

BAB IV

KESIMPULAN

Maka dapat dilihat pada penelitian di atas bahwa perang Rusia Ukraina yang terjadi pada 24 Februari 2022, berdampak pada stabilitas energi Jerman. Jerman sebagai salah satu negara dengan konsumsi terbesar di Uni Eropa (UE) sangat bergantung pada impor energi Rusia. Dalam memenuhi kebutuhan energi yang besar, fokus utama Jerman adalah memastikan sumber yang aman (tidak kekurangan) melalui transisi energi terbarukan dan impor bahan bakar fosil. Jerman masih sangat bergantung pada impor bahan bakar fosil karena sebagian besar sumber daya dalam negerinya telah habis dan biaya ekstrasinya terlalu mahal. Oleh karena itu, dalam jangka waktu pendek, Jerman bergantung pada sumber energi eksternal. Adapun eksportir utama Jerman dalam bahan bakar fosil adalah Rusia, yang mana 53,6% gas alam, 34% minyak mineral, dan 50% batubara keras. Namun, adanya perang Rusia Ukraina pada tahun 2022, menyebabkan Rusia mengurangi hingga menghentikan pengiriman energi khususnya gas, minyak dan batubara terhadap Jerman. Hal ini akibatnya memunculkan pertanyaan penelitian, **“Bagaimana strategi Jerman dalam mengamankan stabilitas pasokan energi domestiknya akibat dari Perang Rusia-Ukraina 2022-2023?”.** Maka dalam menjawab pertanyaan penelitian tersebut,

peneliti dengan menggunakan teori dan konsep, yaitu konsep stabilitas, neo merkantilisme, *supply chain management* dan *energy security*.

Adapun jawaban penelitiannya, Jerman menjadikan dirinya independen dari impor energi Rusia. Untuk mencapai tujuannya, Jerman memiliki strategi jangka pendek, menengah dan panjang. Pada jangka pendek, Jerman memutuskan untuk menggunakan batubara untuk kebutuhan listriknya. Batubara tersebut didapatkan Jerman melalui pembukaan kembali pembangkit listrik tenaga batubara coklat dan keras, serta mengimpor batubara dari negara alternatif, seperti Kolombia, Amerika Serikat, dan Afrika Selatan. Sedangkan untuk jangka menengah, Jerman tetap menggunakan gas alam sebagai jembatan untuk memenuhi tujuan jangka panjangnya, yaitu transisi energi terbarukan. Gas alam tersebut didapatkan Jerman melalui diversifikasi pasokan impor dari Norwegia, Belgia dan Belanda sebagai pengganti Rusia. Jerman juga meminta masyarakat untuk melakukan efisiensi pada penggunaan energi khususnya gas, serta melakukan revitalisasi pada infrastruktur gas di Jerman.

Pada jangka panjang, Jerman berfokus untuk melakukan transisi energi. Hal ini dapat dilihat dari Jerman yang mulai mengubah kebijakan energi untuk mempercepat perluasan energi terbarukan. Dalam hal ini, Jerman mempercepat produksi energi terbarukan pada sektor ketenagalistrikan. Pertama, Jerman membangun merevitalisasi, dan menyederhanakan izin pembangunan infrastruktur turbin angin darat dan laut. Kedua, mempromosikan pembangunan pembangkit listrik tenaga air dengan berkolaborasi dengan pihak swasta dan negara lain seperti Prancis, dan menyederhanakan izin pembangunan. Ketiga, memperkuat dan mengembangkan

pembangkit listrik tenaga biomassa. Keempat, mempromosikan pembangkit listrik tenaga surya dengan memberikan subsidi dan insentif keuangan untuk rumah maupun bisnis yang memasang panel surya.

Maka sejalan dengan konsep stabilitas, neo merkantilisme, *supply chain management* dan *energy security* yang menjelaskan bahwa banyaknya permintaan energi pada minyak dan gas menjadikan stabilitas pasokan sebagai perhatian utama konsumen. Mengutip pernyataan Bo Heinbäc, bahwa sumber daya merupakan hal penting bagi negara karena mempengaruhi perekonomian negara, sehingga kelangkaan pasokan dapat menjadi tantangan dalam bidang sosial, ekonomi dan militer. Hal ini menimbulkan perasaan tidak aman atau *insecurity* dalam negara. Dengan demikian, memastikan keamanan energi menjadi prioritas negara, yang mana melindungi rantai pasokan energi dan aktor yang terlibat dari ancaman maupun segala risiko. Rantai pasokan dalam industri energi adalah rantai nilai dari hulu hingga hilir terdiri dari tiga segmen utama, yaitu penyedia sebagai pengekspor, konversi energi sebagai perantara untuk mengubah energi primer menjadi produk energi akhir, dan sektor permintaan sebagai konsumen akhir. Berdasarkan konsep tersebut, Jerman harus memastikan pasokan energi dalam jumlah yang cukup (*availability*), memastikan sumber daya energi tersedia dengan harga yang terjangkau (*affordability*), memastikan semua warga negara memiliki akses terhadap energi, termasuk sejauh mana memastikan infrastruktur yang andal tersedia (*accessibility*), dan memastikan bahwa dampak negatif energi pada lingkungan yang diterima oleh konsumen dapat diminimalkan (*acceptability*). Maka untuk memastikan keamanan

energi domestiknya, Jerman setidaknya memiliki keempat konsep, yaitu *availability*, *affordability*, *accessibility*, dan *acceptability*.

DAFTAR PUSTAKA

- “Alegro.” *Amprion Verbindet*. Accessed January 3, 2024. [https://www.amprion.net/Grid-expansion/Our-Projects/ALEGrO/#:~:text=Amprion%20and%20the%20Belgian%20transmission,Electricity%20Grid%20Overlay%20\(ALEGrO\)](https://www.amprion.net/Grid-expansion/Our-Projects/ALEGrO/#:~:text=Amprion%20and%20the%20Belgian%20transmission,Electricity%20Grid%20Overlay%20(ALEGrO)).
- “Amid an Energy Crisis, Germany Turns to the World’s Dirtiest Fossil Fuel.” *NPR*. NPR, September 27, 2022. Last modified September 27, 2022. Accessed January 3, 2024. <https://www.npr.org/2022/09/27/1124448463/germany-coal-energy-crisis>.
- “Auswertungstabellen Zur Energiebilanz Deutschland.” *ARBEITSGEMEINSCHAFT ENERGIEBILANZEN e.V.* Accessed January 3, 2024. https://ag-energiebilanzen.de/wp-content/uploads/2023/10/awt_2022_deutsch.pdf.
- “Belgium Main Supplier of Energy in France and Germany Last Year.” *The Brussels Times*. Accessed January 3, 2024. <https://www.brusselstimes.com/363095/belgium-main-supplier-of-energy-in-france-and-germany-last-year>.
- “Belgium Main Supplier of Energy in France and Germany Last Year.” *The Brussels Times*. Accessed January 3, 2024. <https://www.brusselstimes.com/363095/belgium-main-supplier-of-energy-in-france-and-germany-last-year>.
- “Belgium Natural Gas Security Policy .” *IEA*. Accessed January 3, 2024. <https://www.iea.org/articles/belgium-natural-gas-security-policy>.
- “Biomass.” *Biomass - Agentur Für Erneuerbare Energien*. Accessed January 3, 2024. <https://www.unendlich-viel-energie.de/renewables-in-germany/biomass>.
- “Bundesnetzagentur Publishes Gas Supply Figures for 2022.” *Bundesnetzagentur*. Accessed January 3, 2024. https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230105_RueckblickGas2022.html#:~:text=Gas%20imports%20and%20exports,the%20course%20of%20the%20year.
- “Coal Imports from Colombia Rise as Germany Bolsters Supply Substitutes for Russia.” *Clean Energy Wire*. Last modified September 14, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/coal-imports-colombia-rise-germany-bolsters-supply-substitutes-russia>.

- “Energy Transition – a Project for Generations.” *Facts about Germany*. Accessed January 3, 2024.
[https://www.tatsachen-ueber-deutschland.de/en/climate-and-energy/energy-transition-project-generations#:~:text=Germany%20first%20began%20promoting%20regenerative,Act%20\(EEG\)%20in%202000.](https://www.tatsachen-ueber-deutschland.de/en/climate-and-energy/energy-transition-project-generations#:~:text=Germany%20first%20began%20promoting%20regenerative,Act%20(EEG)%20in%202000.)
- “EU Agrees on Sanctions against Russia: Federal Government.” *Bundesregierung*. Accessed January 3, 2024. <https://www.bundesregierung.de/breg-en/news/eu-sanctions-2008438>.
- “Europipe II Gas Pipeline, Norway.” *Offshore Technology*. Last modified August 3, 2022. Accessed January 3, 2024. <https://www.offshore-technology.com/marketdata/europipe-ii-gas-pipeline-norway/?cf-view>.
- “German 2022 Gas Imports Dropped 12.3%, Norway Helped Replace Russia ...” *Reuters*. Accessed January 3, 2024. <https://www.reuters.com/business/energy/german-2022-gas-imports-dropped-123-norway-helped-replace-russia-regulator-2023-01-06/>.
- “Germany - Energy.” *International Trade Administration | Trade.Gov*. The International Trade Administration, n.d. Accessed January 3, 2024. <https://www.trade.gov/country-commercial-guides/germany-energy>.
- “Germany 2020 – Analysis.” *IEA*. Accessed January 3, 2024. <https://www.iea.org/reports/germany-2020>.
- “Germany Again Resorts to Coal to Avert Winter Power Shortages.” *Balkan Green Energy News*. Last modified October 6, 2023. Accessed January 3, 2024. <https://balkangreenenergynews.com/germany-again-resorts-to-coal-to-avert-winter-power-shortages/>.
- “Germany Examines 1.9GW Lignite Winter 2023-24 Return: Argus Media.” *Commodity & Energy Price Benchmarks*. Last modified August 15, 2023. Accessed January 3, 2024. <https://www.argusmedia.com/en/news/2479617-germany-examines-19gw-lignite-winter-202324-return>.
- “Germany Installed 1.6 GW New Onshore Wind in the First Semester; Rigorously Implements EU Permitting Measures.” *WindEurope*. Last modified July 18, 2023. Accessed January 3, 2024. <https://windeurope.org/newsroom/news/germany-installed-1-6-gw-new-onshore-wind-in-the-first-semester-rigorously-implements-eu-permitting-measures/>.
- “Germany Reactivates Coal-Fired Power Plant to Save Gas – DW – 08/22/2022.” *Dw.Com*. Deutsche Welle, August 22, 2022. Last modified August 22, 2022. Accessed January 3,

2024.
<https://www.dw.com/en/germany-reactivates-coal-fired-power-plant-to-save-gas/a-62893497>.
- “Germany Restarts Coal-Fired Power Generation to Replace 1-2% of Gas-Fired Generation.” *EnergyTrend*. Last modified August 19, 2022. Accessed January 3, 2024. <https://www.energytrend.com/news/20220819-29593.html>.
- “Germany Sees LNG Import Capacity of 37 BCM/Year in 2024: Ministry.” *S&P Global Commodity Insights*. S&P Global Commodity Insights, January 13, 2023. Last modified January 13, 2023. Accessed January 3, 2024. <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/011323-germany-sees-lng-import-capacity-of-37-bcmyear-in-2024-ministry#:~:text=In%202021%2C%20Germany%20received%20%2D%2D,from%20the%20Netherlands%2C%20it%20said>.
- “Germany to Reactivate Coal Power Plants as Russia Curbs Gas Flow.” *The Guardian*. Guardian News and Media, July 8, 2022. Last modified July 8, 2022. Accessed January 3, 2024. <https://www.theguardian.com/world/2022/jul/08/germany-reactivate-coal-power-plants-russia-curbs-gas-flow>.
- “Germany to Use Controversial Biomass amid Energy Crisis.” *Www.Euractiv.Com*. Last modified April 7, 2022. Accessed January 3, 2024. <https://www.euractiv.com/section/agriculture-food/news/germany-to-use-controversial-biomass-amid-energy-crisis/>.
- “Germany, EU Remain Heavily Dependent on Imported Fossil Fuels.” *Clean Energy Wire*. Last modified January 16, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels>.
- “Germany: Coal Imports Increase in 2022 amid Ukraine War – DW – 02/25/2023.” *Dw.Com*. Deutsche Welle, February 26, 2023. Last modified February 26, 2023. Accessed January 3, 2024. <https://www.dw.com/en/germany-coal-imports-increase-in-2022-amid-ukraine-war/a-64818198>.
- “Germany: Cumulative Solar PV Capacity 2022.” *Statista*. Last modified November 10, 2023. Accessed January 3, 2024. <https://www.statista.com/statistics/497448/connected-and-cumulated-photovoltaic-capacity-in-germany/#:~:text=Germany%20had%20a%20cumulative%20solar,solar%20PV%20network%20in%202022>.

- “Germany: How the Gas Sector Changed in the Crisis Year of 2022.” *OSW Centre for Eastern Studies*. Last modified January 25, 2023. Accessed January 3, 2024. <https://www.osw.waw.pl/en/publikacje/osw-commentary/2023-01-12/germany-how-gas-sector-changed-crisis-year-2022>.
- “Germany: Largest Hydropower Plants 2023.” *Statista*. Last modified June 16, 2023. Accessed January 3, 2024. <https://www.statista.com/statistics/1392828/ranking-of-hydropower-plants-by-capacity-germany/#:~:text=Largest%20operating%20hydropower%20facilities%20in%20Germany%202023%2C%20by%20capacity&text=The%20hydropower%20plants%20of%20Goldisthal,2023%2C%20both%20surpassing%20one%20gigawatt>.
- “Hydroelectric Power in Germany: Status and Overview for 2023.” *Home Page - Premel SA*. Accessed January 3, 2024. <https://www.premel.ch/IT/Hydroelectric-Power-In-Germany-Status-and-Overview-for-2023-6760e200>.
- “Non Fossil Fuel Energy Sources Accounted for 21% of U.S. Energy Consumption in 2022.” *Homepage - U.S. Energy Information Administration (EIA)*. Accessed January 3, 2024. <https://www.eia.gov/todayinenergy/detail.php?id=56980>.
- “Number of Solar PV Installations in Germany Hits 3 Million.” *Clean Energy Wire*. Last modified May 30, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/number-solar-pv-installations-germany-hits-3-million>.
- “Onshore vs Offshore Wind Energy: What’s the Difference?” *National Grid Group*. Accessed January 3, 2024. <https://www.nationalgrid.com/stories/energy-explained/onshore-vs-offshore-wind-energy>.
- “Parties to the United Nations Framework Convention on Climate Change.” *United Nations Climate Change*. Accessed January 3, 2024. <https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states>.
- “Q&A: Is Germany Reverting to Coal to Fight the Gas Supply Crunch?” *Clean Energy Wire*. Last modified September 30, 2022. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/qa-germany-reverting-coal-fight-gas-supply-crunch>.
- “Russia Indefinitely Suspends Europe’s Gas Flow – DW – 09/02/2022.” *Dw.Com. Deutsche Welle*, September 3, 2022. Last modified September 3, 2022. Accessed January 3, 2024.

<https://www.dw.com/en/nord-stream-1-russias-gazprom-announces-indefinite-shutdown-of-pipeline/a-63006660>.

“Russia-Ukraine War’s Effects on the Oil and Gas Industry: GEP.” *Contact Us*. Last modified March 18, 2016. Accessed January 3, 2024. <https://www.gep.com/blog/mind/russia-ukraine-wars-effects-oil-and-gas-industry>.

“Russia’s Nord Stream 2 Natural Gas Pipeline to Germany Halted.” *Congressional Research Service*. Last modified March 10, 2022. Accessed January 3, 2024. <https://crsreports.congress.gov/product/pdf/IF/IF11138>.

“Russia’s War on Ukraine – Topics.” *IEA*. Accessed January 3, 2024. <https://www.iea.org/topics/russias-war-on-ukraine>.

“Russia’s War on Ukraine – Topics.” *IEA*. Accessed January 3, 2024. https://www.iea.org/topics/russias-war-on-ukraine?gclid=Cj0KCCQjw8qmhBhClARIsANAtboc1XyHI0kbTAumSdADGjSp41Wy6wOS6RicvzT5RJv14ApqnA2qmqh0aAgu_EALw_wcB.

“Russian Gas in Germany: A 50-Year Relationship – DW – 03/09/2022.” *Dw.Com*. Deutsche Welle, March 15, 2022. Last modified March 15, 2022. Accessed January 3, 2024. <https://www.dw.com/en/russian-gas-in-germany-a-complicated-50-year-relationship/a-61057166>.

“RWE, Germany’s Biggest Power Company, Is Going Green.” *The Economist*. The Economist Newspaper, n.d. Accessed January 3, 2024. https://www.economist.com/business/2022/10/06/rwe-germanys-biggest-power-company-is-going-green?utm_medium=cpc.adword.pd&utm_source=google&ppccampaignID=18151738051&ppcadID=&utm_campaign=a.22brand_pmax&utm_content=conversion.direct-response.anonymous&gad_source=1&gclid=Cj0KCCQiA3uGqBhDdARIsAFeJ5r3zniHPJxJY8zQu6JxkEzAhz5xx1nl5VflWgftDIWdj83j_Tbl2mYaAmJkEALw_wcB&gclsrc=aw.ds.

“Solar Subsidies in Germany.” *Solarstone*. Accessed January 3, 2024. <https://solarstone.com/blog/solar-subsidies-in-germany>.

“Solid Biomass.” *Ifeu gmbH*. Accessed January 3, 2024. <https://www.ifeu.de/en/topics/biomass/bioenergy/solid-biomass/>.

“The German Renewable Energy Sources Act 2023 (EEG 2023) Has Been Passed - a New Framework for Renewable Energy!” *NOW*. Accessed January 3, 2024. <https://cms-lawnow.com/en/ealerts/2022/08/the-german-renewable-energy-sources-act-2023-eeg-2023-has-been-passed-a-new-framework-for-renewable-energy>.

- “The Iron Law of Electricity Strikes Again: Germany Re-Opens Five Lignite-Fired Power Plants.” *Forbes*. Forbes Magazine, October 29, 2022. Last modified October 29, 2022. Accessed January 3, 2024. <https://www.forbes.com/sites/robertbryce/2022/10/28/the-iron-law-of-electricity-strikes-again-germany-re-opens-five-lignite-fired-power-plants/?sh=1abffe123d0c>.
- “The Paris Agreement.” *United Nations Climate Change*. Accessed January 3, 2024. <https://unfccc.int/process-and-meetings/the-paris-agreement>.
- “The Ukraine War’s Effects on US Commodity Prices.” *The FRED® Blog*. Last modified October 26, 2023. Accessed January 3, 2024. <https://fredblog.stlouisfed.org/2023/10/the-ukraine-wars-effects-on-us-commodity-prices/#:~:text=The%20price%20of%20diesel%20and,compared%20with%2085%25%20for%20gasoline>.
- “U.S. Coal Exports Remained Relatively Unchanged between 2021 and 2022.” *Homepage - U.S. Energy Information Administration (EIA)*. Accessed January 3, 2024. <https://www.eia.gov/todayinenergy/detail.php?id=55980#:~:text=U.S.%20coal%20exports%20to%20Germany,rise%20in%20shipments%20to%20Europe>.
- “Ukraine War: A Month-by-Month Timeline of the Conflict so Far.” *Euronews*. Accessed January 3, 2024. <https://www.euronews.com/2023/01/30/ukraine-war-a-month-by-month-timeline-of-the-conflict-in-2022>.
- “War in Ukraine | Global Conflict Tracker.” *Council on Foreign Relations*. Council on Foreign Relations, n.d. Accessed January 3, 2024. <https://www.cfr.org/global-conflict-tracker/conflict/conflict-ukraine>.
- “What Are the Sanctions on Russia and Are They Hurting Its Economy?” *BBC News*. BBC, May 25, 2023. Last modified May 25, 2023. Accessed January 3, 2024. <https://www.bbc.com/news/world-europe-60125659>.
- “Your Website Title.” *Adaro*. Accessed January 3, 2024. https://www.adaro.com/news/read/2122/EU_countries_hunt_for_global_coal_stocks_as_Russian_ban_looms.
- A German Coal Giant’s Unlikely Conversion to Clean Energy*. Accessed January 3, 2024. <https://www.ft.com/content/2488d434-bbd3-4e63-ac88-1e5a2c3967d2>.
- Amaro, Silvia. “Germany, Poland and Others Are Pushing for New Sanctions on Russia’s Nuclear Energy.” *CNBC*. CNBC, April 19, 2023. Last modified April 19, 2023. Accessed January 3, 2024.

<https://www.cnn.com/2023/04/19/germany-poland-and-others-are-pushing-for-new-sanctions-on-russias-nuclear-energy.html>.

Appunn, Kerstine, Sören Amelang, Benjamin Wehrmann, and Julian Wettengel. “Q&A: Is Germany Reverting to Coal to Fight the Gas Supply Crunch?” *Clean Energy Wire*. Last modified September 30, 2022. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/qa-germany-reverting-coal-fight-gas-supply-crunch>.

Arce, Óscar, Gerrit Koester, and Christiane Nickel. “One Year since Russia’s Invasion of Ukraine – the Effects on Euro Area Inflation.” *European Central Bank*. Last modified February 24, 2023. Accessed January 3, 2024. <https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog20230224~3b75362af3.en.html>.

Arce, Óscar, Gerrit Koester, and Christiane Nickel. “One Year since Russia’s Invasion of Ukraine – the Effects on Euro Area Inflation.” *European Central Bank*. Last modified February 24, 2023. Accessed January 3, 2024. <https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog20230224~3b75362af3.en.html>.

Balkan Green Energy News. “Germany Again Resorts to Coal to Avert Winter Power Shortages.” *Balkan Green Energy News*. Last modified October 6, 2023. Accessed January 3, 2024. <https://balkangreenenergynews.com/germany-again-resorts-to-coal-to-avert-winter-power-shortages/>.

Bateman, Jessica, and Benjamin Wehrmann. “Number of Solar PV Installations in Germany Hits 3 Million.” *Clean Energy Wire*. Last modified May 30, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/number-solar-pv-installations-germany-hits-3-million>.

Bilan, Yuriy, Wadim Strielkowski, Rolf Karbach, and Grzegorz Mentel. “SECURE DEVELOPMENT OF COUNTRY AND COMPETITIVENESS ISSUES: CASE OF GERMANY’S ENERGY SECURITY.” *JOURNAL OF SECURITY AND SUSTAINABILITY ISSUES*. Last modified December 20, 2016. Accessed January 3, 2024. https://publikace.k.utb.cz/bitstream/handle/10563/1007095/Fulltext_1007095.pdf?sequence=1&isAllowed=y.

Bryce, Robert. “The Iron Law of Electricity Strikes Again: Germany Re-Opens Five Lignite-Fired Power Plants.” *Forbes*. *Forbes Magazine*, October 29, 2022. Last

- modified October 29, 2022. Accessed January 3, 2024. <https://www.forbes.com/sites/robertbryce/2022/10/28/the-iron-law-of-electricity-strikes-again-germany-re-opens-five-lignite-fired-power-plants/?sh=1abffe123d0c>.
- Carmen. “Europipe I Line I Gas Pipeline, Norway.” *Offshore Technology*. Last modified August 1, 2022. Accessed January 3, 2024. <https://www.offshore-technology.com/marketdata/europipe-i-line-i-gas-pipeline-norway/?cf-view>.
- Cherp, Aleh, and Jessica Jewell. “The Concept of Energy Security: Beyond the Four As.” *Energy Policy* 75 (2014): 415–421.
- Cherp, Aleh. “Energy Independence and Security.” *Energy.Gov*. Accessed January 3, 2024. <https://www.energy.gov/eere/energy-independence-and-security>.
- Coleman, Julie. “Germany Reopens Coal Plants Because of Reduced Russian Energy.” *Forbes*. Forbes Magazine, July 8, 2022. Last modified July 8, 2022. Accessed January 3, 2024. <https://www.forbes.com/sites/juliecoleman/2022/07/08/germany-reopens-coal-plants-because-of-reduced-russian-energy/?sh=74f378b67350>.
- Country Report Germany - Library.Fes.De*. Accessed January 3, 2024. <https://library.fes.de/pdf-files/bueros/budapest/20518-20230828.pdf>.
- Dahm, Julia. “Germany to Use Controversial Biomass amid Energy Crisis.” *Www.Euractiv.Com*. Last modified April 7, 2022. Accessed January 3, 2024. <https://www.euractiv.com/section/agriculture-food/news/germany-to-use-controversial-biomass-amid-energy-crisis/>.
- Defining the Concept of Supply Chain Management and Its ... - Econstor*. Accessed January 3, 2024. <https://www.econstor.eu/bitstream/10419/168777/1/aej-v15-i33-p074.pdf>.
- Delfs/bloomberg, Arne. “Germany to Bring Back Coal Power Plants If Russia Cuts Gas.” *Time*. Time, May 24, 2022. Last modified May 24, 2022. Accessed January 3, 2024. <https://time.com/6180579/germany-coal-power-russia/>.
- Deutsche Welle. “Germany: Coal Imports Increase in 2022 amid Ukraine War – DW – 02/25/2023.” *Dw.Com*. Deutsche Welle, February 26, 2023. Last modified February 26, 2023. Accessed January 3, 2024. <https://www.dw.com/en/germany-coal-imports-increase-in-2022-amid-ukraine-war/a-64818198>.
- Dutch Expect to Sustain Gas Exports to Germany If Russia Cuts Flows ...* Accessed January 3, 2024.

<https://www.reuters.com/business/energy/dutch-expect-sustain-gas-exports-germany-if-russia-cuts-flows-2022-07-14/>.

Elliott, Stuart. "Germany Sees LNG Import Capacity of 37 BCM/Year in 2024: Ministry." *S&P Global Commodity Insights*. S&P Global Commodity Insights, January 13, 2023. Last modified January 13, 2023. Accessed January 3, 2024. <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/011323-germany-sees-lng-import-capacity-of-37-bcmyear-in-2024-ministry#:~:text=In%202021%2C%20Germany%20received%20%2D%2D,from%20the%20Netherlands%2C%20it%20said.>

Energy Resources in Foreign Policy: A Theoretical Approach. Accessed January 3, 2024. https://www.researchgate.net/publication/271052236_Energy_Resources_in_Foreign_Policy_A_Theoretical_Approach.

Europe Imports More South African Coal as Russian Ban Looms. Accessed January 3, 2024. <https://www.reuters.com/markets/commodities/europe-imports-more-south-african-coal-russian-ban-looms-2022-06-15/>.

Exclusive Norway Eyes High Gas Output until 2030, Says Energy Minister ... Accessed January 3, 2024. <https://www.reuters.com/business/energy/exclusive-norway-eyes-high-gas-output-until-2030-says-energy-minister-2022-08-23/>.

Explainer: Where Does Germany Stand on Gas Supply? | Reuters. Accessed January 3, 2024. <https://www.reuters.com/business/energy/where-does-germany-stand-gas-supply-2023-01-20/>.

Gaal, Wester van. "Germany Begins Dismantling Wind Farm for Coal." *EUobserver*. EUobserver, August 29, 2023. Last modified August 29, 2023. Accessed January 3, 2024. <https://euobserver.com/green-economy/157364>.

GASSCO. Accessed January 3, 2024. <https://www.osti.gov/etdweb/servlets/purl/950615>.

Gayet, Anne-Sophie, and Nikolaus J. Kurmayer. "Germany's Scholz Woos Key Gas Supplier in Belgium." *Www.Euractiv.Com*. Last modified February 14, 2023. Accessed January 3, 2024. <https://www.euractiv.com/section/politics/news/germanys-scholz-woos-key-gas-supplier-in-belgium/>.

German Coal Imports Rose 8% in 2022, Russia Sold 37% Less - Data. Accessed January 3, 2024.

<https://www.reuters.com/markets/commodities/german-coal-imports-rose-8-2022-russia-sold-37-less-data-2023-02-27/>.

German Hard Coal Importers Able to Replace Russian Supply -Industry ... Accessed January 3, 2024.
<https://www.reuters.com/markets/commodities/german-hard-coal-importers-able-replace-russian-supply-industry-body-2023-01-13/>.

Germany - Energy. Accessed January 3, 2024.
https://energy.ec.europa.eu/system/files/2019-06/necp_factsheet_de_final_0.pdf.

Germany Approves Bringing Coal-Fired Power Plants Back Online This ... Accessed January 3, 2024.
<https://www.reuters.com/business/energy/germany-approves-bringing-coal-fired-power-plants-back-online-this-winter-2023-10-04/>.

Germany's Coal Revival May Threaten Its Climate Goals - The Washington Post. Accessed January 3, 2024.
<https://www.washingtonpost.com/world/2022/08/01/germany-coal-energy-climate/>.

Germany's Gas Imports Fall 17.9% in Year 2023 to August, Bdeu Says. Accessed January 3, 2024.
<https://www.reuters.com/business/energy/germanys-gas-imports-fall-179-year-2023-august-bdeu-2023-08-31/>.

Giunipero, Larry C., and Diane L. Denslow. "Chapter 1: The Evolution of Supply Chain Literature: Key Theories, Concepts and Categorisations." *Elgar Online: The Online Content Platform for Edward Elgar Publishing*. Edward Elgar Publishing, October 18, 2022. Last modified October 18, 2022. Accessed January 3, 2024.
<https://www.elgaronline.com/edcollchap/book/9781788975865/book-part-9781788975865-8.xml>.

Global Impact of War in Ukraine on Food, Energy and Finance ... - UN News. Accessed January 3, 2024.
<https://news.un.org/pages/wp-content/uploads/2022/04/UN-GCRG-Brief-1.pdf>.

Hayes, Mike, Amy Woodyatt, George Ramsay, Ed Upright, and Maureen Chowdhury. "March 7, 2022 Russia-Ukraine News." *CNN*. Cable News Network, March 8, 2022. Last modified March 8, 2022. Accessed January 3, 2024.
https://edition.cnn.com/europe/live-news/ukraine-russia-putin-news-03-07-22#h_9e97b79f0f72b265bb9d09a2f519bbf6.

Henry Hub Natural Gas Spot Price (Dollars per Million Btu). Accessed January 3, 2024.
<https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>.

- Indriyanto, Asclepias R.S., Bobby A. T. Wattimena, Hakimul Batih, Indra Sari, and Triandi. “ENERGY SECURITY AND SUSTAINABLE DEVELOPMENT.” *ENERGY SECURITY AND SUSTAINABLE DEVELOPMENT*. Accessed January 3, 2024. <https://iiee.or.id/wp-content/uploads/2015/07/ESSD-Energy-Security-and-Sustainable-Development.pdf>.
- Jääskeläinen, Jaakko, Sakari Höysniemi, Sanna Syri, and Veli-Pekka Tynkkynen. “Finland’s Dependence on Russian Energy—Mutually Beneficial Trade Relations or an Energy Security Threat?” *Sustainability* 10, no. 10 (2018): 3445.
- Kgi-Admin. “Power Plant Profile: Niederaussem Power Plant, Germany.” *Power Technology*. Last modified July 30, 2023. Accessed January 3, 2024. <https://www.power-technology.com/data-insights/power-plant-profile-niederaussem-power-plant-germany/?cf-view>.
- Kinkartz, Sabine. “Germany’s Energy U-Turn: Coal Instead of Gas – DW – 08/04/2022.” *Dw.Com*. Deutsche Welle, August 6, 2022. Last modified August 6, 2022. Accessed January 3, 2024. <https://www.dw.com/en/germanys-energy-u-turn-coal-instead-of-gas/a-62709160>.
- Kislitsyna, Julia. “Germany on Track to Exit Coal.” *E3G*. Last modified June 13, 2023. Accessed January 3, 2024. <https://www.e3g.org/news/germany-on-track-to-exit-coal/>.
- Kyllmann, Carolina, Edgar Meza, Sören Amelang, and Kerstine Appunn. “Germany’s Biomass Strategy to Focus on Sustainable Use and Climate Protection.” *Clean Energy Wire*. Last modified October 6, 2022. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/germanys-biomass-strategy-focus-sustainable-use-and-climate-protection>.
- Le Monde. “Despite Climate Commitments, the EU Is Going Back to Coal.” *Le Monde.Fr*. Le Monde, September 2, 2022. Last modified September 2, 2022. Accessed January 3, 2024. https://www.lemonde.fr/en/economy/article/2022/09/02/despite-climate-commitments-the-eu-is-going-back-to-coal_5995594_19.html.
- McHUGH, DAVID. “Germany Went from Envy of the World to the Worst-Performing Major Developed Economy. What Happened?” *AP News*. AP News, September 19, 2023. Last modified September 19, 2023. Accessed January 3, 2024. <https://apnews.com/article/germany-economy-energy-crisis-russia-8a00eebbfab3f20c5c66b1cd85ae84ed>.
- Murray, Cameron. “Germany: EnBW to Start Construction on Pumped Hydro Plant in 2023.” *Energy*. Last modified May 22, 2023. Accessed January 3, 2024.

<https://www.energy-storage.news/germany-enbw-to-start-construction-on-pumped-hydro-plant-in-2023/>.

Novikau, Aliaksandr. “Conceptualizing and Achieving Energy Security: The Case of Belarus.” *Energy Strategy Reviews* 26 (2019): 100408.

OROZCO, Juan, and Pascale MARIANI. “German MP Says Colombian Open-Pit Mine Hurts Local Environment amid Berlin’s Plans to Buy Coal.” *France 24*. FRANCE 24, August 1, 2022. Last modified August 1, 2022. Accessed January 3, 2024. <https://www.france24.com/en/americas/20220801-german-mp-says-colombian-open-pit-mine-hurts-local-environment-amid-berlin-s-plans-to-buy-coal>.

PANZA, Alessandro. “Parliamentary Question: Germany’s Push for Coal-Fired Power Stations: Failure of a European Green Deal Paid for by Citizens: E-000165/2023: European Parliament.” *E*. Accessed January 3, 2024. https://www.europarl.europa.eu/doceo/document/E-9-2023-000165_EN.html.

Pearce, Rosamund. “Timeline: The Past, Present and Future of Germany’s Energiewende.” *Carbon Brief*. Last modified September 28, 2016. Accessed January 3, 2024. <https://www.carbonbrief.org/timeline-past-present-future-germany-energiewende/>.

Petkova, Mirela. “Weekly Data: Norway Is Now Germany’s Top Gas Supplier.” *Energy Monitor*. Last modified January 30, 2023. Accessed January 3, 2024. <https://www.energymonitor.ai/policy/norway-becomes-germanys-top-gas-supplier/?cf-view>.

Petkova, Mirela. “Weekly Data: Norway Is Now Germany’s Top Gas Supplier.” *Energy Monitor*. Last modified January 30, 2023. Accessed January 3, 2024. <https://www.energymonitor.ai/policy/norway-becomes-germanys-top-gas-supplier/>.

Pfeifer, Sylvia. “German Chemicals Giant Stockpiles Coal to Keep Producing.” *Financial Times*. Financial Times, November 10, 2022. Last modified November 10, 2022. Accessed January 3, 2024. <https://www.ft.com/content/deb32ffc-05d2-4171-8569-cb9b9ee93300>.

Pieper, Oliver. “Germany’s Dirty Colombian Coal – DW – 05/26/2022.” *Dw.Com*. Deutsche Welle, May 26, 2022. Last modified May 26, 2022. Accessed January 3, 2024. <https://www.dw.com/en/germanys-dirty-colombian-coal/a-61935515>.

Pladson, Kristie. “Germany’s Wind Sector Is Growing - but Not Fast Enough – DW – 07/19/2023.” *Dw.Com*. Deutsche Welle, July 20, 2023. Last modified July 20, 2023. Accessed January 3, 2024. <https://www.dw.com/en/germanys-wind-sector-is-growing-but-not-fast-enough/a-66275564>.

PricewaterhouseCoopers. “Energy Industry and Covid-19 (Coronavirus): Strategising for the ‘New Normal.’” *PwC*. Accessed January 3, 2024. <https://www.pwc.com/gx/en/issues/crisis-solutions/covid-19/energy-utilities-resources-coronavirus.html#:~:text=As%20well%20as%20affecting%20countless,are%20grounded%20and%20movement%20restricted.>

Proctor, Darrell. “U.S. Coal Plant Closures Continue, While China Rapidly Builds More.” *POWER Magazine*. Last modified November 8, 2022. Accessed January 3, 2024. <https://www.powermag.com/u-s-coal-plant-closures-continue-while-china-rapidly-builds-more/>.

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Publisher. “Bundesnetzagentur Publishes Gas Supply Figures for 2022.” *Bundesnetzagentur*. Accessed January 3, 2024. https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230105_RueckblickGas2022.html.

Radowitz, Bernd. “Booming Solar Powers Germany to Record-Breaking Green Growth so Far This Year.” *Recharge*. Last modified July 10, 2023. Accessed January 3, 2024. <https://www.rechargenews.com/energy-transition/booming-solar-powers-germany-to-record-breaking-green-growth-so-far-this-year/2-1-1483773>.

Rodríguez-Fernández, Laura, Ana Belén Fernández Carvajal, and Luis Manuel Ruiz-Gómez. “Evolution of European Union’s Energy Security in Gas Supply during Russia–Ukraine Gas Crises (2006–2009).” *Energy Strategy Reviews* 30 (2020).

Rwe. “RWE Lignite Units Temporarily Return to Electricity Market to Strengthen Security of Supply and Save Gas in Power Generation.” *RWE*. Last modified January 1, 2024. Accessed January 3, 2024. <https://www.rwe.com/en/press/rwe-power/2022-09-29-rwe-lignite-units-temporarily-return-to-electricity-market-to-strengthen-security/>.

Schiffer, Hans-Wilhelm. “Germany’s Energy Supply.” *Zeitschrift für Energiewirtschaft* 41, no. 2 (2017): 75–85.

- Schmitz, Rob. “Amid an Energy Crisis, Germany Turns to the World’s Dirtiest Fossil Fuel.” *NPR*. NPR, September 27, 2022. Last modified September 27, 2022. Accessed January 3, 2024. <https://www.npr.org/2022/09/27/1124448463/germany-coal-energy-crisis>.
- Schmitz, Rob. “Amid an Energy Crisis, Germany Turns to the World’s Dirtiest Fossil Fuel.” *NPR*. NPR, September 27, 2022. Last modified September 27, 2022. Accessed January 3, 2024. <https://www.npr.org/2022/09/27/1124448463/germany-coal-energy-crisis>.
- Shaping Together a Bright Energy Future*. Accessed January 3, 2024. <https://www.fluxys.com/en/about-us/zeebrugge-Ing>.
- Snyder, Lawrence V. *Fundamentals of Supply Chain Theory*. Wiley, n.d. Accessed January 3, 2024. ISBN 9781119024972 (ePub).
- South African Coal Exports to Europe Surge, Shipments to Asia Decline ...* Accessed January 3, 2024. <https://www.reuters.com/world/africa/safrican-coal-exports-europe-surge-shipments-as-ia-decline-2022-08-15/>.
- Status of Onshore Wind Energy Development in Germany Year 2022*. Accessed January 3, 2024. https://www.wind-energie.de/fileadmin/redaktion/dokumente/dokumente-englisch/statistics/Status_of_Onshore_Wind_Energy_Development_in_Germany_Year_2022.pdf.
- Stefanov, Ruslan, Martin Vladimirov, and Marius Köppen. “Phasing out Russian Economic Influence in Germany.” *Center For The Study of Democracy*.
- Strojny, Jacek, Anna Krakowiak-Bal, Jarosław Knaga, and Piotr Kacorzyk. “Energy Security: A Conceptual Overview.” *MDPI*. Multidisciplinary Digital Publishing Institute, June 29, 2023. Last modified June 29, 2023. Accessed January 3, 2024. <https://www.mdpi.com/1996-1073/16/13/5042#B14-energies-16-05042>.
- Sullivan, Arthur. “Russian Gas in Germany: A 50-Year Relationship – DW – 03/09/2022.” *Dw.Com*. Deutsche Welle, March 15, 2022. Last modified March 15, 2022. Accessed January 3, 2024. <https://www.dw.com/en/russian-gas-in-germany-a-complicated-50-year-relationship/a-61057166>.
- Survey of All the Areas, Fields and Installations on the Norwegian ...* Accessed January 3, 2024. https://www.norskolje.museum.no/wp-content/uploads/2016/02/3467_5d1078cee8a64731bc1cf2bb04005f0e.pdf.

- Tang, Andreas. "Germany Installed 1.6 GW New Onshore Wind in the First Semester; Rigorously Implements EU Permitting Measures." *WindEurope*. Last modified July 18, 2023. Accessed January 3, 2024. <https://windeurope.org/newsroom/news/germany-installed-1-6-gw-new-onshore-wind-in-the-first-semester-rigorously-implements-eu-permitting-measures/>.
- Taylor Kuykendall, Anna Duquiatan. "US Coal Exports up 2.8% Yoy in Q2 2023." *S&P Global Homepage*. Last modified August 24, 2023. Accessed January 3, 2024. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-coal-exports-up-2-8-yoy-in-q2-2023-77212841>.
- Text Malte Humpert. "Norway Supplied Almost Half of German Natural Gas Imports during First Nine Months of 2023." *High North News*. Last modified October 4, 2023. Accessed January 3, 2024. <https://www.highnorthnews.com/en/norway-supplied-almost-half-german-natural-gas-imports-during-first-nine-months-2023>.
- Thomas, Eve. "Signal: Germany's Solar Plans Are Powering up, Energising the Job Market." *Energy Monitor*. Last modified August 29, 2023. Accessed January 3, 2024. <https://www.energymonitor.ai/news/signal-germanys-solar-plans-are-powering-up-energising-the-job-market/>.
- US Thermal Coal Exports Jump to 5-Year Highs on Asian Demand: Maguire*. Accessed January 3, 2024. <https://www.reuters.com/business/energy/us-thermal-coal-exports-jump-5-year-highs-asian-demand-maguire-2023-09-25/>.
- van der Vorst, Jack G.A.J. *Supply Chain Management: Theory and Practices*. <https://edepot.wur.nl/357992>.
- Waldholz, Rachel, Benjamin Wehrmann, and Julian Wettengel. "Ukraine War Pushes Germany to Build LNG Terminals." *Clean Energy Wire*. Last modified May 11, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/factsheets/liquefied-gas-does-lng-have-place-germanys-energy-future>.
- Walker, Nigel. "Conflict in Ukraine: A Timeline (2014 – Eve of 2022 Invasion)." *UK Parliament*. Last modified August 22, 2023. Accessed January 3, 2024. <https://commonslibrary.parliament.uk/research-briefings/cbp-9476/>.
- War in Ukraine: Tracking the Impacts on German Energy and Climate Policy*. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/ukraine-war-tracking-impacts-german-energy-and-climate-policy>.

- Wehrmann, Benjamin, and Julian Wettengel. “German Solar Power Capacity in 2022 Sees Fast Growth, Still Well below Target.” *Clean Energy Wire*. Last modified February 3, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/news/german-solar-power-capacity-2022-sees-fast-growth-still-well-below-target#:~:text=By%20the%20end%20of%202022,power%20production%20in%20the%20country>.
- Wehrmann, Benjamin, Sören Amelang, Carolina Kyllmann, and Julian Wettengel. “German Onshore Wind Power – Output, Business and Perspectives.” *Clean Energy Wire*. Last modified February 13, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/factsheets/german-onshore-wind-power-output-business-and-perspectives>.
- Wettengel, Julian, Rachel Waldholz, and Benjamin Wehrmann. “Germany, EU Remain Heavily Dependent on Imported Fossil Fuels.” *Clean Energy Wire*. Last modified January 16, 2023. Accessed January 3, 2024. <https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels#four>.
- Wettengel, Julian. “Lignite Plants Allowed Back in Germany to Cover for Gas, but 2030 Coal Phase-out Remains.” *RenewEconomy*. Last modified October 6, 2023. Accessed January 3, 2024. <https://reneweconomy.com.au/lignite-plants-allowed-back-in-germany-to-cover-for-gas-but-2030-coal-phase-out-remains/>.
- Wilkenfeld, Yoni. “Risks and Requirements for German Gas and Energy Policy.” *GIS Reports*. Last modified September 11, 2022. Accessed January 3, 2024. <https://www.gisreportsonline.com/r/german-gas-policy/>.
- Wolff, Guntram. “Gas and Energy Security in Germany and Central and Eastern Europe.” *DGAP*. Last modified November 14, 2023. Accessed January 3, 2024. <https://dgap.org/en/research/publications/gas-and-energy-security-germany-and-central-and-eastern-europe-0>.