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EUROPEAN POLICY ANALYSIS

EU Energy Market Regulation after the 2022 Energy Crisis: the reforms so far and the challenges ahead

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Summary

This analysis examines, from a legal and policy perspective, the impact of the energy crisis of 2022 on the operation of the European Union's electricity market, and the European institutions' response. It explores how the achievement of the three core objectives which have been at the root of European energy policy – energy security, sustainability and affordability – has been affected during and after this crisis. It describes both the initial crisis measures and the various initiatives proposed by the European Commission as part of the so called REPowerEU strategy. That agenda is, however, complex, both in the medium and longer term, and likely to lead to more state intervention into the operation of the energy market.

The analysis goes on to consider the tension between energy security – the EU is still reliant on the supply of fossil fuels, especially on natural gas as a 'transition fuel' – and the Union's climate objectives, not just in the short term but even in the medium term. In the longer term, measures to guarantee resilience in the energy supply chain may require industrial policy goals to be more a closely aligned with energy and climate policy goals. Can the EU institutions, building on the experience of the 2022 crisis, now set the policy agenda for the energy transition more efficiently?

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Introduction

This European policy analysis examines the European institutions' response to the impact of the energy crisis of 2022 on the operation of the Union's electricity market from a legal and policy perspective. It will explore to what extent the three core objectives which have been at the root of European energy policy – energy security, sustainability and affordability – have been achieved during and after the energy crisis of 2022.

The analysis will focus on the initial crisis measures, adopted on the basis of emergency powers as provided for Article 122(1) TFEU, and in particular on the various initiatives proposed by the European Commission as part of the so called REPowerEU strategy, launched by the Council in March 2022.[1] The Commission's detailed plan[2] has set higher targets for non-fossil production, including wind, solar and green hydrogen, and places a firm emphasis on a just transition and distributional goals.[3] This in turn has led to proposals for fundamental energy market reform, in the light of the changing structure and functioning of the European electricity market, as the share of intermittent renewable generation in overall electricity supply increases.

> '[H]as the initial response to the energy crisis of 2022 led to an increased centralization of powers in the EU institutions at the expense of national governments?'

In the light of this examination, the analysis considers whether the crisis and its aftermath has impacted on the division of legal competence between the European institutions and the member states on matters of energy policy and the pursuit of the energy transition: has the initial response to the energy crisis of 2022 led to an increased centralization of powers in the EU institutions at the expense of national governments? It also considers further, related questions: can the measures adopted in 2022 be said to provide the basis for a new European approach to energy and climate matters? Can we observe a greater commitment to solidarity between the member states to share the challenges of the energy supply shocks? Can the EU institutions now set the policy agenda for the energy transition more efficiently? And finally, are there any emergent trends that are likely to be perpetuated in the longer term as Europe seeks to transition to a net zero carbon economy?

The paper proceeds as follows. Section 1 briefly describes the energy crisis and the policy response: the safeguarding of the three major goals of European energy policy – energy security, sustainability (climate neutrality) and competitiveness (affordability) – has been the subject of intense legislative activity and, increasingly, policy debate. Section 2 outlines some key legal and policy issues relating to the regulatory initiatives first launched in 2019 in pursuit of the EU's climate goals and subsequently revamped, in the wake of the energy crisis, in the EU's 'REPowerEU' plan. It explains that, at present, energy security in the EU still relies on fossil fuels supply, especially the role of gas as a 'transition fuel' even if this seems at odds with the Union's climate objectives. It goes on to examine the constitutional issues at stake, to summarize the key legislative acts and to assess the impact of these post-crisis regulatory measures.

Section 3 looks to the medium term and the role of market reform in delivering the energy transition and the current debate on the reform of electricity market design. An important question is whether the planned reforms might lead to more state intervention into the operation of the energy market and, if so, at what level.

In section 4 the focus shifts to the longer term, and the emerging European policy initiatives and the new legal instruments intended to guarantee long term resilience in the energy supply chain. It considers how industrial policy goals appear to be more aligned with energy and climate policy goals than was once the case. In these

[1] European Council Conclusions (24 and 25 March 2022); Commission, 'REPowerEU: Joint European Action for more affordable, secure and sustainable energy' (Communication), COM(2022) 108 final.
[2] Commission, 'REPowerEU Plan' (Communication), COM(2022) 230 final.
[3] The REPowerEU plan has also placed a firm emphasis on just transition and distributional goals, but this aspect of the plan is beyond the scope of this paper.

increasingly complex endeavors, the division of competences between the EU and its member states remains crucial. Industrial policy is also a shared competence, so a key question is whether the EU institutions can become more relevant than in the past when it comes to promoting value chain resilience and energy security.

The conclusion reflects on whether, in the wake of the crisis and the policy development it provoked, the Union is better placed to manage trade-offs between energy affordability and resilience, and between maintaining industrial competitiveness and the current climate ambitions. Has the EU come a step closer to the 'man on the moon moment', as the launch of the EU's Green Deal in 2019 was dubbed by European Commission President Ursula von der Leyen?

1. The energy crisis and the emerging challenges to EU energy policy

With a market size of about 250 million consumers, the European energy sector is characterised by a strong disparity between its energy resources, its energy production, and its energy consumption. In 2021, the EU imported 155 billion cubic meters (bcm) of Russian gas, i.e., 45% of its gas imports and almost 40% of its total gas consumption. The EU's dependence on fossil fuel imports allowed Russia to use energy as a weapon, reducing pipeline gas flows to Europe by 80% over the course of 2022 and fuelling an energy price crisis, as the cost of gas and electricity rose by up to ten times in 2022 compared to historical averages. These sharp increases in retail prices for households and businesses, raised concerns at national level over the impact on household budgets and on industrial competitiveness.

In retrospect, 2022 proved to be an unprecedented year for renewable power generation and solar deployment in Europe. Wind and solar combined generated more electricity than gas for the first time and new solar capacity was 47% higher than in 2021.[4] Despite a slight increase in overall electricity generation from coal, coal generation fell from September to December 2022 (compared to the same period in 2021).[5] The energy crisis seemed to have abated somewhat by the summer of 2023: thanks to a mild 2022/2023 winter, energy savings and industrial production curtailments, gas storage levels are higher than expected for winter 2024. European gas consumption was down by some 15 percent compared to pre-crisis levels.

Nevertheless, in the course of the crisis, large amounts of public money were spent on national price subsidies to shield consumers from high prices, which put a strain on public budgets and probably damaged the EU's credibility when it comes to state aid discipline. Between September 2021 and January 2023, EU governments earmarked several billions of euros to shield citizens and businesses from the high prices.[6] This support was not evenly distributed across the EU, however, and price measures were mostly untargeted. The three largest economies account for 70% of the total support: Germany (40%), Italy (14%) and France (14%).[7] This also raises the issue of how effectively the Treaty rules on state aids (Articles 107 and 108 TFEU) have been applied in practice.[8]

Even if pressure on wholesale energy prices has receded since December 2022, the energy crisis is not resolved. Russia's weaponisation of energy was a major wake-up call for the EU to focus on security of supply and external dependency but it has also underlined the fragility of industrial

[4] Commission, 'State of the Energy Union' SWD(2023)646.

[5] However, the shift away from fossil fuels was put on hold by the twin crises in Europe's electricity system in 2022. A massive drought across Europe led to the lowest level of hydro generation since at least 2000, and there were widespread unexpected French nuclear outages just as German nuclear units were closing. This created a large 185 TWh gap in generation, equal to 7% of Europe's total electricity demand in 2022. Five-sixths of the gap was made up by more wind and solar generation and a fall in electricity demand. But the remaining sixth was met by increased fossil generation. See further Commission, 'State of the Energy Union' SWD(2023) 646.

[6] The IEA has tracked extra spending to reduce energy bills in 2022 at around USD 350 billion in Europe, see IEA (2023), 'Fossil Fuels Consumption Subsidies 2022', https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022.

[7] ACER (The European Union Agency for the Cooperation of *Energy* Regulators), 'Assessment of emergency measures in electricity markets 2023 Market Monitoring Report 14 July 2023', https://acer.europa.eu/Publications/2023_MMR_EmergencyMeasures.pdf.

[8] See also Commission, 'Report on Energy Subsidies in the EU' COM(2023) 651 final.

competitiveness in the Union. The International Energy Agency (IEA, an international organization which monitors national and regional energy markets) recommends that the EU accelerate improvements on numerous fronts, especially on the demand side, including energy efficiency, deployment of renewables and electrification of heat, as well as cutting back on excess consumption.[9]

The initial short-term response to the energy crisis of 2022, as discussed in detail in the next section, was the exceptionally rapid adoption of a series of interventionist, EU-wide emergency measures under the name 'REPowerEU'. The measures sought to limit demand for gas and electricity, to bolster solidarity between the member states and to contain electricity and gas price rises. The detailed REPowerEU plan, adopted in May 2022,[10] set higher targets for non-fossil energy production, including wind, solar and green hydrogen, and places a firm emphasis on a just transition and distributional goals. It also announced a fundamental reform of Europe's existing electricity market arrangements to secure fairer and more predictable prices for consumers and greater regulatory certainty for investors in renewable energy.

But now, the pendulum appears to be shifting again back to the national level, following the adoption of USA's Inflation Reduction Act in early 2023 and in the looming shadow of the forthcoming European Parliament elections in June 2024 and the end of the current Commission mandate in December 2024. There is an emerging backlash against what is perceived as the pursuit of excessive European intervention by means of far-reaching regulation, and the creation of more 'red tape'. There are concerns as to whether this large body of European rules – often adopted in haste and with the minimum of consultation – have been properly thought through. The competitiveness of Europe's industry is key for Europe's continued prosperity, but what impact could this pushback have on realizing the goal of a resilient European-wide climate and energy policy?

2. From the EU's Green Deal to REPowerEU

The EU's Green Deal is a comprehensive policy roadmap which aims to transform the Union's economy and align it with the goals of the Paris Agreement of 2015.[11] The launch of the Green Deal in December 2019 also led to the adoption of the first EU climate regulation, in 2021, which sets legally binding EU-wide targets on reducing greenhouse gas emissions in order to achieve 'net zero', or carbon neutrality, by 2050.[12]

To deliver these targets, the Commission initiated a raft of legislation in a package known as 'Fit for 55'. This was tabled in early 2021 and is now close to finalization.[13] It set in motion an intensive overhaul of the EU's existing energy and climate legislation as well as the earlier Governance Regulation 2018/1999.[14] The latter regulation requires member states to produce national energy and climate plans at regular intervals to allow the Commission to monitor progress towards achieving the Green Deal targets. A gas 'decarbonisation' package was also launched in December 2021 with the aim of modernizing existing European natural or methane gas market regulation to accommodate both renewable gas and hydrogen as substitutes for natural gas.[15]

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[9] IEA (n 6).
[10] COM(2022) 230 final.
[11] Commission, 'The European Green Deal' (Communication) COM(2019) 640; Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.
[12] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality [2021] OJ L243/1. The goal of carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks.
[13] The Commission proposed a package of new and revised legislation known as Fit for 55 in 2021, comprising 13 interlinked revised laws and six proposed laws on climate and energy.
[14] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action [2018] OJ L328/1.
[15] Commission, 'Proposal for a Directive of the European Parliament and of the Council On common rules for the internal markets in renewable and natural gases and in hydrogen' COM(2021) 803 final.

Following the surge in gas prices in the late autumn of 2021, the Commission did not consider reviewing these legislative packages. Instead, it responded with several non-binding recommendations to member states on how to use 'the existing toolkit' to address the energy price crisis. But with the outbreak of war in the Ukraine and the threat of a serious gas supply shortage, the Council announced a more comprehensive response, in March 2022, and invited the Commission to propose a detailed plan to deal with energy security and affordability,[16] leading to the publication by the Commission, two months later, of its detailed 'REPowerEU' strategy and the adoption of a string of further legislative measures.[17]

The thinking behind REPowerEU is clearly that energy security requires firmer climate action. The initiative called for an accelerated roll-out of renewable energy to replace the use of fossil fuels faster in order to further reduce energy dependence on Russia. This means, *inter alia*, building more renewable energy generation capacity, building it quicker, and ensuring wider integration of renewable energy sources into final energy uses. REPowerEU assumes a phase out of Russian fossil fuels by 2027. It aims at tripling the installed capacity of solar and wind by 2030. Its proposed hydrogen targets are equally ambitious.[18]

As a result, the initiative scaled up the Green Deal's 2030 target for renewables from 40% to 45%. The new 2030 greenhouse gas emission reduction target is now 55%, in line with the EU Climate Law adopted in 2021.[19] But to achieve climate neutrality by 2050 means an EU-wide emission reduction rate of more than twice the yearly average reduction achieved between 1990 and 2020.[20] REPowerEU also envisages a substantial increase in EU backed financial support for the clean energy transition, consolidating a variety of existing funds as well as setting up a new 'Just Transition' fund to support the member states expected to be the most negatively impacted by the transition towards climate-neutrality.[21]

'Despite these ambitions at European level, complex questions about how best to manage or guide the energy transition and who is best placed to do so have continued to emerge.'

In sum, these REPowerEU goals and targets are pursued through a combination of short, mid-term and long-term targets and measures across four main pillars: (i) reducing energy demand; (ii) diversifying the supply of conventional (fossil) fuel imports away from traditional providers, and 'futureproofing' the corresponding infrastructure; (iii) accelerating the transition to renewable energy sources including clean hydrogen; and (iv) funding to accelerate investment in new facilities and for training in relevant new skills.[22] Despite these ambitions at European level, complex questions about how best to manage or guide the energy transition and who is best placed to do so have continued to emerge. There have not yet been any satisfactory answers to these questions and the next sections explore how, thus far, the simultaneous realization of the goals of security of supply, sustainability and affordability has proved elusive.

2.1 Natural Gas as a transition fuel for security of supply

The trade-off between security of supply and sustainability is illustrated by the case of natural gas. Currently, and as REPowerEU also recognizes, energy security in EU still relies on the supply of fossil fuels, especially gas. Fossil fuels will still need

[16] With the 'Versailles Declaration' of 11 March 2022, the EU leaders invited the European Commission to propose, by the end of May 2022, a REPowerEU plan to make the EU independent from Russian fossil fuels: https://www.consilium.europa.eu/media/54773/20220311-versailles-declaration-en.pdf
[17] COM(2022) 230 final.
[18] The European Commission has proposed to produce 10 million tonnes of renewable hydrogen by 2030 and to import 10 million tonnes by 2030.
[19] Regulation (EU) 2021/1119.
[20] Climate Analytics, '1.5°C pathways for the EU27: accelerating climate action to deliver the Paris Agreement', September 2022 https://climateanalytics.org/media/1-5pathwaysforeu27-2022.pdf.
[21] Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund [2021] OJ L231/1.
[22] The plan also includes recommendations to tackle slow and complex permitting for major renewable projects.

to feature in the EU energy mix in many member states, at least in the medium term. Natural gas therefore remains a 'transition fuel' (i.e. a fuel which still emits carbon, but less than other fossil fuels) even if does not contribute to climate objectives. State supported investment in gas must, however, comply with EU rules set before the energy crisis, such as the Taxonomy Regulation of 2020,[23] the state aid rules set out in the Treaties, and related guidance such as the Climate Energy and Environmental Aid Guidelines (CEEAG).[24]

The CEEAG, adopted in December 2021, that is, prior to the energy crisis, allows member states to grant compatible state aid for the reduction and removal of greenhouse gas emissions ('decarbonisation aid'). [25] New investment in natural gas supply and infrastructure including storage, even if for security of supply purposes, must be linked to clear conditions regarding its phase out, and especially the avoidance of so-called 'lock in' effects and stranding of investments.[26]

The CEEAG stipulates that the Commission must take the EU Taxonomy Regulation into account. This Regulation introduces a classification system that sets the criteria for establishing the degree to which an investment is environmentally sustainable to enable private investors to re-orient investments towards more sustainable technologies and businesses. Although the Regulation primarily concerns the private sector, the interplay between these two regulatory tools – the CEEAG and the Taxonomy Regulation – means that the Commission must implement stricter criteria for state aid approval, in order to ensure the evaluation of state aid measures is in line with the broader objectives of the EU Green Deal.[27]

Article 3 of the Taxonomy Regulation sets the three conditions that need to be met for an economic activity to be classified as environmentally sustainable: (i) it must contribute substantially to one or more of the environmental objectives set out in Article 9 of the Regulation; (ii) it must not significantly harm any other of the environmental objectives of the aforementioned article ('do no significant harm' precautionary principle ('DNSH')); and (iii) it must comply with minimum social and governance safeguards.[28] In late 2019, for example, in anticipation of these conditions, the European Investment Bank announced that it would stop financing fossil fuel projects as of 2022.[29]

Despite the initial strict approach on classification and following a series of heavily contested compromises between the Commission and the

[23] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 [2020] OJ L198/13.
[24] Commission, 'Guidelines on State aid for climate, environmental protection and energy 2022' (Communication), C/2022/481 [2022] OJ C80/1.
[25] The CEEAG are soft law guidelines on how the Commission will assess the compatibility of environmental protection, including climate protection, and energy aid measures subject to the notification requirement, under Article 107(3)(c) TFEU.
[26] A lock-in effect refers to a situation where a particular energy source becomes deeply entrenched in a country's infrastructure and economy. This occurs when investments are made in infrastructure, such as pipelines and power plants, that are specifically designed for a particular energy source. Over time, this leads to a dependency on that energy source, making it difficult to transition to alternative sources. At the same time an asset becomes stranded when it can no longer earn a return on investment, due either to economic factors (e.g., market dynamics make the asset too expensive to operate profitably) or regulatory factors (e.g., policy interventions limit demand or pre-emptively curtail the assets use).
[27] Regulation (EU) 2020/852, Arts 3 and 17; C Malecki, 'The EU taxonomy: A Key Step for Sustainable Finance' in HC Hirt and I H-Y Chiu (eds), *Investment Management, Stewardship and Sustainability: Transformation and Challenges in Law and Regulation* (Bloomsbury Publishing, 2023), p. 172.
[28] Regulation (EU) 2020/852, Arts 3 and 18.
[29] European Investment Bank, Press Release, 'EU Bank launches ambitious new climate strategy and Energy Lending Policy', 2019-313-EN (14 November 2019).

member states, subsequent delegated acts still allow natural gas to function as a transition fuel.[30] The legality of these measures has been subject to unsuccessful challenge before the General Court.[31] This means that investments in new liquefied natural gas terminals are still permitted, for example, and indeed the REPowerEU Plan foresees additional investments into gas infrastructure and liquefied natural gas terminals.[32]

2.2 Fiscal intervention to ensure affordability

The trade-off between affordability and sustainability is best illustrated by consumer and industrial subsidies. Eager to maintain economic competitiveness of their companies, member states were quick to ensure that their energy intensive industries could benefit from billions in national subsidies in 2022 to weather the price impact of the energy crisis. They also took measures to protect generators. France, for example, fully renationalized EDF to reinforce its financial position during the crisis and to ensure its ability to complete planned and unplanned maintenance work on its nuclear fleet. Germany provided a €13 billion credit line to Uniper, which operates thermal power generation assets, to secure the company's short-term liquidity. The Commission substantially relaxed the application of the Treaty state aid rules and adopted a Temporary Crisis Framework (TCF) to allow for extensive national support measures on 23 March 2022.[33]

National authorities also shielded households from the record high prices. The European Agency for the Cooperation of Energy Regulators (ACER), set up in 2009 to facilitate the creation of the internal energy market, identified a total of 400 national emergency measures adopted in 2022 alone.[34]

These measures may not, however, have promoted sustainable energy use or demand reduction. As the IEA has commented, 'spending to bring down energy bills represents a significant fiscal burden for governments and, as is often the case with such measures, these interventions have not always been well targeted. Furthermore, it risks diminishing the incentive to use energy efficiently or to switch to cleaner fuels.'[35]

2.3 The 2022 emergency response: reliance on Article 122(1) TFEU

Faced with a threatened natural gas supply crisis – and in the context of its designation as a transitional fuel – a series of emergency regulations adopted under REPowerEU in 2022 aimed at boosting gas storage obligations, supporting diversification of gas supply, ensuring solidarity within and between member states and, albeit reluctantly and belatedly, imposing wholesale gas price caps. While widely perceived as necessary, these measures can hardly be seen as part of the 'phasing out' of the fuel. It is also worth considering the legal mechanism by which the regulations were adopted.

As an initial step to increase the Union's level of preparedness to face a major gas supply disruption, Regulation 2022/1032 was adopted on 29 June 2022 to ensure the filling of underground gas storage sites for the coming winter seasons.[36] This regulation was 'fast-tracked': consultation procedures were waived, and the European

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[30] On 4 June 2021, the Commission adopted Delegated Regulation (EU) 2021/2139, supplementing Regulation (EU) 2020/852 by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives [2021] OJ L442/1, and in 2022 an additional Complementary Climate Delegated Act as Commission delegated regulation (EU) 2022/1214 covering certain nuclear and gas activities was adopted, OJ 2022 L188/1.

[31] Case T628/22 *René Repas* v *Commission* EU:T:2023:353.

[32] It is estimated that around €10 bn of investments is needed to complement existing project of common interest, see COM(2022) 230 final.

[33] Commission, Temporary Crisis Framework for State Aid measures to support the economy following the aggression against Ukraine by Russia (Communication) [2022] OJ C131I/1. The TCF was subsequently amended in July and October 2022.

[34] ACER, 'Wholesale Electricity Market Monitoring 2022: High-level Analysis of Energy Emergency Measures' https://www.acer.europa.eu/Publications/Electricity_MMR_2022-Emergency_Measures.pdf.

[35] IEA (n 6).

[36] Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations 2017/1938 and 715/2009 with regard to gas storage [2022] OJ L173/17.

Parliament acted on the basis of expedited procedures.[37] Previous EU regulation had not focused on gas storage, and it was now seen as a neglected tool.[38] Some member states, such as Italy and France, had already set up strategic gas storage facilities whereas others, such as Germany and the Netherlands, preferred to leave storage to the market. It had already become evident in the autumn of 2021 that the Russian giant Gazprom had built up important commercial and strategic positions in this market segment and that it appeared to have deliberately reduced the amount of gas it held in its storage facilities to record low levels, thus creating more scarcity and pushing up commodity prices further.[39]

> 'Even while Europe moved to secure supplies of natural gas, the urgency of simultaneously reducing dependency on fossil fuels was underlined by the suspension of Russian gas exports in mid-2022.'

Even while Europe moved to secure supplies of natural gas, the urgency of simultaneously reducing dependency on fossil fuels was underlined by the suspension of Russian gas exports in mid-2022. A serious supply crisis coupled with record high gas and electricity prices loomed, with the imminent prospect of a major emergency across the EU. This prompted calls by the European Council for legislative intervention to impose wholesale price caps on both gas and electricity. The final result was the adoption of five successive Regulations based on Article 122(1) TFEU. Article 122(1) TFEU enables the Council to decide on a proposal from the Commission and in a spirit of solidarity between member states, upon the measures appropriate to the economic situation, in particular if severe difficulties arise in the supply of certain products, notably in the area of energy.

The forerunner of that article had been used to adopt emergency powers to set up mechanisms to deal with the oil crises of the 1970s.[40] The 'measures' which the Council can adopt to deal with severe supply difficulties such as the energy crisis include regulations and are adopted on the basis of qualified majority voting. In derogation from the ordinary legislative procedure, however, the European Parliament is merely informed. Earlier case law had confirmed that the Council has a wide margin of discretion when acting on the basis of Article 122(1) TFEU.[41] That discretion is, however, not unlimited. Recourse to Article 122(1) TFEU presupposes the existence of a situation of urgency or of exceptionality leading to severe difficulties in the economic situation of the member states. These '*appropriate*' measures must be commensurate to the gravity of the situation.

2.3.1 The constitutional dimension of emergency measures

Reliance on Article 122 TFEU is not entirely unique. Article 122(2) TFEU had been invoked to launch major funding facilities in response to the COVID-19 crisis,[42] but not without controversy or criticism.[43]

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[37] Article 163 of the EP Rules of Procedure.

[38] M Sesini, S Giarola, and A D Hawkes, 'Solidarity measures: Assessment of strategic gas storage on EU regional risk groups natural gas supply resilience' *Applied Energy* (2022) 30.

[39] See the Commission's response to the question for written answer E-004781/2021, https://www.europarl.europa.eu/doceo/document/E-9-2021-004781_EN.html.

[40] See, eg, Council Regulation 1893/79 of 28 August 1979 introducing registration for crude oil and/or petroleum product imports in the Community [2019] OJ L220/1.

[41] Case 5/73 *Balkan Import Export GmbH* EU:C:1973:109, paras 13 to 17.

[42] Among the first measures adopted was the SURE (Support mitigating Unemployment Risks in Emergency) programme, a €100 billion 'solidarity instrument' to support workers' incomes and business in navigating through the pandemic. Additionally, the Pandemic Emergency Purchase Programme (PEPP) of the European Central Bank (ECB) guaranteed liquidity for €750 billion. Alongside funds for research on a vaccine (€140 million), for the EU Civil Protection Mechanism (€125 million) and for the European Centre for Disease Prevention and Control (€3.6 million), the Commission managed to propose and broker a €750 billion long-term recovery plan, called Next Generation EU, which was approved in 2020.

[43] B de Witte, 'The European Union's COVID-19 recovery plan: The legal engineering of an economic policy shift' (2021) 58(3) *Common Market Law Review* 635; P Leino-Sandberg and M Ruffert, 'Next Generation EU and its constitutional ramifications: a critical assessment' (2022) *59*(2) *Common Market Law Review* 433.

An important question in determining whether the Union is competent to take action to deal with the energy crisis on the basis of Article 122(1) TFEU is whether any wider economic (and social) effects could be viewed as incidental or ancillary to the main objectives of these temporary, emergency measures – provided they are indeed temporary. Assessing this is a complex exercise: even if the measures are described as and intended to be short term, temporary interventions, they may distort the functioning of the internal market in the medium to long-term. The adoption of emergency plans and solidarity provisions, for example rationing, may be a last resort, but as the OECD commented on the then proposed measure to reduce gas demand, this type of measure could have wider and indeed structural economic policy implications: 'Rationing the gas consumption of firms would imply large economic costs and unpredictable cascading effects along supply chains.'[44]

> '[E]ven if the measures are described as and intended to be short term, temporary interventions, they may distort the functioning of the internal market in the medium to long-term.'

Furthermore, even temporary measures can impact a member state's choice of energy mix as guaranteed by Article 194(2) TFEU. This in turn raises the question of whether emergency measures could nevertheless be justified as being necessary and proportionate to uphold solidarity between the member states.[45]

Issues concerning the interaction between Article 122(1) TFEU and the competence limitations on the energy mix of member states enshrined in Articles 192(2)c) and 194(2) TFEU are raised in pending Case C-675/22 *Poland* v. *Council*.[46] Poland submits that the main objective of the emergency regulation at issue (on coordinated demand-reduction measures for gas, Regulation 2022/1369) is to have a significant effect on the conditions for exploiting energy resources, the choice between different energy sources, and the general structure of a member state's energy supply. Since that regulation significantly affects the freedom to shape the energy mix, it could only have been adopted on the basis of unanimity, i.e. using Article 192(2)c) TFEU, to which the second subparagraph of Article 194(2) TFEU refers. To convince the Court of its arguments, however, Poland may have to establish that its ability to determine its own energy mix cannot be restored after the crisis has passed and normality returns.[47]

2.3.2 The Council Regulations briefly summarised

This section summarises the key innovations introduced by the five measures adopted in the second half of 2022 but does not purport to offer an exhaustive account of these measures.

The first Regulation 2022/1369 of 5 August 2022 on coordinated measures for gas demand reduction was adopted with the aim of increasing security of energy supply, by reducing gas demand voluntarily by 15% between August 2022 and March 2023. According to the Regulation, the Union had to anticipate a risk of major supply shortages 'and prepare, in a spirit of solidarity, for the possibility of a full disruption of gas supply from Russia at any moment' (recital 5). The Regulation foresees the possibility for the Council to make the gas-demand reduction compulsory by declaring a 'Union alert' on the security of supply. Regulation 2023/706 of 30 March 2023 prolonged the application of Regulation 2022/1369 for another 12 months, until 31 March 2024.[48]

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[44] OECD (2022), 'EU Emergency Plans', https://www.oecd.org/economy/outlook/Briefing-Note-Gas-Emergency-Plans-and-Solidarity.pdf.

[45] The General Court has clarified that "the spirit of solidarity between Member States that must inform the adoption by the Council of measures appropriate to the economic situation, within the meaning of Article 122(1) TFEU, indicates that such measures must be founded on assistance between the Member States" (Case T-450/12 *Anagnostakis* v *Commission* EU:T:2015:739, para 42).

[46] [2023] OJ C7/18.

[47] See, by analogy, Poland's unsuccessful challenge in Case C5/16 *Poland* v *Parliament and Council* EU:C:2018:483 and the ECJ's reasoning at para 46.

[48] Council Regulation (EU) 2023/706 of 30 March 2023 amending Regulation 2022/1369 as regards prolonging the demand-reduction period for demand-reduction measures for gas and reinforcing the reporting and monitoring of their implementation [2023] OJ L 93/1.

The second Regulation 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices recalls that 'disruptions of gas supplies, reduced availability of certain power generating plants, and that the resulting impacts on gas and electricity prices, constitute a severe difficulty in the supply of gas and electricity energy products within the meaning of Article 122(1)' (recital 7).[49] It underlines that the context of its adoption is one of a 'crisis situation which requires the adoption of a set of urgent, temporary, exceptional measures of economic nature'.

> 'This Regulation also sets out exceptional measures to help lower overall electricity consumption, support households and businesses, and to mitigate the effects of high energy prices.'

This Regulation also sets out exceptional measures to help lower overall electricity consumption, support households and businesses, and to mitigate the effects of high energy prices. First, it requires member states to reduce total electricity consumption by at least 10%. In parallel, it introduces an obligation to reduce gross electricity consumption by at least 5% during selected peak and high price hours covering at least 10% of all hours of the period between 1 December 2022 and 31 March 2023.

Second, an 'inframarginal' or 'revenue cap' is imposed on certain electricity generators. Under the so-called marginal pricing model which underpins the EU's internal electricity market (discussed in detail below), expensive gas-fired generation sets electricity prices across the EU and into the EEA. This results in very high profit margins for operators of lower-cost generation technologies, such as wind or solar. The specific measures to redistribute such revenues had to be taken at a national level. Given the differences between energy mixes, costs and prices in the EU-27 national electricity markets, this cap allows some member states to obtain far more revenues than others. The Regulation encourages – but does not mandate – solidarity agreements between member states, to share the proceeds of the revenue cap. The primary aim of these solidarity agreements is to help countries that are highly dependent on electricity imports from their neighbours.

Third, a 'solidarity contribution', in effect a windfall tax, is imposed on companies in the fossil fuel sector amounting to 33% of the tax base and justified as an appropriate means to tackle surplus profits given the unforeseen circumstances. If the methodology prescribed in the Regulation shows that the profits in the fiscal years 2022–2023 have increased by more than 20%, then the 'solidarity contribution' must be paid, and the proceeds must be used for the objectives specified in the Regulation. Some member states will earn far higher revenues than others, simply because they have large fossil fuel operators headquartered in their territory. The Regulation does not directly address this issue, however, and shies away from mandating any cross-border funding requirements.

Despite intense political pressure from the European Council, the Commission, backed by several member states continued to resist imposing a wholesale gas price cap on the grounds that this would lead to diminishing gas supplies being diverted away from the EU and towards higher priced global markets. Moreover, higher gas prices should lead to a reduced demand for fossil fuels so that renewable substitutes would prosper.

But only two months later, three further emergency Regulations including Council Regulation 2022/2576 (adopted in mid-December 2022) established temporary rules on a range of issues, including the gas price cap which the Commission had thus far resisted. This package included:

A. the expedited setting up of a service allowing for demand aggregation and joint gas purchasing by undertakings established in the Union;

B. more transparent booking platforms for liquefied natural gas (LNG) facilities and for gas storage facilities;

C. the introduction of a wholesale gas price cap – a market correction measure – and an ad

[49] [2022] OJ L 261/1.

hoc LNG price benchmark, to be developed by the Agency for the Cooperation of Energy Regulators (ACER);[50]

D. temporary measures, to distribute gas fairly across borders and to safeguard gas supplies for the most critical customers and to ensure the provision of cross-border solidarity measures; and

E. expedited rules on permitting renewable projects of overriding public interest.[51]

This seems, *prima facie*, to take solidarity agreements (see (D) above) to a new level.[52] Solidarity agreements between member states were already one of the key components of the earlier Security of Supply Regulation 2017/1938's governance structure but very few such agreements had been concluded.[53] With the urgent need to have temporary default rules in place ahead of winter of 2022, a temporary framework for the provision of the required solidarity measures was introduced.[54] If no solidarity agreement had been concluded, new default rules would apply. These agreements aim to ensure that 'protected customers' (e.g., households and hospitals) continue to have access to gas, even in the worst crisis. Hence the necessary bilateral technical, legal and financial arrangements were put in place to make the provision of solidarity gas possible in practice. And yet by mid-2023 only ten such agreements had been concluded.

2.4 Assessment of the impact of post-crisis regulation

The EU has been fortunate to achieve its mandatory storage filing target for 2022. It benefitted from a mild winter and a beneficial global supply situation as demand in Asian markets was still slow. It would also appear that the Union is on track to meet the 2030 mandatory storage filling target of 90%. Nevertheless, the Union remains dependent on imported gas. Importantly, unlike in the preceding filling season, the 2023 storage filling cannot count on the 60 bcm of Russian pipeline gas that was still imported into the EU in 2022. In order to limit the risks to security of supply and the corresponding market impacts on 20 March 2023 the Commission proposed[55] prolonging the gas demand reduction measure (Regulation 2022/1369) and the Council has backed this move.[56]

In the event of a future emergency, Union 'alerts' could free up some gas, but only a small volume of it would be likely to reach the most affected member states, which would probably Poland and the Baltic states, traditionally highly dependent on Russian gas. The topology of the European gas network is such that it only enables relatively small 'west to east' flows.[57]

As for Regulation 2022/2854, the main criticism has been of its diversity of impact. Only states with large oil and gas companies based in their territories were able to raise considerable revenues from windfall

[50] Council Regulation (EU) 2022/2578, enacted on 22 December 2022 (OJ L335/45), introduces a market correction mechanism and price cap. If the Commission identifies a market distortion, it can impose a price cap on natural gas, preventing prices from rising too high. This mechanism ensures that prices remain stable during periods of market stress, preventing panic buying and hoarding.
[51] Council Regulation (EU) 2022/2577 laying down a framework to accelerate the deployment of renewable energy [2022] OJ L335/36.
[52] Article 27 of Regulation 2022/2576 [2022] OJ L335/36.
[53] The first bilateral solidarity agreement was signed between Germany and Denmark on 14 December 2020, while other five agreements were signed in early 2022 and in May 2023. See the Commission's website: https://energy.ec.europa.eu/topics/energy-security/secure-gas-supplies_en#related-links.
[54] By way of derogation from Articles 13(1) and (2) of Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 [2017] OJ L280/1.
[55] Commission, 'Review on the functioning of Regulation (EU) 2022/1369 on coordinated gas demand reduction' COM(2023) 173 final.
[56] Council Regulation (EU) 2023/706 of 30 March 2023 amending Regulation (EU) 2022/1369 as regards prolonging the demand-reduction period for demand-reduction measures for gas and reinforcing the reporting and monitoring of their implementation [2023] *OJ L93/1.*
[57] The capacity from Norway, Netherlands, and Belgium, and possibly a small amount from France only amounts to some 90 bcm on a full year basis – demand in 2021 was some 130 bcm for these five countries.

taxes.[58] Several oil and gas companies have lodged challenges in the European Courts, contesting both the choice of Article 122(1) TFEU as the legal basis as well as the appropriateness of financial measures such as the 'windfall' tax[59] (or 'one off tax on excessive profits') and the intramarginal levy, or revenue cap,[60] as crises responses.

Another controversial issue at the time of the introduction of the infra-marginal revenue cap was its impact on new investment in renewable energy. As the cap applies to revenues (rather than profits), this caused financial difficulties for some energy companies.[61] In some cases the revenue cap undermined the financial viability of the very long-term commercial agreements, such as power purchase agreements (PPAs) that the Commission has also been promoting as an important tool to realize its medium- and longer-term objectives of increased renewable energy penetration. If the revenue cap applies to an 'assumed' (fictitious) income and not the actual income as agreed to in the PPAs, this leads to paradoxical situations whereby the producer may be forced to sell electricity at a loss. Indeed, following the Commission's own subsequent assessment, this measure will not be prolonged.[62]

Finally, the Commission had originally taken the view that aggregating or pooling gas demand at EU level could ensure better leverage for the EU on global markets. Not all member states or market players have been convinced, however. Gas purchasing consortia must operate in compliance with the Union's competition rules. And although the Commission indicated that it might issue a decision on the inapplicability of Articles 101 and 102 TFEU, as well as informal guidance on the application of these Treaty competition rules governing joint purchasing arrangements, this did not give sufficient comfort for the industry.[63] Hence the joint purchasing approach has been abandoned by the Commission and replaced by so-called 'demand aggregation'.

A mandatory aggregation platform – AggregateEU – has been set up to match buyers and sellers, while seeking to a) ensure equal treatment and b) prevent market manipulation. Member states must submit a minimum volume for demand aggregation equivalent to 15% of their mandatory storage filling obligations, but it is up to each member state to define how they will implement this obligation. For example, they may appoint a 'central buyer' to submit a tender on behalf of buyers.[64] It is then for the individual companies to negotiate and subsequently purchase gas via AggregateEU.

In conclusion, the practical impact of the EU's package of temporary energy crisis measures has been mixed, and, so far, only the demand reduction Regulation has been extended for a further period. Although the final set of Regulations provided a legal basis for a series of interventionist measures – including a form of wholesale price caps[65] – the measures did not undermine the basic foundations on which the internal electricity market (IEM) is built. Indeed, the preservation of the IEM was due not least to the realization that continued energy flows across the member states had remained a vital solution to dealing with national shortages. For instance, electricity imports proved crucial for France during 2022, a year of record low nuclear and hydropower output.[66]

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[58] IEA, 'Renewables 2022', https://www.iea.org/reports/renewables-2022, Chapter 4 (December 2022).
[59] Case T-803/22 *Petrogas E&P Netherlands* v *Council*; Case T-802/22 *ExxonMobil Producing Netherlands and Mobil Erdgas-Erdöl*.
[60] Case T-759/22 *Electrawinds Shabla South* v *Council*.
[61] Indeed, the efficacy of this cap to recoup windfall profits has also been questioned by the IEA (n 59).
[62] Commission, 'On the review of emergency interventions to address high energy prices in accordance with Council Regulation (EU) 2022/1854' (report) COM(2023)302 final.
[63] See the discussion papers submitted to the 6th meeting of the Industry advisory group on 23 March 2023: https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupId=3865&fromMeetings=true&meetingId=46845.
[64] See the Commission's 'questions and answers' on AggregateEU: https://energy.ec.europa.eu/topics/energy-security/eu-energy-platform/aggregateeu-questions-and-answers_en#cooperation-of-companies--central-buyer-and-agentshipper-on-behalf.
[65] A 'dynamic price cap' will apply as long as the prices remain high. ACER will monitor the market, and the Commission will propose the activation of the cap to the Council, that will decide. It is therefore a mechanism of last resort and not a regulatory intervention by the Commission on prices.
[66] D Jones, 'European Electricity Review 2023', Ember, https://ember-climate.org/insights/research/european-electricity-review-2023.

Nevertheless, the high prices caused by the energy crisis has prompted debate over the shortcomings of the IEM's design and its future role in ensuring affordability. Concerns as to security of supply have focused attention once more on the right of member states to continue to determine their own energy mix. The President of the Commission has claimed that 'we need a new market model for electricity that really functions and brings us back into balance.'[67] The electricity market is now the subject matter of the ongoing market reform exercise to which we now turn.

3. Electricity market design: what to reform and how to do it?

The design of the EU's electricity market is particularly complex. The pricing model on which the IEM model is based provides signals that not only inform an efficient economic dispatch but also facilitate medium-term planning.[68] The wholesale market is based on a system of marginal pricing, also known as a 'pay-as-clear market', where all electricity generators get the same price for the power they are selling at a given moment. Wholesale electricity prices are set by marginal gas-fired plants, and this can lead to high electricity prices, as during the energy crisis of 2022, but also to continuing price volatility.

Wholesale electricity prices are likely to remain volatile as long as gas prices continue to fluctuate. Enhanced renewable energy production also brings challenges. The share of electricity produced by renewable energy sources (predominantly solar and wind) is expected to grow from 37% in 2020 to more than 60% by 2030. Because they have zero marginal costs, wind and solar can cause massive falls in prices when they form a large part of the generation mix. But electricity must also be produced and delivered in sufficient quantities when there is no wind or sun. At the same time, markets need to adapt to better integrate renewable energy production and attract investment in fossil-free, flexible technologies, such as demand-side response and energy storage that can complement variable energy production. Thus, the electricity market must also provide the right incentives for consumers to become more active and contribute to keeping the electricity system stable.

3.1 The Commission proposal of 14 March 2023

The Commission proposal for a Regulation amending earlier EU electricity market rules was recently agreed by the Council.[69] It preserves the pricing mechanism in the short-term electricity markets (in all the various segments of the market, including day-ahead, intra-day and balancing markets).[70] It confirms that these markets are not the problem but are rather are part of the solution. A pricing signal is key to an efficient market, but consumers cannot be exposed to sudden price spikes or fluctuations. Hence the proposal complements the existing electricity markets with a number of interventionist measures to address the main concerns that emerged during the 2022 crisis and to protect household consumers. These concerns include, notably the risk of 'energy poverty'[71] and inflation.

To deal with price fluctuations and insufficient hedging by consumers and retailers, the Commission proposes that certain consumers should have the right to have a fixed-price retail contract, that suppliers should have appropriate hedging strategies, that there should be a supplier of last resort in each member state and a harmonized and integrated market for long-term financial transmission rights. Difficulties in accessing cheaper renewables by consumers are to be addressed with long term contracts such as Power Purchase Agreements (PPAs), two-way contracts for differences (CfD), and energy

[67] Ursula von der Leyen, Bled Strategic Forum, 29.9.2022, https://ec.europa.eu/commission/presscorner/detail/en/speech_22_5225.
[68] C Batlle et al., 'The EU Commission's proposal for improving the electricity market design: Treading water, but not drowning', MIT-CEER Commentary, RC-2023-03; L Meeus, 'Electricity market reform: what is (not) in the European Commission proposal', FSR Policy Brief, 2023/07, May 2023.
[69] Commission, 'Proposal to improve the Union's electricity market design' COM(2023) 148 final.
[70] L Meeus and S Nicolai, 'The European Commission's plan for a market design fit for 2050', March 2023, https://fsr.eui.eu/a-summary-of-the-proposal-for-a-reform-of-the-eu-electricity-market/.
[71] Energy poverty occurs when energy bills represent a high percentage of consumers' income, or when they must reduce their household's energy consumption to a degree that negatively impacts their health and well-being.

sharing. CfDs and PPAs could give stable prices to consumers and reliable revenues to renewable energy suppliers (lowering the financial risk and reducing the cost of capital), thus contributing to the objective of tripling the deployment of renewables, in line with European Green Deal goals.

PPAs are commercial agreements, but CfDs are a form of public support through which the generator is guaranteed a minimum price by the government for the energy produced and is allowed to earn the full market price even when it is very high. Two-way CfDs involve setting a minimum price that can be earned by the energy producer, but also a maximum, so that any revenues above it are paid back to the public actor and then channelled back to ease the effects of high prices for all electricity consumers, proportionate to their consumption. CfDs are the preferred type of support for new investment in wind, solar, geothermal, hydro-without-reservoir, and nuclear power.

Investment uncertainty is also addressed via these PPAs and two-way CfDs, along with improved hedging by consumers and retailers, and by allowing member states to provide direct support for flexibility measures, such as demand response and storage. However, these measures – and particularly CfDs – will have to be carefully designed to ensure that they not fall foul of the Treaty state aid rules, and they should reflect the guidance provided in the CEEAG.

Achieving political consensus on these market reforms and particularly the use of CfDs, has proved complex as member states are determined to defend their own 'energy mix' choices on grounds of security of supply as well as affordability. While France, for example, wants to use the mechanism to support investments for the lifetime extension of its existing fleet of 56 nuclear reactors, other countries like Germany, Belgium, Spain, Austria and Luxembourg have been opposed, warning this type of support which could lead to a massive increase in cheap French exports, risks distorting the EU's internal market. Poland however argues that it needs more flexibility to exit coal and has sought a derogation to prolong state support for coal plants beyond 2025, in the name of energy security.

The Swedish presidency of the Council was therefore unable to secure further legislative progress on this sensitive measure. Compromise texts in the form of non-papers circulated in early October 2023,[72] and the Council has now agreed a general approach to include stricter monitoring of national measures in late October 2023 so that the amended Regulation could be adopted by the end of that year.[73]

4. Towards a more holistic approach to security in the energy transition?

The REPowerEU strategy aims to enhance energy security through increased renewable energy production. Unfortunately, the eventual phase-out of imported fossil fuels will not necessarily automatically bring about enhanced energy security. It may rather require more interventionist measures right through the value chain. The clean energy transition will lead to a greater mineral- and metals-intensive dependence than the EU's current fossil fuel dominated energy system.[74] Europe has few significant mining and processing capacities for these critical raw materials, which are concentrated in resource-rich countries, such as Congo (RDC) or China.[75] The ability to exert control over green technology production and related supply chains will also be key.

Furthermore, critical components for green energy technology production are often available only from a small number of suppliers while manufacturing of intermediate or finished products is concentrated in a few countries, with related risks of supply restrictions.[76] China is today

[72] A leaked paper was published on Euractiv on 5 October 2023.
[73] 2023/0077(COD) Brussels, 19 October 2023, 14339/23.
[74] JRC (2023), 'Supply chain analysis and material demand forecast in strategic technologies and sectors in the EU: A foresight study', https://publications.jrc.ec.europa.eu/repository/handle/JRC132889.
[75] See, eg, J Pisani-Ferry et al., 'The geopolitics of the European Green Deal', Policy Contribution 04/2021, Bruegel, at 7–9.
[76] See, generally, A Kratz, J Oertel, and C Vest (2022), 'Circuit breakers: securing Europe's green energy supply chains', European Council on Foreign Relations.

the world's largest (by far) producer, exporter and installer of solar panels, wind turbines and electric vehicles. Therefore, the EU and its member states must, if they are to achieve their goal of a transition to sustainable energy system, take a more holistic approach to energy security. They have begun to do so. The remainder of this section considers the Commission's first attempts to take such an approach, i.e., the Green Industrial Plan, and the two proposed regulations intended to deliver it. Finally, the problem of the designation of nuclear within this framework is considered.

4.1 The Green Deal Industrial Plan

As highlighted in the Commission's Green Deal Industrial Plan for the Net-Zero Age (GDIP), adopted on 1 February 2023,[77] in the transition to a net-zero economy, Europe's competitiveness will strongly rely on its capacity to develop and manufacture the clean technologies that make the transition possible. Europe is a net importer of most of these materials and technologies. At the same time, a major challenge for the EU will be to mitigate the harmful effects on its industry of competing state support and subsidy schemes, most notably those provided by China, and the USA with its recently adopted Inflation Reduction Act. The EU's industrial policy goals are becoming more aligned with its climate and energy goals.

The division of competences between the EU and its member states thus remains crucial in these increasingly complex endeavours. Industrial policy, like energy policy, is a shared competence, and so a key question is whether the EU institutions can become more relevant than in the past when it comes to promoting value chain resilience and energy security. A major challenge for the Union, going forward, will be to manage trade-offs between energy affordability and resilience, and between maintaining industrial competitiveness and the EU's current climate ambitions.

Indeed, continued high energy prices and concerns over the competitiveness of European industry has already sparked a backlash against further EU regulatory intervention to promote and even protect its climate ambitions. The umbrella organization Business Europe has objected to forthcoming environmental proposals and demanded a 'regulatory breathing space'.[78] Parts of the European People's Party – the largest group in the European Parliament and the one from which the current Commission President is drawn – have taken a similar position.[79]

'Indeed, continued high energy prices and concerns over the competitiveness of European industry has already sparked a backlash against further EU regulatory intervention to promote and even protect its climate ambitions.'

In March 2023 the Commission launched a new package of legislative and regulatory reforms to realize its GDIP ambitions to strengthen value chain resilience. This includes a new Regulation establishing a framework for ensuring a secure and sustainable supply of critical raw materials, the so-called Critical Raw Materials Act (CRM), and second regulation, a Net Zero Industry Act (NZIA)[80] which aims to enact into law a more coherent approach based on the definition of EU strategic projects, to promote better access to EU and member state funds, and to foster enhanced regulatory frameworks with faster permitting procedures and more structured monitoring of vulnerabilities. In the remainder of this section these two important acts are examined more closely.

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[77] Commission, 'A Green Deal Industrial Plan for the Net-Zero Age', COM(2023) 62 final.

[78] 'Stockholm Declaration – BusinessEurope's Council of Presidents', 24–25 November 2022, https://www.businesseurope.eu/publications/stockholm-declaration-businesseuropes-council-presidents.

[79] Frédéric Simon, 'EU business group voices 'sympathy' for moratorium on green laws', Euractiv, 11 July 2022, https://www.euractiv.com/section/energy-environment/news/eu-business-group-voices-sympathy-for-moratorium-on-green-laws/.

[80] Commission, 'Proposal on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act)' COM(2023) 161.

4.2 The Critical Raw Materials Act (CRM)

Net-zero technologies are much more mineral intense than their conventional counterparts, which often rely on fossil fuels. The construction of an offshore wind plant, for example, requires nine times more minerals than a comparable gas plant. An electric car typically requires six times more minerals than an internal combustion engine car.

The CRM Act puts the issue of strategic dependencies on certain raw materials at the top of the European policy agenda. The proposed Act defines both the term strategic raw mate- rial (SRM) and critical raw material in annexes I and II, whereby SRMs are raw materials that "score the highest in terms of strategic importance, forecasted demand growth and difficulty of increasing production" (Article 3), and CRMs are these strategic raw materials together with all raw materials that exceed certain thresholds for both eco- nomic importance and supply risks (Article 4)

The regulation would pursue four specific objectives: strengthening the whole SRM value chain; diversifying the EU's imports of SRMs (so that by 2030, no third country would provide more than 65% of the EU's annual consumption of each SRM); improving the EU's ability to monitor and mitigate the CRM supply risk; ensuring the free movement of CRMs and products containing CRMs placed on the EU market, and ensuring a high level of environmental protection by improving their circularity and sustainability. The proposal sets benchmarks to increase domestic capacity for raw materials extraction, processing, and recycling, with aspirational targets corresponding to 10% (extraction), 40% (processing) and 15% (recycling) of the EU's annual consumption.

The SRMs are listed in its Section I of Annex I and the methodology for assessing whether a raw material should be classed as an SRM is set out in Section II of Annex I. Examples include cobalt, copper, lithium (battery grade) and natural graphite (battery grade). Any other raw material that reaches or exceeds the thresholds for both economic importance and supply risk, the methodology of which is set out in Section II of Annex II of the Proposed CRM Regulation, will be considered a Critical Raw Material ('CRM') and is listed in Section I of Annex II. The draft also provides for a new governance mechanism to set targets for strategic raw materials in the form of a dedicated EU Critical Raw Materials Board.

The proposal recognises the need for coordination between the Commission, member states and multilateral development banks such as the European Investment Bank and the creation of synergies between existing funding programmes at Union and national level to realise funding for projects relating to the supply of SRMs – any promoter of an SRM project will be able to apply for recognition of their project as a 'Strategic Project' to the Commission, which will make a decision on the project's designation within 60 days.[7] Projects will largely be selected based on their contribution to the security of supply of SRMs and their technical feasibility, sustainability and social standards. These projects will benefit from fast-tracked permitting and could be considered of 'overriding public interest', which could give them priority over EU nature protection laws and local or regional laws. The fast-tracking was first introduced for energy projects of overriding interest during the energy crisis, as discussed in section 2.[81] The CRM Board would enable the Commission to gather information on member states' strategic stocks across the EU to better equip the Union ahead of a crisis. The draft would also introduce a joint purchasing platform for CRMs, modelled on 'Aggregate EU'.[82]

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[81] See Council Regulation (EU) 2022/2577.

[82] The Commission would set up and operate a joint purchasing system to aggregate demand from interested undertakings consuming SRMs established in the EU, and Member State authorities responsible for strategic stocks (Article 24). EU undertakings and Member State authorities participating in the system could negotiate the purchase jointly or use joint purchasing. The Commission could contract a service provider to set up and operate the system.

The proposal has been criticized as failing to address the sheer magnitude of the challenge.[83] It does not include any new funding from the EU budget, fails to establish a credible business case for investments in a European value chain, lacks concrete resources to deliver access to new projects in third countries, and shies away from binding regulation aimed at corporations. Critics argue that to achieve its goals, **t**he EU must mobilize substantial funding and administrative provisions at European level and should establish feasible diversification requirements for European companies. The Council adopted its negotiating position in late June 2023.[84] Trilogue negotiations followed over the summer.[85] On November 13th, the Council and the European Parliament reached a provisional deal on the proposed regulation, pending formal adoption in both institutions. [86]

4.3 The Net Zero Industry Act

The second of the two GDIP regulations is also worth considering in detail; the Net Zero Industry Act (NZIA), whose objective is to approach or reach, in aggregate, at least 40% of the annual deployment needs for strategic net zero technologies manufactured in the EU by 2030.

The NZIA is built on the following pillars: (i) setting enabling conditions (for example, simplifying permit-granting processes, similar to the CRM process discussed above); (ii) accelerating CO2 capture, (iii) facilitating access to markets (i.e., sustainability and resilience criteria in public procurement for renewable energy source auctions), (iv) enhancing skills; (v) fostering innovation (for example, through regulatory sandboxes); and (vi) facilitating the coordination between the Commission and the member states through a Net Zero Europe Platform. The Commission's draft Article 3 proposes increased investment and improved permit-granting procedures for the following strategic net-zero technologies: solar photovoltaic and solar thermal technologies; onshore and offshore renewable technologies; battery and storage technologies; heat pumps and geothermal energy; electrolysers and fuel cells; sustainable biogas and biomethane production; carbon capture and storage, and grid technologies.

The proposed NZIA thus addresses the regulatory and skills pillars of the GDIP but has been criticized as not yet fit for purpose. It offers a stick but not a carrot**.** It furthermore lacks well-designed targets and, as with the CRM draft regulation, there is no real access to the appropriate resources to truly speed up and scale up the manufacturing of clean technologies across Europe. Given that he Commission also revised its guidance on the implementation of the Treaty state aid rules by adopting the Temporary Crisis and Transition Framework (TCTF), a better flow of national 'carrots' could be made available. At present the regulation leaves the funding of important initiatives in the hands of the member states.

4.3.1 Nuclear as the problem?

Although the proposal included advanced nuclear technologies, *existing* nuclear technologies are excluded from the text. Nuclear does not appear in a separate annex to the Regulation, which defines 'Strategic Net-Zero technologies' that 'will receive particular support'. In July 2023 the European Parliament had proposed an amended Article 3A[87] which did include nuclear fission and fusion technologies, as well as renewable energy technologies, energy storage, carbon capture and

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[83] Jacques Delors Institute, 'Meeting the Costs of Resilience', Policy Brief (30 June 2023), https://www.delorscentre.eu/en/publications/eu-critical-raw-materials. See also A Hool, C Helbig and G Wierink, 'Challenges and opportunities of the European Critical Raw Materials Act' (2023) *Miner Econ*. See also I Anglmayer, 'EU critical raw materials act', Briefing, EPRS, European Parliament, May 2023; and G Ragonnaud, 'Securing Europe's supply of critical raw materials: The material nature of the EU's strategic goals', Briefing, EPRS, European Parliament, March 2023.

[84] The Council has raised the level of ambition for processing and recycling capacity, adds Bauxite/Alumina/Aluminium as strategic raw and critical materials and calls for a more frequent update of the list of critical and strategic raw materials (at least every three years, instead of every four years). Council, Press Release, 'Critical raw material act: Council adopts negotiating position' (30 June 2023).

[85] See further, Ragonnaud (n 84).

[86] Council, Press Release, 'Council and Parliament strike provisional deal to reinforce the supply of critical raw materials' (13 November 2023).

[87] https://www.europarl.europa.eu/news/en/press-room/20231023IPR08159/meps-back-plans-to-boost-europe-s-net-zero-technology-production.

storage (CCS), hydrogen transport infrastructure, and electrolysers as well as a more simplified approach. Adopting such an amendment would also allow a greater flexibility to member states to pursue their own energy mix.

5. Conclusion: from energy crisis to energy transition

As this paper has explained, the energy crisis and the war in Ukraine triggered the adoption of REPowerEU, a plan to phase out Russian fossil fuels, and to realise the three goals of EU energy and climate policy: energy security, sustainability and affordability (including competitiveness) during Europe's energy transition. As with the immediate response to the 2022 energy crisis, the energy transition itself requires an unprecedented degree of collaboration, co-ordination, and solidarity across different governance levels (EU, national, local). To deal with the immediate impact of the energy crisis the EU enacted, at unprecedented speed, a series of interventionist emergency measures with some novel features to counter high gas and electricity prices as well as threats of supply shortages.[88] At the same time, national governments injected substantial levels of state support to their domestic industry and to energy consumers – support which was not always well targeted, and which deflected public resources away from investment in renewable energy production and consumption. At national level, affordability goals seem to have trumped sustainability goals, while investment in diversifying the sources of natural gas supply could be justified on security grounds.

The fall-out of the energy crisis has put strains on the internal energy market model as the EU's main mechanism to secure affordability and security of supply, while supporting new investment in sustainable, renewable fuels. The Commission tabled proposals to revise the design of the EU electricity market that would manage price volatility and deliver affordability, and at the same time provide investors with certainty on revenue streams for new renewable projects. Several member states objected, seeing this exercise as getting in the way of their rights to determine their own energy mix, including extending the life of existing assets which do not deliver on sustainability. The resulting compromise seems to pursue affordability and security at the expense of sustainability.

The energy crisis – following on the heels of COVID-19 related supply chain disruptions – also exposed the Union's vulnerability to increased external dependence on imports of critical materials and technologies. As the result of growing trade tensions with the USA and China, the Commission proposed a new package of measures to address both competitiveness and security challenges, including the Net Zero Industry Act, the Critical Raw Material Act. Again, the EU is faced with urgent but manifest dilemmas and, the challenge of reaching a difficult set of compromises to ensure continued member state support for its Green Deal and the subsequent Green Deal Industrial Policy objectives. In July 2023 the Council watered down the 'Fit for 55' 2030 objectives for renewable energy and energy efficiency so that the European-wide targets are now below REPowerEU ambitions. As targets for renewable energy production and greenhouse gas emission levels are relaxed in the face of national concerns over competitiveness, this inevitably postpones the eventual phase out of fossil fuels. In sum, the affordability of the energy transition and the speed with which fossil fuels can be phased out is increasingly contested at national level.

At the launch of the European Green Deal in 2019, Commission President Ursula von der Leyen described it as Europe's 'man on the moon moment'. But if the Union is to have a fighting chance of delivering on climate change (realising its net zero ambitions by 2050) while ensuring energy security and affordability, a giant leap in terms of law and policy is still required.

[88] A Goldthau and N Sitter, 'Whither the liberal European Union energy model? The public policy consequences of Russia's weaponization of energy', EconPol Forum, 2022.