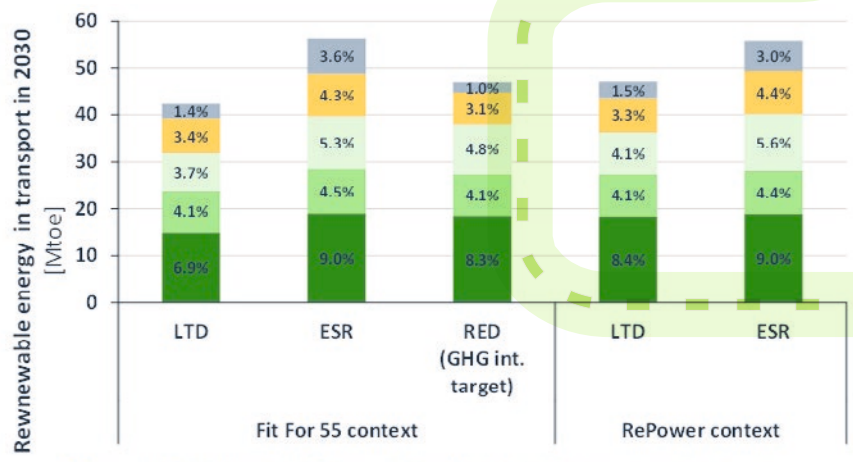
European Commission

Development of outlook for the necessary means to build industrial capacity for drop-in advanced biofuels

Objective

Identification of the factors for industrial growth of advanced and sustainable biofuels production in the EU under the pertinent EU policy and respective regulatory framework

Renewable energy in transport under various scenarios by 2030



LTD: Limited Technology Deployment **ESR:** Effort Sharing Regulation

Note: Excluding caps and multipliers. The 29% RES-T minimum target of the RED provisional agreement is met in the LTD scenarios. The conditional -14.5% GHG intensity reduction target is met in the RED scenario. Source: PRIMES-TREMOVE

Methodology

Exploitation of up-to-date industrial capacity data and plans from relevant stakeholders active in the sustainable transportation sector

Analysis of the potential demand for advanced drop-in biofuels by modeling

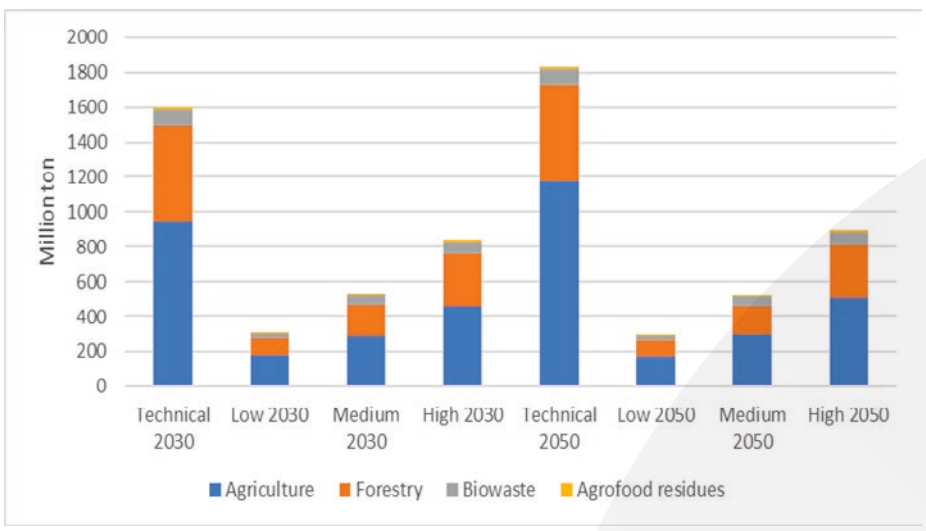
Determination of the resource availability and potential supply, technological maturity, and social & environmental impacts

Identification of the needs for relevant investments and actions to accelerate the industrial outlook transformation through new capacity building

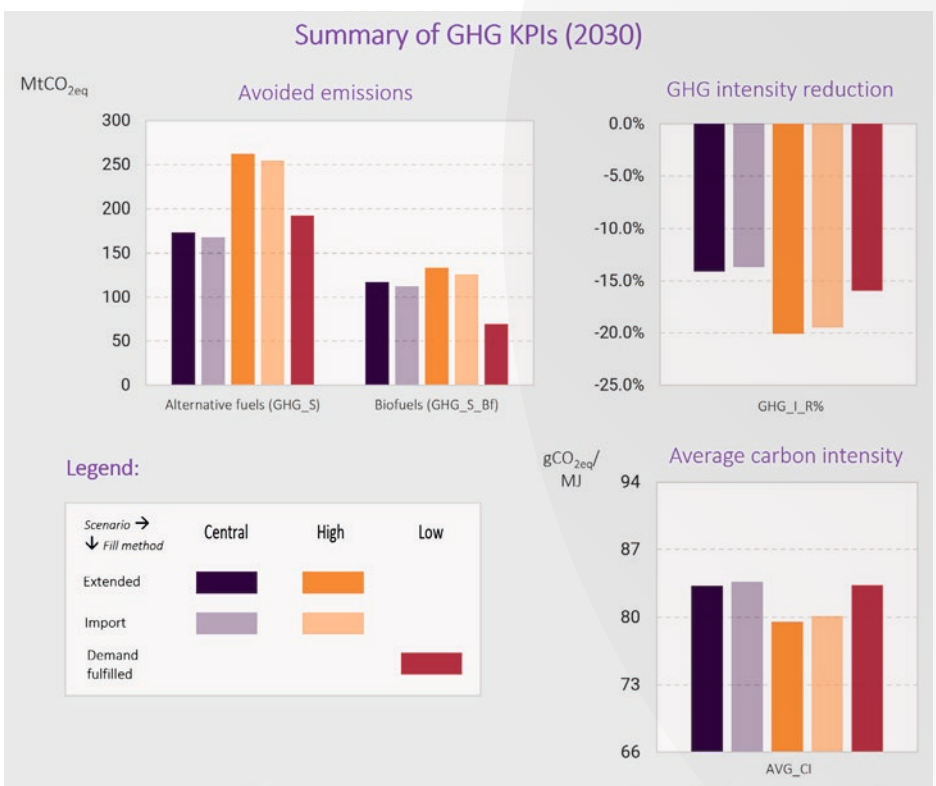
Key message

Biofuels have a vital role to play in helping reduce emissions in the transport sector as part of the FF55 and the climate neutrality goals, while contributing to increasing the EU's industrial competitiveness, gross domestic product, and net employment. Such role is expected to further increase in the future, when advanced biofuels will become more and more available thanks to scale-up to full commercial technologies, processes, and value chains, driven by ambitious policies and sectorial targets and fostered by an EU strategy and R&I support.

Biomass potential in technical, low, medium, and high mobilisation in 2030 and 2050



GHG KPIs in the different scenarios for avoided emissions, GHG and Carbon intensities



Findings

Biofuels in transport have a particular role to play towards 2030: their demand in the EU could increase by a factor of up to 2.5, compared to 2021 to meet policy climate targets

Industry declares ready to invest and estimates that the capacity expansion, in EU, for advanced biofuels and biomethane, satisfying demand of all sectors could reach 23.6 Mtoe/y in 2030

Under certain conditions, demand for advanced biofuels may be even higher making the biofuel industry strategically important for the EU in order to ensure a timely and cost-effective delivery of emissions savings reduction

A strong regulatory, financing, and technological effort is needed together with a strategy and a roadmap for the EU to build the necessary capacity to scale up advanced biofuel production and to mobilize the required sustainable biomass feedstock domestically

Towards 2030, the most important biomass types to be further mobilized are primary residues from arable crops, manure, and stemwood and primary forestry residues, with the support of R&I

Emissions avoided by biofuels range from 70 to 126 MtCO2eq/yr in 2030. Biofuels of Annex IX Part A account for 27 – 65 MtCO2eq/yr, while those of Part B account for 10 – 15 MtCO2eq/yr

Potential EU impact: The GDP contribution is 0.2% in total EU GDP, while the employment increases up to 220,000 new jobs in 2050

The project was executed by a Consortium comprising:

eXergia CLIMATE CHANGE CONSULTANTS · Politecnica di Torino · BEST Bioenergy and Sustainable Technologies · btg biomass technology group · WAGENINGEN UNIVERSITY & RESEARCH · E3Modelling Energy Economy Environment

Research and Innovation