

E-Fuel: A techno-economic assessment of European domestic production and imports towards 2050

In the context of the EU long-term strategy of achieving net-zero emissions by 2050, the e-fuels technology could play an important role in the decarbonisation of the transport sector, mainly in hard-to-abate sectors such as maritime and aviation.

Concawe conducted a techno-economic study, in partnership with Aramco, and in collaboration with LBST and E4TECH as consultants, to analyse different e-fuels pathways, comparing their domestic production in EU (in countries such as Norway, Germany or Spain) versus their import to EU from favourable regions in the world (such as Saudi Arabia or North Africa).

Sensitivities to key techno-economic parameters and a deep dive on: a) intermittency of the grid, b) optimisation of the e-fuels unit size and storage, and c) centralised vs decentralised production of e-fuels was included as part of the scope.

The results concluded what are the potential pathways for e-fuels deployment in Europe, what are the conditions for potential business cases and where e-fuels facilities could be best located.