

From Fossil to Future: Pertamina's Vision for Clean Hydrogen Development

March 24, 2025

Pertamina set its aspiration to capture ~10% of export market, and champion domestic H2 economy by 2040

■ PNRE target - H2
 ■ PNRE target - NH3

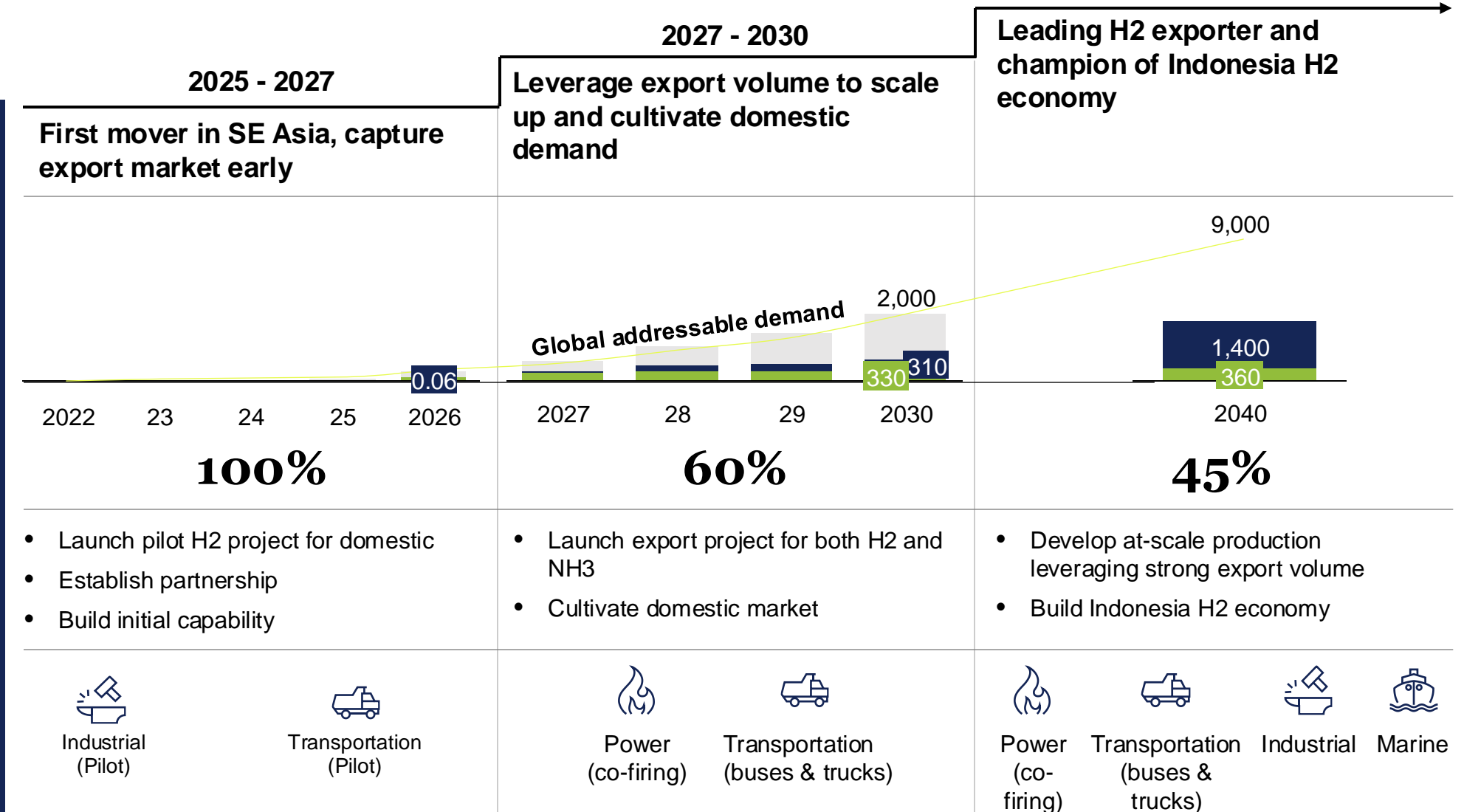
 **PNRE aspiration**

 **Target**
 Ktpa of H2e

 **Export**
 %

 **Focus**

 **Use-cases**



Clean Hydrogen Business: 17 Supply Locations were assessed, Marquee Projects with Global and Domestic Players



Demand centers Priority locations Other supply locations

XX Expected COD

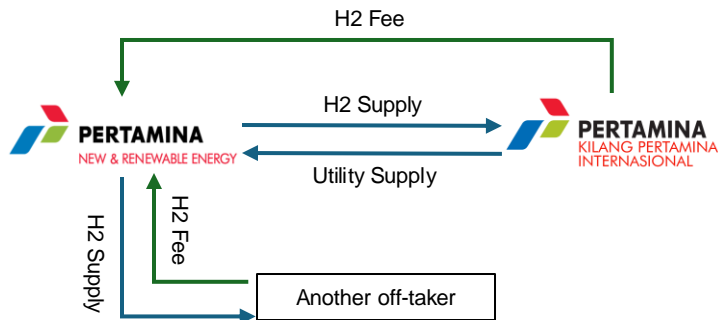
1	North Sulawesi Green NH₃ cluster Export - Shipped Geothermal 0.5 MTPA of NH₃ Strategic partner: 	2030
2	Mainland Sumatera Clean H₂ cluster Export - Piped Solar. Geothermal 100 KTPA of H₂ Strategic partner: 	2030
3	Plaju Green H₂ Domestic Solar PV 8 TPA of H₂ Strategic partner: 	2026
4	Jakarta H₂ Mobility Domestic Green H₂ Refueling Station 500 kg/day of H₂ Strategic partner: Passenger & HD Truck FCEV	2027

PNRE has built a 2,25 MWp solar farm in Refinery Unit III in Palembang to replace the externally sourced grey hydrogen with green hydrogen

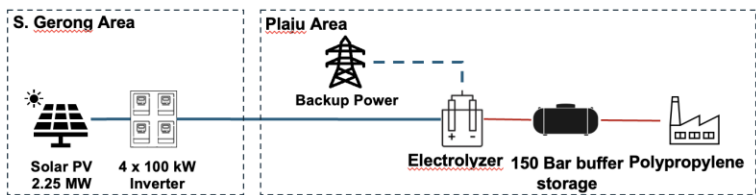
Project Overview

PNRE is building a hydrogen production facility using power from the 2.25 MWp solar farm previously built in 2023, making it the first low-carbon polypropylene unit in Indonesia. This project aims to replace the gray hydrogen currently supplied externally.

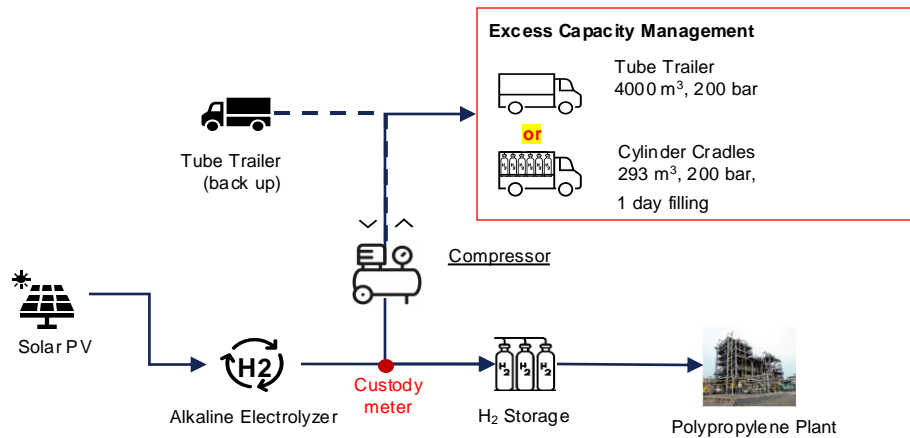
Business Scheme



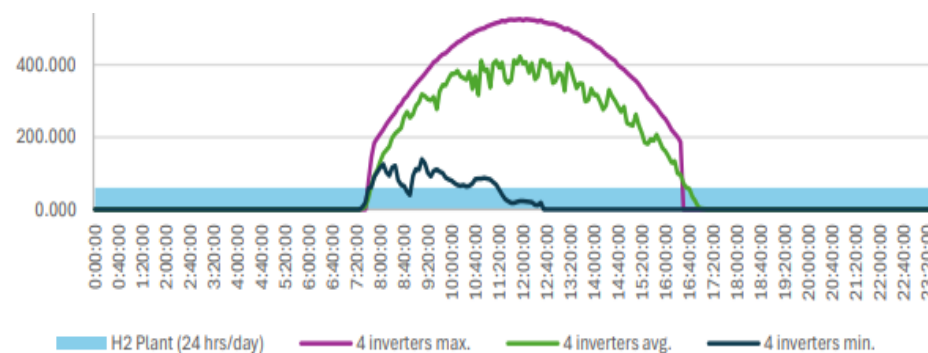
Project Concept



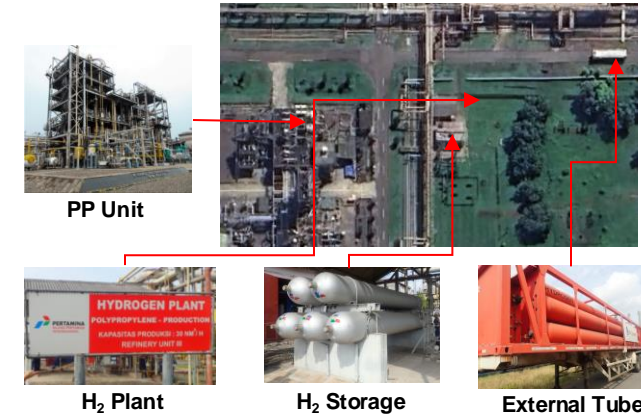
Project Configuration



PV Production Profile



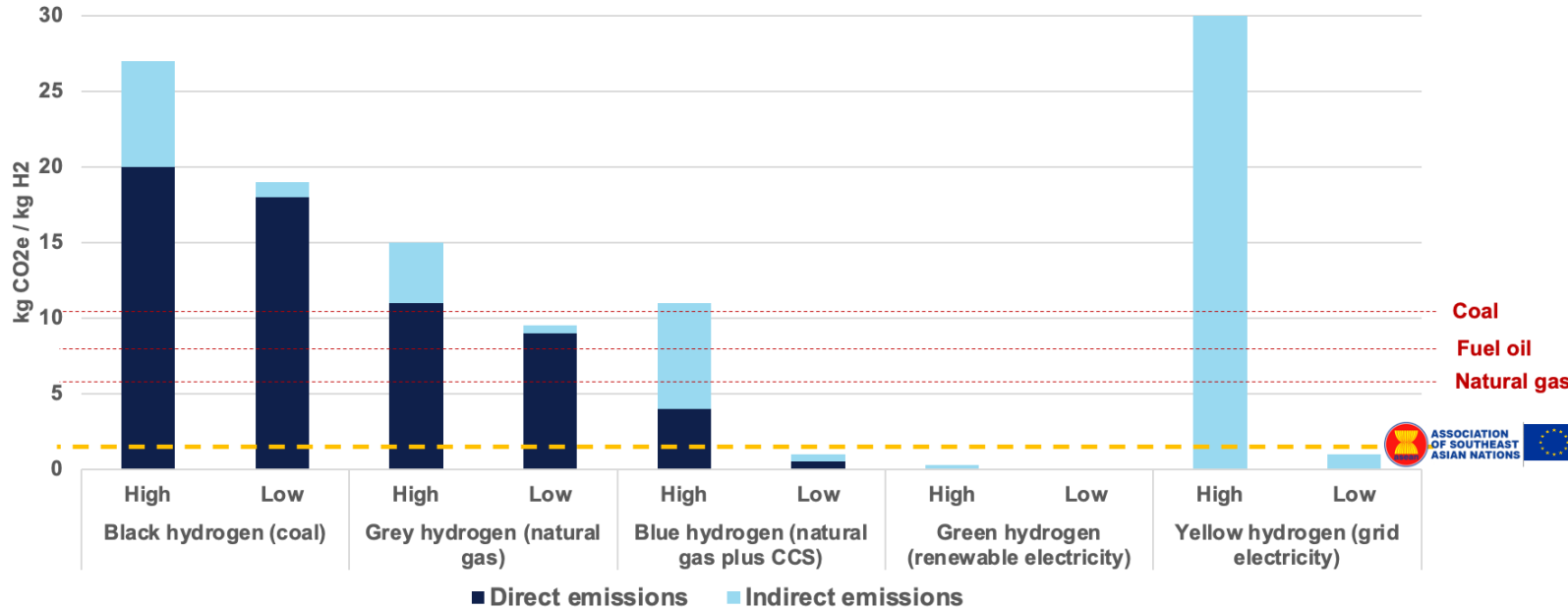
Project Location



RU III Solar PV

Aligning production methods with trusted standards is key to ensuring Pertamina's green hydrogen is genuinely low-carbon, sustainable, and aligned with decarbonization & market goals

Total emissions for hydrogen production



EU RED Framework GHG calculation

In absence of regional regulations, PERTAMINA is referring the EU RED for anticipating the features of forthcoming frameworks. It currently has the most stringent requirements and most closing definitions available. Following these will ensure compliance or near compliance to any future local standards.

$$E = e_i + e_p + e_{td} + e_u - e_{ccs}$$

e_i emissions from elastic inputs + emissions from rigid input – emissions from inputs' existing use

e_p emissions from processing

e_{td} emissions from transport and distribution

e_u emissions from the fuel in use

e_{ccs} emission savings from CO₂ capture and geological storage

NOT EXHAUSTIVE

Public regulatory schemes



EU Delegated Acts for RFNBOs



Low Carbon Hydrogen Standard (UK)



H2Global



Japan (Aichi Prefecture) Certification scheme



Australian zero carbon certification scheme



South Korean Hydrogen Economy Promotion and Hydrogen Safety Management Act



China hydrogen alliance standard



- US Low carbon fuel standard
- US Clean Hydrogen Production Standard
- US IRA 45V tax credit requirements

Pertamina is carefully designing its hydrogen projects against international standards to obtain economic incentive and ensure compliance with any export markets

Logics



Ensure Market Readiness & Compliance

- **Aligning with EU RED II** ensures compliance with one of the world's most stringent regulations, anticipating both international and future local standards
- Guarantees export readiness for diverse markets with varying regulatory landscapes.



Unlock Economic Incentives

- Enables access to Renewable Energy Credits, carbon tax benefits, and green financing that require certification of low-carbon hydrogen.
- Facilitates verification of carbon, critical for sustainable financing and premium market access.



Showcases GOI's NZE Commitment

- Supports Indonesia's climate action by complementing the national hydrogen & ammonia roadmap.
- Demonstrates **actionable projects** aligned with the government's net-zero ambitions.



Open Global Opportunities

- **Proves Indonesia's capability to supply certified green hydrogen**, unlocking partnerships and export potential.
- Positions Indonesia as a regional first mover by adopting globally recognized standards, differentiating projects from others in Southeast Asia

Key measures

THANK YOU