

Technip Energies / Rely

**Impulsant el futur
Hidrogen i amoniac no emissors
des de l'experiencia global**

Sònia Montón Subías – Rely Commercial Manager Iberia
sonia.monton-subias@ten.com

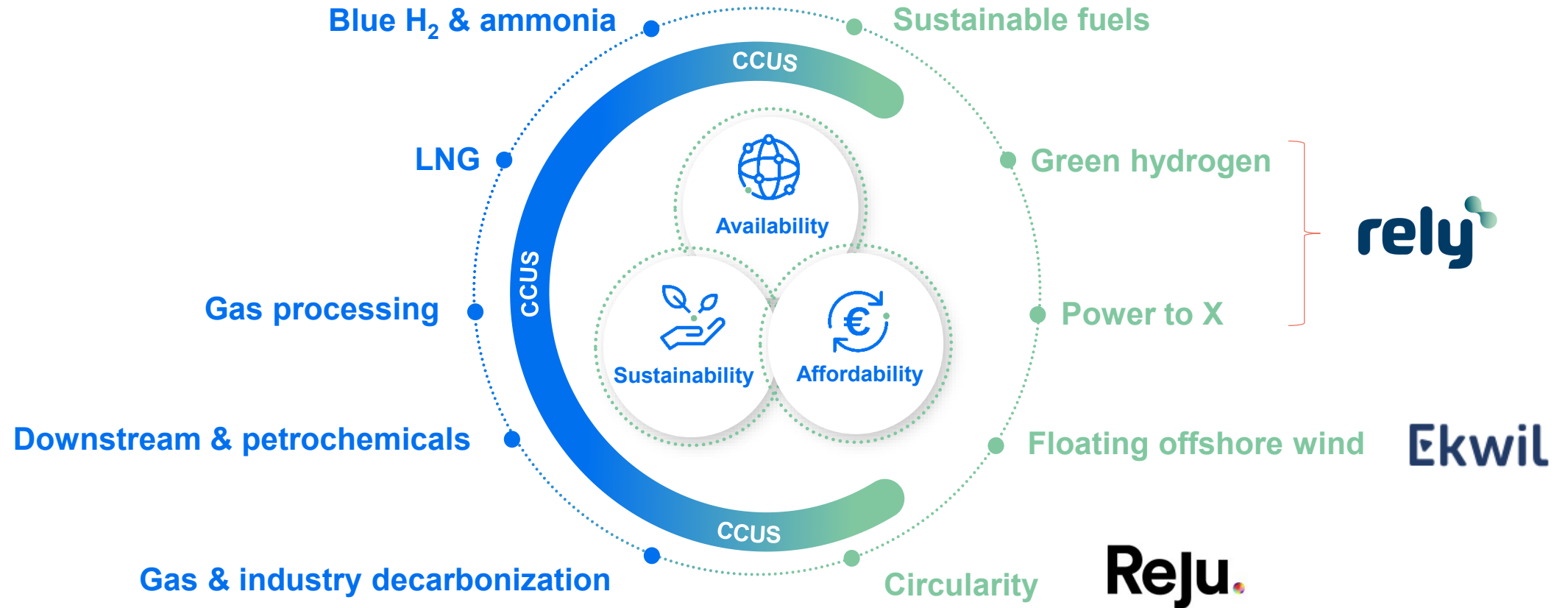
13 d'Octubre 2025
Enginyers Industrials de Catalunya
Jornada: El paper de l'amoníac i l'hidrogen en la descarbonització

Technip Energies at a glance

Listed on Euronext Paris Stock Exchange	Headquartered in Paris	65+ Years of operations
€6.9bn Full year 2024 adjusted revenue	A global technology & engineering powerhouse leading in energy & decarbonization infrastructure	~€20bn Backlog at end 2024
17,000+ Employees in 34 countries	60+ Leading proprietary technologies	500+ Projects under execution

More energy, less carbon

Technip Energies' solutions for tackling the energy trilemma



The time is now for hydrogen: A required molecule to decarbonize

MULTI-PURPOSE USAGE OF H₂

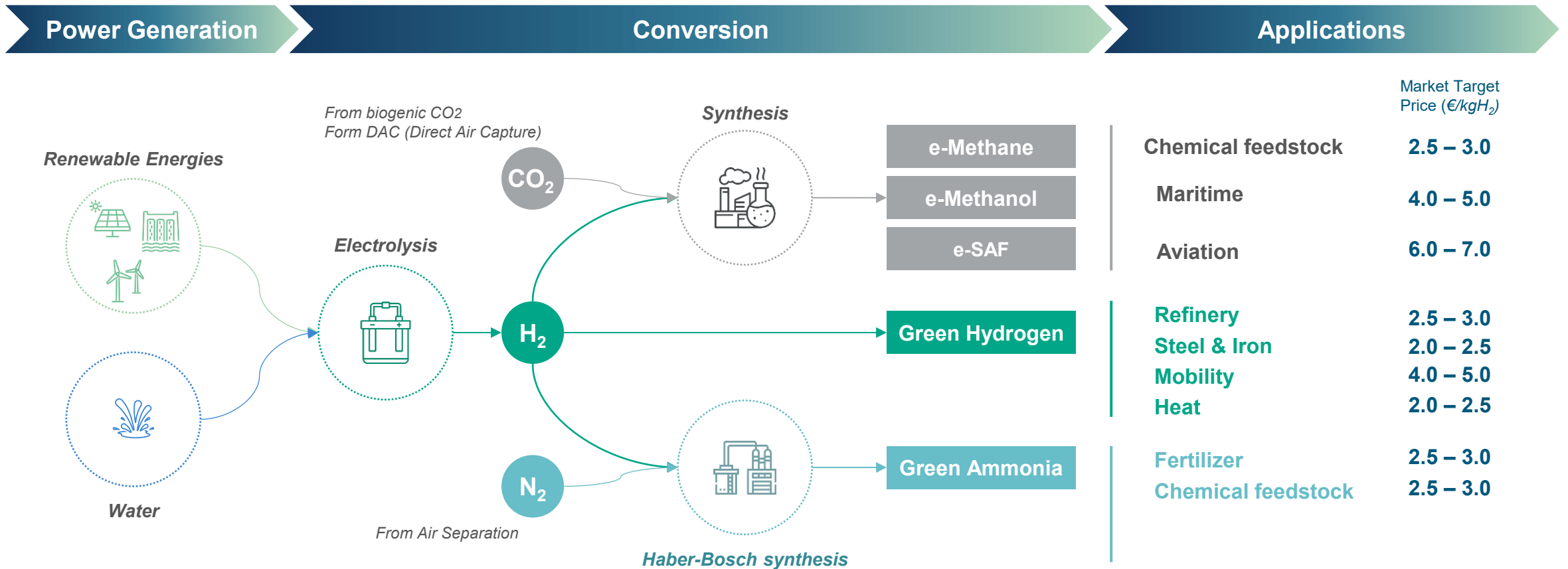
.....as a **RAW MATERIAL** for fertilizers or chemicals

...as a **REACTIVE AGENT** , today in refineries, tomorrow for steel production

...as an **ENERGY CARRIER,** today in space engines, tomorrow in various mobility solutions

...as an **ENERGY STORAGE** solution to manage intermittency of renewables

Context | Three main pathways of Power-to-X



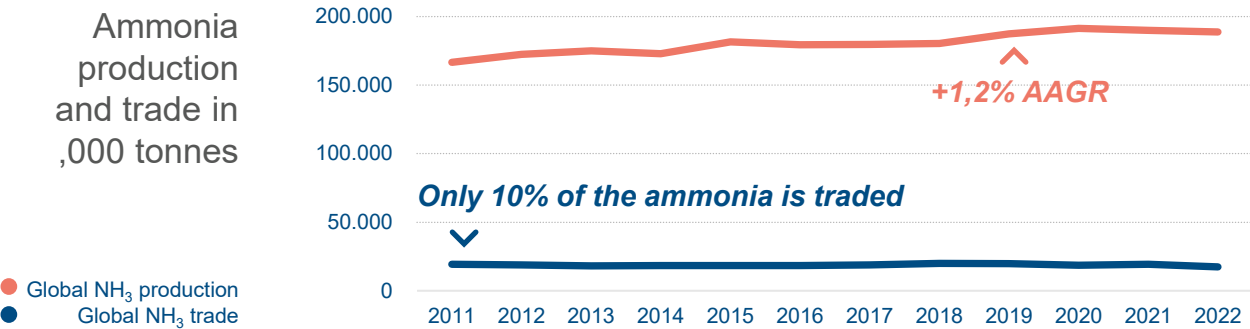
>> **Renewable energies** can be used to decarbonize many sectors of the economy. Together with energy-efficient technologies such as heat pumps, electromobility or combined heat and power plants, **Power-to-X is critical to reducing CO₂ emissions**.

>> **Power-to-X** // term used for conversion of **surplus electricity** into reconversion pathways & energy storage

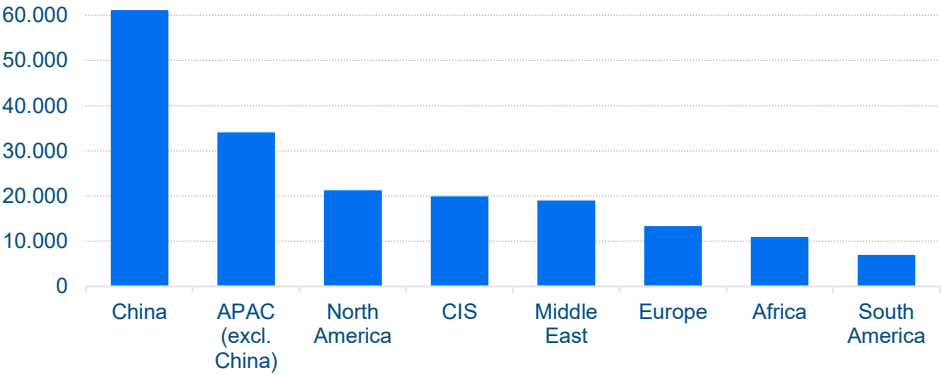
Ammonia Market Fundamentals

An essential molecule for fertilizer production to feed a growing population*

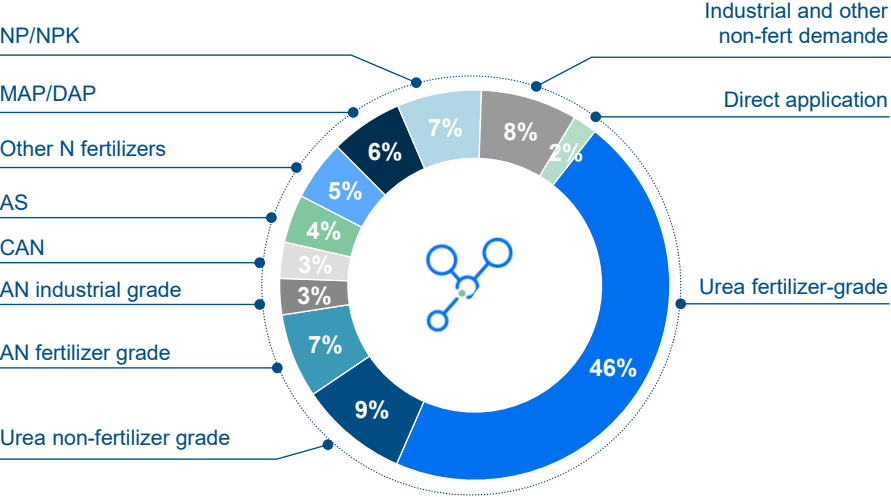
Ammonia production



Ammonia production by region in ,000 tonnes



Ammonia end-use



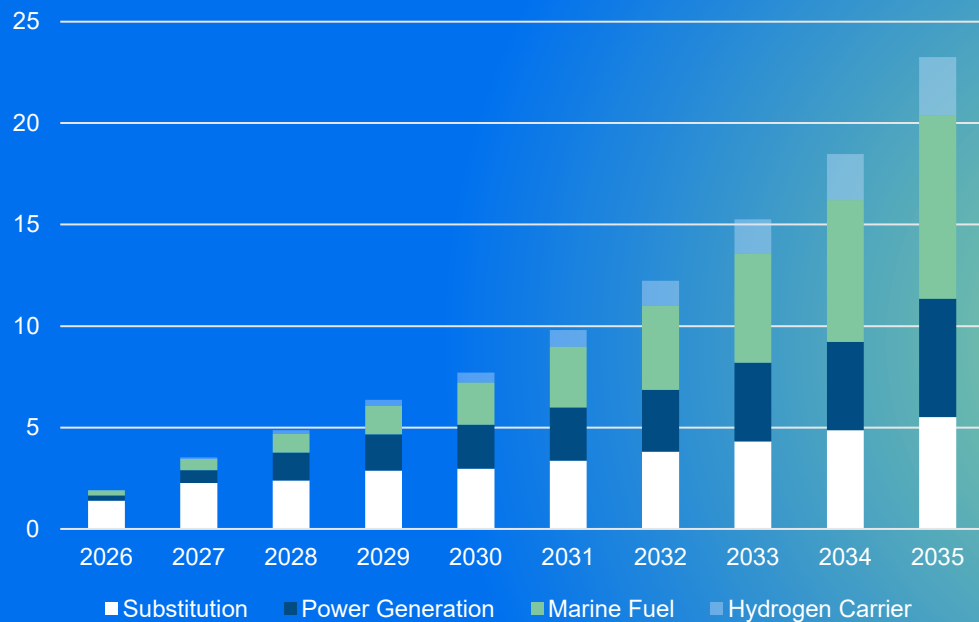
Around 80% of ammonia is used in fertilizer production, with most plants integrated into complexes manufacturing various grades such as urea, NPK, MAP, and DAP

* Ammonia is extremely effective at delivering nitrogen to the soil to increase crop yields (ex. >+250% on corn production)

Low-Emissions Ammonia: For Which Markets?

Policies are driving supply and demand market development of low-emissions ammonia

Projected Low-Emissions Ammonia Demand in MTPA



Source: CRU July 2025

Sub-Market Details and Readiness Levels

SUBSTITUTION: existing uses (fertilizers & industry) switching supply source

- Example: EU ETS & CBAM (emission taxes on domestic and imported product) may displace ammonia production from EU to other countries
- Blue ammonia cost of production is close to “grey” in the US thanks to IRA

POWER GENERATION (Japan/South Korea decarbonizing coal)

Introduction of H₂ containing feedstock into existing coal-fired power infrastructure. Japan announced 3 MTPA of LCA import by 2030

MARINE FUEL (slow starter but with long-term demand potential)

Regulatory/technical and cost environment to support widespread adoption of ammonia in marine fuel sector

HYDROGEN CARRIER (supporting long-distance H₂ trade)

- Development of hydrogen economies in Japan/South Korea and Europe will likely require NH₃ trade (export/import terminals w/ NH₃ cracking to be built)

MARKET READINESS LEVEL

➤ Developing a low-emissions ammonia export market demands major value chain investment.

Our Offering for Low-Emissions Ammonia Plants

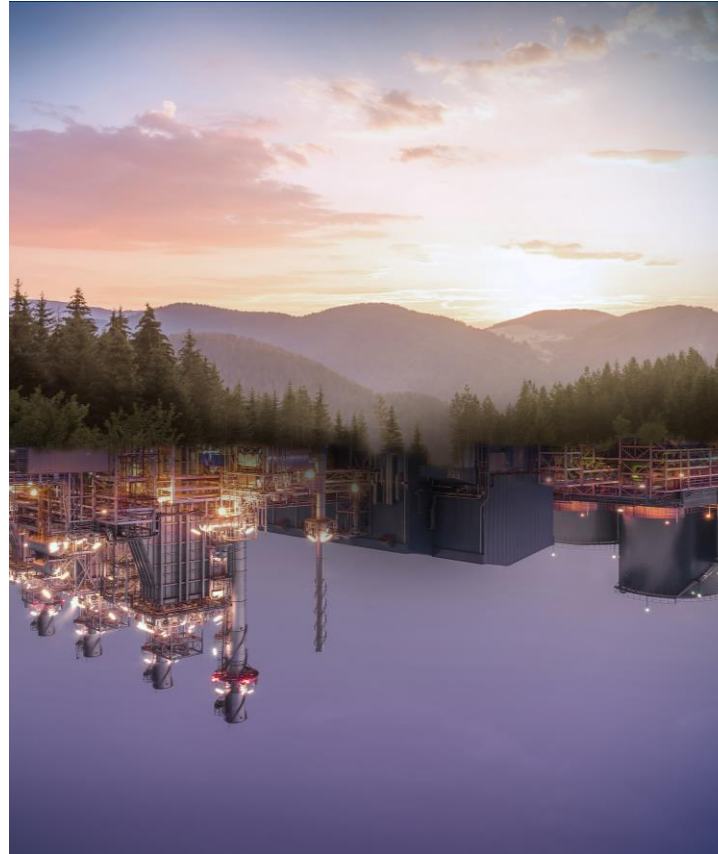
Low-Carbon (Blue) Ammonia ✓

Design based on Topsoe SynCOR™ ATR technology

- Lowest levelized cost of ammonia solution
- Highest carbon capture rate (up to 99%+ for Scope I)
- Large single-train capacity
- Reduced footprint

ISBL & OSBL integration and optimization

Modularization thanks to T.EN's expertise and know-how covering all aspects from design to onsite integration



Green Ammonia ✓

Green ammonia plants are offered by **rely**, a world-class technology, product and project company.



Created by Technip Energies and John Cockerill, Rely delivers fully integrated solutions in green H₂ and PtX.

Zoom Blue Point Number One ATR Project, USA

Technip Energies to deliver one of world's largest low-carbon ammonia plant **TOPSOE**

- Blue Point Number One JV structure: CF Industries 40% / JERA 35% ⁽¹⁾ / Mitsui 25%
- NH₃ Offtake: Handled independently by the three companies according to their ownership
- Production Capacity: 1.4 MMTPA of low-carbon ammonia ⁽²⁾ (95% CO₂ recovery → 2.3 MMTPA of CO₂ sequestered)
- CF Industries will build and operate scalable infrastructure to supply services, including product storage and loading
- Operation and maintenance by CF Industries

Blue Point capital requirements, CF estimated contribution ~\$2B



Note 1: JERA has an option to reduce its ownership percentage below 35% but not lower than 20%. CF Industries would increase its ownership by the same amount.

Note 2: ammonia carbon intensity will be as per Japanese regulation i.e. 0.87kg-CO₂e/kg-NH₃ Well-to-Gate



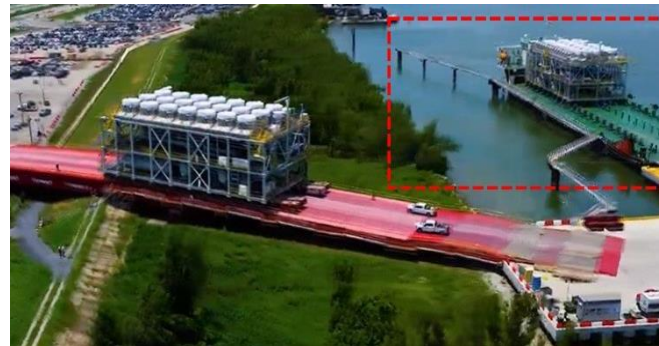
Zoom Blue Point Number One ATR Project, USA

Technip Energies' high-level scope of work

TOPSOE

Technip Energies' scope of work includes all required ISBL & OSBL facilities with the exclusion of ammonia storage tanks, loading arms, bridge and jetty under Blue Point Number One scope. EPF scope is on lump sum basis and includes:

- Detailed engineering
- Supply and fabrication of 27 modules (15 PAR, 8 PAU, 4 E-houses)
- Supply and delivery at site of Itemized equipment, materials and bulk piping
- Heavy haul transportation and river barging from fabrication yards to site
- Support to company during field engineering & construction up to PCCSU & performance test run



Total Modules Weight	40,000 tons
Max. Module Weight	5,800 tons
% Steel Modularized	90%
% Piping Modularized	65%

Zoom AM Green -1,500 TPD x 2 Green Ammonia Plant

RELY to deliver one of the world largest green ammonia project in the world



Objective: Existing grey ammonia plant (erstwhile NFCL) to be converted to 1,500 TPD green ammonia (2 trains).

- India's largest and world's 2nd largest green ammonia project and GH₂ facility project to move into execution
- The facility has already received CertifHY pre-certification for green ammonia
- First at this scale (100%) conversion of grey ammonia plant to green ammonia plant
- Project will receive round-the-clock (RTC) carbon free power from combination of solar, wind and pumped hydro storage system

Scope : Engineering, procurement services, construction management for the entire facility

- Ammonia Synthesis unit - 2 trains 1500 TPD each
- Electrolyser : 640 MW x 2 (by John Cockerill Hydrogen)
- Ammonia storage (20,000MT x 4 nos), Air Separation unit
- Other facilities : 'Pipeline tanks to port', ammonia loading facility, offsite utilities including zero liquid discharge, control rooms etc.



- **Contract:** EPsCM
- **Client:** AM Green Private Limited
- **Location:** Kakinada, Andhra Pradesh, India
- **Status:** EPsCm on going

Zoom 100MW GALP Green Hydrogen

Technip Energies to deliver first 100MW in Iberia



Contract: FS, BEDP, EPCM

Award: 2021

Delivery: 2026

Client: Galp

Location: Portugal

Key figures

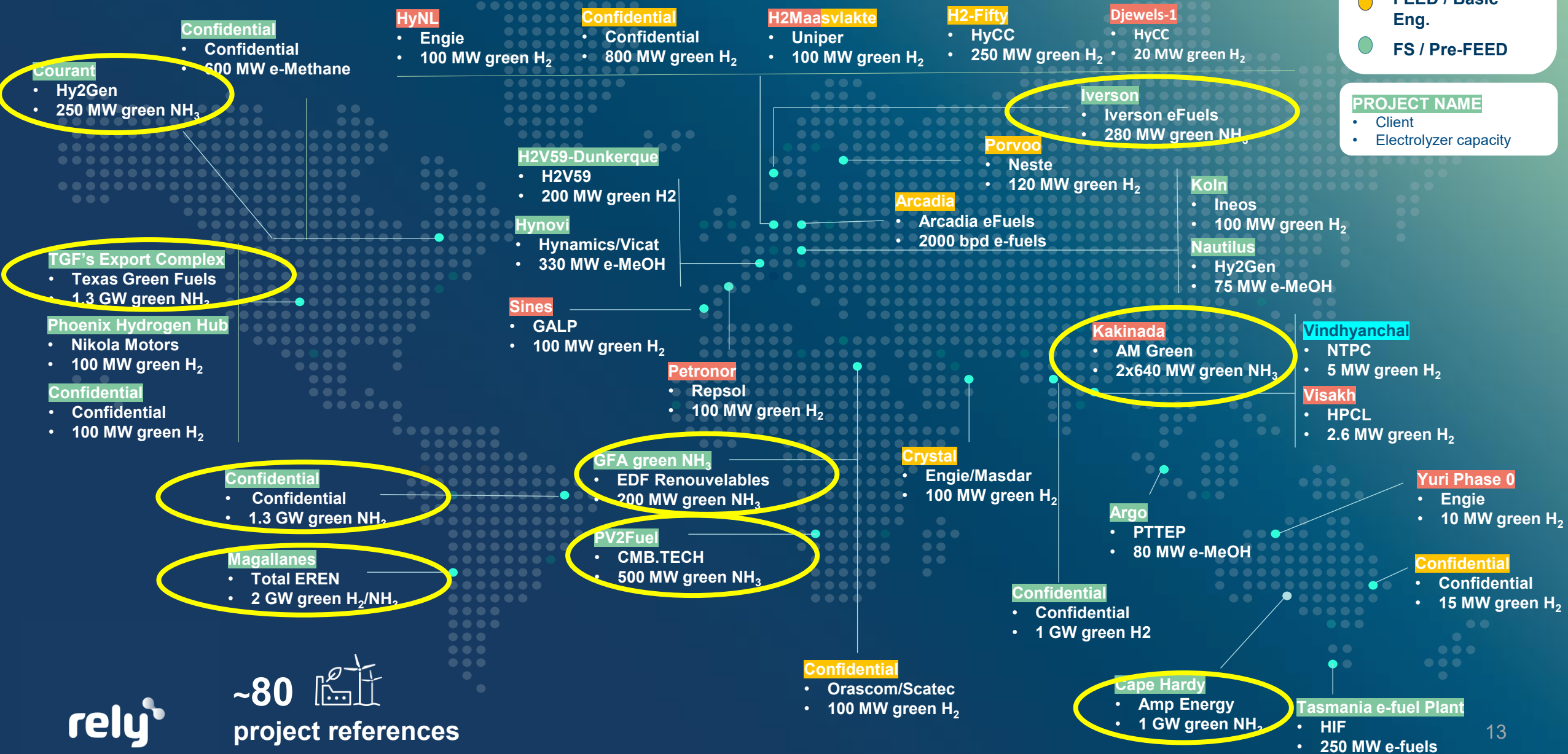
- **Technology:** PEM
- **Capacity:** 100 MW



Engineering services for 100 Mw Green H2 Unit



Green H₂ / Power-to-X: Rely & T.EN combined references



HynextTM by T.EN - T.EN Ammonia Cracking Technology

NH₃ as H₂ carrier solution leveraging six decades of leadership in H₂ technologies

	Hynext TM by T.EN	Conventional SMR Ammonia Cracking
Steam co-production	None	High
Yield H ₂ to NH ₃	High	Fair
Number of equipment / Items for utilities	Minimum	High
Share of cracking on H ₂ levelized cost	Minimum	Fair to high



No steam
production



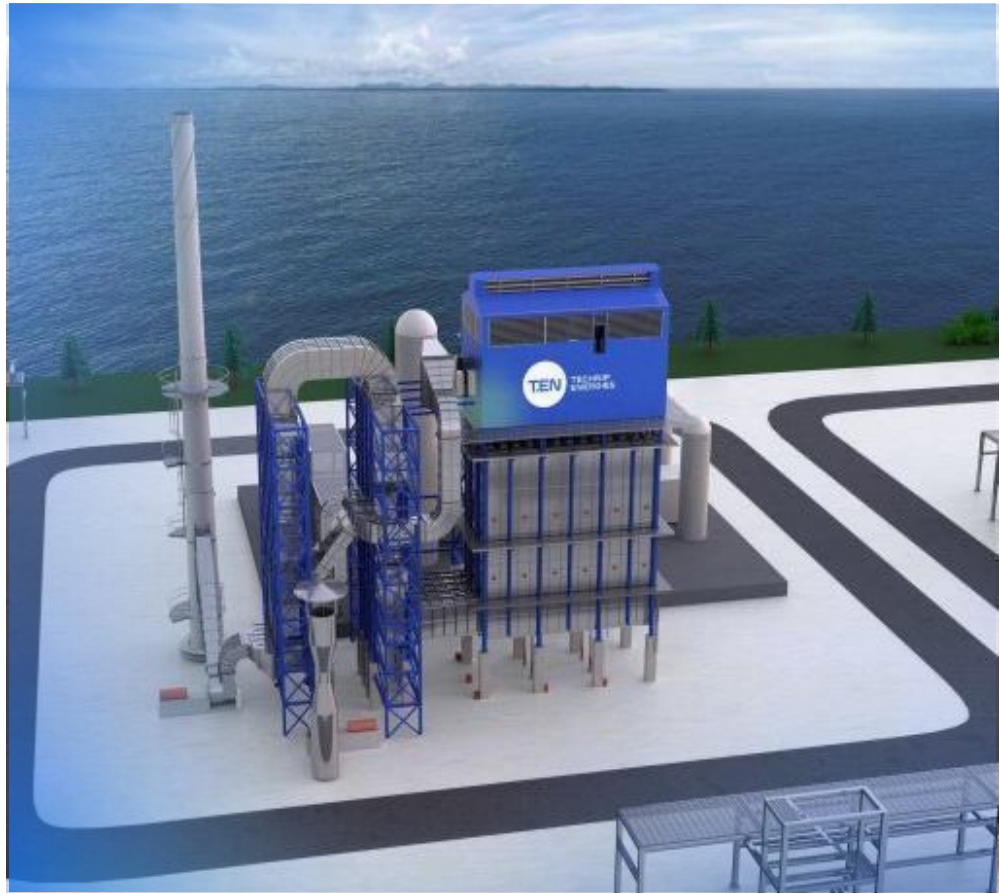
Energy
efficiency



Process
complexity

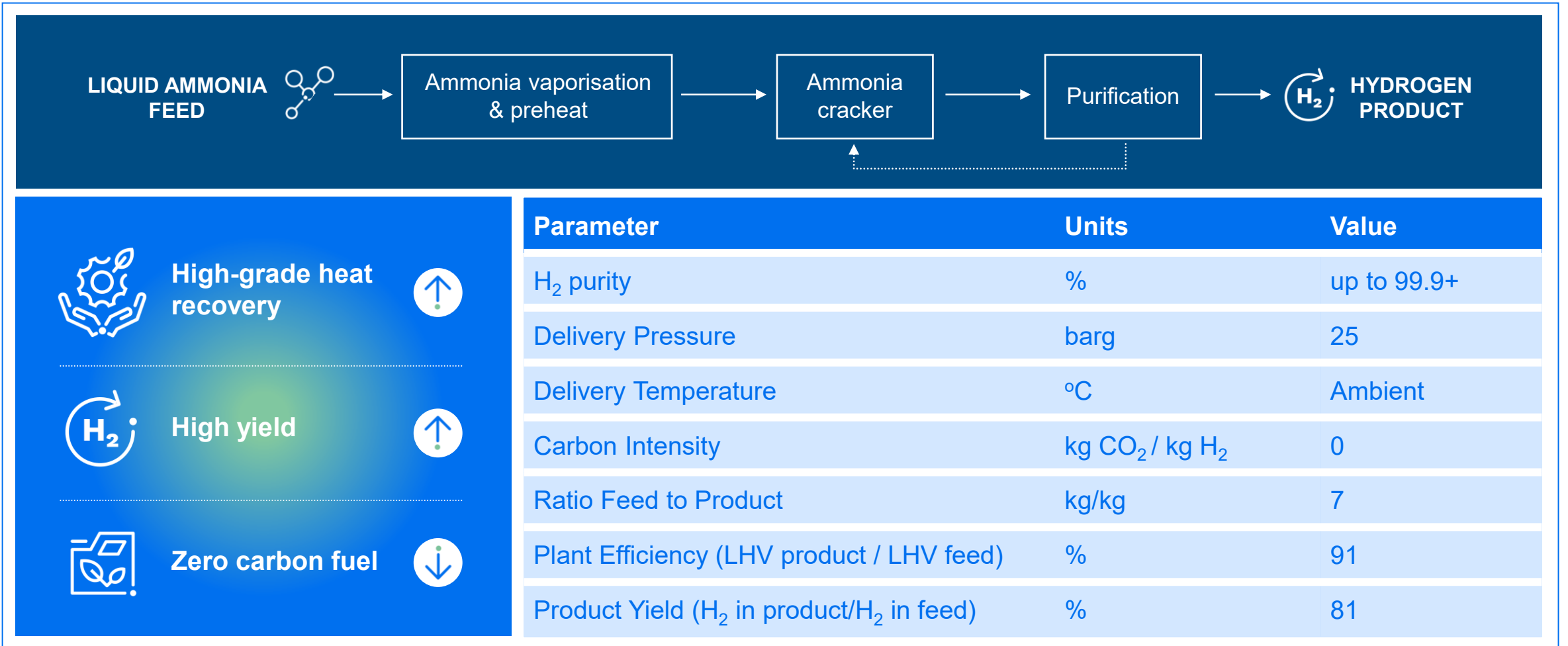


Better
Economics



HynextTM by T.EN - T.EN Ammonia Cracking Technology

Key performance indicators



Three large, semi-transparent circles are arranged horizontally. The first circle on the left is blue, the middle one is red, and the third one on the right is also red. They overlap each other.

Thank you