

Shipping as enabler of climate action and energy transition

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IRENA 1.5C scenario: Some crucial aspirations

We need multifold increase in RE capacity deployment rate

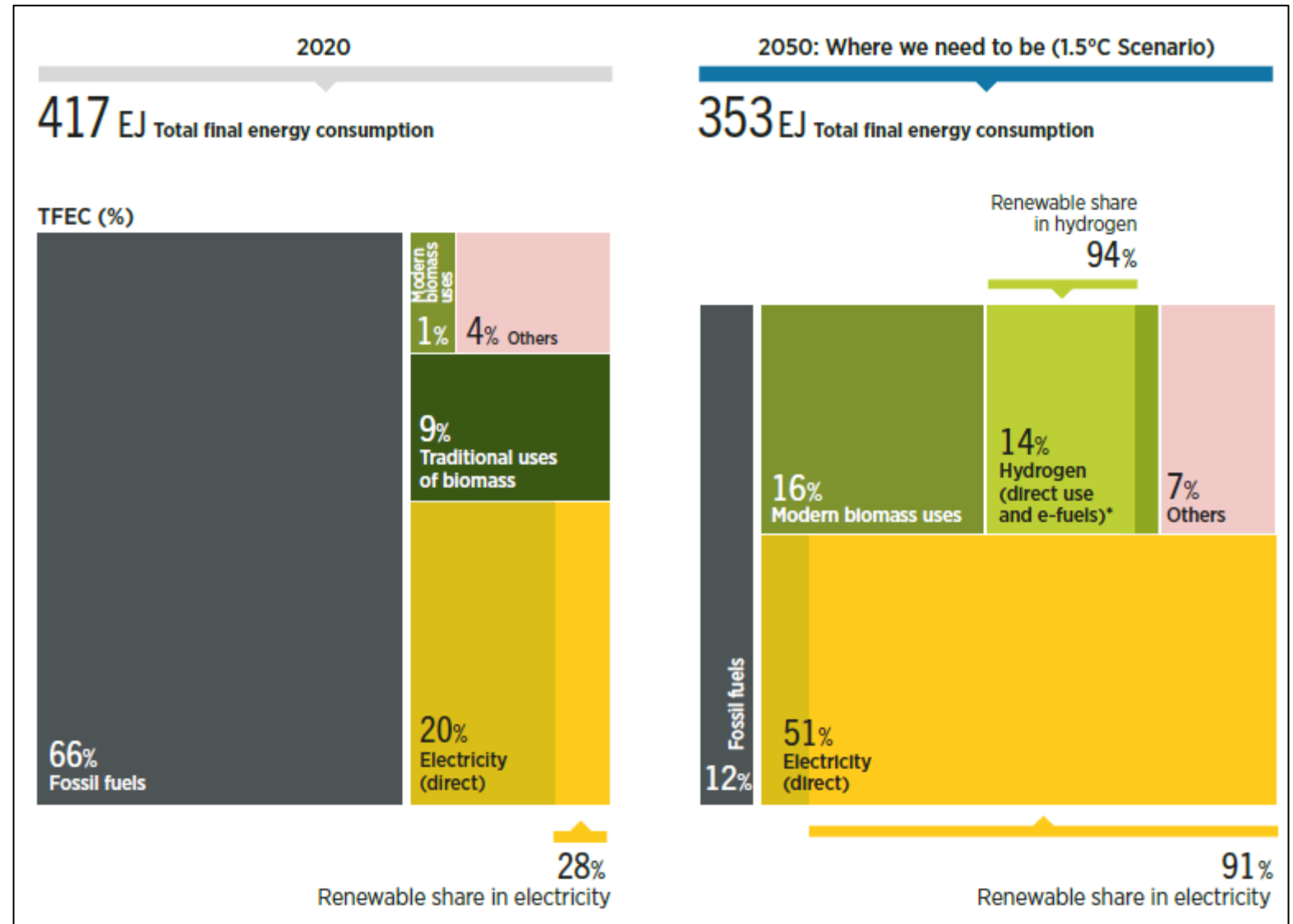
>3x Solar PV GW/yr

>4x Wind GW/yr

We need to develop hydrogen-based solutions

>500 Mt/yr
Clean Hydrogen

40 EJ
Clean Hydrogen consumption in industry



Trade opportunity for zero carbon commodities/fuels is large

1



International Shipping will be crucial enabler for e-fuels trade

2



New bunkering hubs of future can form in RE resource rich regions

e-Ammonia trade potential is also relatively high

A mere 1 cent/kWh electricity price differential would already justify **synthetic fuel trade** between regions

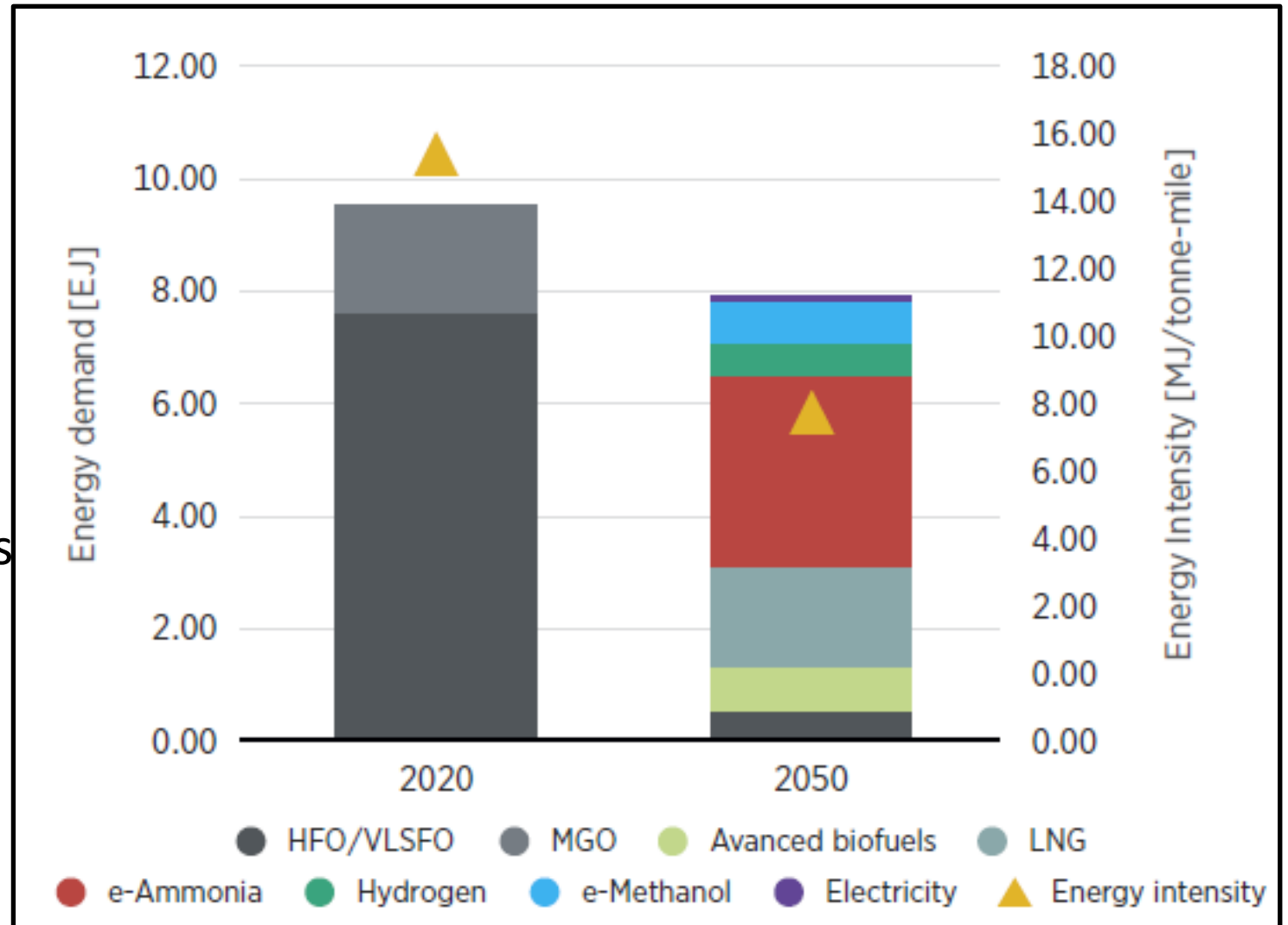
Energy price differential to justify production relocation

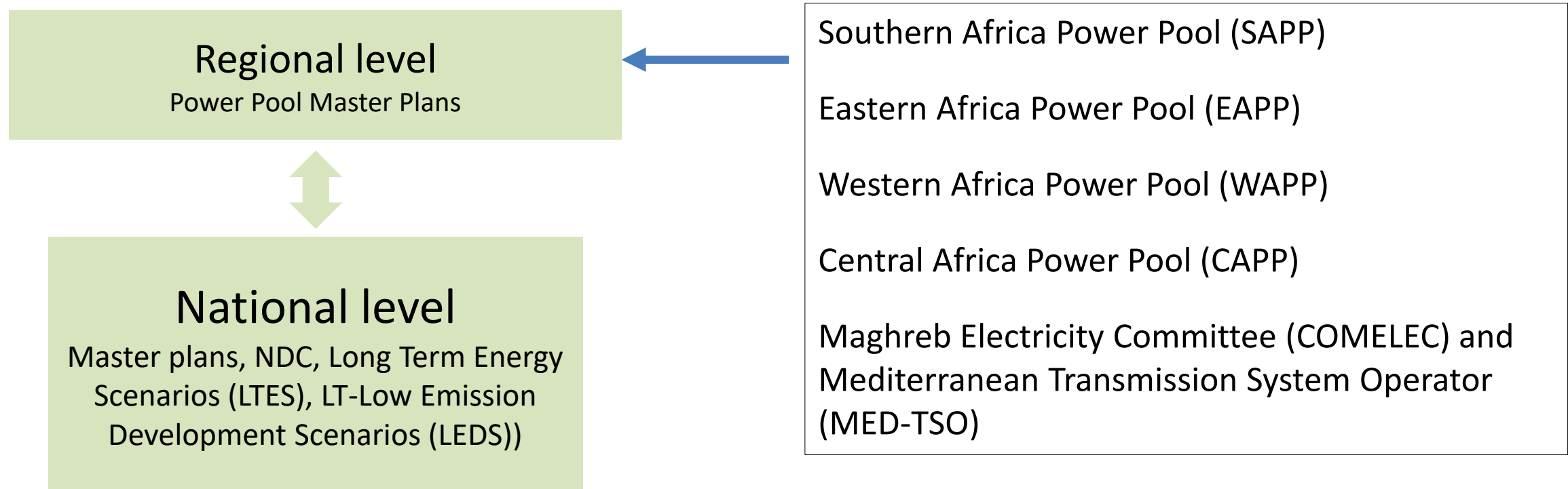


The pathway ahead: future fuel mix in shipping

2050 fuel mix for shipping sector (IRENA 1.5C scenario)

- 1 Zero-carbon fuel mix for shipping sector is markedly diverse
- 2 Solar/wind resource potential is vast and can scale hydrogen & derivatives production sufficiently
- 3 Emphasis should shift to demand



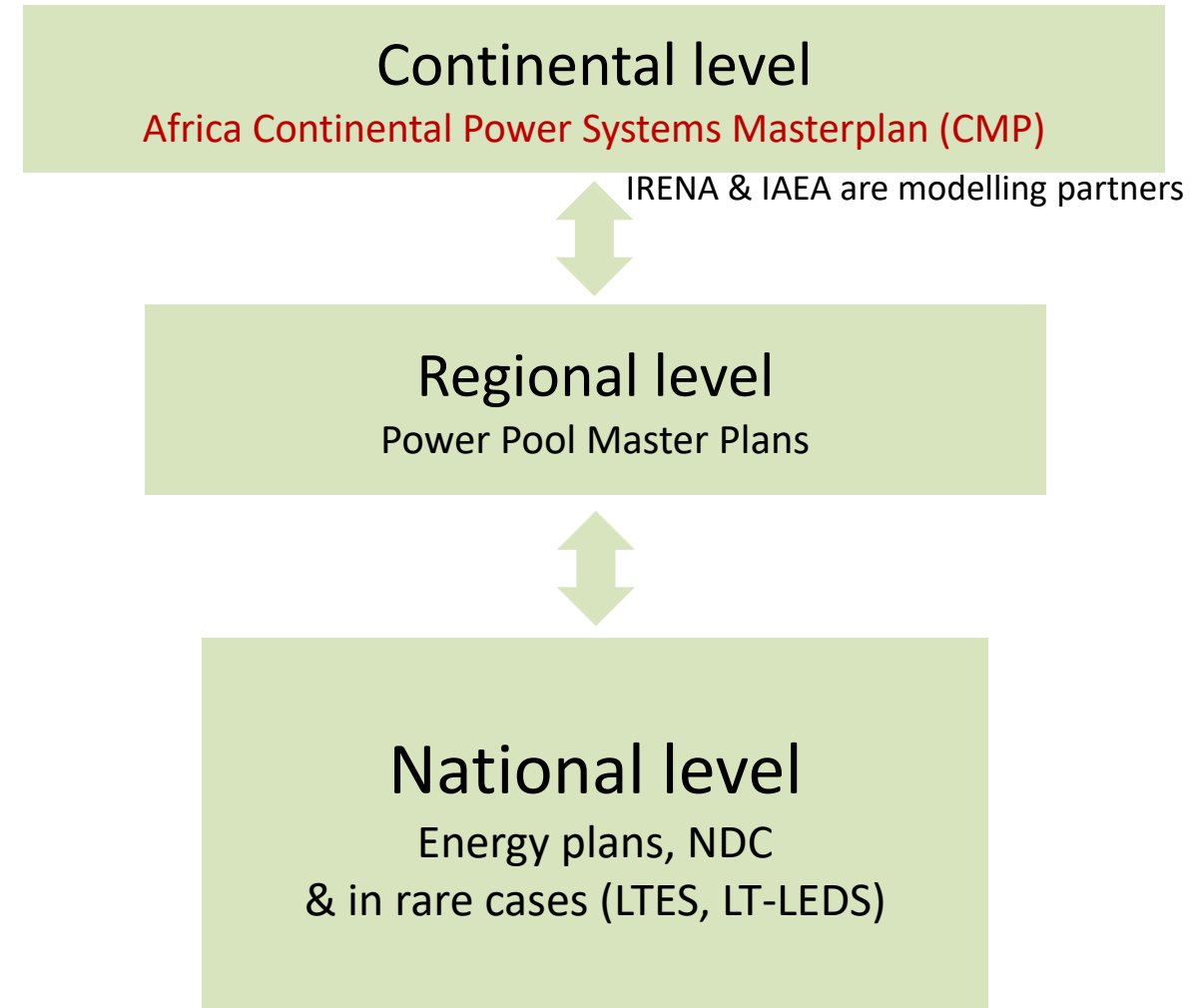


Maritime zero carbon fuel needs is missing across the planning hierarchy (even in the LTES & LT-LEDS)

Energy planning in Africa: What's achieved under CMP

- » CMP is an initiative of AUDA-NEPAD¹ to serve as blueprint for African Single Electricity Market (AfSEM).
- » Since inception in 2021, it has brought two key achievements for the continent
 1. Coordination among all African countries directly or via power pools
 2. Continentally integrated power sector planning that will prioritize pan African energy priorities

The needs for multi-sector decarbonization should be integrated in continental planning



Africa zero carbon fuels potential is high



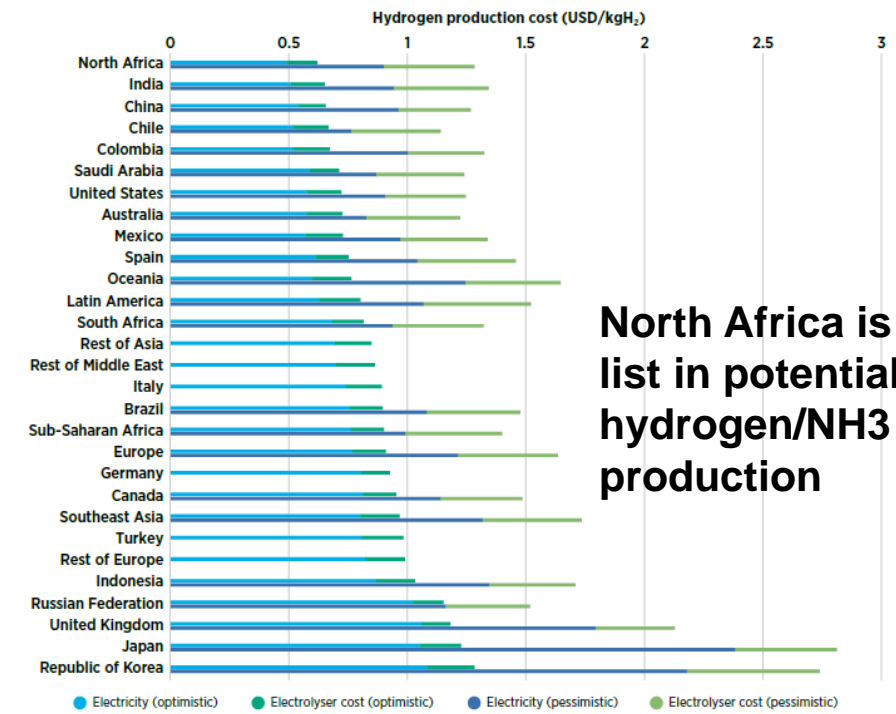
IRENA-AfDB Africa RE Market Report 2022

- ✓ South Africa can build on its long experience of producing synthetic fuels
- ✓ Several countries already have H2 strategies: Egypt, Mauritania, Morocco, Namibia, Nigeria, South Africa
- ✓ Being not trapped in established industry, Africa can leapfrog



IRENA Global Hydrogen Trade Outlook 2022

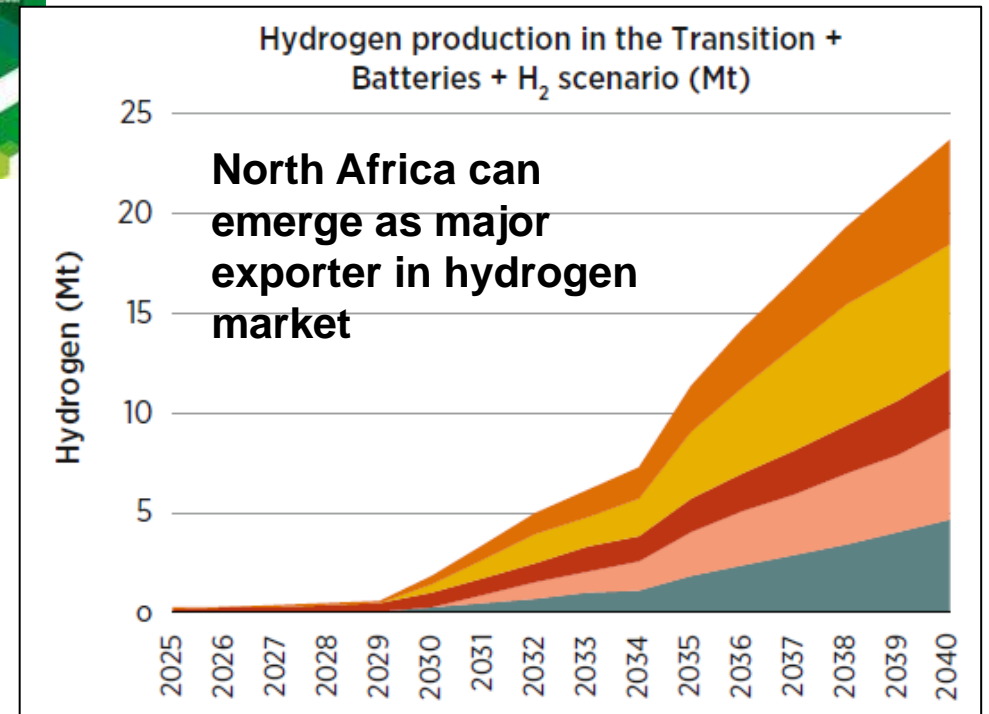
FIGURE 3.10. Levelised cost of hydrogen by region in 2050 for an *optimistic* and *pessimistic* scenario



North Africa is top of the list in potential least cost hydrogen/NH3 production



IRENA RE prospects study North Africa 2022





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