

Hydrogen Business Strategies

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posco



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I . Vision and Business Model

“Market leader of green hydrogen to push towards hydrogen economy”

- Build green hydrogen production capacity of 2 million tons by 2040 (domestic and overseas), Secure 30% of domestic market share, Create hydrogen-based group value-chain



| | |
|-----------------------------------|---|
| Production | Reach 2 million tons of capacity by gradually expanding productions ① 70,000 tons of by-product hydrogen → ② 500,000 tons of blue hydrogen → ③ 2 million tons of green hydrogen capacity |
| Sales | Secure initial demand and generate large-scale, stable future demand - Hydrogen vehicles, power generations and apply in hydrogen reduction steelmaking |
| Involvement in group level | Focus group assets in hydrogen business to maximize group synergy - Secure overseas hydrogen source, transfer to hydrogen turbine power generation, and participate in building hydrogen cities |

II. Strategies

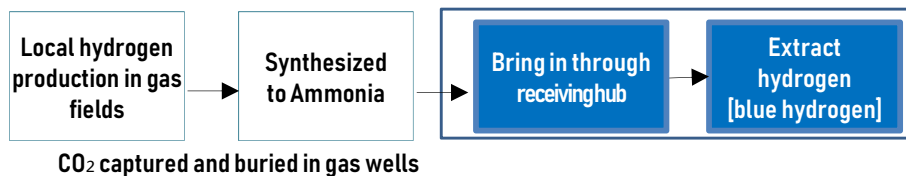
[Production] Build 2 million tons of green hydrogen capacity in gradual speed (~'40)

By-product based hydrogen

- Increase capacity to 70,000 tons (~'25)
 - Produce 2 thousand tons by increasing utilization rate of existing by-product facilities (~'22)
 - Produce 68,000 tons by investing in by-product extraction process in current facilities (~'25)

Blue Hydrogen

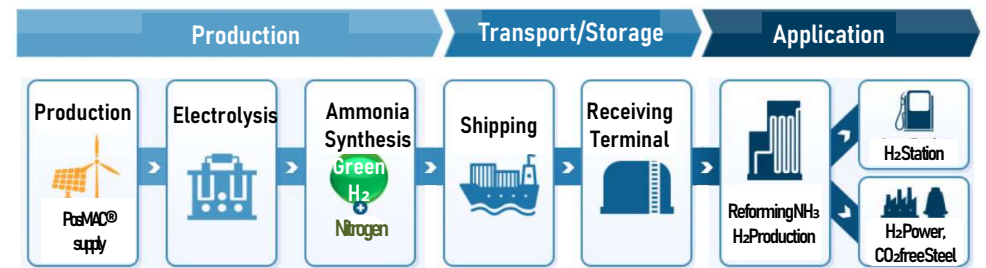
- Secure 500,000 tons of blue hydrogen* from overseas (~'30)
 - Secure overseas blue hydrogen* and bring in as ammonia
 - *Hydrogen produced with CCUS technology
 - In process of discussing partnership with global blue hydrogen producers
 - Build domestic receiving hub for blue ammonia to extract hydrogen from brought-in ammonia



Green Hydrogen

- Preoccupy domestic market and produce 2 million tons of green hydrogen (~'40)
 - Develop green hydrogen production businesses in areas as Australia, Middle East, etc.
 - Under discussion on business cooperation with local governments and companies
 - Supply PosMAC, POSCO product for solar substructure
 - Build infrastructure to bring in hydrogen and ammonia (terminal and tank)
 - Procure ammonia reforming technology(to extract hydrogen)
 - Discuss joint development with state-owned research institutions and partner companies

POSCO Green Hydrogen Business Model



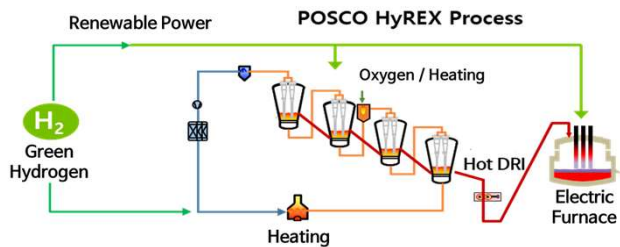
※ PosMAC® : POSCO's unique alloy steel brand

II. Strategies

[Sales] Secure initial demand and generate large and stable future demand

Hydrogen reduction steelmaking

- Convert to hydrogen-based steelmaking
 - Use hydrogen over coal and produce CO₂-free steel
 - 3.7 million tons/yr of green hydrogen required when commercialized



Hydrogen power generation

- Convert to hydrogen turbine power generation (P-Energy)
 - Expected commercialization after 2030 (500,000 tons/yr of hydrogen used for 1GW)
 - Blend hydrogen in existing turbine before '30

※ Global market trend

Siemens (Germany)

- Blending → Test 100% hydrogen usage (~'24) → Commercialize ('30)

GE (U.S.A)

- Operate 500MW blended ('21) → turn 100% ('30)

Kawasaki (Japan)

- Demonstrating electricity generated by hydrogen turbine

Hydrogen-run vehicles

- Convert company vehicles to hydrogen-run vehicles
 - Commute bus, forklift truck, etc.
- Pursue to turn heavy trucks used for distribution to hydrogen-based
 - Trucks for steel transport (1,500 units)
 - Total transition requires 10,000ton/yr of hydrogen
- Operate by-product hydrogen fueling station
 - For hydrogen truck, bus, etc., supply hydrogen with reasonable price

[Group Involvement] Focus group assets in hydrogen biz and maximize synergy

- **P.Int'l** Involved in current government pjts to procure overseas clean hydrogen → hydrogen trading & sourcing
- **P-Energy** LNG terminal under operation → Build receiving terminal and create big demand by converting to hydrogen turbine
- **P-E&C** Participating in Ansan hydrogen city pjts → Take part in EPCs and domestic hydrogen city projects
- **RIST** Develop key technologies, as ammonia and hydrogen combustion or ones for ammonia extraction facilities

III. 2050 Business Target

Foster hydrogen business as the **new growth engine**
to carry on **the next 100 years**

Level up hydrogen business close to steel by taking the leading role in the market

2050 Target for Hydrogen Business



[POSCO]

- Main producer and supplier of hydrogen, key source of future energy

[POSCO Group]

- Increase group business value by nurturing hydrogen as key pillar in growth business

[Society]

- Participate to reach carbon neutral and make our society greener