



## COUNTRY REPORT GERMANY

Frank Labunski

# Energy Without Russia

The Consequences of the Ukraine war and the  
EU Sanctions on the Energy Sector in Europe

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### About the author

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Frank Labunski

# Energy Without Russia: The Case of Germany

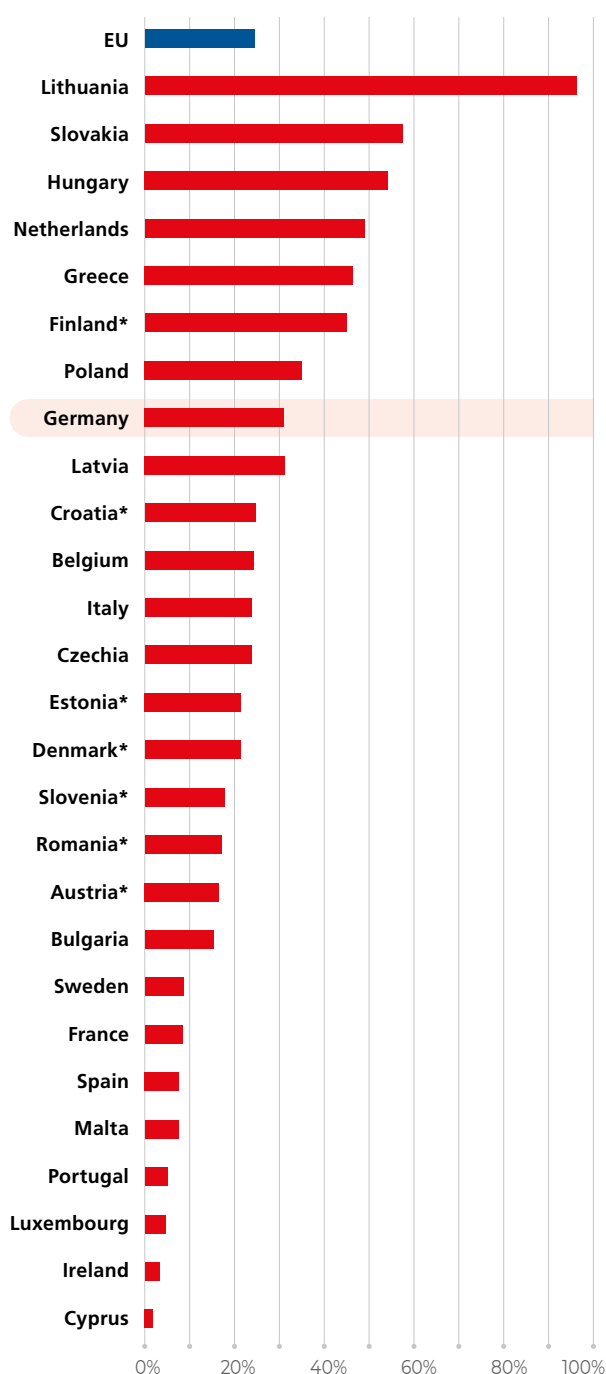
The Consequences of the Ukraine War and the EU Sanctions  
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# INTRODUCTION

In view of the accelerating climate crisis, the Russian invasion of Ukraine highlighted the dependency of fossil fuels on the part of Germany and the European Union (EU). With the priority aim to reduce the import dependency from the Russian Federation while providing energy security and staying on track with climate mitigation efforts, the Federal Government was presented with major challenges. Prior to the war, an approximate 34% of the mineral oil, 53.6% of the natural gas, and 50% of hard coal supplies to Germany originated from Russian sources.<sup>1</sup> As of 2023, however, Germany is independent from Russian energy imports.<sup>2</sup> This paper examines implications of the global energy crisis induced by the invasion on the energy sector in Germany. As a basis for achieving this analysis, a short overview of the energy situation in the country before the war and a demonstration of the provisional conditions is presented. This is followed by an analysis of the main consequences of the war and medium and long-term strategies to reach Germany's climate goals while maintaining energy security. Lastly, foreseeable consequences regarding the European and German climate goals are discussed.

Figure 1  
Imports from Russia in gross available energy, EU, 2020



Source: Eurostat, Including estimates for non-reported data for countries with\*

<sup>1</sup> Buttermann (2022): Energieverbrauch in Deutschland im Jahr 2021, p. 2.

<sup>2</sup> Federal Government (2023): Energieversorgung in Deutschland, URL: <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/energieversorgung-sicherheit-2040098>

## 1

# GERMANY'S ENERGY SITUATION BEFORE FEBRUARY 2022

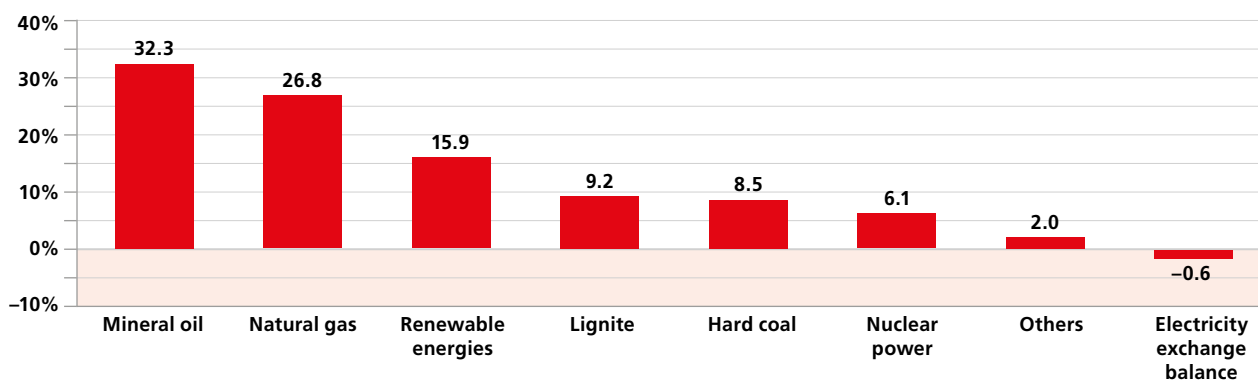
As the largest energy consumer in the EU, Germany holds a distinctive position within the European energy sector. As a basis for examining the implications of the Russian invasion on the energy sector in Germany, an initial demonstration of the provisional conditions is presented. In the year 2021, Germany had a total primary energy consumption of 12.265 PJ. Figure 2 illustrates the distribution of primary energy sources in Germany's energy consumption for the year 2021.

Approximately 69% of Germany's total energy demand in 2021 was met through imports, amounting to an estimated monetary value of €104 billion (without nuclear fuels). Germany's import dependency is particularly pronounced re-

garding hard coal, nuclear energy, mineral oil, and natural gas. 100% of the hard coal and nuclear energy, 95% of mineral oil and 89% of natural gas was imported in 2021.<sup>3</sup> According to the data presented in Figure 3, a substantial portion of Germany's energy imports in 2021 is attributed to Russia. In that year, 34% of the mineral oil, 53.6% of the natural gas, and 50% of hard coal originated from Russian sources. Other important importing countries were Norway, the Netherlands, USA, Australia, and Kazakhstan.

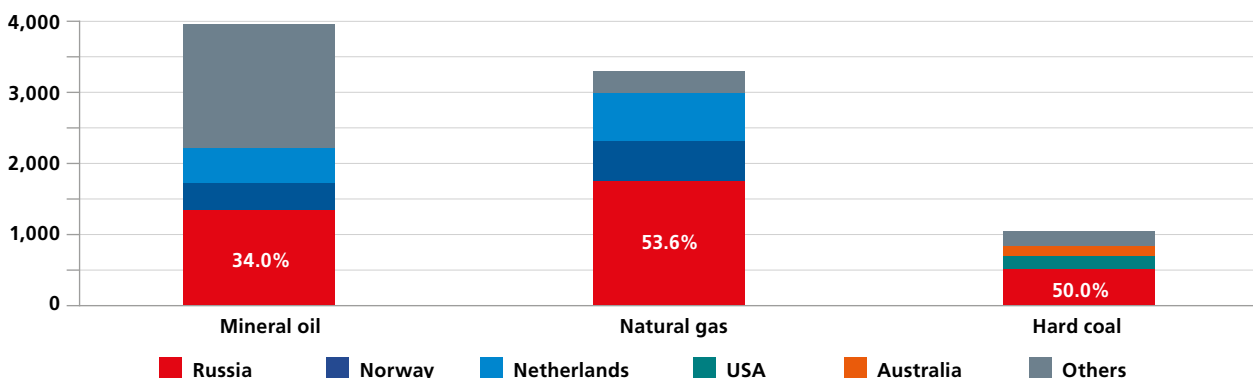
<sup>3</sup> Buttermann (2022): Energieverbrauch in Deutschland im Jahr 2021, p. 2–10.

Figure 2  
Primary Energy Consumption by energy source in Germany (2021)



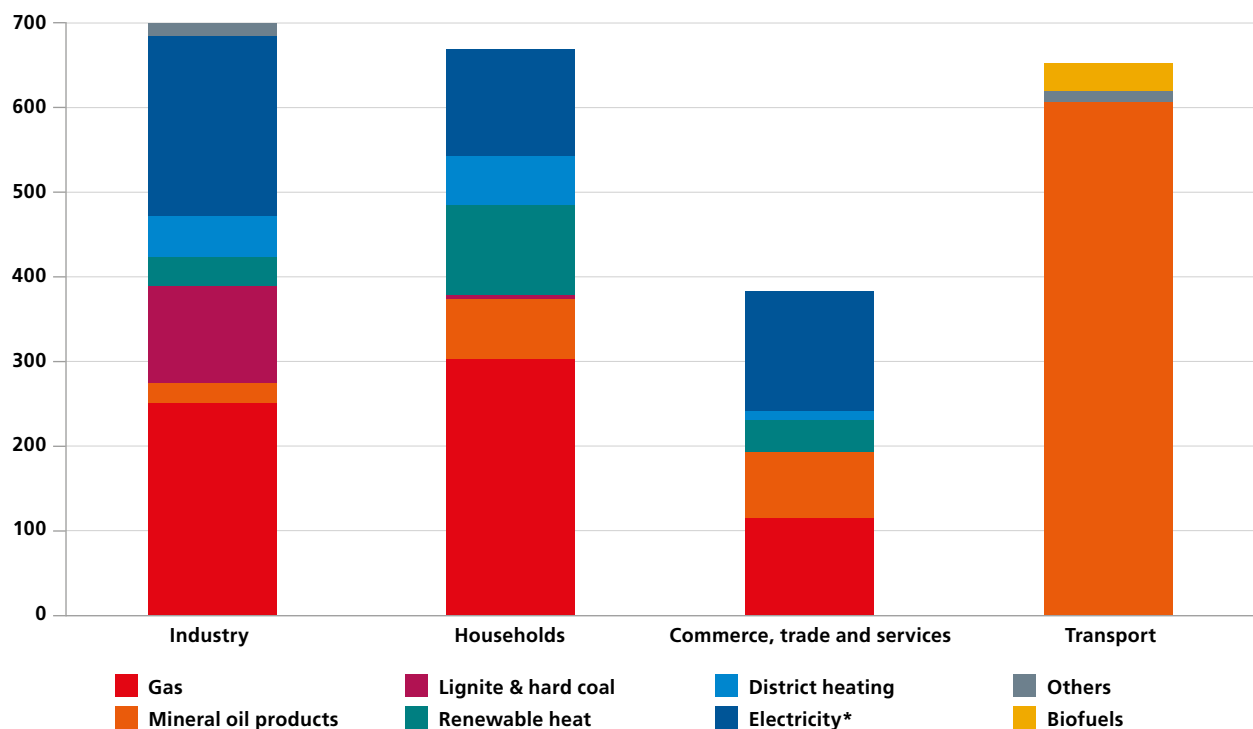
Source: Material compiled by the author on the basis of Buttermann (2022): Energieverbrauch in Deutschland im Jahr 2021, p. 2.

Figure 3  
Import of energy sources by country (2021 in PJ)



Sources: Material compiled by the author on the basis of Buttermann (2022): Energieverbrauch in Deutschland im Jahr 2021, p. 2–10; Wettengel (2023): Germany, EU remain heavily dependent on imported fossil fuels; Luderer et. al. (2022): Deutschland auf dem Weg aus der Gaskrise, p. 4.

Figure 4  
Final Energy Consumption by Sector (2021 in TWh)



\* Including renewable energy

Source: UBA (2023): Energieverbrauch nach Energieträgern und Sektoren,

URL: <https://www.umweltbundesamt.de/daten/energie/energieverbrauch-nach-energetraegern-sektoren#allgemeine-entwicklung-und-einflussfaktoren>

In 2021, 517.7 bn kWh of electricity were fed into the national grid. 57.6% was generated from conventional energy sources (coal 30.2%, nuclear power 12.6%, natural gas 12.6%, others 2.2%) and 42.2% from renewable sources (wind 21.5%, PV 8.7%, biogas 5.8%, hydro power 3.6%, others 2.9%).<sup>4</sup> Upon examining the final energy consumption in Germany, the industrial sector emerges as the largest energy consumer, accounting for 29% of the total. This is followed by private households at 27.7%, the transportation sector at 27.1%, and commerce, trade, and services at 16% (see Figure 4). Within the industry sector, two thirds of the final energy consumption is required for process heat. In private households, space heating accounts for about 70%. Natural gas (approx. 50%) and heating oil (approx. 25%) are the main energy sources. However, renewable heat sources are increasingly used. When comparing the sectors, the commerce, trade, and services sector exhibits the highest proportion of electricity consumption, accounting for 37.4% of its final energy consumption. Additionally, approximately 50% of the sector's energy demand is allocated for space heating purposes. Traditionally, the transport sector relies heavily on mineral oil products (92.5%).<sup>5</sup>

Summarising the energy landscape in 2021, prior to the Russian invasion of Ukraine, Germany significantly relied on energy imports, with Russia emerging as the primary source. In particular the high space heating demand in all sectors and the process heating demand in industry processes were met by fossil fuels originating from Russia. At this point in time, Germany has fostered further gas trading trade relations with Russia, e.g., through the support of infrastructure projects such as Nord stream 2. This project was estimated to increase the import capacity by 55 bcm of natural gas per year.<sup>6</sup>

<sup>4</sup> DeStatis (2022): Stromerzeugung 2021: Anteil konventioneller Energieträger deutlich gestiegen, URL: [https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/03/PD22\\_116\\_43312.html](https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/03/PD22_116_43312.html)

<sup>5</sup> UBA (2023): Energieverbrauch nach Energieträgern und Sektoren, URL: <https://www.umweltbundesamt.de/daten/energie/energieverbrauch-nach-energetraegern-sektoren#allgemeine-entwicklung-und-einflussfaktoren>

<sup>6</sup> EU (2021): The Nord Stream 2 pipeline, Economic, environmental and geopolitical issues, p. 2.

## 2

# AD HOC RESPONSES AFTER FEBRUARY 2022

Germany's substantial reliance on energy imports from Russia, in particular natural gas, caused a huge challenge for the German government when the energy (price) crisis developed. Ensuring energy security despite a drastically reduced import volume from Russia has become a significant concern, given the dependency on Russian energy sources. Additionally, the rapidly escalating prices of natural gas (pipeline and LNG) and gasoline have emerged as a major issue, requiring attention and strategic planning from the government to mitigate the economic impacts and maintain a stable energy supply. Consequently on March 3, 2022 the early warning level<sup>7</sup> and on June 23, 2022 the alert level of the 'Emergency Plan for Gas' were proclaimed.<sup>8</sup> In this chapter, the actions of the Federal government regarding the energy (price) crisis are presented, while the degree of success will be discussed in Chapter 3.

## ACTIONS OF THE FEDERAL GOVERNMENT

### 1. ENERGY SUPPLY

As an immediate response, the federal government initiated gas procurement through the Trading Hub Europe (TBE) starting in March 2022. Based on changes in the 'Gas Storage Law', a legal framework was established to secure a sufficient natural gas storage capacity, with the aim of reaching 90% storage capacity by 1 November 2022. One year earlier, the gas storage capacity was at only 72% on 1 November.<sup>9</sup> Additional loans for the TBE were provided to ensure financial liquidity. In order to reduce gas consumption, coal-fired power plants partly substituted for the electricity generation based on natural gas (see Chapter 3 for details).<sup>10</sup>

Moreover, the federal government provided loans to the trust management Gazprom Germania (GPG), which is active in the business areas of energy trading and natural gas transport and operates gas storage facilities. Therefore, GPG is critical for the German gas infrastructure. Due to the sanctions imposed by Russia against GPG, the insolvency of GPG was likely. To avoid cascade effects on the energy market and to secure the critical energy infrastructure, a loan volume of €9 to 10 billion was provided.<sup>11</sup>

### 2. ENERGY PRICES

Of major concern were the huge energy price spikes in summer 2022 and their implications for the German economy. Therefore, on 8 April 2022 a 'protective shield' for the companies affected by the war was established. In particular, companies that require financial means to cope with the drastically rising gas and electricity prices were provided with financial support and loans. This first of the total of four 'protective shields' had an approximated volume of €7 billion.<sup>12</sup> Starting with the second protective shield, households were supported through individual payments and the temporary reduction of the energy tax, which led to reduced prices of fossil transport fuels. Additionally, a monthly nation-wide public transport ticket for €9 was offered for the same three months in the summer of 2022 as the reduction in fuel taxes.<sup>13</sup> In the light of the rising inflation rate of approximately 8% (Consumer Price Index), the third protective shield was established, with a volume of €65 billion. It included measures focussing on financial relief of households, such as the delay of the planned increase of the CO<sub>2</sub> price by one year (2024) and the temporary reduction of the value added tax on natural gas from 19% to 7%.<sup>14</sup> The latest eco-

<sup>7</sup> BMWK (2022): BMWK announces early warning level of the Emergency Plan for Gas, URL: <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2022/03/20220330-bmwk-announces-early-warning-level-of-the-emergency-plan-for-gas-security-of-supply-still-ensured.html>

<sup>8</sup> BMWK (2022): BMWK ruft Alarmstufe des Notfallplans Gas aus, URL: <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2022/06/20220623-federal-ministry-for-economic-affairs-and-climate-action-announces-alert-level-of-the-emergency-plan-for-gas.html>

<sup>9</sup> Bundesnetzagentur (2023): Speicherfüllstände Gas, URL: [https://www.bundesnetzagentur.de/DE/Gasversorgung/aktuelle\\_gasversorgung/start.html](https://www.bundesnetzagentur.de/DE/Gasversorgung/aktuelle_gasversorgung/start.html)

<sup>10</sup> BMWK (2022): Habeck: „Wir stärken die Vorsorge weiter und ergreifen zusätzliche Maßnahmen für weniger Gasverbrauch, URL“: <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2022/06/20220619-habeck-wir-staerken-die-vorsorge-weiter.html>

<sup>11</sup> BMWK (2022): FAQ-Liste Gazprom Germania.

<sup>12</sup> BMF (2022): Bundesregierung beschließt Schutzschild für vom Krieg betroffene Unternehmen, URL: <https://www.bundesfinanzministerium.de/Content/DE/Pressemitteilungen/Finanzpolitik/2022/04/2022-04-08-schutzschild-fuer-vom-krieg-betroffene-unternehmen.html>; BMWK & BMF: Schutzschild der Bundesregierung für vom Krieg betroffene Unternehmen, p. 1–5.

<sup>13</sup> BMF (2022): Bundesregierung bringt zweites Entlastungspaket auf den Weg, URL: <https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Schlaglichter/Entlastungen/schnelle-spuerbare-entlastungen.html>

<sup>14</sup> BMF (2022): Entlastungspaket 3 – BMF Monatsbericht September 2022, p. 8–11.

nomic protective shield serves to cap the gas, heat, and electricity prices – at 12, 9.5, and 40 Eurocents/kWh for households, respectively, and lower levels for energy-intensive industries; it has a volume of up to €200 billion.<sup>15</sup> However, due to the falling energy prices in 2023, this amount will most likely not be needed. The caps mean that household heating energy is limited to approximately twice the pre-crisis levels, while electricity is capped at around 30% of the increase.

### 3. ENERGY SAVINGS

As the third part of immediate action facing the challenges of the energy crisis, the Federal Cabinet approved two ordinances on energy saving in the short and medium term.<sup>16</sup> The measures in the short term will be discussed in the following while the medium-term measures are part of Chapter 4. Energy-saving measures are recognised as a collective responsibility shared by politics, enterprises, and private consumers as one central element to reduce the import dependency and prevent energy shortage during the winter. For the period of 1 September 2022 until 15 April 2023, measures for energy saving in the building sector were realised.<sup>17</sup> The minimum room temperature of 20°C normally required by the landlords in private rented buildings to prevent mould is no longer binding, which allowed tenants to reduce the room temperature to save energy. In public workspaces the room temperature is not to exceed 19°C, whereas in common spaces where people are not permanently present, heating is banned. Likewise, a heating ban for private swimming pools is in place. Except for safety purposes, buildings, monuments, and advertising spaces must not be illuminated during the night, and if hygiene does not require otherwise, warm water should not be used for the sole purpose of washing hands. Lastly, homeowners are required to optimise their heating systems.<sup>18</sup>

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<sup>15</sup> BMF (2022): Wirtschaftlicher Abwehrschirm und Gaspreisbremse: mit Entschlossenheit durch die Energiekrise, p. 8–11.

<sup>16</sup> Federal Government (2022): Additional energy saving measures approved.

<sup>17</sup> Bundesregierung (2022): EnSikuMaV, p. 1; Federal Government (2023): Maßnahmen zum Energiesparen.

<sup>18</sup> Federal Government (2022): Additional energy saving measures approved; EnSikuMaV, p. 4–28.

## 3

## MAIN CONSEQUENCES OF THE CONFLICT AND SANCTIONS SO FAR

The conflict's repercussions on the German energy market and supply as well as electricity production have wide-ranging implications. Even though Germany managed to ensure energy security for the general public, the initial reduction of pipeline gas imports by Russia to 40% of the previous capacity, followed by import disruptions starting in September 2022, highlighted the extent of Germany's dependency on Russia as a fossil energy supplier.<sup>19</sup> Reducing gas consumption became a major instrument to ensure energy security for the winter. The objective was to achieve a reduction of 20%, surpassing the target of 15% (compared to the average of the last 5 years) set by the EU member states.<sup>20</sup>

As a result of all the measures but also due to a relatively mild winter, Germany was able to avoid a physical gas emergency situation. Gas consumption was in fact reduced by 19.4% (August 2022 to January 2023), and gas storage facilities were still more than 60% filled at the end of the winter.<sup>21</sup> Electricity consumption was also reduced by 1.9% (2022 compared to 2021)<sup>22</sup>. In order to reach this goal, in addition to the measures discussed in chapter 2, a temporary shift in the German energy policy was observed. Fossil fuels (from other than Russian origin) were utilised as a direct substitute for the missing imports. In the light of the legal target to reach carbon neutrality by 2045, the continuous use of fossil fuel would mean a target conflict of ensuring energy security while reaching carbon neutrality. In particular, the Reserve Power Plant Availability Act underwent changes to facilitate electricity production using coal and mineral oil power plants. This modification allowed for the utilisation of coal power plants that were conditionally operational and will be shut down in the medium-term.<sup>23</sup> In total 15 hard-coal power plants with a combined net nominal

power of 5,980 MW and one mineral oil power plant (415 MW) were reactivated. The use of these power plants is temporarily limited until 31 March 2024. Additionally, the operation phase of the three last nuclear power-plants was prolonged until 15 April 2023. Due to the ban on purchasing new nuclear fuel, the nuclear power plants were only used in a 'stretch' operation,<sup>24</sup> and since 15 April 2023 there is no longer any nuclear energy generation in Germany.

The rising prices of gasoline, pipeline gas, and LNG, as well as electricity, have had a significant impact on the German economy, although less than expected as a worst case by experts. From August to November 2022, the number of employees with forced short-time working hours increased from 76,000 to 187,000. The majority of these are employed in the energy-intensive manufacturing industry (151,200).<sup>25</sup>

Despite the implementation of various protective measures, as outlined in Chapter 2, the increasing energy prices have emerged as a dominant factor contributing to inflationary pressures in Germany. In 2022, the overall energy product prices increased by +34.7%. In comparison, the average inflation rate was +7.9%. When excluding the impact of energy prices, the overall estimated inflation rate for the period was predicted to be +4.9%.<sup>26</sup> As of May 2023, the inflation rate was at +6.1%.<sup>27</sup>

Despite the ongoing war and challenges posed by the conflict, Germany managed to ensure energy security for the general public. Nevertheless, a temporary substitution of Russian energy imports, especially of natural gas, required the increased import of pipeline gas from Norway and the Netherlands, and of LNG via Belgium, the Netherlands, and Germany's own first two floating LNG terminals installed in just 8 months at the German North Sea coast, as well as some temporary utilisation of CO<sub>2</sub> intensive coal power

<sup>19</sup> Bundesnetzagentur (2023): Lagebericht Gasversorgung – Stand 29.06.2023, p. 1; BMWK (2022): Weiter niedrige Gasflüsse durch Nord Stream 1, URL: <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2022/07/20220721-bundesministerium-fur-wirtschaft-und-klimaschutz-legt-zusatzliches-energiesicherungspaket-vor.html>

<sup>20</sup> BMWK (2022): Hintergrundpapier: Energieeinspar-Verordnungen zur Senkung des Gas- und Stromverbrauchs, p. 1f.

<sup>21</sup> EC (2023): Commission Staff Working Document SWD (2023) 63 final – Analysis of coordinated demand reduction measures for gas, p. 1–4.

<sup>22</sup> DeStatis (2023): Stromerzeugung 2022: Ein Drittel aus Kohle, ein Viertel aus Windkraft, URL: [https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/03/PD23\\_090\\_43312.html](https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/03/PD23_090_43312.html)

<sup>23</sup> Bundesnetzagentur (2023): Ersatzkraftwerkbereithaltungsgesetz, URL: <https://www.bundesnetzagentur.de/DE/Fachthemen/Elektrizitaetund-Gas/Kohleausstieg/EKBG/start.html>

<sup>24</sup> BASE (2023): Der Atomausstieg in Deutschland, URL: [https://www.base.bund.de/DE/themen/kt/ausstieg-atomkraft/ausstieg\\_node.html#:~:text=Der%20Bundestag%20hat%20am%2011.11,und%20sind%20dann%20abgeschaltet%20worden](https://www.base.bund.de/DE/themen/kt/ausstieg-atomkraft/ausstieg_node.html#:~:text=Der%20Bundestag%20hat%20am%2011.11,und%20sind%20dann%20abgeschaltet%20worden)

<sup>25</sup> Ifo Institut (2022): Energiekrise lässt Kurzarbeit in der Industrie leicht steigen.

<sup>26</sup> DeStatis (2023): Inflationsrate im Jahr 2022 bei + 7,9 %, URL: [https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/01/PD23\\_022\\_611.html](https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/01/PD23_022_611.html)

<sup>27</sup> DeStatis (2023): Inflationsrate im Mai 2023 bei + 6,1 %, URL: [https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/06/PD23\\_224\\_611.html](https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/06/PD23_224_611.html)

plants. The ongoing expansion of renewable energy sources for power generation and energy efficiency in buildings also made some contribution. Furthermore, massive investments and subsidies were necessary to secure the stability of the national economy.

## 4

## MEDIUM- AND LONG-TERM STRATEGIES

Germany is focusing its medium- and long-term strategies on energy efficiency and renewable energy sources. For example, it is implementing further energy saving measures in the building sector. Based on the ordinance on energy saving in the medium term, homeowners are obligated to control and optimise their heating systems, and enterprises are required to perform energy audits and implement energy efficient measures. Combined with the short-term measures discussed in Chapter 2, the monetary value of the energy savings is estimated at €10.8 billion. These medium-term measures started in October 2022 and are valid for two years.<sup>28</sup> In addition to these measures that are part of the crisis reaction, much stronger energy efficiency measures are in the course of being implemented in order to achieve the climate targets in the buildings, industry, and transport sectors, which will also reduce fossil fuel consumption and imports. Space does not allow us to go into detail in this paper. Germany's long-term energy efficiency strategy is now being implemented through an energy efficiency law. The aim is to reach a reduction of final energy consumption of 26.5% by 2030, compared to 2008, and 45% by 2045.

Regarding the expansion of renewable energy, the aim is that by 2030, 80% of the gross electricity consumption should be supplied by renewable energy sources. Therefore, in January 2023 an amendment of the renewable energy law came into effect. Being one of the largest changes in energy legislation in the recent past, it provides the founda-

tion to reach carbon neutrality by 2045.<sup>29</sup> Table 1 shows the planned installed capacity in GW of onshore/offshore wind and PV until 2040.

The import gap of natural gas originating from missing Russian imports is predominantly being substituted by imports from Norway, the Netherlands, and the US. Furthermore, new LNG contracts have been made with Qatar and Senegal.<sup>30</sup> Due to the missing infrastructure of landing terminals for LNG via ships before the war, the construction of Floating Storage and Regasification Unit (FSRU) and land terminals are being realised. Since the beginning of 2023, two public terminals and one private terminal are operating, which led to a current operating capacity of 13.5 bn. m<sup>3</sup> LNG/year. By 2025, the combined capacity of the five public FSRU would reach a capacity of 27 bn m<sup>3</sup> LNG/year in addition to 10 bn m<sup>3</sup> LNG/year by a privately owned FSRU. With the finalisation of three further land terminals by 2027, the

<sup>29</sup> Federal Government (2022): EEG 2023, URL: <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/amendment-of-the-renewables-act-2060448>

<sup>30</sup> European Council (2023): Monatliche Mengen an LNG-Einfuhren aus den USA in die EU; Deutsch-Norwegische Handelskammer (2023): Gas für 58 Mrd.€: Deutschland wir Norwegens wichtigstes Exportland; Federal Government (2023): Energieversorgung in Deutschland, URL: <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/energieversorgung-sicherheit-2040098>; Federal Government (2022): Partnerschaft auf dem afrikanischen Kontinent ausbauen, URL: <https://www.bundesregierung.de/breg-de/suche/bundeskanzler-scholz-in-afrika-2041830>; Deutscher Bundestag: Drucksache 20/3896, Die Energiegeschäfte der Bundesregierung mit dem Emirat Katar, p. 1f.

<sup>28</sup> Federal Government (2022): EnSimiMaV, p. 1–10.

Table 1  
Planned expansion path of renewable electricity (GW)

|               | 2024 | 2026 | 2028 | 2030 | 2035 | 2040 | 2045 |
|---------------|------|------|------|------|------|------|------|
| Onshore Wind  | 69   | 84   | 99   | 115  | 157  | 160  | –    |
| Offshore Wind | –    | –    | –    | 30   | 40   | –    | 70   |
| Photovoltaic  | 88   | 128  | 172  | 215  | 309  | 400  | –    |

Source: Material compiled by the author on the basis of § 4 Renewable Energy Law (2023); Offshore Wind Energy Act §1

import capacity would reach 54 bn. m<sup>3</sup> LNG/year.<sup>31</sup> The licenses for the operation are valid terminated until at latest 31 December 2043.<sup>32</sup> Conservative scenarios estimate the annual demand of natural gas in Germany in 2030 at 74 bn m<sup>3</sup> <sup>33</sup>, while strong action towards climate neutrality may lead to lower demands. Even though the terminals are required to be designed to be ready to switch to importing H<sub>2</sub> and H<sub>2</sub>-derivates, such as ammonia, lock-in effects are likely. An import capacity of 54 bn. m<sup>3</sup> LNG/year would be higher than the pipeline gas imports from Russia. The German government justifies its plans by fears of disruption of pipeline supplies from Norway, and by the need to provide capacities for supplying neighbour countries in Central Europe.

Since June 2022, a 'National Hydrogen Strategy', with the aim to reduce CO<sub>2</sub> emissions in the industry, transport, and energy sector is in place. The H<sub>2</sub> demand in 2030 is estimated at 90–110 TWh. By 2030, the national hydrogen generation capacity should reach 5 GW (14 TWh of green hydrogen).<sup>34</sup> Based on the discrepancy between demand and production capacity, the necessity of hydrogen import arises. One of the major partners will be Canada, but projects are also planned with African or South American countries.<sup>35</sup>

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<sup>31</sup> BMWK (2023): Bericht des Bundeswirtschafts- und Klimaschutzministeriums zu Planungen und Kapazitäten der schwimmenden und festen Flüssigerdgasterminals, p. 1–4; BMWK (2022): FAQ-Liste Schwimmende Flüssigerdgas-Terminals, p. 3–5.

<sup>32</sup> BMWK (2023): Bundeskabinett beschließt Gesetzentwurf zur Änderung des Gesetzes zur Beschleunigung des Einsatzes verflüssigten Erdgases, URL: <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/05/20230517-bundeskabinett-beschliesst-gesetzentwurf.html>

<sup>33</sup> BMWK (2023): Bericht des Bundeswirtschafts- und Klimaschutzministeriums zu Planungen und Kapazitäten der schwimmenden und festen Flüssigerdgasterminals, p. 2.

<sup>34</sup> Federal Government (2020): The National Hydrogen Strategy, p. 1–5.

<sup>35</sup> German and Canadian Government (2022): Gemeinsame Absichtserklärung zwischen der Regierung der Bundesrepublik Deutschland und der Regierung von Kanada über Die Gründung Einer Deutschen-Kanadisch Wasserstoffallianz, p. 1–5.

## 5

## FORESEEABLE CONSEQUENCES WITH REGARD TO EU CLIMATE TARGETS

As part of the European Green Deal, the EU set the target of reaching climate neutrality by 2050.<sup>36</sup> Nevertheless, the war against Ukraine highlighted the dependency of the EU on Russian energy imports. With the RePowerEU plan, an instrument is in place to eliminate this import dependency from Russia by saving energy, producing renewable energy, and diversifying the energy supply. New natural gas sources are secured, e.g., by signing agreements with Egypt and Israel, while strategic partnerships with countries such as Namibia, Kazakhstan and Egypt have been established to secure the import of green hydrogen. By implementing a new storage rule of a 90% storage capacity by 1 November of each year, gas and power shortages shall be avoided. Furthermore, the member states have committed to reducing the energy consumption by 15%, establishing a price ceiling for gas transactions,<sup>37</sup> and investing in renewable energies.<sup>38</sup>

On the one hand, the RePowerEU plan has led to energy savings and renewable energies targets for 2030 in the Energy Efficiency and Renewable Energy Directives that are even higher than the original proposal for climate policy reasons under the Green Deal. This will provide strong synergies between energy security without Russia, and fighting the climate crisis. On the other hand, the 'dash for new fossil gas supplies' that has taken place may create lock-in effects and impede or at least slow down progress in reaching the climate targets.

The same consequences can be stated for the German medium- and long-term policies. While the German climate targets exceed the ambition of the EU, their realisation still provides difficulties. In the transport and building sectors, the national sectoral CO<sub>2</sub> reduction targets were not reached in 2021 and 2022.<sup>39</sup> To mention just a few examples of challenges that policy, industry, and society need to overcome: With the implementation of a national ticket for the public transport system for €49 a month, a first measure to in-

crease the attractiveness of public transport has been adopted, even though the motorised individual transport based on fossil fuels still dominates the sector.<sup>40</sup> Although the government also aims for one third of all cars to be electric by 2030, it is still uncertain as to whether that target will be met. In the buildings sector, the Building Energy Act (GEG) could not be passed before the summer break of the Bundestag in 2023 as planned, and in its final version the required minimum share of 65% renewable energies in any newly installed heating systems will be postponed from January 2024 by several years. Experts also fear that the deletion of the binding sector targets by the revision of the Climate Law could generally reduce the national level of ambition, particularly in the transport and building sectors.<sup>41</sup> In addition, the skilled labour necessary for realising the proclaimed targets is missing. Based on a study by KOFA (2022), 216,252 jobs necessary for the expansion of renewable energies are missing in Germany.<sup>42</sup>

Thus, in attaining the national and European targets, major synergies are possible, but lock-in effects due to the construction of LNG infrastructure in combination with a long license time-frame of import contracts are likely, and target conflicts between energy security and climate goals are foreseeable. Based on a scenario analysis of the global gas market, the US is likely to be the largest natural gas supplier of the EU in 2030.<sup>43</sup> However, simply shifting import dependency from Russia to the US should be avoided for both climate and environment protection as well as energy security reasons. The most effective strategy to reach energy independency and greenhouse gas neutrality at both the national and European levels is to focus on energy efficiency and renewable energies. In this respect, it is highly encouraging

<sup>36</sup> EC (2019): Der europäische Grüne Deal, p. 2.

<sup>37</sup> EC (2023): Infographic - A market mechanism to limit excessive gas price spikes, URL: <https://www.consilium.europa.eu/en/infographics/a-market-mechanism-to-limit-excessive-gas-price-spikes/>

<sup>38</sup> EC (2023): REPowerEU, URL: [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en)

<sup>39</sup> UBA (2023): Treibhausgasminderungsziele Deutschlands; UBA (2023): Klimaschutz im Verkehr, URL: <https://www.umweltbundesamt.de/themen/verkehr/klimaschutz-im-verkehr#undefined>

<sup>40</sup> Deutschlandticket (2023): Das Deutschlandticket ist da!, URL: [https://deutschlandticket.de/?gclid=EAlaIqobChMxZPCp\\_L-wIVCn-KGCh1yJQqPEAAAYiAAEgI8fD\\_BwE](https://deutschlandticket.de/?gclid=EAlaIqobChMxZPCp_L-wIVCn-KGCh1yJQqPEAAAYiAAEgI8fD_BwE), ADAC (2023): Pkw-Neuzulassungen Juni und 1. Halbjahr.

<sup>41</sup> Federal Government (2023): Klimafreundlich Heizen: Neues Gebäudeenergiegesetz, URL: <https://www.bundesregierung.de/breg-de/aktuelles/neues-gebaeudeenergiegesetz-2184942>; Öko Zentrum NRW (2023): Update zum Gebäudeenergiegesetz; Deutscher Bundestag (2023): Entwurf eines Gesetzes zur Änderung des Gebäudeenergiegesetzes, zur Änderung der Heizkostenverordnung und zur Änderung der Kehr und Überprüfungsordnung, p. 1–11.

<sup>42</sup> Kompetenzzentrum Fachkräftesicherung (2022): Energie aus Wind und Sonne, p 4–6.

<sup>43</sup> Cam et. al. (2022), Entwicklungen der globalen Gasmärkte bis 2030 Szenarienbetrachtung eines beschränkten Handels mit Russland, p. 16.

that the response of the EU and Germany to the energy crisis was to raise the ambition of getting rid of fossil fuel dependencies more quickly, and fostering renewables and energy efficiency and savings. In addition, Germany stepped forward to an energy transition strategy that minimised general risk by phasing out nuclear power production.

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