

Local Value Creation and Decarbonisation

Giacomo Di Foggia *, Massimo Beccarello *, Cristina Cavicchioli ^, Marco Borgarello ^

* Department of Business and Law, University of Milano-Bicocca,

^ RSE Ricerca sul Sistema Energetico S.p.A.

Abstract

We analyse the socio-economic impacts of the development of the biomethane supply chain, with a short-term horizon. Starting from the regional technical potential, four exploitation scenarios are constructed (100%, 75%, 50% and 25%) to estimate effects on employment, the activation of local supply chains, and direct and indirect economic impacts.

The analysis highlights a short supply chain structure, with an average supply radius of 15–30 km, integrated with the agricultural sector and characterised by a high capacity to retain value within the territory. Employment impacts are distributed throughout the value chain – biomass collection and transport, plant management and maintenance, upgrading, technical and administrative services – with significant indirect effects on agriculture, logistics and professional services.

From an industrial and perspective, biomethane represents a concrete lever for the decarbonisation of energy uses (Scope 1 and 2), promoting the replacement of fossil gas in manufacturing sectors and generating synergies with the circular economy and waste management. The overall territorial cost–benefit assessment is favourable, despite critical issues related to authorisation complexity, investment costs, and social acceptability.

The work contributes to the debate on energy transition policies, highlighting how biomethane, beyond reducing emissions, can act as a territorial industrial infrastructure capable of strengthening local competitiveness and socio-economic resilience.