



# Electrolysis Solutions for Ammonia Production

14th November 2023, by Francisco Jimenez



accelerate the shift™

# Cummins and Accelera



Engines



Power generators

Components

Distribution

## E-Mobility



Electrolyzers



Fuel Cell Systems



Electrified Components



ePowertrain Systems



Traction Systems

## Accelera by Cummins

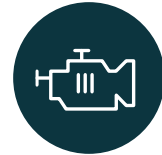
190  
Countries



73.6K  
Global Employees



1.3M+  
Engines built



10.6K  
Distributor & dealer locations



\$1.2B  
Invested in R&D

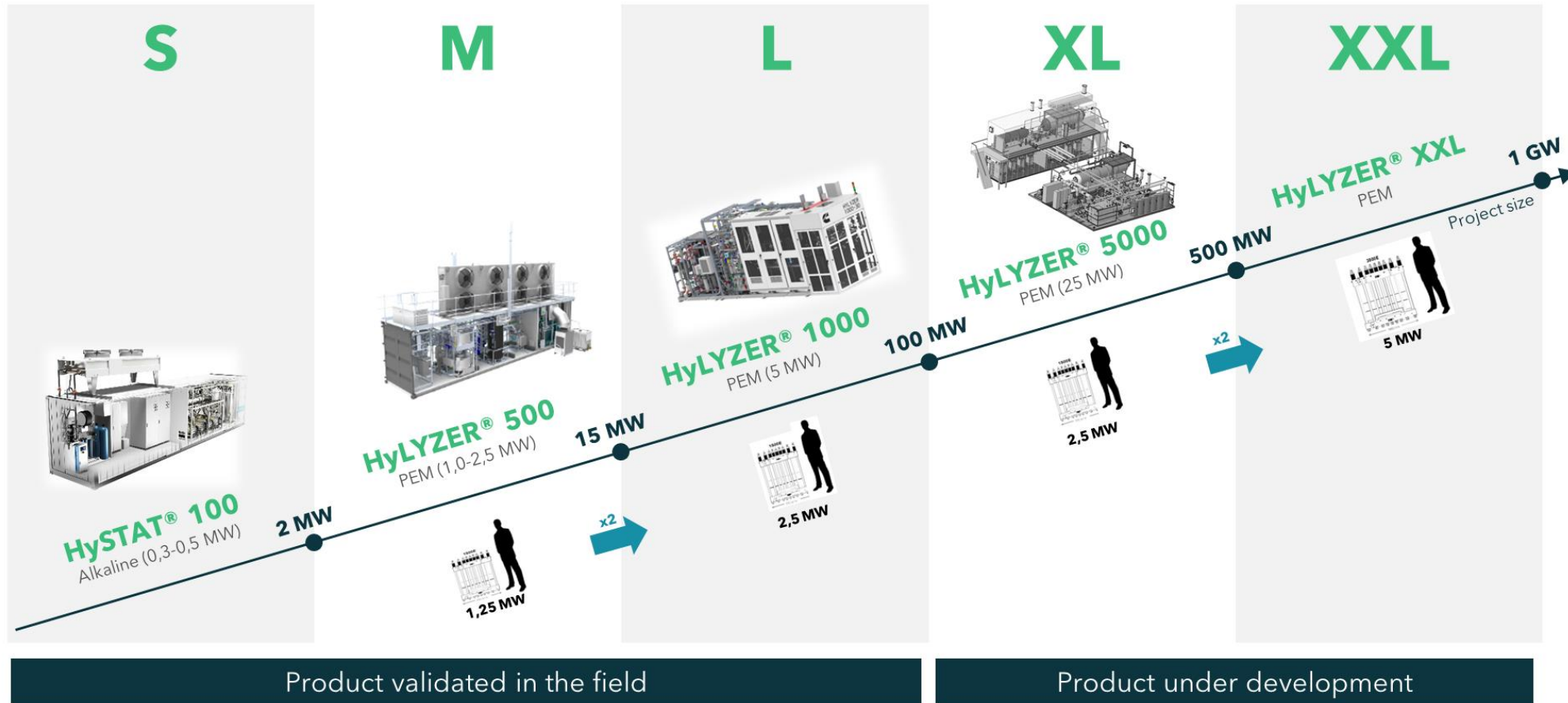


104 YEARS  
of industry leadership



\*2022 figures

# Accelera's Electrolyzer product offering & manufacturing



# Accelera has delivered the 2 World's Largest PEM Electrolyzers to date to Air Liquide and NextEra



## Air Liquide Becancour, Canada

- 4x HyLYZER® 1000-30 - indoor - 20 MW - 4.000 Nm<sup>3</sup>/h - 8,6 TPD
- Start of operation: March 2021

More info & video tour: [link](#)

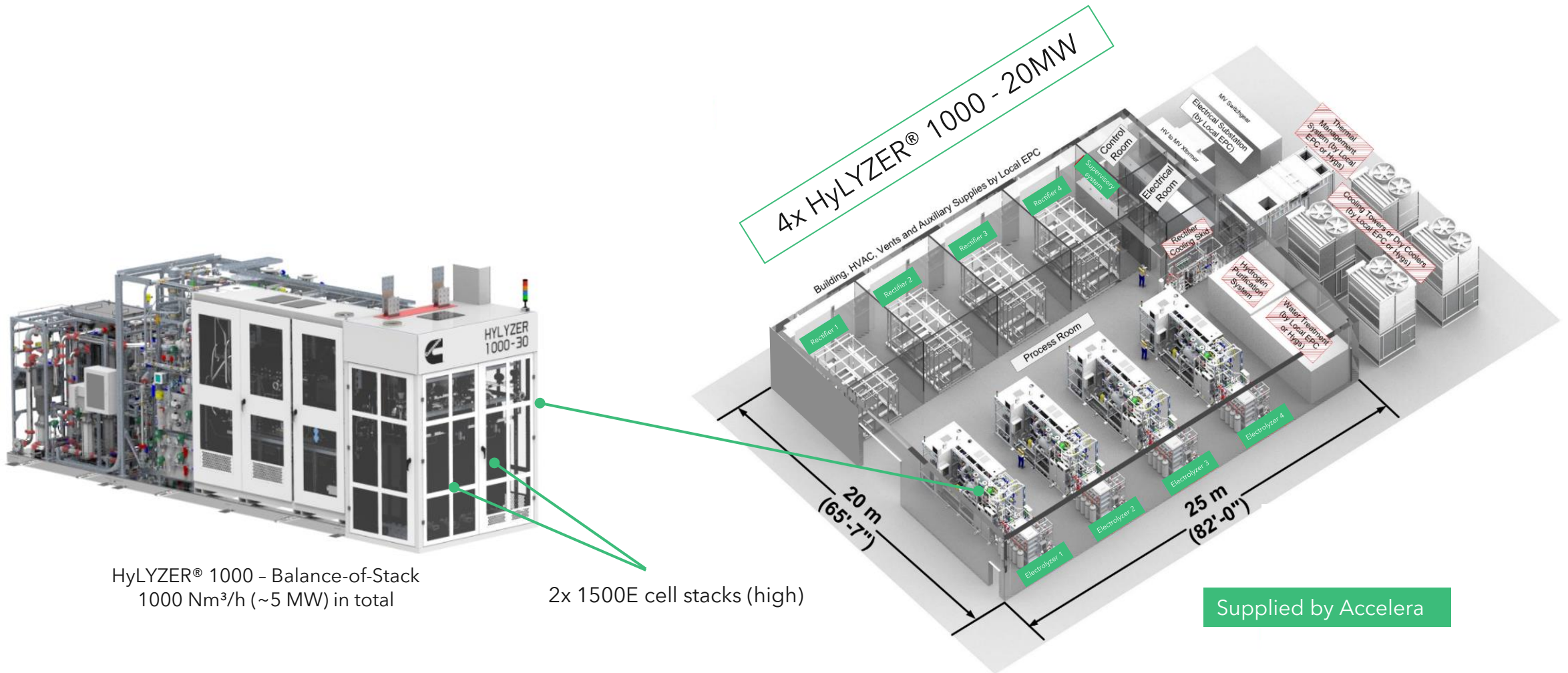


## Florida Power & Light Company (NextEra), US

- 5x HyLYZER® 1000-30 - indoor - 25 MW - 5.000 Nm<sup>3</sup>/h - 10,8 TPD
- Start of operation: October 2023

More info : [link](#)

# HyLYZER® 1000: Modular Product



HyLYZER® 1000 - Balance-of-Stack  
1000 Nm<sup>3</sup>/h (~5 MW) in total

2x 1500E cell stacks (high)

# HyLYZER®-5000 PEM Electrolyzer

Plant layout 60.000 nm<sup>3</sup>/h (~300 MW)

**Case:** Electrolyzer plant for existing/new Green Ammonia plant

**Plant Capacity:** 60.000 Nm<sup>3</sup>/h/~ 300 MW

**Stack Technology:** PEM

**Configuration:** 12 x HyLYZER®- 5000 (12 x 25 MW)

**Tech Data:**

Output pressure: 30 bars

Dynamic operation: 5-100%

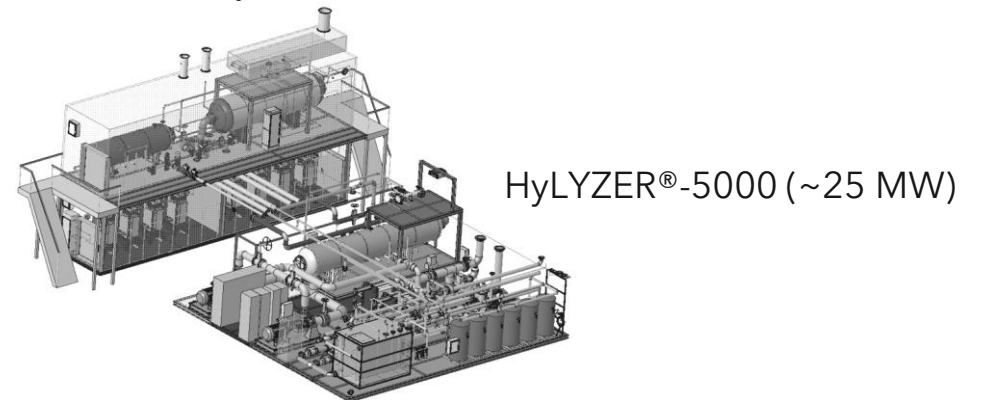
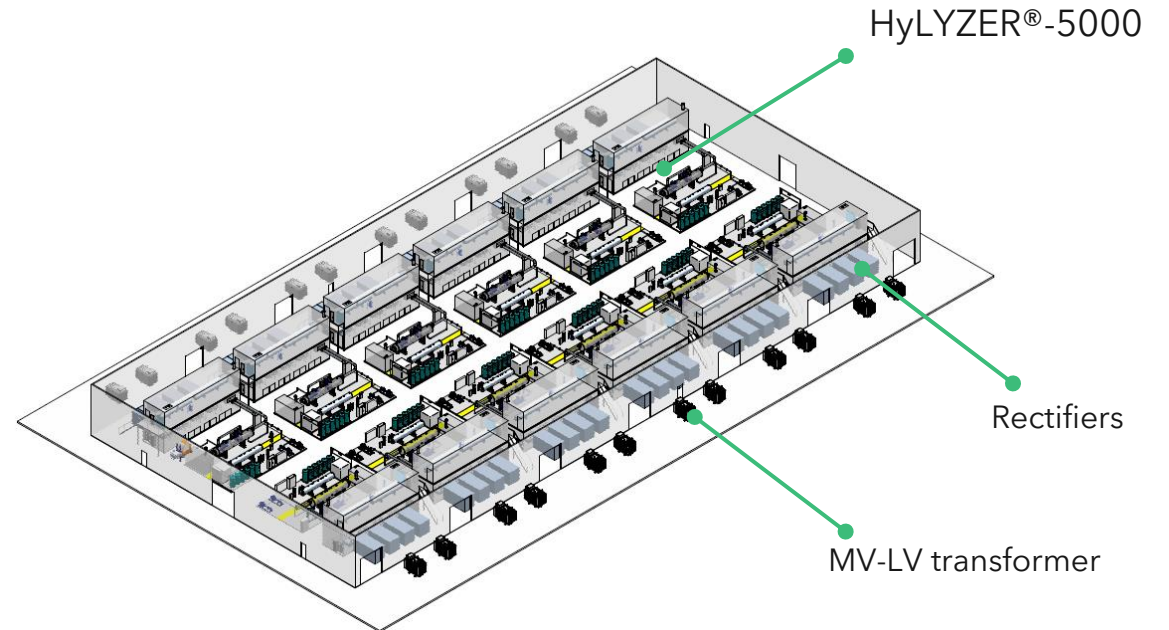
**Energy Source:** Intermittent RE / Grid (PPAs)

**Accelera Scope:** System Supply + O&M Services

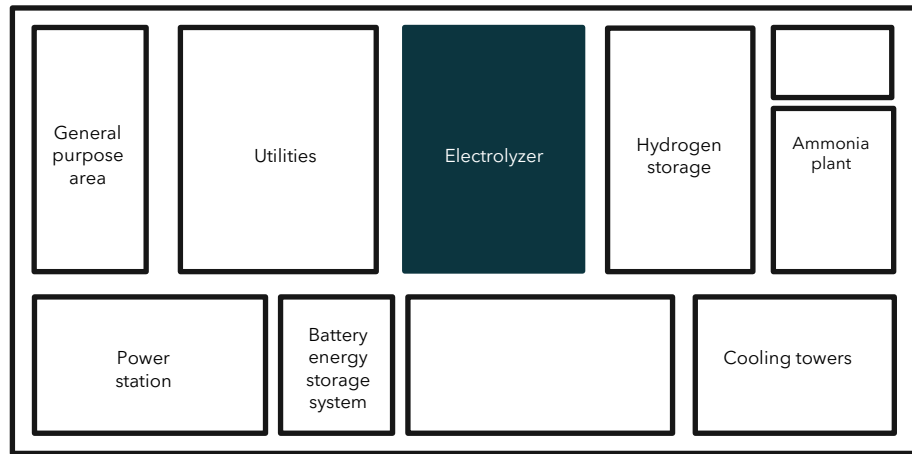
**Product Status:** FEED

**Considerations:**

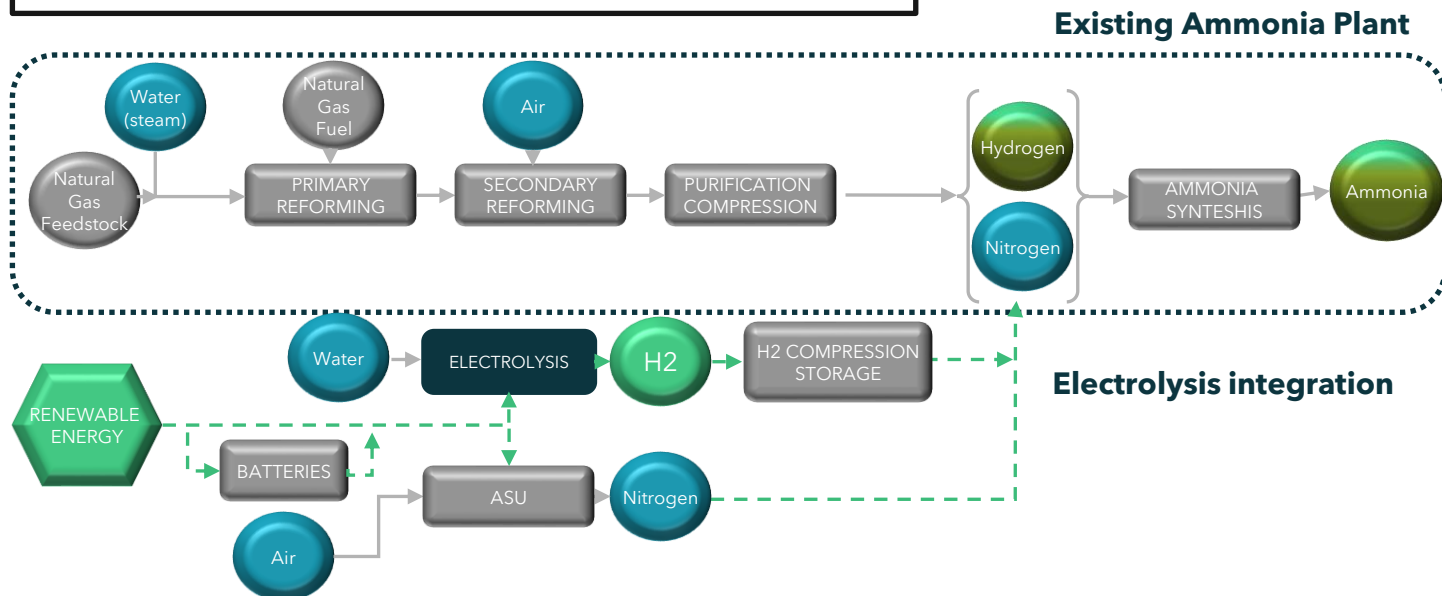
- Integration with existing facilities
- H2 Storage / Electrical Batteries
- Compression



# Electrolyzer Requirements Hybrid Ammonia Plants



Electrolyzer solution plays a fundamental role in Hybrid Ammonia Plants



## Technical considerations

- o Electrolysis: could replace 10-20% of natural gas without a major overhaul.
- o Power Profile: Grid connection (or not) / Correlation
- o SMR flexibility: Batteries & H2 storage & ASU (N2)
- o Land and Space limitations in existing facilities
- o Advance Process Control - Power to NH3
- o Water access - Electrolyzer cooling

## Commercial Considerations

- o Early Engagement to optimize the design
- o Support Full Plant Life Cycle - 25y
- o Technology Road map - Scale UP
- o Partnership (EPC/Technology/End customer)
- o Global/Local: Manufacturing strategy



[www.accelerazero.com](http://www.accelerazero.com)

