Basque Industrial Hub 4Circularity

Nora Fernandez (nora.fernandez@tecnalia.com)

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H4C CoP final event

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BIH4C. At a glance

Since 2023, **The Basque Industrial Hub for Circularity (BIH4C)** works to **implement** and validate innovative technologies in real environments, to foster **industrial symbiosis and decarbonization**.

Pulp & paper

Oil Refining

Lime

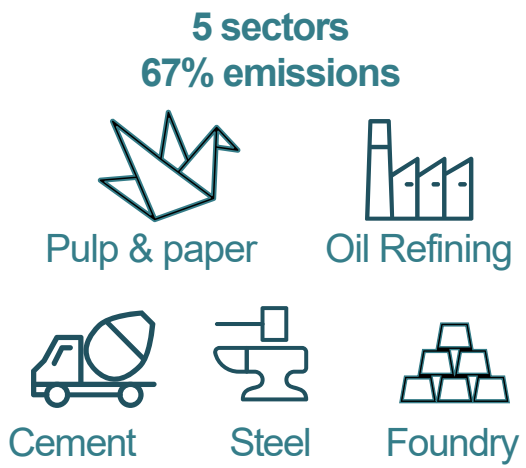
Steel

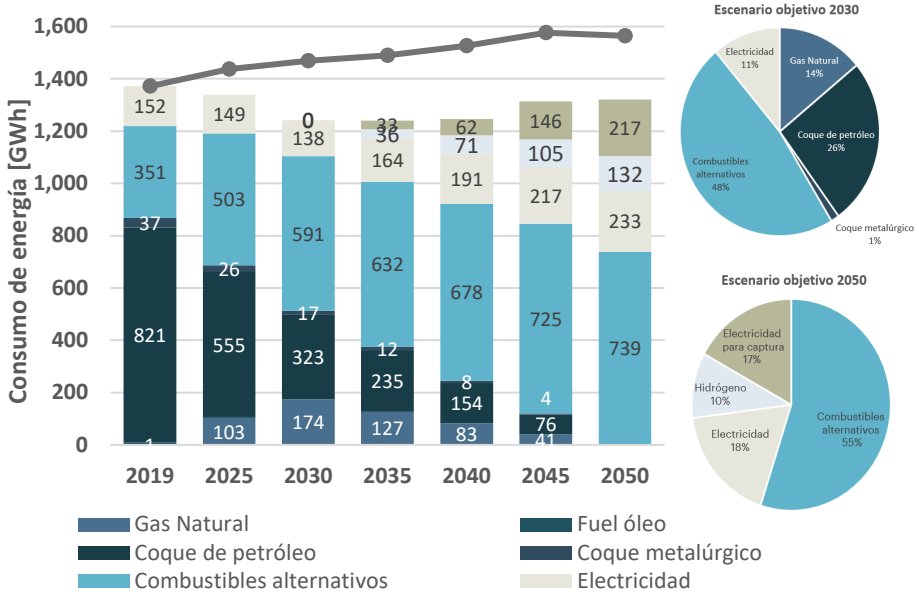
Water

Industrial Hub for decarbonising Basque industry | Tecnalia

BIH4C. The grounds

In 2021, the **Net-Zero Basque Industrial SuperCluster (NZBISC),** initiative was created by the Basque **government,** to accelerate the path to net zero emissions in the **Basque Industry**, fostering **decarbonization** and creating market opportunities based on the scale-up of the new technologies and innovative services.





https://www.spri.eus/es/ayudas/net-zero-basque-industrial-super-cluster/

BIH4C. Governance

PUBLIC ADMIN/
GOVERNMENT

BIH4C Basque Industrial Hub

NET ZERO BASQUE

COORDINATION BOARD

tecnalia
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

Technical development

Cluster Energía
BASQUE ENERGY CLUSTER

Dynamization and engagement

INDUSTRY

Petronor

sidenor

Calcinor
QUÍMICA NATURAL

lointek

SBS
Thermal Technologies

nortegas

Smurfit Kappa

Bilbao Bizkaia Ur Partzuergoa
Consorcio de Aguas Bilbao Bizkaia

BIH4C. Governance

International engagement and funding support

EU Project: Industrial Symbiosis² Hubs 4 Circularity

Coordinator: UNIVERSITY OF TWENTE.

H4C DEMOS

IS2H4C. INDUSTRIAL SYMBIOSIS TO HUBS FOR CIRCULARITY

Local dynamization and engagement

Los miembros del Basque Industrial Hub (BIH4C) han celebrado hoy su primer encuentro para coordinar y organizar la kick-off meeting del proyecto europeo IS2H4C en el que se enmarca este nuevo hub de innovación.

El proyecto IS2H4C, "Sustainable Circular Economy Transition: from Industrial Symbiosis to Hubs for Circularity", busca impulsar la descarbonización en diferentes industrias a través de la búsqueda e implantación de sinergias energéticas, el uso eficiente de recursos y la innovación tecnológica.

La sesión del BIH4C ha tenido lugar en la sede de Tecnalia en Zamudio y ha contado con la part ...see more

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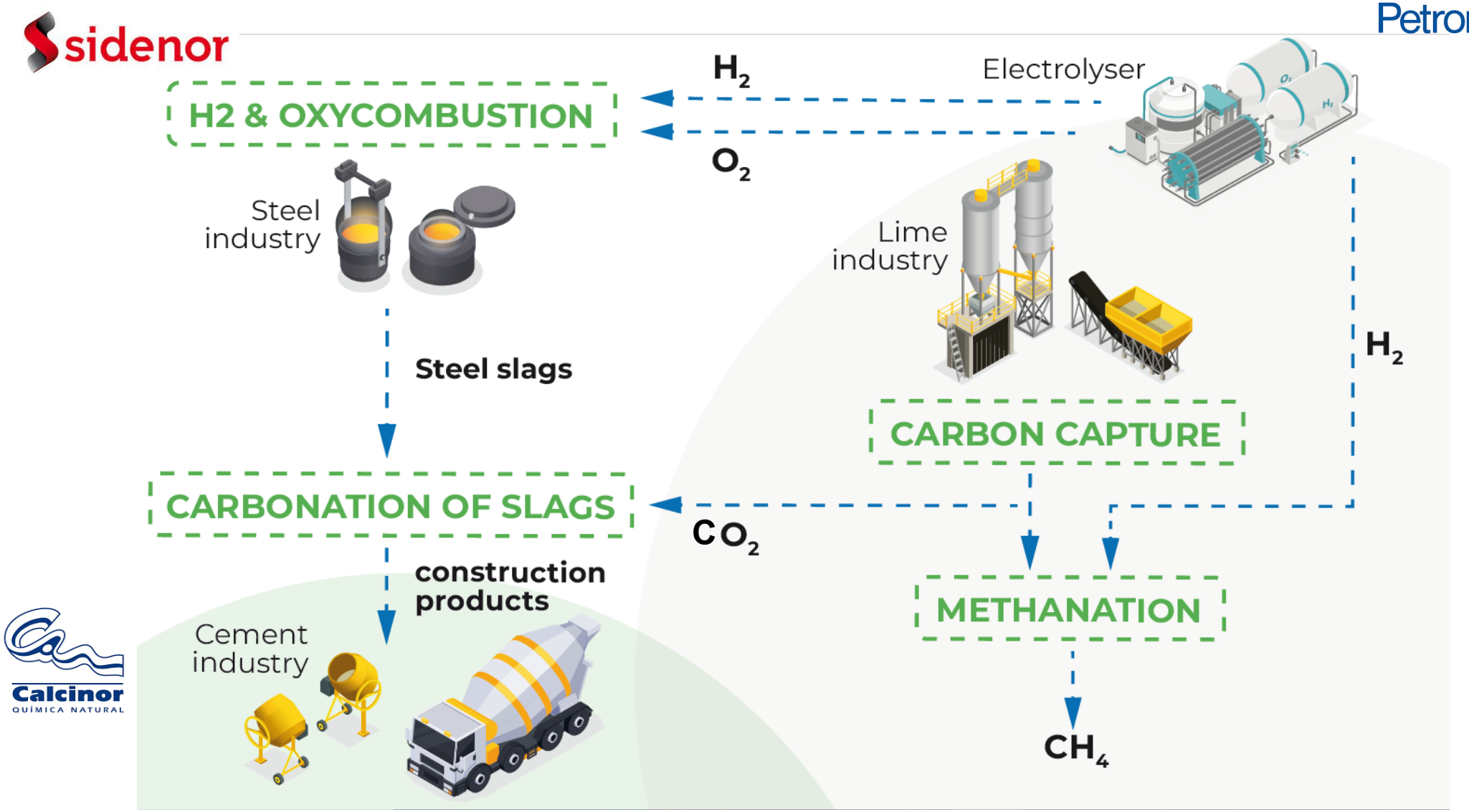
BIH4C. Achievements



BIH4C. Achievements

OXYCOMBUSTION

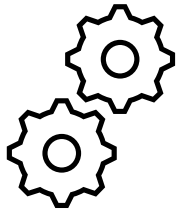
- **Fossil fuel (NG) reduction** of **35%** (O_2 instead of air) in the ladle preheating
- Expected 100% emissions reduction in the ladle with O_2 and H_2.
- **Potential to reduce in 15/20 % the emissions reduction of a Steel factory (EAF)**.

SLAGS CARBONATION WITH CO_2

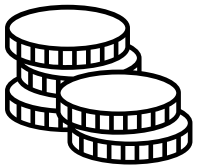
- **CO_2 fixed** ≈5.000 tCO_2 /year potential in lime industry. ≈400.000 €/year saved*
- **Reduction of waste** (slags) now sent to landfill ≈ 20 kt/year
- **New construction products**, and **raw material avoided,** 22 kt /year

*83€/t CO2

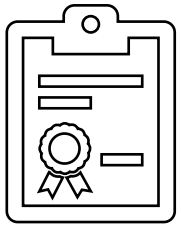
BIH4C. Lessons learned



- Ecosystem very important. Public admin/government, close industrial context
- Cultural factors: awareness and concern
- Trust, endorse human relations



- Overall OPEX very high (H_2, O_2 , electricity). CAPEX also high, but important supporting mechanisms.
- Cost of O_2 high, but if already used in the plant, positive ROI.
- Positive business case of the carbonation process, with flue gas



- Regulation not in place for CCU, needs to be accelerated. Accounted in ETS market
- Policies should be defined so that circularity and sustainability are chosen options

- Collaboration fundamental, but final number should be evaluated by each company

Thank you!

Nora Fernandez
Energy Planning department
nora.fernandez@tecnalia.com