



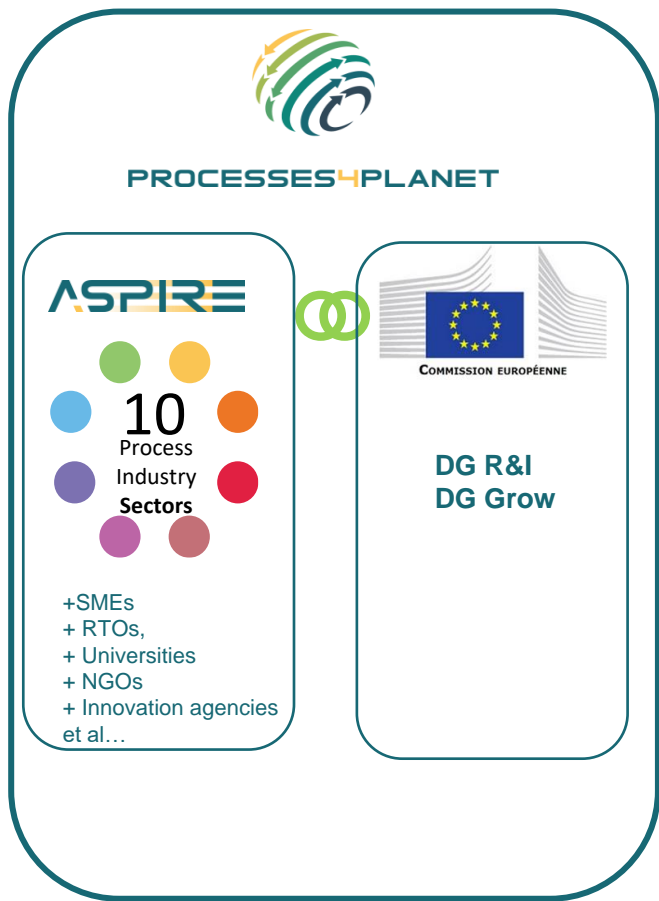
PROCESSES4PLANET

Processes4Planet Partnership

Transforming the European Process Industry
for a sustainable & prosperous society

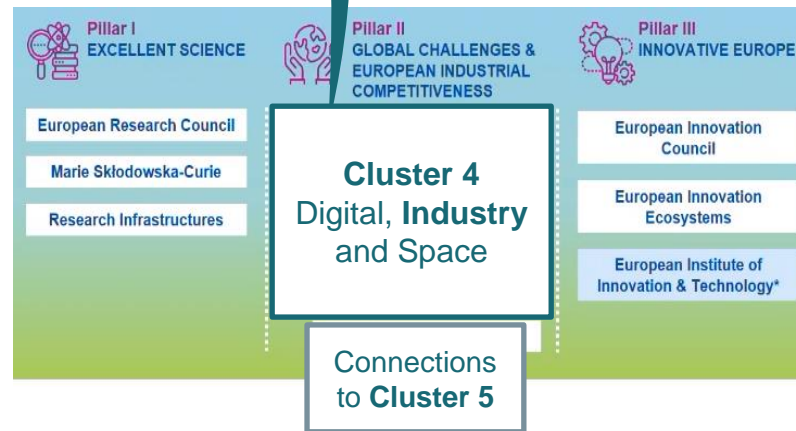
Christian Leroy
European Aluminium





Co-programmed Partnership

MoU signed:
€1,3 bn exclusively for projects
27% more than in H2020



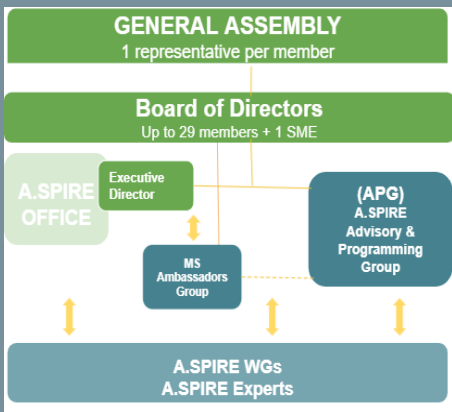
Governance and External consultation



PROCESSES4PLANET

PRIVATE PARTNER

ASPIRE



PARTNERSHIP BOARD



PROCESSES4PLANET

- Signatories
- Commitment
- Decision making

PUBLIC PARTNER



+180
Members teaming up



FEEDBACK PANEL

Dialogue with civil society

IMPACT PANEL

Dialogue with public investors beyond HEU

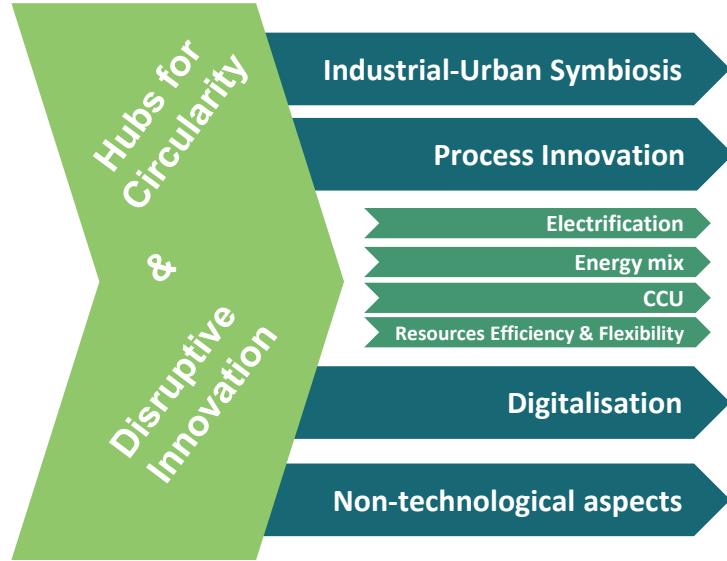
750 M tons CO2 emissions



2500 M tons Waste



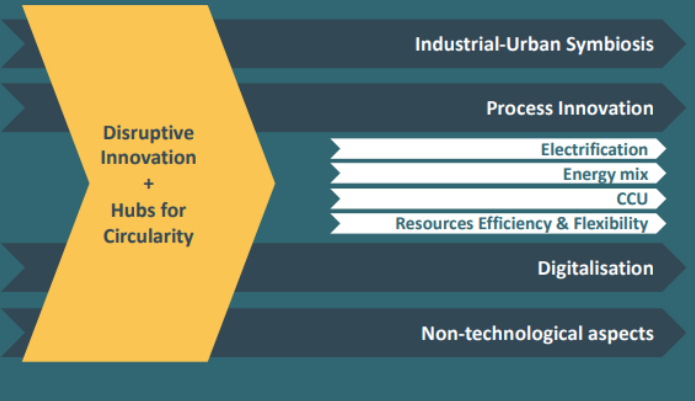
Competitiveness



2050 Process Industries

- ✓ Climate neutrality
- ✓ Near-zero landfilling & water discharge
- ✓ Competitive process industries

14 Innovation Areas



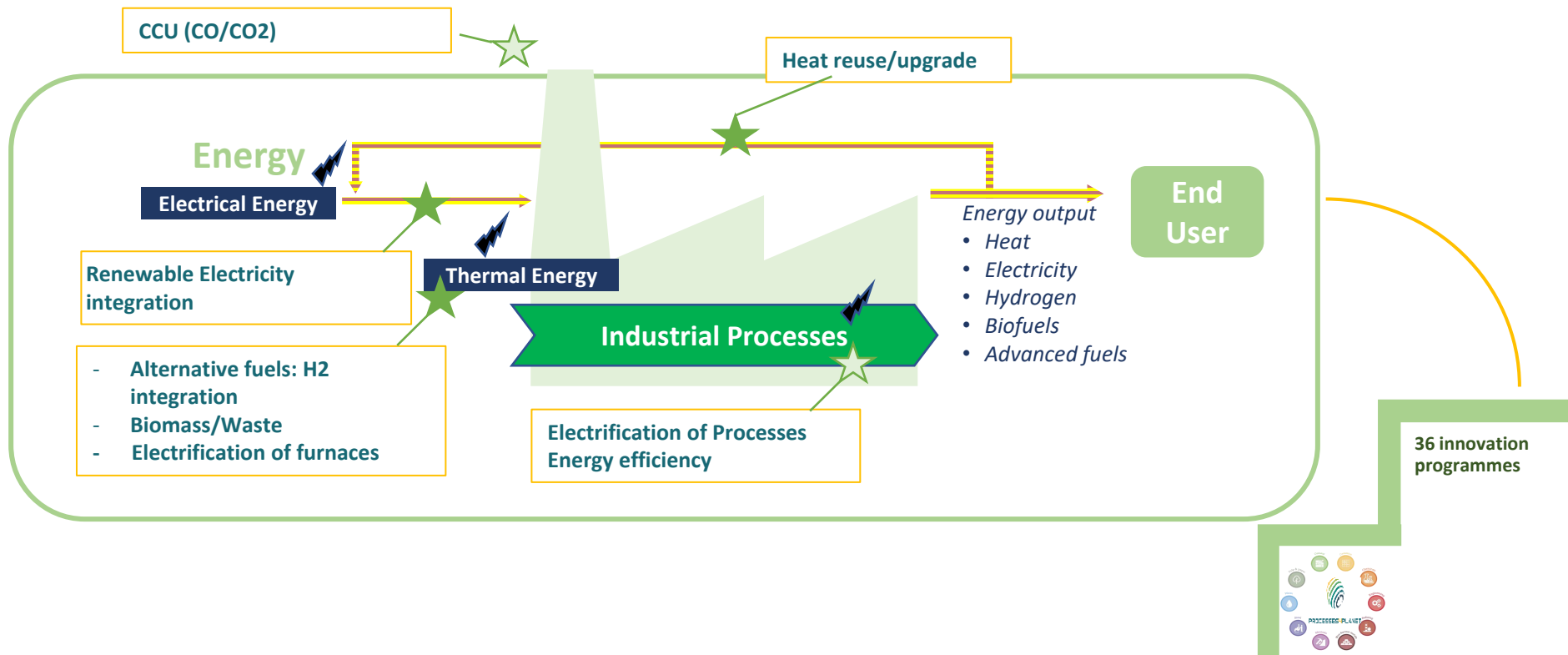
Innovation area	Progress up until milestone year ¹			
	2024	2030	2040	2050
Renewable energy integration				
Heat reuse				
Electrification of thermal processes				
Electrically-driven processes				
Hydrogen integration				
CO ₂ capture for utilisation				
CO ₂ utilisation in minerals				
CO ₂ & CO utilisation in chemicals and fuels				
Energy and resource efficiency				
Circularity of materials				
Industrial-Urban symbiosis				
Circular regions				
Digitalisation				
Non-technological aspects				

¹ Progress is depicted here as % of total TRL9 projects programmed in each area, and for circular regions, digitalisation, and non-technological aspects % of total investment needs until 2050.

Disruptive new processes: Towards net-zero CO₂ emissions



PROCESSES4PLANET



From feedstock to consumer product and back



UPCYCLING & ECO-DESIGN: Near zero-landfilling / Near zero-water discharge

Safe & sustainable by design

Resource Efficiency
New Waste Water technology

Innovative technologies for material up-cycling

New technology and tools for material tracing

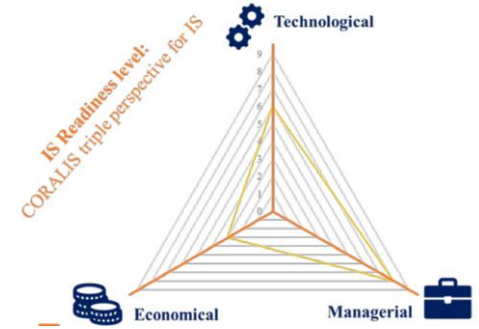
36 innovation programmes





Objective: create **pathways** for the decarbonisation of resource and energy intensive sector through the implementation of viable IS approaches combining new business and management strategies with innovative technology-based enablers

3 lighthouses – case studies



▷ 1) Escombreras (Spain)
Chemical, Minerals, Water

▷ 2) Höganäs (Sweden)
Metals, Farming, Energy

▷ 3) Brescia (Italy)
Steel and Cast Iron, Aluminium

29 partners
Period : 2020-2024
Budget: 22,7M€



▷ Core Ambition: Reduction of landfill disposal by replacing key raw materials like carbon sources for iron production with industrial waste and bioresources

REACTIV

INDUSTRIAL RESIDUE ACTIVATION FOR SUSTAINABLE CEMENT PRODUCTION

Alumina industry
REDUCE WASTE

&

LOWER CO₂ FOOTPRINT

Cement industry



Alumina industry

REACTIVE MATERIAL

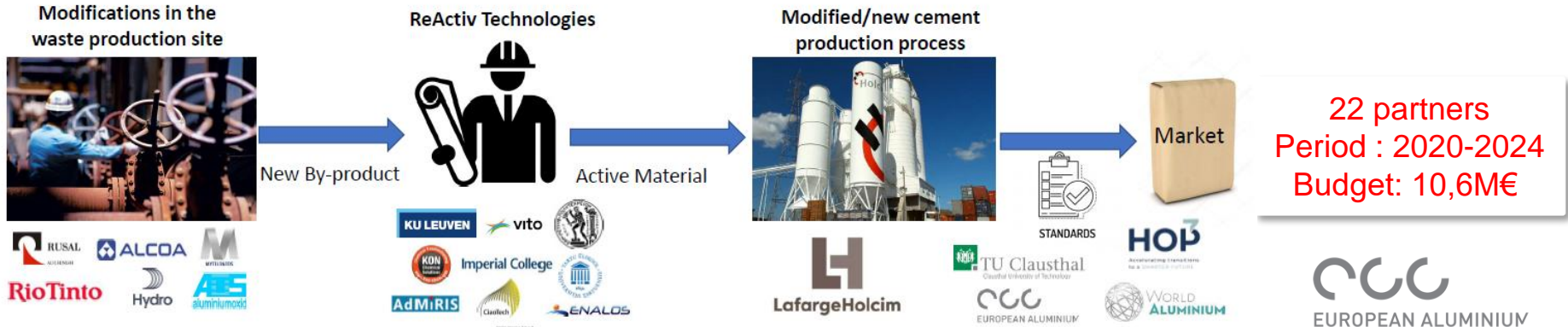
(Secondary Cementitious Material)

&

PRODUCTION OF LOW CO₂ CEMENTS

Cement industry

Key objective: turning bauxite residue into an active material used as supplementary cementitious material
The ReActiv project will create a novel sustainable symbiotic value chain, linking the by-product of the alumina production industry and the cement production industry



THE WAY IS LONG, THE MOMENT IS NOW



Unique cross-sectoral community

Innovation area	Progress up until milestone year ¹			
	2024	2030	2040	2050
Renewable energy integration	○	○	●	●
Heat reuse	○	○	●	●
Electrification of thermal processes	○	○	●	●
Electrically-driven processes	○	○	●	●
Hydrogen integration	○	○	●	●
CO ₂ capture for utilisation	○	○	●	●
CO ₂ utilisation in minerals	○	○	●	●
CO ₂ & CO utilisation in chemicals and fuels	○	○	●	●
Energy and resource efficiency	○	○	●	●
Circularity of materials	○	○	●	●
Industrial-Urban symbiosis	○	○	●	●
Circular regions	○	○	●	●
Digitalisation	○	○	●	●
Non-technological aspects	○	○	●	●

¹ Progress is depicted here as % of total TRL6 projects programmed in each area, and for circular regions, digitalisation, and non-technological aspects % of total investment needs until 2050

36 innovation programmes to FILL the GAP

+ Skills, Jobs, Competitive gap analysis, Framework/Standards



First-of-a-kind plants

Hubs for Circularity



Ambitions to enable Prosperity for all



Climate neutrality



Near zero landfilling and near zero water discharge



Competitive EU process industries




PROCESSES4PLANET

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