

A III.4. Regional Policy Brief BIO SCREEN CEE



Bio Screen CEE project

2022

Consortium



Co-financed by:



The current document “A III.4. Regional Policy Brief” is developed by the Bio Screen CEE project co-financed by the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). Its implementation is supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. It is the overarching goal of the EUKI to foster climate cooperation within the European Union (EU) in order to mitigate greenhouse gas emissions.

The sole responsibility for the content of this report lies with the authors and contributors. It does not necessarily reflect the opinion of the European Union or the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The authors, contributors and funding authority are not responsible for any use that may be made of the information contained therein.

Welcome to Bio Screen CEE

The project will advance evidence-based knowledge and policy implementation of the energy sector in Romania, Bulgaria and Hungary to alleviate energy demand growth and dependency on forestry biomass for energy, especially as a result of the coal transition.

The project reviews biomass strategies and underlying data defined within national energy and climate plans (NECP) and seeks to improve the capacity and engagement of stakeholders to embrace alternatives to forest biomass and apply stricter sustainability criteria beyond that prescribed in the Renewable Energy Directive II (RED II). It will recommend specific pilot projects for local municipalities dependent on firewood that can then be advocated at the national level.

Scope

Within Activity A.III.4. “Regional Policy Brief”, we provide a condensed summary of the Project’s findings and messages to and about the policy context of forest-based biomass energy. This Brief is based on the three Country Studies and the Regional Report produced in the Project – see project files for the more detailed studies.

National forest strategies

During our analysis of the Bulgarian, Hungarian and Romanian national forest strategies we identified some important shortcomings that all three countries have in common. Addressing these issues is important to enable a sustainable forestry sector that aims at serving climate, natural conservation and energy goals as well.

- 1. Supply-demand gap - The main shortcoming identified in the national strategic documents of the three countries was the failure to explicitly address the gap between the officially accounted firewood production and the biomass energy consumption data. Stipulating growth in biomass energy demand without making sure the sustainability for the supply is a major policy failure.*
- 2. Sustainability complexity – Sustainability is mostly interpreted as a forestry management term, meaning that annual wood harvest shall not exceed annual volume increment of the forests. This, being a valid operational rule of thumb at the management level, however, shall not be applied for planning at the national policy level. The concept of sustainability must be enhanced with ecological dimensions to make sure biodiversity aspects are properly acknowledged in the national strategic planning and policy implementation.*
- 3. Climate policy integration – All the three countries plan for carbon sequestration by their existing forests but fail to integrate that into their explicit climate mitigation strategy. The carbon sequestration by forests is accounted for based on existing forest plans without considering carbon pricing. This not only leads to socially cost-inefficient climate policy but fails to exploit the carbon sinking potential of the forest sector.*

It is recommended that governments in the three countries address the above considerations during the 2023-2024 revision process of the National Energy and Climate Plans.

National energy strategies

The three countries have different attitudes and strategies for biomass-based energy production. While Hungary and Bulgaria envision significant growth in biomass consumption of approximately 35% and 25% by 2030, in Romania it is marginal. If measures are put in place to realize these targets, a growing practice of biomass and coal co-firing will put pressure on biomass resources in the next decade.

For all three countries air pollution is the motivating factor for reducing residential firewood consumption rather than the sustainability of biomass resources, yet they face infringement procedures for failure to comply with EU clean air regulation. While cases against Romania and Bulgaria are ongoing, in February 2021 the European Court of Justice ruled that Hungary broke EU law on ambient air quality by systematically and persistently exceeding the daily limit value for particulate matter PM10. Bulgaria faces the same allegation, while Romania is being filed for failing to adopt a national air pollution control programme.

Solid biomass consumption trends

Biomass is the most widely used renewable energy resource in these three countries. The majority of solid biomass is used for household heating, but it is remarkable also in district heating. Yet, in Hungary and Bulgaria, the transformation sector has proved to be easily burning industrial amounts of wood for energy if policy measures directly or indirectly provide incentives for that. Dedicated biomass heating plants and co-firing of biomass in coal power plants might result in an extraordinary leap in demand for forest biomass.

Two factors have emerged recently to surge consumption trends: the unfolding energy crisis in the short run and the emerging technology of biomass energy with carbon sequestration and storage in the long run.

The energy crisis started with a substantial demand boom after the pandemic and, before reaching a new equilibrium, it has been seriously aggravated by Russia's war on Ukraine. As European member states prepare for natural gas shortages in the coming winter, governments rush to amplify firewood supplies often without any long-term sustainability consideration.

Parallel to that, climate friendly technologies develop rapidly. In the long-term climate strategies, there are high hopes to biomass energy plants equipped with carbon capture and storage adding potentially industrial amounts to current levels of biomass energy consumption.

Sustainability regulations¹

Sustainability in the forestry sector is assured by forestry regulations in all three analysed countries. Hungary and Romania went beyond sustainable harvesting levels, taking into account the biodiversity of forests.

Such measures are, however, often missing for biomass-to-energy, with the exception of Hungary. Still, in Hungary the standards only apply to plants receiving financial support and have weak control mechanisms. For now, households, district heating and industry remain outside of any sustainability criteria in all three countries. In fact, the EU has not defined sustainable criteria for households, leaving the eco-design regulation for furnaces the only

¹ This section is based on our research finalised in Autumn 2021.

regulatory factor to improve efficiency. In Bulgaria and Hungary there were efforts to inform households about the proper use of firewood to minimize air pollution.

4. While regulations assuring sustainability on the supply side of solid biomass fuels is key, they need to be accompanied by demand side legislation to prevent the use of unregulated biomass sources for energy production (e.g. imported biomass or non-forest biomass).

RED II aims to strengthen the sustainability criteria for biomass by including efficiency and GHG emissions criteria on the energy demand side while also setting criteria for agricultural biomass on the supply side. It has been speculated that uncertainty surrounding the Fit for 55 proposal is the reason behind several Member States failing to transpose RED II by the deadline while awaiting and expecting stricter rules to emerge.

Certification schemes

Effective schemes that assure and verify the sustainable use of solid biomass fuels are rare in all the three countries. Certification schemes for renewable energy are linked to financial RES support schemes, which is a sliver of total biomass use. In Bulgaria and Romania, the certificates of origin are obligatory, but not subject to any criteria regarding the source or sustainability of solid biomass. In Hungary biomass energy support schemes require biomass plant operators to prove conformity with applicable regulations. These require that woody biomass is sourced sustainably and legally, and it is not block-wood or higher quality wood. Despite these requirements, the practice of self-reporting and weak control mechanisms do not effectively safeguard the sustainability of biomass sources in Hungary.

We also see a risk of circumvention of sustainability rules if biomass is burned on a market basis, i.e. not under support schemes.

5. Tracking schemes of timber (as requested by the EUTR Regulation) need to be strengthened in the three countries, to be able to keep track of the value chain of solid biomass fuels and to gain data on the amounts and volumes of traded biomass.

The prerequisites for effective certification and verification schemes are clearly defined sustainability criteria, tracking mechanisms for all types of solid biomass (not only forest), responsible authorities with effective control mechanisms, and more transparent, publicly available information and data.

Support schemes

Although Hungary and Bulgaria have relatively ambitious targets for biomass-based energy production, adequate support schemes are missing. Some partial coal and lignite fuel switching is happening and conceivable on a market basis, due to rising CO₂ quota prices, as evident in Bulgaria, but the negative fuel price makes the incineration of biomass-containing waste more economic compared to firewood. In Hungary the growth of waste mixing is attributable to reducing fuel costs.

District heating systems are supported mostly through European structural funds in all the three countries, but there is no targeted operational support for biomass-to-heat.

Bulgaria and Romania support low-income households regardless of heating fuel while Hungary applies regulated prices supplemented with social support in small municipalities for

the direct purchase of firewood or lignite. Air pollution concerns are a limiting factor for household biomass use in all three countries.

6. Policy makers need to take the cautious approach before further enhancing biomass-to-energy support schemes. The limited availability of firewood, the low energy efficiency of electricity-only biomass power plants, the unexplained gap between supply and consumption statistics and the high dependence of low-income households on firewood all suggest that industrial scale combustion of more firewood should not be a priority.

Integrating forest wood supply data and demand for biomass energy data

Our quantitative analysis has revealed a significant gap between biomass sources supplied and biomass consumed in the energy sector for all the three countries, with Bulgaria's starting later.

Uncertainty of supply and demand statistics, which at times are estimated or missing, will go a long way to explaining the discrepancy, with no bias to credibility of either data sources. Explaining the entire gap will require elimination of errors and misapprehensions on both sides, supply - demand alike.

On the supply side, official statistics are mostly available for fuel wood categories sourced from forests covered by the national forestry code. The net import balance statistics are also methodologically consistent. Illegal logging, energy plantations, lands with tree cover not qualifying forestland, agricultural waste products and by-products tend to fall outside of the scope of forestry laws and are represented in national statistic on an ad-hoc manner. Even filling in with expert estimates of the missing data still leaves a consistently wide gap, making it inevitable for the policy to step in and improve reliability of official statistics.

On the demand side, data on biomass co-firing with coal and/or waste derived fuels tend to be incomplete. One reason is that authorities are hesitant to scrutinize the quantity and sustainability of solid biomass used for heat and power. Where it is most prevalent for all three countries in the household sector, rigorous statistical methods are executed from large samples. Yet, the lack of methodological coordination makes it very difficult to assess the margins of the statistics.

Estimating the regional economic supply potential of forest carbon sequestration

During the BIO SCREEN-CEE project, REKK has developed a bio-economic model of Forest Carbon Sink Optimization (FOX) applied to Hungary and Romania, with the Bulgarian model suspended pending data acquisition.²

The most important finding is that forest management, assumed to reflect economic optimisation by forest managers before carbon payments are introduced, can easily be adapted to optimize with positive and/or negative carbon payments involved. Furthermore, carbon payments substantially influence forest management decisions and, consequently, the annual volume of carbon sequestration and the total carbon stock. Forests will keep

² The detailed description of the model can be found in deliverable A I.3. - Regional Report.

producing all the three basic product segments - sawlogs, pulpwood and firewood - even with elevated, positive carbon prices.

Romania and Hungary exhibit remarkable differences in their response to carbon prices:

- Hungary's forest stock is rapidly approaching maturity for felling, so relatively low carbon prices are sufficient to reduce intensive harvesting. The forest sector can contribute significantly to the national abatement of 60 million tons of CO₂ emissions over the next 3 decades at a relatively low cost.
- Hungarian forests can sink 5 – 8 million tons of additional CO₂ on top of the Reference Scenario, more than doubling net annual sinking over the past decade to reach 9 – 13 million tons of CO₂. This represents 14% - 20% of the 64.4 million tons of total GHG emissions in 2019 (without Memo Items and LULUCF).
- The vast Romanian forest sector is more diverse, robust in annual increments, and less intensively harvested, making forestry carbon sinking robust even without carbon pricing. Thus, strong carbon prices (min. 60 EUR/tCO₂) would be needed to increase carbon sinking further, though this is equivalent to current industrial ETS prices.
- A CO₂ price of 60 EUR/t or higher triggers a dramatic boom in Romanian carbon sequestration. With one of largest forest sectors in the EU, Romania can use forest carbon pricing to keep its natural resource from declining. It also represents a comparative advantage for Romania, meaning it could sell the surplus carbon sinking to other European countries where carbon abatement is more costly.

7. Explicit carbon pricing would enhance carbon sequestration by the forests of the analysed countries, resulting significant biodiversity benefits as well.
8. Integrating forests by carbon pricing into climate policy can deliver emission targets at lower cost making national climate action much more socially cost-efficient.

FOX results are policy oriented. They can be used to assess the range of carbon payments necessary to trigger sufficient carbon sinking to meet more ambitious EU 2030 climate targets under the Fit-for-55 package (COM/2021/554). For now, the Commission has tabled its strategic views on carbon sequestration pricing.

- All three countries have got carbon sequestration targets that are mostly ambitious compared to current levels of carbon removals and forest reference levels (FRL) projected by NFAPs. The national targets proposed by the Commission: Bulgaria: - 9.7 mtCO₂eq, Hungary: -5.7 mtCO₂eq, Romania: -25.7 mtCO₂eq.
- FOX can estimate the marginal cost of meeting these national targets based on the potential of existing forests in each country.
- If demand elasticity is introduced later in the development of the FOX model, it can analyse the effects of induced carbon sinking by means of forest carbon pricing on product markets.

We strongly believe that the results presented in our study convince stakeholders to use FOX as a new policy analytical tool. It will continue to be developed with the acquisition of more reliable input data including FOX can be developed further conceptually - including but not exclusively by addition of more carbon pools, differentiation of carbon release timelines, flexibility of demand, and inclusion of new afforestation.