

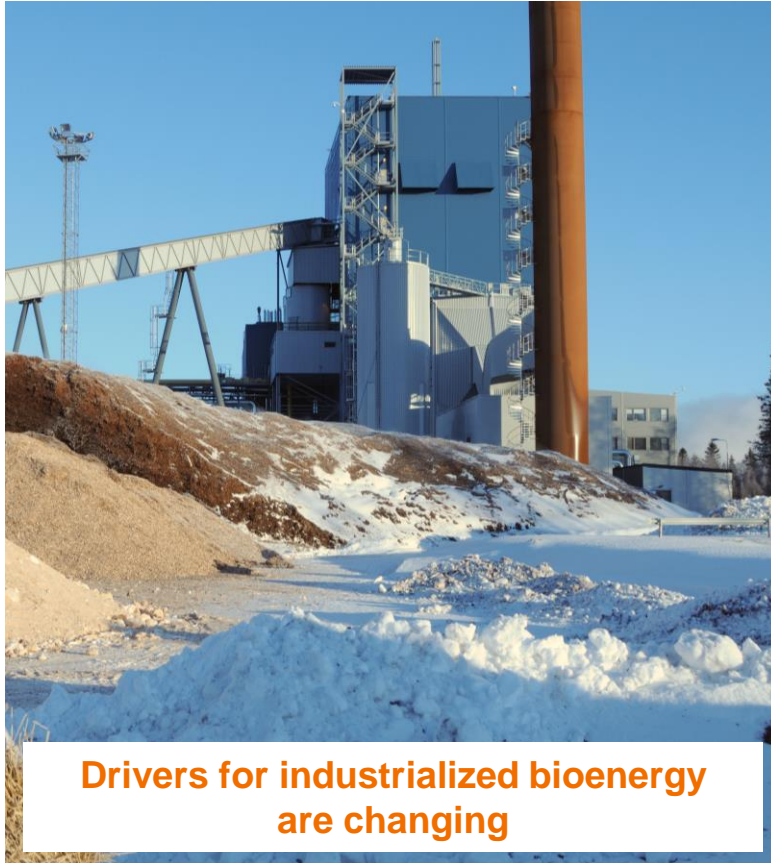
Bioenergian Talvipäivä

Comments on the role of bioenergy

Elina Mäki
Research Scientist, VTT

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Globally bioenergy develops in two paths

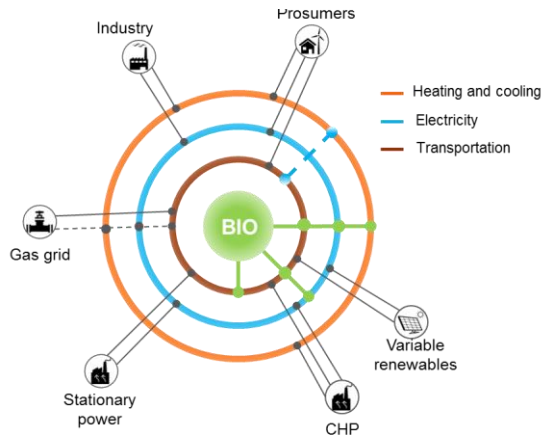


Trends for industrialized bioenergy

SECTOR INTEGRATION AND BALANCING OF ENERGY GRIDS

In countries where wind and solar are expected to play a dominant role in the energy transition, the integration of these intermittent energy sources to the power grid places significant pressure on the grid operators.

The future energy system will be more integrated as it is today, and balancing the complex system will require more efforts than before. Bioenergy can be a central part of the system by integrating and balancing different sectors and by providing long-term storage option.



ENABLING TRANSITION AND DEBOTTLENECKING HARD TO DECARBONISE SECTORS

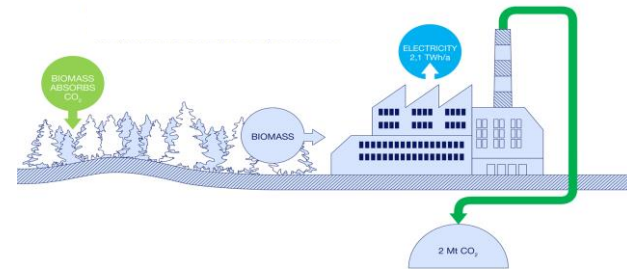
The electricity sector is decarbonising faster than other sectors due to the multiple cost-efficient options available. For heat production, long-haul transport and industrial applications, which are hungry for hydrocarbons and high temperature heat, the situation is not so easy.

Biomass and biomass residues will play a significant role as energy carriers suitable for drop-in use. Combined with clean renewable electricity, biomass can offer a sustainable source of carbon for drop-in energy carriers in the hard to decarbonise sectors.

AN ENABLER FOR NEGATIVE EMISSIONS

Use of biomass together with CCS (carbon capture and storage) offers potential for a technological solution removing CO₂ from the atmosphere on a lifecycle basis.

The advantage with Bio-CCS, or BECCS, is that CO₂ can be removed at the same time as producing energy or products, thus creating positive revenue streams for the concept. As most of the IPCC scenarios incorporate at least some if not significant amounts of CO₂ removal depending on the level of overshoot, the need for these ready-to-be-deployed technologies will be emerging before 2040.



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the obvious

Elina Mäki
Elina.Maki@vtt.fi

@VTTFinland

www.vtt.fi