

P4Planet

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R&I for a competitive, sustainable and circular process industry

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The edges of the European green transition

The European Process Industry is undergoing two transitions: their transformation towards climate neutrality and circularity, and an economic transition linked to the context of the war in Ukraine and the energy crisis. Europe cannot afford to become the first climate-neutral continent in the world at the expense of leaving citizens behind. The technological transformation of the process industry and preserving its competitiveness must go hand in hand to achieve a fair transition.

Edges provide the opportunity for innovation and change. With only two rounds of investments ahead, the urgency to drastically reduce emissions is pushing the investment agenda of the **ten sectors engaged in the association A.SPIRE**. Developing and scaling up the priority innovations to meet the EU targets for 2030 (55% emissions reduction), 2040 (90% reduction) and 2050 (climate neutrality) is at the core of the decision-making of our industries. The urgency to safeguard their 40.033 industrial facilities and their 10,9M direct jobs in the continent (**Eurostat** data, 2020) is pushing their decisions on what innovations are to be prioritised in order to keep a competitive advantage.

From A.SPIRE, we are convinced that innovation is the way to go to increase our process industries' global competitiveness. Some European voices claim the need for a global fair level playing field. **Mario Draghi***, the former president of the European Central Bank, has signalled that “Europe must undergo radical change to remain competitive in the face of China and the United States refusal to play by the rules of international trade”. With more than 1.200 signatories of the Antwerp declaration, the industry calls for a European Industrial Deal to complement the Green Deal and safeguard jobs in Europe.

A systemic R&I agenda for the Process Industry

A.SPIRE, representing the EU Process Industry, is the private partner of **Processes4Planet** (P4Planet) Co-programmed Partnership established through a Memorandum of Understanding (MoU) with the European Commission. The MoU constitutes an agreement between the industry and the public to undertake all efforts necessary to jointly develop and deliver the required solutions on climate neutrality, circularity and competitiveness identified in the P4Planet Strategic Research and Innovation Agenda 2050 (SRIA)³, developed by the A.SPIRE community.

P4Planet's SRIA sets three high ambitions for 2050: 1) net-zero greenhouse gas emissions; 2) near-zero landfilling and near-zero water discharge; and 3) a thriving EU Process Industry with GVA growing quicker than EU GDP. The SRIA identifies 14 Innovation Areas and 36 Innovation Programs to develop the required solutions.

Following the portfolio analysis and discussions with the sectors, the main priorities to focus on in the last three years of Horizon Europe are: electrification of the process industries, alternative carriers of energy and their integration, accelerated improvement of energy and materials efficiency, carbon capture and utilization (CCUS), materials and production processes that are safe and sustainable by design, circular economy, and digital and human-centric industry. These priorities will be implemented through Processes4Planet topics in Horizon Europe and projects that will be

funded under calls launched from 2025 to 2027.

Investing in disruptive research and breakthrough innovation, attracting investments and creating better conditions and market access for cleantech in the EU is part of the EU's Green Deal and Net-Zero Industry Act agenda. The Act addresses technologies that will contribute to decarbonising and strengthening the EU's industrial competitiveness and energy system resilience while allowing the clean energy transition.

The EU process Industry estimates that at least €34.5 billion is needed to develop the required innovations up to 2050; of which at least €19.8 billion needs to be invested within the next decade to reach the EU Green Deal Targets. The P4Planet Partnership plays a key role in providing funding to de-risk the first valley of death of the innovations to deliver sustainable production processes and materials. Through its Impact Panel, the Partnership also channels the discussions to raise awareness on the financing and other support needed to de-risk the second valley of death for those innovations to reach the deployment phase in the European industrial park.

Processes4Planet innovations to generate impact

The European Commission has allocated a €1.3 billion funding envelope to P4Planet within Horizon Europe (2021-2027), the European research and innovation programme. 45 projects have been funded in Horizon Europe as part of the Processes4Planet portfolio in the three years from 2021 to 2023. The total EU contribution to the Processes4Planet projects has reached €517 million. 45% (€233 million) of this amount has supported the research and innovation actions while 54% (€281 million) is designated to innovation actions. Private contributions complement the European funding as in-kind contributions.

The transition to climate neutrality and a new green and circular economy paradigm will only be reached when these solutions are rolled out. There is no single technology that can deliver the required impact. It is the tapestry of Processes4Planet innovations that will guide the industry towards the transition alongside significant investments already being made in operational and additional activities by the European process industry to contribute to the climate and circularity goals.

While the pressure to reach the climate goals is currently dominating the needs of the process industries, increasing the circularity of materials, respecting planetary boundaries, and developing more human-centric and resilient process industries are pressing companies to focus their innovation on the most pressing areas while exploring the innovations of the future.

Synergistic approach

Cross-sectoriality is the guiding principle of cooperation among A.SPIRE sectors and engagement with leading initiatives and excellence centres are key. A.SPIRE's longstanding collaboration with AEE Intec, such as hosting a session on Exploring the Sectoral Hubs for Circularity Potential in EU Regions at the International Sustainable Energy Conference 2024 in Graz, Austria, allows us to engage with relevant stakeholders from Central Europe and to foster cross-sector cooperation to

meet the ambitious P4Planet objectives.

Success Story – Processes4Planet Project

REDOL: Aragon's REgional Hub for circularity: Demonstration Of Local industrial-urban symbiosis initiatives



The REDOL

project is an ambitious initiative engaging 35 partners from 12 countries, set to revolutionise waste management. REDOL focuses on five value chains: packaging, plastics, construction and demolition waste, textiles and waste electrical and electronic equipment. The ground-breaking solutions will be first tested and demonstrated in Zaragoza, Spain. By 2040, the solution implemented in Spain is projected to reduce CO2 emissions by 280kt/year and to save a total of 14 billion EUR, enabling the consolidation of Zaragoza's hub for circularity. The REDOL's approach is highly replicable in sites in **Prato (Italy), Bornholm (Denmark) and Amsterdam (The Netherlands)**.

The REDOL Project was featured as May's Success Story in A.SPIRE's 2024 communication campaign. Read the full story [here](#).

This article was written before the **report by Mario Draghi: "The future of European competitiveness" was issued.*

