

Cascading use of biomass: opportunities and obstacles in EU policies

Policy briefing by BirdLife Europe and the European Environmental Bureau

Cascading use – the concept

Cascading use of biomass resources, such as wood and agricultural products, means an efficient use of these resources from the point of view of natural resource, material and land consumption. It is effectively a principle to increase the productivity and efficient use of scarce and valuable raw material resources.

Cascading use of biomass applies the ideas of the circular economy also to biological resources.

The cascading use principle gives priority to higher value uses that allow the reuse and recycling of products and raw materials and promotes energy use only when other options are starting to run out. It concretely prioritizes material use of biomass before energy use since burning implies the raw material being lost. It also prioritizes energy production combined with 'co-products' such as compost or nutrients over energy productions only.

From the point of view of the circular economy, burning and incineration can be described as raw material leakage¹. Therefore the importance and usefulness of the cascading use principle has already been recognized by several EU institutions².

It is important to emphasize that the cascading use principle should not be limited to mean only the recycling of raw materials. In line with the idea of the circular economy, maintenance and reuse of products needs to be encouraged also in the case of bio-based products.

¹ McKinsey&Company: [Moving toward a circular economy](#)

² For example: [Innovating for Sustainable Growth: A Bioeconomy for Europe](#) (SWD 2012), [Communication of the Commission on Industrial Renaissance](#) (2014), [European Parliament report on innovating for sustainable growth: a bioeconomy for Europe](#) (2013), [EU Forest Strategy](#) (2013)

Secondly it's important to note that the cascading use principle is only about the use of biomass resources and doesn't cover the environmental and biodiversity impacts of their production or the full greenhouse gas balance of the use of biomass for different purposes. While cascading use of biomass is an important part of the sustainability of biomass use, it does not cover all the sustainability aspects of biomass use and production.

How to apply cascading use?

The cascading use principle should be used as a principle to guide EU policy in order to improve resource efficiency and limit unsustainable pressure on natural resources. This doesn't imply detailed regulations for example on how individual forest owners should sell their wood. It should rather define what kind of wood use (or any other kind of biomass) and for what purpose will be publicly incentivized.

A similar kind of hierarchy of uses has already been implemented in the EU's waste legislation, through the waste hierarchy³. It implies reuse and recycling of materials before energy recovery. While the hierarchy should be applied to for example bio-waste, policies don't give any incentives to prioritize material uses of biomass before energy uses *before becoming waste*.

The cascading use principle could be seen as an extension of the already existing waste hierarchy principle.

Critics of the cascading use principle often argue that it's a good principle but should not be implemented in legislation. This argument ignores the fact that there are already policies in place that influence the cascading use of biomass resources today. As a priority, policies distorting the cascading use of biomass should be aligned with the principle.

Are EU policies supporting cascading use?

The EU already has various policies in place that both support use of biomass in line with cascading use principle and distort it. Strong incentives come particularly from energy and waste policies. Some examples on how EU policies relate to cascading use of biomass already include:

☹️ Forestry and agricultural biomass used in farming, forestry or the production of energy are excluded from the scope of the waste framework directive and hence of the "waste hierarchy".

³ [Waste Framework Directive \(2008/98/EC\)](#)

- 😊 For bio-waste and waste oils the waste framework directive encourages separate collection and treatment in order to produce compost and bio-waste based materials.
- 😊 The waste framework directive applies re-use and recycling targets of 50% to paper from households and of 70% to construction and demolition waste (including waste wood) by 2020⁴.
- 😞 The renewable energy target (20% of all energy consumption by 2020) set in the renewable energy directive strongly encourages using of biomass directly for energy for heat and power without any constraints to support cascading use (or other environmental benefits). In 2014 56% of the renewable energy came from biomass⁵.
- 😊 Biofuel production for transport from agricultural and forestry residues and waste is favoured against other biomass resources by allowing double-counting of their energy content towards renewable energy targets in transport. While this promotes the use of secondary biomass resources for energy rather than primary biomass resources⁶, and while in theory the waste hierarchy should still be respected, it's not clear whether this holds in practice and what is the overall impact in terms of promoting cascading use.
- 😊 Biofuels made out of waste and industrial residues (residues other than from agriculture, aquaculture and fisheries and forest) need only meet sustainability criteria for GHG savings in order to count towards the renewable energy targets. This has similar two-fold impacts on cascading use as outlined above.
- 😞 Energy from the incineration of municipal waste is excluded from threshold calculations to determine if a facility is included in the EU emission trading scheme. This can increase demand for waste (including bio-based) at co-firing facilities in order to keep installations outside the ETS, decreasing the costs of this energy and incentivizing incineration of waste.
- 😞 According to EU's energy state aid guidelines, bioenergy production may receive operating aid even after plant depreciation due to their high operating costs unlike other sources of renewable energy, which favours the continued use of biomass-based electricity without any constraints on the kind of biomass burned.

⁴ It should be noted though that in many countries the methods for implementing these targets have not been optimal and targets 'achieved' rather reflect the rate of separation than actual recycling.

⁵ European Commission Renewable energy progress report 2015

⁶ For energy crops i.e. non-food crops grown specifically for energy use that can still be grown on agricultural land it is still unclear how they will be treated in the 2015 reformed of biofuels legislation.

First aid policy kit to support cascading use of biomass

As a first step current legislation with distorting impacts for the cascading use of biomass should be rectified. As a second step further opportunities should be examined to identify most high value uses of biomass resources and to identify policies needed to encourage those kinds of uses.

Effective decisions can already be taken to avoid further distortion of cascading use and to rather improve resource efficient biomass use in several fields of policy currently under revision, implementation or debate:

- Introduce the new waste legislation package with ambitious targets for material reduction, waste prevention, recycling and separate collection of waste.
- Promote economic instruments that support the full implementation of the waste hierarchy, such as legally binding targets for material recovery and/or composting, extended producer responsibility, pay-as-you-throw schemes and the taxation of resources where appropriate.
- Fix renewable energy policies to limit the support to bioenergy from primary forestry and agriculture biomass resources and direct incentives to using residue and waste biomass that don't have significant competing uses.
- Cap the use of biomass for energy to levels that can be sustainably supplied from EU's domestic resources taking into account various competing uses of the same resources.
- Oblige the member states to provide evidence that the waste hierarchy principle is complied with when implementing the recently revised legislation for biofuels and future policies for bioenergy.

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