



HOW TO ACCELERATE NATURAL GAS PHASE OUT IN CENTRAL EASTERN EUROPE

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The Hungarian coordination of Priority Area 2 “Sustainable Energy” of the EU Strategy for the Danube Region (EUSDR) has put the topic of natural gas phaseout in its member countries¹ at the center of this year’s program and contracted the Regional Centre for Energy Policy Research (REKK) to conduct a study on this subject. In this session of the EUSEW 2022, REKK invited think tanks with high reputation in the field (Bruegel, CEPS, and Agora Energiewende) and selected speakers with insights into non-gas-based technologies in the Danube Region (Daikin and Szeged District heating company) to discuss policy options and recommendations for the region to help phasing out natural gas in the heating sector.

Borbála Takácsné Tóth, senior research associate at REKK pointed out in her introductory remarks that the role of natural gas does not differ significantly on average in the Danube Region (DR) from other parts of the EU. The difference however is that the DR countries are a lot more vulnerable because of less diversified supply sources. Comparing demand and supply dependency on natural gas we can see that many countries with a high share of gas in the primary energy mix invested or are in the process of investing in gas infrastructure in the last years to secure source diversification, while those with high import dependency use less natural gas. The case of Moldova is an outlier compared to other DR countries as natural gas is very important in all sectors, and this demand is met entirely from Russian sources.

Further data analysis by REKK showed that due to the increased gas prices, both households and the industrial sector curbed their energy demand in the EU, but the power sector could not save gas despite the high prices. This year gas was indispensable in the European power mix due to the lack of other sources in production. The main factors are the serious reduction of French nuclear-based electricity production and low hydro production throughout Europe in the unusual drought in this summer. Electricity market modelling of REKK indicates, that in the short-run power sector’s gas saving potential is between 100-270 TWh depending on French nuclear and hydro availability, and in the long-run renewables can substitute about 400 TWh natural gas-based electricity production.

Gas market modelling results of REKK suggest that in the short run high gas storage stocks help to survive the coming winter and further demand response combined with alternative sources can compensate for the full cut of Russian supplies in the longer run, even in the highly dependent Danube Region countries. 15% gas demand reduction should be targeted in the household sectors where price signals are necessary, while 25-30% demand reduction in power and heat generation is also achievable. The 15% reduction in the industrial sector might not be voluntary but is an unfortunate reflection of the temporary closure of industrial production in sectors that use a lot of natural gas. On the supply side solidarity from all European countries and interconnectedness is a key, so LNG terminals and storage can be more efficiently used.

Georg Zachmann, a senior fellow at Bruegel highlighted in his presentation that gas phase-out seems to happen even faster than expected, which brings the threat of using other more polluting fossil fuels like coal in bigger volumes.

Zachmann stated that the reduction of Russian supply resulted in a quick and efficient readjustment of other supply routes to compensate for the gas deficit. One source of this flexibility came from the

¹ The area covered by the EU Strategy for the Danube Region stretches from the Black Forest (Germany) to the Black Sea (Romania-Ukraine-Moldova) and is home to 115 million inhabitants. Participating countries are EU Member states: [Austria](#), [Bulgaria](#), [Croatia](#), [Czech Republic](#), [Germany](#), [Hungary](#), [Romania](#), [Slovakia](#), [Slovenia](#); Accession Countries: [Bosnia and Herzegovina](#), [Montenegro](#), [Serbia](#) and Neighbouring Countries: [Moldova](#), [Ukraine](#)

'free' LNG market, and volumes shipped to the EU and UK can be doubled compared to previous year's volumes.

Consumption data from Hungary, Poland, and Romania showed that demand side adjustment is visible in the industrial sector where both year-to-date and monthly data comparisons (current and last year's August) show a massive reduction. Some reduction is also visible in the household sector, but this part is uncertain as the heating season has not started yet. The power sector shows a more mixed picture, Poland and Slovakia significantly reduced consumption in this sector, but gas-based generation grew in Bulgaria, Croatia, and Romania, while it is more uncertain in Czechia, Hungary, and Slovenia. In the electricity market between 2021 and 2022, it seems that the supply curve shifted left and up (less and more expensive supply) while demand not reacted strongly.

According to Zachmann nowadays somewhat normalized prices are observable both on the gas and the electricity markets, but prices are still so high that drastic social and fiscal consequences are expected. In case of any price intervention, unwanted consequences must be avoided. It is important not to lower prices in price-responsive segments, because these can drive up demand, and from the side of suppliers it can reduce supplied volumes. It is also important not to mute signals of justified regional and justified intertemporal price differences. Unfavorable investment signals in the present can have negative effects in the long run when the higher capital cost will be expected by investors. Legacy contracts can also be problematic in case of price interventions.

Several problems occur in the internal market when considering market intervention. It seems that the benefits of bringing in supplies, or reducing demand dilute in the common market, while the cost of bringing in new supplies or reducing demand is felt strongly nationally. Zachmann said that generally, subsidies are very popular among politicians and are expected to grow in many EU countries, but at the same time they allow domestic consumers to outbid foreign consumers. Thirdly, speeding-up investments to increase supplies can be very expensive and hurts future cash flow.

Concluding all these, Zachmann introduced the proposal of a soft price cap where heads of state governments define a certain price level as a guidance, and they commit to keeping prices below this level by nationally unlocking supplies (e.g. by joint gas purchasing) and committing to reduce domestic demand (by moratorium or subsidies). This setup can help to reduce prices while markets are still properly functioning.

After the two introductory presentations, the audience was invited to an interactive poll about some major issues occurring in the current situation.

The first question "Will there be enough gas to supply all consumers in Europe in the 2022-2023 winter?" divided the audience, 49% answered 'yes' and 51% answered 'no'. Georg Zachmann commented on the results, saying that eventually gas supply and demand must meet, the question is at what price? This winter Europe must face 40% less gas supply because of the Russian cut, of which half can be substituted by LNG, so expectedly 80% of regular gas demand will be available. The question is if the available volume will be distributed by the market or rationing.

The second question asked about price expectations of the average monthly spot gas price on TTF in December 2022. 4% of respondents expected the price to be lower than 100 EUR/MWh, 18% voted for 101-200 EUR/MWh, the biggest part of respondents (42%) chose 201-300 EUR/MWh and almost one-third of the audience expected an even higher interval (300-400 EUR/MWh). Only 7% expected prices to be over 400 EUR/MWh.

The third multiple-choice question asked about the necessity of policy or regulatory interventions in Europe. The most popular option was a joint purchase of gas for the EU, almost half of the respondents supported it. With 40% of votes introducing a price cap on wholesale gas and unlinking gas and power markets (abolish pay-as-clear) was also popular. Import tax on pipeline gas was supported by only 15% of the audience while 3% thought that no intervention is needed.

In the second part of the event four speakers representing different actors and stakeholders of energy markets discussed how to phase out natural gas. The panel discussion was moderated by Borbála Takácsné Tóth.

Andreas Graf (Senior Associate of EU Energy Policy at Agora Energiewende, Germany) talked about the importance of reducing gas in the heating sector. Firstly, he stated the importance of stopping processes that are making the problems worse. Germany is the biggest natural gas consumer in the Danube Region and there are still steps that go completely against the reduction of gas dependency. In the last year 615 thousand natural gas boilers were installed, more than in the previous year, for the first half of 2022 the number was 244 thousand, which is complemented by subsidized prices. Fortunately, there are improvements as well, subsidies are granularly reduced in Germany, just like in Czechia and Slovakia. Germany has introduced a 65% renewable requirement for heating appliances in new buildings from 2024 which is a pioneering measure in the EU. Another good news is that the European Commission has announced the plan to phase out standalone gas boilers and replace them with eco-designed ones from 2024 at the latest.

The second important direction is reducing gas consumption by reducing indoor temperatures and by applying smart and personalized solutions (e.g. partial heating of buildings). Not much has been happening in this field, mainly public buildings' heat consumption is managed this way, but commercial buildings are not affected by such measures. Germany is one exception where doors of stores must be closed and lighting for marketing purposes must be turned off from October. Also, other kinds of inefficiencies like incorrectly set boilers will be checked.

Thirdly, applying renewables in the heating sector, for example, heat pumps are getting more and more popular. Biomass usage is also expanding bringing sustainability issues into the picture with burdens on international trading in some cases. At the same time, oil and coal-based appliances in both individual and district heating will be utilized in the short run to minimize the effects of the energy crisis which is a cause for concern.

The next participant of the panel **Hrvoje Krapanić** (Senior Manager Environment Research Centre CEE, Daikin Hrvatska d.o.o., Croatia) described the background of heat pump expansion. He stated that there are substantial investments already in Czechia, Germany, Poland and Slovakia. Daikin Europe alone plans to invest 840 million EUR by 2025, on top of the 300 million € investment in the new heat pump heating factory in Poland.

In his opinion the first thought regarding the heating sector should always be renovation and how to reduce energy use with efficiency measures, greening the sector came with the Green Deal and Repower EU, but the current crises brought new aspects into the picture. Heat pumps are an important part of the greening measures, but it is unfavorable that EU measures only focus on air-to-water heat pumps and forget about air-to-air applications which could be as useful as the other type.

Expansion of air-to-air heat pumps is expected in Central and Eastern Europe where the number of installed applications was 75 thousand in 2020 and 90 thousand in 2021 compared to a total 1.1 million in Europe. In the CEE it is expected that the number of heat pumps will be 3 times

bigger by 2025, and 4 times bigger by 2027 compared to the 2020 data. Repower EU also sets ambitious expansion goals, starting from 2.5 million heat pumps (all technologies, EU level) 10 million hydronic heat pumps must be installed in the next five years and 30 million hydronic heat pumps by 2030. This means on average 3.5 million yearly which is an order of magnitude that the current capacities can hardly satisfy.

In his opinion policies are not well targeted to accelerate high enough expansion of heat pumps but the direction is good. Hungary is one example where air-to-air pumps are supported to substitute outdated one-room gas convectors.

Tamás Medgyes (Chief Operations Officer, Szeged District Heating (SZETÁV), Hungary) described a district heating project as an alternative to heat pumps.

The company he represents, SZETÁV supplies heat and domestic hot water to 27 thousand departments and 400 non-residential users in the medium-sized city, Szeged. This is the biggest project in Europe where gas-based district heating is substituted by geothermal energy, by this improvement the system will be 60% less polluting and 50% geothermal energy based. The project costs 50 million EUR and is co-financed by the European Regional Development Fund sources and private sources (50-50%).

He suggests that switching medium-sized cities to geothermal-based heating is an example to be followed by many other cities, where there is an existing network and where geothermal features are promising. Switching to geothermal energy is an expensive and complex project, but it is a long-term investment and offers final solutions to many problems. To support these projects, governments' help is needed to streamline EU funding to eligible cities.

Christian Egenhofer (Associate Senior Research Fellow at Central European Policy Studies (CEPS), Belgium) as the last speaker of the panel shared some thoughts on the short- and long-term effects of the crisis on the industry. He emphasized that the era of cheap gas is gone, and now industrial players must adapt to the new price environment. It is expected that currently ongoing industrial activities will reduce their volume or will even quit operation during the winter. In the longer- or medium-term, offshore wind from the Nord Sea, Baltic Sea or the Black Sea can be one obvious replacement option. The problem is that electricity or hydrogen produced by offshore wind farms is local and therefore does not offer a solution for landlocked countries. In the past the location of industrial sites followed the location of energy sources, which will probably be the same in the future, raising questions about industry hubs of landlocked countries.



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EUSDR Priority Area(s): PA 2 Sustainable Energy