

# NX CPO™

Our solution to decarbonize  
hard-to-abate sectors

## About NEXTCHEM

---

NEXTCHEM is MAIRE's company dedicated to Sustainable Technology Solutions. Leveraging our deep 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

---

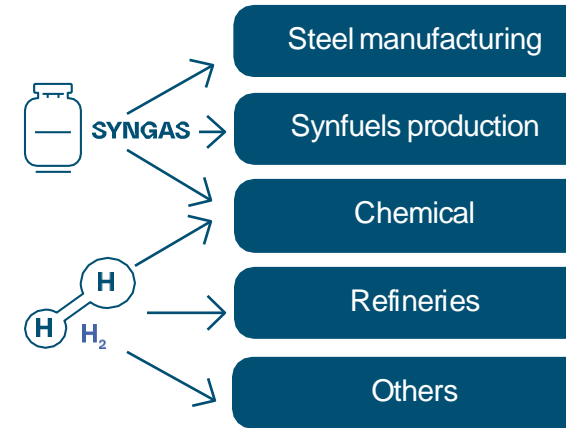
This technology is uniquely positioned to address the specific needs of hard-to-abate sectors, providing an innovative pathway to lower emissions while maintaining operational efficiency. By integrating NX CPO™ solutions, these industries can achieve a critical balance between environmental responsibility 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 CO<sub>2</sub> emissions)
- 4 Financial efficiency (Lower Capex and Opex requirements over SMR, DRI and blast furnace for steel)

# Technical overview

**a**

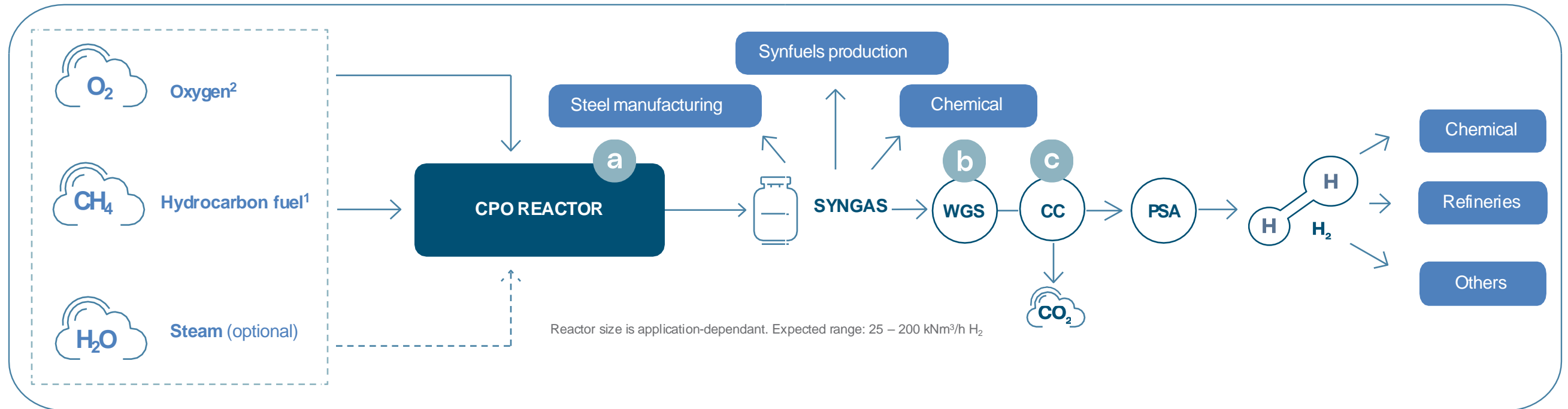
The feedstock undergoes a controlled partial oxidation: very fast conversion into syngas (CO + H<sub>2</sub>).

**b**

For pure H<sub>2</sub> production, the syngas undergoes a Water Gas Shift and H<sub>2</sub> purification PSA<sup>3</sup>.

**c**

A Pre-Combustion Carbon Capture Unit is foreseen to separate the process CO<sub>2</sub> from the Syngas Stream.



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