

NX CPO™

Our solution to decarbonize
hard-to-abate sectors

About NEXTCHEM

NEXTCHEM is MAIRE's company dedicated to Sustainable Technology Solutions. Leveraging our profound expertise in nitrogen, hydrogen, carbon capture, fuels, chemicals, and polymers, we deliver groundbreaking solutions and processes that fully enable the energy transition.

Building on the rich legacy of our group for over 70 years, we are dedicated to developing and offering technology solutions, processes, basic engineering designs, as well as proprietary equipment and catalysts, to drive global decarbonization efforts forward.

An urgent challenge awaiting immediate action

Reducing carbon footprint could be a significant challenge in some specific industries, and the demand for efficient and competitive decarbonization solutions is paramount. Our NX CPO™ (Catalytic Partial Oxidation) solution represents a premier choice in this arena, offering a best-in-class solution to produce syngas.

Syngas is leveraged in hard to abate sector for different applications as the building block for chemicals production, as well as Hydrogen. Current Landscape of CPO Technology includes over 10 bench-scale facilities, more than 5 pilot-scale facilities and a growing portfolio of innovative patents.

Our solution to reduce the carbon footprint

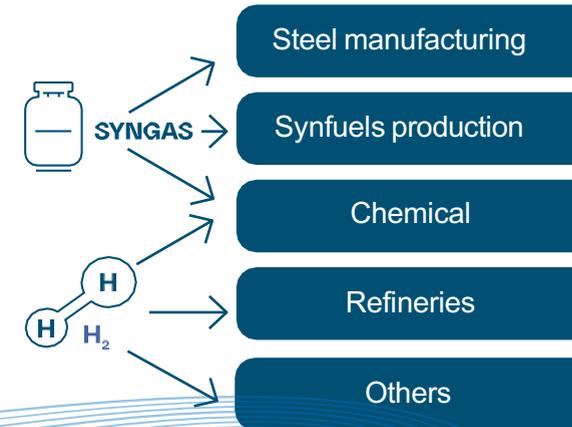
This technology is uniquely positioned to address the specific needs of hard-to-abate sectors, providing an innovative pathway to lower emissions while maintaining operational efficiency. By integrating NX CPO™ solutions, these industries can achieve a critical balance between environmental responsibility and economic viability, making it a go-to-choice for forward-thinking businesses committed to sustainable practices.

NEXTCHEM offers license, process design package (PDP), proprietary equipment (PEQ), catalyst deployment and regeneration, digital and post-PDP services.

NX CPO™

Leading the way
in decarbonizing
hard-to-abate
sectors

Applications



Your benefits

- 1 Production adaptability (Feedstock and capacity flexibility)
- 2 Drastic reduction of on-site activities (Modularity + Small reactor size leads to a surface plot area half of BAT SMR)
- 3 Environmental efficiency (CPO is less carbon intensive than BAT SMR allowing for capturing 99% of total CO2 emissions).
- 4 Financial efficiency (Lower Capex and Opex requirements over SMR, DRI and blast furnace for steel)

Technical overview

a

The feedstock undergoes a controlled partial oxidation: very fast conversion into syngas (CO + H₂).

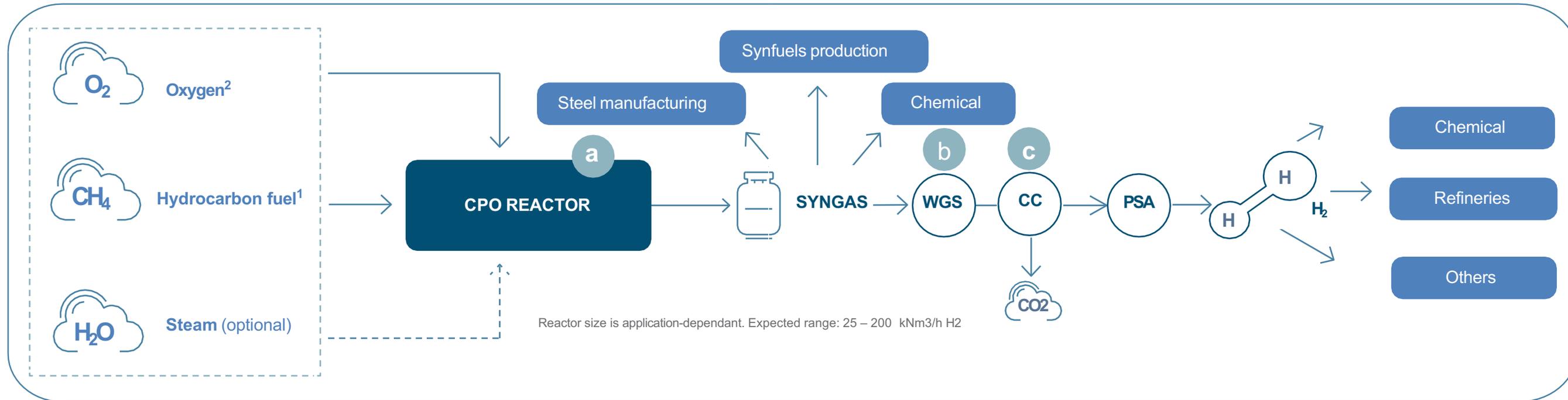
b

For pure H₂ production, the syngas undergoes a Water Gas Shift and H₂ purification PSA³.

c

A Pre-Combustion Carbon Capture Unit is foreseen to separate the process CO₂ from the Syngas Stream

The feedstock undergoes a controlled partial oxidation: very fast conversion into syngas (CO + H₂).



1. Feedstock can vary according to project configuration: natural gas, industrial process off-gases, associated gases and gases with a bio-mass origin, ...)
 2. Oxidants can vary according to project configurations: oxygen, air and enriched air
 3. Pressure Swing Adsorption (PSA)

NEXTCHEM
 proprietary technology