

# Sembcorp's Green Hydrogen (GH) and Green Ammonia (GA) Ambitions in VOCPA

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**Prepared by: Green Infra Renewable Energy Farms Private Limited**  
(100% subsidiary of Sembcorp Green Hydrogen India Pvt. Ltd.,)



# Sembcorp Industries at a Glance

## Our Strategic Focus

**Drive  
Energy Transition**



Energy generation portfolio of **26.1GW**, including **18.0GW** of renewables assets

Operating across  
**11 countries**

## Our Business Segments



### Gas and Related Services

- Importer of piped natural gas & liquefied natural gas
- Utility-scale power generation and cogeneration
- Steam generation
- Distributed energy generation



### Renewables

- Wind
- Solar
- Hydro
- Energy storage systems



### Integrated Urban Solutions

- **Urban:** Integrated townships | Industrial and Business space
- **Water:** Industrial water treatment & supply | Desalination & water reclamation
- **Waste-to-resource:** Energy-from-waste



### Decarbonisation Solutions

- Renewables import
- Low-carbon feedstock
- GoNetZero™

# Driving Energy Transition with a Diversified Renewables Portfolio



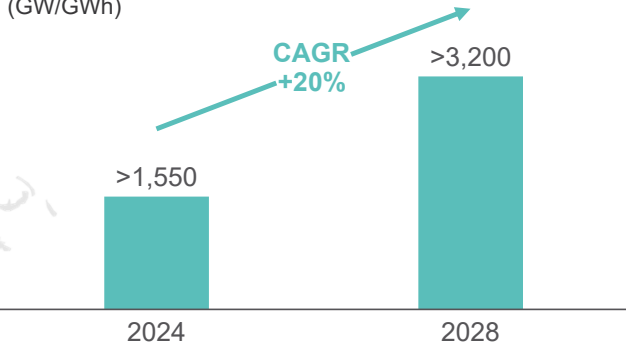
Total Gross Renewables Capacity\*

18.0 GW

Addressable Renewables Growth<sup>1</sup>  
(2024-2028)

>1,650 GW

Projected Installed Renewables Capacity<sup>1</sup>  
(GW/GWh)



\* Energy storage systems measured in GWh. Includes acquisitions pending completion

<sup>1</sup> Source: GlobalData January 2025. Includes China, India, Middle East (Saudi Arabia, Oman) and Southeast Asia (Singapore, Vietnam, Indonesia, Philippines)

# India Renewables Footprint

**Gross Capacity<sup>1</sup> 6.6GW**

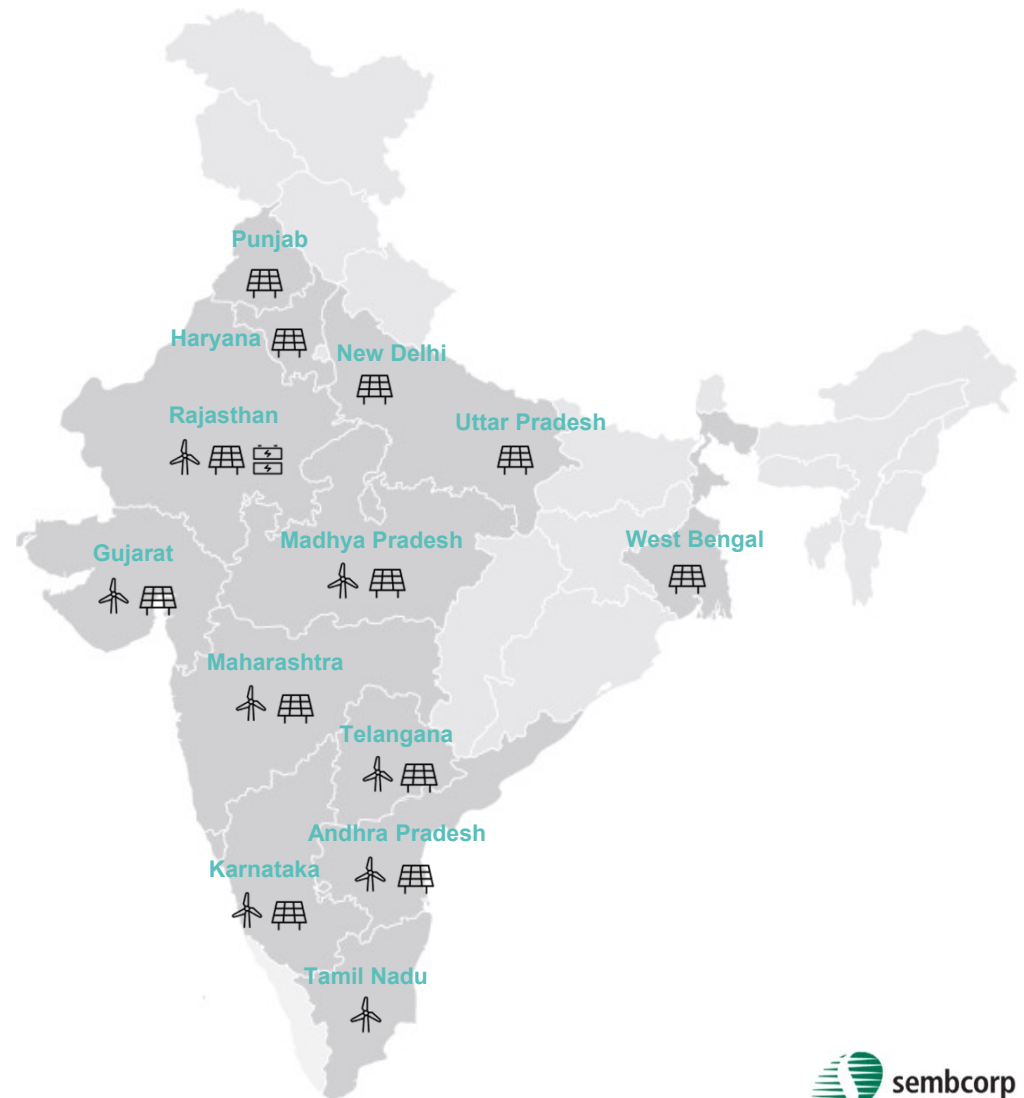
|                |        |
|----------------|--------|
| Wind           | 2.8GW  |
| Solar          | 3.0GW  |
| Energy storage | 766MWh |

**75 projects 13 states**

<sup>1</sup>Total gross capacity assumes 100% ownership of assets, including projects secured and under construction. Energy storage capacity is presented in MWh

## Legend

|                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wind                                                                                | Solar                                                                               | Energy Storage                                                                      |
|  |  |  |



LONG-TERM GROWTH OPPORTUNITIES

# Decarbonising our Portfolio through Low-carbon Partnerships across Hydrogen, Ammonia, SOFC and CCS

## Hydrogen



**600 MW**  
Hydrogen-Ready  
Power Plant

**100 ktpa**  
Green Hydrogen  
Production / Export



## Ammonia



Shortlisted for Ammonia RFP  
**55 to 65 MW +**  
**0.1MTPA Bunkering**



## Carbon Capture & Storage



**Solid oxide fuel  
cell (SOFC)**  
Forming Energy Server

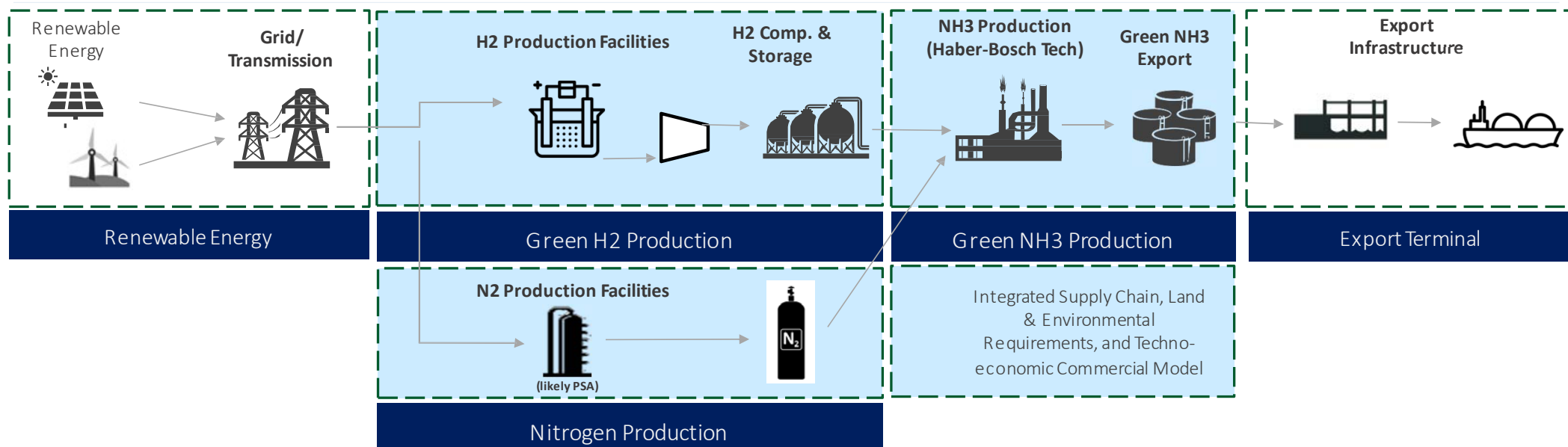
Exploring  
**CCS Partnerships**



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# Project - Objectives and Drivers



## Project Details

- Electrolyzer capacity:
- Project Location
- NH3 production using Haber-Bosch Technology for concept design

## Drivers

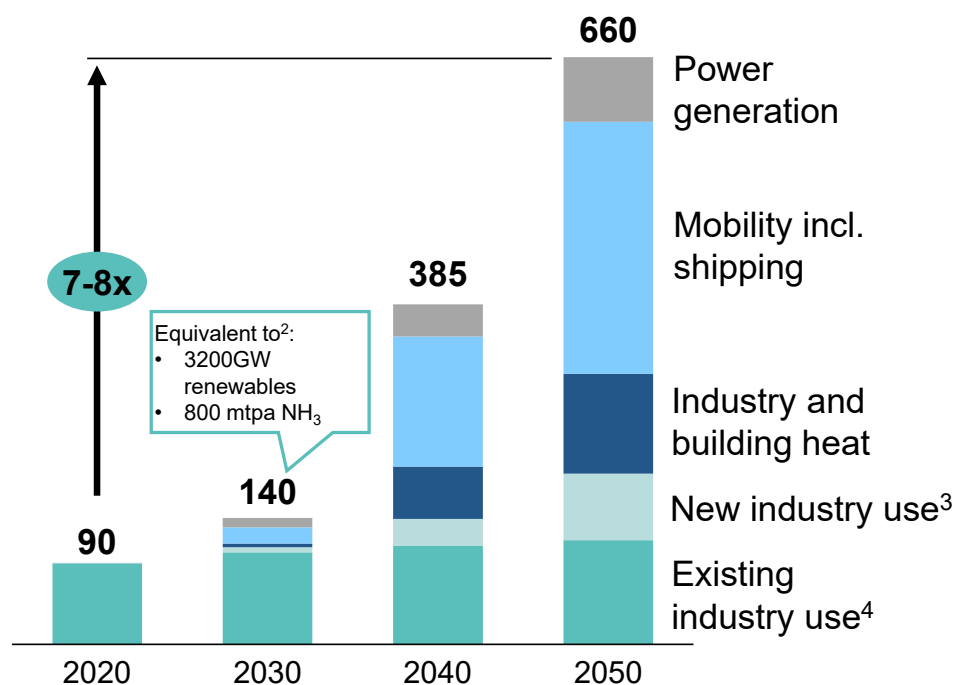
- Scalability for future expansion (200 -> 400 MW electrolyzer)



# Hydrogen a Key Enabler for Energy Transition

## Hydrogen Demand by Segment

million tonnes H<sub>2</sub> p.a.<sup>1</sup>



### Rapid demand projected for hydrogen

- 660 million tonnes (MT) of hydrogen (H<sub>2</sub>) required per annum in 2050 for net zero
- 22% of global energy demand<sup>5</sup> by 2050
- Strategic pathway for Singapore to diversify future energy mix and decarbonise power sector

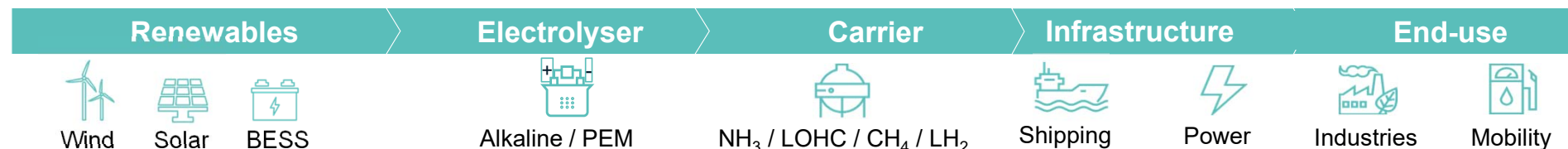
Source: Hydrogen Council; McKinsey Hydrogen Insights; BNEF 2023 Hydrogen Levelized Cost Update

1. Includes demand for grey, blue and green hydrogen 2. Assuming 23GW per 1MT of green hydrogen

3. E.g. DRI-steel, and BTX (Butene, Toluene, Xylene polymers) 4. E.g. refining, ammonia and methanol production

5. IEA net zero scenario with 340 EJ final energy demand in 2050. HHV assumed. Excluding power

## Sembcorp Has a Credible 'Right to Play'



1



### **18.0GW<sup>1</sup> of wind, solar, hydro and BESS capacity**

Ability to deliver high productivity renewable energy at low LCOE

2



### **Presence in the right markets**

India, China, Middle East – good renewables resource, supportive government policies, export-oriented infrastructure

3



### **Ability to drive green H<sub>2</sub> demand**

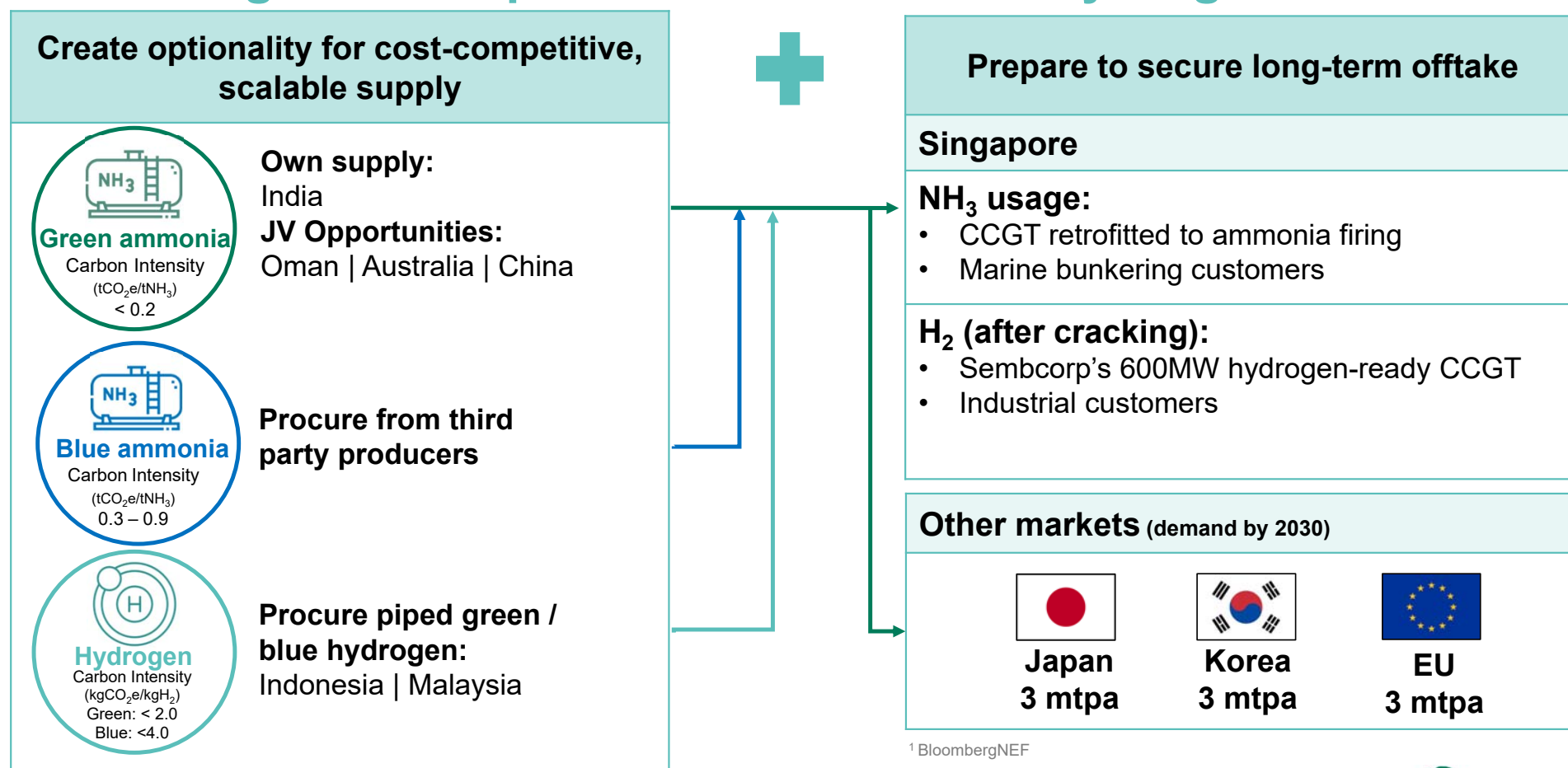
Capability and systems to handle hydrocarbons

Well-positioned to act as a demand off-taker and aggregator as one of the largest importers of natural gas

<sup>1</sup> Gross renewables capacity as of Jun 2025, including acquisitions pending completion. Energy storage capacity is presented in MWh



# Positioning Sembcorp for Growth in Green Hydrogen



<sup>1</sup> BloombergNEF

# GoNetZero™ Aims to Provide a Range of End-to-end Solutions to Address our Customers Net Zero Requirements

## GoNetZero™ Connect



### Carbon credits

Offset hard-to-abate emissions and support decarbonisation beyond value chain mitigation



### Renewable Energy Certificates (RECs)

Transition to renewable energy and reduce your Scope 2 emissions



### Seller Solutions

Get the access you need to scale your reach: whether you develop projects, own renewable energy assets, or trade environmental attributes



### Measure

Automate your carbon data collection with the help of machine learning. Save time, reduce errors and gain insights faster than before



### Manage

View, manage, and retire EAs portfolio seamlessly on a single platform



### Perform

Maximise the efficiency, output and lifespan of your renewable energy assets across multiple sites



# Challenges to GH2/ NH3 Plants

## Technology

- ❑ H2 production to follow RE generation
- ❑ Transport of RE power- Availability of Green Corridor
- ❑ Challenge in securing good RE sites
- ❑ Better Electrolysis Technology need to Mature for MW scale deployment

## Commercial

- ❖ Electrolyser Market need to establish and mature for cost competitiveness
- ❖ Wind Power need to get in par with solar
- ❖ BESS technologies need to scale with raw material availability.
- ❖ Infra structure upgradation for GH2 systems manufacturing.
- ❖ Conducive environment for GH2 Business with established off takers
- ❖ Competition of GH2 with other stream H2 with environment tech

# Expected Initiatives from Various Agencies

## Regional Power Grids



## With full suite of renewable energy options



Wind



Hydro



Solar



Battery

## Collaborating with Partners

- Accelerate establishing Green Corridor in the Power Grid
- Land Allocation and water provision
- Consolidating all regulatory requirement.
- Extend helping hand to connect with abroad markets.

# Thank You

