Policy Paper

SOARING ELECTRICITY PRICES AND DEVELOPMENT IN THE EU; THE ELECTRICITY MARKET DESIGN UNDER SCRUTINY?

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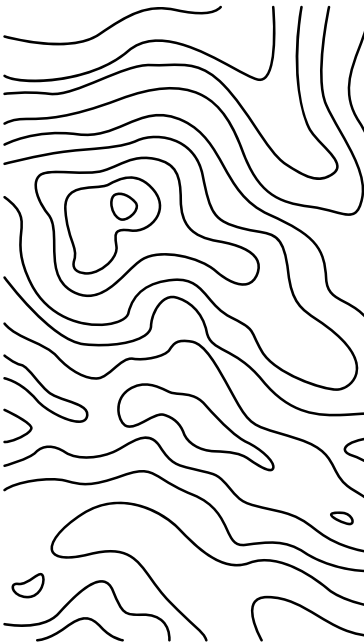

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INTRODUCTION **2**

WHAT IS GOING ON WITH ENERGY PRICES AND WHY? **3**

SOARING ELECTRICITY PRICES AND DEVELOPMENT WITHIN THE EU **8**

REACTION OF THE EUROPEAN COMMISSION AND THE EUROPEAN COUNCIL 9

DISCUSSION ABOUT ELECTRICITY MARKET DESIGN AND WHAT´S NEXT? **19**

WHAT´S NEXT? 22

Introduction

Electricity as a commodity, which for a long time was taken for granted and considered as always available and affordable, is now at the center of many debates due to its price and uncertainty about its availability. Historically, many of us had no idea what our electricity bill was, let alone how much a kWh cost. This autumn it has been one year since we began to perceive rising energy prices and since this issue was addressed at the EU level for the first time. A year later, we are still in a situation when energy prices are well above long-term averages; the stocks have reached the previously unthinkable threshold of 1,000 euros per MWh; uncertainty in the markets is evident; the geopolitical situation has changed radically; and the European Commission together with the Member States are facing an unprecedented situation on how to mitigate the impact of high energy prices for consumers and European industry.

In an attempt to determine the causes of high energy prices, the first one to be blamed as a scapegoat was the European green transition and the recklessness of individual steps, especially the high dependence on natural gas as a transition fuel. Nevertheless, very soon, high prices of fossil fuels, especially natural gas, were assessed as the main driver of high electricity prices. However, it must be taken into account that as part of the energy transition, we considerably neglected energy security and became too dependent on natural gas, on which is the European Union dependent on imports of more than 90%.

The current situation, when dependence on one leading supplier has turned out to be a dire mistake, contributes to the decision to accelerate the energy transition away from fossil fuels and, above all, decrease import dependence. Contrary to the preliminary assumptions we can already say that the current situation has further accelerated the European energy transformation towards renewable energy sources (RES) as they represent a self-sufficient and low-cost resource in

terms of operating costs. However, more than this is needed, as reducing dependence on fossil fuels and replacing them with other sources is a long-term process, not to mention that the EU does not have the production capacities or rare materials for the massive development of RES. Thus, European regulatory framework will need to adjust and, in an effort, to address the current crisis it is already happening.

Despite broad effort, energy prices are still high, and the situation has become untenable for a large number of citizens, services, and industries. The European Commission has proposed several measures, and member states have taken action in this direction. However, the debate is still going on about minimizing the impact on consumers and setting the electricity market design. Does the current marginal pricing setup work correctly? How to address this situation so that the system better reflects the cost of majority production and is sustainable? These among many are the questions that politicians are now facing after many years of smooth market functioning.

The following policy paper will examine the whole issue in more detail. It will analyze the development of energy prices and the causes of their growth. How did European institutions and member states react and what is being discussed today? And whether changing the design of the electricity market is the solution.

What is going on with energy prices and why?

Energy commodities are traded on world markets, commodity exchanges, over-the-counter or bilaterally, under short-term or long-term contracts. Thus, a large number of factors influence the price of energy commodities. In addition to demand - which is influenced by economic activity, and supply - which is influenced by production or production capacity, other factors as geopolitics, interdependencies and objectives of the various actors, as well as weather conditions, play an essential role.

In the autumn of 2021, when an already worrying growth in the markets was beginning to emerge, it was not only in the energy sector that started to cause further uncertainty, raise questions and trigger a wide range of analyses. In retrospect, it was found that this growth was due to a sequence of factors that had been manifesting themselves since the spring of that year. Starting in March, gas storage capacity was only 30% after a cold winter. Furthermore, with the post-Covid economic recovery and increased demand for energy commodities in global markets, production did not and could not respond quickly enough, resulting in lower production of energy commodities and, therefore, lower supply in global markets. Another factor was locally unfavorable conditions for renewable electricity generation, warmer summer weather, higher electricity consumption used for cooling, and, therefore, a higher gas consumption. Moreover, at the same time, a relative decline in domestic natural gas production in the EU (-10% year-on-year) played a role. However, despite this increased demand for gas, the volumes imported into the EU from Russia, Algeria, and Norway have not increased. Significant role played lower investment in new production and a reluctance to increase pipeline supplies beyond contracted volumes, coupled with efforts to accelerate the notification of the Nord Stream 2 regulatory regime.

Another factor was a relatively high demand for gas from Asian countries, where higher volumes of liquefied natural gas were directed. This only worsened when the gas storage capacity was underfilled and the replenishment level was low. Several factors have contributed to the lower filling of the gas storage facilities. Firstly, there was a change in trading strategy as traders shifted from the OTC market more towards the exchange, which directly impacted further price increases through the clearing mechanism, which poses high demands on capital held at the exchange.[1] And due to high gas prices, the owners of the reservoirs

[1] https://www.oxfordenergy.org/publications/a-series-of-unfortunate-events-explaining-european-gas-prices-in-2021-the-role-of-the-traded-gas-hubs/

waited and did not fill them, especially in the case of reservoirs owned by Russian companies; this subsequently proved to be a Russian tactical move. Another factor was the modernization and maintenance of the pipelines. Thus, before the start of the 2021/2022 winter, the situation in the energy markets was tight, and the price of natural gas was more than triple, which was reflected in the price of electricity due to higher production from gas sources. As electricity demand continued to be high, coal-fired generation increased, and the price of emission allowances rose as a result. Market manipulation was initially discussed as a cause, but the April ACER report refuted this[2].

The energy situation after February 2022 is directly linked to the geopolitical situation in the world and related events. First of all, Russia's attack on Ukraine, European sanctions against Russia, and the EU's clear support for Ukraine. There was also growing uncertainty about Russia's next steps and concern about the possible manipulation of gas supplies. Furthermore, the questions of how to replace Russian natural gas in Europe, who are reliable alternative suppliers, and what other sources Europe can use were widely discussed. Finally, the question of the possible recovery of Asian demand and what impact this will have on the EU.

The main factors behind the continuously high energy prices is mainly the high uncertainty in the markets, which are very sensitive to political statements and global developments related to, the persistent risk of natural gas supply shortages in Europe together with actual shortages, coupled with limited transport routes and high global demand, which may increase with the economic recovery in Asia.

All of this has had a significant impact on electricity prices in such a way that looking at the graph of the price of electricity per MWh over the last year, a significant increase in price between August 2021 and now can be observed. With the first peak in October, the situation began to culminate and the subsequent

[2] https://acer.europa.eu/en/The_agency/Organisation/Documents/Energy%20Prices_Final.pdf

calming down in response to the European countermeasures. To illustrate prices in November 2021:

- The average price of natural gas between November 2020 and November 2021 increased by 257%;
- Between November 2020 and November 2021, the price of electricity for 2022 increased by 159%;
- Preliminary CO_2 allowance prices for 2022 have reached €84 and tripled since the average level seen in 2020.

Further peaks occurred in December and January due to higher natural gas consumption, followed by a lull, although short-lived, as commodity price growth resumed after the beginning of the conflict in Ukraine, with the latest record set at the end of August. This period saw the highest prices since the start of this crisis and in history in general, as demonstrated below:

- The price of natural gas on the domestic CAL23 market peaked at 317 EUR/MWh on 26 August; this more than quadrupled between August 2021 and August 2022 and doubled in November;
- The forward price of electricity supply almost hit the symbolic threshold of 1000 EUR/MWh on 28 August with a price of 984 EUR/MWh; the price was thus more than twelve times higher than in August 2021;
- The price of CO_2 allowances was above EUR 80/MWh in August, reaching its peak on 19 August at EUR 98/MWh, an average 80% increase year-on-year. The Commission's original assumption back in the FF55 model was for a range of €21-60 per allowance in 2030.

In November 2022, when the price of electricity was around 350 euros per MWh, it is five times the price compared to a year ago. The price of gas is often the main pricing factor for the price of electricity because, in the current system, where the

price is set by the last power plant needed at a given hour to meet demand, it is very often a natural gas-fired power plant due to its flexibility. Natural gas accounts for more than 70%[3] of the increase in electricity prices. The price of the allowance has risen due to higher demand and enhanced EU decarbonization targets and accounts for more than 20% of the increase in the price of electricity. The rest is due to more expensive hard coal. The higher use of gas-fired power plants in the last year in the EU is due to lower generation from nuclear and hydropower plants, their outages or limited operation due to drought and high heat over the summer. Considering the prices, the last two years have thus been unprecedented for the energy sector and the liberalized electricity and gas market.

The above-mentioned factors, and especially the high price of gas, are reflected in the electricity price due to the interdependence and substantial complexity of the electricity market design, the suitability of which for the future energy system is often debated.

The European electricity market is organized in such a way that the final price for each trading hour is determined by the variable cost of the last most expensive resource needed to meet demand at that time. These days it is often a gas-fired power plant. The variable cost of electricity from fossil fuels consists of the price of gas (or coal) and CO_2 emission allowances. Therefore, countries with a higher share of gas in electricity generation experience even higher price increases than other Member States with a more diversified energy mix.

In addition, electricity consumption and production are becoming increasingly weather-dependent. This is no longer the classic summer/winter split, where for example, in winter in central Europe, the sensitivity of electricity demand is about 1% per degree Celsius due to heating (the colder the winter, the higher the demand). With more renewables in the energy mix, the dependence on weather

[3] https://pravybreh.cz/tri-imperativy-soucasne-energetiky-bezemisni-bez-ruska-cenove-dostupna/

and solar conditions also increases. In other words, as long as the wind blows in the North Sea and the sun shines in the South, cheap renewable electricity is available on the market (from a market perspective, it has almost zero marginal cost, as it needs neither fuel nor allowances, and investment incentives are mostly handled outside the traditional wholesale market). Related to this is the growing demand for flexible resources that can cover the moments when RES does not produce. Producers and traders thus optimize their positions in terms of production costs and market prices practically up to the moment of actual supply, depending on the demand and availability of each type of resource according to its marginal cost.

The sale and purchase of electricity via exchange platforms are standard for all wholesale market participants, producers, traders, or suppliers to end customers. It is always the market price based on the supply and demand of market participants at the time the trade is concluded. The type of futures products traded is baseload (continuous delivery at all hours of the year) and peak load (delivery at peak hours from 8 am to 8 pm on weekdays), mainly for years, quarters, and months, but also weeks, weekends, and days. On the short-term spot market, electricity is traded for the individual trading hours of the following day. Electricity is traded continuously virtually every trading day. In addition to exchange trades, electricity is also traded bilaterally on the so-called OTC market, which are typically contracts for the delivery of a physical commodity, often using the exchange price as a reference price.

Soaring electricity prices and development within the EU

High energy prices have a major socio-economic impact due to the close interdependence of different sectors. Advanced economies depend on a constant and stable supply of energy. Access to low-cost energy has long promoted economic growth and enabled high welfare for society. The European Union is an

example of a group of countries whose economies and high living standards have long benefited from access to cheap energy while at the same time being dependent on high levels of energy commodities imports from outside the EU, where Russia has so far been the dominant player. For a long time, EU countries have relied on mutual and especially economic interdependence with suppliers. However, this situation has fundamentally changed in recent years.

Since October 2021, we can observe significant political activity by the leading representatives of the Member States and European institutions in an attempt to address the possibilities of diversifying their energy mixes and the persistently high energy prices. In this context, especially since the beginning of the war in Ukraine it is discussed as an energy crisis. The main reason behind the political interest is the severe impact on the industry, which is experiencing an extremely high increase in production costs and is losing its competitiveness. Some sectors are also affected by Russian sanctions as they cannot export there. And especially, the impact on the population, whose energy costs are sharply rising, and some even fall under the supplier of last resort because their supplier has gone bankrupt and they have to enter into new contracts that reflect the high commodity market prices. In this context, there is also a growing number of people falling, or at risk of falling, into energy poverty, which used to be a marginal issue for European societies.

This development has thus led to this issue having a high political profile. At the level of the European Union, high energy prices and the energy crisis itself have been intensively addressed since the autumn of 2021.

Reaction of the European Commission and the European Council

The topic of energy prices is thus receiving a great deal of attention in the EU, and the frequency of meetings of the European Council and Energy Ministers has increased since the beginning of the crisis, especially during the Czech Presidency.

Since September 2021, the European Commission has presented a large number of legislative and non-legislative texts addressing these high energy prices.

The Commission introduced the first document 'Tackling rising energy prices: A toolbox for action and support'[4], presenting a coordinated set of tools to tackle high energy prices, on 13 October 2021. The toolbox was subsequently discussed at the Extraordinary Energy Council on 26 October 2021, highlighting the budgetary and fiscal leeway available to Member States to protect consumers from energy price increases, particularly the most vulnerable. Rising energy prices and mitigation solutions were also discussed at the European Council meetings on 21 October and 16 December 2021 and were on the agenda of the Energy Council several times.

The communication on energy prices, the so-called toolbox, represented the first package of guidance that "the EU and its Member States can use to address the immediate impact of current price increases, and further strengthen resilience against future shocks. Short-term national measures include emergency income support to households, state aid for companies, and targeted tax reductions."[5]

Member States have made extensive use of these temporary measures, which have partly mitigated price increases, albeit at a high budgetary cost. However, there were also responses that the electricity market was dysfunctional. In the wake of high energy price rises, Spain, Portugal, and other EU countries wanted to rethink the wholesale electricity market design, which they blamed for extraordinary increases in electricity prices that did not reflect the actual situation on markets. Many saw the problem in the so-called "pay-as-clear" system, where the market price is determined by the marginal cost, which is the final input needed to meet the demand - which is often natural gas as it is a flexible source.

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A660%3AFIN&qid=1634215984101
[5] https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204

This is problematic when natural gas prices have skyrocketed and dragged up the electricity prices, even though gas-fired power accounts for only a small percentage of generation capacity in some countries. In response to this feedback and the overall situation, the Commission has tasked ACER and ESMA to produce reports on the functioning of the energy and carbon markets by April 2022.

On 15 November 2021, the Agency for the Cooperation of Energy Regulators – ACER, released its preliminary report[6] with a preliminary assessment of high energy prices in Europe and an assessment of the current arrangement of the wholesale electricity market. This assessment was significant because it was intended to calm the markets and reflect the growing debate about whether the electricity market is working as it should. This was in response to several Member States questioning its functioning and demanding the Commission address high energy prices. The report confirms that the electricity market is working in principle. The main problem is the price of natural gas, not the design of the market. Thus, political pressure cannot be ignored and has played a significant role since the beginning of the crisis. At the same time, the instability of the markets caused by, among other things, hasty actions and high levels of regulation by Member States and possible divergent measures was and still is perceived as a significant risk. Market-distorting measures only bring more problems, and the solution is only temporary. Given the single market and the high interconnectedness of European economies, Member States should take coordinated action.

In its preliminary assessment ACER also stated that the significant increase in energy prices is a reminder of Europe's continued high dependence on natural gas imports and the inherent volatility of global commodity markets. It is also a reminder that a well-designed energy transition path for the future will depend on

[6] https://acer.europa.eu/en/The_agency/Organisation/Documents/Energy%20Prices_Final.pdf

a coherent policy that focuses on demand as much as supply, focusing on both the short and long term. In its report, ACER warned against price regulation, especially at the level of the wholesale electricity market. While price interventions such as price, supply, or revenue restrictions may allay some concerns in the short term, they risk undermining broader objectives such as further innovation in market supply, competition, and confidence in wholesale markets. Price signals need to be maintained to encourage further development and innovation. Regarding medium- and long-term measures, ACER believes that an efficient and sustainable energy market design is a key pillar for realizing Europe's vision of a competitive and climate-neutral economy. A key feature of the EU wholesale electricity market is that prices and exchanges of electricity across market areas are determined through the coupling of supply and demand.

ESMA's assessment[7] showed that EU ETS allowances have more in common with energy commodities than other traditional financial instruments such as shares or bonds. ESMA has not found any substandard practices in the EU ETS market. Regarding the percentage of open positions held by investment funds and other financial counterparties, ESMA noted that this remains low (recently around 8%).

The following long-awaited detailed ACER report[8] on the design of the wholesale electricity market, released on 29 April 2022, confirmed that the electricity market is working in principle. It says that the market rules have gone some way to alleviating the current crisis and preventing electricity supply constraints or even blackouts. However, the electricity market is not designed for the "emergency" situation the EU is currently in; the current conditions are far from normal. It also

[7] https://www.esma.europa.eu/press-news/esma-news/esma-publishes-its-preliminary-report-eu-carbon-market
[8] https://www.acer.europa.eu/events-and-engagement/news/press-release-acer-publishes-its-final-assessment-eu-wholesale

confirms that the main problem is the price of natural gas, not the design of the market.

The report thus responded to ongoing criticism of the design of the electricity market, and the assumption was that the complaints from member states would be somewhat assuaged. However, this report was not the solution for the southern wing of member states and other critics. Their main argument lies in the market setting and pricing, which no longer reflect the real market price. In other words, if the final price is influenced by the final gas-fired power plant, where geopolitical factors and high uncertainty currently influence the price of its fuel, the price does not reflect the majority price of the energy mix, and consumers do not benefit in any way from renewables contrary to what they would if the system did not determine the price based on the aforementioned logic.

During the February and May Energy Councils, the gas supply state and the EU's level of preparedness in the energy sector were discussed. Subsequently, in response to the ongoing conflict in Ukraine, the Commission issued the REPowerEU package[9] on 18 May 2022. It is a plan that aims to make Europe independent of Russian fossil fuels by 2030. As part of this plan, the Communication on Short-Term Interventions in the Energy Market and Long-Term Improvements to Electricity Market Arrangements was issued, which provides an update on possible short-term interventions that the Member States could take to address the current crisis and protect consumers and businesses. It indicates possible areas for the EC to focus on in the long term; it does not provide definitive solutions and answers but shows the topics and areas they would like to focus on. The short-term measures implemented within the defined timeframe will be extended for the upcoming heating season. The communication builds on market expectations, formulates short-term intervention measures, and looks at possible

[9] https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

electricity market arrangements that will be viable in the future. The plan provides a sound basis for further discussion and, in the light of the crisis, ambitious targets, which Member States mostly accept because they are considered necessary, but concerns remain about implementation in practice.

At the European Council on 30 and 31 May, there was consensus on the importance of improving and increasing solidarity between Member States, preparedness for potential supply disruptions, and the resilience of the EU gas market through the swift negotiation of bilateral solidarity agreements and a coordinated European emergency plan to mitigate the impact of major supply disruptions.

The period following the release of the REPowerEU plan is a period for which the European Commission is sometimes criticized in EU circles for not acting but instead waiting and watching how the situation will develop. Member States have focused on national solutions, most notably the Spanish and Portuguese capping of the gas price, which the Commission authorized as a state aid on 8 June 2022, and the so-called Iberian model has been much discussed since as a possible solution for other Member States or at EU level. It should be noted here that this model was approved for Spain and Portugal due to their remoteness and limited interconnection of their transmission systems to the rest of the EU. At the same time, they are assured of sufficient gas supply through LNG contacts. The downside of this model is the increased consumption of natural gas and the export of cheap, subsidized electricity beyond the borders of the state in which the measure is introduced. These exports of cheap electricity were from Spain to France, and the increase in gas consumption was also significant. Therefore, this model is inappropriate for the Member States or the EU as a whole because an increase in gas consumption would be counterproductive when shortages are being addressed. At the same time, cheap electricity would be exported to the UK, Switzerland, and the Balkan states through high interconnection.

Since spring, the Commission has also intensified the meetings of the coordination group for both electricity and gas at the technical level and is monitoring the impact of the various measures implemented by the individual Member States. Furthermore, the Commission has been analyzing the energy market design since July so that the increasing share of RES can be taken into account also in terms of long-term development and decarbonization.

At the same time, during the summer, Member States continued their political pressure on the European Commission to come up with a solution for the electricity market design. Nonetheless, the Commission has been inconsistent in its statements, while information at the technical level suggests that a revision of the electricity market design was not planned, and the Commission stuck to its mantra that the market works well and has historically brought us many benefits, but it is not made for such a crisis situation. And stating at the political level that the EU electricity market no longer works and needs to be adapted to the new reality of dominant renewable energy sources.

The topic of energy prices also dominated the traditional meeting of European electricity regulators, the so-called Florence Forum, held on 9-10 June. The Forum expressed concerns and urged Member States and the Commission to be cautious about the long-term impact of national temporary emergency interventions in wholesale electricity markets. The Forum signaled that, in the context of high energy prices, measures of direct support to end-users should be preferred to interventions in wholesale markets and, in any case, measures that undermine energy transformation, flexibility, energy efficiency, and competition in the retail market should be avoided. The Forum concluded that the fundamentals of the current market arrangements are sound and stresses the need for full implementation of the already agreed legislation in all Member States. They referred mainly to the low level of implementation of the so-called winter package of 2019. However, given the EU's plans to diversify energy sources, save energy

and accelerate the transition to clean energy, the Forum agreed that it was important to consider how to optimize the functioning and integrity of the internal electricity market in the future. Uncertain signals from the Commission also led the discussion at the Florence Forum. Stakeholders have openly complained that instead of the Commission being the engine of the internal energy market and the guardian of the Treaty, as it has been for the past decades, the Commission seems to be unclear in its signals and is partly sabotaging the internal market.

In the context of the energy crisis and the Commission's unclear signals, internal divisions over the electricity market design have also emerged among Member States, which were divided between southern states calling for market reform and clear intervention in the pricing system and other states opposing significant intervention in the design of the electricity market and stressing that the market design cannot be blamed for the current situation.

Subsequently, the Czech Presidency took over the Presidency and succeeded to some extent in moderating the debate between the Member States and the European Commission and eliminating uncertainty in the markets through joint actions. It was important for the Czech Presidency that the Member States find a consensus among themselves and coordinate in a unified manner because the risk of individual action was too high both from a security and economic perspective. This Presidency is characterized by the largest number of extraordinary European Energy Councils ever and also represents a milestone in European legislation, when, for the first time, Article 122 TFEU was activated as a Legal Basis for Energy Emergency Measures in the energy sector, under which several temporary crisis regulations were negotiated.

The beginning of the Presidency was specific because the EU was preparing for a scenario in case the natural gas supply from Russia to the EU stops and NordStream 1 does not start after a technical shutdown, which was due to end on

21 July 2022. Thus, there was an increasing emphasis on the EU's action, solidarity, and unity of action as a whole. In response to this situation, the European Commission issued a package of measures called Save Gas for a Safe Winter, aimed at preparing EU countries for this winter in the event of an interruption in Russian gas supplies. This package was discussed and approved at the first Extraordinary Energy Council on 26 July 2022.

As of August 2022, the Commission is, for the first time, starting to admit, rather under political pressure, that it will discuss with Member States and relevant actors a possible change in the electricity market design. Subsequently, in response to the record gas and electricity prices in August and the impact on the EU community, the group of southern Member States open to some urgent market intervention began to expand, with the most resonant solution being the possibility of capping the price of natural gas.

The European Commission was thus under pressure to propose solutions to high energy prices and, on 7 September, presented a package of five measures[10], which include: a mandatory target for reducing electricity use at peak hours, a cap on the revenues of companies that are producing electricity with low costs; a solidarity contribution for fossil fuel companies; an update of the existing temporary framework to facilitate the liquidity support by Member States for energy companies; and a price cap on Russian gas. These measures were discussed at the Extraordinary Energy Council on 9 September, there was broad support among Member States for temporary measures that would be effective immediately, especially the possibility of using infra-marginal revenues, and Member States also supported reducing consumption. However, the Russian gas cap was considered a very sensitive political issue on which the member states have not found a consensus. Subsequently, a compromise text on these measures was reached

10

between Member States in an accelerated process as a temporary emergency regulation under Article 122 TFEU on the Commission's proposal, adopted at the Extraordinary Energy Council on 30 September under the title Council regulation on an emergency intervention to address high energy prices.

The final version of the Council Regulation contains measures based on the Presidency's summary of the extraordinary Energy Council of 9 September. However, the solution presented was not considered sufficient, and it was clear that further measures, mainly focusing on support for industry, would be necessary to successfully manage the impact of electricity prices. In this spirit, the Czech Presidency called for the extension of the emergency crisis framework, the presentation of a proposal to stabilize the electricity market, and reduce the impact of gas prices on electricity prices.

For energy ministers, the intensive meetings at the European level are important, given the endeavor for a unified approach and the extreme impact on citizens and national economies. Important actors seeking a joint solution to high prices and actively speaking out were, for example, representatives of Greece, Spain, the Netherlands, or Poland. However, everyone is approaching the search for solutions in a constructive manner, and the European Council, at the level of energy ministers, can be described as the engine of joint negotiations in response to the energy crisis, where they push the European Commission to come up with quick and effective legislative proposals. The position of the European Parliament is interesting in this respect, as it is placed in the role of a bystander without the possibility of intervening in the legislative process for temporary legislation adopted under Article 122 TFEU.

Addressing the energy crisis, high energy prices, electricity market reform, and gas supply dominated the informal Energy Council held in Prague on 12 October. At the first formal Energy Council on 25 October, the Commission presented, among

other things, a Proposal for a Council Regulation on joint gas purchases, gas market interventions, and emergency measures and solidarity. This was subsequently discussed, together with the regulation to speed up the permitting process, at the Extraordinary Energy Council on 24 November, where Member States agreed to seek the adoption of these Regulations together with the regulation on market correction mechanism at the last scheduled Extraordinary Energy Council on 13 December.

These crisis regulations should be a set of measures complementing the REPowerEU plan and aim to send a unified signal of joint action within the Union, stabilize markets, and confirm the direction of the energy transition towards a renewable and carbon-neutral European Union in 2050. For the future, it is also clear that these measures represent only a temporary crisis framework for dealing with high energy prices, which is only intended to temporarily accelerate the resolution of the current crisis and will need to be integrated into the broader legislative framework of the European transformation. This crisis represents a significant challenge for the European energy sector and also for the electricity market design, which, as it is now clear, will have to change; although it has its supporters, served us well in recent years, and brought us many benefits. After preceding long discussions, the European Commission finally officially confirmed[11] at the end of November 2022 that it would like to present a new legislative proposal on electricity market design at the end of March 2023 to better reflect the new energy system and to break the line between electricity and gas prices.

Discussion about electricity market design and what´s next?

Before the crisis began, there was already a discussion about the suitability of the current electricity market design for the new energy order. However, as already

[11] https://www.reuters.com/article/eu-energy-reform-idAFS8N30L01B

indicated above, this discussion has significantly intensified with the crisis, especially in the context of electricity pricing, which is determined by the final power plant that can meet demand at a given trading hour. Looking at the issue more broadly, the electricity market is specific by the very nature of the commodity itself, electricity, which as such cannot yet be stored in significantly large volumes, hence it is necessary for generation and consumption to be equal.

The current electricity trade takes place in a liberalized market. However, this market is to a certain degree distorted by the significant state and union support for renewables, which are largely subsidized, not burdened by the price of emission allowances, and inherently have low operating costs. Even though it is important to point out that national subsidies for fossils are also non-negligible, nevertheless subsidies for renewables were since 2012 higher according to the European Court of Auditors[12]. If the final price of electricity is formed according to the merit order effect, and if we consider the fact that the closing power plants are mostly gas-fired, then all this difference in operating costs between RES and gas is a profit for the RES owner, and it fully covers the operating costs for the gas plant owner. If the EU has decided to switch to carbon-free energy, this system is theoretically suitable because it will gradually displace sources that are losing competitiveness. In practice, however, several problems arise in this setting. In the context of the energy crisis, the main problem has been that if the gas price is distorted and still sets the marginal price, then it also means extreme profits for all the producers. This, at a time when the price is becoming unaffordable for households and industry it is unreasonable and unfair that they cannot benefit from renewables, and therefore, the energy transition based on environmental goals, cheap renewable electricity, and gas as a transition fuel is losing its justification.

[12] https://www.eca.europa.eu/Lists/ECADocuments/RW22_01/RW_Energy_taxation_EN.pdf

There were also other problems associated with the transition before the crisis, and it is possible that the current situation will exacerbate them and increase the differences between the Member States in this respect. Firstly, the conditions for renewables are not evenly distributed across the EU Member States, and secondly, the electrification interconnections between countries (often even the national grid) are not sufficient to allow everyone to benefit from the low price of electricity in one place, to be generated by RES with almost zero operating costs. Thirdly, we are talking about a single market, but at the same time, there are states with different purchasing power, which then, when everyone has the same electricity price or when an economically stronger state sets the market for a weaker one, disadvantages households and industry in the state with the lower purchasing power. Finally, it is necessary to mention the intermittent nature of RES, i.e., these sources produce only when the sun shines, or the wind blows, so it is not possible to follow the basic rule that production must equal demand/consumption. Therefore, either some kind of electricity storage system for them, which is not yet available in sufficient capacity, or backup sources that will wait until needed, are necessary. Here we are talking about the need for capacity mechanisms. According to the original EU plan, natural gas was to play the role of this flexible medium as a transitional fuel.

However, as mentioned, when the price is determined in many parts of the day by natural gas, which Russia uses as a weapon, the question arises whether such a system is still socio-economically sustainable. Because the original idea was that the more renewables with almost zero variable costs in the European energy mix, the lower the price of electricity would be. The opposite is true when natural gas covers the moments when renewables do not produce electricity, and when nuclear plants in France are shut down, or when there is not enough water in the rivers to produce hydroelectricity or to transport coal. What then happens is that a relatively small share of production can significantly affect the final price of

electricity, which negatively impacts industry and households. And through these considerations, together with the realization of our dependence, it is not easy to find a solution among EU leaders that would represent a good compromise for all Member States.

A year ago, a war in Europe was unimaginable, and economic interdependence was a certain form of prevention. However, in the energy sector, this has proved to be fallacious for the European Union, and especially for some member states. The energy crisis and the demonstration of Russia as an unreliable trading partner thus represented a rude awakening for the EU, but it did not slow down the European decarbonization efforts and did not weaken the EU in its unity. On the contrary, countries have shown a high degree of unity, and pressure has increased for a faster pace of energy transition. The response of the European Commission and the Member States to the energy crisis may seem slow or insufficient in some respects. Nonetheless, the situation has certainly not been easy, especially when dealing with such a complex sector as energy.

What´s next?

Given the above circumstances, it is clear that any intervention in the design of the electricity market will be a complicated task. However, it will be needed to better reflect future realities in the energy sector, especially with the increased development of decentralized renewable energy sources. Even though the current market setup has brought many benefits and still has its proponents, change will be needed to ensure that the current electricity market design architecture does not undermine the energy transition.

As mentioned above, the European Commission plans to issue a first proposal for the electricity market regulation at the end of March 2023. However, it is still unclear whether this will be a complete reform or just a revision. Overall reform is not expected, given the Commission's approach in previous months. Too broad reform is, according to many experts, inappropriate in a moment of crisis and

would probably be premature. Many also argue that the Member States have still not fully implemented the winter package, the implementation of which could have helped to prevent some of the problems the Member States are facing today. The new design will need to better reflect the growing share of RES and address the challenge of integrating intermittent renewables, especially by encouraging flexible demand to match output from renewables, decentralized generation, and a greater role for market flexibility. Nevertheless, the new market design will not only reflect new market realities but will also have to respond to the current challenges and pricing position of gas-fired power plants and, as the Commission suggests, break the line between electricity and gas prices.

On the one hand, the principle of marginal prices in the wholesale electricity market encourages the development of flexibility measures and allows for efficient use of generation facilities across the Union. On the other hand, the sources of flexibility and the issues that we are facing now, when there is a need to use generation from gas-fired power stations despite the current high price, will have to be addressed, and reflect the increasing number of renewable energy and need for more flexibility in the future. The temporary crisis regulations negotiated in recent months will bring some solutions, but they represent a rather substantial intervention of the state in the liberalized energy market, and it is questionable how long such a situation is sustainable. In the future, we will certainly have to give more space to long-term contracts, such as power purchase agreements or contracts for difference, and more focus on the role of smaller decentralized producers will need to be given. The new market design should reflect all of this. However, the question is whether it is appropriate to address such a market change now in such a short period of time when the Commission should be presenting a new or modified architecture within a few months that should reflect all of the above issues?

About the author:

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