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# The European Union's Energy Security Outlook: the Path Towards Strategic Autonomy

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*Dedicato a tutta la mia famiglia.*

*A mio padre, luce di un faro nella tempesta.*

*A mia madre, la persona più coraggiosa che abbia mai conosciuto.*

*“Why did you want to climb Mount Everest?”*

*“Because it’s there.”*

*-George Leigh Mallory, 1923*

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# Introduction

Over the course of the past few years, there has been going a crucial but silent debate across the European Union and its Member States; the one on the concept of *strategic autonomy* and the fact that the EU should embrace it if it wants to remain a relevant geopolitical actor in light of the challenges of today's world and of a changing balance of power. Indeed, the von der Leyen's Commission considers it a priority objective,<sup>1</sup> and other national political representatives, such as French President Emmanuel Macron, embraced it as the founding framework of a *sovereign* Europe. But what exactly does *strategic autonomy* means? And why is this concept so relevant to this dissertation?

The idea of *strategic autonomy* in Europe has a long history. According to several historians, think tanks, and academic scholars, it was born in France, with General (and later President of the Republic) Charles de Gaulle being its leading supporter. The idea conceived France as a third pole in the bipolar world that was taking shape at the dawn of the Cold War era, and De Gaulle argued that this was a necessary condition for France to remain a relevant actor in the international arena, especially in the field of foreign affairs and defense. Some have argued that the General was too nationalist and attached to the idea of the nation-state to be considered an advocator of European integration. Yet, the General had dreamed of a powerful, united Europe that could exist between the Soviet threat and American power.<sup>2</sup> Of course, that vision of autonomy was tied to French national interests by launching a federal integration project capable of circumscribing the supranational cooperation established within the EEC, reducing British influence within the continent's political-economic collaboration, and creating an alternative military cooperation forum to NATO (and therefore to the

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<sup>1</sup> Bassot, É. (2022). *The six policy priorities of the Von der Leyen Commission*. In-Depth Analysis, European Parliamentary Research Service (EPRS), September 2022.

<sup>2</sup> Lefebvre, M. (2021). *Europe as a power, European sovereignty, strategic autonomy: a debate that is moving towards an assertive Europe*. In European Issues no. 582, Fondation Robert Schuman, 01/02/2021.

USA).<sup>3</sup> European integration was too limited then to bring about France's wishes. While some country-level initiatives in this sense were effectively advanced, as demonstrated by France's withdrawal from NATO's Military Command Structure in 1966, De Gaulle's dreams never became a reality as he envisioned them. Nevertheless, the ideas of autonomy and sovereignty have been at the core of European integration processes since the beginning, as enshrined by other European leaders of the post-World War II period, such as Robert Schuman, Jean Monnet, Konrad Adenauer, and Alcide De Gasperi. Over time, the concept of *strategic autonomy* has transcended its original defense and military dimensions and began to encompass other fields: the economy,<sup>4</sup> the digital sphere,<sup>5</sup> energy,<sup>6</sup> climate, health,<sup>7</sup> and space.<sup>8</sup> Among these, it is impossible to overlook the crucial and strategic dimensions of the energy sector concerning European integration, resilience, sovereignty, and power, being the primary source of stability and productivity of modern countries' economies and societies. Indeed, the very first steps of European integration have been energy-related initiatives: the European Coal and Steel Community (ECSC), established in 1951 to create a common market for coal and steel, and Euratom (established alongside the European Economic Community through the Rome Treaty of 1957), which was conceived to promote the peaceful use of nuclear energy and adopt a common system for the procurement of supplies such as uranium. The adoption of this last Treaty was accelerated by the 1956 Suez Crisis, which threatened to cut off world oil supplies and seriously damage European energy security. Needless to say, the European continent has always been particularly susceptible to energy disruptions and crises, whether from market shocks

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<sup>3</sup> Vai, L. (2021) *In search of European strategic autonomy: three conditions and five dilemmas*. IED Strategic Research Paper, Institute of European Democrats (IED), 18/12/2021, p. 6. These objectives were expressly laid out in the so called "Fouchet Plans" (Christian Fouchet being the French ambassador to Denmark at the time) of 1961 and 1962.

<sup>4</sup> Leonard, M., et. al. (2019) *Redefining Europe's economic sovereignty*. Research Report, Bruegel, 01/06/2019.

<sup>5</sup> Speech by President Charles Michel at the online event "Masters of Digital 2021", European Council, 3/02/2021.

<sup>6</sup> Ryon, E. (2020) *European Strategic Autonomy: Energy at the Heart of European Security?* In *European View* vol. 19 (2), October 2020, (pp. 238–244).

<sup>7</sup> Hackenbroich, J., et. al. (2020) *Health sovereignty: How to build a resilient European response to pandemics*. ECFR Policy Brief, June 2020.

<sup>8</sup> AA.VV. (2020) *The European space sector as an enabler of EU strategic autonomy*, In-Depth Analysis requested by the European Parliament's Subcommittee on Security and Defence, December 2020.

related to price dynamics or material shortages on the supply side. This insecurity has complex and ancient roots, but one obvious explanation comes trivially from geography. While the recent decades saw the rise of renewable energies (and European countries being leaders in production and deployment) and other low-emission energy sources, fossil fuels remain the founding pillar upon which European countries have built their energy security, these sources constituting roughly 70% of the gross available energy for EU27 in 2020.<sup>9</sup> The European Union countries lack sufficient exploitable quantities of coal, natural gas, and oil to cover their needs and maintain current industrial output levels, making the EU an energy import-dependent region. An insufficient degree of multilateral cooperation on energy issues inevitably brought several EU Member States to find themselves in a situation of overdependency from one critical energy partner: Russia. Competitive Russian natural gas and oil prices, added to a wide and efficient infrastructure network, convinced European countries to pursue Russian-friendly economic and commercial policies. However, because of the long-standing geopolitical confrontation between Russia and western countries that ultimately resulted in the Russian invasion of Ukraine in 2022, the current EU energy security outlook never looked so unstable and unpredictable.

This thesis aims at framing the argument of European energy security from a geopolitical point of view, trying to provide directions and recommendations for the European Union to reach its *strategic autonomy* and become a single powerful geopolitical reality in this field. The first chapter will analyse the recent history of the EU-Russia energy relations in order to explain the origins of over-dependence and the initiatives put in place under the *Energy Security Strategy* and the *Energy Union* after the annexation of Crimea in 2014. The second chapter will focus on how these initiatives evolved after the Russian invasion of Ukraine in 2022 and on what is the current situation concerning fossil fuel options in a short-medium term security of supply outlook. Finally, the third chapter will analyse the

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<sup>9</sup> Eurostat: *Fossil fuels in gross available energy: 70% in 2020*. Eurostat website, 16/02/2022.

future of the European energy strategy, focusing on renewables, the possible revival of nuclear energy, and a strengthened EU Arctic involvement as key pillars of the European pursuit of *strategic autonomy* in the energy domain.

This analysis will have to refer to specific short, medium, and long-term policy options and strategies, bearing in mind other crucial international obligations and ambitions concerning climate change and the need to transform energy production and consumption to curb emissions. Meanwhile, it is necessary to consider the most crucial set of questions on the nature of the EU, indeed, an existential dilemma: What should the EU be? Is supranationalism working, or are national interests still driving countries' ambitions and strategies? This thesis will not answer these questions to remain coherent with the argument. However, understanding and trying to overcome these long-standing political and economic issues will be crucial for the 27 countries of the EU if this one is really taking the path of becoming a united global superpower.

# Chapter One

## Part One: Energy Security in the European Union and relations with Russia up to the 2014 Crimea annexation

### 1.1 The EU's energy shortcomings and dependence on imports

The European Union countries have enjoyed substantial energy security in the last decades, a situation that rarely encountered significant disruptions in terms of supply. Even the post-9/11 uncertain economic outlook, the 2008 market crash, the mid-2010s EU sovereign debt crisis, and the economic shocks brought by the pandemic have never really jeopardized the overall shape of the energy supply in Europe. Indeed, inflation and other economic dynamics can have significant consequences in terms of purchasing power, interest rates, and debt. Still, these phenomena are generally temporary, and their effects can be curbed in the long run through market and economic adjustments. Nevertheless, the current situation that EU countries are experiencing is unprecedented, and there have been indeed multiple causes that led to these consequences. However, the focus of this dissertation is on geopolitics. As Tim Marshall argued in *Prisoners of Geography*, one of its most famous works, “geopolitics looks at how international affairs can be understood through geographical factors; not just the physical landscape [...] but also climate, demographics, cultural regions and access to natural resources.”<sup>1</sup> Indeed, the very first thing that we have to take into account when talking about the European energy environment is geography. Modern countries need vital resources to achieve substantial economic and political power and influence, other than maintaining their industries and civil, political, and military infrastructures working efficiently to guarantee essential services to the

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<sup>1</sup> Marshall, T. (2015) *Prisoners of geography: ten maps that explain everything about the world*. Elliott and Thompson Limited, London.



population and society. In short, energy is undoubtedly the core of modern countries' resilience and strength, not only for domestic stability but also for projecting their influence on the international stage. Starting from geography, European countries have lacked enough raw materials to autonomously support their industrial production and well-being for quite some time. Considering the data for domestic energy production during the 2010-2020 decade, primary energy production in the EU was 17.7 % lower in 2020 than a decade earlier. The general downward development of EU primary energy production may, at least in part, be attributed to the efforts of decarbonizing the energy system and improving energy efficiency, but also to the effects of the COVID-19 pandemic, especially for the year 2020.<sup>2</sup> Eurostat data for 2020 confirm the surge in domestic production of renewable energies in Europe over the recent years, constituting more than one-third of total EU production (40.8%).<sup>3</sup> Nuclear energy comes second, with 30.5% at the EU level, accounting for a significant share of the domestic output in some countries where large investments in this sector have always been prioritized, such as France, with 75.2% of total production, or Belgium, with 62.8%. However, other countries saw a downward trend in domestic nuclear energy production, especially Germany, which accounted for only 16.9% in 2020.

Moreover, there was no nuclear energy production in fourteen EU Member States.<sup>4</sup> For what concerns domestic production of fossil fuels, the share for solid fossil fuels (14.6%) was below one-fifth, the share for natural gas was close to one-tenth (7.2%), while the share for crude oil was only 3.3%.<sup>5</sup> However, oil and natural gas constituted the largest share of final energy consumption in European countries in 2020 (35% and 2.9%, respectively),<sup>6</sup> apart from electricity (23.2%), which is still produced mainly by fossil fuels in several EU countries (like coal in Poland, constituting almost 80%

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<sup>2</sup> Eurostat: *Energy production and imports*. Eurostat website, data extracted in January 2022.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Eurostat: *Energy statistics, an overview*. Eurostat website, data extracted in February 2022.

of electricity production in 2021,<sup>7</sup> and natural gas in Italy, which stands at around 50% in the same year).<sup>8</sup> While renewable energy consumption as a share of total energy consumption stands at around 22% as of 2021,<sup>9</sup> this picture shows that the energy consumed (mainly by transportation, households, and industry)<sup>10</sup> dramatically outscores the energy produced inland. Eurostat data shows that EU dependency on energy imports remains high, with 57.5% of gross available energy being supplied by foreign resources in 2020.<sup>11</sup> Ironically, the most consumed energy resources are the ones that have seen the sharpest decline in production over the last two decades. Thus, European countries generally depend on oil, natural gas, and solid fossil fuel imports. Since 2013, no country has been a net energy exporter in the EU, Denmark being the last.<sup>12</sup> Reliance on a few suppliers and dependence on fixed and costly infrastructures make energy markets prone to imperfect competition and dilemmas of problematic dependency.<sup>13</sup> Consequently, energy security is an issue that inevitably falls into the priorities that nation-states (or a supranational economic and political union such as the EU, unique among international organizations) must consider.

## 1.2 Defining energy security and the influence of Russian resources on the EU

As stated in the introduction, energy security is a concept that has been widely discussed at the EU's political, economic, and academic levels for quite some time. While the European Union acquired formal competencies in energy matters after the entry into force of the Lisbon treaty in 2009, the European Community used other tools to legislate on energy, mainly through its competencies for

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<sup>7</sup> International Energy Agency (IEA): *Poland 2022 Energy Policy Review*. In IEA Energy Policy Review, Paris, May 2022, p. 11.

<sup>8</sup> Ritchie, H., Roser, M., Rosado, P. (2022) *Italy: Energy Country Profile*. In Energy, Our World in Data.

<sup>9</sup> European Environmental Agency (EEA): *Share of energy consumption from renewable sources in Europe*. EEA website, 26/10/2022.

<sup>10</sup> Eurostat: *Energy statistics, an overview*. Eurostat website, data extracted in May 2021.

<sup>11</sup> Eurostat: *Energy production and imports*. Eurostat website, data extracted in January 2022.

<sup>12</sup> Ibid.

<sup>13</sup> Sauvageot, E.P. (2020) *Between Russia as producer and Ukraine as a transit country: EU dilemma of interdependence and energy security*. In Energy Policy vol.145, October 2020, p. 2.

developing the Single European Market.<sup>14</sup> Moreover, the Treaty on the Functioning of the European Union (TFEU), which succeeded in the Treaty Establishing the European Community after the implementation of the Lisbon Treaty, included in Article 194 (1) the objective of the EU's energy policy as a need to "ensure security of energy supply in the Union."<sup>15</sup> Later, the European Commission promoted the European Energy Charter project, ultimately leading to the Energy Charter Treaty (ECT) in 1998. Over time, as requested by the recent geopolitical developments, the concept of an energy union was reinforced and has become a relevant and ambitious objective with the release of two EU Commission communications, the 2014 EU *Energy Security Strategy*<sup>16</sup> and the 2015 *Energy Union Package*,<sup>17</sup> and a strategic framework called *EU Global Strategy* in 2016.<sup>18</sup>

Starting from a basic definition, it is essential to note that there is no unanimity among scholars, organizations, and other eminent sources on what *energy security* really means. Daniel Yergin defines it as "the availability of sufficient supplies at affordable prices."<sup>19</sup> At the same time, the International Energy Agency (IEA) views it as an "uninterrupted availability of energy sources at an affordable price."<sup>20</sup> This definition is similar to Gawdat Bahgat's: "sustainable and reliable supplies at reasonable prices."<sup>21</sup> These definitions highlight energy security's key concepts: affordability, availability, accessibility, sufficiency, and continuity. However, as Eric Pardo Sauvageot points out

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<sup>14</sup> Ibid, p.8. Mentioning Yafimava, K. (2011) *The Transit Dimension of EU Energy Security: Russian Gas Transit across Ukraine, Belarus, and Moldova*. Oxford University Press, Oxford, New York.

<sup>15</sup> Treaty on the Functioning of the European Union (TFEU), Part Three: Union Policies and Internal Actions, Title XXI: Energy, Article 194.

<sup>16</sup> European Commission: *Communication from the Commission to the European Parliament and the Council - European Energy Security Strategy*. Brussels, 28/5/2014, COM (2014) 330 final.

<sup>17</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank – A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*. Brussels, 25/2/2015, COM (2015) 80 final.

<sup>18</sup> European Union External Action (EEAS): *Shared Vision, Common Action: A Stronger Europe: A Global Strategy for the European Union's Foreign and Security Policy*. June 2016.

<sup>19</sup> Yergin, D. (2006) *Ensuring Energy Security*. In Foreign Affairs March/April 2006.

<sup>20</sup> International Energy Agency (IEA): *Energy security - Ensuring the uninterrupted availability of energy sources at an affordable price*. IEA website.

<sup>21</sup> Bahgat, G. (2006) *Europe's energy security: challenges and opportunities*. In International Affairs (Royal Institute of International Affairs 1944-) vol. 82 (5), September 2006, (pp. 961–975), p. 965.

in a 2020 article, it is possible to further simplify this picture by pointing out two different poles: On the one hand, the importance of the concepts of sufficiency and continuity, which refer to the immediate necessity of available supplies. On the other, the concept of affordability responds to how markets evolve.<sup>22</sup> Following this rationale, Sauvageot quotes Jonathan Stern's dimensions of risks associated with energy security: the first dimension refers to short-term supply availability against long-term supply adequacy. In contrast, the second distinguished between operational (seasonal stresses and strains of extreme weather and other operational problems) and strategic security (catastrophic failure of major supply sources and facilities).<sup>23</sup> Sauvageot considers price fluctuations and market dynamics as part of the long-term energy security concerns.<sup>24</sup>

Moving on to the dynamics of the European energy security outlook, this concept has primarily been focused on supply security, something that the EU Member States have assured through overreliance on a specific partner: Russia. The European Union, squeezed between the insufficiency of its domestic production and its environmental commitments to decarbonize its economy, saw the natural gas-rich Russian Federation as a promising partner for deepening its energy relation.<sup>25</sup> Indeed, Russia has been the most significant energy exporter to European countries over the last two decades, especially for natural gas, a crucial energy source for electricity generation and transportation, and for providing essential household services such as heating. According to Eurostat data for the 2010–2020 decade, Russia's share of EU imports of natural gas (including liquefied natural gas) increased from 30.6% in 2010 to 38.2% in 2020, peaking in 2016 at 39.6%.<sup>26</sup> The influence of Russian energy resources can be easily visualized by looking at the dependency rate of the single European countries: while some, such as France, have generally relied more on domestic production for their energy needs

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<sup>22</sup> Sauvageot (2020), p. 2.

<sup>23</sup> Stern, J. (2002) *Security of European Natural Gas Supplies: The Impact of Import Dependence and Liberalization*. The Royal Institute of International Affairs 2002, p. 6.

<sup>24</sup> Sauvageot (2020), pp. 2-3.

<sup>25</sup> Ibid, p.3.

<sup>26</sup> Eurostat: *Energy production and imports*. Eurostat website, data extracted in January 2022.

(about half in 2019, according to data of the US International Trade Administration),<sup>27</sup> others such as Italy and Germany have been considerably more exposed to dependency from Russian gas, given that, respectively, about 47.6% and 51.2% of the natural gas they imported came from Russia in 2019. These figures become even more dramatic by looking at the dependency rate on Russian gas for some former Eastern bloc countries. In 2019, Hungary received about 95% of its natural gas import from Russia, while figures from Slovakia and Estonia show a dependency rate of almost 100%.<sup>28</sup> Russia has also been the leading supplier of crude oil and hard coal to European countries, contributing to 25.7% of total imports for oil (one of the lowest figures compared to the 2010-2020 average) and 49.1% of hard coal in 2020.<sup>29</sup>

### 1.3 Why EU-Russia trust in energy relations ultimately failed?

The reasons why European countries turned to Russia are several. Still, on the surface, it can be argued that the main ones are geographical, economic, and logistical: Russia is close to the EU borders, the prices of its energy resources are competitive, and the already existing infrastructures made Russia the ideal partner for European countries' energy needs. After the 2000 Summit between the EU and Russia and the release of the Green Paper *Towards a European strategy for the security of energy supply*,<sup>30</sup> dependence on Russia as a supplier of energy was inherently seen as a positive development, especially because natural gas was seen as a cleaner and cheaper resource than oil and implied apparent security from geopolitical tensions in the Middle East.<sup>31</sup> However, several other explanations may describe the origins of European countries' dependence and overreliance on Russian energy resources, and some of them can be assessed as inherently political. For instance, in

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<sup>27</sup> United States Department of Commerce - International Trade Administration (ITA): *France – Country Commercial Guide*. ITA website.

<sup>28</sup> Eurostat: *Natural gas import dependency by country of origin*. Eurostat website, data referring to the 2015-2020 period.

<sup>29</sup> Eurostat: *Energy production and imports*. Eurostat website, data extracted in January 2022.

<sup>30</sup> European Commission: *Green Paper - Towards a European strategy for the security of energy supply*. Brussels, 29/11/2000, COM (2000) 769 final. final

<sup>31</sup> Sauvageot (2020), p. 9.

defining the characteristics of EU-Russia energy gas relations, Andrey Kazantsev talks about the importance of *policy networks* established between Russia and EU countries over the years, showing where they have failed in promoting trust between the parties involved. Indeed, as brought about by John Peterson in a 2003 paper called *Policy Networks*, promoting network contacts, especially on the inter-organizational level, has always been part of the EU integration strategy as a part of the policy of EU enlargement and later as a part of a policy of partnership in the *wider Europe*.<sup>32</sup> This take is coherent with the reasoning of the neoliberal school of International Relations studies: the idea that risks are solved through the development of international regimes, such as institutions and organizations.<sup>33</sup> However, the Russia-EU policy networks have been poorly regulated at the multilateral level, as the non-ratification by Russia of the Energy Charter Treaty (ECT) clearly shows. One reason for this failure was that Russia feared the possibility of third-party access to its pipeline system,<sup>34</sup> which would have eroded the control of state-controlled Gazprom over gas transportation from Central Asia. However, there are also profound structural reasons for the failure of the ECT regime linked to Russia's failed transition to democracy, the rule of law, and a market economy.<sup>35</sup> According to then-President Dmitry Medvedev, Russia could not sign the ECT because it did not reflect the interests of energy-producing states.<sup>36</sup> Therefore, having the ECT failed to include Russia in its legal regime, there could be no way to diminish political risks in the European-Russian gas trade by institutional means: Europe had to act towards Russian gas not as a *normative* but as a *normal* power, thus implementing a power-based strategy more coherent with the realist perspective in IR.<sup>37</sup> Kazantsev argues that relationships built on power politics in this field can have several means of

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<sup>32</sup> Peterson, J. (2003) *Policy Networks*. In IHS Political Science Series: 2003 (90), pp. 17-18.

<sup>33</sup> Kazantsev, A. (2012) *Policy networks in European-Russian gas relations: Function and dysfunction from a perspective of EU energy security*. In *Communist and Post-Communist Studies* vol. 45 (3/4), Special Issue: *Disintegration of the Soviet Union. Twenty Years Later. Assessment. Quo Vadis?* September/December 2012, (pp. 305-313), p. 306.

<sup>34</sup> Dempsey, J. *Russia gets Tough on Energy Sales to Europe: No Foreign Access to Pipelines, Official Says - International Herald Tribune*. New York Times, 12/12/2006.

<sup>35</sup> Kazantsev (2012), p. 306.

<sup>36</sup> *Ibid.*, p. 307.

<sup>37</sup> *Ibid.*

implementation in the economic, geopolitical, and military fields. For instance, one economic way to diminish the market power of Russian energy firms is diversification:<sup>38</sup> this can include the construction of additional pipelines, increasing the role of liquefied natural gas (LNG), implementing shale gas technology developed in the USA, replacing oil and gas with renewable resources, bringing back the centrality of nuclear energy in the energy mix, or creating strategic reserves.<sup>39</sup> From the point of view of geopolitics, diversification dynamics refers to controlling resources and access to them through the creation of external supply routes.<sup>40</sup> The main risk of pursuing a power-based strategy towards Russia is exacerbating the energy security dilemma between the two parties, which will inevitably perceive their security as a zero-sum game.<sup>41</sup> Given the failure of instituting a multilateral framework to regulate energy relations and to avoid direct confrontation with Russia, European countries have tried to resort to bilateral policy networks to settle disputes and pursue their interests with Russia. One problem in pursuing such a path is that these networks mainly developed in informal interpersonal relationships between political leaders. These *personal friendships* on gas issues can be interpreted as developments of specific personalized policy networks through which gas deals are made.<sup>42</sup> Kazantsev argues that European leaders intended these relationships to guarantee national and, to a lesser extent, EU interests in dealing with Russia to diminish risks and avoid the possibility of facing a spiral of confrontation on energy security issues by coordinating positions with the Russian leadership.<sup>43</sup> These arrangements can bring moral, legal, and political issues. They proved detrimental and counterproductive for European interests at large, often by prioritizing national interests instead of communitarian ones, which is evident in the energy sector. One such example is the personal friendship developed by former German chancellor Gerhard

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<sup>38</sup> Stirling, A. (1998) *On the Economics and Analysis of Diversity*. In: SPRU Electronic Working Papers Series vol. 28, University of Sussex, Brighton, January 1998.

<sup>39</sup> Kazantsev (2012), p. 307.

<sup>40</sup> Goldthau, A., Witte, J.M. (2009) *Back to the future or forward to the past? Strengthening markets and rules for effective global energy governance*. In *International Affairs* vol. 85 (2), (pp. 373–390), p. 374.

<sup>41</sup> Kazantsev (2012), p. 307.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

Schröder with Russian authorities, especially with President and former Prime Minister Vladimir Putin. Schröder's closeness to Russia has historical and cultural roots that ultimately brought political and economic shared interests with the Eurasian giant. One clear example is the promotion and active participation of the German government and German energy firms in developing the Nord Stream project to disengage German-Russian gas relations from Ukraine as a transit country (with which Russia engaged in multiple energy controversies in the early 2000s, as will be shown later) by delivering gas passing through the Baltic Sea. Schröder also gained important administrative positions in some Russian business initiatives and firms. He has been the chairman of Nord Stream AG's shareholder's committee since 2005<sup>44</sup> and an independent director of the board of state-controlled oil company Rosneft since 2017.<sup>45</sup> The reasons for the failure of policy networks with Russia can be found mainly in the asymmetrical nature of both parties' interests, in conjunction with Russia's failed transition to democracy, the rule of law, and a free market economy that also explains the total lack of participation of non-governmental and civic society actors in these policy networks dynamics on the side of Russia.<sup>46</sup> The high centralization of power in Moscow makes inter-organizational policy networks involving Russian actors virtually impossible to implement, making room for personalized policy networks instead (with all the shortcomings and limitations they entail). However, Russia has often demonstrated that it does not care about shaping interregional integration initiatives with EU countries in the field of energy just for its sake of it. Indeed, Russia pursues its national interest and perceives gas trade as an instrumental means of expanding and projecting its influence abroad.<sup>47</sup>

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<sup>44</sup> Harding, L. *Schröder faces growing scandal over job with Russian gas giant*. The Guardian, 13/12/2005.

<sup>45</sup> Kiselyova, M., Powell, S. (Eds) *Russia nominates German ex-chancellor Schroeder to Rosneft board*. Reuters, 12/08/2017.

<sup>46</sup> Kazantsev (2012), p. 311.

<sup>47</sup> Rutland, P. (2008) *Russia as an energy superpower*. In *New Political Economy* vol. 13 (2), (pp. 203–210).



## 1.4 The EU-Russia-Ukraine triad

The previously described disagreements over the Energy Charter Treaty and increasing liberalization put the EU and Russia increasingly at odds.<sup>48</sup> This situation worsened because, between the late 1990s and the early 2000s, the EU started integrating several recently become independent eastern European countries that used to live under the Soviet umbrella during the Cold War. These countries all shared very critical views on the Russian Federation, but at the same time, were also the ones that depended more on Russian energy resources, primarily because of the already existent infrastructural links developed during the Eastern Bloc era that discouraged most of these countries to undertake expensive projects and innovative energy policies. One transit country that used to hold a very critical and strategic position is Ukraine. Around 80% of Gazprom natural gas shipments to Europe used to pass through Ukraine,<sup>49</sup> mainly through the *Druzhba* (Friendship) oil pipeline and the *Soyuz* (Union) gas pipeline. All these critical infrastructures are linked with the transmission systems of Poland, Romania, Slovakia, and other central and eastern European countries, which in turn are connected to Italy, Germany, Austria, etc., through the Transgas and TAG corridors. Being also an essential consumer of Russian energy resources, Russia has always perceived Ukraine as a central actor in its energy strategy. This position could only be maintained if Kyiv continued to accept its subordination to Moscow. However, Ukraine-Russia relations became conflictual after political and economic controversies, such as the Orange Revolution in 2004 and several energy disputes. Concerning these latter developments, debt and pricing disputes between the two turned into energy disputes. Moscow blamed Kyiv for performing free-riding practices by diverting transit flows destined for other European countries to escape shortages.<sup>50</sup> In January 2009, a significant energy crisis resulted from

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<sup>48</sup> Herranz-Surrallés, A., Natorski, M. (2011) *Energy security in the EU's relations with eastern neighbors: driver or braker for a comprehensive external energy policy*. In Morata, F., Solorio, I. (Eds.) *European Energy Policy: The Environmental Dimension*. IUEE, Barcelona, (pp. 57–185), p. 162.

<sup>49</sup> International Energy Agency (IEA): *Ukraine: energy policy review*. In IEA Energy Policy Review, Paris, October 2006.

<sup>50</sup> Sauvageot (2020), p. 3.

these controversies, leading Russia to cut off all supplies to and through Ukraine and keeping European countries hostages. While the crisis lasted less than a month, both Russia and Ukraine sustained significant economic losses from the dispute: Gazprom managed to lose around \$1 billion from unsupplied gas, and Ukrainian steel and chemical plants had to shut down during that period while also yielding about \$100 million in transit fees because of the cut-off.<sup>51</sup> Western European countries did not experience major structural and logistical drawbacks.

In contrast, most Central and Southeastern European countries were caught unprepared for these circumstances and had to temporarily shut down their industrial production as their reserves were depleting.<sup>52</sup> These disputes have been a turning point in EU-Russia relations since they exposed the problematic position of dependence on the Russia-Ukraine dyad and the potentially catastrophic effects resulting from a sustained cut-off of all Russian energy resources to Europe.<sup>53</sup> A short-term response has been the diversification of supply routes, which ultimately contributed to trimming Ukraine's role as a transit country while still relying on Russia as the leading provider. The Blue Stream pipeline linking Russia to Turkey and the Yamal-Europe passing through Belarus were the leading examples of diversification of routes. Still, the most ambitious infrastructural project in this fashion has arguably been Nord Stream, a joint German-Russian project with its first pipeline beginning operations in 2011. The Nord Stream 1 pipeline that passes through the Baltic Sea has a transport capacity of around 27.5 bcm (billion cubic meters) per year<sup>54</sup> and was envisioned as the new main route for providing Russian gas to Europe with the benefit of bypassing Ukraine and reducing transit fees for operators by having lower transit prices,<sup>55</sup> while also having lower management costs than LNG shipments to the Baltic terminals that would entail higher environmental costs.<sup>56</sup> As

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<sup>51</sup> Nesterov, A. *Russia-Ukraine 'Gas War' Damages Both Economies*. Wordpress.org website, 20/02/2009.

<sup>52</sup> AA.VV. *FACTBOX - 18 countries affected by Russia-Ukraine gas row*. Reuters, 07/01/2009.

<sup>53</sup> Sauvageot (2020), p. 4.

<sup>54</sup> Nord Stream website.

<sup>55</sup> Harper, J. *Can Ukraine do without Russian gas transit fees?* Deutsche Welle, 28/01/2022.

<sup>56</sup> Nord Stream, Chapter 2 – Information about Nord Stream, p. 51. The report indicates how “to replace the capacity planned for Nord Stream would mean some 600-700 LNG tanker round trips across the Baltic Sea per year, with noise and other disturbances impacting seriously on the Baltic environment, over and above additional carbon emissions.”

previously stated, supply diversification may reduce sensitivity to short-term energy insecurity, but this issue's medium-term and long-term analysis should be considered separately. In fact, it is necessary to include energy market dynamics inherently. A 2008 study by the George C. Marshall European Center for Security Studies assessed a crucial concern that European Union authorities were starting to discuss: the evolution of market demand from other countries, especially Asian ones. In particular, the study considered China's case and how Russia could experience increased demand from it and have a choice of customers. Just as Russia was able to shut off natural gas to Ukraine, diversification of its customers would give Russia enormous levers of power and control if Europe does not quickly diversify from its increasing gas dependence.<sup>57</sup>

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<sup>57</sup> Anderson, R., J. *Europe's Dependence on Russian Natural Gas: Perspectives and Recommendations for a Long-term Strategy*. Report by the George C. Marshall European Center for Security Studies, September 2008.

## Part Two: the post-Crimea energy security developments: assessing the initiatives and their results

### 1.5 The Russian annexation of Crimea and the EU's response

Tensions between Ukraine and Russia never ceased after the temporary resolution of several energy disputes. Continuing political clashes resulting in the Euromaidan protests ultimately led to Russia's unilateral annexation of the Crimean Peninsula in March 2014, implemented through a referendum that European and Western countries recognized as illegal. While previous Russian acts of aggression met appeased responses from the European and national authorities, the developments in Crimea completely changed the European view towards Russia. The long-standing energy and commercial partner showed that it was willing to pursue its geopolitical interests regardless of what international provisions told while trying to unilaterally reshape the European military security framework through force. From the beginning, European authorities have dealt with this situation by affirming their support for the territorial integrity of Ukraine and by imposing sanctions on Russia, the first round of which was adopted immediately after the annexation.<sup>1</sup> Over time, sanctions have targeted the Russian public and private sector institutions, organizations, and individuals such as high-ranking political and military officials.<sup>2</sup> Economic sanctions have targeted the financial, transportation, technology, defense, trade, and other crucial sectors of the Russian economy while leaving limited space for sizable sanctions in the energy sector. The reasons were strategic since the level of dependency on Russian imported resources was still too high, and diversification too limited to give European countries any realistic hope to turn away from Russia. It is also worth reminding that a highly

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<sup>1</sup> European Council: Council Decision 2014/145/CFSP, *concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine*. In Official Journal of the European Union, 17/04/2014.

<sup>2</sup> European Council, Council of the European Union: *Infographic - EU sanctions against Russia over Ukraine (since 2014)*. European Council, Council of the European Union website.

fragmented and heterogenous community of countries such as the ones of the EU will inevitably perceive the risks associated with the energy sector in totally different or even divergent ways. Germany has initially been very critical of some economic sanctions against Russia, especially in the energy sector, because of the very close relationships between the two and the already cited dependency of Germany on Russian imports.<sup>3</sup> Other countries, such as the Netherlands, France, and even Italy, were initially important advocators of the Nord Stream project, attracted by lower natural gas costs and by contracts awarded to their companies (including Saipem S.p.A. from Italy, part of the Eni group, commissioned to laying activities in 2008 having signed a contract worth more than €1 billion).<sup>4</sup> On the other hand, Eastern European and Baltic countries have been the strongest advocates of implementing severe sanctions against Russia, even if their energy dependence rates were higher than Germany at that time.<sup>5</sup> Then, it is no surprise that former Polish Prime Minister Donald Tusk, who will eventually become President of the European Council, has been the strongest advocator for establishing a project for a European energy union. In April 2014, immediately after the Crimea crisis, Tusk called for the creation of a mechanism for gas solidarity to prevent severe shortages and disruptions of gas deliveries from Russia, a tool for which the EU should have paid up to 75% of the price tag for the gas infrastructure<sup>6</sup> needed to end Russia's gas monopoly, develop a mechanism to jointly negotiate energy contracts with Russia, build better linking gas networks, bolster gas storage, and encourage gas deals with other European neighbors.<sup>7</sup> Tusk's project was initially met with skepticism by European authorities and some member countries since his initial strategic framework included continued reliance on coal and shale gas as critical pillars of the European energy mix (as previously stated, Poland is one of the largest producer and consumer of

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<sup>3</sup> Popławski, K., Kwiatkowska, A. (2014) *The German reaction to the Russian-Ukrainian conflict – shock and disbelief*. In OSW Commentary, n. 132, 03/04/2014. Ośrodek Studiów Wschodnich (OSW).

<sup>4</sup> *Europétrole: Nord Stream Signs Contract With Saipem For Pipe-Laying Worth More Than 1 Billion Euro*. Europétrole archive, 26/06/2008.

<sup>5</sup> Easton, A. *Poland and Baltics feel heat from Crimea*. BBC News, 12/03/2014.

<sup>6</sup> AA.VV. *Poland calls for EU energy union*. Euractiv, 02/04/2014.

<sup>7</sup> Oroschakoff, K. *Tusk's rude awakening*. Politico, 20/04/2015.

coal and shale gas and thus it is no surprise that Tusk would bring its country's national interest forward).<sup>8</sup> Nonetheless, Tusk's idea led the Barroso Commission to adopt, in May 2014, a Communication to the European Council and the European Parliament that defined a preliminary *European Energy Security Strategy* (EESS).<sup>9</sup>

## 1.6 The EESS and the development of new initiatives for the Union's energy security

The Strategy has served as the main backbone of the following Energy Union initiative, which will be explored later. The Strategy recognized the need for the Union to guarantee a "stable and abundant supply of energy," from which its very prosperity and security hinge. The definition of energy security given in the texts is reminiscent of the ones previously introduced earlier in the chapter, focusing again on the concepts of stability (and hence continuity) and energy availability. However, the focus of this Strategy transcends the short-term realm. It looks for solutions in the longer run, taking into account the diversification of suppliers and energy routes as the core principle in this sense. The Strategy recognizes the limitations that domestic policies in the field of energy security have brought to the Union as a whole, calling, first, for a more collective approach through a functioning internal market and greater cooperation at regional and European levels, in particular for coordinating network developments and opening up markets, and second, in a more coherent external action.<sup>10</sup> The Strategy also reminds us how initiatives taken under its umbrella must be harmonized with the concurrent goals in climate and environmental policies outlined in the *2030 Policy Framework*<sup>11</sup> and with the

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<sup>8</sup> AA.VV. *Poland calls for EU energy union*. Euractiv, 02/04/2014.

<sup>9</sup> European Commission: COM (2014) 330 final.

<sup>10</sup> Ibid. p. 3

<sup>11</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A policy framework for climate and energy in the period from 2020 to 2030*. Brussels, 22/1/2014, COM (2014) 15 final.

existing competitiveness and industrial policy objectives.<sup>12</sup> Therefore, the Strategy has developed eight key pillars to pursue the Union's comprehensive ambitions in energy security.

The first step refers to improving capacity response to possible short-term energy disruptions during winter 2014-2015: in particular, the Commission called for the establishment of a comprehensive approach to enhance storage capacity, develop reverse flows, and develop the security of supply plans at the regional level and to exploit the potential of Liquefied Natural Gas (LNG).<sup>13</sup> The Commission explicitly refers to recent strategic initiatives taken at the domestic level such as the Eustream-Ukrtransgas memorandum of understanding, which provided for Slovakia's primary gas pipeline operator Eustream to supply Ukraine of natural gas through the development of a reverse-flow mechanism exploiting the underused Vojany-Uzhgorod pipeline.<sup>14</sup> Furthermore, the Commission promises to incentivize cooperation with the *Gas Coordination Group*, an advisory group established under Regulation (EU) no. 994/2010,<sup>15</sup> to harmonize the exchange of information between key stakeholders in making decisions on gas issues.

The strategy's second pillar focuses on strengthening solidarity mechanisms to coordinate risk assessment and contingency plans at the communitarian level, including protecting strategic infrastructure.<sup>16</sup> Concerning the former, the Strategy calls for the buildup of oil and gas reserves coherent with the obligations set up in Regulation (EU) no. 994/2010, which, among other things, obliges Member States to be able to meet peak demand even in the event of a disruption of the single largest infrastructure asset.<sup>17</sup> Regarding protecting strategic energy infrastructures, the Strategy calls

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<sup>12</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - For a European Industrial Renaissance*. Brussels, 22/1/2014, COM (2014) 14 final.

<sup>13</sup> European Commission: COM (2014) 330 final, p. 4.

<sup>14</sup> Concorde Capital. *Ukraine signs gas memorandum with Slovakia, prepares to sue Gazprom*. Press Release by Concorde Capital, 29/04/2014.

<sup>15</sup> European Parliament, Council of the European Union: Regulation (EU) no. 994/2010, *concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC Text with EEA relevance*. In Official Journal of the European Union, 20/10/2010.

<sup>16</sup> European Commission: COM (2014) 330 final, p. 4.

<sup>17</sup> *Ibid.*, p.5 & European Parliament, European Council: Regulation (EU) no. 994/2010.

for a broader debate on controlling such dynamics by non-EU entities such as state companies, national banks, and sovereign funds from key supplier countries. The main issue that drives these concerns is the risk that third-party energy companies could hamper the diversification process in favor of strengthening their interests or those of specific countries.<sup>18</sup> The Strategy calls for a strengthening of the already existing European framework that regulates unbundling dynamics, which should prevent actors performing a competitive activity (such as production and supply of energy) from also performing a monopolistic one (such as transmission and distribution, which are regulated monopolies since the introduction of Directive 2003/55/EC<sup>19</sup>).<sup>20</sup> The Strategy also stresses the importance of respecting internal market rules, especially the ones regulating public procurement.<sup>21</sup>

The third pillar refers to energy demand moderation as a crucial means to achieve energy efficiency. In 2012, Directive 2012/27/EU,<sup>22</sup> also known as *Energy Efficiency Directive*, established a set of binding measures to help the EU reach a 20% energy efficiency target by 2020, which would result in 371 Mtoe (million tons of equivalent energy) of primary energy savings.<sup>23</sup> That means that overall energy consumption by 2020 should be at most 1312 Mtoe (later redrawn at 959 Mtoe following Brexit). The Strategy calls for a rigorous implementation of both this Directive and Directive 2010/31/EU, also known as the *Energy Performance of Buildings Directive*,<sup>24</sup> while pushing for the identification of the priority sectors that should be the most affected by energy savings, and also calling for further investments from the private sector.

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<sup>18</sup> European Commission: COM (2014) 330 final, p. 6.

<sup>19</sup> European Parliament, Council of the European Union: Directive 2003/55/EC, *concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC*. In Official Journal of the European Union, 26/06/2003.

<sup>20</sup> Florence School of Regulation (FSR). *Unbundling in the European electricity and gas sectors*. Short commentary by the Florence School of Regulation – European University Institute website, 20/07/2020.

<sup>21</sup> European Commission: COM (2014) 330 final, p. 6.

<sup>22</sup> European Parliament, Council of the European Union: Directive 2012/27/EU, *on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC Text with EEA relevance*. In Official Journal of the European Union, 25/10/2012.

<sup>23</sup> European Commission: COM (2014) 330 final, p. 7.

<sup>24</sup> European Parliament, Council of the European Union: Directive 2010/31/EU, *on the energy performance of buildings (recast)*. In Official Journal of the European Union, 19/05/2010.



The fourth pillar of the Strategy focuses on building a well-functioning and fully integrated internal energy market. This is one of the most controversial points in the document since it addresses the long-standing debate on supranationalism in the EU. Article 194 TFEU indeed calls for the EU to guarantee the security of energy supply and to ensure the functioning of the energy market,<sup>25</sup> but, in paragraph two, it also recalls how European energy measures “shall not affect a Member State’s right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply.”<sup>26</sup> Article 194 still emphasizes a large role for Member States in deciding their energy priorities and needs, making the construction of a coordinated and integrated internal energy market a challenging task to accomplish. The Strategy starts from this assumption, trying to build a realistic approach to overcome divergencies between Member States. It says that every government intervention that affects this market framework “must be discussed at European and regional level to ensure that decisions in one Member State do not undermine the security of supply in another Member State.”<sup>27</sup> This must be applied for every decision concerning renewable energy or efficiency targets, the support for investment in or decommissioning nuclear generation, or key infrastructure projects.<sup>28</sup> The Strategy recalls the differences in market integration dynamics between Member States by highlighting the positive steps brought about by Nordic and North-Western countries through the Nord Pool and Pentalateral Forum initiatives. These countries managed to foster integration in the electricity and gas sectors in an efficient and coordinated way, leading transmission system operators (TSOs) and regulators to take similar initiatives, such as the PRISMA platform, started in 2013, that has become the leading platform to auction transmission gas capacity at primary and secondary market level.<sup>29</sup> However, as of 2014, when the Strategy came into existence, the development of competitive and well-integrated markets in the Baltic States and the

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<sup>25</sup> Treaty on the Functioning of the European Union (TFEU), Part Three: Union Policies and Internal Actions, Title XXI: Energy, Article 194 (1)

<sup>26</sup> *Ibid.* (2)

<sup>27</sup> European Commission: COM (2014) 330 final, p. 8.

<sup>28</sup> *Ibid.*

<sup>29</sup> Prisma website.

South East of Europe lagged behind<sup>30</sup> since the energy infrastructures of these countries were less developed or aging and lacked sufficient and diverse interconnection with other countries to secure energy supply, which made their markets less resilient and left few auxiliary options for overcoming supply cut-offs.<sup>31</sup> Therefore, the Strategy reasserts that a truly integrated and competitive internal energy market “not only needs a common regulatory framework but also significant development of energy transport infrastructure, in particular cross-border interconnections between Member States.”<sup>32</sup> The very first priority set in the Strategy refers to the identification and the attainment of key strategic projects of common interests (PCIs), as set out in Regulation (EU) no. 347/2013<sup>33</sup> (also known as *On Guidelines for Trans-European Energy Infrastructure* or TEN-E Regulation) together with *the Connecting Europe Facility Fund* (CEF) established in 2014. These PCIs have been identified as critical for the EU's energy security in the short and medium terms “because their implementation is expected to enhance diversification of supply possibilities and solidarity in the most vulnerable parts of Europe.”<sup>34</sup> As of 2014, most of these projects were located in Eastern and Southwestern Europe and would have had an estimated cost of around €17 billion.<sup>35</sup> Given their inherently complex nature, the Strategy suggests intensifying the support to CEF by bringing together the project promoters to discuss technical possibilities to speed up project implementation and National Regulatory Authorities (NRAs) “to agree on cross-border cost allocation and financing as well as the relevant Ministries to ensure strong political support both in view of the first but also the later calls.”<sup>36</sup> Most of these PCIs (listed in Annex 2 of the document) are key interconnection projects between member countries’ infrastructures, whose main objective is permitting reverse-flow systems

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<sup>30</sup> European Commission: COM (2014) 330 final, p. 9.

<sup>31</sup> Perez, M., et. al. (2019) *The multi-speed energy transition in Europe: Opportunities and challenges for EU energy security*. In Energy Strategy Reviews vol. 26, November 2019. p. 2

<sup>32</sup> European Commission: COM (2014) 330 final, p. 9.

<sup>33</sup> European Parliament, Council of the European Union: Regulation (EU) no. 347/2013, *on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 Text with EEA relevance*. In Official Journal of the European Union, 17/04/2013.

<sup>34</sup> European Commission: COM (2014) 330 final, p. 10.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

of natural gas from south to north and from west to east, thus bolstering the security of the EU's gas supply but also increasing competitiveness and improving service quality to all European consumers.<sup>37</sup> The Strategy recalls the 20-21 March 2014 European Council conclusions, which also called for a "speedy implementation of all the measures to meet the target of achieving interconnection of at least 10% of their installed electricity production capacity for all Member States."<sup>38</sup> As of 2014, the interconnection level stood at around 8%, leading the European Commission to extend this interconnection target to 15% by 2030.<sup>39</sup> Finally, this fourth point also addresses the oil market and its main problems, namely the overdependence on Russia, the widespread ownership of EU refinery capacity by Russian companies, and the high share of refined products consumed in transport.<sup>40</sup>

The fifth pillar of this Strategy highlights the Union's need to reduce dependency by maximizing the production and use of the available energy sources on European land. The Strategy pushes for an increase in the local production of renewable energy while also taking nuclear energy, hydrocarbons, and clean coal as valid alternatives for the EU energy mix necessary to satisfy the Union's energy requirements. Regarding hydrocarbons, the Strategy calls on Member States to exploit their reserves only if they fully comply with energy and environmental legislation, such as Directive 2013/30/EU, also known as *Offshore Safety Directive*.<sup>41</sup> It also pushes for the assessment and the research on the potential of unconventional hydrocarbons, such as shale gas, by taking complete account of

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<sup>37</sup> Tagliapietra S. (2016) *Dis-jointed European energy*. Report in Eastwest July-August 2016, Part One.

<sup>38</sup> European Council: Council Conclusions, 20-21 March 2014. Brussels, 21/03/2014

<sup>39</sup> European Commission: COM (2014) 330 final, p. 10.

<sup>40</sup> Ibid.

<sup>41</sup> European Parliament, Council of the European Union: Directive 2013/30/EU, *on safety of offshore oil and gas operations and amending Directive 2004/35/EC Text with EEA relevance*. In Official Journal of the European Union, 12/06/2013.

Recommendation 2014/70/EU, which provides guidelines on implementing the highest attainable environmental standards.<sup>42</sup>

The sixth pillar carries on the argument included in the fifth by inviting Member States and European institutions to develop energy technologies further. As stated in the Strategy, these new technologies “are needed to further reduce primary energy demand, diversify and consolidate supply options (both external and indigenous), and to optimize energy network infrastructure to fully benefit from this diversification.”<sup>43</sup> To achieve this, significant investments are required; investments that “must encompass the whole technology supply chain, from materials (including critical raw materials) to manufacturing, ensuring that, while reducing EU energy import dependence, the EU also ensures that its dependence on foreign technologies is contained.”<sup>44</sup>

The seventh pillar refers to the available options for diversifying supplies of natural gas, uranium, and nuclear fuel. For the sake of remaining coherent with this dissertation’s ambitions, these dynamics and the relevant geopolitical implications will be further analysed in Chapters two and three; however, the 2014 Strategy invites the Commission and Member States to take initiatives in supporting the development of gas supply infrastructure with existing partners (such as Norway) and new possible alternatives in the long run (such as Mediterranean partners like Israel and Egypt), while pushing for the adoption and efficient implementation of legislation on nuclear energy issues such as Directive 2009/71/Euratom, also known as *Nuclear Safety Directive*.<sup>45</sup> The Commission is further

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<sup>42</sup> European Commission: Recommendation 2014/70/EU, *on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing*. In Official Journal of the European Union, 22/01/2014.

<sup>43</sup> European Commission: COM (2014) 330 final, p. 14.

<sup>44</sup> *Ibid.*, pp. 14-15.

<sup>45</sup> Council of the European Union: Council Directive 2009/71/Euratom, *establishing a Community framework for the nuclear safety of nuclear installations*. In Official Journal of the European Union, 25/06/2009.

invited to pursue an active trade agenda, applying adequate enforcement of trade disciplines where appropriate and fostering supply diversification by lifting existing oil export bans in third countries.<sup>46</sup>

Lastly, the eighth pillar of the Strategy recalls the importance of supranationalism in coordinating national energy policies and the external energy market. While recognizing that decisions on energy mix are a national prerogative (coherently with Article 194 TFEU), the Strategy tries to further develop the picture by acknowledging that “the progressive integration of energy infrastructure and markets, the common reliance on external suppliers, the need to ensure solidarity in times of crisis, all imply that fundamental political decisions on energy should be discussed with neighboring countries.”<sup>47</sup> This particular final section of the Strategy is of great importance since it expressly recognizes the legitimacy of some Members’ calls to create an energy union that would implement a mechanism to inform and to better coordinate each Member States’ decisions on their energy mix before their adoption.<sup>48</sup> This section also tries to look ahead in trying to assess the opportunities of projecting European influence as a promoter (and possibly exporter) of sustainable energy technologies across the globe, especially among developing countries, which are expected to provide the most significant contribution to energy demand growth in the coming decades.<sup>49</sup> Concerning the international and extra-EU dimension of regulation and cooperation in energy markets, the Strategy recalls the importance of the Energy Community as a mean to expand the Union’s *acquis communautaire* “by promoting energy sector reforms in the participating countries, while also supporting the modernization of their energy system and their full integration in the EU energy regulatory framework.”<sup>50</sup> Finally, the Strategy invites the Commission to establish a mechanism for the joint purchasing of natural gas (in the fashion of a system already implemented by the Euratom

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<sup>46</sup> European Commission: COM (2014) 330 final, p. 17.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid., p. 18.

Supply Agency) that should contribute to increasing market transparency and considering energy security needs.<sup>51</sup>

## 1.7 The 2015 Energy Union and the progress towards supranationalism

Following the premise of the Energy Union Strategy of 2014, on February 25, 2015, the newly appointed Juncker Commission published a new Communication under the name of *A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*, also known as the *Energy Union Package*.<sup>52</sup> This Package is the direct evolution of the 2014 Strategy, reprising its fundamental principles and remaining coherent with the three long-established objectives of EU energy policy: security of supply, sustainability, and competitiveness.<sup>53</sup> In particular, this Communication focuses on five mutually supportive dimensions: energy security, solidarity, and trust; the establishment of a fully integrated European energy market; the role of energy efficiency in contribution to moderation of demand; decarbonizing the economy, and the strengthening of research, innovation, and competitiveness.<sup>54</sup> The most striking features of this document are the constant focus on energy efficiency and the definition of a transparent governance system that should be implemented to achieve common interest goals. Regarding energy efficiency, the EU's commitment in this area has been reiterated by former EU Commission Vice-President and Energy Union Commissioner Maroš Šefčovič and then Energy Commissioner Arias Cañete, who endorsed an *energy efficiency first* policy during the EU Sustainable Energy Week in June 2015.<sup>55</sup> The Communication also appears to include references to this dynamic in all five dimensions: it describes how energy efficiency plays a fundamental role in protecting vulnerable consumers and mentions how energy poverty can be addressed through a combination of measures, mainly in the social field

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<sup>51</sup> Ibid., p. 19.

<sup>52</sup> European Commission: COM (2015) 80 final.

<sup>53</sup> European Council for an Energy Efficient Economy: Energy Union. ECEEE website.

<sup>54</sup> European Commission: COM (2015) 80 final, p. 4.

<sup>55</sup> European Commission: EU Sustainable Energy Week 15-19 June 2015 Brussels Event Programme.

and within the competence of authorities on the national, regional or local levels.<sup>56</sup> It also refers to moderating energy demand through efficiency improvement, especially in the buildings and transport sectors.<sup>57</sup> The governance system proposed in the document reprises the intentions previously set out in the 2014 Strategy, pushing for the establishment of an integrated monitoring process that should serve several purposes, such as bringing together energy and climate actions as well as actions in other relevant policy areas, leading to longer-term policy coherence and providing long-term certainty and guidance for investors.<sup>58</sup> It should also serve as a means to secure the implementation of the internal energy market and the delivery of the 2030 energy and climate framework<sup>59</sup>, established by the European Council in October 2014, especially the implementation of the agreed 2030 targets on renewables, energy efficiency, non-Emissions Trading System and interconnections.<sup>60</sup> Most importantly, the Commission was tasked to annually report to the Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions about the development of Energy Union-related policies and initiatives in a series of reports on the State of the Energy Union, to address the key issues and steer the policy debate.<sup>61</sup>

The final part of this chapter will analyse the developments achieved as of the last State of the Energy Union report before the outbreak of war in Ukraine. The Sixth Report, released by the European Commission on October 26, 2021, recognizes the immense challenges the entire Union and the international community have faced due to the COVID-19 pandemic and rising climate change-related issues. The Report underlines how investing in transforming the energy system could constitute a long-term solution to both challenges<sup>62</sup>, recalling the centrality of the principles of

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<sup>56</sup> European Commission: COM (2015) 80 final, p. 12.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid., p. 17.

<sup>59</sup> European Council: Council Conclusions, 23-24 October 2014. Brussels, 24/10/2014.

<sup>60</sup> European Commission: COM (2015) 80 final, p. 17.

<sup>61</sup> Ibid., p. 18

<sup>62</sup> European Commission: *Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - State of the Energy Union 2021- Contributing to the European Green Deal and the Union's recovery (pursuant to Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action)*. Brussels, 26/10/2021, COM (2021) 950 final (document 1).

subsidiarity, proportionality, and better regulation in shaping a stronger and more interconnected European Union. Fall 2021 has also been a particularly vulnerable period regarding the gas and electricity markets, as prices saw a sharp spike amid soaring energy demand generated by increased consumption needs following the post-pandemic economic recovery.<sup>63</sup> As a consequence of these energy issues, the Report highlights the efforts<sup>64</sup> put in place by the EU to face these challenges, showing the formal commitment by EU institutions and Member States to allow “a rapid coordinated approach to protect those most at risk without fragmenting the European single energy market or jeopardizing investments in the energy sector and the green transition.”<sup>65</sup> These initiatives include the so-called *European Green Deal*, also known as the *Fit for 55* Agenda, aiming to cut net emissions by at least 55% by 2030 and achieve climate neutrality by 2050.<sup>66</sup> The Report highlights several milestones reached by the EU in the field of combating climate change and achieving climate neutrality, having surpassed the United Nations Framework Convention on Climate Change (UNFCCC) target of reducing greenhouse gas emissions by 20% by 2020<sup>67</sup>, while investments in renewables grew considerably, reaching €48.8 billion in 2020, especially in the fields of offshore wind and solar photovoltaic technology.<sup>68</sup>

While the Report shows encouraging data for these dynamics, the picture for energy security is far less optimistic, as evidenced by, among other things, a natural gas energy import dependency of roughly 83%<sup>69</sup> and market disruptions, as previously cited. The Report highlights the most relevant initiatives taken at the EU and Member States levels to improve energy security and safety: for

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<sup>63</sup> Pescatori, A., et. al. (2021) *Surging Energy Prices May Not Ease Until Next Year*. In IMF Blog, 21/10/2021.

<sup>64</sup> Including European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Tackling rising energy prices: a toolbox for action and support*. Brussels, 13/10/2021, COM (2021) 660 final.

<sup>65</sup> European Commission: COM (2021) 950 final (document 1), p. 1.

<sup>66</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal*. Brussels, 11/12/2019, COM (2019) 640 final.

<sup>67</sup> European Commission: COM (2021) 950 final (document 1), p. 9.

<sup>68</sup> *Ibid.*, p. 11.

<sup>69</sup> Eurostat: *EU natural gas import dependency down to 83% in 2021*. Eurostat website, 19/04/2022.



instance, in the electricity sector, the adoption of Regulation 2019/941<sup>70</sup> has pushed Member States to implement national risk preparedness instruments to “prevent, prepare for, and mitigate potential electricity crises in mutual cooperation, taking account of increasing electrification.”<sup>71</sup> Concerning natural gas and gas storage, the EU has encouraged Member States to adopt national plans to mitigate the impact of supply disruptions by adopting the now-amended Regulation 2017/1938.<sup>72</sup> This Regulation, however, lacked efficient and resolute instruments to monitor and access storage capacity across borders to ensure well-filled gas storage in the EU,<sup>73</sup> urging the Commission to review it in December 2021 (a new version will be adopted in June 2022 in the context of the Russian aggression in Ukraine). Concerning oil, the Commission has strengthened cooperation with Member States. It has taken initiatives to ensure the protection of critical infrastructure, especially from a cybersecurity perspective, citing the May 2021 Colonial Pipeline incident.<sup>74</sup> The most relevant product of these initiatives is the drafting of a *Network Code on Cybersecurity*,<sup>75</sup> which is currently in the development stage and expected to enter into force by the end of 2022.

Concerning the resilience and integrity of the internal energy market, the all-time-high electricity prices determined by global gas demand contributed to increased energy market volatility, causing undesirable negative impacts on consumers and businesses. As of the publication, “there is no clear evidence that an alternative market framework than the marginal pricing method and the pay-as-clear market would provide cheaper prices and better incentives.”<sup>76</sup> Given the urgency of the situation, the

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<sup>70</sup> European Parliament, Council of the European Union: Regulation (EU) no. 2019/941, *on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC (Text with EEA relevance)*. In Official Journal of the European Union, 05/06/2019.

<sup>71</sup> European Commission: COM (2021) 950 final (document 1), p. 14.

<sup>72</sup> European Parliament, Council of the European Union: Regulation (EU) no. 2017/1938, *concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 (Text with EEA relevance)*. In Official Journal of the European Union, 25/10/2017.

<sup>73</sup> European Commission: *Secure gas supplies*. European Commission website.

<sup>74</sup> United States Department of Energy – Office of Cybersecurity, Energy Security, And Emergence Response: *Colonial Pipeline Cyber Incident*. US Department of Energy website.

<sup>75</sup> Entsoe: *Network Code on Cybersecurity*. Entsoe website.

<sup>76</sup> European Commission: COM (2021) 950 final (document 1), p. 16.

Commission tasked the Agency for the Co-operation of Energy Regulators (ACER) to review the design of the wholesale electricity market, given the heterogeneity of wholesale price dynamics in different EU countries. Relevant progresses have been made at the EU market coupling level, bringing the borders between Poland, Czech Republic, Slovakia, Romania, and Hungary to be included in the common EU trading platform for electricity in June 2021, while other extensions between Romania-Bulgaria<sup>77</sup> and Croatia-Hungary<sup>78</sup> would be implemented later. On the single intraday coupling level, 22 countries were connected as of 2019, while Italy, Greece, and Slovakia are expected to join at some point. The Report stresses how intraday coupling benefits EU welfare by up to €50 million annually. An entire coupled energy market would generate additional welfare benefits of more than €1.5 billion per year, reducing the need for backup fossil fuel power plants.<sup>79</sup> The situation of gas storage and the resilience of storage facilities were more problematic, as the report shows that gas storage was not yet available in all EU countries and that the storage levels, as of fall 2021, were roughly at 75% out of a recommended level of at least 90%. Even a smaller amount of stored gas could satisfy the needs of specific countries in a winter season, depending on a series of variables such as infrastructure efficiency and weather; however, the Report clearly states how a more integrated European approach to coordinate storage facilities was needed in cases of energy shocks and sudden unavailability of gas, also constituting an effective instrument to limit volatility in energy prices.<sup>80</sup>

The picture for the projects of common interests (PCIs) was even more complex. In November 2021, the Commission published the fifth PCI list,<sup>81</sup> which reflects the evolving policy priorities for meeting

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<sup>77</sup> Spasić, V. *Bulgaria-Romania day-ahead market coupling completed*. Balkan Green Energy News, 27/10/2021.

<sup>78</sup> Epexspot: *Successful go-live of the Core Flow-Based Market Coupling project, including Day-Ahead Market Coupling on Croatian – Hungarian border*. Epexspot website.

<sup>79</sup> European Commission: COM (2021) 950 final (document 1), p. 17.

<sup>80</sup> Ibid.

<sup>81</sup> European Commission: Commission Delegated Regulation (EU) 2022/564, *amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest*. In Official Journal of the European Union, 19/11/2021.

the EU's climate neutrality goals and the clean energy transition.<sup>82</sup> The absence of new gas and oil infrastructure projects shows the EU's long-term commitment to decarbonization aims. In March 2021, Climate Action Network Europe published a policy brief<sup>83</sup> that aimed at presenting candidate gas infrastructure projects to be included in the fifth PCI list as harmful and incompatible with long-term EU climate objectives. These projects were mainly LNG terminals and pipelines, such as the GIPL pipeline between Poland and Lithuania and the Baltic Pipe between Denmark and Poland. This policy brief argued that most of these gas PCIs would be built in countries where gas demand had already peaked or where local communities criticized them. Finally, they were also deemed to be economically unviable without public funding.

However, phasing out fossil fuels requires a long-term strategy. Geopolitical dynamics can massively impact the energy market and the security of crucial energy infrastructures, as shown by the Russia-Ukraine energy disputes (and, later, the Russian invasion of Ukraine). Øystein Noreng, a political scientist at the Norwegian Business School, heavily criticized the Energy Union project in a 2018 article, arguing how decarbonization and climate change-related policies and proposals are mainly motivated by ideology and economic profitability rather than pragmatic policies that consider social costs. He also discusses how the Energy Union project can jeopardize *de facto* national veto rights and the principle of subsidiarity, strengthening the EU Commission and especially Germany's influence on EU energy policy.<sup>84</sup>

Overall, the energy security situation as of 2021 has shown many improvements since the start of the Energy Union back in 2015. While decarbonization and cross-border energy interconnection dynamics have indeed reached significant achievements, from a strategic point of view, there were

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<sup>82</sup> Energy Industry Review: *EU 5th List of Projects of Common Interest*. Energy Industry Review website, 22/11/2021.

<sup>83</sup> AA.VV. (2021) *Candidate projects for the 5th PCI list: a final push for fossil gas?* Policy Brief by Climate Action Network Europe (CAN) and Food & Water Action Europe, March 2021.

<sup>84</sup> Noreng, Ø. (2018) *EU Energy Union: A Critical View*. In *The Journal of Energy and Development* vol. 44, (1/2), Autumn 2018 and Spring 2019, (pp. 197-236), p. 205.

still several deficiencies for what concerns the resilience of gas storage and the operational capacity of key reverse-flow interconnectors. Moreover, the diversification of routes did not develop efficiently; or at least, they did develop, with Russia still acting as the country of origin. The energy dependency rate was still very high, with European countries still heavily relying on Russia as the primary source of energy, a status reinforced by the previously mentioned energy market dynamics and the fact that most PCIs were still incomplete or regarded as inefficient and unsustainable

# Chapter Two

## Part One: The EU's response to the Russian invasion of Ukraine and the long-standing debate on supranationalism

### 2.1 The Russian Invasion of Ukraine

The controversial energy relations between the EU and the Eurasian giant recently experienced the most impactful shock in their history after President Putin unilaterally broke the status quo in Ukraine by launching a full-scale invasion of the country on February 24, 2022. The decision to wage war against the Ukrainian central authorities has been motivated by several frictions between the triangle composed of the two countries and the West. Russian scholars, media personalities, and political and military officers and institutions have promoted an ethnonationalist rhetoric that sees Ukraine as an integral part of the *Russian world* that must be *de-nazified*.<sup>1</sup> On the other hand, Western scholars and analysts traced back the origins of the dispute in the constantly degrading situation in Eastern Ukraine, in the NATO threat and *expansionism*,<sup>2</sup> and in long-term geopolitical ambitions and priorities, among which the need to get access to warm water ports in the Sea of Azov<sup>3</sup> (also one of the main reasons for annexing Crimea in 2014, and a scenario already foresaw by Tim Marshall in *Prisoners of Geography*).<sup>4</sup> The Russian invasion of Ukraine changed the world like very few events in the last one hundred years: it reminded Europe of the harsh reality of war; it put an end on debates about the neo-imperialist stance of Putin's Russia, and, most of all, showed Europe what Russia could do to pursue

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<sup>1</sup> A concept that has been widely discussed, but that now many Russian and foreign sources consider referring to eradicating any foreign influence from Ukraine, guilty of having promoted a shift in international and economic policies towards ones that are "hostile" to Russia.

<sup>2</sup> Entringer Garcia Blanes, I., et.al. *Poll: Will Russia Invade Ukraine?* Analysis for Foreign Policy, 31/01/2022.

<sup>3</sup> Urcosta, R., B., Jasiński, W. (Eds.) (2018) *Russia's Strategic Considerations on the Sea of Azov*. Special Report by the Warsaw Institute, Warsaw Institute website, 03/12/2018.

<sup>4</sup> Marshall (2015).

its interests, even if that means losing all the remaining credibility and trust, leading to an inevitable disruption of existing economic agreements. While previous European responses to Russian provocations have been decentralized, generally mild, and lacking long-term strategic assumptions, the post-Ukraine invasion policies towards Russia feature the most resolute and unified package of sanctions ever implemented against a third country, although not without divergences and unilateral initiatives. Indeed, the current period that Europe is living in is the most critical ever and a definitive test to prove the consistency and the credibility of supranationalism, which has been put under stress since its very existence and that arguably failed on multiple occasions, such as the Eurozone crisis and migration crisis. This scenario provides a proving ground for pursuing *strategic autonomy* in energy security and transition.<sup>5</sup> Several scholars have also been talking about how the war in Ukraine is inevitably going to change the European geostrategic and security architecture,<sup>6</sup> with new actors growing in importance in this new stage, such as Poland and the Baltic Countries<sup>7</sup>, and old ones struggling to find a new identity such as Germany. On the other hand, several political and civil realities have been critical of the current transformation of the European energy security framework, often referred to as an attempt by the United States to contain the Russian threat to focus on China entirely and to keep European countries in check, to break all their energy bonds with Russia on to become one of the leading suppliers of gas for the Old World.

On the part of the EU, the Union has managed to achieve some unity in delivering new far-reaching initiatives that have brought EU-Russia relations to a new standard of hostility and distrust. In the wake of the war, on February 24, the European Council met for an extraordinary session to formally condemn Russia's aggression and decide on a new set of sanctions aimed at striking the Russian

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<sup>5</sup> Synapse Energy Economics. *War in Ukraine is Shaping Energy Security and Accelerating Energy Transition in Europe*. Synapse Energy Economics, Inc., 08/04/2022.

<sup>6</sup> Michta, A. A. *Ukraine: A battle over the future of Europe*. Politico, 26/12/2022.

<sup>7</sup> Institut Montaigne. *The Ukraine War: A Resilience Test for the European Union? Interview with Ivan Kratsev*. Interview by Institut Montaigne, 15/09/2022.

economy to stop its war machine and to pursue a realistic resolution of the conflict. Since then, sanctions have been targeting the financial sector (especially by joining the US, Canada, and the UK in excluding several Russian banks from the SWIFT financial transaction processing system), relations concerning visa policy, the export sector (especially for what concerns cutting-edge technology employed in strategic sectors like the military, aviation, and petrochemical), while also targeting individual Russian political and economic actors by freezing bank accounts and seizing properties across the EU.<sup>8</sup> Council President Charles Michel addressed the centrality of supranationalism in its remarks following the conclusion of the session, referring to the meeting as “an opportunity for us to affirm, once again, our unity: the unity of the European Union, of the Member States, and unity with our partners, our allies and our friends around the world to defend international law and this rules-based order that offers the best assurances for peace, security, and stability.”<sup>9</sup> Michel’s words expressly refer to the need “of building a Europe more focused on sovereignty or strategic autonomy,” reaffirming the political stance on the matter previously adopted by French president Emmanuel Macron and President of the Commission Ursula von der Leyen.

However, as many media outlets initially reported, the first sets of European sanctions concerning the energy sector and EU-Russia energy relations were too mild. For instance, several Russian banks that handle energy payments (such as Sberbank and Gazprombank) were initially excluded from sanctions and the removal from the SWIFT transaction system, being the main channels through which EU countries buy Russian oil and gas and then of strategic value.<sup>10</sup> These early decisions at the Union level show the initial restraint from certain countries to unbound themselves from energy agreements with Russia, which nevertheless represents the most important and lucrative field for Russian exports worldwide and the main channel through which Moscow can fund its military campaign. Germany is

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<sup>8</sup> European Council: Special Meeting of the European Council Conclusions, 24 February 2022. Brussels, 24/02/2022.

<sup>9</sup> European Council: Remarks by President Charles Michel following the Special European Council on Ukraine. Brussels, 25/02/2022.

<sup>10</sup> Blenkinsop, P. *EU bars 7 Russian banks from SWIFT, but spares those in energy*. Reuters, 03/03/2022.

one of those countries that have since adopted a skeptical view on banning purchases and flows of Russian energy due to the aforementioned links with Moscow and due to the possible market and economic shocks that would derive from such drastic decisions. Indeed, in early March 2022, German Economy Minister and Vice-Chancellor Robert Habeck signaled that he would not “support an embargo on imports of fossil fuels from Russia [...] because we would threaten the social peace in the republic with that.”<sup>11</sup> He further added that the fallout of Russian sanctions would inevitably damage the most valuable German companies. While some of them would be covered by government guarantees, others would be eventually left exposed. He finally added that Germany must “remain open for energy supplies from Russia” to “maintain price stability and security of energy in Germany.”<sup>12</sup> In mid-March, Chancellor Olaf Scholz initially expressed the same concerns as his minister, asserting that an immediate ban on Russian energy imports would trigger an economic recession in Germany and Europe in general. While the German government apparently realized its previous mistakes and deemed the abandonment of energy relations with Russia desirable, doing it immediately would produce catastrophic damages to the socio-economic stratum everywhere in Europe and considerable market shocks worldwide. Several governmental and non-governmental organizations have shared these concerns too, also from third countries like the Indian-based Observer Research Foundation, which in early March 2022 stated that “The removal of Russian oil, gas, and coal from international markets along with fear of further disruptions in energy supplies have driven up prices of oil, gas, and coal substantially. The increase in the price of these internationally traded fuels will impose costs on ordinary people in countries uninvolved in the conflict.”<sup>13</sup> Scholz concluded its remarks by highlighting the need for sanctions not to “hit the European countries harder than the Russian leadership.”<sup>14</sup> Italian Prime Minister Mario Draghi initially expressed skeptical

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<sup>11</sup> Delfs, A. *Germany Signals Opposition to Embargo on Russian Energy*. Bloomberg, 03/03/2022.

<sup>12</sup> Ibid.

<sup>13</sup> AA.VV. (2022) *Economic sanctions: Negative externalities on the Indian energy consumer*. In Energy News Monitor vol. XVIII, Issue 35. Observer Research Foundation (ORF), 11/03/2022.

<sup>14</sup> Gehrke, L., von der Burchard, H. *Scholz: Russian energy ban would mean European recession*. Politico, 23/03/2022.



remarks about sanctioning Russian energy imports. However, while before the Russian invasion of Ukraine in mid-February 2022 Draghi suggested excluding the energy sector from sanctions in case of an invasion, he later admitted that “diversification is possible and feasible relatively quickly, shorter than we imagined just a month ago,” after reaching an agreement with Algeria in mid-April 2022.<sup>15</sup>

On the other hand, France’s Emmanuel Macron has been a strong supporter of sanctioning Putin’s regime and its strategic economic assets (even though remaining one of the few European leaders keen to maintain personal talks with Putin to reach a possible agreement). The French President called for stronger energy sanctions after the Bucha massacre and other evidence of war crimes in Ukraine, suggesting banning coal and oil first.<sup>16</sup> Concerning gas, Macron’s position became more radical in the summer of 2022, urging the French people to prepare for possible complete shutdowns of Russian gas deliveries, reasserting that prices will eventually remain high, and calling for a moderation of energy use. Macron has accused Moscow of treating energy as a weapon, remarking that France must abandon Russian gas as soon as possible.<sup>17</sup> Here, the reason why France has adopted a stronger position against Russia should not come as a surprise: as previously mentioned, France is the largest producer of nuclear energy in Europe (even though it registered a -15.7 % decrease in nuclear energy production between 2006 and 2021) and the one with the highest share of nuclear in its electricity mix as of 2021 (68.9%).<sup>18</sup> Moreover, natural gas in France is usually employed in the production of heating, while countries like Italy depend on it for more strategic purposes like electricity generation (48.13% of the total share as of 2021).<sup>19</sup> However, the Polish position against Russia is indeed one of the most radical and antagonistic. Poland’s reputation in the EU has always been somewhat

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<sup>15</sup> Brambilla, A. *EU Can Cut Russian Energy Dependence Sooner Than Thought: Draghi*. Bloomberg, 17/04/2022.

<sup>16</sup> Gijs, C., Leali, G. *Macron calls for more energy sanctions as Ukraine accuses Russia of war crimes*. Politico, 04/04/2022.

<sup>17</sup> AA.VV. *Macron says France will do without Russian gas*. Le Monde with AFP, 14/07/2022.

<sup>18</sup> Eurostat: *Nuclear Energy Statistics*. Eurostat website, data extracted in December 2022.

<sup>19</sup> Gestore Servizi Energetici (GSE): *Mix energetici 2008 – 2021*. GSE website, data extracted from the archive.

controversial, especially concerning its recalcitrancy on climate action and its current take on civil rights. Still, since the Russian Invasion of Ukraine, Poland has become one of the loudest voices of unconditional support to Ukraine with the United States, the UK, and the Baltic Countries. Concerning energy, Poland has continuously called for heavily sanctioning the Russian energy sector. When Sberbank and Gazprombank were initially exempted from the SWIFT ban, Polish Prime Minister Mateusz Morawiecki deemed the decision “unacceptable,”<sup>20</sup> exhorting the most influential EU countries to take a decisive stance and “suspend funding of Putin's war machine.”<sup>21</sup> However, even such a fierce opposer to the Russian regime could not unilaterally intervene to end its energy dependency on Moscow. Even though the Polish government adopted a law that bans imports of Russian coal in March 2022,<sup>22</sup> Polish climate and environmental minister Anna Moskwa argued that it is difficult for a country to end Russian energy imports on its own.<sup>23</sup> This acceptance of reality has been shown by the rejection, in early April 2022 by the Polish Parliament, of an amendment of the coal-ban law that would have also included a ban on liquefied petroleum gas (LPG) imports.<sup>24</sup>

The magnitude and scope of the new emerging energy and military security crisis have brought the European Union and its Member States to acknowledge their past mistakes but also to realize the potential to carry forward a genuinely revolutionary shift from a regional actor to a global superpower capable of influencing the international arena like China and the United States, also in the energy arena. Recalling the rationale of this dissertation, this goal can only be achieved if *strategic autonomy* is pursued.

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<sup>20</sup> Blenkinsop, P. *EU bars 7 Russian banks from SWIFT, but spares those in energy*. Reuters, 03/03/2022.

<sup>21</sup> Wanat, Z. *Poland finds it's tough to go cold turkey on Russian energy*. Politico, 25/04/2022.

<sup>22</sup> Strzelecki, M., et. al. *Polish Cabinet approves law to ban Russian coal imports*. Reuters, 29/03/2022.

<sup>23</sup> Wanat, Z. *Poland finds it's tough to go cold turkey on Russian energy*. Politico, 25/04/2022.

<sup>24</sup> Ibid.

## 2.2 New domestic and European initiatives in the wake of the conflict

This paragraph will analyse the up-to-date initiatives taken at the national and Union levels to contrast Russia's military intervention in Ukraine from an energy relations standpoint. As mentioned, this new scenario has caused the EU to implement radical decisions to reduce its dependency on Russia and pursue new alternatives. However, as shown in the next paragraph, several unilateral decisions of single countries have hampered a truly uniform response from taking shape. In the wake of the Invasion of Ukraine, on February 28, the European energy minister met at the Council of the EU to discuss and exchange views on the situation concerning energy supplies, stocks, and flows in their respective countries. During that meeting, it was recognized that, even in the event of a total shutdown of gas supplies from Russia, European countries would not be immediately at risk and were ready to mobilize strategic stocks in case of sudden disruptions or critical increases in energy price dynamics.<sup>25</sup> At that point, several EU countries had already started implementing contingency plans regarding stocks, infrastructure security, and financial relief initiatives, including tariff and tax measures. For instance, in March 2022, the Italian government enacted a decree-law<sup>26</sup> (later converted into law with some additions) to implement "urgent measures for the containment of electricity and natural gas costs, for the development of renewable energies and the relaunch of industrial policies." Among key initiatives, the Government had chosen to commit 6.72 billion to extend the measures already adopted with the previous legislative provisions to the second quarter of 2022. These included canceling general system charges for some €3 billion.<sup>27</sup> Another decree<sup>28</sup> on 14 March 2022 mandated that Italy's total gas storage capacity must be filled to at least 90% of total capacity in advance of the

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<sup>25</sup> Council of the European Union: Council Meeting on *Transport, Telecommunications and Energy Council (Energy)*. Council of the European Union website, 28/02/2022.

<sup>26</sup> D.L. 01/03/2022, no. 17, *Misure urgenti per il contenimento dei costi dell'energia elettrica e del gas naturale, per lo sviluppo delle energie rinnovabili e per il rilancio delle politiche industriali*. In *Gazzetta Ufficiale della Repubblica Italiana*, 01/03/2022.

<sup>27</sup> AA.VV. (2022) *Economia italiana ancora resiliente a incertezza e shock?* In *Rapporti di Revisione, Autunno 2022*. Centro Studi Confindustria.

<sup>28</sup> D.M. 14/03/2022, Ministero della Transizione Ecologica, *Modalità di stoccaggio per il periodo 2022-2023*. In *Gazzetta Ufficiale della Repubblica Italiana*, 14/03/2022.

2022-2023 winter period.<sup>29</sup> In March 2022, Germany allocated €15 billion to implement consumer-friendly policies, such as temporarily reducing fuel prices for three months through a tax cut.<sup>30</sup> Moreover, in April 2022, the Bundestag passed a law to eliminate the EEG surcharge (a feed-in tariff scheme to encourage renewable electricity generation) from July 2022, enabling households to save around €300 per year.<sup>31</sup> Around the same period, the International Energy Agency (IEA) published a report called *A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas*. Among these ten key points, the report strongly emphasizes diversification, enhancement of gas storage regulations, maximization of generation of existing low-emission sources, and investments in clean energy and the renewable sector.<sup>32</sup> The analysis immediately confirms how “reducing reliance on Russian gas will not be simple, requiring a concerted and sustained policy effort across multiple sectors, alongside strong international dialogue on energy markets and security.”<sup>33</sup> The real challenge remains diversifying and maximizing available options coherently with the current EU climate ambitions and emissions reduction framework. The report states that taking additional steps, such as strengthening LNG imports and exploiting domestic fossil fuels, would indeed slow down the green transition but would also reduce Russian gas imports by more than 80 bcm, or well over half.<sup>34</sup> Some of this strategy's items were recognized during the Versailles Declaration,<sup>35</sup> an informal summit of European Heads of State and Government held between 10-11 March 2022. Among the contents of the Declaration, paragraph two contains ambitious targets in the energy domain: these acknowledge the necessity for the EU to reprise the realization of strategic projects of common interest and to carry out the efficient interconnection of gas and electricity networks and the complete synchronization of

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<sup>29</sup> International Energy Agency (IEA): *Italy Natural Gas Security Policy*. IEA website, 18/10/2022.

<sup>30</sup> Sgaravatti, G., et. al. (2021) *National fiscal policy responses to the energy crisis*. Bruegel Datasets, 04/11/2021.

<sup>31</sup> Bundesregierung Deutschland: *Stromkunden werden entlastet*. Government of the Federal Republic of Germany website, 28/05/2022.

<sup>32</sup> International Energy Agency (IEA): *A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas*. IEA, Paris, March 2022.

<sup>33</sup> *Ibid.*, p. 4.

<sup>34</sup> *Ibid.*

<sup>35</sup> European Council, Council of the European Union: *The Versailles Declaration, 10 and 11 March 2022*. Versailles, 11/03/2022.

power grids, two of the most critical deficiencies that the Energy Union did not manage to solve entirely. Moreover, this summit has been the forum through which the Commission was tasked to design and implement the REPowerEU Plan, fully adopted in May 2022. Previously, on 8 March, the Commission noted that, before the end of 2022, gas imports from Russia could be reduced by two-thirds compared to 2021 (the value of which was 155 bcm, implying a reduction of up to 101.5 bcm).<sup>36</sup>

According to Eurostat, in the first quarter of 2022, average monthly gas imports saw an impressive value increase compared with 2021 due only to increasing prices, as the net mass in the same period remained stable.<sup>37</sup> In the same period, the share of Russian gas imports stood at around 30.9%, of extra-EU imports, with Norway coming second at 25.2%, showing a reduction of almost ten percentage points compared to 2021 for Russia.<sup>38</sup> This effect can also be explained by the unilateral decision of President Putin in March 2022 to implement new pipeline gas payment regulations forcing third *unfriendly* countries to open ruble accounts in Russian banks and to make payments in rubles, threatening to cancel existing contracts if foreign countries would not comply.<sup>39</sup> This move, allegedly implemented to evade sanctions and bring the Russian Central Bank back into the global financial system, convinced several EU countries to comply, Italy and Germany being the most important countries to do so. This situation has generated fierce debates among the European community, with countries like Poland, Bulgaria, and Finland refusing to comply with Moscow's requests and the European institutions unable to clarify their position on the matter.<sup>40</sup> As Euractiv reports, while EU officials advised firms not to open ruble accounts, two EU guidances implicitly allowed the purchase of Russian gas without breaching existing sanctions. In particular, the Commission admitted that EU

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<sup>36</sup> AA.VV. (2022) *The EU plan to reduce Russian gas imports by two-thirds by the end of 2022: Practical realities and implications*. The Oxford Institute for Energy Security Studies, March 2022.

<sup>37</sup> Eurostat: *EU imports of energy products - recent developments*. Eurostat website, data extracted in December 2022.

<sup>38</sup> Ibid.

<sup>39</sup> Trevelyan, M., et. al. *Putin says Russia will enforce rouble payments for gas from Friday*. Reuters, 31/03/2022.

<sup>40</sup> AA.VV. *Germany and Italy approved Russian gas payments after nod from Brussels*. Euractiv with Reuters, 21/05/2022.

sanctions do not prevent companies from opening an account at a designated bank. Companies could pay for Russian gas so long as they do so in the currency agreed in their existing contracts and declare the transaction completed when that currency is paid.<sup>41</sup> This legal *grey zone* has not allowed for a clear and official ruling on the matter, leaving countries the possibility to keep buying Russian gas at unfavorable prices due to possible fees and commissions.

Russia's weaponization of natural gas continued to take shape in April 2022, when every delivery through the Yamal pipeline to Poland and Bulgaria was halted,<sup>42</sup> followed by Finland and the Baltic countries in May. Poland proved to sustain the hit by taking advantage of a gas pipeline interconnector with Lithuania that opened in May 2022<sup>43</sup> and of the Baltic Pipe project, operational since October 2022 and capable of importing 10 bcm of gas annually from Norway to Poland and transporting 3 bcm of gas from Poland to Denmark.<sup>44</sup> Moreover, as gas company PGNiG reported in early May 2022, the country's gas storage facilities were around 80% full,<sup>45</sup> and the availability of LNG imports through the Świnoujście terminal (opened in 2016) up to 5 bcm per year (which are expected to increase to 8.3 bcm by the end of 2023)<sup>46</sup> has given Poland plenty of room of maneuver to resist the energy crisis so far. While the resilience of domestic gas stocks proved efficient, from this point onwards, it was clear that the former gas relations with Russia could not be reprised as business as usual, marking a complete point of no return.

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<sup>41</sup> AA.VV. *EU clarifies how companies can legally pay for Russian gas, ENI and RWE open bank accounts*. Euractiv with Reuters, 17/05/2022.

<sup>42</sup> Rauhala, E., et. al. *Russia cuts off gas to Poland, Bulgaria, stoking tensions with E.U.* The Washington Post, 27/04/2022.

<sup>43</sup> European Commission: *Inauguration of gas interconnection between Poland and Lithuania*. Directorate-General for Energy. Brussels, 05/05/2022.

<sup>44</sup> European Commission: *Launch of the Baltic Pipe*. Directorate-General for Energy. Brussels, 27/09/2022

<sup>45</sup> Charlish, A., Florkiewicz, P. *Poland's gas storage facilities are 81% full, says PGNiG*. Reuters, 04/05/2022.

<sup>46</sup> International Energy Agency (IEA): *Poland Natural Gas Security Policy*. Part of Natural Gas Security Policy, 30/06/2022.

## 2.3 From gas delivery disruptions to oil and gas price caps

Among the largest initiatives taken at the Union level, one of the most important so far has been the REPowerEU Plan, based on four fundamental pillars: diversification, energy saving, acceleration of clean energy, and smart investment reforms.<sup>47</sup> This plan contains some key short-term measures whose effects have been starting to materialize at the moment of writing, including initiatives to fill domestic gas storages to at least 80% of capacity by November 2022 (a milestone fully surpassed, being these levels at 94% at the moment of the deadline),<sup>48</sup> to promote common purchases of gas, LNG, and hydrogen, to increase the production of biomethane and so on. Among longer-term initiatives stands out the necessity to bring the EU-wide target on efficiency for 2030 from 9% to 13%.<sup>49</sup> At this time, Russian gas deliveries significantly dropped during the second quarter of 2022, representing some 22.9% of extra-EU imports. The Commission's quarterly Gas Market Report showed, on a year-on-year comparison, a staggering 90% drop through the Belarus transit route, but also via Nord Stream (-12%), Ukraine (-51%), and TurkStream (-14%).<sup>50</sup> In other words, Russian pipeline gas imports in the EU fell by 43 bcm, while LNG gas imports (primarily from the US, Nigeria, and Qatar) were up by 49% year-on-year. Inevitably, gas consumption fell too, by 16% to be exact, amounting to 71 bcm.<sup>51</sup> Concerning gas, prices steadily increased: retail gas prices for household customers in EU capital cities more than doubled, showing an estimated increase of 110% in August 2022 year-on-year (with an EU average price of 10.39 c€/kWh).<sup>52</sup> Retail gas prices for industrial customers also showed significant increases, up by an estimated 126% year-on-year in Q2 2022, for consumers with median annual consumption. Industrial retail gas prices in the EU were

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<sup>47</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – REPowerEU Plan*. Brussels, 18/5/2022, COM (2022) 230 final (document 1).

<sup>48</sup> AA.VV. (2022). *Europe | Natural Gas. November 2022*. Report by BBVA Research.

<sup>49</sup> European Commission: COM (2022) 230 final (document 1), p. 3.

<sup>50</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol.15 (issue 2, covering second quarter of 2022), p. 3.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid., p. 43.

higher than many global competitors, implying cost disadvantages for energy-intensive industries.<sup>53</sup> This reduced gas consumption brought lower gas demand in electricity generation (by 7%, so -8.1 TWh compared to Q2 2021)<sup>54</sup> pushing electricity prices to new levels in July and August 2022. Indeed, the parallel Quarterly Report on European Electricity Markets for Q2 2022 shows an average increase of 54% in retail prices for households in European capitals in August 2022 (with Italy and Estonia in the lead with +131%), while retail electricity prices for industrial customers also increased, estimated at 32% higher year-on-year in Q2 2022 for mid-sized industrial consumers.<sup>55</sup> These developments in energy prices have been largely influenced by the implementation of a sixth package of sanctions in June 2022, which included a partial ban on oil imports from Russia. As Bruegel argued, as this embargo only applies after six months for crude oil and after eight months for oil products, global oil markets would inevitably see a tightening leading to higher prices and increasing revenue flows to Russia for several months, which would start to feel the hit of the sanctions only from 2023.<sup>56</sup> Moreover, since this embargo initially only affected seaborne oil, pipeline oil (mainly from the Druzhba route) was exempted. However, Russia would have serious difficulties re-routing its oil export through the sea in the long run, as the package included a ban on insuring ships carrying Russian oil. This measure makes shipping Russian oil more expensive, as it will have to rely on less-efficient insurance markets.<sup>57</sup> The Russian response has seen larger pressure on energy exports to the EU, which ultimately led to the partial and then total shutdown of Nord Stream 1 in September 2022, officially for maintenance reasons.<sup>58</sup> The controversy around Nord Stream 1 escalated to dangerous levels when, on 26 September 2022, the pipeline system was seriously damaged in a series of explosions, whose origin has been speculated to be intentional and thus a sabotage, but with no official actor to blame so far. Even before the sabotage in late September, Nord Stream 1 had delivered low

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<sup>53</sup> Ibid., p. 4

<sup>54</sup> Ibid.

<sup>55</sup> European Commission: *Quarterly report on European electricity markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 2, covering second quarter of 2022), p. 3.

<sup>56</sup> McWilliams, B., et. al. (2022). *Europe's Russian oil embargo: significant but not yet*. Bruegel Blog, 1/06/2022.

<sup>57</sup> Ibid.

<sup>58</sup> AA.VV. *Russia indefinitely suspends Europe's gas flow*. Deutsche Welle, 09/02/2022.



volumes of gas, at around 30 million cubic meters per day (around 20% of total capacity) since July.<sup>59</sup> However, the damage to the pipeline and the consequent total shutdown of gas flows to Germany had had a devastating impact on energy prices and the energy market at large, with the Dutch TTF natural gas futures, the European benchmark, topping €200 for the first time since late August.<sup>60</sup> According to Quantum Commodity Intelligence, while this incident did not represent an immediate problem in terms of supply/demand fundamentals, “the suspected sabotage had increased future supply risks and raised geopolitical tensions.”<sup>61</sup> As the Center for Strategic and International Studies (CSIS) argued, this incident had also raised critical concerns on a cybersecurity base, forcing Europe to take additional steps in advanced infrastructure protection.<sup>62</sup> In response to this aggravation of the energy security outlook, the Council of the EU implemented a new Regulation<sup>63</sup> on 6 October 2022 that, among other things, included a cap on the market revenues at 180 €/MWh for electricity generators, including intermediaries, that use so-called inframarginal technologies to produce electricity, such as renewables, nuclear and lignite. Later on, in response to the sham referendums in Eastern Ukraine, an eight package of sanctions put in place a price cap related to the maritime transport of Russian oil for third countries and further restrictions on the maritime transport of crude oil and petroleum products to third countries.<sup>64</sup>

While it is true that the EU has managed to implement community-wide initiatives to curb energy prices and safeguard the security of the energy supply, it is also true that unilateral decisions from

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<sup>59</sup> Majkut, J., et.al. *Security Implications of Nord Stream Sabotage*. In Critical Questions, Center for Strategic and International Studies (CSIS), 29/09/2022.

<sup>60</sup> Glover, G. *European gas prices jump after Gazprom warns it could cut its last flows to Europe, amid worries about apparent Nord Stream sabotage*. Markets Insider, 28/09/2022.

<sup>61</sup> Quantum Commodity Intelligence. *TTF gas rallies on heightened risk after Nord Stream “sabotage.”* Headlines - Quantum Commodity Intelligence, 28/09/2022.

<sup>62</sup> Majkut, J., et.al. *Security Implications of Nord Stream Sabotage*. In Critical Questions, Center for Strategic and International Studies (CSIS), 29/09/2022.

<sup>63</sup> Council of the European Union: Council Regulation (EU) 2022/1854, *on an emergency intervention to address high energy prices*. In Official Journal of the European Union, 06/10/2022.

<sup>64</sup> Council of the European Union: *EU adopts its latest package of sanctions against Russia over the illegal annexation of Ukraine's Donetsk, Luhansk, Zaporizhzhia and Kherson regions*. Council of the European Union website, 06/10/2022.

single countries have hampered the possibility of a proper far-reaching supranational governance in energy matters, even with the Energy Union in place. Hungary and Germany are two countries that have pursued controversial initiatives regarding energy policy, apparently to prioritize their domestic stability and resilience rather than looking at the European common interest. In the case of Hungary, these decisions have been made more on the strategic dimension concerning the security of supply. In fact, in late August 2022, Hungary signed a new gas deal with Russia to cope with a reduction in the volumes of gas delivered through Austria.<sup>65</sup> This new deal will send roughly 5.8 million cubic meters of gas per day through Serbia, as the country had to do that “to avoid the need to introduce restrictions in the country due to gas shortages.”<sup>66</sup> On the other hand, Germany has been widely criticized for proposing a €200 billion financial scheme that would introduce emergency price brakes for gas and electricity consumption.<sup>67</sup> European criticism came mostly because this announcement came precisely the day before the discussion of the 6 October Regulation introducing common emergency measures and also because of Germany’s skepticism on the proposal of a Union-wide gas price cap.<sup>68</sup> The problem with this measure was that it would trigger a negative spill-over effect beyond borders and distort competition in the single market: in particular, as Philipp Lausberg (a policy analyst at the European Policy Centre) told in an interview by Euronews, the €200 billion subsidy would create “large advantages for German companies and consumers that other countries cannot provide” and that “there is a competitive advantage for German companies that goes against the spirit of the single market.”<sup>69</sup> One can argue that what makes the Union particularly vulnerable as a single entity is its limited institutional capacity and the lack of cooperation between Member States and between them and European institutions. On the other hand, the EU has always tried to preserve the autonomy of single countries in deciding their future, especially in the most strategic areas. Some

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<sup>65</sup> AA.VV. *Hungary to buy more gas from Russian in new deal*. Euractiv with Telex, 01/09/2022.

<sup>66</sup> Ibid.

<sup>67</sup> Liboreiro, J., Genovese, V. *Germany faces scrutiny from EU peers over massive €200 billion aid scheme to cushion high gas bills*. Euronews, 04/10/2022.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

national governments have frequently supported the necessity for the EU to respect national sovereignty, a concept that entirely opposes the idea of *strategic autonomy*: one such example is Poland. Energy Minister Anna Moskwa argued against a Commission proposal in August to set a 15% cut to gas usage in EU Member States for a limited time. She argued that “when it comes to energy security, it is mainly the responsibility of the individual, national governments. When we mean solidarity, we also mean freedom. We cannot speak about solidarity and force countries to some solutions at the same time.”<sup>70</sup> After all, from a realist point of view, international organizations and alliances like the EU and NATO are only *marriages of convenience*,<sup>71</sup> according to John Mearsheimer, where collaboration is not done as an end but as a means to achieve personal gains. In other words, nation-states will always prioritize their interests rather than sacrificing themselves for a greater *common good*.

However, as it should be clear by now, European countries must overcome their biases and recognize the need to pursue a common good and *strategic autonomy*. Ultimately, European countries recently managed to lay aside their ambitions and pursue a genuine communitarian interest by setting two critical measures, such as price caps for Russian oil and natural gas. The first, officially achieved on 3 December 2022 by a joint initiative of the EU, G7, and Australia under the Price Cap Coalition,<sup>72</sup> sets a maximum price for Russian seaborne crude oil at \$60 per barrel and is due to enter into force by 5 February 2023. As the Price Cap Coalition statement delivers, this measure will enter into force with the previously implemented oil embargo and allow European operators to transport Russian oil to third countries, provided its price remains strictly below the cap.<sup>73</sup> On 19 December, several EU countries agreed to another landmark decision in establishing a price cap also for natural gas, with

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<sup>70</sup> Öry, M. *Poland and Hungary Criticize EU Gas Cut Proposal*. Hungary Today, 26/07/2022.

<sup>71</sup> Mearsheimer, J. J. (1994) *The False Promise of International Institutions*. In *International Security* vol. 19 (3), (pp. 5–49), p. 12.

<sup>72</sup> Council of the European Union: *L 3111*. In *Official Journal of the European Union*, 03/12/2022.

<sup>73</sup> European Commission: *G7 agrees oil price cap: reducing Russia's revenues, while keeping global energy markets stable*. EU Commission Press. Brussels, 03/09/2022.

some former skeptical countries like Germany finally joining the consensus. This price cap, officially starting on 15 February 2023, will activate if the price difference with global LNG prices is greater than €35 per megawatt hour for three days at the TTF; once activated, it would remain in force for at least 20 working days.<sup>74</sup> According to Euractiv, Germany's approval came after the Council agreed to insert power grids in the revised EU emergency permitting rules:<sup>75</sup> more specifically, under Article 6 of the Regulation,<sup>76</sup> Member States should be able "to introduce exemptions from certain assessment obligations set in Union environmental legislation for renewable energy projects and for energy storage projects and electricity grid projects that are necessary for the integration of renewable energy into the electricity system."<sup>77</sup> In particular, a spokesperson for the German economy and climate ministry confirmed to Euractiv that including electricity grids in the emergency EU permitting regulation will "ensure that network expansion would occur as planned."<sup>78</sup> Naturally, the deal did encounter some opposition, with Hungary voting against it and the Netherlands and Austria abstaining, while several market participants argued that it could cause financial instabilities.<sup>79</sup>

It is too early to assess the potential consequences of these choices in the longer term; however, these latter decisions have shown how the European Union is trying to overtake its past divergences among countries to respond to the Russian invasion with one voice. The next part of this chapter will focus on currently available fossil fuel diversification options for the EU, mainly pipeline gas, LNG, solid fossil fuels, and oil. These are regarded as short to medium-term options, taking into account the decarbonization commitments of the Bloc in the longer run. Still, fossil fuels will continue to play a strategic role even in high-renewable and/or high-nuclear scenarios.

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<sup>74</sup> Manthey, E. *EU agrees on gas price cap*. THINK Economic and Financial Analysis – ING, 19/12/2022.

<sup>75</sup> Kurmayer, N. J. *Revealed: What Germany won in exchange for supporting the EU's gas price cap*. Euractiv, 10/01/2023.

<sup>76</sup> Council of the European Union: Council Regulation (EU) 2022/2577, *laying down a framework to accelerate the deployment of renewable energy*. In Official Journal of the European Union, 22/12/2022.

<sup>77</sup> Ibid.

<sup>78</sup> Kurmayer, N. J. *Revealed: What Germany won in exchange for supporting the EU's gas price cap*. Euractiv, 10/01/2023.

<sup>79</sup> Abnett, K. *EU countries agree gas price cap to contain energy crisis*. Reuters, 19/12/2022.

## Part Two: Current and upcoming dynamics concerning existing fossil fuels: pipeline gas, LNG, oil, and solid fossil fuels

### 2.4 General overview

The REPowerEU Plan aims to accelerate the fight against climate change and combat biodiversity loss by promoting energy savings and efficiency. At the same time, it tries to conciliate these needs with the latest energy supply shocks caused by the Russian invasion of Ukraine. A Joint Communication by the European Commission and the High Representative of the Union for Foreign Affairs and Security Policy to the other European institutions published on 18 May 2022 tries to define the next steps for the EU external energy engagement in such a changing and volatile environment.<sup>1</sup> This document clearly states that “the green energy transition is the only way to simultaneously ensure sustainable, secure, and affordable energy worldwide.”<sup>2</sup> However, these goals cannot be achieved without international cooperation and partnerships. The document pushes for establishing “long-term relationships that are mutually beneficial, particularly in the area of energy.”<sup>3</sup> The concept of *strategic autonomy* in the energy domain should not mean that the EU must be completely energy independent and self-sufficient: this is an implausible scenario, even in the very long term, whose requirements would necessitate colossal investments in renewable and nuclear energy such as not to rely on fossil fuels at all. Analysing this scenario is out of the scope of this dissertation; our objective is to clearly define what kind of plausible options the EU can realistically pursue to achieve this *strategic autonomy*. This concept realistically means being able to diversify the pool of energy relations and not being overdependent on one single energy source, route, or

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<sup>1</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - EU external energy engagement in a changing world*. Brussels, 18/5/2022, JOIN (2022) 23 final.

<sup>2</sup> *Ibid.*, p. 1.

<sup>3</sup> *Ibid.*

partner. The two-decade-long EU-Russia energy partnership has been incompatible with this idea since the partner with the upper hand (Moscow) can easily disrupt the dynamics of this relationship at will to pursue its interests. Russia is not the only actor that employs the weaponization of energy. Still, it should be clear that an ambitious international actor like the EU could never achieve *strategic autonomy* in the energy sector by continuing this partnership.

This second part of the chapter will analyse the currently available options for the EU in energy matters from three different points of view: diversification of energy sources, routes, and partners. Moreover, this part will only consider fossil fuels, especially gas (pipeline and LNG), oil, and other unconventional sources like shale gas. Renewable and nuclear energy sources will be the focus of the third and last chapter, where other previously set aside options will also be considered.

## 2.5 Pipeline Gas

Pipelines have constituted the most effective and cheapest means to bring natural gas to the EU. Russia used to dominate the pipeline shipment market through four main routes: Nord Stream, Turkstream, Ukraine, and Belarus (Yamal). However, according to the Q3 2022 Report on European Gas Markets,<sup>4</sup> Russian pipeline imports fell by 74% compared to Q3 2021, with the Belarusian route suffering a 96% decrease in transits.<sup>5</sup> This translates to a January-November 2022 total pipeline imports decrease of roughly 69 bcm according to provisional data.<sup>6</sup> According to the 2022 State of the Energy Union Report,<sup>7</sup> Russian pipeline gas imports have decreased to 9% by September 2022.<sup>8</sup> At the moment of writing, Norway has become the largest pipeline supplier to the EU, ensuring 26%

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<sup>4</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022).

<sup>5</sup> *Ibid.*, p. 14.

<sup>6</sup> *Ibid.*, p. 3.

<sup>7</sup> European Commission: *Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - State of the Energy Union 2022 - (pursuant to Regulation (EU) 2018/1999 of the Governance of the Energy Union and Climate Action)*. Brussels, 18/10/2022, COM (2022) 547 final.

<sup>8</sup> *Ibid.*, p. 5.

of the total pipeline imports. Moreover, a September 2022 report by Rystad Energy highlighted how Norway could be capable of delivering up to 95 bcm of pipeline gas to Europe<sup>9</sup> through the Europipe system (whose terminals are in Emden and Dornum in Germany), Franpipe (arriving in Dunkerque, France), the Zeepipe system (arriving in several locations in Belgium), and the recently completed Baltic Pipe (delivering gas to Poland and then Poland-Denmark).<sup>10</sup> Moreover, the same report foresees a maximum supply capacity (pipeline + LNG) of 110 bcm for Norwegian gas, sustainable at least until 2030.<sup>11</sup> Overall, Norway has always been described as a reliable partner for the EU in the energy field, both politically and infrastructurally speaking. Considering infrastructure efficiency, Norway has one of the highest rates of marketable gas (gas that can be inserted into the market that does not sustain reinjection, flaring, and other losses) at 79%.<sup>12</sup> Moreover, Norway is 100% energy independent,<sup>13</sup> while roughly 98% of electricity production comes from renewable sources (mostly hydropower),<sup>14</sup> and 50% of its total energy supply was made of renewable sources as of 2019, according to the International Renewable Energy Agency (IRENA).<sup>15</sup> Politically speaking, as a member of the European Economic Area (EEA) Agreement, Norway is one of the closest allies of the EU, sharing the fundamental common values of democracy, the rule of law, human rights, and multilateral cooperation. On 23 June 2022, the two actors released a Joint Statement with a commitment to strengthen energy relations, especially for what concerns the development of technology and equipment for the exploration and possible exploitation of new fields, offshore renewable energy, and hydrogen sources, and the collaboration on carbon capture and storage

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<sup>9</sup> AA.VV. (2022) *Rebalancing Europe's Gas Supply - Opportunities in a New Era*. Report by Rystad Energy, September 2022, p. 109.

<sup>10</sup> Norwegian Petroleum: *The Oil and Gas Pipeline System*. Norwegian Petroleum website, last update 24/01/2023.

<sup>11</sup> AA.VV. (2022) *Rebalancing Europe's Gas Supply - Opportunities in a New Era*. Report by Rystad Energy, September 2022, p. 36.

<sup>12</sup> Ibid. p. 58.

<sup>13</sup> Enerdata: *Norway Energy Information*. Enerdata website, Data of the last year available: 2021.

<sup>14</sup> Norwegian Government: *Renewable energy production in Norway*. Norwegian Government website, last updated 11/05/2016.

<sup>15</sup> International Renewable Energy Agency (IRENA): *Energy Profile – Norway*. IRENA website, last updated 24/08/2022.

(Norway being at the forefront of this technology).<sup>16</sup> The same statement reasserts how Norwegian energy sources proved reliable and safe for the past 50 years and how the cooperation between the two actors must continue in the framework of achieving emissions goals and curbing climate change.

However, Norway alone will never satisfy EU energy needs in the short term. Pipeline gas arrives in Europe through other routes originating in countries that have been both long-term and more recent energy partners for the EU. However, their reliability and desire for cooperation have been questioned several times.

Algeria is such an example. Before the Russian invasion of Ukraine, Algeria was the third leading gas supplier for the European Union, having established long-time bilateral partnerships with Italy and Spain. These eventually led to the construction of two large pipeline infrastructures. One is Transmed, delivering gas from the Sahara fields, passing through Tunisia, and then touching down in Mazara del Vallo, Sicily. On the other hand, the current main Algeria-Spain pipeline is Medgaz, inaugurated in 2011, which directly connects the two countries passing through the Mediterranean Sea up to Almeria. Formerly, another pipeline route, the Maghreb–Europe Gas Pipeline (GME) passing through Morocco, used to be active. However, it is currently unused due to the severance of diplomatic ties between Algeria and Morocco in August 2021, which led Algiers to refuse to renew gas contracts with Rabat.<sup>17</sup> Concerning recent European developments, former Italian Prime Minister Mario Draghi visited Algeria and met with President Abdelmadjid Tebboune on 12 April 2022. The meeting served as a critical discussion between the countries on energy matters, with Italy endorsing the EU's interest in the meantime. Draghi's expedition guaranteed Italy 3 bcm of gas for the rest of 2022, with an expected 6 bcm in 2023 (3 via pipeline and 3 via LNG), constituting an optimistic outlook for Italian and European energy supplies in the short term.<sup>18</sup> Italy and Algeria held a summit

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<sup>16</sup> European Commission: *Joint EU-Norway statement on strengthening energy cooperation*. EU Commission Press. Brussels, 23/06/2022.

<sup>17</sup> AA.VV. *Algeria to halt gas exports to Spain via Morocco*. Rédaction Africanews with AFP, 01/11/2021.

<sup>18</sup> AA.VV. *Draghi e Di Maio ad Algeri, firmato accordo di cooperazione su energia e gas*. ANSA, 12/04/2022.



in Algiers in July 2022, where Italy was assured of even more gas supplies for the same year and beyond: in fact, Algeria gas company Sonatrach managed to increase the gas deliveries for the remainder of 2022 by 4 bcm.<sup>19</sup> In October, EU's Energy Commissioner Kadri Simson visited Algeria, where the two parties signed a strategic partnership on energy.<sup>20</sup> This partnership has also been motivated by Algeria's potential in renewable energy production, especially solar. As the latest data show, Algeria has become a top energy partner for the EU, having a share of 11% within the total extra-EU imports in Q3 2022. Meanwhile, European gas imports from Algeria grew by 4% year-on-year.<sup>21</sup> In Italy, pipeline gas imports from Algiers increased 41% in Q3 2022 year-on-year. However, these figures reflect the constant exit of Russian gas from the picture. In fact, in 2022, total exports of Algerian gas (both pipeline and LNG) dropped compared to 2021. This can be seen especially for what concerns Spain, where gas imports were down by 36%, mainly because of the closing of the GME pipeline in 2021, even if the Medgaz pipeline has been operating at nearly total capacity.<sup>22</sup> As Euractiv argues, Algeria's contribution to replacing Russia has largely been limited to cutting overall exports while switching supplies from Spain to Italy.<sup>23</sup>

However, Algeria's trustworthiness is poised, translating into possibly unstable energy relations in the longer run. The reasons are both infrastructural and political. Infrastructurally speaking, a 2016 policy paper by Jekaterina Grigorjeva (from the Jacques Delors Institut in Berlin) already detected some possible problems for EU-Algeria energy relations. First, Algerian total gas production has declined over the past decade as output from large, mature fields is depleting.<sup>24</sup> Moreover, Spain and Portugal (the two leading European consumers of Algerian gas) are still two *energy islands*, with no significant gas interconnectors built between them and France. The three countries agreed on

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<sup>19</sup> Marroni, C. *Gas, Draghi: "Algeria diventato il nostro primo fornitore."* Il Sole 24 Ore, 18/07/2022.

<sup>20</sup> AA.VV. *EU energy chief praises Algeria "partnership."* Euractiv with AFP, 12/10/2022.

<sup>21</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 11.

<sup>22</sup> *Ibid.*, p. 35.

<sup>23</sup> Mills, R. *Why can't Algeria solve Europe's gas woes?* Euractiv, 18/08/2022.

<sup>24</sup> Grigorjeva, J. (2016). *Starting a New Chapter in EU-Algeria Energy Relations – A Proposal for a Targeted Cooperation*. Policy Paper no. 173 for the Jacques Delors Institut Berlin, 30/09/2016, p. 3.

accelerating key energy interconnectors in October 2022.<sup>25</sup> Still, the situation remains dire from this point of view. Finally, the shutdown of GME reduces the capacity of deliverable gas to Europe, a problem that cannot be solved if Algeria and Morocco do not resume their diplomatic relations. Politically speaking, Algeria has shown to be a very unstable country. While it experienced relatively limited turmoil during the Arab Spring (mainly because the oil and gas revenues generated during the period of high oil prices managed to boost wages and guarantee social welfare),<sup>26</sup> recent development have been problematic. In 2019 the country was swept by protests when President Abdelaziz Bouteflika announced his fifth candidacy for the presidency, and they continued through 2021 against the government of the current president Tebboune.<sup>27</sup> While these protests have been mostly peaceful, a general violent insurrection cannot be ruled out in the near future, which would inevitably bring the country to new levels of socio-economic and political instability. Moreover, Algeria has recently not been performing well in terms of human rights and the protection of fundamental civil and political rights: the latest Compilation of Information prepared by the Office of the United Nations High Commissioner for Human Rights published in the context of the latest Universal Periodic Review of Algeria noticed several problematics in terms of freedom of expression, racism and xenophobia, the living conditions of migrant workers and asylum-seekers, and women's rights.<sup>28</sup> In terms of international relations with neighboring countries, the severance of ties with Morocco not only constitutes an energy supply problem for Europe, but it could also escalate to levels that can destabilize the Western Mediterranean in general. Finally, Algeria still holds disputes with Spain and Italy due to its unilateral declaration in 2018 of an Exclusive Economic Zone (EEZ) that also covers part of the sea of the Balearic Islands and Sardinia.<sup>29</sup>

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<sup>25</sup> Ambassade de France au Royaume-Uni: *France, Spain and Portugal agree on EU energy interconnectors*. Press release by the French Embassy in the United Kingdom News Office, 20/10/2022.

<sup>26</sup> Grigorjeva (2016), p. 5.

<sup>27</sup> Mezahi, M. *Algeria's protests are back and the president is worried*. BBC News, 20/02/2021.

<sup>28</sup> United Nations General Assembly - *Human Rights Council: Algeria - Compilation of information prepared by the Office of the United Nations High Commissioner for Human Rights - A/HRC/WG.6/41/DZA/2*, 17/08/2022.

<sup>29</sup> Peña, J. *What future for Algeria's claims in Mediterranean waters?* Atalayar.com, 17/08/2022.

Azerbaijan and Turkey also represent current valid alternatives for substituting Russian supplies. The Trans Adriatic Pipeline (TAP) ensured around 28 TWh of gas imports in the EU in Q3 2022, up from 23 TWh in Q3 2021 (+21% year-on-year), which represented around 3.4% of the EU total gas imports.<sup>30</sup> These numbers are expected to increase in 2023, after the EU-Azerbaijan agreement of July 2022, which built the base for enhanced cooperation between the parties. Commission President von der Leyen described Azerbaijan as “a key partner in our efforts to move away from Russian fossil fuels” and declared that cooperation with Baku should not be limited to energy, hinting at possible future cooperation in other key sectors.<sup>31</sup> Moreover, Azeri gas reserves currently stand at about 2.6 trillion cubic meters, making the country a long-term reliable partner at least for what concerns the availability of supply.<sup>32</sup> Yet, Azerbaijan is still a very controversial partner because of its poor human rights record and its authoritarian governance system, two incompatible concepts with EU ambitions in establishing a long-term partnership in multiple fields. Moreover, Azerbaijan-Armenia relations over Nagorno-Karabakh recently saw their highest level of instability since the war of 1992-1994. The war of 2020 and the Azeri attacks on the Armenian mainland in September 2022 (an unprecedented attack that raised the possibility of an intervention of the CSTO) demonstrate that tensions are not going to fade in the near future, raising uncertainties about how the EU would ever respond to a hypothetical invasion of Armenia by Azerbaijan. However, as a recent SpecialEurasia geopolitical report discusses, the EU could exploit Russia’s declining role in the Caucasus region and the Karabakh conflict to become the primary mediator between the two rival countries.<sup>33</sup>

Concerning Turkey, the country is one of the most critical EU partners in the context of the EU Neighborhood Policy and a long-time EU candidate state. It is a crucial transit country in the Southern

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<sup>30</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 11.

<sup>31</sup> European Commission: *EU and Azerbaijan enhance bilateral relations, including energy cooperation*. EU Commission Press. Brussels, 18/07/2022.

<sup>32</sup> Guest Contributor. *Why Azerbaijan is a reliable and trusted partner for the EU*. Eureporter, 16/02/2022.

<sup>33</sup> Urciuolo, L., et. al. (2022) *Moscow’s involvement in Ukraine allows the European Union to accredit itself as a mediator between Armenia and Azerbaijan*. In Geopolitical Report ISSN 2785-2598 vol. 25, issue 3, SpecialEurasia, Rome, 07/11/2022.

Gas Corridor, hosting the Trans-Anatolian Pipeline (TANAP) section. However, Ankara's dubious stance on the Ukrainian War and the fact that it is still carrying an almost business-as-usual policy towards Russia have left EU policymakers puzzled. Turkey is also the leading transit country for the recently inaugurated TurkStream gas pipeline, which can transport up to 31.5 bcm per year and also supplies Bulgaria, Serbia, and Hungary.<sup>34</sup> Furthermore, to elude Western Sanctions and to cope with the loss of Nord Stream, Russia has recently held talks with Turkey over the possibility of building another TurkStream line that would turn Turkey into a new European gas hub for Russian deliveries. In an October 2022 opinion on Energy Intelligence, Scott Ritter argued that this solution would increase Turkey's exposure to Russian gas while simultaneously challenging US LNG exports.<sup>35</sup> Finally, Turkey's Recep Tayyip Erdoğan *neo-ottoman* ambitions have been pushing its country to almost direct confrontation with neighboring countries such as Greece (a NATO ally) over the jurisdiction of the Eastern Mediterranean Islands in a supposed Turkish EEZ (which Turkey does not have and never officially claimed since it never acceded to the Montego Bay Convention of 1982), Egypt, and Israel. Yet, as an Eastwest article from November 2022 argues, the EU should consider pursuing a more positive agenda, trying to take advantage of Turkey's renewable energy potential and committing significant investments in that sector to support Turkish energy goals around self-sufficiency while at the same time benefiting from some of its fossil fuel transits.<sup>36</sup>

Finally, Israel and Egypt are expected to become future key energy partners to the EU, especially after discovering massive natural gas fields in the Eastern Mediterranean. This region is already a theatre of crucial geopolitical clashes between its main actors, and it is bound to have a central role in the energy dynamics for Europe and the Middle East. As Gina Cohen for Energy Intelligence reports, Israel has discovered and developed approximately 1 trillion cubic meters of gas so far, while

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<sup>34</sup> Turkstream Benefits, Turkstream website.

<sup>35</sup> Ritter, S., Kavanagh, R. (Eds.) *Russia, Turkey Double Down on Turk Stream*. Opinion on Energy Intelligence, 21/10/2022.

<sup>36</sup> Furgione, R., et. al. *Turkey and the EU: Dialogue to Ensure Energy Security*. Eastwest.eu, 25/11/2022.

Cyprus has contingent resources of between 200 billion-400 billion cubic meters.<sup>37</sup> Egypt is already a gas producer, but its exports have also been limited by rising domestic demand.<sup>38</sup> The most ambitious project that would exploit all these reserves and deliver gas to Europe has arguably been the EastMed pipeline, which initially would have transported gas directly from gas fields to Cyprus and then to Greece. The United States halted its support of the project in early 2022, allegedly for environmental reasons.<sup>39</sup> Meanwhile, the EU also expressed concerns about the project to remain coherent with its emissions policies and environmental goals. However, the current situation of war and energy insecurity is leading EU countries to reprise talks with Israel, Cyprus, and Egypt to eventually reach a set of agreements that would see the construction of critical energy infrastructure to strengthen the security of supply. In June 2022, the EU signed a Memorandum of Understanding with Israel and Egypt, acknowledging that natural gas shall continue to play an essential role in energy consumption and electricity generation in the European Union” at least until 2030.<sup>40</sup> Currently, the deal between the parties allows Israel to send gas to Egypt via pipeline; then, gas is expected to be shipped to LNG facilities and then sent to Europe via tankers.<sup>41</sup> The deal also accounts for enhanced cooperation and investments with the parties in hydrogen and green energy production. Another option, on paper, is the realization of the EastMed-Poseidon pipeline, which would ship Israeli gas to Italy through Greece, directly connecting the Levantine Basin to the EU market, and which would have a capacity of 11-20 bcm per year.<sup>42</sup> After years of uncertainties and geopolitical struggles, the

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<sup>37</sup> Cohen, G., Kavanagh, R. (Eds.) *Eastern Mediterranean Gas Can Help Europe*. Opinion on Energy Intelligence, 05/08/2022.

<sup>38</sup> El Safty, S., Rabinovitch, A. *EU, Israel and Egypt sign deal to boost East Med gas exports to Europe*. Reuters, 15/06/2022.

<sup>39</sup> Stamouli, N. *EastMed: A pipeline project that ran afoul of geopolitics and green policies*. Politico, 18/01/2022.

<sup>40</sup> European Commission: *EU Egypt Israel Memorandum of Understanding*. Directorate-General for Energy, 17/06/2022, p. 1.

<sup>41</sup> Ibid.

<sup>42</sup> Edison: *EastMed-Poseidon Pipeline: a direct interconnection between sources and markets*. Edison website.

EU seems more interested in the project, having unlocked financial aid of about €35 million for a study.<sup>43</sup>

Overall, diversification of sources, routes, and partners is fundamental in assuring the security of supply. Through diversification, the EU can act flexibly and incentivize crucial investments and partnerships with neighboring countries, eventually leading to more efficiency and innovation. Moreover, The EU is becoming more committed to developing critical interconnectors between strategic energy infrastructures across the Union. The 2022 State of the Energy Union Report and the latest Quarterly Report on European Gas Markets show how key interconnection projects have been inaugurated, such as those between Greece and Bulgaria and Poland and Slovakia. However, as this and earlier paragraphs have argued, there are still several deficiencies in interconnector infrastructure, especially the continued existence of *energy islands* (like Spain and Portugal) and the low rates of infrastructure capable of reverse-flow mode.

## 2.6 LNG

The European Union has long considered LNG a valid alternative to pipeline gas, especially for its flexibility and competitiveness. In 2016, the EU Commission published an *LNG Strategy* in which the Union was expected “to ensure that the necessary infrastructure is in place to complete the internal market and allow all Member States to benefit from access to international LNG markets.”<sup>44</sup> The Strategy asserted how LNG could bring benefits in terms of competitiveness “as markets become exposed to greater competitive challenges from international suppliers.”<sup>45</sup> At that time, the study expected a dramatic expansion in global supply (by roughly 50%) over the next few years, which

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<sup>43</sup> Cohen, G., Kavanagh, R. (Eds.) *Eastern Mediterranean Gas Can Help Europe*. Opinion on Energy Intelligence, 05/08/2022.

<sup>44</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - on an EU strategy for liquefied natural gas and gas storage*. Brussels, 16/02/2016, COM (2016) 49 final, p. 2.

<sup>45</sup> Ibid.

would lead to lower prices and then present a major opportunity for the EU, particularly when it comes to gas security and resilience.<sup>46</sup> Eric Pardo Sauvageot claims that the LNG market inherently offers better supply options, and that is because of flexibility. While pipeline infrastructures are particularly vulnerable in case of malfunctions or sabotage, leading to natural gas supply issues, problems in one LNG tanker do not affect the operability of the whole tanker fleet. In other words, supply insecurity in LNG markets would translate into higher prices rather than lesser supply.<sup>47</sup> Traditionally, the largest and most profitable LNG markets have been in East Asia, such as Japan, South Korea, Taiwan, and China. Due to the geographical isolation of these countries and thus the longer travel time needed from the Middle East, the primary reference index (the Japanese JCC) has usually been higher than in the rest of the world.

However, the situation in the past few years changed dramatically, as the COVID-19 pandemic and the War in Ukraine have pushed prices to all-time highs, making LNG demand to fall from 270 million tons (mt) in 2021 to 250 mt in 2022, a 7% decrease.<sup>48</sup> In China, LNG demand dropped 19% year-on-year, mainly because of persistent COVID-related lockdowns and health measures.<sup>49</sup> This situation is making Europe the most profitable LNG market, especially since the entry into the picture of the United States. In fact, the US has been an annual net total energy exporter since 2019 and a net exporter of natural gas in 2017 (for the first time since the 1950s).<sup>50</sup> Regarding production, since 2019, the US has produced more energy than it has consumed annually, primarily due to increased hydraulic fracturing and horizontal drilling that have facilitated access to black shale rock contain organic materials for oil and natural gas.<sup>51</sup> Concerning natural gas, in 2021, according to the US

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<sup>46</sup> Ibid.

<sup>47</sup> Sauvageot (2020), p. 5.

<sup>48</sup> Reynolds, S. *Asia's lower LNG demand in 2022 highlights challenges for industry growth*. Analysis by the Institute for Energy Economics and Financial Analysis, 11/01/2023.

<sup>49</sup> Ibid.

<sup>50</sup> United States Energy Information Administration (EIA): *U.S. energy facts explained*. EIA website, 10/06/2022 with data published in April 2022.

<sup>51</sup> USAFacts: *Is the US energy independent?* USAFacts website, 31/10/2022, data from US Energy Information Administration (EIA).

Energy Information Administration (EIA), total natural gas exports reached a record high of 6.65 trillion cubic feet (Tcf), or about 18.23 billion cubic feet per day (Bcf/d).<sup>52</sup> While the US cannot be deemed a true energy-independent and self-sufficient economy (the country still relies on foreign oil to some degree for its energy needs, mainly due to a demand for heavy crude oil by the refining industry, which is harder to come by in the US),<sup>53</sup> IEA data from 2021 put the US as the largest producer of crude oil (706 Mt), natural gas (949 bcm), and nuclear energy (843 TWh), and the fifth largest exporter of natural gas in the world (77 bcm),<sup>54</sup> especially after the increase in export capacity of liquefied natural gas (LNG).<sup>55</sup>

Concerning the EU LNG market, the 2022 State of the Energy Union Report highlights how LNG has become a key energy supply, accounting for 32% of EU total net gas imports.<sup>56</sup> In Q3 2022, EU LNG imports were up by a staggering 89% compared to Q3 2021, amounting to 32 bcm, with the US being the largest LNG supplier with 13 bcm within a single quarter.<sup>57</sup>

However, LNG presents several limitations that are currently hampering its capacity to replace Russian pipeline gas: namely, transportation and liquefaction/regasification costs (that influence the wholesale market prices), storage and regasification capacity, and environmental costs. In most of 2022, gas hub prices in Europe developed a premium compared to the Asian markets, giving strong incentives to send LNG cargo to Europe.<sup>58</sup> However, at an average of close to \$4 billion a month, the cost of those US supplies has been significant, placing a mounting burden on governments and

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<sup>52</sup> United States Energy Information Administration (EIA): *U.S. energy facts explained*. EIA website, 10/06/2022 with data published in April 2022.

<sup>53</sup> USAFacts: *Is the US energy independent?* USAFacts website, 31/10/2022, data from US Energy Information Administration (EIA).

<sup>54</sup> International Energy Agency (IEA): *Key World Energy Statistics 2021 – Supply*. IEA, Paris, 2021.

<sup>55</sup> United States Energy Information Administration (EIA): *U.S. energy facts explained*. EIA website, 10/06/2022 with data published in April 2022.

<sup>56</sup> European Commission: COM (2022) 547 final, p. 3.

<sup>57</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), pp. 15-16.

<sup>58</sup> *Ibid.*, p. 3



utilities that have also grappled with mounting expenditures in other areas as well.<sup>59</sup> According to the latest Quarterly Report on European Gas Markets, hub prices and hub-based import price contracts in western Europe rose to new highs in August 2022, and differentials in July 2022 amounted to more than 100 €/MWh and remained above 70-80 €/MWh in August and September as well.<sup>60</sup> Moreover, according to an October 2022 article from the Florence School of Regulation of the European University Institute, American and other LNG shipments to Europe have other inherent problems. These refer to liquefaction capacity and regasification units, which are currently not enough to satisfy European energy needs only through LNG, irrespective of the price.<sup>61</sup> According to an April 2022 EU Parliament briefing, at that time the EU-27 had a total annual capacity to receive and regasify LNG of 158 bcm per year, with more than 100 bcm of new LNG projects either planned or under construction.<sup>62</sup> However, the main issue with regasification capacity is distribution, which is uneven in the EU: for instance, Germany did not have any regasification capacity at that time (with the first LNG terminal inaugurated in December 2022 in Wilhelmshaven),<sup>63</sup> and almost 40% of total LNG capacity was located in Spain, which has limited pipeline connections to France and thus to the rest of Europe.<sup>64</sup> The Eastern European and the Baltic Countries still have a very small LNG regasification and storage capacity, with Lithuania's Klaipeda LNG facility only having a 4 bcm capacity.<sup>65</sup> There have been some recent positive trends, such as the inauguration of a floating LNG terminal in Eemshaven.<sup>66</sup> Moreover, according to the Q3 2022 Gas Market Report, new LNG regasification

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<sup>59</sup> Maguire, G. *Column: U.S. LNG exports both a lifeline and a drain for Europe in 2023*. Reuters, 21/12/2022.

<sup>60</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 31.

<sup>61</sup> Nicolai, S. *The limits of using US LNG to save the EU: not enough infrastructures and a tricky global LNG price*. Analysis by the Florence School of Regulation – European University Institute, 11/10/2022.

<sup>62</sup> Boehm, L., Wilson, A. (2022) *EU gas storage and LNG capacity as responses to the war in Ukraine*. Briefing, European Parliamentary Research Service (EPRS), April 2022.

<sup>63</sup> Jewell, I. *First liquid natural gas terminal opened in Germany*. Euronews, 17/12/2022.

<sup>64</sup> Boehm et. al. (2022), pp. 4-5.

<sup>65</sup> Ibid.

<sup>66</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p.20.

terminals are expected to be operational in several countries in 2023, adding up to 50 bcm.<sup>67</sup> However, most of these projects are expected to be only interim solutions to the supply problem, being many of these floating LNG terminals.<sup>68</sup> Finally, other serious concerns for LNG are related to environmental reasons. Indeed, transportation and liquefaction/regasification operations inevitably impose higher emissions (especially methane) and energy consumption; these concerns are driving most of the public debate over LNG in Europe. According to a November 2022 BBC article that quotes data presented by Rystad Energy's Patrick King, the extra energy involved in making and transporting the liquid is significant.<sup>69</sup> King added that "for piped gas from Norway, we see around 7 kgs of CO<sub>2</sub> per barrel, but for LNG imports into Europe, we estimate the average is over 70, so around ten times lower for piped gas versus LNG."<sup>70</sup> If Russian pipelines are not functioning at all, and all those additional gas needs to come from LNG sources, there could be an additional 35 million tonnes of imported upstream CO<sub>2</sub> emissions compared to 2021.<sup>71</sup> These findings, among other data, show that pursuing a strategy that maximizes LNG consumption will inevitably be counterproductive in light of the EU's environmental commitments. Therefore, looking from this point of view, EU countries should consider LNG more of a temporary short/medium-term solution to their energy supply needs if they want or can attain these climate targets. However, other studies have argued that replacing solid fossil fuels or oil with LNG in transportation and electricity production would produce lower carbon emissions and higher efficiency. As Al-Yafei et al. argues, LNG has higher thermal efficiency than the other available alternatives, which allows for meeting the energy needs with a reduced quantity of fossil fuel while having lower specific energy than other options, such as oil and coal.<sup>72</sup> However, they still recognize how excessive methane emission in the liquefaction and

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<sup>67</sup> Ibid.

<sup>68</sup> Stemler, D., Concha, J. (Eds) *Europe Will Add 50 Bcm of LNG Import Capacity by End-2023*. Analysis on Energy Intelligence, 01/11/2022.

<sup>69</sup> McGrath, M. *Climate change: Hidden emissions in liquid gas imports threaten targets*. BBC News, 03/11/2022.

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

<sup>72</sup> Al-Yafei, H., et. al. (2021) *A Systematic Review for Sustainability of Global Liquefied Natural Gas Industry: A 10-Year Update*. In Energy Strategy Reviews vol. 38, November 2021, p. 10.

regasification processes is a problem that policymakers and the industry must address in pursuing the path towards the sustainability of LNG. Environmental concerns concerning LNG have sparked fierce debates all over Europe, and the recent case of the Piombino regasification facility in Italy is a clear example. The decision to build this floating storage regasification unit raised concerns over the project's environmental impact, leading to several legal controversies. Eventually, on 22 December 2022, the regional administrative tribunal of Lazio rejected the suspensive precautionary request presented by the municipality of Piombino, leading the way to the realization of the project and its operationality from the spring of 2023, which would be capable of regasifying up to 5 bcm a year.<sup>73</sup>

Besides the US, another significant exporter to the European LNG market is Qatar, accounting for an import share of 17% and imports of 5.4 bcm shipped to Europe in Q3 2022.<sup>74</sup> In the same timeframe, Qatar has been the largest LNG exporter in the world (27.6 bcm), more than Australia (27.1 bcm) and the United States (24.5 bcm).<sup>75</sup> The leading Qatari gas company is Qatargas, parent to state-owned QatarEnergy, which is currently the world's largest LNG producer. The company operates 14 Liquefied Natural Gas (LNG) trains with a total annual production capacity of 77 million tonnes, mainly from the Ras Laffan refineries north of Doha.<sup>76</sup> Moreover, the impressive size of their fleet (25 purpose-built conventional vessels, each with a capacity of between 135.000 and 152.000 cubic meters, and 31 Q-Flex and 14 Q-Max on long-term charter, capable of transporting 210.000 cubic meters and 266.000 cubic meters of LNG respectively),<sup>77</sup> and the proximity to Europe by taking advantage of the Suez Canal are two of the main reasons why Qatari LNG has been particularly popular in the EU market. Still, Qatari LNG supplies imply some structural limitations, and it is unclear whether Qatar could export more gas to Europe soon: in fact, Qatar is now producing at or

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<sup>73</sup> AA.VV. *Piombino, il Tar dice no alla sospensiva e non ferma il rigassificatore*. Il Sole 24 Ore, 22/12/2022.

<sup>74</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol.15 (issue 3, covering third quarter of 2022), p. 16.

<sup>75</sup> *Ibid.*, p. 30.

<sup>76</sup> Qatargas: *About us*. Qatargas website.

<sup>77</sup> *Ibid.*

near its full capacity, with most of its supply bound by long-term contracts with Qatar's main clients such as Japan and South Korea. Moreover, the limited regasification capacity of European LNG facilities is currently incapable of hosting higher volumes of shipments.<sup>78</sup> The problem of long-term contracts is significant since a fixed long-term contracting strategy makes LNG trading inflexible. Right now, only 8.1% of the total natural gas production in Qatar is sold on the spot market and on short-term contracts,<sup>79</sup> and almost 80% of exports are directed to Asia.<sup>80</sup> Thus, according to several commentators and policymakers, Qatar is unlikely to play a decisive role in ensuring the EU's energy security.<sup>81</sup> According to a Middle East Institute article, in the long run, the Asian market will remain Qatar's priority: its dependence on natural gas will only grow in the coming decades (unlike Europe), and the market's operating conditions are much more favorable for suppliers than the (over-)regulated realities of the EU.<sup>82</sup> However, given the current conditions of the global LNG market, Qatar should be considered a long-term option for the EU in order to make a difference in terms of security of supply. That means that current forecasts about the coming expiration of several current supply contracts added to an overall increase in production from the current 106 bcm to 175 bcm per year by 2027 must be fulfilled.<sup>83</sup> A possible strategy that could solve Qatar's limited LNG quantities necessitates the direct intervention of the EU: namely, European firms should invest in the renewable sector in Qatar, or at least they (together with EU institutions) should incentivize investments in renewable energy in the country. This is because electricity generation in Qatar is made mainly with natural gas, with only 0.02% of electricity being produced through renewable sources (solar energy).<sup>84</sup> According to Mohammed Al-Breiki and Yusuf Bicer, "if Qatar increases its dependence

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<sup>78</sup> Al-Breiki, M., Bicer, Y. (2022) *Potential Solutions for the Short to Medium-Term Natural Gas Shortage Issues of Europe: What Can Qatar Do?* In *Energies* 2022, vol. 15 (21) 8306, p. 3.

<sup>79</sup> *Ibid.*, p. 6.

<sup>80</sup> Oueidat, R., Cullinan, T. *EU Gas Diversification Could Bring Longer-Term Benefits For Qatar*. Opinion on Energy Connects, 23/03/2022.

<sup>81</sup> Foxman, S., et. al. *Qatar Can't Help Europe Much If Russian Gas Is Interrupted*. Bloomberg, 25/01/2022.

<sup>82</sup> Kozhanov, N. *Qatar is no short-term savior, but it may still play a role in strengthening EU energy security*. Analysis by the Middle East Institute, 07/02/2022.

<sup>83</sup> *Ibid.*

<sup>84</sup> Al-Breiki (2022), p. 8.

on renewable energy resources to produce electricity, the natural gas used in power consumption can be converted into LNG and exported overseas.”<sup>85</sup>

Nonetheless, economic and political relations between Qatar and the EU are ambiguous, and several controversies have made EU policymakers doubt Qatar’s trustworthiness and reliability. In 2018, energy firm Qatar Petroleum (now QatarEnergy) entered into conflict with EU antitrust law: this was because the Commission was trying to clarify if LNG supply deals between Qatar and European utility companies limited those companies’ ability to change shipments within the region,<sup>86</sup> risking breaching Articles 101 TFEU (anti-competitive agreements between companies) and 102 TFEU and Articles 53/54 of the EEA Agreement (abuse of a dominant market position).<sup>87</sup> However, the investigation was closed in March 2022 since no evidence could confirm the initial concerns.<sup>88</sup> The closure of the investigation happened in the wake of the conflict in Ukraine, which would mean that, given the circumstances, continuing with it could have led to possible supply cutoffs in a moment of extreme emergency, something that the EU could not afford to do. Qatar has also been directly involved in one of the most far-reaching scandals in recent EU history: Qatargate, involving a crammed network of corruption and money laundering involving several EU policymakers, lobbyists, and civil servants, including MEP and EU Parliament Vice-President Eva Kaili and former MEP Antonio Panzeri. The European Parliament has adopted a Resolution condemning Qatar’s alleged attempts to seek influence “through acts of corruption, which constitute serious foreign interference in the EU’s democratic processes.”<sup>89</sup> Moreover, the Resolution “suspends all work on legislative files relating to Qatar, particularly as regards visa liberalization and the EU aviation agreement with Qatar, and planned visits, until the allegations have either been confirmed or dismissed.”<sup>90</sup> This initiative

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<sup>85</sup> Ibid.

<sup>86</sup> Ibid.

<sup>87</sup> European Commission: *Antitrust: Commission opens investigation into restrictions to the free flow of gas sold by Qatar Petroleum in Europe*. EU Commission Press. Brussels, 21/06/2018.

<sup>88</sup> Chee, F.Y. *EU regulators close antitrust investigation into Qatar Energy*. Reuters, 31/03/2022.

<sup>89</sup> European Parliament: Resolution 2022/3012 (RSP), *on suspicions of corruption from Qatar and the broader need for transparency and accountability in the European institutions*. Strasbourg, 15/12/2022.

<sup>90</sup> Ibid.

has recently destabilized EU-Qatar relations, with the risk of disrupting energy relations too. In fact, the Qatari Mission to the EU has categorically rejected any accusation, and a diplomat declared that “the decision to impose such a discriminatory restriction [...] will negatively affect regional and global security cooperation, as well as ongoing discussions around global energy poverty and security.”<sup>91</sup> It is too early to assess the magnitude of the scandal and its implications in terms of future energy relations between the bloc and Qatar. However, this recent news is indeed destabilizing the already fragile European energy security outlook.

## 2.7 Oil

Oil is still another strategic fossil fuel whose market and supply dynamics have been seriously impacted by the ongoing energy crisis, exacerbated by the War in Ukraine. Russia used to be the primary exporter of oil and oil-related products in the EU: as of 2021, Moscow used to have a share of 24.8% of trade in value concerning petroleum oil in extra-EU imports, followed by Norway, the United States, and Libya.<sup>92</sup> In Q3 2022, this picture has dramatically changed with Russia now accounting only for 14.4%, a 10.5 pp decrease year-on-year. Eurostat reports that between the second and the third quarter of 2022, the average monthly value and the net mass remained almost stable at the total level. However, a major diversion among the partners continued, with a drop for Russia in both value (-€0.7 billion) and quantity (-1.2 million tonnes), fully compensated by the increase of other extra-EU partners (+€0.8 billion and +1.7 million tonnes).<sup>93</sup> Regarding international oil prices and macroeconomic dynamics, during Q3 2022, crude oil prices showed a gradual decrease, starting the quarter at 122 USD/bbl (117 €/bbl), and falling to 88 USD/bbl (91 €/bbl) on 30 September.<sup>94</sup> This can be explained by lower international demand weighing on spot oil prices (China, the world’s

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<sup>91</sup> Ghantous, G., et. al. *Qatar reiterates denial that its government involved in EU corruption case*. Reuters, 18/12/2022.

<sup>92</sup> Eurostat: *EU imports of energy products - recent developments*. Eurostat website, data extracted in December 2022.

<sup>93</sup> Ibid.

<sup>94</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 26.

leading oil consumer, still faced COVID-related lockdowns that hampered transportation and key sectors of the economy, including industry). In December 2022, the spot crude oil price fell as low as 75 USD/bbl in the NYMEX WTI, the lowest in a year time, despite lower OPEC+ production, an EU embargo on Russian crude oil coming into full force, and a relaxation of China’s COVID restrictions, as the IEA December 2022 Oil Market Report shows.<sup>95</sup> Concerning the current year, the recently published IEA January 2023 Oil Market Report forecasts that the well-supplied oil balance at the start of 2023 could quickly tighten as western sanctions impact Russian exports, with global oil demand set to rise by 1.9 mb/d (millions of barrels per day) to a record 101.7 mb/d, with nearly half the gain from China following the lifting of its COVID restrictions.<sup>96</sup>

The European Union established obligations on Member States to maintain minimum stocks of crude oil and/or petroleum products through a 2009 Council Directive. Among key aspects, Member States “shall adopt such laws, regulations or administrative provisions [...] to ensure that the total oil stocks maintained at all times within the Community for their benefit correspond, at the very least, to 90 days of average daily net imports or 61 days of average daily inland consumption, whichever of the two quantities is greater” as Article 3 of the Directive says.<sup>97</sup> The State of the Energy Union 2022 Report highlights how initial market shocks caused by the Russian invasion of Ukraine produced “tightness and even shortages of some key petroleum products (mainly diesel, jet fuel, and fuel oil) [...] mainly due to increasing demand and self-sanctioning by EU operators in anticipation of EU wide measures.”<sup>98</sup> The current EU strategy on oil provides for Member States to implement existing directives and mechanisms to ensure an adequate and constant supply of oil in strategic reserves that could be released in times of difficulty. These Developments are continuously monitored by the

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<sup>95</sup> International Energy Agency (IEA): *Oil Market Report*. IEA, Paris, December 2022.

<sup>96</sup> International Energy Agency (IEA): *Oil Market Report*. IEA, Paris, January 2023.

<sup>97</sup> Council of the European Union: Council Directive 2009/119/EC, *imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products*. In Official Journal of the European Union, 14/09/2009.

<sup>98</sup> European Commission: COM (2022) 547 final, p. 6.

Commission in close cooperation with the Member States and the European Oil Coordination Group.<sup>99</sup> Overall, issues concerning oil have influenced mainly the price and demand aspects, with limited supply disruptions. This can be seen by how much investments the REPowerEU Plan expects to allocate to ensure the security of the oil supply: €1.5-2 billion,<sup>100</sup> considerably less compared to what is going to be allocated for gas and LNG infrastructure (€10 billion) and even lesser compared to renewables, hydrogen, and energy efficiency (€86 billion, €27 billion, and €56 billion respectively).<sup>101</sup>

## 2.8 Solid fossil fuels

Solid fossil fuels represent a peculiar case in the EU's energy initiatives during the War in Ukraine, especially coal. For background information, coal is the dirtiest and most pollutant fossil fuel, deemed to be responsible for over 0.3 °C of the 1 °C increase in global average temperatures.<sup>102</sup> The IEA estimated that in 2021 coal accounted for over 40% of the overall growth in global CO<sub>2</sub> emissions in 2021, reaching an all-time high of 15.3 billion tons.<sup>103</sup> Previous EU climate strategies were strongly committed to phasing out coal and lignite, not only because of their severe impact on the climate but also for economic reasons. In fact, in 2019, Carbon Tracker estimated that 84% of lignite and 76% of hard coal generators were operating at a loss and would lose €3.54 billion and €3.03 billion, respectively.<sup>104</sup> This has been one of the main reasons that brought European policymakers to abandon coal and solid fossil fuels even prior to the adoption of the *Fit for 55* Agenda.<sup>105</sup> As of 2021, ten EU countries were coal-free, and other countries committed to phasing it out in the near future, with Germany moving the expected phase-out date from 2038 to 2030 (even if it is only an *ideal*

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<sup>99</sup> Ibid.

<sup>100</sup> European Commission: COM (2022) 230 final (document 1), p. 14.

<sup>101</sup> European Commission: COM (2022) 547 final, p. 19.

<sup>102</sup> ClientEarth: *Fossil fuels and climate change: the facts*. ClientEarth Communications, 18/02/2022.

<sup>103</sup> International Energy Agency (IEA): *Global Energy Review: CO<sub>2</sub> Emissions in 2021*. IEA, Paris, March 2022, p. 4

<sup>104</sup> Carbon Tracker: *Apocalypse Now*. Carbon Tracker Analyst Notes, 24/10/2019.

<sup>105</sup> Herzog, M. *The future of coal in Europe: is this the exit from the exit?* Analysis by the Friedrich Ebert Stiftung, 12/10/2022.



date).<sup>106</sup> Other countries are being more permissive with coal usage, such as Poland, which maintains its phase-out date for 2049.<sup>107</sup>

However, recent events are currently rewriting the picture for the future of coal and solid fossil fuels in Europe. Right now, these sources of energy are undergoing a (temporary?) revival since exceptionally high gas prices brought about by post-pandemic economic recovery and the war in Ukraine have caused a temporary switch from gas to coal in many European countries, as the 2022 State of the Energy Union Report shows.<sup>108</sup> In September 2022, Rystad Energy reported how coal power generation jumped 12% year-on-year, partially compensating for the lower usage of natural gas.<sup>109</sup> Yet, the Q3 Report on European Gas Markets shows that “the share of power generation from solid fuels rose slightly in Q3 2022, reaching 16.8% (up from 15.2% a year before) as coal and lignite-fired generation together rose significantly, by more than 8% in Q3 2022 year-on-year.”<sup>110</sup> However, some experts are rather skeptical and consider the idea of a significant coal comeback as an over-exaggeration. British think tank Ember released a study in July 2022 highlighting how coal power in Europe is experiencing a limited increase: about 14 GW of coal-fired plants have been placed on standby in Europe. Taken for granted that these will still run at 65% capacity throughout 2023, they are expected to generate about 60 TWh of coal-fired electricity, enough to power the EU for about one week.<sup>111</sup> According to this study, the impact of emissions would also be limited: the increase in emissions in 2023 would be 30 million tonnes of CO<sub>2</sub>, representing 1.3% of the EU’s total CO<sub>2</sub> emissions in 2021 and 4% of annual power sector emissions.<sup>112</sup> However, as the Friedrich Ebert Stiftung noted in October 2022, Ember’s study takes for granted that coal-fired plants will still operate

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<sup>106</sup> Kyllmann, C. *German coal region brings phase-out forward to 2030 but refires lignite short-term*. Analysis on Clean Energy Wire, 04/10/2022.

<sup>107</sup> Krzysztozek, A. *Poland to slow coal phase-out process, maintain 2049 end-date*. Euractiv, 08/11/2022.

<sup>108</sup> European Commission: COM (2022) 547 final, p. 12

<sup>109</sup> Rystad Energy: *Winter is coming: Russian gas supply cuts cause price volatility and potentially power cuts*. Press Release by Rystad Energy, 05/09/2022.

<sup>110</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 7.

<sup>111</sup> Brown, S. *Coal is not making a comeback: Europe plans limited increase*. Briefing by Ember, 13/07/2022.

<sup>112</sup> Ibid.

at 65% capacity for the entirety of 2023, an amount “that can differ due to circumstances such as gas supply and winter temperatures, which again influence how long the EU Member States’ gas reserves will last.”<sup>113</sup> Some official EU documents in the framework of the REPowerEU Plan confirm this uncertainty and acknowledge the necessity for a limited comeback of coal to assure the security of supply: The Communication from the Commission presenting the Plan explicitly notes how “some of the existing coal capacities might also be used longer than initially expected.”<sup>114</sup> Moreover, a document accompanying the Communication called *Implementing the REPowerEU Action Plan* suggests that up to €2 billion could be spent on measures to support the “delayed phase-out and more operating hours for coal.”<sup>115</sup>

Several EU countries are acting in this sense: Hungary plans to invest large sums in extending the lifespan of its aging Mátra coal power plant until 2029 and to intensify lignite production up to 2030.<sup>116</sup> Germany implemented an ordinance called *Ordinance on the temporary expansion of the power generation supply via installations from the grid reserve* that permits oil-fired and coal-fired power stations which are currently in the grid reserve to return to the electricity market until the end of winter 2022/2023 to save up natural gas.<sup>117</sup> Are these measures only temporary solutions to shortages and less consumption of natural gas, or will these be renewed in the near term to face a maybe even more dramatic scenario? This dissertation cannot answer this question yet; nonetheless, the EU’s commitments to climate goals remain strong.

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<sup>113</sup> Herzog, M. *The future of coal in Europe: is this the exit from the exit?* Analysis by the Friedrich Ebert Stiftung, 12/10/2022.

<sup>114</sup> European Commission: COM (2022) 230 final (document 1), p. 2.

<sup>115</sup> European Commission: Commission Staff Working Document – *Implementing the REPowerEU Action Plan: Investments Needs, Hydrogen Accelerator and Achieving the Bio-Methane Targets*. Accompanying the Document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – REPowerEU Plan. Brussels, 18/05/2022, SWD (2022) 230 final, p. 6.

<sup>116</sup> Mustăță, A. *Getting out of the coal black hole*. Article on Social Europe, 02/11/2022.

<sup>117</sup> Bundesministerium für Wirtschaft und Klimaschutz: *Erste Ersatzkraftwerke können an den Strommarkt zurückkehren und Beitrag zur Gaseinsparung leisten – Bundeskabinett verabschiedet Verordnung zur Netzreserve*. Press Release by the Federal Ministry for Economic Affairs and Climate Action website, 13/07/2022.

The debate on coal has always been one of the most significant points of divergence between EU countries and EU institutions, with actors like Poland and Bulgaria being the strongest opposers to the Union's *strict* climate ambitions. However, recent energy security developments are pushing even the most skeptical EU countries to understand the situation in which they currently are and are slowly rethinking their positions. Michal Kiča, State Secretary at the Ministry of Environment of the Slovak Republic, said that he believes that “the *Fit for 55* packages represents a crucial instrument to cope not only with climate change but also with all our energy dependencies,”<sup>118</sup> and Polish Undersecretary of State at the Ministry of Climate and Environment Adam Guibourgé-Czetyrtyński argued that “[...] the long term objective that we have is a climate-neutral Europe by 2050. That goes hand in hand with doing away with our need for fossil energies, which goes along with our new shared concern, namely, doing away with fossil fuels from Russia.”<sup>119</sup>

Challenging times require difficult and unpopular choices, and the European Union is trying to demonstrate that, for once, there can be a convergence between countries and institutions, like the recent price caps, on what needs to be done to pursue the road of *strategic autonomy* in the energy sector. Whether EU Member States will ever keep on pursuing this path is unclear, as many divergences still exist regarding fossil fuels. Divisions are still dramatic for what concerns renewable and nuclear energy, covered in the next chapter, for which inherently complicated issues still exist and for which a truly European answer is needed.

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<sup>118</sup> Taylor, K. *Europeans rally behind Green Deal in response to Russia's war in Ukraine*. Euractiv, 23/03/2022.

<sup>119</sup> *Ibid.*

# Chapter Three

## The EU's long-term choices: renewables, nuclear energy, and the Arctic

### 3.1 The push for renewables and its geopolitical implications

The REPowerEU Plan, in the broader context of the European Green Deal and the *Fit for 55* Agenda, is one of the most ambitious long-term initiatives ever taken by the European Union. As the official Communication document explicitly says, this Plan is pushing forward to the clean transition to achieve “a more resilient energy system and a true Energy Union.”<sup>1</sup> The term *true* here is fundamental: it recognizes the fact that while previous communitarian strategies like the very *Energy Union* and the *Energy Security Strategy* managed to mobilize political awareness on the prospects of energy dependence and vulnerability, these initiatives never actually brought a fundamental change in the broader scope of European interests in the long-term. Under the umbrella of the REPowerEU, the Union has set unprecedented ambitions in reaching its climate goals and energy security needs, and while the effectiveness of its proposals is still to be witnessed, this marks a new comprehensive approach that takes into account Member States’ priorities together with EU-wide long-term resilience. In short, the REPowerEU Plan is based on the idea that pursuing policies aimed at saving energy, diversifying supplies, and accelerating the energy transition, all together with smart investments in specific sectors, will structurally transform the EU’s energy system.<sup>2</sup> In this framework, renewable electricity generation, energy efficiency, green transportation, and so on “will strengthen economic growth, reinforce its industrial leadership, and put Europe on a path towards climate neutrality by 2050.”<sup>3</sup> However, what is the current state of renewable energy sources? How

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<sup>1</sup> European Commission: COM (2022) 230 final (document 1), p. 1.

<sup>2</sup> *Ibid.*, pp. 1-2.

<sup>3</sup> *Ibid.*, p. 20.

much do they contribute to lowering emissions and bringing energy efficiency? And what are the most significant challenges ahead?

The latest Eurostat renewable energy statistics highlight how the EU reached a 21.8 % share of its gross final energy consumption from renewable sources in 2021, around 0.3 percentage points lower than in 2020 (mainly caused by increased overall energy consumption due to the lifting of COVID-related restrictions),<sup>4</sup> but exceeding the 20% share aimed at under the 2009 *Renewable Energy Directive*.<sup>5</sup> These data consider both EU Member States and EEA partners. For what concerns the EU, Sweden registered the highest share of renewables in gross final energy consumption in 2021, with 62.6%. Norway and Iceland achieved somewhat between 75 and 80%, while some EU countries are still underperforming: the Netherlands only registered 12.3% and Luxembourg only 11.7%.<sup>6</sup> This shows how renewable energy consumption is unevenly distributed across the EU, with Scandinavian and Baltic countries generally performing better than the rest of the Bloc. The share of renewable energy sources for gross electricity consumption was 37.5% as of 2021, in line with the previous year.<sup>7</sup> Wind and hydropower accounted for more than two-thirds of the total electricity generated from renewable sources, and solar power contributed to 15.1%, albeit being the fastest-growing renewable energy source.<sup>8</sup> In the heating and cooling sector, renewables accounted for 22.9%, while in transportation, the figures for 2021 were still relatively low, with only 9.1%.<sup>9</sup> The State of the Energy Union Report 2022 highlights how “the EU energy efficiency and renewable energy targets for 2020 were overachieved,” and the “Final Energy Consumption (FEC) and Primary Energy consumption (PEC) were 5.4% and 5.8% lower than the 2020 targets, respectively.”<sup>10</sup> Solar power

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<sup>4</sup> Eurostat: *Renewable energy statistics*. Eurostat website, data extracted in January 2023.

<sup>5</sup> European Commission: COM (2022) 547 final, p. 3.

<sup>6</sup> Eurostat: *Renewable energy statistics*. Eurostat website, data extracted in January 2023.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> European Commission: COM (2022) 547 final, p. 3.

experienced the highest growth in 2022, its share going up to 2.7% year-on-year,<sup>11</sup> and contributed to 12% of total energy production in the EU from May to August 2022.<sup>12</sup> The Q3 Electricity Market Report highlights how, thanks to an increasing installed capacity, “solar PV generation rose by 28% in Q3 2022 to a total of 71 TWh, six times more than oil-fired generation and higher than other technologies such as hydro, hard coal and lignite.”<sup>13</sup> This increase has been driven mainly by Germany, Spain, and the Netherlands, but also Poland, which registered impressive solar output figures with an additional +1.5 TWh (+106%).<sup>14</sup> The same report shows how onshore wind generation produced gains of +7% compared to the reference quarter, while offshore slightly declined (-1%). However, hydropower generation registered a decline of around 21% during Q3 2022, mainly caused by insufficient stock levels and limited weather precipitations.<sup>15</sup>

Overall, the share of renewables increased to 39% during the third quarter of 2022,<sup>16</sup> surpassing the 2021 milestone of 37%, and is expected to reach 69% in 2030.<sup>17</sup> The REPowerEU plan proposed a detailed strategy on what investments and initiatives are needed in this sector: it proposes to increase the target in the *Renewable Energy Directive* to 45% by 2030, up from 40% in the 2021 proposal, in order for the EU to achieve a generation capacity of up to 1236 GW.<sup>18</sup> An *EU Solar Strategy* is to be implemented, to reach the target of over 320 GW of solar photovoltaic newly installed by 2025. It is also pushing for a strengthening of international supply chains and for an acceleration of permitting in wind generation, heating, solar generation, and electricity storage capacity.<sup>19</sup> Concerning renewable energy subsidies, The Commission’s 2022 Report on Energy Subsidies in the EU shows

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<sup>11</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol.15 (issue 3, covering third quarter of 2022), p. 7.

<sup>12</sup> European Commission: COM (2022) 547 final, p. 3.

<sup>13</sup> European Commission: *Quarterly report on European electricity markets*. Market Observatory for Energy – Directorate-General for Energy, vol.15 (issue 3, covering third quarter of 2022), p. 17.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid., p. 3.

<sup>17</sup> European Commission: COM (2022) 547 final, p. 3.

<sup>18</sup> European Commission: COM (2022) 230 final (document 1), p. 6.

<sup>19</sup> Ibid., pp. 6-7.

that these grew by 7% (+ €5.5 billion) in 2020 compared to 2019 but decreased by 3% in 2021(- €2.8 billion), impacted by higher wholesale energy prices and consequently lower feed-in premia or contract for differences.<sup>20</sup> The Report stresses that “in order to implement the clean-energy transition, avoid lock-in and stranded assets in fossil fuel technologies and minimize the use of fossil energy, further investments are needed in renewables and energy efficiency” and that “this will likely require shifting the focus of energy subsidies towards renewables and efficiency, including demand response.” Strategically speaking, for the EU, “boosting the capabilities for manufacturing clean energy equipment across their value chains would help ensure that EU climate objectives are not jeopardized by creating import dependencies elsewhere, as well as improve EU energy security and resilience prospects.”<sup>21</sup>

The EU aims to become a global hub for renewable energy production and export, with cooperation with third countries as a central element of this long-term strategy to accelerate their energy transition, including the transformation and decarbonization of their energy systems, while enhancing their energy security.<sup>22</sup> To achieve this, massive investments in technology, research and development (R&D), supply chains, skilled labor, and financing must be taken into account. The document describing how to implement the REPowerEU plan expressly refers that the focus should be both on the EU neighborhood and the international community at large by establishing partnerships with other potential suppliers in the Southern Neighborhood, Sub-Saharan Africa, The Middle East, the Gulf, Chile, but also the US and Australia.<sup>23</sup> The long-term objective is to establish partnerships with reliable third countries “to ensure open and undistorted trade and investment relations for renewable and low carbon fuels, preventing distortions in these future markets.”<sup>24</sup> One of the means that the EU

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<sup>20</sup> European Commission: *Report from the Commission to the European Parliament and the Council - 2022 Report on Energy Subsidies in the EU*. Brussels, 15/11/2022, COM (2022) 642 final, p. 6.

<sup>21</sup> European Commission: SWD (2022) 230 final, p. 23.

<sup>22</sup> *Ibid.*, p. 31.

<sup>23</sup> *Ibid.*, pp. 31-32.

<sup>24</sup> *Ibid.*, p. 32.

is currently implementing to promote is the *Global Gateway* strategy, a tool that aims to boost “smart, clean, and secure links in digital, energy and transport sectors and to strengthen health, education, and research systems across the world, in line with the UN’s 2030 Agenda and the Paris Agreement.”<sup>25</sup> This agenda is crucial in pushing a green energy transition and is expected to involve European and national financial and development institutions in implementing a comprehensive approach to leverage up to €300 billion of investments between 2021-2027.<sup>26</sup> More region-focused initiatives include the *African Green Energy Initiative*, which aims at reaching at least 50 GW of renewable electricity that would serve 100 million people,<sup>27</sup> and further cooperation with Morocco and India, two important developing countries showing ambition and commitment to the renewable sector.

The year 2022 has marked the rise of interest in renewable hydrogen, with the REPowerEU contributing to completing the *2020 Hydrogen Strategy*. The Plan highlights how, even if hydrogen is expected to bring essential contributions only after 2027, it will serve the long-term EU energy security and the decarbonization pathway.<sup>28</sup> The revised TEN-E Regulation enables “a coordinated and timely development of trans-European hydrogen networks, by selecting key infrastructure projects of cross-border relevance based on a robust methodology, in line with EU policy objectives, including hydrogen pipelines, storage facilities, electrolyzers, and hydrogen terminals.”<sup>29</sup> Overall, the EU set a target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of renewable hydrogen imports by 2030.<sup>30</sup> To facilitate imports of such quantities into Europe, the EU aims to conclude hydrogen partnerships with reliable partner countries to ensure open and

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<sup>25</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2022) 23 final, p. 12.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid., p. 14.

<sup>28</sup> European Commission: SWD (2022) 230 final, p. 11.

<sup>29</sup> Ibid., p. 30.

<sup>30</sup> European Commission: COM (2022) 230 final (document 1), p. 7.



undistorted trade and investment relations for renewable and low-carbon fuels.<sup>31</sup> So far, preliminary assessments have recognized three major hydrogen import corridors from the North Sea region (Norway and UK), the Southern Mediterranean, and Ukraine. The Ukrainian option remains uncertain, depending on the outcome of the current conflict with Russia. At the same time, the *EU external energy engagement in a changing world* document recognizes the potential of Sub-Saharan Africa, especially South Africa and Namibia, as realistic hydrogen partners in the longer term.<sup>32</sup>

From a geopolitical perspective, the most problematic dynamic concerning pursuing a higher deployment of renewable energy production and consumption is access to raw materials. The previously cited initiatives do take into account this issue: the 2022 State of the Energy Union Report recalls how “half of the 30 critical raw materials listed by the EU are imported in proportions above 80% in volume” and how “surging prices are affecting the competitiveness of clean energy technologies.” Moreover, “over 70% of EU businesses manufacturing the equipment faced materials shortages in 2022.” These trends show the growing risk of disruptions to the clean energy supply chain.<sup>33</sup> A 2020 Commission study called *Critical Raw Materials for Strategic Technologies and Sectors in the EU*<sup>34</sup> already raised awareness on the topic, reasserting how the EU is highly dependent in this sector primarily on rare earth elements, including lithium, magnesium, niobium, germanium, borates, and scandium, some of which cannot be procured domestically.<sup>35</sup> Recently, During the annual State of the European Union address, President of the Commission Ursula von der Leyen highlighted this issue, which is already impacting international supply chains and which will bring even greater problems in the future if further steps are not implemented. She remarked how “lithium

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<sup>31</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2022) 23 final, p. 5.

<sup>32</sup> Ibid.

<sup>33</sup> European Commission: COM (2022) 547 final, p. 18.

<sup>34</sup> European Commission: *Critical materials for strategic technologies and sectors in the EU - a foresight study*. European Commission – Joint Research Center, 02/09/2020.

<sup>35</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2022) 23 final, p. 16.

and rare earths are already replacing gas and oil at the heart of our economy. By 2030, our demand for those rare earth metals will increase fivefold.”<sup>36</sup> During the speech, the President of the Commission explicitly referred to the one country that dominates this market: the People’s Republic of China. According to a 2022 Mining Technology article, China produced 60.6% of the global rare earths output in 2021, with the second place taken by the US with only 15.5%. Furthermore, the article highlights how China detains more than 90% of the share of the global production of downstream rare earth products and technologies, including magnets, citing data provided by consultancy firm Tahuti Global.<sup>37</sup> In 2021, China made up 54% of the global rare earth elements mine supply,<sup>38</sup> and, according to the 2022 Mineral Commodity Summaries of the US Geological Survey, China’s rare earth reserves should be around 44 million TN, the largest in the world.<sup>39</sup> These figures show that the Chinese state considers rare earths a *strategic resource* that can be leveraged to its advantage in international diplomacy.<sup>40</sup> These elements are key in the production of semiconductors and other parts that are essential in the manufacturing of the most varied everyday objects in several different industries: computer products, automotive, aerospace, drones, batteries, and, of course, industrial machinery, including the essential parts for producing solar PVs, hydroelectric pumps, wind turbines, and hydrogen-powered machines. A 2020 Commission Communication reported how China provided 98% of the EU’s supply of rare earth elements.<sup>41</sup> Western producers, such as the US and Australia, have been trying to scale up exploration and production of these resources, especially since the Chinese government implemented limits to export that ultimately caused the ongoing semiconductor crisis. However, China's dominance of the refining stage is likely to remain very

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<sup>36</sup> European Commission: *2022 State of the Union Address by President von der Leyen*. Speeches, European Commission. Strasbourg, 14/09/2022.

<sup>37</sup> Mitchell, J. *China’s stranglehold of the rare earths supply chain will last another decade*. Analysis by Mining Technology, 26/04/2022.

<sup>38</sup> Ibid.

<sup>39</sup> United States Geological Survey (2022). *Mineral Commodity Summaries 2022*. In Mineral Commodity Summaries, Report 202 p., p. 135.

<sup>40</sup> Tabeta, S. *China tightens rare-earth regulations, policing entire supply chain*. NikkeiAsia, 16/01/2021.

<sup>41</sup> European Commission: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability*. Brussels, 03/09/2020, COM (2020) 474 final, p. 3.

robust for many years to come.<sup>42</sup> Considering the current situation, the outlook looks uncertain, and the EU knows this. In the same State of the European Union address, President von der Leyen promised that the EU “will identify strategic projects all along the supply chain, from extraction to refining, from processing to recycling” and “build up strategic reserves where supply is at risk.”<sup>43</sup> The EU finds itself in a position where it cannot afford to remain overdependent on a single partner again, following the Russian experience. That is the reason why President von der Leyen announced the plan to implement a *European Critical Raw Materials Act*.<sup>44</sup> Relations between China and the EU are already well-developed in multiple fields, including energy. The EU-China Energy Cooperation Platform (ECECP) and the annual high-level EU-China Energy Dialogue have been established to encourage discussion on carbon markets, energy systems, renewable energy, energy efficiency, and business cooperation in light of both actors’ strategic long-term ambitions in tackling climate change and encourage renewable energy generation.<sup>45</sup> Moreover, in 2021, the EU implemented a new strategy for China, enshrined in a Report presented by the EU Parliament’s Committee on Foreign Affairs. This Report already noticed the overdependence on China in strategic sectors and considered it necessary for the Union “to invest in innovation and research and to develop a sovereign and competitive industrial strategy in areas including microchips and semiconductor production, rare earth mining, cloud computing, and telecoms technologies in order to reduce the EU's dependence on China.”<sup>46</sup> This current proposal contained in the State of the Energy Union address is going to be even more ambitious and tries to build long-term partnerships in the fashion of already existing ones in the fields of batteries and chips. A Commission’s Statement by EU Commissioner for Internal Market Thierry Breton further promotes and analyses this *Critical Raw Materials Act*, due to be

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<sup>42</sup> Mitchell, J. *China’s stranglehold of the rare earths supply chain will last another decade*. Analysis by Mining Technology, 26/04/2022.

<sup>43</sup> European Commission: *2022 State of the Union Address by President von der Leyen*. Speeches, European Commission. Strasbourg, 14/09/2022.

<sup>44</sup> Ibid.

<sup>45</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2022) 23 final, p. 13.

<sup>46</sup> European Parliament: Own-initiative procedure 2021/2037(INI), *A new EU-China strategy*. Strasbourg, 16/09/2021.

unveiled on 8 March 2023. This Statement warns that the world is already experiencing a global race for the supply and recycling of critical raw materials. These resources could eventually be weaponized to serve specific domestic interests and thus disrupt international supply chains and destabilize bilateral and multilateral relations.<sup>47</sup> The proposed Act should provide “a shared understanding of which critical raw materials can be considered as particularly strategic” while pushing for the establishment of a coordinated European “network of raw materials agencies” to anticipate risks of disruptions and “take appropriate diversification, stockpiling and investment decisions.”<sup>48</sup> The long-term objective is to build a resilient and sustainable supply chain to support European strategic projects based on proposals of Member States. The aim is to eventually make raw materials activities in the EU internationally competitive to attract private investments.<sup>49</sup>

Indeed, these initiatives show the EU’s recent commitment to pursuing a Europe-wide renewable production and deployment action, trying to transcend the existing divergencies among Member States and to become strategically autonomous in such a crucial sector. International engagement will be pivotal in all this: as already mentioned in this dissertation, *strategic autonomy* in the field of energy does not necessarily mean becoming entirely independent but avoiding overdependence through diversification, the pursuit of energy efficiency, and domestic production of technologies in which European firms and industries excel to have a broader room for maneuver in promoting itself on the international stage. China indeed represents an obstacle to this ambition in several strategic sectors, raw materials being arguably one of the most vulnerable. The issue of raw materials has several other geopolitical implications that transcend the energy dimension. As already mentioned, China has been adopting a quasi-monopolistic stance in the business of rare earth elements mining and production. If other geopolitical actors do not intervene as soon as possible, China will increase

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<sup>47</sup> European Commission - Blog of Commissioner Thierry Breton: *Critical Raw Materials Act: securing the new gas & oil at the heart of our economy*. Statement. Brussels, 14/09/2022.

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

its geopolitical leverage by taking advantage of the constantly increasing demand for these elements in the foreseeable future. First, the current trend will inevitably expose the EU to economic vulnerabilities: as China holds a dominant position in the global supply of these materials, the EU is exposed to potential market disruptions or price fluctuations that could negatively impact its economy. Second, China is already exploiting these resources to amplify its political leverage in its relations with its main competitors (especially the USA, Japan, and Australia): as mentioned, China has been known to use its control over these elements as a political tool, for example, by restricting exports to gain leverage in trade negotiations or diplomatic disputes. Moreover, this scenario implies a strategic disadvantage for the EU and its partners: the continued reliance on Chinese materials leaves them vulnerable to disruptions in the event of a geopolitical crisis or conflict between them and China. An instance of a geopolitical dispute concerning this kind of resources is the Taiwan issue. Historically claimed by the PRC due to the defeat of the nationalist regime in the Chinese Civil War, the island has continuously caught the attention of the CCP also because of its semiconductor production and export markets. In fact, in 2020, some 40% of Taiwan's total exports were semiconductor chips, with China and Hong Kong being two of their biggest importers.<sup>50</sup> In particular, Taiwan Semiconductors Manufacturing Company (TSMC) has been the leading independent firm in the industry for decades, and recently registered a share of 59% within the Global Semiconductor Foundry Revenue Share in Q3 2022.<sup>51</sup> According to several IR scholars, among the reasons for which it is so important for the PRC to take back Taiwan there is this broader need to secure an even greater share of semiconductors production, which would make China almost a monopolist from which every other relevant geopolitical actor in the world would depend. Moreover, Beijing would not need TSMC's assets only for economic reasons. In fact, China needs such expertise and production volume to scale up the capabilities of its military apparatus to assert its dominance in the South China Sea, where Beijing's moves have been monitored and are being contained by the US and its allies in the

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<sup>50</sup> Chiang, M. H. *China can't afford to ban Taiwan's semiconductors*. East Asia Forum, 03/12/2022.

<sup>51</sup> Counterpoint: *Global Semiconductor Foundry Revenue Share: Q4 2022E*. Counterpoint, 11/01/2023.

region. Returning to the EU, the continued reliance on Chinese raw materials has crucial implications for several sectors other than energy, including defense. Nowadays, most current-generation weapon systems, including drones, missiles, aircrafts' sensors, propulsion and navigation systems, anti-aircraft batteries, and so on, employ large quantities of these elements: samarium, cerium, lanthanum, and many others. In case of a worsening of relations (or a conflict) with China, European defense industries would find themselves in extreme difficulty in finding alternative routes to secure the resources they need to deter China through military means. According to a Difesa Online magazine article, a significant example of the great use of rare earths in the defense industry is the case of the F-35 Lightning II fighter, a product of a development and acquisition program called Joint Strike Fighter (JSF) produced under license also by the Italian Leonardo S.p.A., which requires about 415 kg of these elements.<sup>52</sup> Geopolitically speaking, European defense firms could face shortages or even import bans of critical raw materials or derivate products in case of an exacerbation of the relations between the Bloc's most prominent military powers (France, Germany, Italy, Sweden, and Poland) and the PRC. For instance, an article by Europe Security & Defence highlights how French defense firm Dassault Aviation recently sold 36 Rafale multirole fighter jets to India, an important competitor to China's ambitions in South-East Asia. The article warns that, in case of a worsening of the India-China geopolitical dynamics, Beijing could target sanctions against Dassault and thus France for selling weaponry to countries that threaten its security or national interests.<sup>53</sup>

The EU should develop a more comprehensive strategy towards China to ensure that cooperation can continue while refraining from allowing China to adopt more monopolistic stances in the European market. However, while discussing the future of the relations between China and the EU transcends the scope of this dissertation, it is needless to say that future developments in the second

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<sup>52</sup> Lombardi, A. *L'importanza strategica delle terre rare: dall'industria militare alla transizione ecologica*. Difesa Online, 04/06/2022.

<sup>53</sup> Chomon, J. M., Ganser, A. *How Relevant are Rare Earths to Europe's Security and Defence?* Europe Security & Defense, 07/10/2021.

semiconductors war between the US and China, the Taiwan question, and the geopolitical implications of the Chinese ambitions over the South China Sea are going to heavily affect the dynamics of international politics, including the stance that the EU will eventually adopt against China.

### 3.2 Nuclear energy: revival or demise?

Nuclear energy has been at the center of endless debates all over Europe since the first breakthroughs of this technology. Both advocates and detractors of nuclear power have brought about several arguments to convince policymakers of why this type of energy generation should be supported (or not). On one side, nuclear energy generation surely does bring advantages; most eminent sources like the United States Energy Information Administration (EIA) reassert how nuclear reactors do not produce air pollution or carbon dioxide while operating.<sup>54</sup> Greenhouse gas emissions are still generated in dynamics concerning transportation, building, and management activities in nuclear power plants. However, overall, their impact on the environment is still lower than generating electricity through coal or natural gas. Moreover, the Nuclear Energy Institute (NEI) highlights how the land footprint of a nuclear power plant is way smaller than any other clean-air source since a 1.000-megawatt nuclear facility needs just over a square mile of land area to operate, some 360 times less than what a wind farm needs to produce the same quantity of electricity.<sup>55</sup> Moreover, uranium, while being expensive, is easier to obtain and is more evenly distributed worldwide than rare earth elements needed to build and operate renewable energy machinery.<sup>56</sup> On the other hand, nuclear power generation brings several problems and disadvantages too, mainly coming from high operational costs, the need for procurement of uranium, high volumes of water to cool down reactors,

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<sup>54</sup> United States Energy Information Administration (EIA): *Nuclear explained - Nuclear power and the environment*. EIA website, last updated 07/11/2022.

<sup>55</sup> Nuclear Energy Institute (NEI). *Land Needs for Wind, Solar Dwarf Nuclear Plant's Footprint*. NEI website, 09/07/2015.

<sup>56</sup> World Nuclear Association: *World Uranium Mining Production*. World Nuclear Association website, data updated to July 2022.

high costs of decommissioning old nuclear reactors, and the production of nuclear waste. Especially this last issue has driven large parts of European civil society to oppose nuclear generation in favor of renewable sources. Nevertheless, several pro-nuclear lobbyists have always highlighted how nuclear fuel is highly dense, requiring minimal land to store them safely, and how recent technological breakthroughs make it possible for nuclear waste to be reprocessed and recycled, limiting the environmental impact even more. However, the legacy of nuclear power generation in Europe has seen a sharp decline over the recent decades, mainly for political reasons linked to radical environmental policies and public mistrust over the security of nuclear facilities. Indeed, the nuclear incidents in Chernobyl and Fukushima have long persuaded a large portion of the international public opinion that nuclear power generation is unsafe and not worthy of more investments in the long run.

According to Eurostat data, two different trends can be distinguished in the EU: “from 1990 to 2004, the total amount of electricity produced in nuclear facilities in the EU rose by 26.9 % [...] due to an increase in the number of reactors in operation. Between 2004 and 2006, the total production of nuclear power in the EU stabilized, before declining by 20% between 2006 and 2021, mainly due to a sharp drop of around 58.7 % in nuclear production in Germany.”<sup>57</sup> Conversely, several European countries increased their nuclear generation capacity between 2006 and 2021. These are, according to Eurostat: Romania (+100.4 %), Hungary (+18.8 %), Czechia (+18.0 %), the Netherlands (+10.4 %), Belgium (+7.9 %), Finland (+3.0 %), and Slovenia (+2.9 %).<sup>58</sup> However, like renewable energy generation, the domestic production of nuclear power in the EU is highly unevenly distributed: only five countries (France, Germany, Spain, Sweden, and Belgium) contribute to 83.1% of total electricity produced by nuclear facilities as of 2021.<sup>59</sup> Among these, France is by far the largest producer (51.8%), while Germany has seen the sharpest decrease with a -58.7 % of nuclear electricity

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<sup>57</sup> Eurostat: *Nuclear Energy Statistics*. Eurostat website, data extracted in December 2022.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.



production between 2006 and 2021.<sup>60</sup> The case of Germany is interesting, especially by showing how political choices driven by specific interests can lead to disastrous strategic prospects. Aversion to nuclear energy has a long history in the country, dating back to the 1970s, and such sentiments are considered to be at the very foundation of the Green Party (Die Grünen). In 1998, the new German executive formed by the Social Democratic Party (SPD) and the Greens agreed to phase out nuclear reactors by 2022 through an amendment to the 1960 *Atomgesetz* law adopted in 2002.<sup>61</sup> New succeeding governments (led by Angela Merkel) temporarily delayed the phase-out. Still, after the Fukushima incident in 2011, the Bundestag adopted a new amendment to the Nuclear Law that dictated the complete shutdown of eight nuclear facilities and limited the operation of the remaining ones to the end of 2022.<sup>62</sup> As of 2021, three reactors have been shut down. Only three currently remain operative: the Isar 2, Emsland, and Neckarwestheim 2 reactors, with a net power output of 4055 Mwe and initially expected to be decommissioned at the end of 2022.<sup>63</sup>

However, since 24 February 2022, the need to diversify from Russian energy sources and the exacerbation of the energy crisis has brought several countries to rediscuss their nuclear stance, with some nuclear-less ones even debating on considering using nuclear power in the longer term (Italy, above all else). Right now, the primary debate regarding nuclear energy in Europe is about what should be the future of this energy source in the longer term: should it only be temporarily resumed and/or strengthened to face the current energy crisis, or should it become a crucial pillar of the future EU energy security strategy? On the one hand, over the past years, the EU policy framework on nuclear power mainly focused on nuclear safety (with arguably the highest standards in the world) and nuclear waste treatment. Moreover, EU mechanisms have explicitly been implemented to

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<sup>60</sup> Ibid.

<sup>61</sup> Appunn, K. *The history behind Germany's nuclear phase-out*. Factsheet on Clean Energy Wire, 09/03/2021.

<sup>62</sup> Deutscher Bundestag: *Die Beschlüsse des Bundestages am 30. Juni und 1. Juli*. German Bundestag Web Archive.

<sup>63</sup> Appunn, K. *Q&A: Why is Germany phasing out nuclear power and why now?* Q&A on Clean Energy Wire, 16/08/2022.

decommission old reactors (especially of the RBMK type, the same as of the Chernobyl nuclear power plant) in Member States that joined the EU over the past 20 years, such as Bulgaria, Slovakia, and Lithuania.

On the other hand, recent EU-wide initiatives seem to be available to re-evaluate the role of nuclear power in assuring the security of energy supply in certain Member States. For instance, the EU Commission presented a *Taxonomy Complementary Climate Delegated Act*<sup>64</sup> on 2 February 2022. This Act included some specific gas and nuclear activities in the EU taxonomy, labeling them coherent with current decarbonization policies and thus giving them a *green* label. In July 2022, this Act was adopted by the Parliament as an essential recognition of the EU's "pragmatic and realistic approach in helping many Member States on their transition path towards climate neutrality."<sup>65</sup> However, the contents of the Regulation concerning some of the most recent EU-wide initiatives, the May 2022 Joint Communication known as *EU external energy engagement in a changing world*, recognizes the need for the diversification of nuclear fuel supplies for Member States that are still dependent on Russian nuclear fuel, which would see the cooperation of the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA) under OECD guidance.<sup>66</sup> Some EU Member States are trying to maximize the power capacity of their existing nuclear reactors, France and Belgium (which have been incapable of doing so because of maintenance and delays) being at the forefront. Other countries are also planning to build new reactors, like Poland (a currently nuclear-free country), which plans to build six reactors with a 1.000 Mwe capacity each.<sup>67</sup> Nevertheless, these

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<sup>64</sup> European Commission: *EU Taxonomy: Commission presents Complementary Climate Delegated Act to accelerate decarbonization*. EU Commission Press. Brussels, 02/02/2022.

<sup>65</sup> European Commission: *EU Taxonomy: Commission welcomes the result of today's vote by the European Parliament on the Complementary Delegated Act*. EU Commission Press. Brussels, 06/07/2022. Available

<sup>66</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2022) 23 final, p. 7

<sup>67</sup> World Nuclear Association: *World Nuclear Power Reactors & Uranium Requirements*. World Nuclear Association, February 2023.

are unilateral domestic decisions, and so far, EU institutions have paid little attention to the prospects of a renewed nuclear strategy for the longer term.

Data for 2022 are not encouraging from this point of view: according to the Q3 European Gas Market Report, “electricity generation from nuclear fell by 24% year-on-year, largely owing capacities taken offline in France, Germany, and other countries, and its share was down by almost 6%, falling below 21% in Q3 2022.”<sup>68</sup> Moreover, as the State of the Energy Union Report 2022 shows, the total electricity output generated by nuclear power is set to temporarily decline until the end of the decade, coherently with the *Fit for 55* modeling of 16% by 2030 and 15% by 2050.<sup>69</sup> While the Russian invasion of Ukraine has brought many EU countries to reconsider their nuclear strategy, these initiatives are primarily focused on short-term energy security. The most significant example is the German one. While the current German executive recognized the need to delay the phase-out of the three currently operating facilities to mid-April 2023, Energy Minister Robert Habeck recalled how this decision should not be interpreted as a shift in nuclear policy but only as a necessary temporary measure to contain the spillovers of the energy crisis. In other words, Germany is currently still pursuing the path of a complete nuclear phase-out.<sup>70</sup> Habeck has insisted that the security of the energy supply outlook for the country is positive; however, considering the current volatility of energy markets and the extremely delicate situation for the security of supply, it is too early to ascertain whether Germany will not need its nuclear capabilities even after April 2023. To curb the current energy crisis, Germany has been constraining the consumption of natural gas and has been increasing the production of domestic coal and lignite to replace insufficient natural gas availability in the short term. Ironically, coal and lignite production undoubtedly produce higher greenhouse gas emissions and has a larger environmental footprint than nuclear energy. While the German

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<sup>68</sup> European Commission: *Quarterly report on European gas markets*. Market Observatory for Energy – Directorate-General for Energy, vol. 15 (issue 3, covering third quarter of 2022), p. 7.

<sup>69</sup> European Commission: COM (2022) 547 final, p. 6.

<sup>70</sup> Connolly, K. *Germany to delay phase-out of nuclear plants to shore up energy security*. The Guardian, 05/09/2022.

government has reiterated several times that these are only temporary solutions, this inconsistency with environmental commitments brought many policymakers and civil society members across Europe to recognize the German governing parties' almost ideological stance on nuclear power.

Recently, amid the energy crisis and the war in Ukraine, several experts and scholars have argued different theses and prospects on the future of nuclear energy in Europe. According to German scholar Mark Hibbs, the EU is late in implementing its 2050 long-term strategy to become climate-neutral by that year, with the cuts achieved so far amounting to less than 20% of the total required to meet its 2050 target.<sup>71</sup> The remaining 80% must be reduced within the next three decades. Thus the EU is very far from generating most of its electricity with renewables: therefore, considering that it will take many years before nuclear and gas can be replaced with renewable sources, Hibbs suggests that EU countries should still invest in nuclear technology for a considerable amount of time, highlighting its minimal environmental footprint.<sup>72</sup> However, since Hibbs released these statements before the adoption by the EU Parliament of the *Complementary Delegated Act on climate change mitigation and adaptation covering specific gas and nuclear activities*, he needed to highlight how possible future EU investments in nuclear power will mostly depend on the interpretation of that policy tool: without clarification, arbitrary interpretation and implementation of the regulation might set prohibitive technology requirements and mean that only a very few EU states would satisfy the repository requirement.<sup>73</sup> Finally, “without clarity on some points, investors might be discouraged from supporting future nuclear energy projects.”<sup>74</sup> Other pro-nuclear revival arguments have been made by Mateo Szlapek-Sewillo, a Melbourne-based freelance columnist writing for the Lowy Institute. He argues that while the REPowerEU is indeed ambitious, it lacks sufficient focus on

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<sup>71</sup> Hibbs, M. *Why Europe Is Looking to Nuclear Power to Fuel a Green Future*. Commentary by the Carnegie Endowment for International Peace (CEIP), 18/02/2022.

<sup>72</sup> Ibid.

<sup>73</sup> Ibid.

<sup>74</sup> Ibid.

nuclear energy, which he deems of strategic importance in the longer run. He criticizes the German nuclear stance and France's François Holland policies of reducing the share of nuclear power generation, affirming how "it is now painfully clear that decisions such as these dampened investment and research in nuclear energy and, by increasing the continent's dependence on other sources of energy, directly empowered Vladimir Putin."<sup>75</sup> He argues that the problem is not only a matter of supply but economic: tighter regulations have made nuclear uncompetitive, "driving up construction costs while directly incentivizing the increasingly futile maintenance of aging stock."<sup>76</sup> Moreover, he reprises the reasoning previously presented in this chapter: renewable energies are indeed strategic in curbing the effects of climate change; however, these face security challenges of their own, and this can largely be seen by China's quasi-monopoly over raw materials and rare earth elements production (and by the fact that Beijing controls at least 75% of every critical stage of solar photovoltaic panel manufacturing and processing).<sup>77</sup> In other words, "reducing dependence on one authoritarian state for its energy only to deepen dependence on another would be a strategic error that Brussels could avoid with greater investment in nuclear energy."<sup>78</sup> Ted Nordhaus and Jules Lloyd, writing for the IMF's Finance and Development magazine, also expressed similar views. They argue that nuclear energy is a realistic solution: "a firm source of electricity that can complement the variable sources of renewable energy on electrical grids."<sup>79</sup> Moreover, they suggest that the EU could become an international ambassador of safe and modern nuclear energy generation, similar to what it is currently doing with renewable energies. This could be implemented in Africa, whose population is expected to double by 2050, and therefore it will have immense energy stresses if its energy needs are not satisfied. Nuclear energy could solve Africa's electricity generation issues in the long run, and the EU should exploit this opportunity to scale up its international recognition and legitimacy.

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<sup>75</sup> Szlapek-Sewillo, M. *Europe must fully embrace nuclear energy*. Commentary by the Lowy Institute, 22/11/2022.

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

<sup>78</sup> Ibid.

<sup>79</sup> Nordhaus, T., Lloyd, J. (2022) *Nuclear Resurgence - The energy security case for nuclear power is building*. In Finance and Development, December 2022. International Monetary Fund (IMF).

Some other scholars and experts do not believe in a nuclear revival for Europe or are highly skeptical about it. Interview by Al Jazeera, energy and climate expert Nicolas Berghmans (working at the IDDRI – the Institute for Sustainable Development and International Relations) argues that recent national initiatives are not a nuclear renaissance but rather a *change of tide*.<sup>80</sup> He recalls that “developing new nuclear facilities remains a daunting, costly and years-long ambition” and that current diverging views among Member States hamper developments for a high-intensity nuclear future. According to Berghmans, “governments are more likely to see renewable energies, such as wind and photovoltaic energy, as more economical alternatives to energy security and sustainability,” and “nuclear is still not a shared solution in Europe.”<sup>81</sup> Similarly, in an August 2022 New York Times article, the authors and the interviewed chiefly agree that the most problematic issues for nuclear energy generation are management costs, operational delays, and the extended time required to build facilities and generate nuclear power. Jonathan Stern, a senior research fellow at the independent Oxford Institute for Energy Studies, claims that “nuclear is going to take so long” because the projects require at least ten years for completion, and thus “the big problem is getting off Russian gas, and that problem is now, not in a decade, when maybe we’ve built another generation of nuclear reactors.”<sup>82</sup>

Hence, answering the original question: is the EU experiencing a nuclear revival? According to most experts, the answer is: not really. As long as EU countries have such divergences on the matter and the EU institutions are hardly regulating it as they are doing with renewables, nuclear power in the EU will be resurged only for a limited time, just for what is needed to curb the current energy crisis. Recent data show a constantly declining role for nuclear in the foreseeable future. However, it is

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<sup>80</sup> Stepansky, J. *No nuclear power ‘renaissance’ as Europe wrestles energy crisis*. Al Jazeera, 06/10/2022.

<sup>81</sup> Ibid.

<sup>82</sup> Alderman, L., Reed, S. *Nuclear Power Could Help Europe Cut Its Russia Ties, but Not for Years*. New York Times, 26/04/2022.

currently too early to declare the demise of nuclear energy in Europe: international energy markets, especially since February 24, are volatile and prone to changes, and technology is constantly evolving. Recent news shows that American scientists at the National Ignition Facility at the Lawrence Livermore National Laboratory achieved a historic breakthrough in nuclear fusion technology (the opposite of fission which produces energy in existing nuclear power plants). There is still a long way to go, but such prospects could lead to massive investments in the future, and nuclear power could become central in Europe's future energy security strategy.

### 3.3 An updated European Arctic strategy?

This final paragraph will analyse which scenarios could arise if the EU pursues a more comprehensive approach towards a rarely discussed but interesting topic: the Arctic. At the start of the millennium, several scholars, researchers, media, and policymakers became interested in the Arctic, especially following the development of worldwide awareness of climate change and its consequences. The region has been described as a new arena for geopolitical conflict for several reasons. According to Astrid Grindheim in a scientific paper called *The scramble for the Arctic?* Most of the region's vulnerabilities to conflict came from a poor international regulatory regime and a lack of well-functioning treaties.<sup>83</sup> Moreover, many others focused on the large quantities of energy resources scattered around the ice of the Arctic Circle. A 2008 US Geological Survey study researched 33 geologic provinces of the Arctic. It estimated that the sum of resources could amount to 90 billion barrels of oil, 1.669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids, of which approximately 84% are expected to occur in offshore areas.<sup>84</sup> Others argued how ice melting in the Arctic would represent an opportunity to establish a northern shortcut to Asia for shipping.<sup>85</sup>

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<sup>83</sup> Grindheim, A. (2009) *The Scramble for the Arctic? A Discourse Analysis of Norway and the EU's Strategies Towards the European Arctic*. In FNI Report 9/2009, Fridtjof Nansen Institute, p. 39.

<sup>84</sup> United States Geological Survey (2008). *Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle*. In USGS Fact Sheet 2008-3049.

<sup>85</sup> Ho, J., H., Kraska, J. (Eds.) (2011) *The Arctic Meltdown and Its Implication for Ports and Shipping in Asia*. In Kraska, J. (Eds.) (2011) *Arctic Security in an Age of Climate Change*. Cambridge University Press, (pp. 33-44).

Overall, the Arctic has brought the attention of many experts, pointing out how the region could become a major arena of geopolitical confrontation between the main Arctic actors: Russia, the USA, Canada, and the European Union. Currently, the EU is an observer in the Arctic Council, more of an international forum rather than a real international organization. But its status as an Arctic actor has long been debated. The EU has no direct access to the Arctic Ocean: the EU has no coastline to the Ocean, and EU law only applies directly to Finland and Sweden (which are geographically close but are obstructed from reaching the Arctic Ocean by Norway and Russia).<sup>86</sup> Greenland, while part of the Kingdom of Denmark, is only associated with the EU, but direct European jurisdiction does not apply there, making it not a European territory. Moreover, the United Kingdom is also a very influential actor in the area and is an observer in the Arctic Council, but the EU cannot exploit its strategic role since the country left the Union. Norway and Iceland are part of the EEA Agreement and could reinforce the position of the EU in the region, but they cannot ensure a direct role for the Union.

Nevertheless, the EU has developed Arctic strategies over the years, and the 2008 European Commission Communication *The European Union and the Arctic Region*<sup>87</sup> is the first important document on the matter. However, the initial strategies focused mainly on the environmental issues arising from climate change dynamics, economic and scientific cooperation with other Arctic actors, the rights of indigenous peoples, fisheries, transport, tourism, and research, monitoring, and assessment with the Arctic Council and other regional organizations. These policy agendas did not perceive the Arctic as a strategic geopolitical matter for the EU, and scholars such as Andreas Østagen deemed them too paternalistic in their approach, almost as portraying the EU as the solution

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<sup>86</sup> Raspotnik, A., Stępień, A. (2020) *The European Union and the Arctic: A Decade into Finding Its Arcticness*. In Weber, J. (Eds.) *Handbook on Geopolitics and Security in the Arctic. Frontiers in International Relations*. Springer, Cham, (pp. 131-144), p. 132.

<sup>87</sup> European Commission: *Communication from the Commission to the European Parliament and the Council - The European Union and the arctic region*. Brussels, 20/11/2008, COM (2008) 763 final.



to the region's growing environmental and governance problems.<sup>88</sup> Until recently, the EU had failed to specifically assess and pronounce interests in strategic matters such as enhancing energy and raw materials in the Arctic.<sup>89</sup> Several scholars have also downplayed the strategic importance of the Arctic. While they recognized the increasing Russian military investments and activity in the region, they also argued that concern about outright conflict *over* the arctic was largely inaccurate.<sup>90</sup> In a 2017 paper, Andreas Østthagen argued that the harsh climate conditions, the distances involved, and the lack of infrastructure made the possibility of exploiting natural resources very difficult and expensive for littoral states.<sup>91</sup> Moreover, he also argued that approximately 90% of the oil and gas resources of the circumpolar north are already under the control of the littoral states.<sup>92</sup> According to Kathrin Keil, this should indicate that the countries concerned are unlikely to enter a geopolitical race for the region's resources.<sup>93</sup> Overall, scholars like these have been arguing that the Arctic states have neither the economic nor the strategic incentive to undertake any significant operations to assert and establish further claims over the seabed of the North Pole.<sup>94</sup> Concerning the role of the EU, Østthagen argued that the Bloc should focus less on direct action and more on *awareness* and *support*. That should mean continuing to participate in relevant meetings in the appropriate fora and encouraging further local and regional business development through its research funds and innovation mechanisms. He did not see any particular direct security role for the EU in the Arctic, arguing that the primary security guarantee comes from NATO.<sup>95</sup>

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<sup>88</sup> Østthagen, A. (2017) *Geopolitics and security in the Arctic: what role for the EU?* In *European View* vol. 16 (2), (pp. 239–249), p. 243.

<sup>89</sup> Raspotnik (2020), p. 137.

<sup>90</sup> Østthagen (2017), p. 24.

<sup>91</sup> *Ibid.*, quoting Łuszczuk, M., et. al. (2014) *Developing oil and gas resources in arctic waters*. In Stępień, A., et. al. *Strategic assessment of development of the Arctic: Assessment conducted for the European Union*. Arctic Centre, University of Lapland, (pp. 71–85), p. 73.

<sup>92</sup> *Ibid.*, quoting Claes, D. H., Moe, A. (2014) *Arctic petroleum resources in a regional and global perspective*. In Tamnes, R., Offerdal, K. (Eds.) (2014) *Geopolitics and security in the Arctic: Regional dynamics in a global world*. Routledge, London, (pp. 97–120).

<sup>93</sup> Keil, K. (2014). *The Arctic: A new region of conflict? The case of oil and gas*. In *Cooperation and Conflict* vol. 49 (2), June 2014, (pp. 162-190), p. 178.

<sup>94</sup> Østthagen, A. (2017), p. 241

<sup>95</sup> *Ibid.*, p. 244.

However, things have changed in the past few years. In October 2021, the EU High Representative, jointly with the EU Commission, presented a Communication entitled *A stronger EU engagement for a peaceful, sustainable and prosperous Arctic*. This document summarized the new strategy the Union should pursue in the region. The most striking difference between older strategies is the fact that this one openly acknowledges the geopolitical nature of the dynamics involving the Arctic. Quoting the document: “intensified interest in Arctic resources and transport routes could transform the region into an arena of local and geopolitical competition and possible tensions, possibly threatening the EU’s interests.”<sup>96</sup> The Communication finally breaks the previous EU stance on the issue. It recognizes that the “EU’s full engagement in Arctic matters is a geopolitical necessity.”<sup>97</sup> One of the announced objectives of this new strategy is to intensify “regional cooperation and developing strategic foresight on emerging security challenges.” In particular, cooperation with NATO is deemed indispensable for what concerns strategic military security in the area as an expanded domain of European security. Concerning the exploitation of *critical materials*, the EU remains committed to the previous strategies, promoting the highest environmental standards in the extraction, processing, and use of Arctic resources in cooperation with third countries operating in the area.<sup>98</sup> However, fossils fuels exploitation is expected to be limited by those environmental standards, and the EU is trying to discourage further exploration and processing activities that could contribute to further environmental damages in the longer run. These concerns are indeed not groundless, as the ice melting constitutes *per se* a strategic security threat for several EU countries like the Netherlands that are particularly vulnerable to climate change-related shocks. A 2021 report by The Arctic Institute recognizes how “the key themes of climate change and environment, sustainable development and international cooperation remain the same,” but it also highlights how

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<sup>96</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A stronger EU engagement for a peaceful, sustainable and prosperous Arctic*. Brussels, 13/10/2021, JOIN (2021) 27 final. p. 2.

<sup>97</sup> Ibid.

<sup>98</sup> Ibid., p. 11

the new geopolitical lens through which the EU is trying to focus on the Arctic is indeed an interesting development.<sup>99</sup> In the same report, the issue of hydrocarbons is analysed: the EU is pushing for a long-term phase-out of the exploitation of fossil resources in the region, coherently with its communitarian ambitions and with multilateral treaties like the Paris Agreement, and indeed with its specific environmental security concerns. As the document expressly mentions, the EU should “push for oil, coal, and gas to remain in the ground, including in Arctic regions, building on partial moratoriums on hydrocarbon exploration in the Arctic.”<sup>100</sup> However, the report acknowledges some inconsistencies with these bold statements. In particular, “the global no-new extraction scenario essentially depends on the various hopes for a European and global path towards carbon neutrality,” which the report deems “far from certain.” As of 2022, this prediction seems to have become true, since the current Russian invasion of Ukraine and the subsequent deterioration of the relations between Bruxelles and Moscow are hampering the development of a coordinated and peaceful environment and security strategy in the Arctic. Moreover, the text of the Joint Communication refers to not allowing any new hydrocarbon extraction globally, acknowledging the EU’s role as an importer of energy resources.<sup>101</sup> While this argument could make sense in 2021, today, the situation is radically different: if the EU really wants to pursue the path of *strategic autonomy* (and then evolve from an energy importer to an energy producer and global exporter of green technologies), it must also expand its global reach and become a geopolitical reality in the Arctic too. The Arctic Institute’s report acknowledges that the most recent strategy shows a new level of self-confidence from the EU, which is finally starting to perceive itself as a global geopolitical reality rather than a normative reality that manages and regulates a European common market. The report suggests that the new Arctic policy

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<sup>99</sup> Stępień, A., Raspotnik, A. (2021) *Continuity with Great Confidence – The European Union’s 2021 Arctic Policy Update*. Report, The Arctic Institute, October 2021, pp. 5-6.

<sup>100</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2021) 27 final, p. 11.

<sup>101</sup> Stępień et. al. (2020), p. 11.

could perhaps become an example or a model for a more confident European Union in international affairs.<sup>102</sup> However, there is still a long way to go.

The EU should adopt a more realist approach to the Arctic. As Tim Marshall argues in his world-famous book *Prisoners of Geography*, “the hunger for energy suggests the race is inevitable” and that there are going to be a lot more ships in the High North, a lot more oil rigs and gas platforms; in fact, a lot more of everything.”<sup>103</sup> However, he pointed out how the geopolitical developments of the Arctic would not resemble the *Scramble for Africa* or other imperialist clashes of the past. He argues how “the Arctic Council is composed of mature countries, most of them democratic to a greater or lesser degree,” and that “international laws regulating territorial disputes, environmental pollution, laws of the sea [...] are in place.” These considerations are true. However, Russia showed the world that they are not playing by rules, and it could be expected that future Russian movements in the Arctic will bypass established international conventions. Moreover, the Arctic region is far less regulated than other realities, such as the Antarctic. These characteristics make the Arctic a perfect scenario for global geopolitical confrontation in a possible free-for-all struggle by world and regional powers to secure routes, resources, and new ways to project their influence abroad. Right now, regarding resources, it is definitely the moment for hydrocarbons and rare earth elements; in the future, it will be the one for other strategic commodities, like water. Finally, the rise of new powers willing to become more involved in the Arctic, like China and India, should not be underestimated, as new partnerships and initiatives could further destabilize the already vulnerable world order. The 2021 EU Joint Communication clarifies through its first words that “the European Union is in the Arctic.”<sup>104</sup> However, to become a genuine geopolitical superpower in the energy field, the Union must be more determined than ever, also in the Arctic region. Achieving both climate-related goals while evolving

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<sup>102</sup> Ibid., p. 16.

<sup>103</sup> Marshall (2015).

<sup>104</sup> European Commission, High Representative of the Union for Foreign Affairs and Security Policy: JOIN (2021) 27 final, p. 1.

into a realist actor ready to participate in the Arctic struggle is challenging. Still, it is the only way to really become autonomous from a strategic point of view.

# Conclusion

The European Union stands at a crossroads: on the one hand, it must pursue its long-standing climate-related and environmental energy policies to become the first world region with net-zero greenhouse gas emissions. On the other hand, it needs to face one of the most fragile energy security frameworks in recent history, testing the Bloc's resilience and unity to their limits. For decades, energy relations with Russia were seen as an intrinsically positive dynamic, allowing the Union to focus on its decarbonization and energy efficiency targets while continuously being supplied through a cheap and secure energy source exploiting a developed and efficient infrastructure system. Political biases and strict economic interests contributed to the deepening of these energy relations. Still, many European policymakers at that time would not realize that they were basically making their countries overdependent on a single and controversial energy provider. Russia, a country that, since the rise to power of Vladimir Putin, has constantly tried to reaffirm itself on the international scene following the humiliation of the collapse of the Soviet Union and that has embraced nationalist views on its role in the XXI century. Inevitably, Russia embarked on an aggressive foreign policy agenda against its neighbors that many have deemed imperialist and revanchist. Moscow has often shown the world that it did not care to play by the international community's rules, willing even to use coercion and violence to achieve its geopolitical interests. These developments put Moscow in a long series of confrontations with Kyiv, guilty of having decided to gradually abandon Russia's influence sphere to move towards a European future. These disputes impacted the broader energy relations between Russia and the EU, leading to energy controversies and cutoffs. That was when European policymakers started to realize the magnitude of the issue. It was already too late, though, since Russia managed to annex Crimea in 2014. There are many reasons why European policymakers failed to deal peacefully with Russia in energy matters. Still, indeed, as Andrey Kazantsev argues, the most crucial one has to do with regulation. In fact, given the failure of instituting a multilateral framework

to regulate energy relations and to avoid direct confrontation with Russia, European countries have tried to resort to bilateral policy networks to settle disputes and pursue their interests with Russia. This led to the establishment informal and often personalized policy networks with Moscow, making this relationship a power-based one where the dynamics of the IR neo-realism theory thrive at their best.

The EU realized its overdependence on Russia. However, while EU countries could not adopt an efficient and regulated international regime with Moscow, they would try to do it *inside* the Union. After the annexation of Crimea, several new initiatives were launched to implement a comprehensive EU energy policy, such as the 2014 *Energy Security Strategy* and the 2015 *Energy Union*. These steps have been fundamental in raising awareness among countries about the importance of energy supply diversification, storage maintenance, infrastructural development, the interconnection between energy grids, and investments in renewable and green energy sources to power the future energy resilience of the Union. However, the long-standing debates on supranationalism and about what the EU can materially do to influence Member States' energy policies, together with the very different (sometimes divergent) energy priorities and interests of the several EU countries, made these initiatives laudable on paper, but hardly practical to end the overdependence on Russia.

On 24 February 2022, everything changed. The Russian invasion of Ukraine exposed the most significant vulnerabilities of the EU in terms of its energy security. However, this major geopolitical development would also present new opportunities and challenges for the Bloc to reiterate its position on the global stage. It is here that the concept of *strategic autonomy* enters the picture: an old but indeed ambitious and coherent policy framework that originated in France during the Cold War that originally referred to the defense sector, but that scholars and policymakers have tried to adapt also to the energy security domain. According to an EU Parliament briefing, the idea of *strategic autonomy* “refers to the capacity of the EU to act autonomously, that is, without being dependent on other

countries, in strategically important policy areas.”<sup>1</sup> Given the intrinsic nature of current global political and economic dynamics, shaped by globalization and interdependency, it is still difficult to determine whether the EU will ever truly become autonomous in the energy sector. After all, even major geopolitical actors like the United States and China are still not wholly energy independent. *Strategic autonomy* realistically refers to the idea of reducing overdependence on specific countries in certain strategic domains and retaining a wide room for maneuvering in determining an actor’s priorities, ambitions, and tools through which to achieve such goals. Arguably, if the EU wants to rebuild its energy security framework and become a prominent geopolitical actor capable of influencing the most significant geopolitical developments, it must pursue the path of *strategic autonomy*. Moreover, choosing this agenda could potentially turn the Bloc from an energy-importing reality into a major energy producer and exporter in the field of what European countries have proved to excel in: renewable energies.

Since the very start of the war in Ukraine, the EU and its Member States have adopted a wide range of policies to depart from overdependence on Russian hydrocarbons while pursuing this *strategic autonomy* path. On the demand side, countries adopted tools to limit natural gas consumption and provided for assistance packages to ensure affordable energy prices for their citizens. On the supply side, several initiatives have been implemented to meet European energy needs. From a geopolitical perspective, the most effective means is the diversification of resources, routes, and partners. Under the REPowerEU Plan, the EU has committed billions of euros to these efforts while ensuring the resilience of storages, the development of interconnectors and energy infrastructures between EU Member States, and promoting investments in energy efficiency, renewables, and international multilateral partnerships. As shown in this dissertation, several options are available in the field of

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<sup>1</sup> Damen, M. (2022)

*EU strategic autonomy 2013-2023 From concept to capacity*. Briefing, European Parliamentary Research Service (EPRS), July 2022.



fossil fuels and green technologies. Both geopolitical dynamics and relations between countries inside the EU will severely influence the EU's ambitions in this domain. Pipeline gas infrastructure is being diversified, and essential supplies are reaching Europe. However, most of the partner countries are proving to be somewhat unreliable and unstable, and their interests could potentially damage the ones of the EU and hamper diversification efforts, and interconnecting domestic infrastructures are still poorly developed, making *energy islands* still existent in the EU to date. LNG is proving to be a key asset in the short term, but environmental concerns and higher costs make it problematic as a long-term option. Solid fossil fuels are experiencing a revival and are contributing to the overall security of supply by limiting natural gas shortages. However, their disproportionate environmental impact is incompatible with the EU's long-term decarbonization ambitions. Renewables are indeed the future of European energy security and can constitute a crucial export product for many EU countries. Electricity production through renewables (especially solar power) has sharply increased in the last few years. Still, the share of renewable energy consumption in the industry, transportation, and commodities sectors is too low to provide for Member States' energy needs. Moreover, geopolitical disputes between the principal actors on rare earth elements and critical raw materials already constitute the most significant limit to a high-renewable scenario. Nuclear power is deemed to be a low-carbon energy source and can help curb current shortages. Still, a mix of non-competitiveness and high costs, together with significant divergencies among Member States on the issue, hamper the possibilities for this energy source to return as a vital pillar of the European energy security architecture. Finally, the Arctic, almost forgotten for a long time, is now becoming one of the main regions of interest for the EU from a geopolitical perspective. However, the current stance on the Arctic is still too narrow and too much focused on environmental issues. While these are certainly crucial, the EU must recognize its vital role in the Arctic region and adopt a more realist view on hydrocarbons and military security, for which cooperation with the major multilateral initiatives and international organizations is essential.

Overall, the future of European energy security relies on a series of calculated decisions and specific opportunities to be exploited. The role of the EU on the international stage has been changing recently, and it is trying to shift from being a supranational regulatory authority (the most developed one in the world, but still a normative power and not a geopolitical actor) to becoming a prominent protagonist of the most crucial dynamics of the international scene. Once and for all, EU Member States must realize that the path to *strategic autonomy* is indeed tricky, but it is the only way through which the Bloc can match the influence of global powers such as China and the United States. EU Institutions have officially endorsed this vision; now, it is on the Member States to decide for their future and, arguably, existence.

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# Summary

Energy security has always been one of the fundamental pillars in the calculus for stability, resilience, and power for every country or community of people in history. Indeed, modern countries need vital resources to achieve substantial economic and political power and influence, other than maintaining their industries and civil, political, and military infrastructures working efficiently to guarantee essential services to the population and society. In short, energy is undoubtedly the core of modern countries' resilience and strength, not only for domestic stability but also for projecting their influence on the international stage. The case of the European Union is unique, being not a country but a Bloc that pursues the political and economic interests of 27 countries throughout Europe, each one of them with its characteristics and differences that make the very ambition of implementing a common, coordinated, and coherent framework of action a challenging task to accomplish. For decades, energy security issues in the EU have been pursued mainly by countries in a unilateral way, leaving little to no space for ambitious multilateral initiatives. This has also been supported by the fundamental principle of subsidiarity and by Article 194 TFEU, which, on the one hand, recognizes the need for the Union to ensure the security of energy supply in the Bloc, but that at the same time acknowledges that "such measures shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply." In light of shortages of hydrocarbons and fossil fuels (especially oil and gas) that contributed to constantly decreasing production outputs in the late 90s to the early 2000s and of new decarbonization commitments, most European countries found the key to their energy security and resilience in one specific partner: the Russian Federation, a gas and oil-rich country that inherited the enormous infrastructures and capabilities of the Soviet Union and that constituted the *perfect* energy partner for resources-poor European countries (especially the ones in eastern Europe). However, as we have witnessed in the last few years, energy relations with Russia have always been unstable, unpredictable, and dependent on the supplier's willingness, leading to market shocks, supply

shortages, and increasing geopolitical competition that were only the precursors to the disaster that would come. This house of cards completely collapsed on 24 February 2022, when Russia decided to actively intervene in the conflict in Ukraine, showing the world that it did not care to play by the international community's rules, willing even to use coercion and violence to achieve its geopolitical interests. The shock provoked by the Russian invasion of Ukraine has led the European Union to finally acknowledge that in order to end its overdependence on Russia and provide for its energy security on its own, it had to pursue the path of *strategic autonomy*: an old but indeed ambitious and coherent policy framework that originated in France during the Cold War that originally referred to the defense sector, but that scholars and policymakers have tried to adapt also to the energy security domain. This concept, formally embraced by French President Emmanuel Macron, EU Council President Charles Michel, and EU Commission President Ursula von der Leyen, realistically refers to the idea of reducing overdependence on specific countries in certain strategic domains and retaining a wide room for maneuvering in determining an actor's priorities, ambitions, and tools through which to achieve such goals. But what has the EU done to achieve *strategic autonomy* in the energy domain? What are the means being implemented? And what are the challenges (and opportunities) ahead?

This thesis explores the current outlook of the European Union's energy security framework, starting from the reasons that led EU countries to depend on Russia for their energy needs, passing through the developments following the annexation of Crimea, and moving on to the recent energy security dynamics in the wake of the invasion of Ukraine. The rationale is to show what has been done to achieve *strategic autonomy* and what needs to be done in the long run from a geopolitical perspective.

The first part of the first chapter analyses the origins of the overdependence of most European countries on Russian energy resources. The second part analyses the initiatives taken by the EU after the Ukraine-Russia energy disputes and the annexation of Crimea. For decades, energy relations with

Russia were seen as an intrinsically positive dynamic, allowing the Union to focus on its decarbonization and energy efficiency targets while continuously being supplied through a cheap and secure energy source exploiting a developed and efficient infrastructure system. While the reasons that brought so many European countries to depend so much on Russia are several, Andrey Kazantsev proposes a very interesting and comprehensive account. According to him, the fundamental issue is the lack of sufficient multilateral regulation of energy deals with Russia, linked to Russia's failed transition to democracy, the rule of law, and a market economy. This lack of regulation made the EU act towards Russian energy not as a *normative* but as a *normal* power, thus implementing a power-based strategy more coherent with the realist perspective in IR. This was exacerbated by the creation of personalized policy networks between European and Russian leaders, which proved detrimental and counterproductive for European interests at large, often by prioritizing national interests instead of communitarian ones, which is evident in the energy sector.

After the annexation of Crimea, the EU started to take a more proactive stance on energy security issues by adopting the *European Energy Security Strategy* (EESS) in 2014. This ambitious initiative focused on strengthening emergency and solidarity mechanisms to protect strategic infrastructure; moderating energy demand; building a well-functioning and fully integrated internal market; increasing energy production in the European Union; further developing energy technologies; diversifying external supplies and related infrastructure; and improving coordination of national energy policies and speaking with one voice in external energy policy. This initiative has been followed by the 2015 *Energy Union Package*, which reprises its fundamental principles and remains coherent with the three long-established objectives of EU energy policy: security of supply, sustainability, and competitiveness. While posing the pillars of supranationalism over energy issues in the EU, these initiatives only managed to mobilize political awareness on the prospects of energy dependence and vulnerability and never actually brought a fundamental change in the broader scope of European interests in the long term. In fact, as of 2021, just before the Russian invasion, the EU

lacked sufficient pipeline interconnectors between countries, leaving many Member States in a state of *energy islands* (like Portugal and Spain). Moreover, most pipeline systems lacked a reverse-flow mode capable of transporting natural gas or oil in multiple directions, and natural gas storage regulations were still inefficiently implemented. European countries' ambitions and interests were still too divergent, leaving little to no space for supranationalism to take the lead. In the meantime, countries like Germany continued to pursue their decarbonization (and often denuclearization) commitments by continuing to cooperate with Russia and launching new strategic infrastructure like the Nord Stream pipeline.

The first part of the second chapter focuses on the initiatives taken by EU countries in the wake of the invasion of Ukraine, describing the tools and mechanisms implemented to face the consequent exacerbation of the energy crisis both on the demand and supply sides. The most important and game-changing initiative has been the REPowerEU Plan, a policy framework based on four fundamental pillars: diversification, energy saving, acceleration of clean energy, and smart investment reforms. The EU has managed to resist the energy crisis and Russia's blackmail by strengthening cross-border cooperation in gas storages, diversifying resources, routes, and partners, and implementing short term solutions such as reopening coal and lignite plants, extending the operations of nuclear power plants (in some cases), and opening new LNG terminals and pipeline infrastructures (such as the Baltic Pipe), considering both the positive outcomes and the shortcomings.

The second part of this chapter focuses specifically on the currently available options for diversification among fossil fuel resources, here too showing the crucial opportunities, the possible drawbacks, and the geopolitical implications. Pipeline gas infrastructure is being diversified, and essential supplies are reaching Europe. However, most of the partner countries are proving to be somewhat unreliable and unstable, and their interests could potentially damage the ones of the EU and hamper diversification efforts, and interconnecting domestic infrastructures are still poorly

developed, making *energy islands* still existent in the EU to date. LNG is proving to be a key asset in the short term, but environmental concerns and higher costs make it problematic as a long-term option. Solid fossil fuels are experiencing a revival and are contributing to the overall security of supply by limiting natural gas shortages. However, their disproportionate environmental impact is incompatible with the EU's long-term decarbonization ambitions. In particular, an extended focus is given to partner countries, especially the most controversial ones like Qatar, Algeria, Azerbaijan, and Turkey. This chapter shows that diversification is indeed the key to *strategic autonomy*, but the road is still very long and devious due to both endogenous and exogenous factors.

The third chapter focuses on long term options to ensure energy security in the EU: renewables, nuclear energy, and a renewed proactive European stance in the Arctic region. Renewables are indeed the future of European energy security and could potentially turn the Bloc from an energy-importing reality into a major energy producer and exporter in the energy domain. While electricity production through renewables (especially solar power) has sharply increased in the last few years, the share of renewable energy consumption in the industry, transportation, and commodities sectors is too low to provide for Member States' energy needs, and new initiatives are needed. Moreover, geopolitical disputes between the principal actors on rare earth elements and critical raw materials already constitute the most significant limit to a high-renewable scenario, which is currently already an unlikely outlook. Moreover, nuclear power is deemed to be a low-carbon energy source and can help curb current shortages, and some scholars and policymakers have been talking of a possible renewal of interest in this energy source. Still, a mix of non-competitiveness and high costs, together with significant divergencies among Member States on the issue, hamper the possibilities for this energy source to return as a vital pillar of the European energy security architecture. Finally, the Arctic, almost forgotten for a long time, is now becoming one of the main regions of interest for the EU from a geopolitical perspective. However, the current stance on the Arctic is still too narrow and too much focused on environmental issues. While these are certainly crucial, the EU must recognize its vital



role in the Arctic region and adopt a more realist view on hydrocarbons and military security, for which cooperation with the major multilateral initiatives and international organizations is essential.

In conclusion, the situation in which the EU finds itself is the most difficult in its history, and the future of its energy security relies on a series of calculated decisions and specific opportunities to be exploited and initiatives to be taken. The path towards strategic autonomy has received formal recognition from European Institutions, and several countries are trying to answer the call. Still, divergences and different ambitions are driving some countries to frame the concept of *strategic autonomy* in a different way, and some instances indicate that some other countries are still prioritizing their interests over communitarian ones. After all, this is the most crucial and delicate issue concerning European governance: is the EU only a supranational regulatory authority, or should it pursue the path to become a prominent geopolitical actor capable of directly competing with the most influential powers such as the United States and China? Answering this question is challenging because these events and dynamics are being shaped at this very moment. It also needs to draw on the very concept of a European Union, about which many countries still have their own views. However, one thing should be clear from this dissertation: the EU has dramatically changed course after the invasion of Ukraine. Formally, the Bloc is trying to demonstrate that, for once, there can be a convergence between countries and institutions on what needs to be done to pursue the road of *strategic autonomy* in the energy sector. Still, to reach this milestone, EU Member States should, once and for all, try to conjugate their specific needs with the ones of the broader community they are part of. This is not just a matter of interests and opportunities but arguably of existence in the longer run.