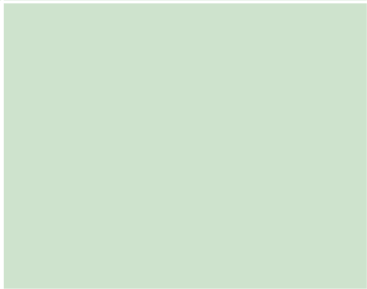


# MENA Hydrogen Alliance

Keynote by Dr. Andrea Lovato

Vice President & Head of Renewables Development



## Green Hydrogen – The key to decarbonization

Hydrogen has the potential to become the fuel molecule that powers **a clean global economy**.

It can be used as a **substitute for fossil fuels** in a large variety of applications – from heavy transport to steelmaking – and produces no pollution at the point of consumption.

Can be  
produced  
without  
carbon  
footprint

Can be  
transported  
over long  
distances

Has high  
energy  
density  
when  
compressed

Produces  
clean power  
and fuel

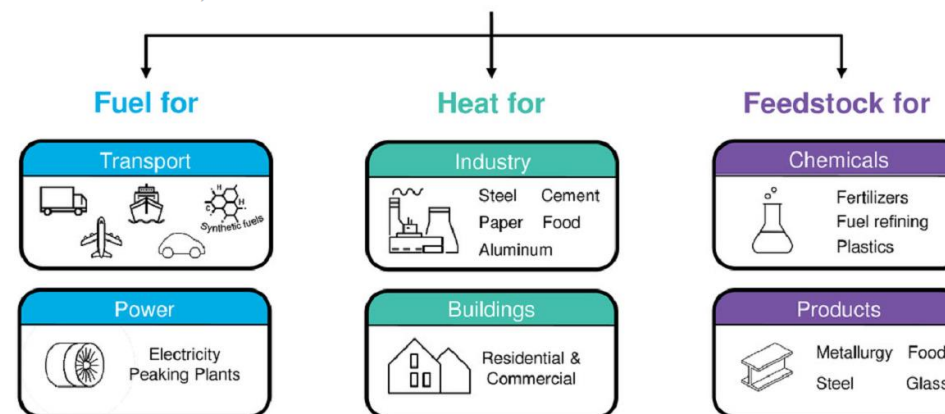
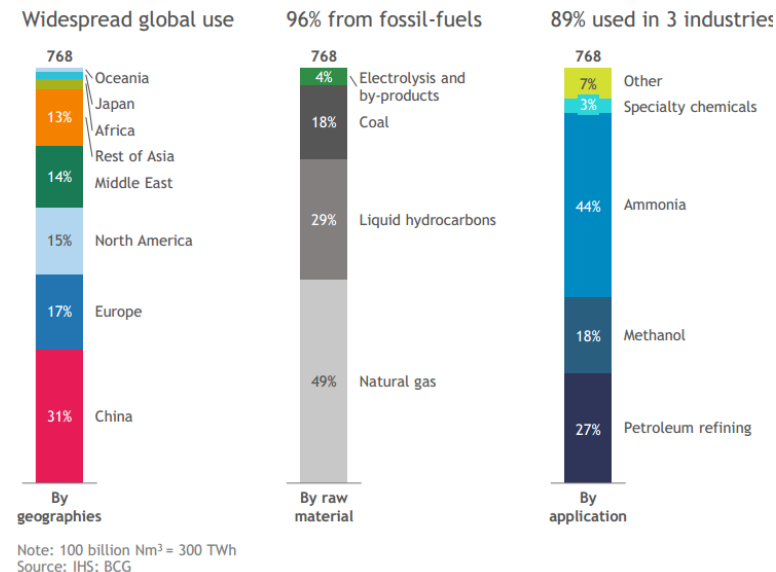
Safety  
similar to  
natural gas  
or  
petroleum

Clean  
Industrial  
feedstock

# Green Hydrogen To Account For 25% Of Decarbonization Needs To Achieve Climate Change Mitigation Ambitions

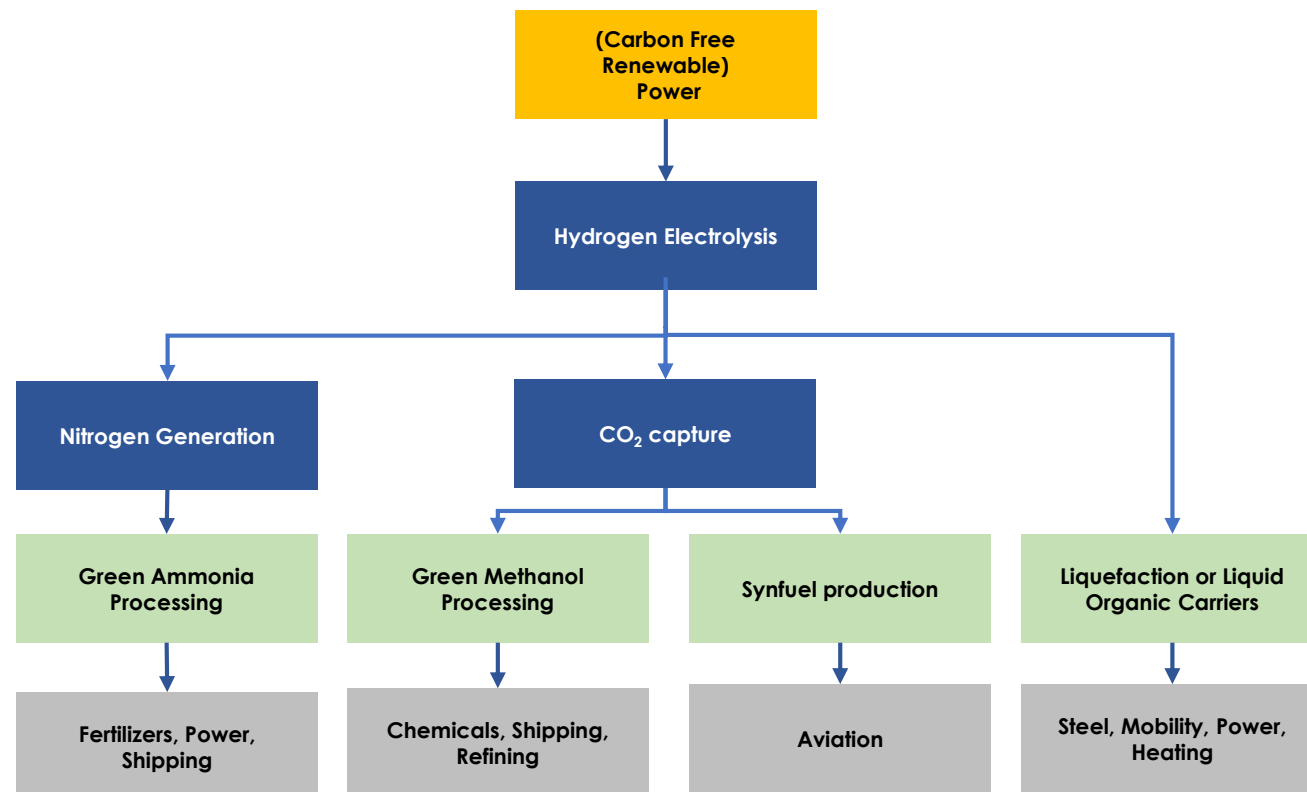
- 100% of current hydrogen needs are covered with fossil fuels, emitting **830 Mtons CO<sub>2</sub>/y**;
- Hydrogen is already broadly used globally – over **70 Mtons per year**, representing a market worth **105 bnUSD**.
- New applications for green hydrogen are likely to emerge as more countries/companies embark on the decarbonization path**

Global hydrogen market (billion Nm<sup>3</sup> per year)



# 3,710 TWh Of Renewable Electricity Would Be Required To Replace Current Hydrogen Uses

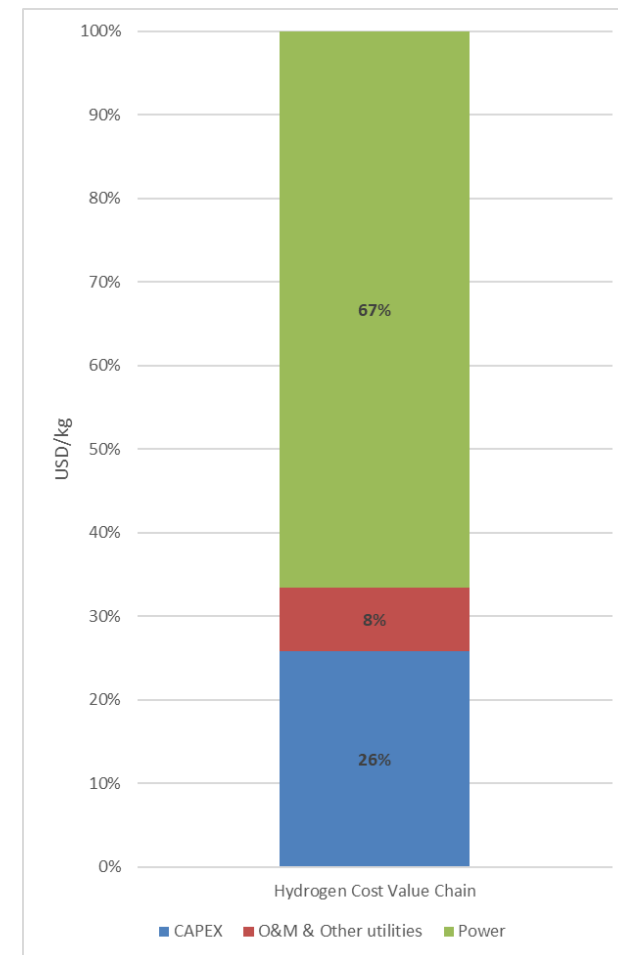
- Producing large quantities of **renewable energy at low cost and high capacity factors** is the main competitive factor to produce green hydrogen.
- Different forms of transporting and use of Hydrogen.



# Renewable Electricity – 70% Of The Green Hydrogen Cost Of Production

Hydrogen costs considerably more than natural gas as of today, however the cost of electrolyzers has been falling and is expected to continue to fall if **scale-up occurs**, supported by the continuous technology improvements and power cost decrease.

Levelized cost of hydrogen production from large projects



## Key Takeaways

- **Meeting climate targets requires a clean molecule – Hydrogen is the first contender** (especially for many hard-to-abate industries).
- **Renewable Hydrogen is currently expensive vs conventional Hydrogen, but costs are coming down** (driven primarily by power then electrolyser costs).
- **Transporting & storing Hydrogen requires significant infrastructure investment** (as Hydrogen is often incompatible with existing pipeline infrastructure).
- **A fully fledged hydrogen supply chain can enable fuel switching from natural gas to hydrogen for carbon-free dispatchable power.**
- **At scale, Electrolyser technology is likely to reduce cost and production of Renewable Hydrogen likely to be competitive from in Middle East, Australia other hubs** (given quality of renewable and Hydrogen storage resources)
- **Comprehensive policies, coordinated across government agencies, is critical to enable this transformation.**



Je vous remercie Danke obrigado  
 mihi koe рақмет cizre  
 Teşekkürler شكرا  
 நன்றி  
 謝謝 Asante  
 धन्यवाद  
 Terima kasih Ngiyabonga Tak  
 ありがとうございました  
 மகிழ்ச்சியில்  
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**Thank you**

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