Editorial

Biofpr Biofuels Bioproducts & Biorefining

Contributing to a European Bioenergy Trade Strategy for 2020 and Beyond

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Modern bioenergy was recently called the "overlooked giant of the renewable energy field," by Dr Fatih Birol, the IEA's Executive Director. It's latest market forecast shows that modern bioenergy will likely have the biggest growth in renewable resources between 2018 and 2023, underscoring its critical role in building a robust renewable portfolio and ensuring a more secure and sustainable energy system.

Part of the recent growth of modern bioenergy was made possible by international trade of biomass for energy – which has increased strongly in the past two decades. As shown in this issue, about 2% of all bioenergy used nowadays is traded internationally - prominent examples are wood pellets, ethanol and biodiesel, which are all shipped across the globe.

This trade is typically occurring between regions with an abundant supply of biomass (such as Canada, the US and Brazil), and regions with a demand for the resources to meet renewable energy targets, e.g. for electricity production or transport fuels. Biomass trade has been able to mobilize under-utilized biomass resources in many parts of the world, often also enabling local use as well once the supply chains are in place. But biomass trade has also been facing a number of challenges: logistic chains need to be set up and optimized, biomass markets are often still in their infancy due to a lack of fungible products, and international sustainability governance frameworks have to be implemented and monitored.

This special issue bundles key insights from two major projects who have looked at these challenges in detail.

The main aim of the BioTrade2020plus project was to provide guidelines for the development of a European Bioenergy Trade Strategy for 2020 and beyond. It contributed to strategies to ensure that imported biomass feedstock is sustainably sourced and used in an efficient way, while avoiding distortion of

other markets. The work carried out included an analysis of the sustainability risks of current and future lignocellulosic biomass and bioenergy carriers for potential sourcing regions, such as the US, Ukraine, Brazil, Eastern Africa, Colombia and Indonesia. The BioTrade2020plus was supported by the Intelligent Energy for Europe Programme of the European Commission.

IEA Bioenergy Task 40, part of the IEA Bioenergy Technology Collaboration Programme, has been looking at biomass trade related issues since 2004, publishing amongst others market overviews of e.g. wood pellets, waste wood, wood chips and liquid biofuels, investigating the performance of logistic chains, and working on different ways to ensure the development of sustainable biomass supply chains.

The contributions to this special issue show amongst others that there are substantial volumes of sustainable biomass that may still be mobilized in the years to come, but this will require significant efforts. Practical challenges ahead include further developing cost-efficient logistic chains to mobilize difficult resources such as sugarcane straw or empty fruit bunches, and at the same time further improving the GHG performance of supply chains to meet the new ambitious sustainability targets as set under the Renewable Energy Directive 2. More fundamentally, trade of biomass commodities needs to be part of the strategy to integrate bioenergy in the circular bioeconomy, making sure that trade and deployment of bioenergy go hand in hand with achieving SDGs and other policy goals.

Looking ahead, it is likely that biomass trade will further increase, driven by new demand, e.g. for biorefineries, to produce biobased chemicals and fuels for the maritime and aviation sectors, but also to replace coal for electricity production in e.g. East Asia. Possibly, this will also mean new ways of trading biomass commodities – the first signs of emerging trade of e.g. aviation biofuels and biomethane are already visible.

Long-term forecasts by integrated assessment models show that by 2050, globally-traded biomass volumes might (have to) increase to a size similar to the current trade of fossil fuels in order to make supply and demand meet. But such scenarios can only unfold if they are supported by a wide range of stakeholders and if the challenges sketched above are met. With this special issue, we hope to make a contribution laying out options how this can be achieved.

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