

Liquefaction by equivalence is a key enabler for biomethane growth and transport decarbonisation

Biomethane in its liquefied form (bio-LNG) is critical for transport decarbonisation, in particular heavy-duty road transport and the maritime sector. Bio-LNG offers an alternative to the heavily diesel-dominated truck fleet, while LNG-powered vessels now dominate global alternative fuels ship orders. Decarbonising heavy mobility with bio-LNG is vital for meeting EU climate targets, as recognised in the FuelEU Maritime and in the recent IMO discussions.

Two equally valid pathways are available for supplying bio-LNG. One is physical liquefaction, which can occur at the production site or a centralised facility. In the case of on-site liquefaction, biomethane is produced and converted into liquid form at a facility directly connected to the production site, notably in areas without a gas grid connection. Centralised liquefaction involves extracting and converting biomethane into bio-LNG at a dedicated facility, typically chosen for logistical efficiency or demand concentration. The second pathway is liquefaction by equivalence, where bio-LNG is supplied by using LNG terminal infrastructure connected to the EU gas grid and a biomethane producer, also connected to the gas grid. This leverages existing facilities to optimise liquefaction flows, from gaseous biomethane injected anywhere in the EU gas grid. The integrity of the chain of custody is ensured by implementing a certified mass balancing system.

Recognition of bio-LNG through liquefaction by equivalence in terminals is essential for maintaining the coherence and effectiveness of EU climate policy: it encourages increasing production of biomethane in the EU. Under the equivalence system, purchasing bio-LNG triggers injecting an equal volume of biomethane into the gas grid, verified through the RED. This approach optimises existing infrastructure use, avoids redundant energy consumption and GHG emissions. This system is indispensable: refuelling a single vessel solely with physically liquefied bio-LNG would require up to 400 tanker trucks. Overall, liquefaction by equivalence enables users the necessary access to a much larger pool of supply.

Policy recommendations:

- **Confirm liquefaction by equivalence as a viable pathway:** a revised Implementing Regulation 2022/996 should confirm that no physical liquefaction step is required when converting consignments of energy from gaseous into the liquid state, if an LNG terminal is part of the same mass balance system.¹
- **For accounting emissions in liquefaction by equivalence, the revised RED Annex VI should maintain the ISCC approach**, relying on a default value derived from typical EU liquefier energy consumption data² multiplied by the national electricity mix. **For accounting emissions in physical liquefaction** the real values for the liquefaction could also be used. **In both cases, the carbon intensity from the most recent available data of the national electricity mix** should be used for the calculation.

¹ According to the IR, BioLNG and bioCH₄ are part of the same product group.

² Referring to the liquid biomethane pathway 8.3 in annexes of the [JEC WTT report v5](#)

Signatories



SEA-LNG

