NATIONAL ENERGY AND CLIMATE PLANS OF DANUBE REGION COUNTRIES

Renewable Heating and Transport

Summary of the on-line workshop, 20 of May, 10:00- 12:00

The workshop was the second event of a two-part workshop series presenting and discussing the main findings of the study: "NATIONAL ENERGY AND CLIMATE PLANS IN THE DANUBE REGION", published by the Sustainable Energy Priority Area (PA2) of the EU Strategy for the Danube Region (EUSDR). The study, prepared by the Regional Centre for Energy Policy Research (REKK) provides a comparative assessment of the National Energy and Climate Plans (NECPs) of EU member states belonging to the Danube Region (DR), as well as the energy strategies of the non-EU Danube Region countries where NECPs are in progress. The first event focused on the targets, measures and expected outcomes related to the electricity and gas sectors, and sector coupling, while the second workshop investigated the goals, measures and projections for renewable heating and the transport sector.

The participants of the workshop were welcomed by Zsuzsa Vörös, Senior Advisor at the Department for Water Diplomacy and the Danube Region Strategy at the Ministry of Foreign Affairs and Trade of Hungary. She introduced the Sustainable Energy Priority Area of the EU Strategy for the Danube Region and provided a brief background of the study. This was followed by the presentations of the authors of the chapters on transportation and renewable heating and cooling (RES H&C).

András Vékony (REKK) pointed out that the **transport sector** was the only sector in which emissions have been rising steadily over the last two decades, and the rate of growth was higher on average in the Danube Region than in the EU. Only Germany could realise a fall in emissions in the period of 2000-2018. In the other countries, the effect of increasing demand for transport could not be counterbalanced by the expansion of renewable energy use and improvements in vehicle efficiency. Reaching the 10% 2020 RES-T target is uncertain in several of the EU DR countries, and most of them committed to achieve only the minimum obligatory RES-T target for 2030 in their NECPs (14%).

However, their projections for 2030 suggest that they are very optimistic about their ability to reverse the increasing GHG emission trend, as Figure 1 shows. They expect to achieve emission reductions ranging from -7.3% (Bulgaria) to -34.9% (Germany) in the period of 2018 – 2030.

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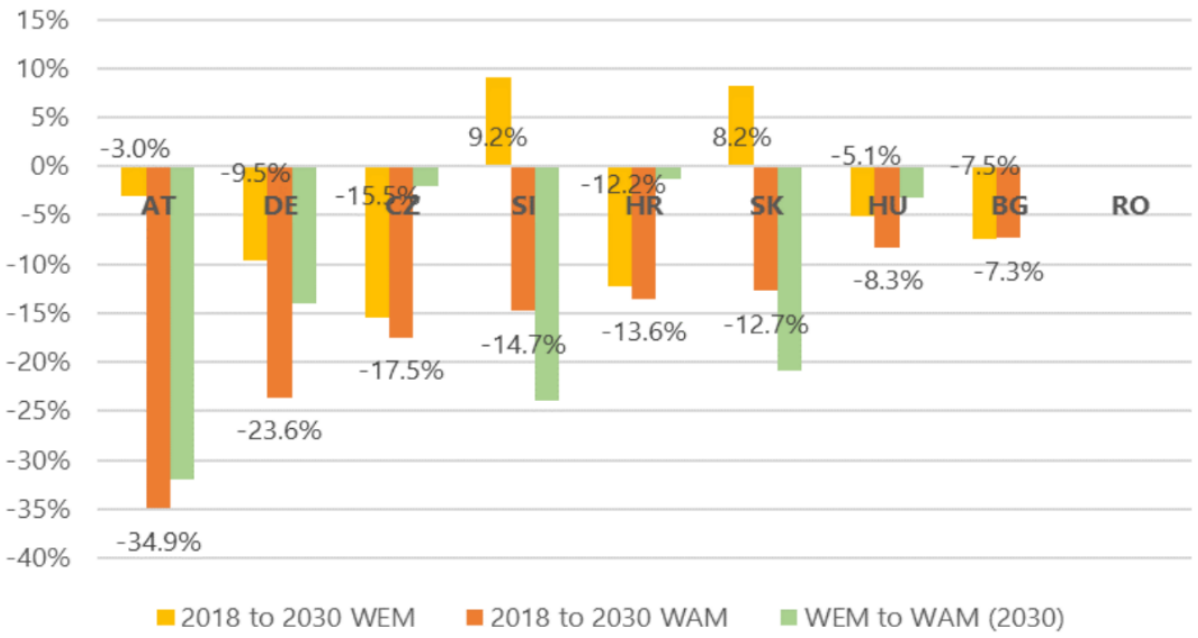

Figure 1: Effects of the planned measures of EU DR countries on the change of GHG emissions in the transport sector. Source: The presentation of András Vékony

The measures listed in the NECPs aim at encouraging fuel switch, modal shift, and efficiency improvements to deliver emission reductions. Four categories of measures were identified by the authors: infrastructure investments, financial incentives, regulatory obligations and information and awareness raising campaigns. Concerning the infrastructure investments, most DR EU countries are already implementing the development of EV charging infrastructure and are also focusing on the electrification of railways. Of the non-motorized transport modes, bicycle infrastructure is emphasized mainly, while pedestrian infrastructure is mentioned only among the plans of Austria and Slovenia. As regards the financial incentives, all but one of the EU DR countries have purchase subsidies in place for electric vehicles, and EVs also enjoy allowances in taxes, tolls and/or fees, although only four countries link these allowances to CO2 emissions. Subsidies for environmentally friendly public transport vehicles are also widespread, and the promotion of railways to replace more polluting alternatives (flights in case of passenger transport and road vehicles in case of freight transport) are also planned/implemented in a few countries (Germany, Croatia, Austria and Slovenia). Regulatory obligations, such as green public procurement obligations and biofuel mandates are in place almost everywhere, but the latter extend to advanced biofuels in only four countries. Other restrictions, such as banning the purchase and use of conventional vehicles and creating restricted areas (low emission zones) yet appear only in few of the NECPs. The plans very rarely include measures related to information provision and awareness raising related to transportation, despite the primary importance of behavioural aspects in reaching emission reduction goals in the sector.

The strategic documents of non-EU countries in the Danube Region, which have not yet finalised their NECPs, have less detailed goals and measures in respect to their transport sectors, mainly targeting more efficient conventional vehicles and the development of roads.

The **second presentation by Bettina Dézsi and Gabriella Szajkó (REKK)** focused on the role of renewable energy in the heating-related plans of DR countries. Bettina Dézsi drew attention to the very important role of renewable heating (RES-H) in reaching the overall renewable targets of the DR countries. The 2018 RES-H shares were over 30% in four, and around or above 20% in three of the EU DR countries, only Slovakia and Germany had shares slightly above 10%. As regards the non-EU DR countries, renewables contributed even more to heat energy supply, with about 50% or more, except for Serbia, where the RES-H share was also above 20%.

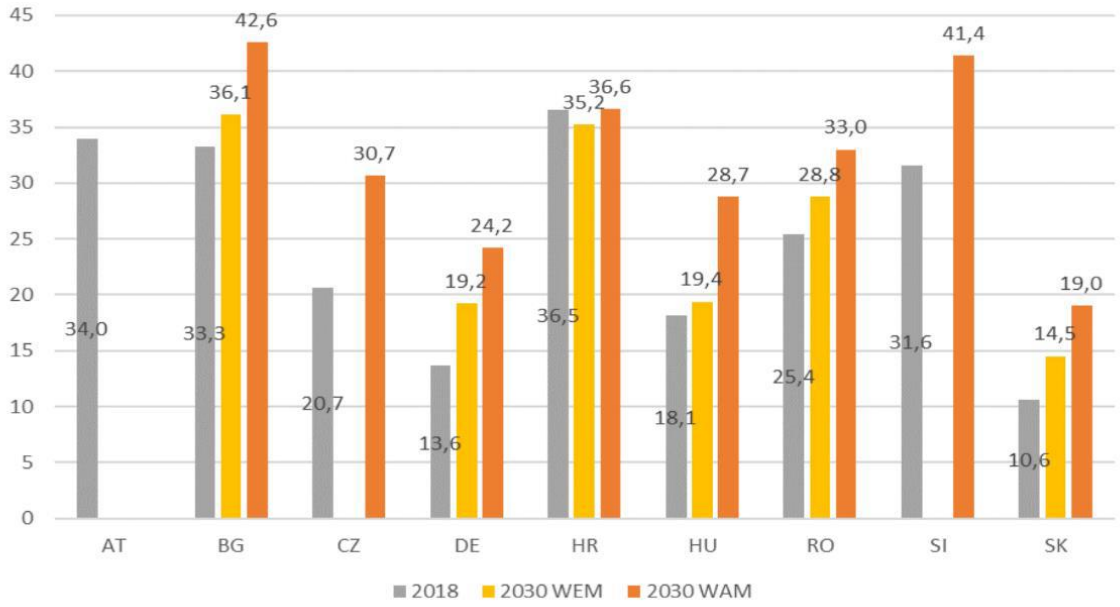

Figure 2: Share of renewable energy in the H&C sector of EU DR countries in 2018, and projections for the 2030 WEM and WAM scenarios (%). Source: The presentation of Bettina Dézsi and Gabriella Szajkó

2030 targets and projections were available only for the EU DR countries, where they range between 19% (Slovakia) and 42.6% (Bulgaria). The ambitions of the countries are backed by policies and measures mostly providing investment support targeting new RES-based district heating systems, the refurbishment of conventional systems to renewable-based systems and promoting sustainable individual heating methods. The applied and planned support schemes usually do not provide continuous funding, they are irregularly distributed in most countries. Only Czechia provides both investment and operating support.

At present, the mitigation of fossil fuel reliance is mainly based on biomass, which provides the overwhelming majority (91%) of renewable heat supply in the Danube Region, a large part of which serves residential heating. In rural areas biomass is mostly burnt in outdated, heavily polluting stoves, often mixed with coal or trash. The NECPs suggest that the EU DR countries will further increase their biomass reliance in the next ten years, except for Slovenia, Croatia, and Slovakia. As regards the other renewable heating options, solar heating and heat pumps are incentivized mainly for individual heating through investment support, but their share will stay below 30% even in 2030, according to the projections in the NECPs (no data were available for Austria).

Besides biomass, DR countries focus on waste heat and geothermal resources as renewable alternatives for their district heating systems. Upgrading and expanding district heating networks is planned in all EU DR countries, with only Germany mentioning the target of establishing modern low-temperature heat networks. Although geothermal energy for heating could supply more than 25% of heat demand in the EU, it receives little attention in NECPs, albeit the dense structure of district heating infrastructure in CEE would be well complimented by geothermal energy. At present, it is exploited in Germany, Hungary, Romania, Slovakia and Serbia, but the further plans for its deployment are not in line with the potential, often hindered by complex and long licencing procedures.

Gabriella Szajkó pointed out that DR countries plan to increase their biomass use for heating by 24%, from 22.7 Mtoe in 2018 to 28.1 Mtoe in 2030, and the ambitions are even higher in the electricity sector with plans to increase biomass-based electricity production from 21.5 TWh in 2018 to 57.7 TWh by 2030 (168% increase). The widely shared conviction about the climate benefits of biomass combustion, its easy application for co-firing with coal, and the relatively low technology costs contribute to the high ambitions of the countries. Despite its outweighed share (2/3 of heating biomass use), few countries have made plans for tackling household biomass energy consumption. Biomass used for electricity produces about half of the useful energy that it would if applied to heat (efficiency rates of 30-40% as opposed to 70-90%), which should be also reflected in plans and policies.

The comparison of the (negative- net sinking) carbon emission values of the LULUCF (land use, land use change and forestry) sectors presented in the NECPs for 2018 and 2030 suggests that the consumption of the planned amount of biomass does carry the risk of losing forest carbon stocks to the atmosphere. From a total of 68 million tons of CO2eq in 2018, the EU DR countries will only have 20 million tons of CO2eq by 2030 (WEM scenario), which is a loss amounting to 70% of LULUCF carbon sinks.

These two trends, presented in Figure 3, demonstrate that the one-sided policy supporting the consumption of forestry biomass with zero accounted carbon emissions while ignoring the climate economic value of forest sequestration and carbon storage can lead to a significant loss in carbon stocks and carbon sequestration potential in both the EU and non-EU DR countries.

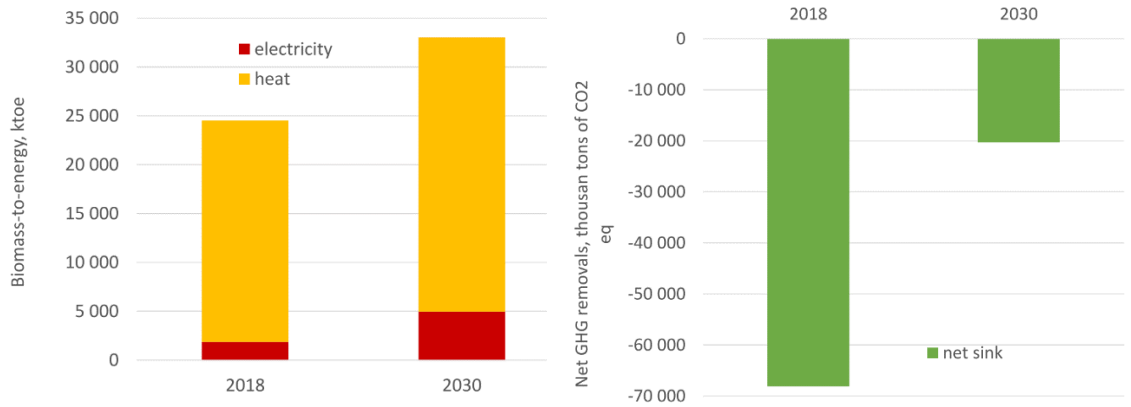

Figure 3: Heat and electricity produced from biomass (ktoe) in 2018 and 2030 (WAM, left figure) and the net removals by LULUCF (GG CO2eq) in 2018 and 2030 (WEM, right figure). Source: The presentation of Bettina Dézsi and Gabriella Szajkó

The presentations were followed by a **panel discussion** focusing on the future perspectives and issues related to the two sectors presented. The discussion was moderated by Balázs Felsmann (REKK), and the participants contributing to the discussion included Biljana Grbić, Advisor of the Energy Community Secretariat, Julian Popov, Fellow at the European Climate Foundation, Tomas Smejkal, Head of the Strategy Unit, Ministry of Industry and Trade of Czechia, Martin Sambale, Expert of EZA (Energie- und Umweltzentrum Allgäu) in Germany, and Matjaž Vrčko, Head of Public Transportation Division at the Ministry of Infrastructure in Slovenia.

The moderator of the panel discussion asked the participants to reflect on the presentations and to highlight those results that they found the most striking. *Martin Sambale* found the problems with biomass resources important. He noted that Germany has maintained sustainable forest management for decades and has a good potential for new heating expansion. However, it is important to pay attention to the carbon sink aspect, and also to the international context of this problem. *Julian Popov* congratulated REKK for the study on DR NECPs and strategies, pointing out that it has several insights and provides a thorough summary of the plans of individual countries that can be used as a basis for debates in policy making also in other regions. He drew attention to the fact clear distinction has to be made between the way biomass is presently used in Central and Eastern Europe, and the way its utilization should be perceived in the long-term. Its highly inefficient burning for household heating purposes is a key political issue in the region that has to be addressed. He also stressed the importance of facilitating the alternative utilization options that are more valuable from the decarbonisation perspective. *Biljana Grbić* underlined that biomass is also extensively used in the Western Balkan countries, for example, according to a World Bank study conducted for the Energy Community some years ago, Kosovo use 50% more biomass than the annual growth of its forests, and there are several approaches for the methodology of identifying the amounts of biomass use that has to be handled. She also noted that the REKK study can be a basis for knowledge sharing in the region, and Energy Community countries currently preparing their NECPs can benefit from its results. *Tomas Smejkal* has found it surprising that sound measures are missing for the heating and cooling sector, Czechia is a good example of addressing this issue and introducing operational support for RES-H. He reflected on the fact that national cooperation is rarely mentioned in the NECPS, arguing that countries had roughly 6 months to put together the NECPs, which was a complex task, and there was no time for effectively coordinating the plans with the neighbouring countries and the other countries in the region. However, when the plans will be updated there will be opportunity for cooperation. *Matjaž Vrčko* considered it a problem that the transport-related measures focused mainly on fuel switch and the promotion of electric mobility. He noted that transportation has to be viewed as a service, meeting demands for moving people and freight, and decarbonisation policies have to address the question of how to change the economic paradigm and the habits of people in relation to transportation.

Question 1: How do you see the problem of neglecting the issue of modal shift in NECPs – is concentrating only on electric mobility a good track? *Matjaž Vrčko* noted that switching to cleaner fuels can result in less pollution, but other issues, such as high traffic and congestions remain a problem. Forecasts prepared for Slovenia show high growth rates in the segments of both passenger and freight transport, which would further exacerbate problems with the

traffic. Therefore, facilitating modal shift and applying other solutions that can help limiting transport demand growth are very important. *Tomas Smejkal* found the focus on electrification of mobility understandable, given that the task of policymakers was to plan how to reach the 14% RES-T share in the NECPs. This, however, does not necessarily mean that modal shift is not considered by the countries, for example, Czechia has a separate strategy which includes the relevant measures. He also mentioned that EVs are not the only focus in Czechia in terms of advancing the use of cleaner fuels, other solutions are also addressed, such as the use of biogas and biomethane. *Julian Popov* reflected to the question of why countries targeted the minimum required 14% RES-T share in their NECPs. According to him, the main issue is the extrapolation of previous and current trends, which might be seen as a mistake, because we are in the middle of a major mobility revolution, which is not confined to the switch to electric and hydrogen-driven vehicles, but also involves a change in logistics, technologies, habits, working and travelling patterns, and the changes are happening at a high speed. None of these trends are reflected in NECPs, it is rare to find reference to autonomous vehicles, vehicle sharing, change in logistics, drones, or micromobility (use of lightweight vehicles for short distances). The lack of including these new approaches is understandable, as policy-makers still don't know how these new trends will shape the future of mobility, but it is important to prepare for the changes. He stressed the importance of international cooperation, as transportation is often a cross-border activity, and thinking about the role of trains in the DR would be important. Railway transportation is lacking behind in the region, it is slow and uncomfortable. He raised the question, whether the Danube Region could be a pioneer of changing transportation on the river Danube by promoting electrification? Electric boats charged with RES-E could be seen by other regions as a major sign of the direction to be set for shipping. *Martin Sambale* agreed that there is a need for change in lifestyles and demand for motorised transport has to be reduced, one possibility is to hold online meetings, avoiding the need to travel. He also emphasized that a different thinking is required in transportation planning, e.g. Germany has a perfect road system, but much less money is turned on railways and bicycle and pedestrian infrastructure. A good example is the Netherlands, where the development of bicycle infrastructure was handled as a priority, and the availability of proper infrastructure attracted more users and resulted in a high share of cycling.

Question 2: Turning to the Heating and Cooling sector, do you see any good practices for increasing the renewable share in heating through solutions other than biomass? *Biljana Grbić* mentioned that non-EU DR countries do not yet have finalized their NECPs, therefore it is not yet known what kind of measures they intend to apply. Serbia adopted a Law on Renewables which has several provisions dedicated to renewable heat. These envisage the support of using renewables in district heating as well as by households and communities, which might have an increasing effect in the expansion of decentralized heat production. Support schemes promoting small scale heating facilities are already applied in some countries, e.g. in Czechia, where installations using geothermal and biodegradable waste are encouraged. The relevant provisions of the Renewable Energy Directive, requiring district heating system operators to provide third party access to their heating networks can help the deployment of decentralised heating systems. Serbia will also encourage the establishment of such installations, although the fact that support schemes have to be administered by local authorities, which might not have the adequate administrative capacities, might hinder the process. She also mentioned the example of Slovakia, where it is mandatory to connect new

buildings to district heating systems which meet the requirements for efficient district heating systems (as defined in the Energy Efficiency Directive).

Question 3: Is there an opportunity to increase the scale of current district heating (DH) systems or rather the renovation, upgrading of the existing systems can be expected? *Biljana Grbić* underlined that most policies are focusing on DH in the Energy Community countries. There are many DH systems in South and Eastern Europe, Serbia, for example, has 66 DH systems, while there are over 1100 district heating companies in Ukraine, supplying more than half of the population. There are some new initiatives in Serbia to exploit geothermal energy to make use of the available resources. *Martin Sambale* noted that in Germany, DH is present in larger cities, and some of them are still burning coal. In his region, only biomass-based district heating operates, using locally and sustainably produced biomass. However, he also pointed out that the main focus should be on energy efficiency, reducing energy consumption through renovations. Using the available technologies, it is possible to decrease heating energy consumption by as much as 50 to 90%. He also shared the good example of Danish DH solution: systems combining solar thermal energy and biomass can set the future direction in other countries as well. As regards rural areas with many single family houses, heating systems based on heat pumps can be used for heating highly efficient buildings.

Question 4: In countries, where energy poverty is an issue, what are the proper ways of encouraging renovation and the deployment of new technologies? And what are the adequate policy instruments to tackle the problem of energy poverty? According to *Julian Popov*, energy poverty is a large policy failure on the European level, especially in Central and Eastern Europe, and is connected with the severe problem of bad air quality. He thinks that the huge promises related to the renovation wave will not materialize, because the demand side is not properly addressed. Subsidizing energy prices and failing to properly tax fossil energy use is a way of subsidizing the rich consumers, not the poor. It would be essential to reform the system to create subsidies dedicated to the energy poor consumers instead of subsidizing prices for everyone. He considers it important to work out proper financial instruments to invest savings into building renovation.

Question 5: What will be the impacts of the raised ambitions of the EU to be released in line with the 55% emission reduction goal on current NECPs? *Tomas Smejkal* noted that updating of targets in the plans is the decision of the member states, although the new legislation and new targets will probably require them to adjust their targets and measures. He shared his worries about the expected increase of the target in the transport sector, claiming that the new plans are on the verge of reality or even beyond reality. If we look at how many countries are failing to reach the current 10% target, it would be important to first investigate the reasons behind the failure. Reaching a 26% RES-T target would be very difficult, even if the adequate number of electric cars and the required financing were available, the rolling out of cars could not be realised within the available timeframe. *Biljana Grbić* said that the clean energy package will be adopted by Energy Community countries by the end of this year, and targets will reflect the increased ambition, however, for those countries, which had difficulties to reach the current targets, the increased goals will be even more problematic to fulfil. *Martin Sambale* stressed that although the new targets are highly ambitious, they are necessary for keeping temperature increase below 1.5 C°. It requires a completely new approach, a total

change in policy and behaviour to have a chance to reach the targets committed to by the EU as a party to the Paris Agreement.