The Potential for Sustainable Biomass in the Romanian Energy Sector

Activity 17: European framework on biomass and its likely impact at national level

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Description of the activity: While the precise legislation for sustainable biomass because of the Green Deal, RepowerEU and subsequent policy packages is still in the making, the current European legislative and regulatory framework, not to mention potential new developments of this framework, might significantly alter the pathways of choice at national level when it comes to using biomass, and especially black pellets, in the energy sector. The analysis will do an overview of these current and most likely future constraints with respect to biomass regulation.

A brief description of the current European legislative framework

So-called RED2 (Directive (EU) 2018/ 2001 on the promotion of the use of energy from renewable sources) is currently guiding the usage of biomass in the energy sector in the European Union. Despite the fact it dates from 2018, it was transposed into national legislation as late as December 2022. Article 29 of the RED2 directive has the greatest impact over the usage of biomass in the energy sector, because it introduces sustainability criteria for installations with installed capacity over 20MW. When these criteria are not met, the installations do not qualify for either subsidies or towards meeting the national renewables target. RED2 introduces criteria both for agriculture biomass and for forestry biomass. To be considered sustainable, the former needs to introduce evidence on soil protection and carbon sequestration in the soil. Furthermore, according to the directive, land should not be converted to accommodate the production of agricultural raw material for biofuels, bioliquids and biomass fuels if its carbon stock loss upon conversion could not, within a reasonable period, be compensated for by the greenhouse gas emission savings resulting from the production and use of biofuels, bioliquids and biomass fuels Even more sustainability criteria are put in place for forestry biomass. Thus, the country of origin where forestry biomass is harvested should have in place adequate legislation to avoid unsustainable harvesting, to quantify forestry emissions, to consider indirect land use changes, to exclude biomass from primary forests, forests with high biodiversity, protected areas, wetlands, etc. Furthermore, the power plants themselves need to be best in class and deliver less emissions than their fossil alternative, with the baseline target being relatively high (-80% by 2026). Furthermore, all

support schemes for renewable energy based on biomass must consider biomass availability, circular economy principles and the principle of waste hierarchy. Energy producers that use forestry biomass may do so only if they acquire so-called guarantees of origin for the biomass they use. The whole usage of biomass for energy production is underpinned by four principles: energy security, maximizing GHG emissions reductions, limiting air pollution and reducing the pressure on the source.

RED2 contains very detailed guidelines on calculating emissions reductions for biomass used in the energy sector, based on the type of biomass (e.g.: woodchips from forest residues, wood chips from short rotation coppice, etc.) and on the transport distance. Annex VI to the directive contains such detailed rules for calculating the GHG impact of biomass fuels and their fossil fuels comparisons, divided by heat and electricity. The same calculation is done for agricultural biomass.

Sustainability criteria as defined in current European legislation

To support economic operators in understanding and evaluating the conformity of biomass to the sustainability framework in the directive, the Commission established operational guidance on the evidence for demonstrating compliance with the sustainability criteria for forest biomass laid down in Article 29 of the RED2 directive.

Thus, according to these guidelines, economic operators using biomass for energy production have the responsibility to conduct a risk assessment, based on legislation existing in the country of origin and on third party reports. To be considered low risk, the country where the biomass originates must be party to the Paris Agreement, must have a Nationally Determined Contribution which includes forestry emissions, must demonstrate that through harvesting LULUCF emissions are not maximized, but, on the contrary, carbon sequestration is strengthened in the forests, and they must also request from suppliers audited reports. Should any of these criteria miss, harvested biomass is considered high-risk and, in this case, operators must implement their own management systems at the level of the area where biomass is harvested. Thus, it must demonstrate compliance to sustainability principles (e.g.: regulation of the removal of stumps, roots, deadwood; maintaining or increasing the long-term production capacity of the forest, etc.). Emission calculations and accompanying counterfactuals (for LULUCF) must be calculated over a 30 years horizon.

International context reflected in EU legislation

The LULUCF framework governs the utilization of biomass in the energy sector at global level. A key principle of the framework is that all sectors must contribute to GHG emissions reductions, including forestry. Under LULUCF, governments must make sure that forests store more carbon thena they emit. For EU Member States, The European Commission, in consultation with designated national experts, makes a technical evaluation of the forest emissions accounting plans at national level. The framework is transparent, as it mandates that the accounting registry be made public, but it also allows some general flexibilities (transfers between states, extending reporting deadlines, etc.).

New strategic Green Deal framework

A key element affecting the usage of biomass in the energy sector stems from the Green Deal and it consists in the 2030 EU Biodiversity Strategy. According to this document, EU Member States shall extend protected areas (at least 30% of the land and 30% of the sea should be protected in the EU) and shall have to respect an EU-wide nature restauration law. Member States are also required to strictly protect all the EU's remaining primary and old-growth forests (Romania being one of the few Member States with plentiful of those) and to effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately. The main rationale behind this approach is a long-term cost-benefit assessment. According to the Strategy, theoverall benefit/cost ratio of an effective global programme for the conservation of remaining wild nature worldwide is estimated to be at least 100 to 1.

New approach coming up with RED3

The interviews and activities we conducted throughout the project made evident the fact that even RED2 biomass-related aspects are not fully transposed in national legislation, especially at secondary and tertiary level and that, despite the detailed technical guidance on sustainability criteria accompanying the directive, government agencies in Romania do not have the capacity and thus have failed so far to elaborate technical guidelines and regulatory procedures to apply the European criteria for the sustainability of biomass. Authorities display considerable difficulties when it comes to developing criteria for agriculture biomass. Thus, an effective legal framework for determining the wheter biomass used in the energy sector meets sustainaibility criteria is missing and, de facto, using biomass in the energy sector is thus blocked.

One apparent explanation why authorities are postponing putting EU guidelines into national law and practice is the fact that new legislation is being currently drafted and negotiated at EU level. Indeed, RED3, an essential element of the Green Deal package, imposes further safeguards on the usage of biomass in the energy sector. The most important element introduced by RED3 is the scaffolding principle (*principiul cascadării*). Biomass is thus to be used first and foremost for manufacturing of wood protects, which, in principle, is the biomass usage with the highest carbon storage potential. Secondly, the life duration of all these wood products must be extended, so durability principles must be applied in the design and manufacturing of such products. Thirdly, these products should be reused and repurposed. In the fourth place, a least valuable and desired means of using biomass is recycling - allowed only when life duration extension and reusing are not possible. Biomass usage in the energy sector (bioenergy) is second to last least desired usage of biomass according to the scaffolding principle, while the least desired usage is elimination.

RED3 foresees a higher tentative target for renewables in the European energy mix (of 45%), and a mandatory target of 42.5%, but in the RED3 framework biomass is definitely discouraged in being accounted towards the RES target by member states. The directive clearly states that the aim is a gradual elimination of biomass from the energy means, through measures such as: limiting the total quantity of biomass used in the European energy mix (at the EU average of 2017 - 2022), applying the sustainability criteria to smaller installations (lowering the threshold to 7.5 MW), eliminating the subsidies for the energy produced from saw logs, veener logs, stumps and roots and avoiding promoting the use of quality roundwood for energy except in well-defined circumstances. The directive proposes the elimination of all subsidy schemes for using biomass solely for electricity o

Scientific knowledge underpinning the European legislative and policy framework

Two studies commissioned by the European Commission have informed the emerging legislative and policy framework described above. One is a Science for Policy report by the Joint Research Centre (JRC), the European Commission's science and knowledge service, titled "The use of woody biomass for energy production in the EU". The other one is titled "Sustainable and optimal use of biomass for energy in the EU beyond 2020" and has been coordinated by a consortium of researchers and consultants led by PricewaterhouseCoopers EU.

The PWC study is analysing whether the usage of biomass in the energy sector is incentivised by subsidies or regulations. In a Business as Usual (BAU) scenario, energy based on biomass will represent 50% of the renewable energy mix in 2030 in the EU. The study examines five different regulatory scenarios - one in which biomass respects the REDIII sustainability criteria, another one in which it respects sustainable forestry management criteria, one in which operations are undertaken based on risk, a fourth one in which operations follow efficiency standards and the last one in which there is a clear cap on stemwood usage. The study makes an impact analysis for each of these scenarios, including issues around supply and demand, emissions reductions, the needed investments, etc. What is interesting is that, in all scenarios, the availability of biomass seems to be higher than demand. Nonetheless, the study also relies on a stakeholder and public opinion survey, which concludes that 60% out of 1000 respondents favour the introduction of more strict sustainability criteria. Furthermore, in all policy scenarios, biomass demand declines, with the sharpest decline in case of SFM certification (and also the highest GHG savings), yet also with the highest increase in CAPEX for RES (+12.7 EUR/ year), which also leads to a 23% increase in subsidy support for renewables and in a strong shift from RES heat to non-biomass RES electricity and biofuels. The scenario which seems to underpin the current RED3 directive seems to have the lowest impact in terms of GHG savings, a marginal impact on extra-EU imports and also a negligible decline in biomass demand. Unfortunately, the conclusion is that all scenarios, despite decreasing pressure on European forests, provide minimum safeguards against the risk of biodiversity or carbon stock losses, especially when it comes to extra-EU imports.

The JRC report highlights the global importance of the biomass problem: "bioenergy sits at the nexus of two of the main environmental crises of the 21st century: the biodiversity and climate emergencies." and acknowledges biomass can offer a solution to both problems, only if produced sustainably and efficiently. The study also acknowledges that the diversity of local contexts in Member States will impact the operationalization of the concept of biomass sustainability and ultimately the concrete definition for sustainability criteria. Based on massive data analysis, the study concludes that the intensity of harvesting in the EU increased from 2009 to 2015. Consequently inventories show an increasing overall use of woody biomass in the EU in the past two decades (around 20% since 2000). Secondary woody biomass comprises about 60% of biomass usage for energy in the EU, while primary biomass covers the remaining 40%. However, data remains unclear. Point in case, the amount of woody biomass used in the manufacturing of wood-based products and for energy production exceeds the total amount of reported as sources by more than 20%, with large differences among Member

States - Romania showing some of the highest discrepancies. As the demand seems to be rising in all scenarios, the study looks into how this demand can be demand, by examining three options: removal of logging residues, afforestation and conversion of natural forests to plantations - in addition to more straightforward options to advance bioenergy which lie outside the forestry realm, such as energy plantations or usage of waste and residues. Forestry practices which are considered win-win for both climate change mitigation and biodiversity comprise include removal of slash (fine, woody debris) below thresholds defined according to local conditions, and afforestation of former arable land with mixed forest or naturally regenerating forests, while lose-lose pathways include removal of coarse woody debris, removal of low stumps, and conversion of primary or natural forests into plantations. As a general policy principle, the study concludes, what needs to happen is the prioritization of residues without any other use of higher added-value, as well as a circular use of wood. Despite their thorough fact-based analysis, the JRC study concludes that the usage of biomass in the energy sector is a "wicked problem", where “issues are within the realm of the political arena and no amount of scientific research will appease ethical disputes”.

Stakeholder perceptions about biomass for energy/ bioenergy

Given the JRC conclusion explained above, that it is hard to base policy decisions on bioenergy on facts alone, this section of the report will present the main views of representative stakeholders that were consulted by European institutions during the stakeholder consultation period in the run-up to the elaboration of RED3 and of the EU 2030 Biodiversity Strategy.

The main viewpoint environmental non-governmental organisations advocate is that, the burning of wood is not climate-neutral within the timeframe of the Paris Agreement goals, so any plans to achieve renewable energy targets through increased use of wood and biomass from forests endanger both biodiversity and climate action. The scenario, they claim, is already a reality in the sense that many EU countries release more carbon through forestry and the wood industry than all other sectors combined. NGOs support one of the relevant JRC recommendations, namely that the sustainability criteria of the Renewable Energy Directive (RED) should apply to smaller installations. All in all, they claim, utilization intensity of forests should not exceed annual growth to ensure ecological sustainability. Environmental groups are also stressing the fact that even though most of the wood used for energy in the EU is legally compliant, this doesn't ensure its sustainability. They are concerned that the regulations only require demonstrating that appropriate forest management laws exist in the

country of harvest, not that operators comply with them directly. The reliance on "independent third-party auditing" is seen as problematic due to potential conflicts of interest.

Forestry players maintain a completely opposing view to that of NGOs' and emphasize the significance of forest biomass as the primary renewable energy source in the EU27. They underline the fact that some of the Commission guidelines aimed to support market players to operationalize the sustainability criteria laid down in RED3 are breaching the subsidiarity principle and are increasing the administrative burden on forest owners. They also recommend more consistency in the definition of forest biomass and propose the removal from the guidelines of some restrictions to forestry practices, including offering more clarity on important prohibitions, such as "clear-cuts are minimized".

Wood processors are welcoming the inclusion of installations with total thermal input lower than 20 MW from primary woody biomass in the sustainability criteria mechanism, pointing out that such installations might be more sustainable, as they can source more wood locally. They also agree with the scaffolding principle exposed in RED3 and propose that wood products resulting from primary processing should be used as raw material in the production of wood boards or other finished / semi-finished products. The reason is that, in this way, carbon is stored for longer periods and only the biodegradable fraction that no longer has industrial uses is burnt as fuel.

Forest certification companies notice that RED3 is not offering a clear definition for "primary forests" or "vulnerable soilds". They also suggest that a prescriptive five-year limitation may not be suitable for all forest types and recommend broader considerations for biodiversity, such as including deadwood and clear-cuts as acceptable for biomass certification.

Finally, energy players from EU Member States focus on cutting red tape and making sure that RED3 does not pose a disproportionate administrative burden on economic actors. . They urge that the directive should build on existing sustainable forest management measures in Member States and not exceed the scope of RED2. This category of stakeholders also requests adequate time for implementation and compliance with the new regulations.