

## FACTSHEET: ALTERNATIVE FUELS WITHOUT THE BIOMASS

In 2021, a new phase of renewable energy policy starts in Europe under the revised Renewable Energy Directive (RED II). Alongside support for biofuels, the new policy gives renewed emphasis to two other types of alternative fuels. Renewable fuels of non-biological origin (RFONBOs) are produced from other forms of renewable energy, primarily renewable power, and recycled carbon fuels (RCFs) are produced using the residual fossil energy in certain types of wastes and by-products, such as waste plastics and industrial off-gases.

There is potential for GHG savings from both RFONBOs and RCFs but, if not properly regulated, there is also the possibility of failing to deliver benefits or even of increasing net GHG emissions. The European Commission is due to enhance the regulatory treatment of these fuels with forthcoming 'delegated acts'<sup>1</sup> over the next two years. The study 'Beyond Biomass' reviews the key issues that need to be addressed in these delegated acts to guarantee that RFONBOs and RCFs are able to deliver on their potential.

### RECYCLED CARBON FUELS

#### KEY ISSUES

- » Despite being considered as wastes, value may already be getting extracted from the materials that could be feedstocks for RCF production, in particular by energy recovery. Unused carbon monoxide or hydrogen in industrial off-gases is often combusted for energy in boilers, and waste plastics may be incinerated to generate power and/or heat.
- » If waste plastic is buried in landfill, the carbon it contains becomes sequestered on a long-term basis. Turning plastic that would otherwise be landfilled into fuel releases that carbon into the atmosphere as CO<sub>2</sub>, although reduced landfilling has other environmental benefits.

#### GHG IMPACTS

- » Producing RCFs from feedstocks that would otherwise have been flared or incinerated without energy recovery offers large GHG savings.
- » Producing RCFs from plastics that would otherwise have gone to landfills delivers little or no GHG savings, but may still be considered desirable on waste management grounds.

<sup>1</sup> Acts proposed by the European Commission that complement existing law, in this case the RED II.

- » The GHG impacts from producing RCFs using feedstocks that would otherwise have been burned for heat or power must be assessed on a case-by-case basis. If inefficient systems are replaced, or alternative energy can be provided from renewable sources, GHG savings are possible.

## RENEWABLE FUELS OF NON-BIOLOGICAL ORIGIN

### KEY ISSUES

- » Turning renewable electricity into liquid or gaseous fuels is associated with energy losses. RFONBO production is therefore inherently less efficient than using electricity directly in electric vehicles.
- » Producing more fossil electricity to meet increased electricity demand for RFONBOs would be several times worse for the climate than just using liquid fossil fuels.

### GHG IMPACTS

- » RFONBOs will deliver GHG savings if the additional power comes entirely, or almost entirely, from very-low GHG intensity renewable sources like wind and solar.
- » To achieve this, the EU needs an effective regulatory treatment to ensure that money spent on RFONBOs supports the development of additional renewable power generation.
- » If RFONBO production diverts renewable electricity away from other consumers instead of supporting additional generation GHG emissions will probably be increased rather than reduced.

The RED II provides an opportunity for more widespread use of these novel fuel production technologies, but their net climate benefits is sensitive not only to the efficiency of the processes used, but also to additional considerations. Regulators have an opportunity to set rules for these fuels that ensure the any public support invested is delivering real climate benefits.

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### PUBLICATION DETAILS

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