

A.SPIRE & Processes4Planet Partnership

From strategic vision to industrial deployment

IndTech 2025

Session: R&I for Clean Industrial Deal

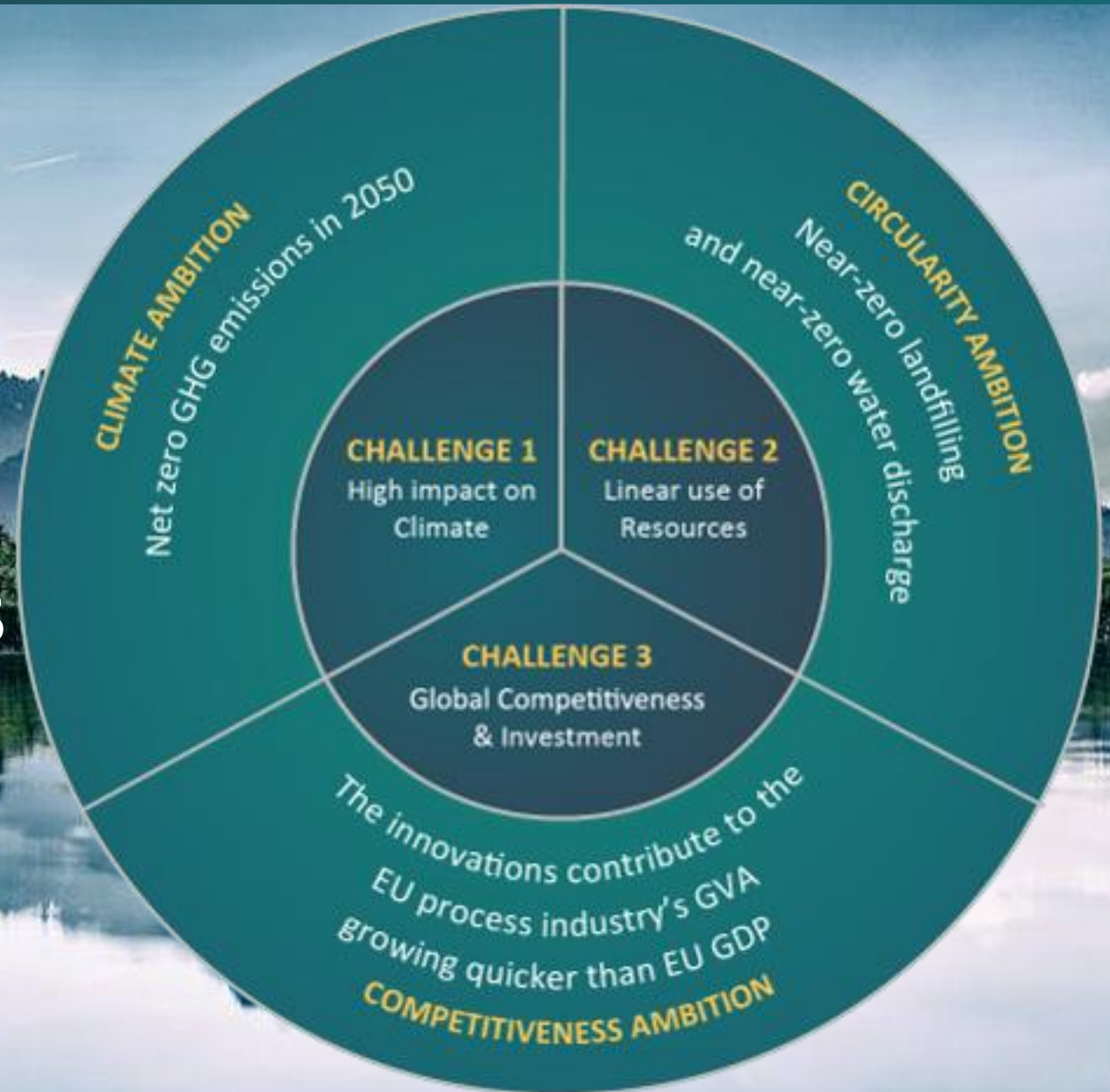
2nd June, 12h00 to 13h30

Kraków, Poland

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Ambitions and Challenges



THE ANALYSIS

Sources

SPIRE Demoprojects, P4Planet Demoprojects, RFCS projects, Additional Activities, National and regional projects, Lide projects, Innovation Fund projects...

Innovation Domains

1. Energy efficiency
2. Process intensification
3. Electrification
4. Solar thermal
5. Alternative energy sources
6. CCU
7. CCUS capture – CCS
8. H2 use
9. Circular economy
10. Circular – WEE
11. Water
12. Digital
13. H4C
14. Alternative material concepts

Sectors Covered

1. Chemical
2. Refining
3. Cement
4. Mineral
5. Steel
6. Non-Ferrous Metals
7. Ceramics
8. Pulp and Paper

RELEVANCE FOR VALUE CHAINS (examples)

- Food and Drink
- Construction
- Composites
- Textile
- Automotive

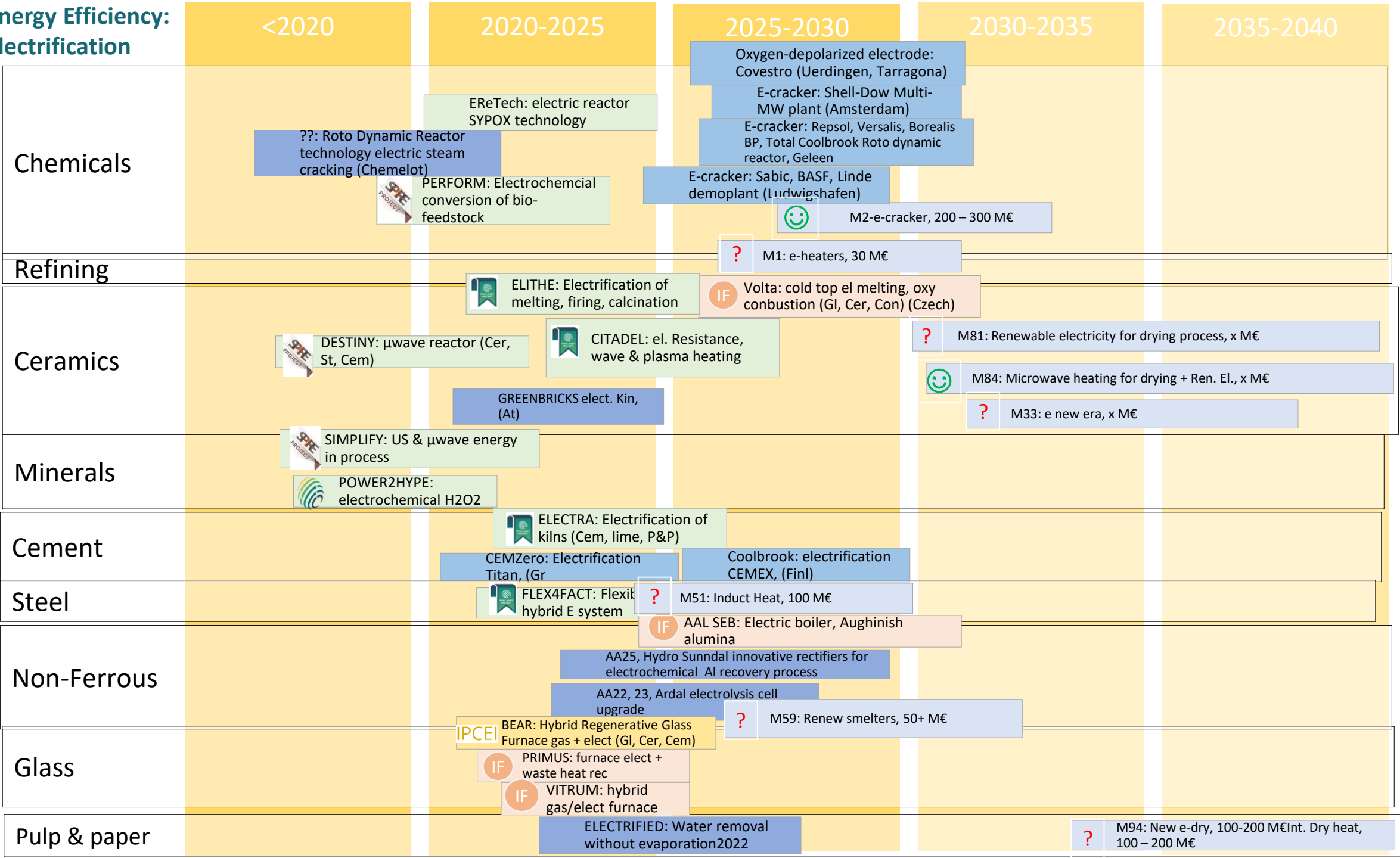


Strategic Research
and Innovation
Agenda

100 potential FOAKs
proposed by A.SPIRE
sectors

No.	Sectors	Description	Timing demo	Large Scale	
				Budget /mil. €	Timing
M1	Refining	Electric heaters (small-medium)	2023-2025	30	2025-2030
M2	Chemicals	Electrified Cracking (e-Cracker)	2023-2027	200-300	2027-2031
M3	Refining	Green H ₂ (Electrolyser)	2023-2025	70	2025-2030
M4	Chemicals	Methane Pyrolysis	2023-2027	100-200	2027-2031
M5	Refining	CCUS (refining sector) - CO ₂ capture - Amines	2023-2025	500	2025-2030
M6	Chemicals	Sustainable access to CO ₂	2024-2030	2x25-50	2024-2030
M7	Refining	CCUS (refining, power or other sectors) - CO ₂ capture - Chilled ammonia, polymeric membranes, solid sorbents, CF2 technology	2023-2025	40	2025-2030

Energy Efficiency:
Electrification





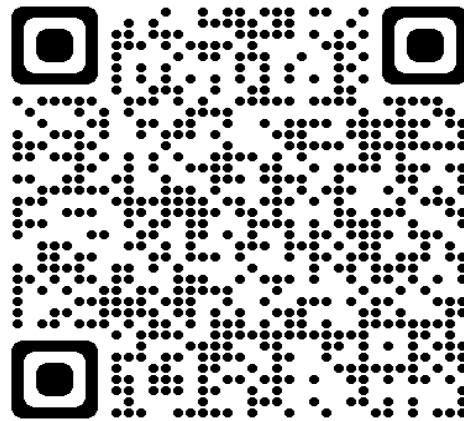
Cracker of the future

Partners: Repsol, Total Energies, Borealis, Versalir, BP, Brighlands

- Consortium-led initiative to electrify steam cracking across Europe.
- The goal is to reduce CO₂ emissions >90% in ethylene production via electrification.
- Starting at 4–5, aiming for TRL 8–9 with pilot & demo plants.
- Major emissions abatement and feedstock flexibility (bio-naphtha, pyrolysis oil).
- *Needs: Continued innovation support, access to renewable electricity, regulatory alignment.*

ADDITIONAL ACTIVITY
To P4Planet's SRIA

**“Europe needs to implement bolder, innovative
and flexible funding tools to de-risk CAPEX in R&I
in order to succeed in deploying key industrial
technologies for the Clean Industrial Deal”**



SCAN ME



PROCESSES4PLANET