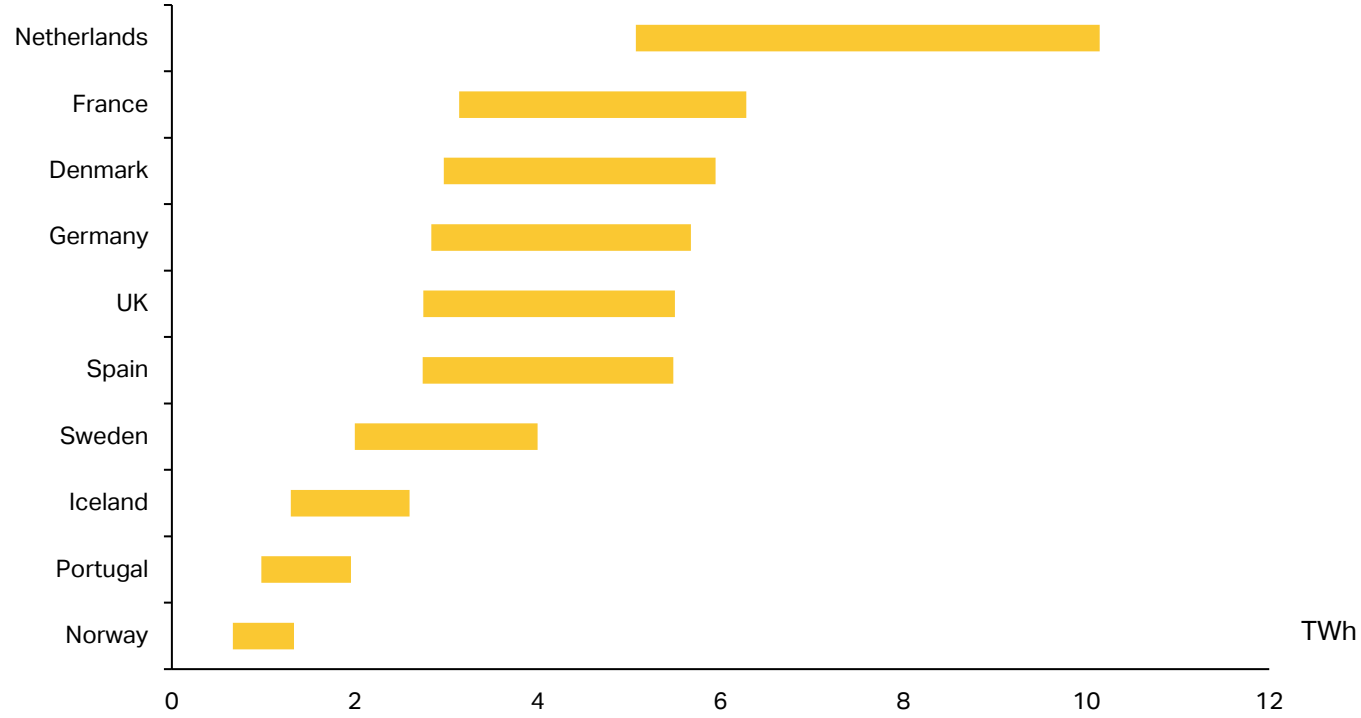
Chart of the Week

13 February 2026

Charging e-SAF Supply in 2030

Estimated electricity required for the announced e-SAF capacity in Europe in 2030



Source: IATA Sustainability and Economics, National Renewable Energy Laboratory, Nyholm et al (2025), various government websites

- E-SAF is defined as a renewable fuel of non-biological origin and requires a significant amount of renewable electricity to produce. Per tonne of e-SAF, 20 to 40 megawatt-hours (MWh) of electricity can be required. In the countries in Europe with announced e-SAF plans, the electricity needed for this purpose alone could range from 0.7 to 10 terawatt-hours (TWh).
- Countries including the Netherlands, Germany, and the UK have published ambitious e-SAF plans by 2030, though their share of renewables in their electricity generation in 2024 is relatively low, at just over half of total generation. In the Netherlands, the electricity required for the planned e-SAF production in 2030 could consume 31% of the country's total renewable grid capacity in 2024 - starkly illustrating how e-SAF plans cannot be realized unless the supply of renewable electricity increases dramatically. Countries such as Norway, Portugal, and Iceland have announced more modest e-SAF plans for 2030, and benefit from a higher share of renewables in the grid in 2024 – around 90% or even higher. In these countries, e-SAF production will use a lower share of all available renewable electricity initially, but here too overall renewable power generation could put a lid on the total e-SAF capacity in the longer term.
- The total announced capacity that Europe plans to build is just over 1.5 million tonnes (Mt) in 2030, representing 80% of global e-SAF capacity that year, according to currently announced plans. For airlines to reach net zero by 2050 approximately 205 Mt of e-SAF will be needed. The optimal location for e-SAF production is clearly where renewable electricity can be produced in abundance and at competitive prices. Europe runs the risk of not having enough renewable energy production and it being too expensive to make the e-SAF plans a reality.

IATA Sustainability & Economics
economics@iata.org