European Commission

Technology factsheet:

Competitiveness of clean energy technology – Renewable Fuels of Non-Biological Origin

December 2023

Key technologies

There is currently no commercial production of RFNBOs and they depend on the availability of hydrogen and carbon or nitrogen sources.

tech 1

Technological Readiness Level (TRL) 4-9: e-Methanol e-Ammonia

tech 2

TRL 6-9: e-Kerosene

tech 3

TRL 7-8: e-Methane

Key value chain figures

- **Global investments during 2017-22:** EUR 1.06 bn, of which EU hosts 35% of active investments. Germany hosts half of all EU investments.

Key facts

Fact 1

The RNFBOs supply chain can generate a broad range of fuels for transport (maritime and aviation), as well as chemicals (such as e-methanol) and fertilizers (such as e-ammonia). They can serve as energy storage option and are important in the hard-to-abate sectors.

Fact 2

The production of RFNBOs requires large additional renewable electricity capacity and depends on the availability of renewable electricity and its price. The high RFNBO production cost is a key issue, mostly driven by the high cost of renewable hydrogen production and carbon capture.

Fact 3

Fuel synthesis rely on some commercial conversion technologies as Fischer-Tropsch synthesis, Haber-Bosch process and others as they were developed over the years to operate with fossil-based feedstock, and can be relatively easily be retrofitted to use green feedstock.

Scan QR code for more information on RFNBO