The consumer checklist
FOR SUSTAINABLE AND COST-EFFICIENT BIOENERGY

Consumers looking for sustainable heating solutions are offered different possibilities such as heat pumps, solar thermal, geothermal or bioenergy. Conversely to other renewable sources, bioenergy relies on biomass as fuel input (e.g. wood, energy crops/agricultural residues or biowaste). To produce bioenergy, biomass is combusted in residential stoves or boilers or in larger installations to use it as a heat source for district heating.[1]

Bioenergy today accounts for 85% of renewable heat in consumers' homes as it is often more cost-competitive than electrified solutions. For consumers, it is therefore important to know which role bioenergy will play in the energy transition. To contribute to our climate objectives while maintaining biodiversity, the biomass used to produce bioenergy needs to comply with stringent sustainability requirements. The local availability of biomass also determines to what extent bioenergy is a cost-efficient solution for the energy transition.

EU and national policy-makers are assessing possible pathways for bioenergy uses to achieve their climate objectives in the Fit for 55 Package and the Sustainable Finance Taxonomy. In this consumer checklist, we outline under which conditions bioenergy is acceptable for consumers, and as a result, an efficient way to achieve Europe's policy objectives.

1

MAKE SURE BIOENERGY COMPLIES WITH STRINGENT SUSTAINABILITY CRITERIA

Bioenergy will only support Europe's climate neutrality goals if all biomass used in Europe is sustainable. Using high-quality wood from sustainably managed forests for material use (e.g. construction, furniture) and waste and residues (such as sawdust) for energy will contribute to climate change mitigation. Instead, harvesting old-growth forests with high carbon stocks for energy purposes would lead to a rapid carbon release which is counterproductive for reaching our climate targets and poses serious threats to biodiversity.

To avoid promoting unsustainable bioenergy solutions, policy-makers should further strengthen the sustainability and greenhouse gas emission saving criteria to achieve strong climate change mitigation. Sound enforcement systems must also be set up.

The Renewable Energy Directive today sets sustainability and greenhouse gas emission saving criteria for bioenergy, but these are mandatory for solid biomass fuels only if they are used in electricity or heating and cooling installations larger than 20 MW or, in the case of biogas, in installations larger than 2 MW. The Directive should also cover in future smaller installations e.g. those supplying smaller district heating networks.

2

PROMOTE BIOENERGY USE IN PRIORITY WHERE ELECTRIFICATION IS NOT A VIABLE OPTION

In 2019, only 22% of the energy used for heating and cooling and only 9% of transport fuels were renewable, most of which was bioenergy.

To sustainably boost renewables in those sectors, more diversification of renewable energy sources is needed. Bioenergy should preferably only be used where electrification is not a viable solution for decarbonisation (e.g. rely on electric cars and heat pumps, where feasible).

An effective way to achieve this diversification is to incentivise electrification. Reducing taxes for electricity, for example, would make the purchase of an electric car or a heat pump much more attractive for consumers.

In addition, other direct renewable heating solutions such as solar thermal and geothermal can diversify the heat sources in renewable district heating networks. A binding renewable heating & cooling target and technology-specific support schemes can promote such diversification.

[1] District heating is a heating solution where hot water is produced in a central installation and transported via pipes to the consumer's home. District heating can use biomass but also geothermal, solar thermal and heat pumps as renewable heat sources.

3

USE BIOENERGY WHERE IT CAN COST-EFFICIENTLY CONTRIBUTE TO THE ENERGY TRANSITION

Bioenergy can be cost-competitive with other renewables and fossil fuels for heating. For instance, bioenergy can complement other renewable heat sources in district heating networks or individual residential heating (e.g. heat pumps or solar thermal can be combined with biomass stoves and boilers for colder/cloudy days).

Conversely, in electricity, more cost-efficient renewable energy solutions, such as wind and solar, exist. Supporting bio-power only installations – which are often not economically viable without subsidies – increases the cost for consumers and is an inefficient use of biomass. Where stable baseload is needed, highly efficient combined heat and power plants should be the preferred option.

Availability of feedstock will also determine costs: Fast-decaying forestry and agricultural residues and industrial by-products such as sawdust come at low cost and with high climate change mitigation potential. What's more bio-waste that cannot be used for other types of recycling, should be used for heating and power plants. Careful planning based on the local availability of resources will allow for projects (e.g. a district heating network) which benefit both climate and consumers.

4

TACKLE AIR EMISSIONS FROM RESIDENTIAL BIOMASS HEATING

Air emissions (particulate matter) are a serious health concern for consumers. One main source of particulate matter is the use of old biomass stoves and open fireplaces for heating purposes. What's more, the misuse of biomass stoves, e.g. burning of low quality, wet wood or even waste, causes air emissions.

Renewable-based district heating should become the preferred option in densely populated areas. Where district heating is not viable, consumers should get support to replace old installations by certified, new installations or to switch to other renewable heating solutions (e.g. heat pumps, solar thermal). The next Ecodesign revision for biomass stoves should also include limits for air emissions. Initial installation and yearly verification and maintenance by certified installers/chimney sweepers should help consumers to correctly use their installations.

5

MAINTAIN PRICE STABILITY AND SECURITY OF SUPPLY FOR HOUSEHOLDS USING (PELLET) STOVES

Consumers benefit from low fuel costs when using biomass for residential heating. This can help alleviate the higher upfront investment of the installation.

The increased use of biomass, especially pellets, by large biopower-only installations as well as the reduced availability of biomass (e.g. due to forest fires, extreme weather events) can put pressure on raw material markets and as a consequence increase prices for domestic consumers. Higher demand can also lead to higher imports of pellets involving lower climate mitigation potentials than local biomass due to transport emissions.

Regulators should closely monitor market developments and ensure secure supply for household consumers. Local availability of biomass resources should be taken into account when planning bioenergy projects.

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