

NEOM HELIOS

The World's Largest Green Ammonia Project



نيوم NEOM

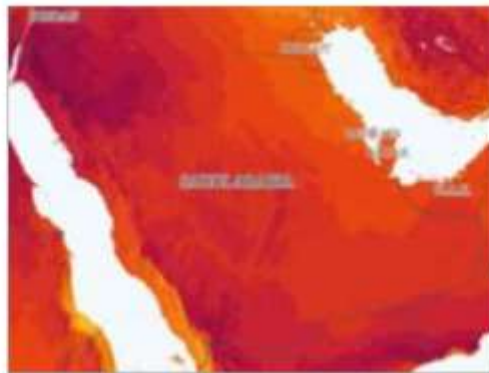


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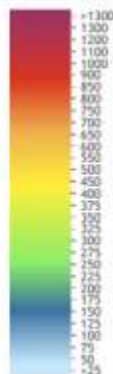
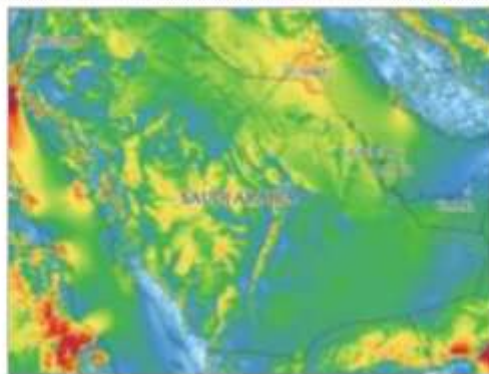
KSA & NEOM Offer Unique Conditions For Competitive Green Hydrogen & Chemicals



Solar PV
potential
(kWh/kWp)



Wind
potential¹
(W/m²)



Unique solar & wind resource potential jointly combined at the same location

- Some of the most competitive renewable electricity tariff in the world;
- High capacity factors from the renewable mix.

A central geographical position at the heart of established shipping routes to key markets – Europe & Far East

- Most competitive rates for transporting ammonia to global hydrogen markets.

Well established position in investing in and exporting energy & chemicals

- KSA is one of the largest energy exporter in the world and a key player in the petrochemical industry;
- Established supply chain for building and operating large scale energy & chemicals complexes;
- Favorable tax and regulatory regime;
- In-country expertise for developing, structuring & financing complex energy & infrastructure projects.

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USD 5 Billion World Scale Green Ammonia Production Powered By Renewable Electricity For Export To Global Hydrogen Markets

Project Name	NEOM HELIOS
Type	Green ammonia production integrated complex (including power generation, energy storage, seawater desalination, hydrogen electrolysis & ammonia synthesis) under a contracted long term offtake agreement
Sites locations	NEOM
Scope	Design, development, financing, construction, operation and maintenance of the integrated complex
Capacity	Up to 1.2 Mtons per year of ammonia, 650 tons of hydrogen per day
Offtaker	Air Products, to distribute to the international market
CAPEX	Over 5 bnUSD
Timeline	Commercial Operation by 2025

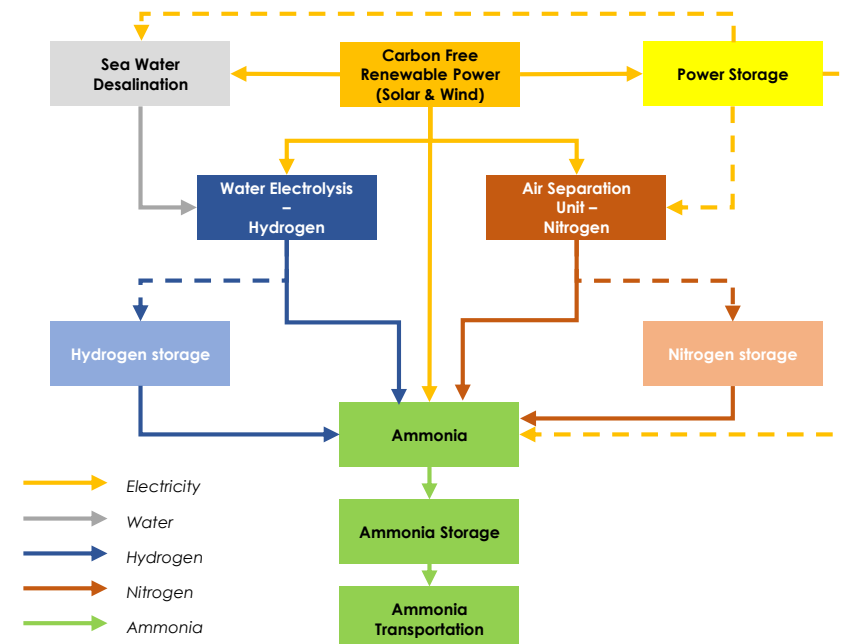


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NEOM HELIOS Will Use Proven & World Class Technology To Deliver An Innovative Product

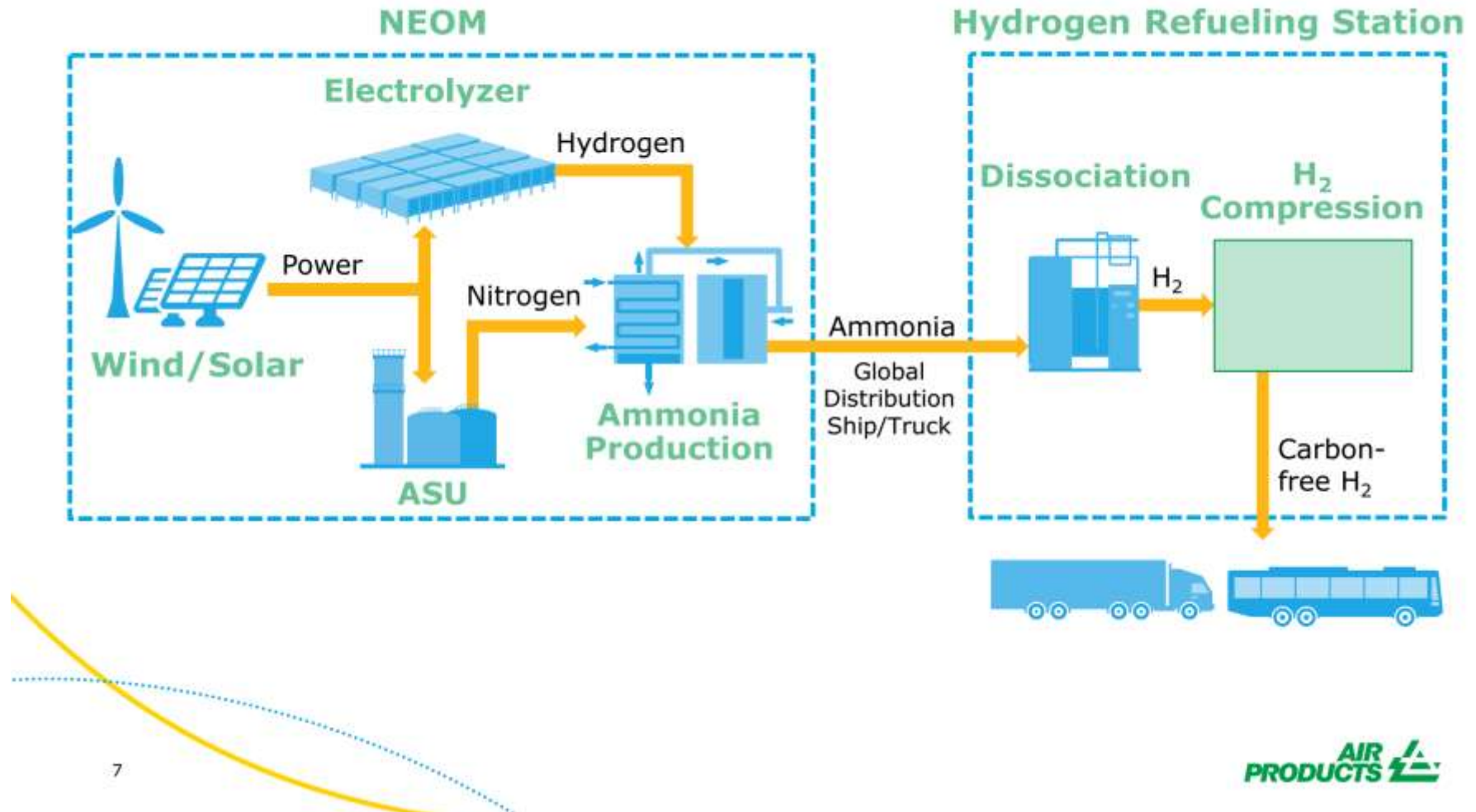
The consortium has come up with a conceptual design in order to achieve a cost-effective production of ammonia, that is 100% carbon free and sustainable. Key design features are summarized as follows:

Value chain step	Design Capacity & Outputs
Solar & Wind Capacity	GW scale combined profile at optimized capacity factor
Energy storage	Battery storage to manage the intermittency on base load processes
Transmission system	Internal grid / Connection to main grid
Hydrogen electrolysis & storage	GW scale operating at optimized load factor
Air Separation (N₂) + Ammonia Loop	World Class Design Capacity



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NEOM HELIOS Will Save Over Three Million Tons of CO₂ Per Year To Address The Mobility Market (Exclusivity Of Air Products)



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