



REFRESH

Smart, circular recycling of
wind turbine blades

Project partner



Co-funded by
the European Union

RINA Consulting Italy

RINA is a multinational group providing a broad range of services across the Energy, Marine, Infrastructure & Mobility, Certification, Industry, and Real Estate sectors.

With revenues exceeding €1 billion in 2025, approximately 7,000 employees, and 200 offices in 70 countries worldwide, RINA actively participates in major international organizations and has long contributed to the development of new regulatory standards. The company is also a founding member of the International Association of Classification Societies (IACS), established in 1968 and comprising the world's twelve leading ship classification societies.



RINA's role in the project

RINA is the **project coordinator**, coordinating the whole consortium and project.

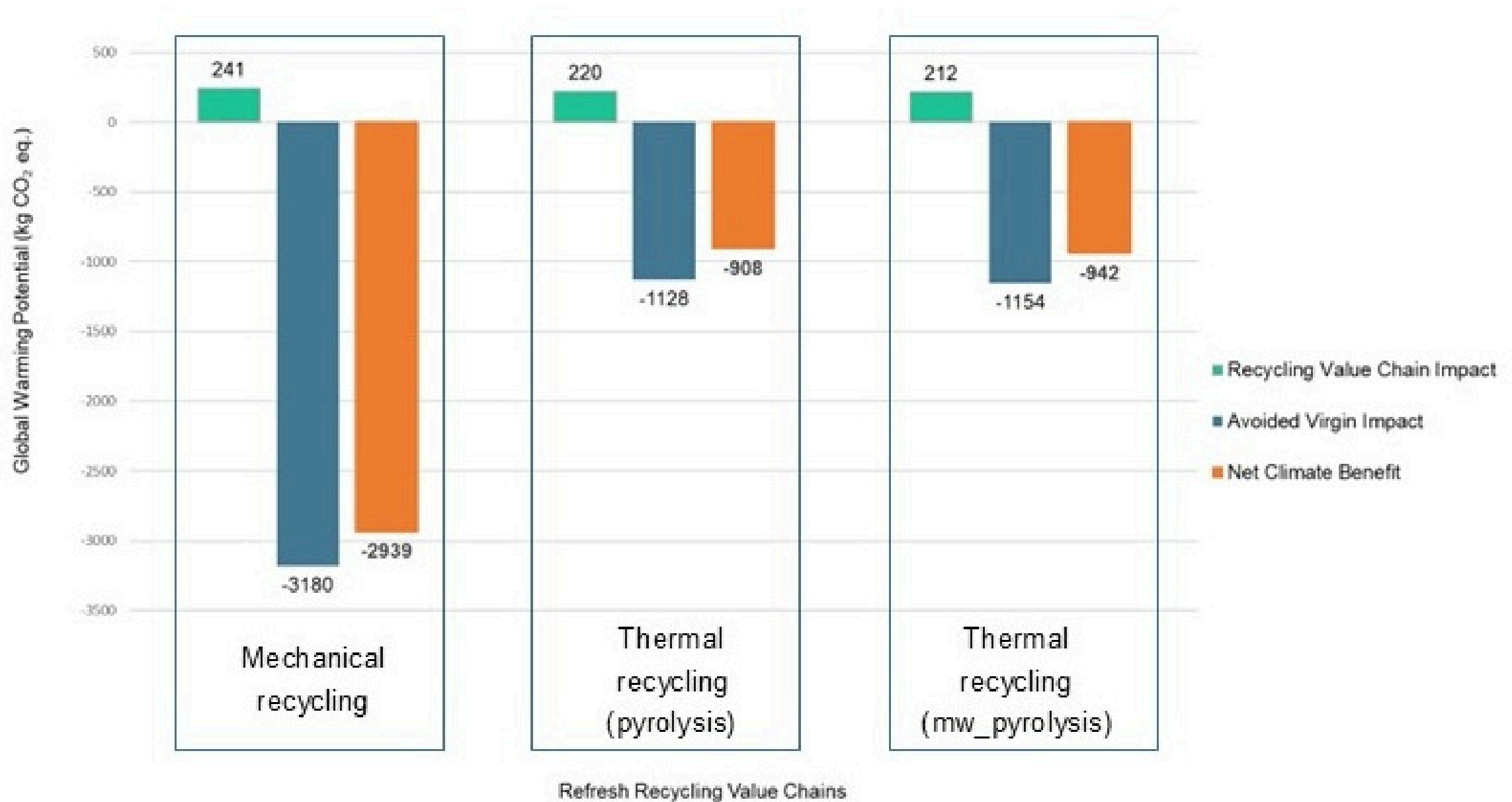
In addition, RINA has a key role in several tasks:

- The **business model** for the project, paving the way for market uptake for the REFRESH solutions.
- Conducting **sustainability assessments** (LCA, LCC and S-LCA) of the REFRESH recycling processes and end-products.
- Developing the **exploitation strategy** for the project's results.



REFRESH preliminary LCA results

Environmental Performance of REFRESH Recycling Value Chains



Benefits calculated assuming equivalent output across all value chains. Net Climate Benefit = Avoided Virgin Impact + Process Impact.

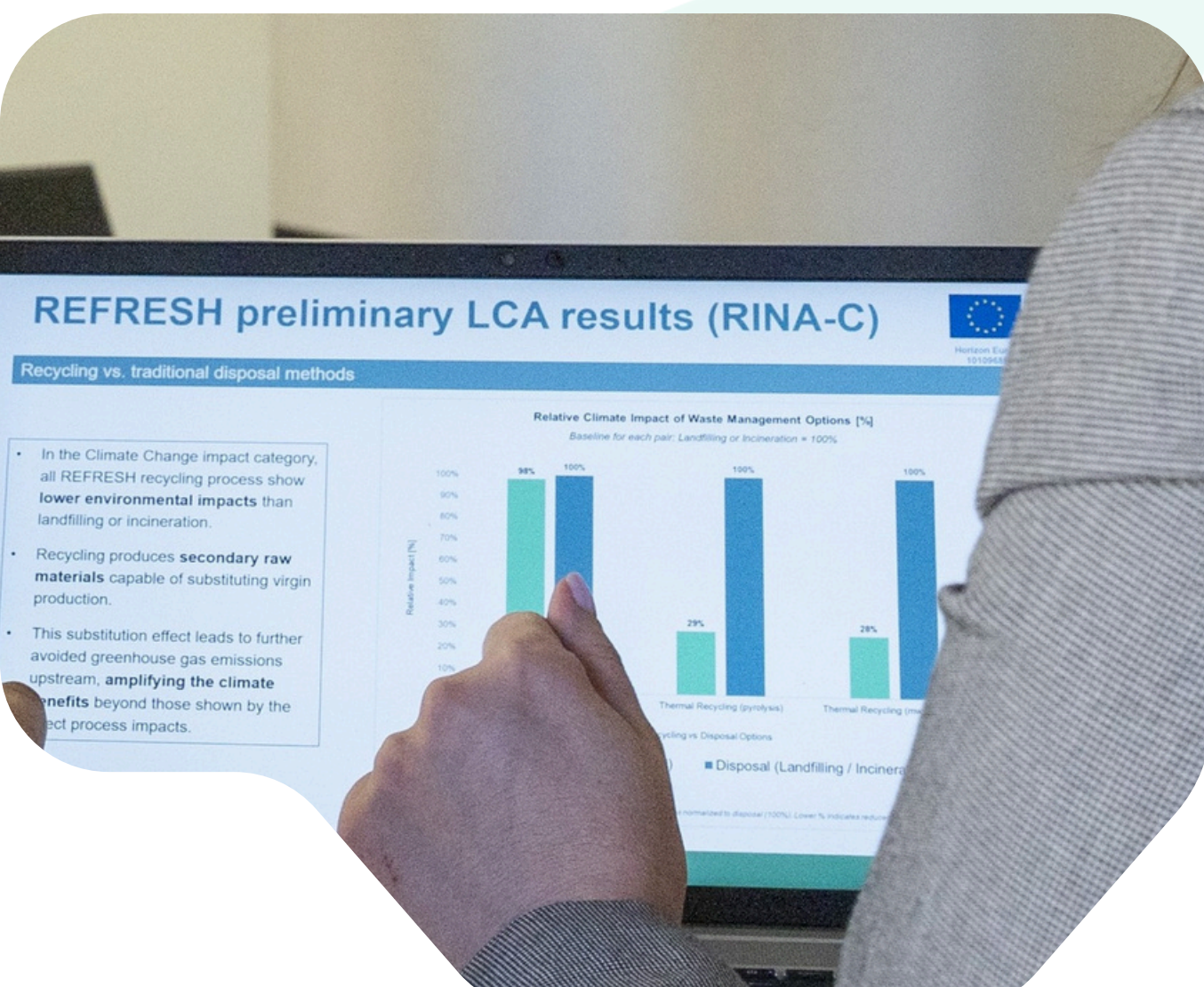
All recycling routes deliver large climate benefits

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The evaluation of advanced recycling techniques remain underexplored in existing environmental assessments. **The REFRESH LCA study**, based on high-quality primary and experimental data sourced from the project’s partners, provides a comprehensive and data-driven assessment of innovative recycling processes for composites derived from end-of-life wind turbine blades, a topic of increasing importance in the transition to a circular economy.

The preliminary analysis highlights significant environmental benefits for the REFRESH mechanical recycling and thermal recycling processes compared to traditional disposal methods, including a reduction in climate change impacts of >70% for the thermal processes compared to incineration. ”

Ioana Muntean
Sustainability Consultant
RINA Consulting





www.refresh-project.eu

REFRESH (Smart dismantling, sorting and REcycling of glass Fibre REinforced composite from wind power Sector through Holistic approach) has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement no. 101096858.



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