



NATIONAL ENERGY AND CLIMATE PLANS OF DANUBE REGION COUNTRIES

Electricity and Gas Markets

Summary of the on-line workshop, 6 of May, 10:00- 12:00

The workshop was the first 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 workshop focused on the targets, measures and expected outcomes related to the electricity and gas sectors, and sector coupling.

The workshop was chaired by Annamária Nádor, senior scientific associate of the Mining and Geological Survey of Hungary and coordinator for the Sustainable Energy Priority Area of the EU Strategy for the Danube Region. After she provided a brief background of the study and presented the aim of the workshop, the main insights of the analysis related to the electricity and gas markets were presented.

The first presentation by Lajos Kerekes and Katalin Varga (REKK) on the planned development of the electricity sector revealed that all DR countries have demonstrated their commitment to decarbonise their power systems, but their strategies differ significantly. While coal is expected to suffer significant decrease in the EU member states of the region, many countries will continue to rely on coal-based generation even after 2030, and coal will preserve its dominance in most non-EU DR countries. Only three DR countries plan to phase out coal before 2030 (Austria, Hungary, Slovakia). The transformation of the sector will rely on the strong expansion of renewable energy sources (RES) in Austria and Germany, while Central Eastern European countries (Czechia, Slovakia, Hungary, Romania, and Bulgaria) plan for nuclear power as a source of zero carbon power generation. Albeit NECPs refer to gas as a transitional fuel, projections do not seem to support the "coal to gas" switch, only Bulgaria and Hungary expect significant increase in gas-fired production.

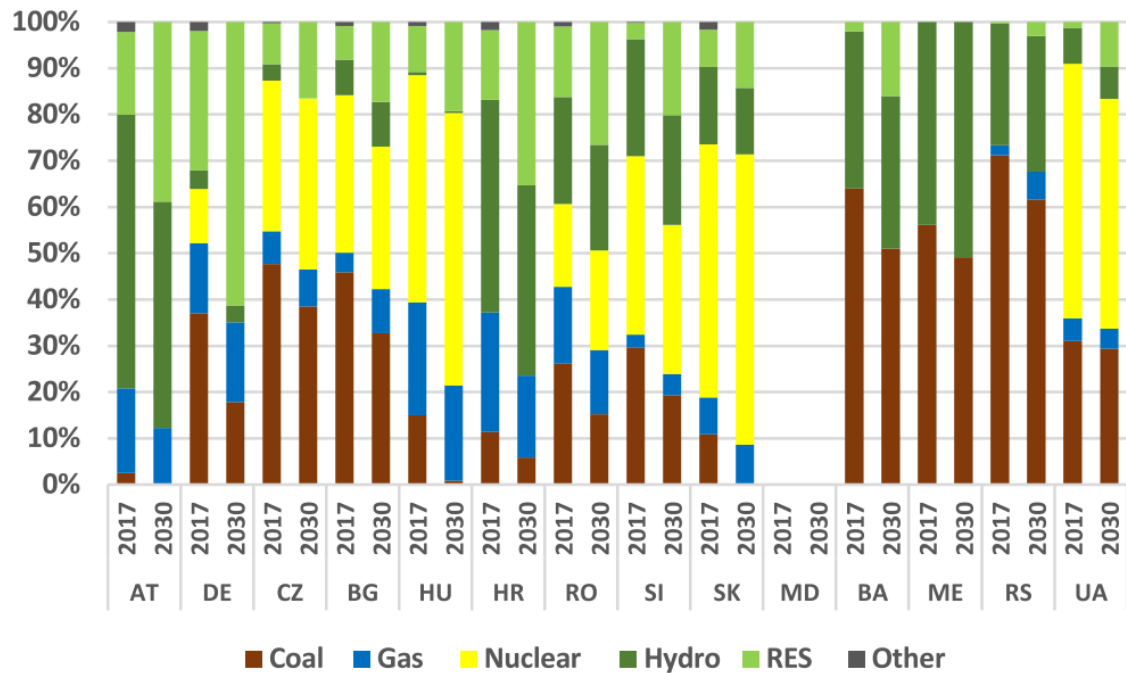


Figure 1: The current and planned electricity generation mix of Danube Region countries in 2017 and 2030. Source: The presentation of Lajos Kerekes and Katalin Varga 2

Lajos Kerekes noted that some future trends might influence the projected evolution of the electricity mix. In case of potential delays in the implementation of the foreseen nuclear projects, the need for natural gas-based electricity might increase. Moreover, the plans to refurbish existing coal plants (to comply with the strict emission limit set by the Industrial Emission Directive) and to establish new coal capacities in non-EU DR countries, currently not exposed to carbon pricing, might turn out to be non-feasible due to the EU policy aiming to implement a Carbon Border Adjustment Mechanism.

Katalin Varga presented the renewable energy targets of EU DR countries, which range between 16.9% in Czechia and 93% in Austria, highlighting the differences in the initial, historic levels of renewable generation, and the divergence between the ambitions reflected in the existing measures and the planned additional measures. The targets are the lowest for those CEE countries which plan to rely on nuclear energy (Czechia, Hungary and Slovakia). Although no 2030 targets are available in lack of the NECPs, some non-EU DR countries have already reached high renewable electricity (RES-E) shares, due to historically high hydro generation (Bosnia and Herzegovina and Montenegro).

As regards the envisaged expansion of renewables, EU DR countries plan mostly solar PV and wind capacity additions to their systems, changing the presently hydro-dominated renewable landscape (except in Czechia, Germany and Hungary, traditionally having small shares of hydro generation). Solar PV capacities are expected to grow by 79 GW and new wind capacities will reach 40 GW according to the plans, most of which will be built in Germany, followed by Austria. The development of renewables has been promoted mainly through operating support, and the competitive allocation of feed-in premiums through auctions is applied or planned in most EU DR countries. Montenegro has also organised locational auctions for solar PV and onshore wind. The presentation pointed out that despite the goal of the Energy Union



to put consumers at the centre of the energy transition, very few NECPs included measures facilitating the involvement of citizens, prosumers and energy communities in the development of renewables, and they also put little emphasis on information campaigns and awareness raising activities. The question of repowering wind plants reaching their end of life in some countries is hardly mentioned among the plans. However, due to the concerns related to the system integration of intermittent electricity, the need for investing in grid infrastructure and the development of intraday and balancing markets are well emphasized in the NECPs.

The second presentation, held by Borbála Takácsné Tóth (REKK) focused on the role of natural gas in the plans of DR countries. She provided an overview of the present role of natural gas in the Danube Region, and pointed out that the share of natural gas in the total primary energy supply of the region is very similar to the EU28 (23% versus 24%), but its contribution varies greatly across the countries, ranging from 0% in Montenegro to 31% in Hungary. Another important difference is the dominant position of coal in some of the DR countries, which provides room for fuel switch and the use of natural gas as a bridge fuel in the energy transition process. However, security of supply considerations are also important: besides its relatively high share in the primary fuel mix and the relatively large overall volume of the DR market (170 bcm/year), the import dependency of gas use is 76% on average, and exceeds 80% in 10 out of the 14 countries.

Regarding the role of natural gas in the decarbonisation of the different sectors, the analysis of NECPs confirmed that the power sector does not plan any considerable expansion of gas-based capacities in the next ten years. The limited investments will mainly target the replacement of old, inefficient units, while the increase in gas consumption from converting coal-fired CHP plants to natural gas will be offset by the replacement of old natural gas CHPs with RES plants (biomass, geothermal). Industry sector decarbonisation will rely on zero carbon solutions due to the long investment cycles in the most emission-intensive subsectors. However, gas use for heating in the household sector will probably remain substantial beyond 2030 in the region, unless the relative cost of alternative heating options decrease. In smaller gas markets of the Balkans the strategic documents envisage the extension of gas distribution networks to provide less carbon-intensive heating solution compared to coal-firing, while in more mature markets the well-developed gas distribution networks will continue to serve households. Only Austria bans new gas connections, the other countries mainly focus on efficiency measures to save on gas consumption.

One of the most striking results of the analysis of the gas sector outlook is the contradiction between the expected change in overall gas consumption in the DR countries, and the level of investments in gas infrastructure development. As the next figure shows, national strategic documents foresee a total of 6 bcm/year fall (3% in the period of 2020-2030) in total gas consumption, resulting from some increase in Ukraine, Serbia, Romania, Bulgaria, Montenegro, Slovenia and Bosnia and Herzegovina, and around twice as much reduction in more mature markets (Croatia, Austria, Czechia, Hungary and Germany). At the same time, the number of gas projects to be implemented by 2030 is quite high, with investment costs estimated to be EUR 14.7 billion. A large part of the proposed new projects cannot be justified by increased reliance on natural gas, but rather contribute to implementing the Russian route diversification strategy.

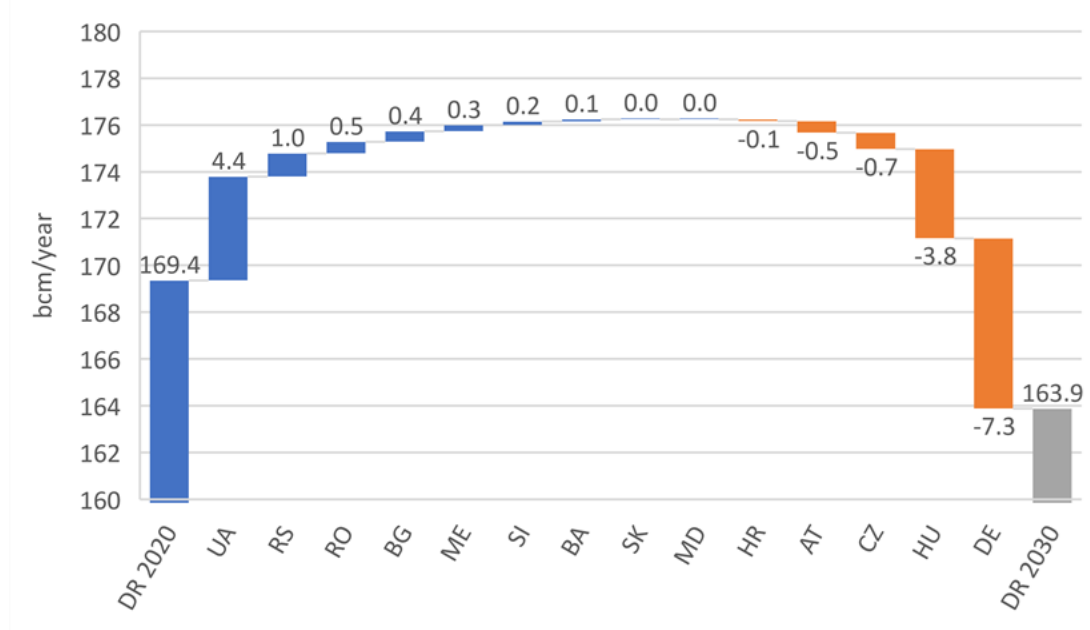


Figure 2: Change in gas consumption in the Danube Region 2020-2030 (bcm/yr). Source: The presentation of Borbála Takáncse Tóth

The presentations were followed by a **panel discussion** focusing on the possible role of gas in the decarbonisation of the electricity sector and the prospects for and barriers to the uptake of renewables. The discussion was moderated by László Szabó, Director of REKK, and the participants contributing to the discussion included Karolina Cegir, Gas Expert of the Energy Community Secretariat, Pál Ságvári, Vice President for International Affairs at Hungarian Energy and Public Utility Regulatory Authority, Davor Bajcs, Infrastructure Expert of the Energy Community Secretariat, Ognjen Markovic, Project Expert of Regional Cooperation Council in Bosnia and Herzegovina and Borbála Takáncse Tóth (REKK).

Reflecting on the results of the study presented by the authors, Pál Ságvári welcomed that also non-EU countries of the Danube Region countries form ambitious energy transition targets despite not having obligations to do so, but also expressed concerns about plans to invest in fossil fuel-based capacities in the countries not-exposed to carbon pricing policy. He raised the issue of the possible problems that can arise during the process of further integrating these countries due to the differences in energy policy approaches. Karolina Cegir, Davor Bajcs and Ognjen Markovic found the DR NECP study very informative and useful for overviewing the plans and measures of the countries in the region and recommended it to the experts of those countries where the national NECPs are under elaboration. Reacting on the question of why countries plan to extend infrastructure when overall planned gas use will decrease, Karolina Cegir said that countries differ widely in this respect. Bosnia and Herzegovina, Serbia and Montenegro have been planning to have gas infrastructure for a long time, but the planning usually does not consider the aspects of the affected sectors (electricity, heating, household sector) in an integrated manner. She also added that the projects will pay off sooner if large consumers make use of the natural gas, therefore, household demand for heating could be met only at a later stage. Davor Bajcs noted that EnC countries rely heavily on coal, especially in the Balkan region, more than 40% of the generation capacity is coal-fired, contributing with slightly below 60% of the annual generation. Therefore, it would be



challenging to replace them in the following few years to switch to more sustainable generation resources. Although integrating higher shares of renewables is not yet a problem, no spectacular changes have happened yet in these countries, altogether 1 GW RES-E was built in the Balkan region, and 5 GW solar and 1.2 GW of wind in Ukraine. All countries expressed strong commitment to change their generation mix and replace coal with renewables, but the direct switch from coal to renewables would be difficult, and at the moment, gas is considered as an important bridge fuel. Ognjen Markovic, who is involved in the preparation of the NECP of Bosnia and Herzegovina stressed that he agreed with the recommendation of Borbála Takácsné Tóth suggesting that those countries, where gas infrastructure is not yet built, should not rely on natural gas in the energy transition process. His opinion was related to the first question posed by the moderator of the panel, László Szabó.

Question 1: Are differences among DR countries in respect of the contradiction between high infrastructure investments and stagnating natural gas consumption?

Borbála Takácsné Tóth noted that witnessing the PEI (Priority projects of Energy Community) selection process of the Energy Community one can see that a huge effort is made in planning and coordinating infrastructure developments, and envisaged projects have recently gained momentum, but it is a question whether these plans are too late to implement, as there is a danger that they would be stranded assets very soon, putting high risks on investors. What if these projects will be outcompeted in the electricity and the household sectors by renewables and other solutions? Karolina Cegir confirmed that the new gas streams were driven by political considerations rather than searching for new capacity needs, and because West Balkan countries are too small markets to attract large investors, they had to wait for large infrastructure projects to be implemented nearby, which now are actually in place. It is a question how they can be exploited in the coming years. On the other hand, Moldova and Ukraine have well-established, dense gas infrastructures, and have to think about how to use them in the future. Ukraine, for example, set up a hydrogen strategy. Davor Bajcs shared that the Energy Community (EnC) has a PEI/PMI selection procedure every two years (Projects of Energy Community Interest and Projects of Mutual Interest), but as gas infrastructure will most probably be excluded from the new TEN-E regulation of the EU, EnC will have to follow this process. Thus, they plan to keep the existing list of the following years but wait with the further gas projects to see how the EnC procedure will have to be aligned with the EU policy. Pál Ságvári added that the situation in Hungary is very different from the case in the Balkan countries, as the former goals of route and resource diversification have been reached already, and even a risk of overinvestment might arise. Under the new energy policy framework, the natural gas sector is not viewed in the context of security of supply axis but in the context of increasing sustainability, i.e. assigning a role to gas as a bridging fuel transiting from coal to a less greenhouse gas intensive fuel, or as a source of system flexibility contributing to the integration of more renewables. Ognjen Markovic stressed that the way how countries transit from coal-based electricity generation to sustainable energy systems depends on the availability of gas infrastructure. The question is whether to achieve clean energy production in two steps or only in one step: Shall countries engage in large investments both in gas infrastructure and gas power plants for some years and then build renewable capacities, or rather switch directly from coal to renewable electricity and flexible resources? He considers the second option much more appropriate, adding that this option requires well-



functioning local and regional energy markets to ensure the required level of system adequacy and flexibility.

Question 2: How do you see the role of coal to gas switch in the region, are there differences between countries, as Ognjen has just raised? What are the factors to consider?

Mr Bajs shared that according to a study commissioned by EnC on the possibilities of introducing carbon pricing in the Energy Community, gas has to play a very important role in the region to replace coal, both as a source of baseload energy and as a provider of ancillary services supporting RES-E integration. He raised his concern about balancing higher shares of RES-E in the region, arguing that geographic distribution of renewables cannot rule out the potential danger of large supply shortages in case of unfavourable weather conditions. According to Pál Ságvári the dilemma is to strike a right balance between sustainability and affordability, as the direct jump from coal to renewables will not happen without providing the right incentives, which, in turn, has implications on affordability. As an example, he mentioned the changes in balancing prices experienced in Hungary. Prices of renewable plants decrease continuously as a result of the successfully implemented renewable auction scheme, however, balancing costs reached as high as 200-300 per MWh in February. According to him, at the moment, gas can provide the required balancing power. Borbala Takácsné Tóth emphasized that high market prices should actually serve as a signal for new capacities to enter, but we can also see a kind of cautiousness for investing in fossil fuels in view of the EU decarbonisation policies. Mr. Markovic added that integrated markets and regional approach to flexibility resources can help overcome the flexibility problem. He also stressed that switching from coal to renewables is not feasible within a short period of time, coal plants will be shut down gradually in his country, and some of them will most probably still operate beyond 2030.

Question 3: We could see that RES-E ambition levels highly vary across countries, Austria and Germany target high renewable shares, while other countries have lower ambitions. How do you see the future of renewables and what are the largest barriers to their deployment?

Davor Bajs argued that the prospects for renewable capacities are excellent, and the EnC would welcome if the RES-E projects could be realized on a market basis. Also, the balancing and flexibility services supporting the RES-E expansion should be provided by the market. If gas plants are competitive, then new gas plants will enter the market. Pál Ságvári said that the policy framework is favourable in Hungary for renewable investments, and the fact that the prices of the last renewable auction dropped to the level of market prices suggests that investors now aim at receiving stable cash flow for their investments. Ensuring the adequate and affordable sources of ancillary services is the grey zone of the policy thinking right now. Karolina Cegir stressed that the role of energy sectors (power, heating, transport, etc.) will have to be linked to help the expansion of renewables. Mr Markovic added that in Bosnia and Herzegovina, the administrative obstacles are the largest barriers to renewable deployment, so that the most urgent task is to remove those.