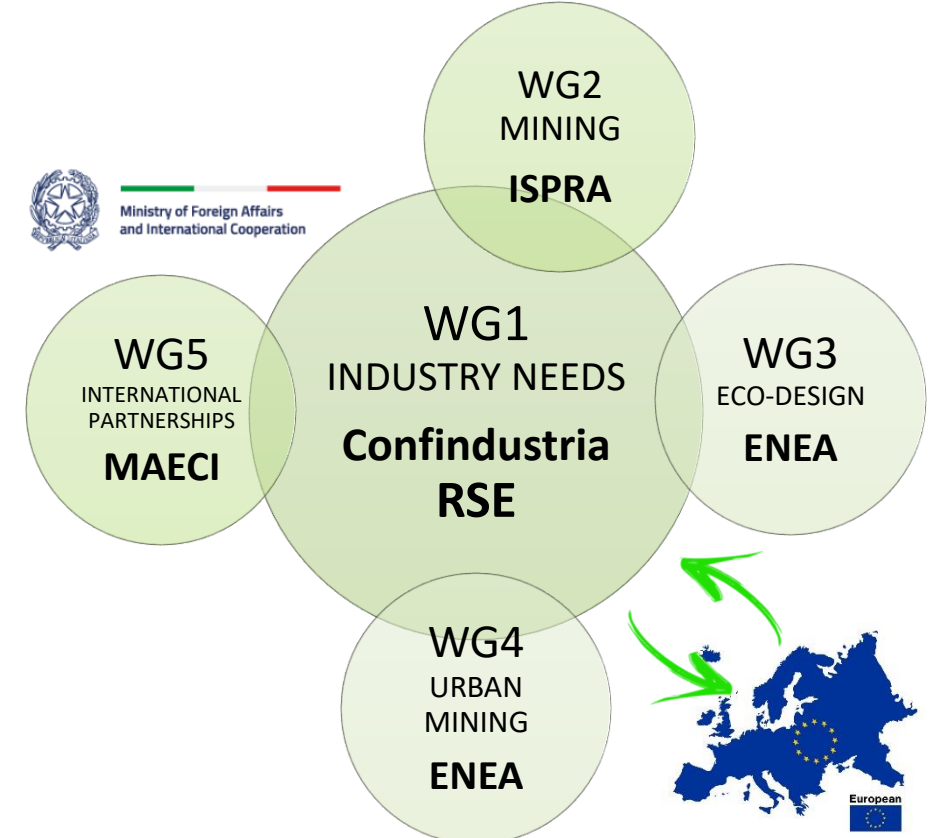
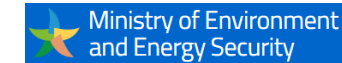
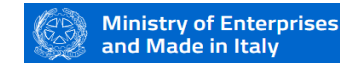
European Chips Act

Initiative designed to increase the production of chips within Europe, enhance innovation and strengthen the resilience of the semiconductor supply chain

Battery Regulation

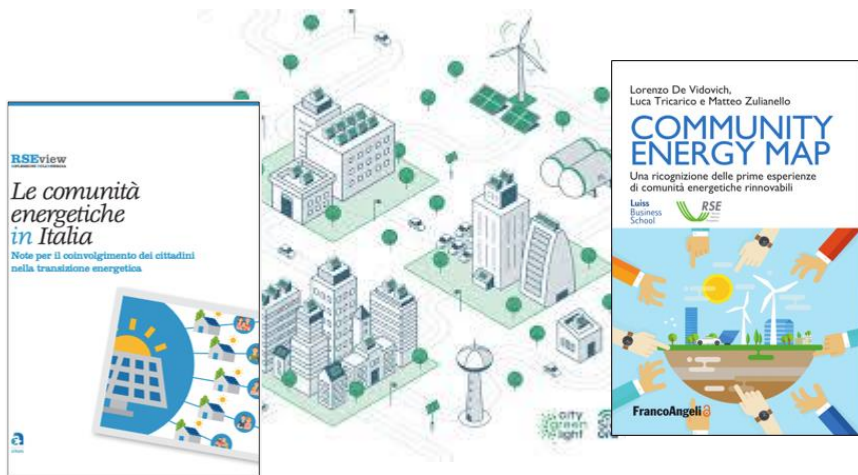
Framework aimed at ensuring the sustainability, safety, and circularity of batteries along their value chain, by setting rules for the design, production, recycling and disposal of batteries

CRM National Table addressing issues related to raw materials supply risk

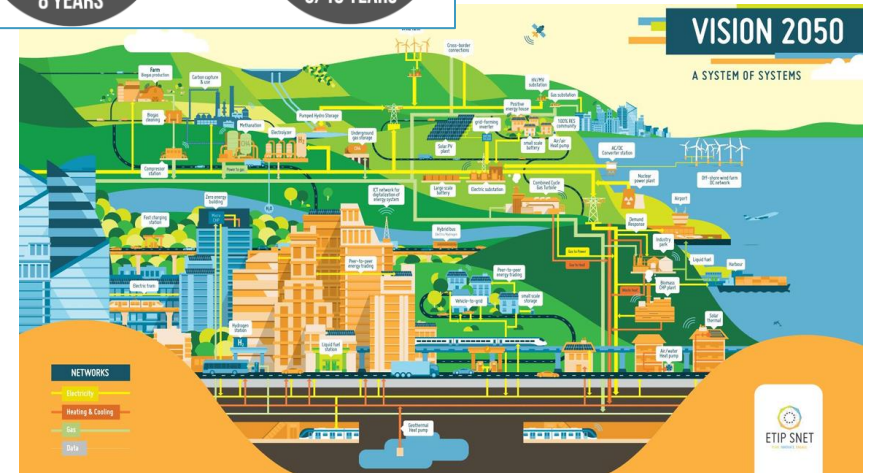
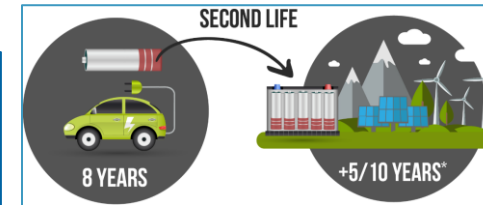


RSE highlights

RENEWABLE energy communities



STORAGE technologies and sector coupling



ENERGY EFFICIENCY in industries



Mission Innovation overview



Mission Innovation founded in COP21 (2015)

- Phase 1 (2015- 2021): Doubling R&D public spending on clean energy – 7 Initiatives
- Phase 2 (2021 - onwards): Mission based strategy

Mission Innovation is a **global initiative** catalysing a decade of action and investment in **research, development and demonstration** to make clean energy affordable, attractive and accessible for all. This will **accelerate progress towards the Paris Agreement** goals and pathways to net zero.

Missions and Italian engagement



GREEN POWERED FUTURE MISSION

The Goal: To demonstrate that by 2030 power systems in different geographies and climates are able to effectively integrate up to 100% variable renewable energies in their generation mix and maintain a cost-efficient, secure and resilient system.



ZERO-EMISSION SHIPPING MISSION

The Goal: For ships capable of running on zero-emission fuels to make up at least 5% of the global deep-sea fleet by 2030.



CLEAN HYDROGEN MISSION

The Goal: To increase the cost-competitiveness of clean hydrogen by reducing end-to-end costs to USD 2 per kilogram by 2030.



CARBON DIOXIDE REMOVAL MISSION

The Goal: Enable Carbon Dioxide Removal technologies to achieve a net reduction of 100 million metric tons of CO₂ per year globally by 2030.



URBAN TRANSITIONS MISSION

The Goal: By 2030, deliver at least 50 large-scale, integrated demonstration projects in urban environments around the world, providing a pathway for all cities to adopt net-zero carbon solutions as the default option.



INTEGRATED BIOREFINERIES MISSION

The Goal: Develop and demonstrate innovative solutions to accelerate the commercialization of integrated biorefineries, with a target of replacing 10% of fossil-based fuels, chemicals and materials with bio-based alternatives by 2030.



NET-ZERO INDUSTRIES MISSION

The Goal: Develop and demonstrate cost competitive solutions for the efficient decarbonization of energy intensive industries by 2030.

Decree MASE 16 Nov. 2023

Budget and deadline

Budget	Tematica	Min. cost per project M€	Max. cost per project M€	Deadline
182	vRES (PV, Wind, ...)	5	20	
	Flexibility + Storage	5	20	
	Networks Digitalization	5	20	
118	Hydrogen	5	20 - 30	
36	Electrolyzers and grids	1	5	
	Bio-H2 and bio-fuels	1	5	
	Critical Raw Materials	0,5	5	April 2025

Scope: finance innovation projects within the "Green Powered Future" (GPFM) and "Clean Hydrogen" (CHM) Missions of Mission Innovation 2.0, to contribute to the integration of renewable energies into the energy system, improve green hydrogen production, and develop innovative solutions for the energy sector.



Other regional initiatives

The **Lombardy Region**, in the implementation of the EU STEP regulation, is preparing a call for proposals with **European Regional Development Funds** (ERDF) specifically aimed at recovering **critical raw materials**, particularly from batteries and WEEE (Waste Electrical and Electronic Equipment), as well as phosphorus from sludge and organic waste

Other funding measures:

Floating PV, Renewable Energy Communities, Etc.



RSE contacts

Stay in touch with us, because

#wemoversearch

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