

Essay Question: Explain the economics behind Europe's dependence on Russian Energy.

How can policymakers reduce the impact of the transition away from these sources of energy?

Oil and gas are energy resources occurring in nature and are stored in underground reservoirs spread over thousands of acres. Subsequent to exploration and exploitation operations, the oil and gas products can be transported across states and continents via ship tankers, railways, trucks and pipelines (Mu, 2020). The United States, Russian Federation and OPEC¹ nations are some of the major oil producing countries in the world. The unparalleled economic advances of the 20th and 21st century can be well attributed to petroleum and gas, as their industrial production grew by around 50 times during the last century and where the contribution to the world energy consumption has averaged around 40 per cent (Rahman, 2004).

The Recent Gas Crisis

Most of the oil and gas consumption is concentrated in the OECD² countries and emerging economies, such as China and India, where energy consumption has been on a consistent increase. The current Russia-Ukraine war and the political fallout have translated into a full blown gas crisis over Europe. Currently, the partial shutoff of gas deliveries is adversely affecting economic growth in Europe, whereas a full shutdown has the potential to cause a serious setback for trade,

¹ Organization of Petroleum Exporting Countries (OPEC) has 13 member nations including the Middle-East, some African and Latin American nations

² Organization for Economic Cooperation and Development (OECD) is an intergovernmental organization having 38 member nations, founded in 1961 to encourage economic development and trade.

investment, and financial linkages with the warring countries (Flanagan et al, 2022). Since Europe's dependence on Russian gas is substantial, fears of gas shortages or total shutoff leading to high prices and related economic concerns have been burdening the European policymakers.

Russian Gas Economic Impact: Germany and Europe

Russia exports a significant volume to buyers in Europe (2.4 million bpd), though China is the largest importer of Russian crude (1.6 million bpd). Russia produces many different types of crude oil, but its main export blend is Urals, which is a medium sour crude type; other grades include Siberian light, Sokol, Sakhalin blend, Arctic oil and Novy Port (IEA, 2022).

In fact, cheap Russian gas that used to be a source of competitive advantage for Germany and Europe is no more readily available. Germany has been among the most hit European countries as the soaring gas prices have increased import and operations costs for its energy intensive industries, leading to trade deficit for the first time in more than 30 years; even Euro is at parity with the US Dollar for the first time (Stelzenmüller, 2022). Further, rate of inflation has been on rise and there are fears of an impending recession. Figure-1 aptly sums up the current situation in Europe, where gas shut-offs or shortages and increasing energy prices shift the supply curve to the left, thus leading to decrease in demand and reduced output or gross domestic product (GDP).

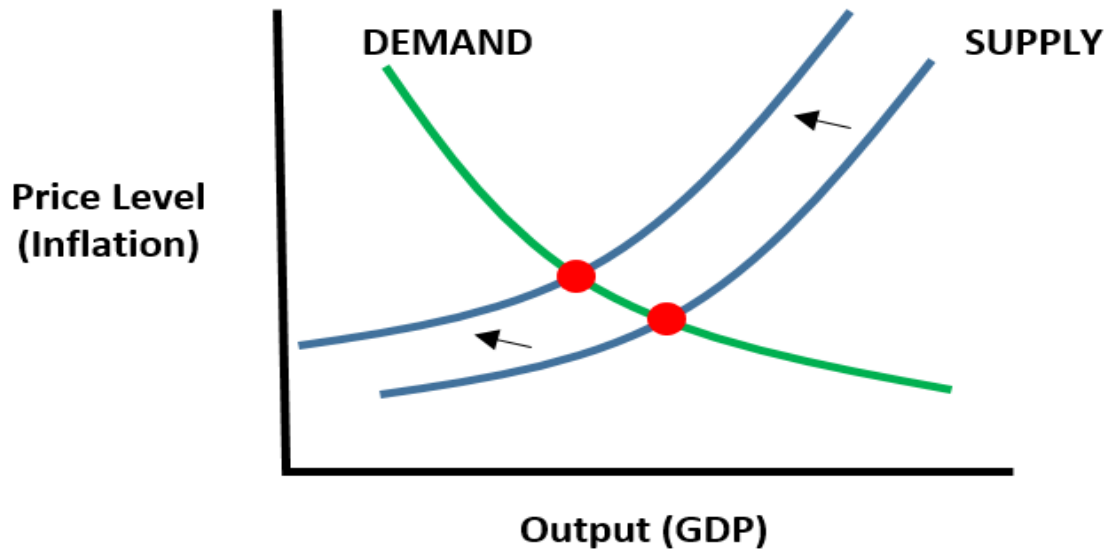


Figure-1: Inflation as a result of supply shortages

(Source: <https://seekingalpha.com/article/4488384-cost-push-inflation>)

More than 90% of the gas consumed in the euro area is imported, whereas renewable energy and nuclear energy are predominantly domestically produced (Figure-2). The import dependence of Euro area for petroleum products and Natural Gas, which are also the major sources of energy, is very high. Though Europe is almost self-sufficient in renewable and nuclear energy, these have traditionally been minor energy sources.

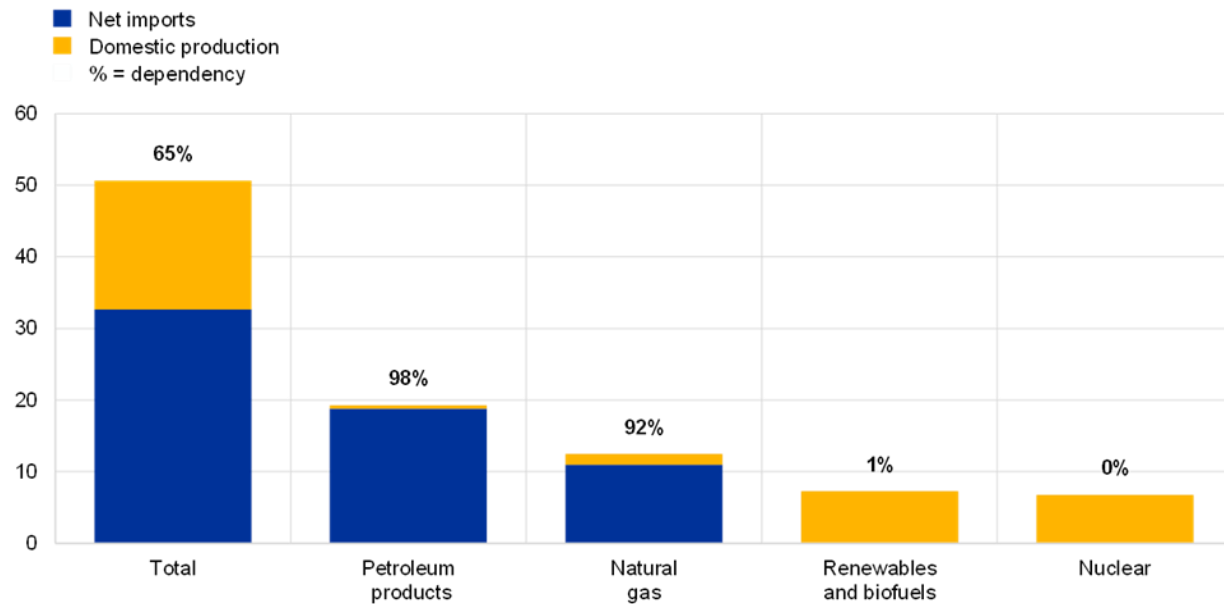


Figure-2: Euro area Energy Dependence (in millions of terrajoules)

(Source: https://www.ecb.europa.eu/pub/economic-bulletin/focus/2022/html/ecb.ebbox202201_04~63d8786255.en.html)

Figure-3 summarizes the energy consumption pattern in Europe industry and sector-wise. While petroleum-based energy is the most consumed in the transport sector, Gas is most consumed in the industrial sector, services and households (Gunnella et al, 2022). Renewable energy is sparingly used, as it depends on weather conditions and is subject to seasonal variations. Further, Nuclear energy is not used much by most European nations, more so for mishap concerns and political reasons.

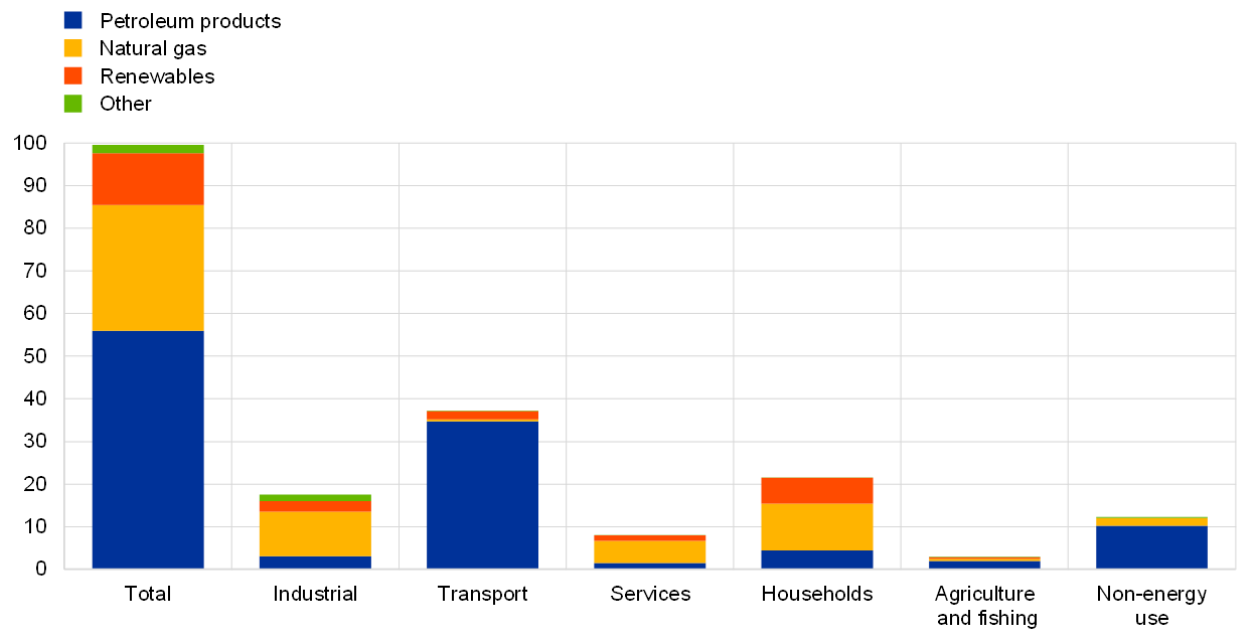


Figure-3: Use by primary fuel-type in 2019 (Source: https://www.ecb.europa.eu/pub/economic-bulletin/focus/2022/html/ecb.ebbox202201_04~63d8786255.en.html)

As sanctions on Russia are affecting its gas distribution, it is responding with supply shut-offs; economic estimates are indicating that a complete Russian gas supply cut-off would not only hit an already fragile Euro economy, but may also push the Euro area into a sharp recession (Robertson, 2022). Reduced gas supplies for longer duration may mean mandatory gas rationing for consumers as well as industries, thus forcing many industries to work at reduced capacities. This will not only reduce industrial output, but also put workers on bench or even out of employment; the overall impact being reduced GDP.

Empirical Findings

Recent economic analysis (Flanagan et al, 2022) demonstrates that besides Germany, some Central and Eastern European nations, viz. Hungary, the Slovak Republic and the Czech Republic are facing a shortage of around 40 percent of gas consumption and there is a possibility of gross domestic product decreasing roughly by 6 percent.

Nonetheless, the integrated market of the Euro area has ensured that the European infrastructure and resource sharing have been able to cope with as much as 60 percent drop in Russian gas supplies since mid-2021 (Flanagan et al, 2022). As for supply disruptions, the net impact of an assumed 10% gas rationing on the corporate sector is estimated to reduce the Euro area Gross Value Added (GVA) nearly by 0.70 percent (Gunnella et al, 2022).

Subsequently, the gas consumption has reduced and alternative energy resources, such as Liquefied Natural Gas or LNG, are being sourced globally. As European Union markets are not only unified internally, but are also integrated globally in a seamless manner, LNG can help buffer the adverse economic impacts of Russian gas shut-offs. That is because reduced consumption is distributed across all countries connected to the global market.

But as of now, these are short-term measures only as there are inefficiencies in transmission and distribution of gas within the Euro area. Further, infrastructural bottlenecks and limited availability of alternatives could well reduce Europe's ability to cope with reduced gas supplies over the long-term.

Alternative Strategies

Liquefied Natural Gas (LNG) occurs naturally and has to be cooled to around -162 degrees Celsius in order to transport for consumption (Sonnichsen, 2022). Natural Gas contains a mixture of Methane, Ethane, Propane and Butane, all of which are in abundance. While Methane and Ethane are ingredients for Liquefied Petroleum Gas (LPG), LNG is made up of Propane and Butane. LNG is a widely used energy source as demonstrated by its enormous global trade volume of over 500 billion cubic meters in 2021 and the fact that some of the major industrial superpowers, viz. Japan, South Korea and China are its major consumers (Sonnichsen, 2022). Even the LNG plants are usually located nearer to the coast for easy transportation via shipping containers.

If alternative supplies are not sourced quickly, while keeping long-term policy in mind, many countries, including Hungary, the Slovak Republic and the Czech Republic and Italy would face significant economic hardships due to their high reliance on gas in electricity production. The effects of supply shortages on Austria and Germany would be less severe but still significant. However, economic impacts for other European countries with sufficient access to international LNG markets would be under 1 percent (Flanagan et al, 2022).

In Europe owing to a vast network of established pipelines connecting Russian gas producers and European consumers, LNG only played a minor role until the Russia-Ukraine war happened (Robertson, 2022; Flanagan et al, 2022). Now, as Europe aims to reduce its energy dependence on Russian Gas, LNG has emerged as a viable energy alternative for both industries and households in the European economy, which has so far been struggling for the want of energy supplies. Looking closely, Europe may well depend on the United States, which is the largest natural gas

producer in the world, apart from other major players, namely Qatar and Australia that together account for the greatest LNG export market share of over 40 percent (Sonnichsen, 2022).

Conclusion

It can be easily surmised by the Russian-Ukraine war and ensuing gas crisis that political actions can have critical economic ramifications. Had Europe not been so attached to the cheaper Russian gas, that is, if the European countries could have been more diversified in their energy mix, the gas crisis would not have impacted the Euro area to such a large extent. Concerns of inflation and recession would not have bothered the markets or trading activities (the derivatives market has suffered losses owing to the gas supplies shut-off concerns).

However, the foregoing analysis has also brought forward positive effects of integrated market approach of the European Union, where sharing of resources and diversification within the Euro area have proved beneficial for the countries with higher dependence on Russian gas supplies. As some European nations were already using Liquefied Natural Gas or LNG, others were able to procure the alternative energy source in LNG and withstand the supplies shut-off shocks to manageable levels. Hence, the way forward is to focus on risk assessment and crisis preparedness strategies, while actively participating in sharing and securing alternative energy resources. The adverse impacts, if the crisis continues, can be mitigated by encouraging energy savings and proactively developing alternative energy sources, while shielding vulnerable consumers.

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