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

Source: IRENA World Energy Transition Outlook 2023 preview
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

Source: IRENA Global Hydrogen Trade Outlook 2022
The pathway ahead: future fuel mix in shipping

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

Source: IRENA World Energy Transition Outlook 1.5C scenario
Energy planning in Africa

**National level**
- Master plans, NDC, Long Term Energy Scenarios (LTES), LT-Low Emission Development Scenarios (LEDS)

**Regional level**
- Power Pool Master Plans

- Southern Africa Power Pool (SAPP)
- Eastern Africa Power Pool (EAPP)
- Western Africa Power Pool (WAPP)
- Central Africa Power Pool (CAPP)
- Maghreb Electricity Committee (COMELEC) and Mediterranean Transmission System Operator (MED-TSO)

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-NEPAD\(^1\) 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

\(^{1}\)African Union Development Agency – New Partnership for African Development
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

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

IRENA RE prospects study North Africa 2022

North Africa can emerge as major exporter in hydrogen market