NX Reform™

Our solution to set new standards in hydrogen production

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.

The centrale role of hydrogen in industries

Hydrogen is a key raw material for several industries, from chemicals to steel manufacturing. Therefore, efficient and sustainable hydrogen production is crucial for many industrial sectors.

It is not by chance that the global grey hydrogen market was valued at over $100 billion in 2022 and is estimated to maintain the same market relevance over the next five years.

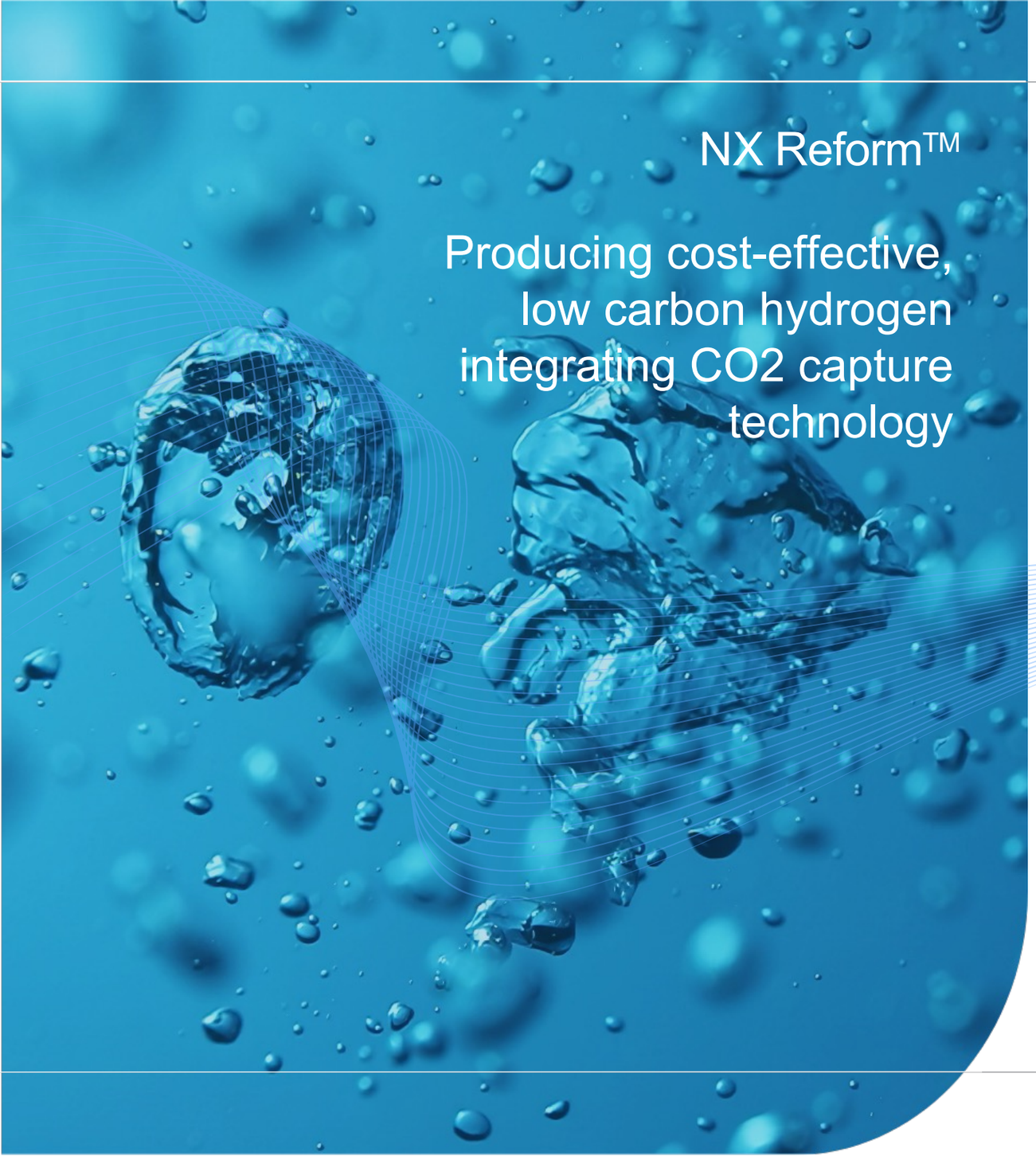
Leading the way in decarbonizing industries

NX Reform™ (Steam Methane Reformer) allows cost-effective production of syngas via steam reforming of hydrocarbons at high temperatures. This solution is widely applied at an industrial scale to produce hydrogen with very high purity and at lower costs than other technologies.

Our process capabilities allow an efficient and flexible carbon capture integration in natural SMR.

It shows a good application perspective, especially in the brownfield market, or integrated into other processes, including carbon capture systems, to produce chemicals and fertilizers.

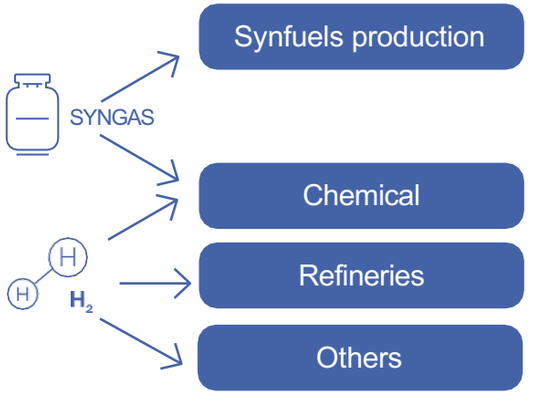
NEXTCHEM offers license, process design package (PDP), proprietary equipment (PEQ), and digital and post-PDP services.



NX Reform™

Producing cost-effective, low carbon hydrogen integrating CO2 capture technology

Applications



Your benefits

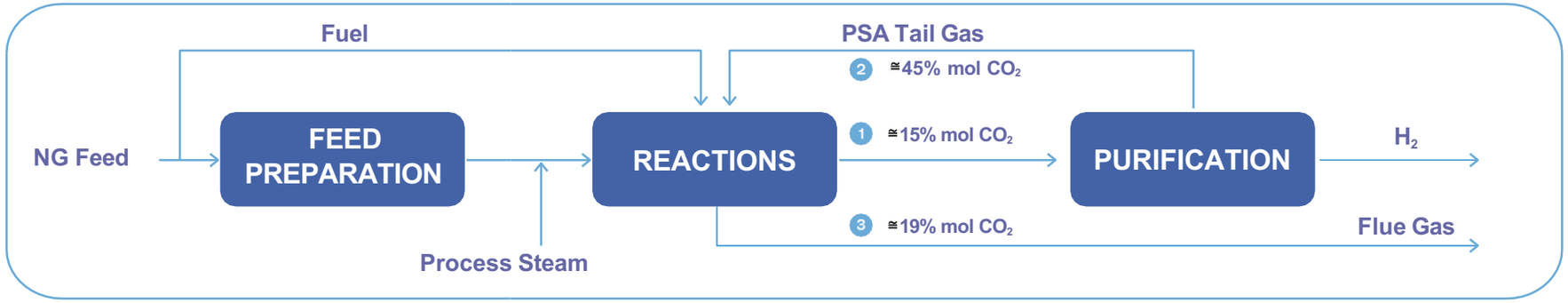
1. Production adaptability (feedstock and capacity flexibility)
2. Operational efficiency (Well-known technology and widely applied as standard SMR)
3. Environmental efficiency (Energy-efficient reforming technology will be reached by coupling the carbon capture technology)
4. Financial efficiency (Optimized Capex and Opex in projects with medium/large capacity requirements)

Technical overview

The process is well known and widely applied. More than 60 HPU projects in the last 10 years (4,000 to 140,000 Nm3/h single train) has been executed in KT (Rome).

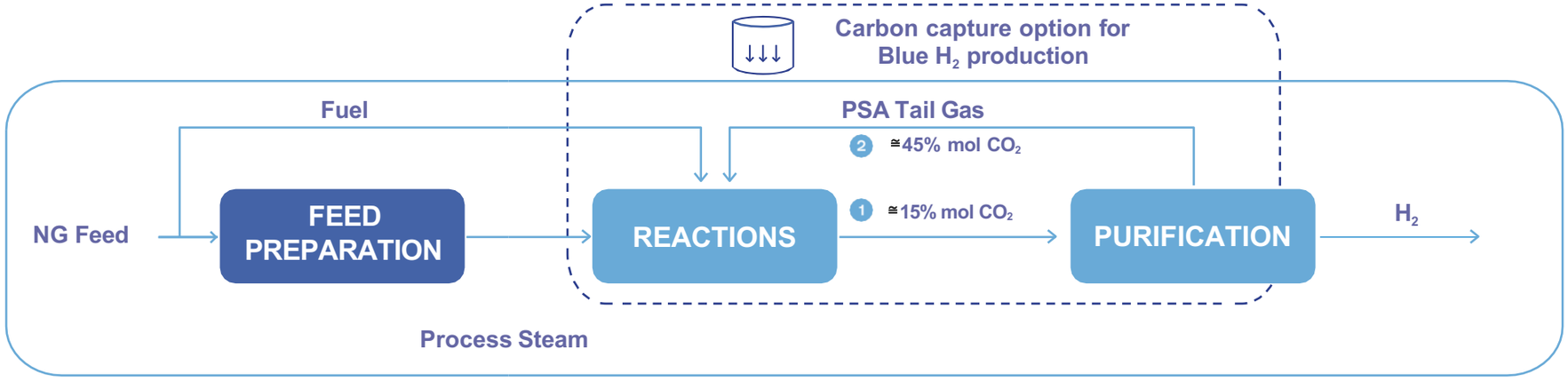
NEXTCHEM proprietary technology

CH_4+H_2O $CO+3H_2$



NEXTCHEM can also offer NX Reform™ with an integrated CC unit to deliver Clean H_2 solutions.

NEXTCHEM proprietary technology



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)
4. Most of the CO2 output is generated during the WGS, with a minor contribution from the PSA

$CH_4+H_2O \rightleftharpoons CO+3H_2$