



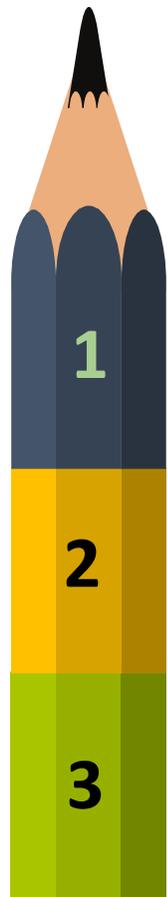
10th Session of the UNECE's Group of Experts on Gas
United Nations, Geneva, Switzerland
23-24 March 2023



Prospects of **Blue** Hydrogen and Ammonia in the Arab Region

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Gas Industries Expert
OAPEC





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Hydrogen Policies and Targets in the Arab Region

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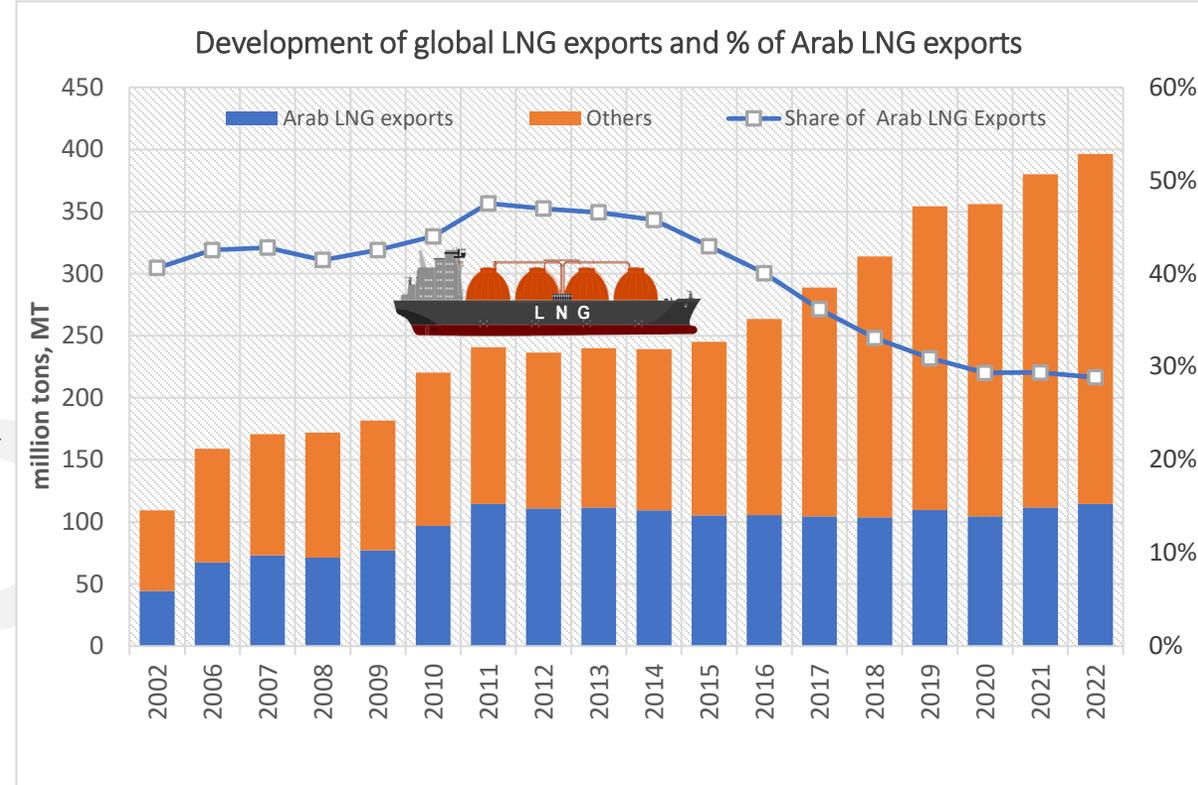
Success Factors of Blue Hydrogen

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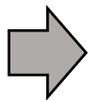
Announced Blue Hydrogen and Ammonia in the Arab Region



Why to invest in hydrogen ?



Source: OAPEC



Local Market

Reduce Reliance on Fossil Fuels

To decarbonize some industries inline with their decarbonization goals



Export

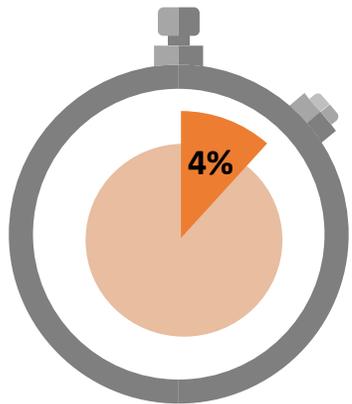
Global Hydrogen Leader

To emphasize on its role as a reliable & sustainable energy supplier

Hydrogen ambitions and targets in the Arab countries



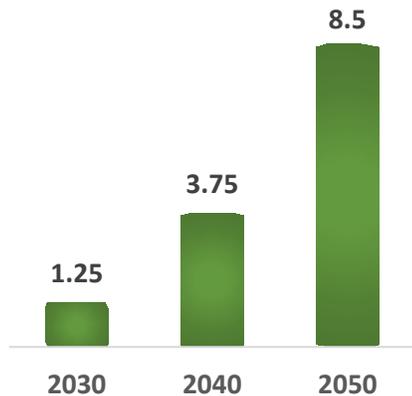
Morocco



% of global hydrogen market by 2030



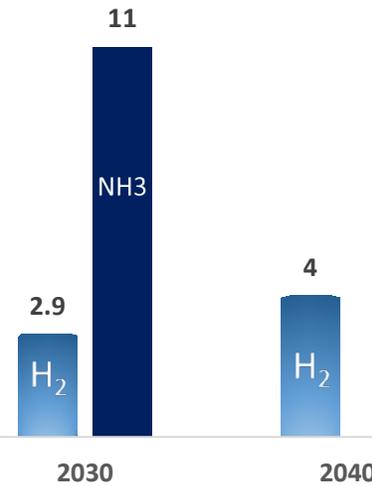
Oman



Clean H₂ production targets, mtpa



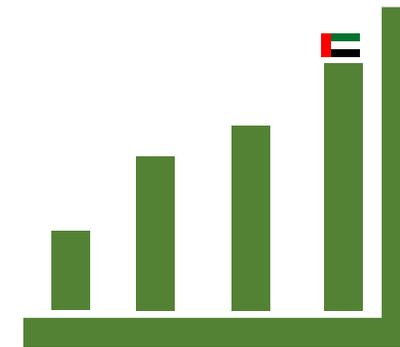
KSA



Clean H₂, blue NH₃ production targets, mtpa



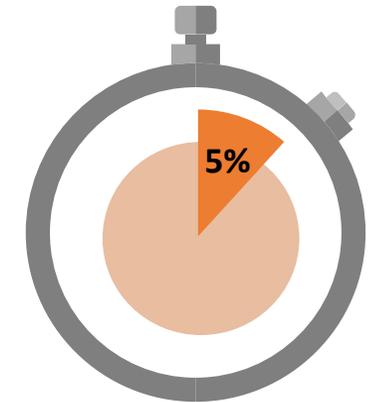
UAE



Top Ten H₂ producers by 2031



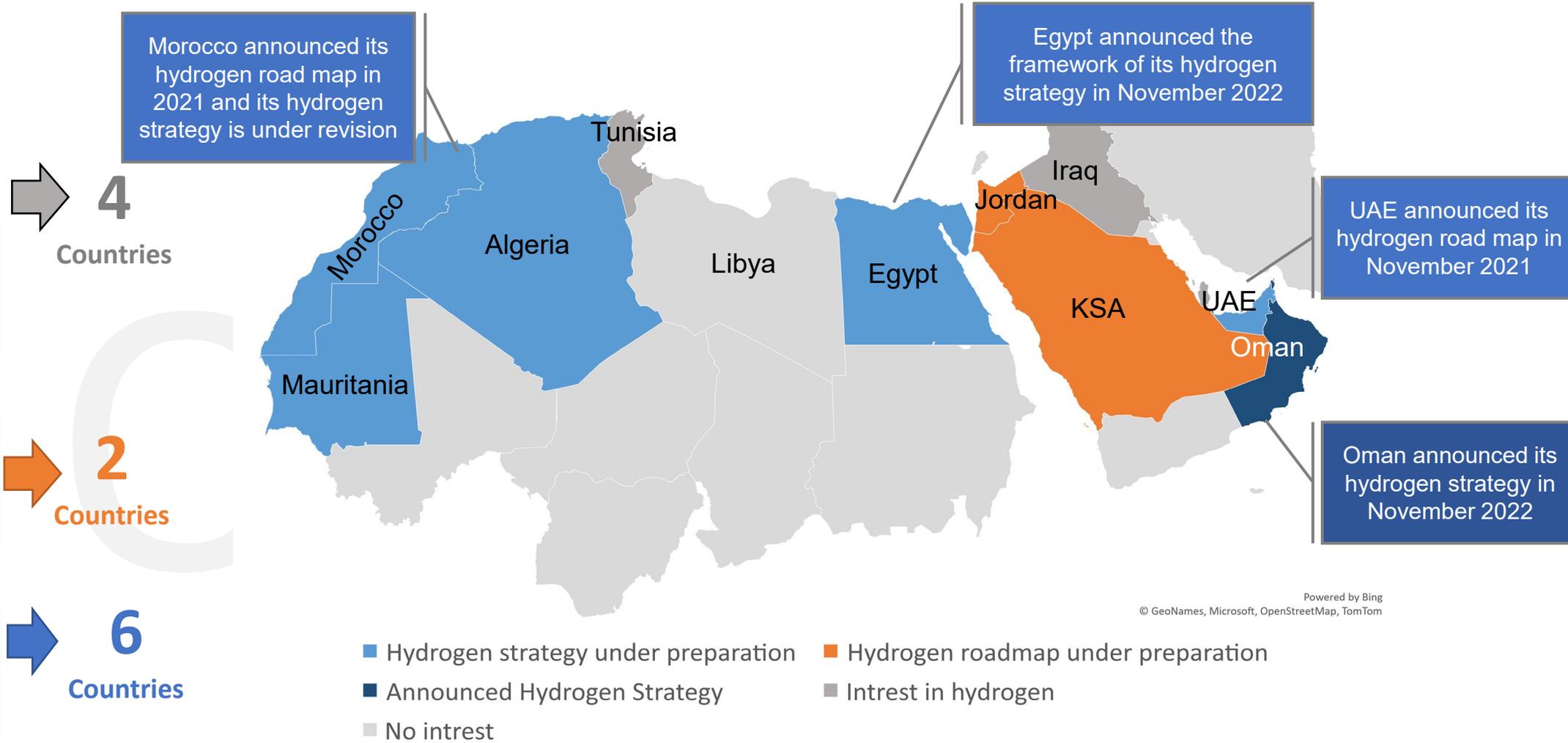
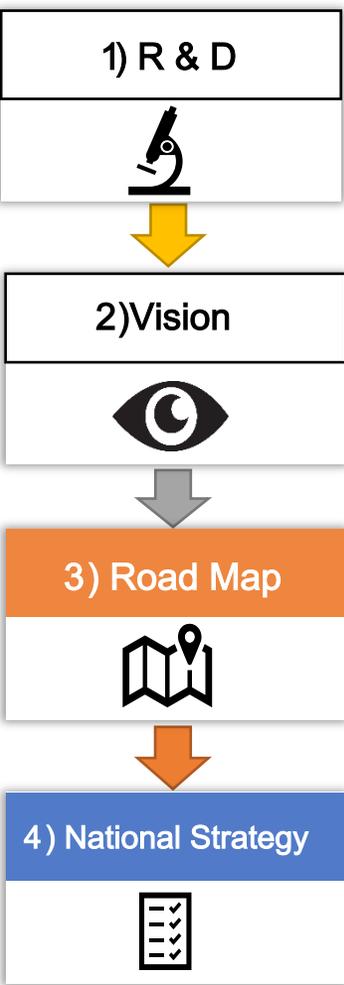
Egypt



% of global hydrogen market by 2040



Hydrogen Policies in the Arab Countries



The number of Arab countries that shows interest in Hydrogen is growing

Oil and Gas Sector is the Backbone of Blue Hydrogen and its derivatives



Existing infrastructure



- Availability of massive infrastructure in place and (refineries, transcontinental pipelines, LPG vessels)
- This will reduce the capital needed and improve the feasibility of blue hydrogen projects

Accumulated knowledge of oil & gas



- Application and upgrading if necessary of the existing knowledge gained from oil and gas sector.
- Skilled labor and man power

Depleted reservoirs



- Exploiting the huge data compiled over decades during exploration and development activities for carbon storage

Cost-competitiveness

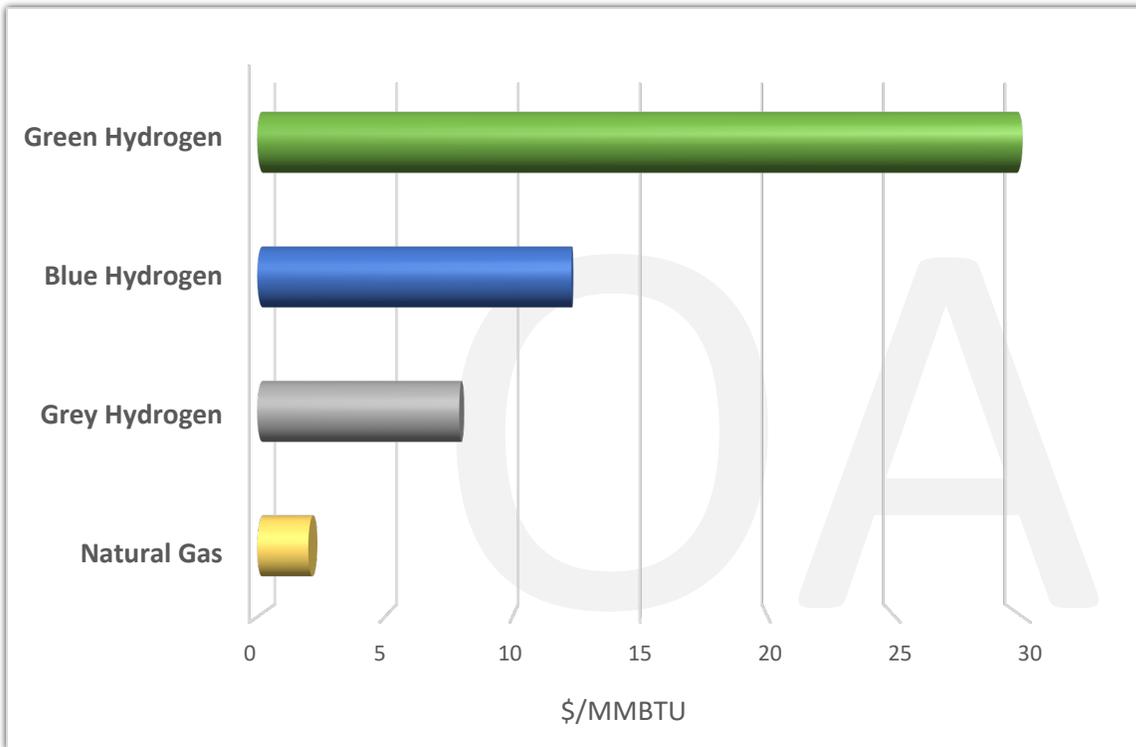


- Availability of cost-competitive natural gas resources makes the Arab region low cost producer of blue hydrogen and ammonia

Favorable Conditions for Blue Hydrogen Production in Arab Countries



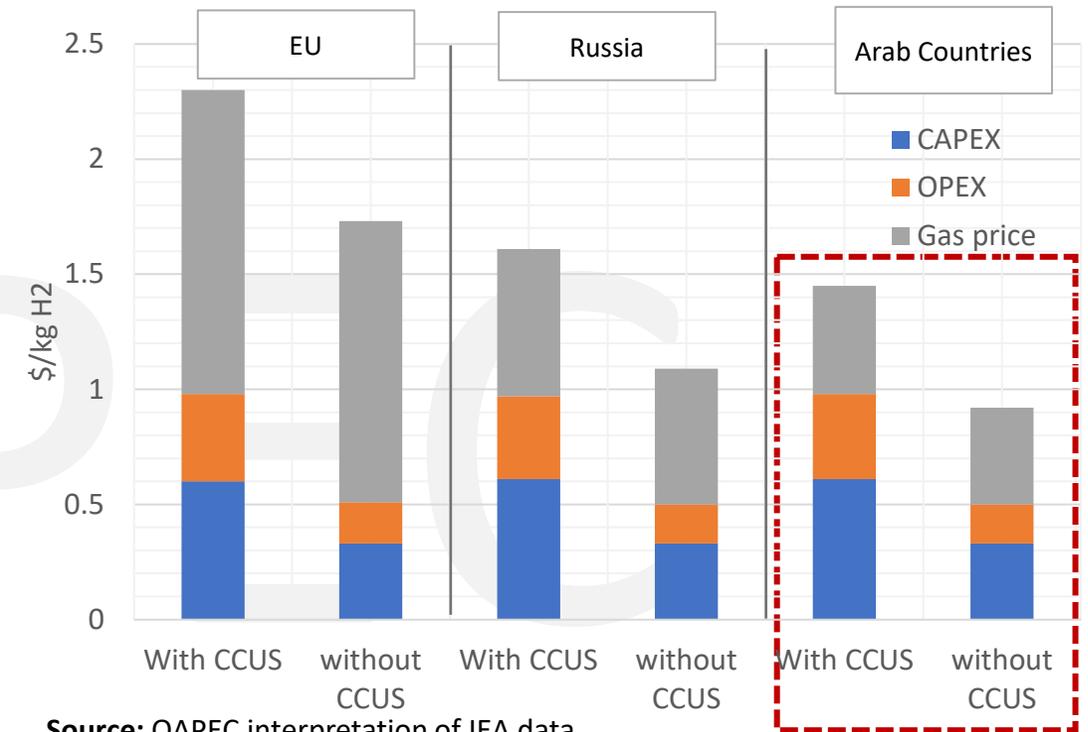
Production Cost of different types of hydrogen in comparison with natural gas price



Notes

- 8.8 kg of hydrogen is equivalent to 1 MMBTU
- Gas price is the wholesale gas price in the Middle East as per IGU 2021

Cost of (grey /blue) hydrogen production from natural gas in selected regions



Source: OAPEC interpretation of IEA data



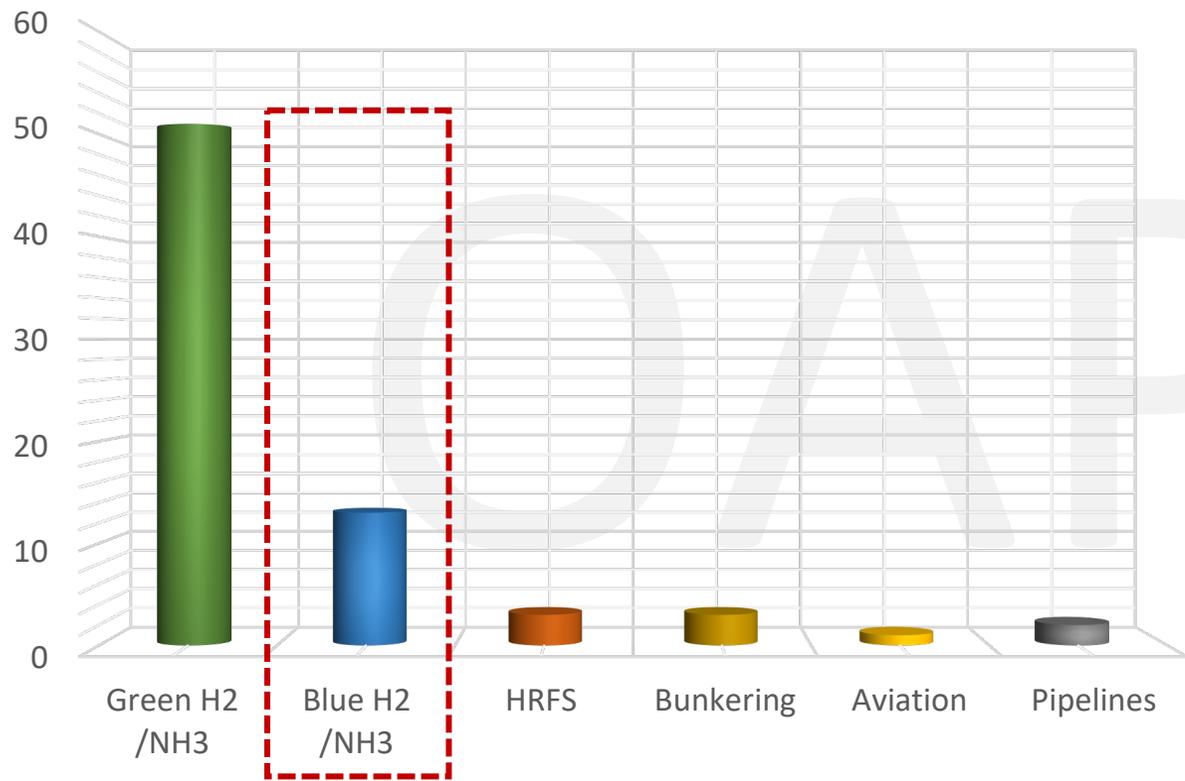
UNITED NATIONS

Announced Blue Hydrogen/Ammonia Projects in Arab Countries

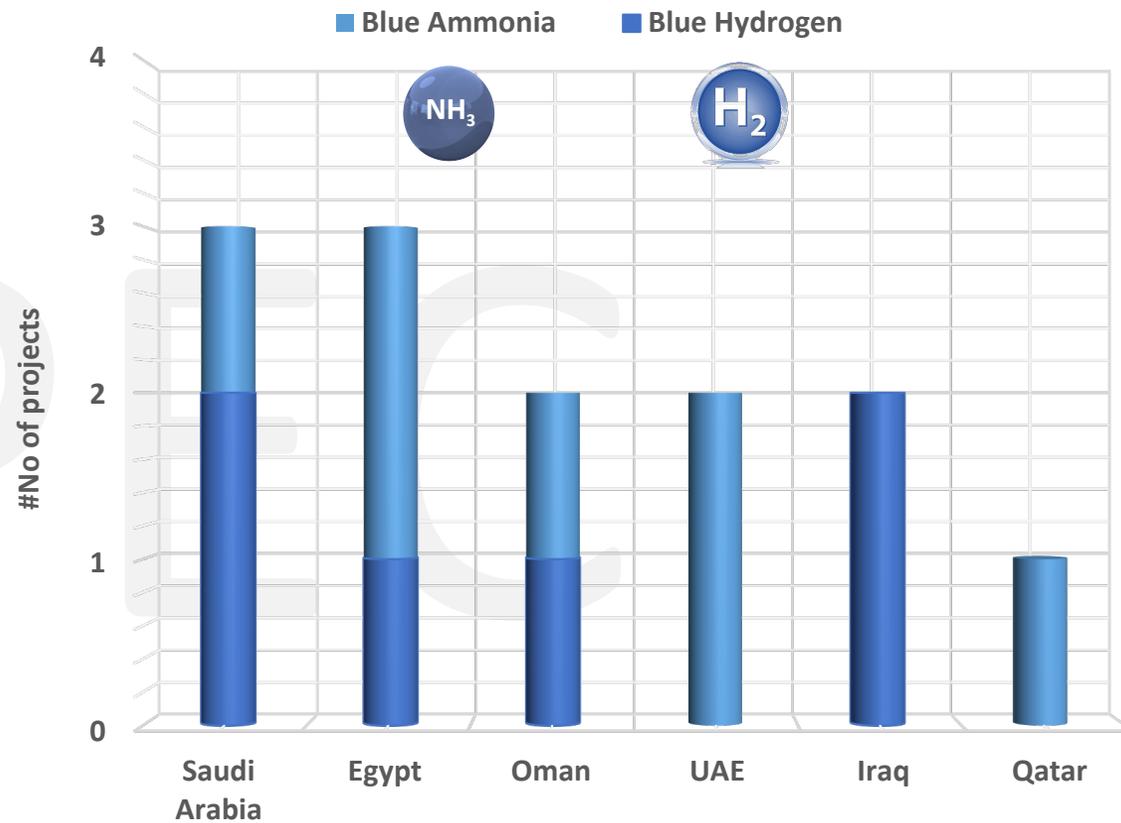


Overall announced hydrogen projects in the Arab region
As of 31 January 2023

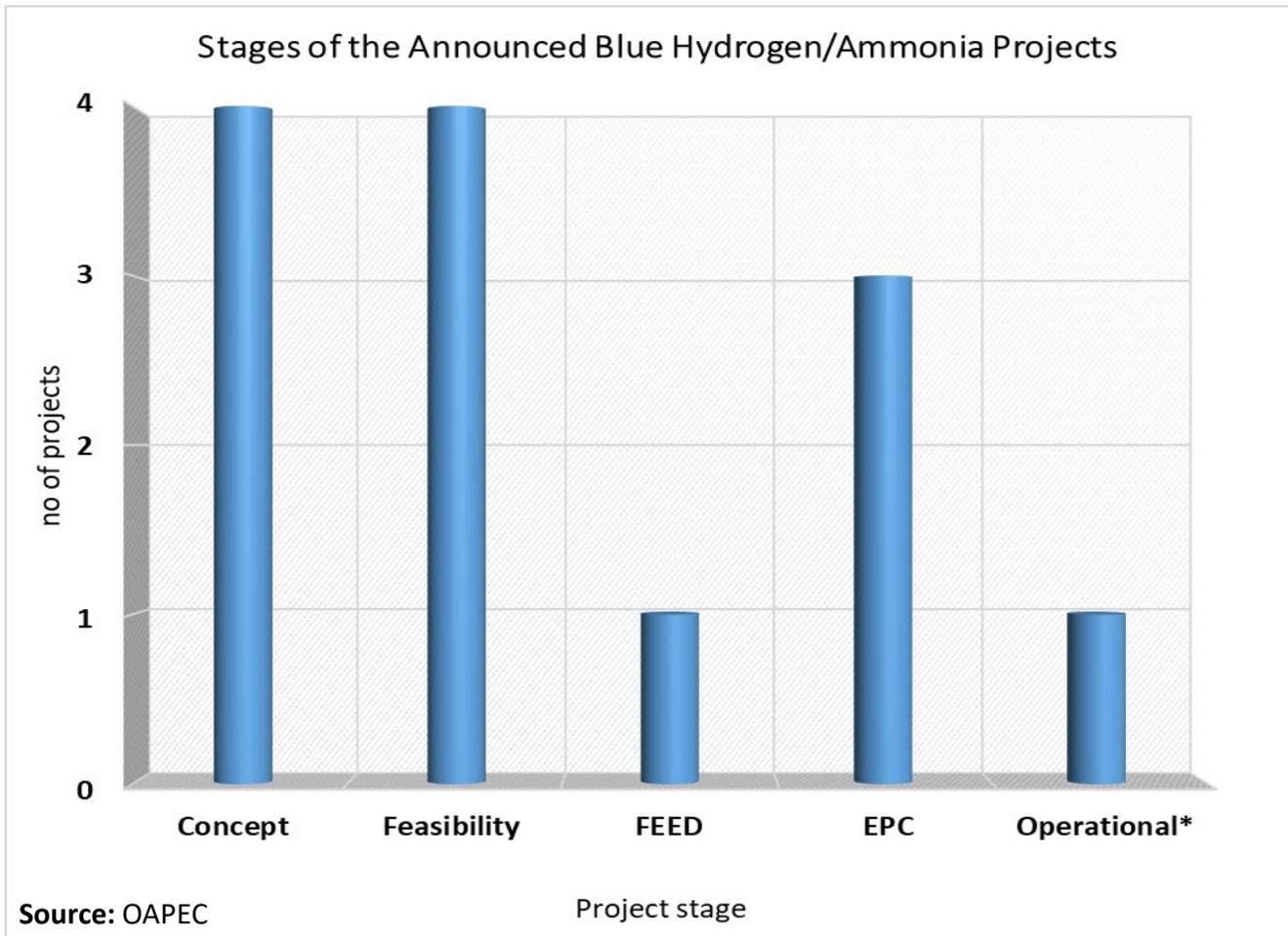
Planned blue hydrogen and ammonia projects, per country



Source: OAPEC



Source: OAPEC



Selected Major Projects with Awarded EPC contracts



Qatar Blue Ammonia Project
(1.2 Mt/y of blue ammonia)
Start up 2026



Taziz blue ammonia project
(1 Mt/y of blue ammonia)
Start up 2025



Al Jubail Blue hydrogen
(153 kt/y of blue H₂)
Start up 2025

*Aramco and the Institute of Energy Economics, Japan (IEEJ), in partnership with SABIC exported 40 tons cargo of blue ammonia from Al-Jubail Demonstration project



Oil and gas sector is the backbone of the blue hydrogen sector in the Arab region, thanks to existing infrastructure, accumulated knowledge and cost-competitive gas resources.



Many Arab countries expressed their interest in hydrogen for both export and local demand purposes.



The Arab region is on track to lead the global blue ammonia market with the first world-scale project to come onstream by 2025



Key message

Arab region has hydrogen market leader potential. Thus, international research cooperation and partnership with key players are seen as preliminary steps for faster hydrogen deployment in the region

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Thank you

