Gulf Research Center
Knowledge for All

The Ukraine War and Europe's Energy Crisis: An Opportunity for GCC Energy Producers

Abdullah Almutabagani
Decemer 2022

The Ukraine War and Europe's Energy Crisis: An Opportunity for GCC Energy Producers

Russia's invasion of Ukraine can be characterized as a punctuated end to Pax Europaea. As a result, European countries find themselves in the middle of what German Chancellor Olaf Scholz referred to as a "Zeitenwende" -- a turning point, or a comprehensive strategic reshuffle. At the extremes, some pundits are attempting to reimagine Europe, while others are investigating options to ward off Russian aggression and substitute Russian energy. In between, there are some subtle re-alignments including an EU-wide focus on the GCC states with the objective of fostering a more intense strategic relationship, particularly as far as energy is concerned.

Almost equally important is Germany's newfound position on the European continent given the UK's recent departure from the EU. With implications that the United States and the United Kingdom could both be pursuing more isolationist policies, Germany finds itself in a new position. Chancellor Olaf Scholz has already evoked the language of realpolitik more than any post-war chancellor and has made it clear that he intends to move forward decisively. He is looking to galvanize Europe through this conflict, but also to look outside of Europe and reintroduce Germany to the global stage as a proactive player.

Unfortunately, there are no clear immediate solutions for Europe's energy woes especially with the dark cloud of climate change dominating policy discussion. The GCC countries have, meanwhile, recognized this crisis as an opportunity and are discretely pitching to be Europe's next energy partner. Historically, the EU and GCC have not seen eye to eye in terms of energy cooperation, but there is a moment of convergence present that could see both the EU and GCC significantly further respective energy goals in both the long and short term.

Post War Energy Markets

Most of Europe and in particular Germany is determined to expunge its economy of Russian oil following Moscow's decision to invade Ukraine in late February 2022. The economic sanctions imposed against Russia after its annexation of Crimea, Abkhazia and South Ossetia, are now seen by most analysts as an ineffective form of coercion. Instead, there is significantly more political will behind wider and more comprehensive sanctions this time around, resulting in more immediate impacts, one of which is Russia struggling to find buyers for up to 70 percent of its oil according to a report in the Financial Times (Stacey et al., 2022). These sanctions have culminated into a European Union-wide ban on all seaborne imports of Russian crude oil on the 5th of December 2022 (Hicken, 2022).

The decreased revenue to impact the Russian oil industry is likely to cause substantial decreases in their productive capacity. Overall, Russian oil output could decline to between 433.8 million and 475.3 million tons in 2022 from 524 million tons in 2021 (Reuters, 2022). Following the path of least resistance, Russian oil now flows towards Asia at discounted rates. As a result, Russia was China's biggest supplier of oil, taking over from Saudi Arabia in the latter half of 2022 (Menon, 2022).

Saudi Aramco fervently guards its market shares as the primary supplier to South and East Asia. As Russian exports to Asia occur through spot deals, they do not immediately compete with the long-term energy contracts in place between the Asian consumers and the GCC. The price of these long-term contracts are reviewed on a monthly basis, and despite being slow to react, ARAMCO has cut the flagship Arab Light grade for January 2023 sales to the Asian market to $3.25 a barrel above the regional benchmark (Russel, 2022).

The decision appears to be connected to the growing fear that current sanctions policies will be enforced and as such Russia will have no choice but to undercut Arab producers in the Asian Market. Those fears are validated by the fact that India's Iraqi oil imports fell to their lowest levels in almost two years, due to the abundance of discounted Russian oil (Verma, 2022). Furthermore, Aramco's medium and heavy oil grades for the region have reached the lowest price levels for the past nine months (Tuttle, 2022). It is important to note, this is mostly due to China's decrease in demand for oil for the first time since 1990 due to COVID lockdowns (Smith, 2022).

In the long run, Russia will compete with GCC oil producers for the Asian market, but not without significant obstacles. Asian buyers will need to readjust their financing and transport systems to accommodate shipments from the Black Sea and Baltic Ports and potentially find payment systems that bypass the dollar, which explains why it is believed that China is already purchasing Russian oil using its currency, the Yuan, and making China's oil imports take place at even wider discounts than initially anticipated (Bloomberg News, 2022). Such a policy could, down the road, challenge the Petrodollar agreement, and potentially dethrone the dollar as the global currency. It is, however, safe to assume no country will be able to pursue such policies without any foreign imposed obstacles. For the moment, it is also questionable whether Russia will have the productive capacity to meet the demands of the Asian market. Due to such difficulties, it could be the case that the Asian market will see a bartering system in place for Russian oil (Yergin, 2022).

“In the long run, Russia will compete with GCC oil producers for the Asian market, but not without significant obstacles.”

Energy Winter

With its decision to cut its dependency on Russian energy supplies, Europe has scrambled to find temporary alternatives that could fill the gap (Kirby, 2022). Fears of a strong winter are leading to concerns of European countries experiencing periodic blackouts or facing fuel and energy shortages, potentially leaving much of Europe in the dark and in the cold (Jayanti, 2022). Decisions by Germany to maintain two nuclear power plants beyond their scheduled retirement as well as to maintain coal production, have been highly controversial as they significantly derail not only Germany's, but also the EU's stated climate goals. The rising costs of energy supplies have also heightened domestic political tensions throughout the continent. These factors were all part of the reason why the EU generally avoided cutting Russian gas off the tap.

Putin recognized the political damage this energy scramble is causing and has as a result also weaponized gas entirely. Nord Stream 2, the highly touted gas pipeline connecting Russia to Germany was sabotaged and halted indefinitely, most likely caused by Russian-supported elements, in turn slashing what little gas Europe was still receiving from Russia and causing prices to skyrocket (Bloomberg News, 2022). Gas prices spiked and became four times higher than they were a year before, and around eight times more expensive than the prices in the United States (Abadi, 2022). This marked a significant escalation to the conflict as a whole and a clear indication that Russia plans to manipulate gas markets as part of its wartime strategy. Europe was forced to turn to the short-term spot market for gas which is typically three times more expensive than long-term contracts. If the conflict persists and Europe does not find a sustainable substitute to Russian energy, the European energy crises could persist for some time to come.

A lack of unity and some unfortunate timings have increased European discord, further exacerbating the issue. The fact that almost half of the nuclear power plants in France have been under maintenance has added pressure to the European energy grid, even prompting France to borrow from what little electricity Germany has left. Germany and France are in the meantime competing over new gas pipelines with Paris, so far not agreeing to a request from Berlin to have a gas pipeline from Spain connected to central Europe by having it run through France. Attempts to set an EU wide price cap for gas have also not materialized.

Overall, it will be difficult for the EU countries to agree on a price that will be both low enough for all economies but also not to a level where they find themselves outbid by China and other countries (Rauhala et al., 2022). Moreover, one must keep in mind that China moving out of its firm COVID lockdown would lead to an increase in demand which will almost certainly drive energy prices higher. Tensions such as these have in turn worsened the energy outlook for Europe as a whole.

The US and Norway have emerged as the primary lifelines in response to the crises, although this has not been without controversy. EU solidarity is being further put to the test as oil companies in the US and Norway are reaping tremendous profits and consequently being accused of profiteering. Norway has come under intense scrutiny to which a Norwegian member of parliament responded that: "It is not our fault that Putin is waging this energy war on Europe" (Rauhala, 2022). Amid the coupled crises of inflation, war and climate change, tensions are therefore riding high. With supply and demand forces still dictating market prices, it will take both a lot more political will and concessions for the European governments to impose their values onto the market.

To add to Europe's fears regarding energy stockpiling this winter, OPEC+ decided in early October to cut 2 million bpd from the market. Despite meeting its 80% reserve target, most European countries still fear an energy shortage depending on the severity of the winter. As a result, OPEC+ quickly found itself under scrutiny by European states and the US for "acting irresponsibly" and was even accused of supporting Russia's war effort. Lost in the attempts to politicize the decision was the fact that the decision by OPEC+ was based on sound economic analysis and aimed at preserving stable oil prices in the near term.

Never let a good crisis go to waste: Opportunity for GCC Oil Producers

Despite all the bleak prospects, there could be a silver lining in that the European energy crisis could lead to strengthened GCC-EU ties. The decreased ARAMCO differentials have, at least momentarily, signaled the intent of Saudi Arabia to steer crude into Europe to replace Russian oil. The UAE has adopted a similar position to ship more oil to Europe. A tanker carrying 1 million barrels of Murban crude was chartered from the United Arab Emirates for Britain, which was the first shipment of the sort in the past two years (France24, 2022). These shipments are made at premium rates, with "more cargoes of Abu Dhabi crude grades - Murban, Das and Upper Zakum" to follow, in order to compensate the Russian oil deficit. These developments occurred prior to German Chancellor Scholz's visit to the UAE, which culminated in a new Energy Security and Industry Accelerator agreement. This agreement entails that ADNOC will "supply up to 250,000 tons of diesel per month in 2023" (France24, 2022) to Germany in addition to reserving several LNG cargoes for Germany specifically.

Overall, European countries have secured multiple energy deals with GCC countries to tackle the short-term issues they face, including investments for future production. For example, France's energy and petroleum company, Total Energies, signed a $1.5 billion deal to help expand Doha's natural gas production (Deutsche Welle, 2022). Chancellor Scholz followed suit and cut a deal with Qatar to start importing LNG by ship. The Chancellor announced the construction of two LNG terminals, to be completed by 2026, that will expedite such transactions. As announced in late November, Qatar will begin supplying Germany with LNG in 2024 and therefore play an important role in Germany's strategy to ween off Russian gas. Germany previously voiced reservations about committing to a long-term deal, so the 15-year commitment finally announced underlines the severity of the crisis being felt.

Yet, the short-term reality is that oil is almost as important as gas when it comes to European energy. In 2021, 76 percent of Europe's energy was made by burning fossil fuels – gas (34 percent), oil (31 percent) and coal (11 percent) (Haddad, 2022). This dependency only grew as the result of the Ukraine war. The value of all energy imports doubled in the first quarter of 2022 compared to earlier in 2021, while the increase in volume was 9.8%. The combination of reliance on imports for energy and supply scarcity has in turn caused the astronomical increase in prices (Eurostat 2022).

> Oil is almost as important as gas when it comes to European energy

The bad news for Europe is that all the solutions take time-- including building a pipeline, a new nuclear reactor or an LNG import facility (Melimopoulos, 2022). To be sure, Europe will not leave this current crisis to hedge all its energy requirements on a single geographic bloc again, let alone with actors that do not align with Europe normatively. Despite being a cheaper oil producer than the UAE, Saudi Arabia has yet to emerge as a viable option for European nations like Germany possibly due to the inevitable criticism cooperating with the Kingdom would invoke. This in turn begs the question: what is a "good energy partner?"

Urgency on Behalf of the GCC

The GCC has in the meantime recognized that with member states of the EU looking for alternatives, it is important to be competitive against, for example, US crude oil (Bloomberg 2022). The crude oil pricing systems remain dynamic, and they are often utilized to target specific markets. For example, Saudi Arabia for decades from the mid-1970s until the early 2000s, frequently discounted crude for sales to the United States with the objective of being the country's top supplier" (Finley 2022). Yet, GCC oil producers are also basing their decision on two factors. First, there is the conviction that Russia will not re-emerge as the regional oil supplier in the near term. Second, there is the further recognition that the current energy crisis is not a blizzard but rather a prolonged winter. Under given circumstances, major provisions are being put into place to compensate for the shifts in energy supplies.

Gulf oil producers themselves will soon face several issues pertaining to current energy dynamics. As Russian oil continues to flow towards the Asian market, the GCC oil producers will have to decide how to tackle the issue. The G7 countries have agreed to place a price cap on Russian oil, which would theoretically prohibit any nation relying on western services to buy Russian oil higher than the cap. American economist Janet Yellen claimed: "(Russia is) going to be heavily in search of buyers. And many buyers are reliant on western services" as a result of the cap. (Lawder 2022)

The effort to shrink Russian coffers undercuts their ability to fund the war in Ukraine but will consequently create bargain prices for the likes of India and China. Russia has responded by claiming it will not sell to any country that joins the price cap. Realistically, China and India, who have been enjoying the already discounted Russian oil, would much rather find their way around using western services rather than abide by the price

cap. Thus, a cap could further accelerate Russia's integration into the Asian energy market. Whether it is by relying solely on their own tankers, or by propping up a "shadow fleet," China and India will most likely continue purchasing Russian oil at a price both sides find suitable. Russia will still be operating at decreased capacity, but the primary losers from this new configuration might be the GCC oil producers, as they will be subjected to a price war against an adversary who has very little to lose.

To make matters worse for GCC oil producers, the energy crisis will most likely serve as a catalyst for Europe's transition to clean energy, which will signal the start of a global shift away from fossil fuels. As stated by Gulf Research Center Chief Economist John Sfakianakis in the 2022 Gulf Strategic Assessment publication, "it is difficult to predict the future of oil prices, but many analysts believe the ongoing rally will not last long and they see it as the last super cycle in commodities prices" (Sfakianakis, 2022). This would indicate that the GCC's existential hurdle of diversifying away from fossil fuels is closer than anticipated. Given that Europe is unlikely to substitute Russia with another single provider of energy like the GCC bloc, alongside the fact that the GCC has a dependency issue with the United States as its primary security partner, the GCC states also find themselves in a strategically shifting environment.

Good Energy Partnerships

The stage has been set for the GCC and EU to find themselves at a rare moment of convergence with fresh political perspectives. Both the EU and the GCC states are looking out into the world in search of new strategic directions. Just as novel geopolitical circumstances brought about this opportunity, the formula for any healthy structural cooperation between the two blocs should be equally novel. The European continent needs short-term aid for its energy requirements, and as unlikely as it seems, the GCC needs to double down on its efforts to both continue its path of economic diversification as well as get serious about the energy transition towards renewables. On the economic front, the GCC countries are pursuing various national visions strategies pointing towards diversification, but little structural policies or programs have been put into place to do so.

Into this equation, a more structured EU-GCC relationship could enter. This requires, however, one to go beyond standard bilateral oil and gas agreements and focus on the holistic picture of a combined energy relationship. On the one hand, climate change will require a fundamental reassessment of energy relations and with the European bloc pushing forward its ambitious agenda, there are opportunities for the EU and the GCC to join forces. On the other hand, it must be understood that complete energy independence is a myth, and as such the European bloc will still need partners. Being "good" on energy or being a "good energy partner" simply means that moral values would hypothetically trump market prices in times of need. For such ideals to be upheld two factors must be set into place: first, there needs to be the political will and mechanisms to enforce policies. GCC countries must financially and structurally commit to transitioning their energy sectors, and the EU must have a built in means to monitor progress or hold them accountable. Second, spare productive and storage capacity needs to be developed for any sort of control to be exerted onto energy markets. This means that there needs to be further investment into the energy sector globally regardless.

During a meeting concerning urban development between the Gulf Research Center, the German Consul General in Jeddah and a delegation representing the city of Hamburg, it was noted that before any strategic partnership could be reached there should be a stable working relationship. Despite the political curiosity to cooperate with the Gulf region, there is a general skepticism on behalf of the European nations. Why that is the case is complicated, but there is certainly a lack of understanding about the Gulf region. The Joint

Communication on a Strategic Partnership with the Gulf presented by the European Commission affirms this curiosity, but specialists from both blocs are calling for more European diplomatic presence in the Gulf. That would be a significant step towards solving this skepticism on a diplomatic level, yet even more should and can be done. Furthermore, initiatives like Mission Innovation could make clean energy affordable and attractive by expediting the necessary research, development and investments necessary. As of today, Saudi Arabia and the UAE are the only GCC countries involved in the initiative.

Further normative alignment on energy and security issues is necessary, and simply more intercultural interaction can help do away with the aggressive media coverage. The reason Bild and the Daily Mail continue sensationalizing the region and the events concerning it is because the general European reader continues to be enthralled. There is still a serious lack of understanding regarding the GCC and its people. Politically, it will be much easier for European policy makers to log-roll in favor of GCC partners if they no longer fear the unrelenting "moral" attacks of tabloids. On a practical level, it will be easier for stakeholders to step into the region knowing that all parties are equally committed to the cause of climate change. Attending the former, Gulf countries have already employed new marketing strategies to win over the western public, but this strategy so far has had a mixed reception at best. Nevertheless, its levels improved from its historical image and its stereotype will only continue to improve with time and as more intercultural interactions are made. With regards to the practicality of such agreements, it is on the GCC to make staunch announcements through its actions and their results, that they are equally committed to the cause of climate change.

A New Frontier: Green Hydrogen

There are ambitious and progressive national strategies being implemented across the GCC, many of which aim to establish green hydrogen capabilities. Albeit an incipient industry, many obstacles must be hurdled for green hydrogen to become a global energy staple. These obstacles include its efficiency, costs and storage capacity, which all still need much improvement. Some of the world's cutting-edge facilities are in European countries like Spain and Germany, and recently the UAE. All things being equal, the GCC still has the most suitable environment when it comes to the production of green hydrogen.

Where the GCC has a comparative advantage over the EU is in its geography and topography. The GCC has the terrain and space necessary to develop large scale green hydrogen facilities and renewable energy farms. The same cannot

be confidently said of Europe, making importing hydrogen the most viable option for the continent (Bianco, 2021). Given the logistical constraints of importing hydrogen, these transactions would best be made with the bloc's neighbors. Solar farms in the GCC are projected to yield double the energy an equivalent farm would produce in Germany. Moreover, solar energy output in the Sunbelt region would align with the seasonal demand. As the summers drive up demand for more energy for cooling, solar farms will be more exposed to sunlight, thus making the region more energy stable.

The opposite is true for the European landscape, which is why there should always be reserves ready to be deployed depending on the severity of the winter. This is disregarding the high velocity wind resources in Oman, Kuwait and Saudi Arabia that could also be utilized. Due to the aforementioned factors, the cost of production will be significantly cheaper in the GCC than any other region in the world. The 2GW project in NEOM is projected to produce a kilogram of green hydrogen at a cost between $1.5 and $1.95, whereas the European equivalent would cost between $3 and $6 (Bianco, 2021).

Like Saudi Arabia, Oman has also announced a national green hydrogen strategy named Hy-Fly "which includes European-linked entities such as British Petroleum Oman, Oman Shell, Total Energies Oman, and the German University of Technology in Oman" (Bianco, 2021). However, it is the UAE who leads the pack for such partnerships by having already completed the first green hydrogen project in the MENA region. Constructed in cooperation with Siemens energy, the newly introduced solar park has the capacity to produce 20.5 kg/hour of hydrogen at 1.25 MWe of peak power (Zawya, 2021). This is a lighthouse project that should set an example for working projects and relations furthering strategic energy interdependence across the GCC in the future.

Strategic energy interdependence could be established where the GCC provides short term discounted spot deals for Germany and other European countries in exchange for the development of green hydrogen capabilities. This would entail that the EU would engage in technology knowledge transfer and capabilities building to make sure the necessary know-how can be incubated locally to catalyze the green transition. In exchange, GCC countries like Saudi Arabia would likely foot most of the bill and spearhead the process of developing the still unrefined green hydrogen technologies, which would be a relatively and comparatively more expensive process in Europe. In the long term, this will help Europe reach its sustainable development goals by creating green import options and help the GCC by creating green/renewable sources of income. This is an integrative solution that considers Europe's short-term needs and both EU and GCC long-term goals.

As the global bipolar atmosphere thickens, it is key for the two blocs to create a "non-partisan" fortress based on their mutual interests of economics and security, be it energy or otherwise. It is hard to imagine configurations that can immediately connect both blocs, given their historically divergent policy preferences, but a common electric grid is an effective means of pulling the regions closer together.

A Common Electric Grid

If the strategic partnerships between the GCC and EU prove fruitful and stable, the option of establishing a common electric grid should also be considered. A common grid could simultaneously integrate the two regions by allowing member countries to benefit from surplus energy generated elsewhere. Such benefits seem timely during the EU-wide blackout scares of today. Producers, transmission systems operators, distributors, and their associations from the EU-GCC are in advanced discussions regarding the potential of a common grid. The GCC, like the EU, developed an interconnected transmission grid that is managed by the Gulf Cooperation Council Interconnection Authority (GCCIA) which operationalizes power

exchanges and trade among member states in 2001. Currently, the grid is underutilized and needs more investments to improve its capacity, but once optimized it could reduce electricity system losses and save up to $1 billion per year. There are concrete plans to link up the GCCIA to the European Network of Transmission System Operators for Electricity (ENTSO-E) "via Egypt, as a follow-up to the Saudi-Egypt deal inked in October 2021 and a bid won by Sweden's Hitachi ABB Power Grids" (Bianco, 2021). Moving forward with these agreements, there needs to be significantly more dialogue regarding the common rules, adequacy assessments and grid planning. It is during conversations like these that the EU and GCC can solidify their commitments and expectations to further cooperation.

Conclusion

Russia's invasion of Ukraine has shaken the world into a strategic reshuffle and oil markets into a super cycle. Europe has found itself in what looks like a prolonged energy crisis, and GCC oil producers are on a crash course for a price war with a Russian adversary that is already taking wartime measures. The GCC and EU have already moved forward with a handful of agreements that sees them moving into a new strategic era which could usher in the green revolution much sooner than anticipated. There is, although varying in intensity, urgency on behalf of both blocs to expedite these processes but a lack of confidence seems to be the main restraint. The EU views the GCC as a prime candidate to fulfill its future energy needs, but it has yet to develop the working confidence to partner with any country besides the UAE. However, considering the newly installed green hydrogen solar park in the UAE, it might only be a matter of time before both blocs come to a strategic agreement that considers Europe's immediate energy needs and the mutual long-term interests of both blocs concerning energy and security. Many ingredients could further catalyze this process. Further diplomatic presence by the EU in the GCC, a clear financial or structural commitment by the GCC into green technologies, and an open intercultural dialogue, could all help further normative alignment on mutually beneficial policies and take them into strategic interdependence.

References

Abadi, Cameron. "Europe's Energy Crisis Could Last for Years." *Foreign Policy*, October 10, 2022. https://foreignpolicy.com/2022/10/10/europe-energy-crisis-russia-ukraine-war-ones-and-tooze/

Bianco, Cinzia. "Power Play: Europe's Climate Diplomacy in the Gulf." ECFR, October 26, 2021. https://ecfr.eu/publication/power-play-europes-climate-diplomacy-in-the-gulf/.

Bloomberg News. "Europe's Energy Crisis Deepens after Russia Keeps Pipeline Shut." September 2, 2022. https://www.bloomberg.com/news/articles/2022-09-02/gazprom-says-nord-stream-to-remain-shut-after-technical-issue

Bloomberg News. "Russian Coal and Oil Paid for in Yuan to Start Flowing to China." April 7, 2022. https://www.bloomberg.com/news/articles/2022-04-07/russian-coal-and-oil-paid-for-in-yuan-to-start-flowing-to-china.

Deutsche Welle. "Germany Signs Energy Partnership with Qatar." May 20, 2022. https://www.dw.com/en/germany-signs-energy-partnership-with-qatar/a-61873873#:~:text=Al%2DThani%20confirmed%20that%20Qatar,LNG)%20to%20Germany%20in%202024.[17]https://www.aljazeera.com/news/2022/9/6/infographic-how-much-of-europes-energy-gas#:~:text=In%202021%2C%20two%2Dthirds%20(,up%20the%20remaining%2010%20percent.

Eurostat. "EU Imports of Energy Products - Recent Developments." Eurostat Statistics Explained. Accessed December 7, 2022. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_imports_of_energy_products_-_recent_developments&oldid=564016#:~:text=In%20the%20second%20quarter%20of%202022%2C%20the%20average%20monthly%20value,9.8%20%25%20higher%20than%20in%202021.

Finley, Mark. "Is Saudi Arabia Quietly Trying to Help Europe's Oil Consumers?" Baker Institute, May 4, 2022. https://www.bakerinstitute.org/research/is-saudi-arabia-quietly-trying-to-help-europes-oil-consumers.

France 24. "United Arab Emirates Agrees to Supply Germany with Gas, Diesel." September 25, 2022. https://www.france24.com/en/live-news/20220925-united-arab-emirates-agrees-to-supply-germany-with-gas-diesel.

Gulf Times. "Saudi Arabia Defies Expectations and Keeps Oil Prices Steady." October 6, 2022. https://www.gulf-times.com/story/725518/Saudi-Arabia-defies-expectations-and-keeps-oil-prices-steady.

Haddad, Mohammed. "Infographic: How Much of Europe's Energy Comes from Gas?" Russia-Ukraine war News | Al Jazeera. September 30, 2022. https://www.aljazeera.com/news/2022/9/6/infographic-how-much-of-europes-energy-gas#:~:text=In%202021%2C%20two%2Dthirds%20(,up%20the%20remaining%2010%20percent.

Hickin, Paul, Nick Coleman, and Robert Perkins. "EU Ban on Russian Seaborne Oil to Intensify Shifts in Trade Flows." S&P Global Commodity Insights. May 31, 2022. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/053122-eu-ban-on-russian-seaborne-oil-to-intensify-shifts-in-trade-flows.

Jayanti, Suriya. “Think the Energy Crisis Is Bad? Wait until Next Winter.” Time. October 31, 2022. https://time.com/6226587/energy-crisis-next-winter/.

Kirby, Jen. “Why Firewood Is Suddenly in High Demand in Germany.” Vox. October 17, 2022. https://www.vox.com/world/2022/10/17/23390663/europe-energy-crisis-explained-firewood-germany.

Lawder, David. “Exclusive: India Can Buy as Much Russian Oil as It Wants, Outside Price Cap, Yellen Says.” Reuters. November 14, 2022. https://www.reuters.com/business/energy/exclusive-india-can-buy-much-russian-oil-it-wants-outside-price-cap-yellen-says-2022-11-11/.

Melimopoulos, Elizabeth. “How Bad Could Europe’s Energy Crisis Get This Winter?” Russia-Ukraine war News | Al Jazeera. October 4, 2022. https://www.aljazeera.com/news/2022/10/4/how-bad-could-europes-energy-crisis-get-this-winter.

Menon, Shruti. “Ukraine Crisis: Who Is Buying Russian Oil and Gas?” BBC News. December 6, 2022. https://www.bbc.com/news/world-asia-india-60783874 .

Rauhala, Emily, Rick Noack, Kate Brady, and Beatriz Ríos. “Germany Takes Heat as E.U. Leaders Meet to Discuss Energy Crisis.” *The Washington Post*. October 7, 2022. https://www.washingtonpost.com/world/2022/10/07/eu-energy-crisis-germany-criticism/

Rauhala, Emily. “Norway Is Portrayed as Both Hero and Villain in Europe’s Energy Crisis.” The Washington Post. October 14, 2022. https://www.washingtonpost.com/world/2022/10/08/norway-gas-prices-supply-europe/.

Reuters. “Exclusive: Russia Sees Its Oil Output Falling by up to 17% in 2022 -Document.” April 27, 2022. https://www.reuters.com/business/energy/exclusive-russia-sees-its-oil-output-falling-by-up-17-2022-document-2022-04-27/.

Russell, Clyde. “Column: Saudi Arabia Cuts January Crude Oil Price, but by Enough?” Reuters. December 6, 2022. https://www.reuters.com/markets/commodities/saudi-arabia-cuts-january-crude-oil-price-by-enough-2022-12-06/.

Sfakianakis, John. “GRC Annual Strategic Survey” Gulf Research Center. 2022. https://www.grc.net/publication/546

Smith, Grant. “China Oil Demand Estimated to Drop at Record in over Three Decades: IEA.” Bloomberg, September 14, 2022. https://www.bloomberg.com/news/articles/2022-09-14/iea-trims-oil-demand-estimates-as-lockdowns-deepen-china-slide.

Stacey, Kiran, Tom Wilson, Andy Bounds, and Claire Jones. “Will the West Place an Embargo on Russian Oil and Gas Supplies?” *Financial Times*, March 3, 2022. https://www.ft.com/content/cecebc90-5f99-4b4a-9770-5487bbd1c63a.

Tuttle, Robert, and Sharon Cho. “Saudi Arabia Lowers Oil Prices for Asia as Global Economies Slow.” Bloomberg, November 3, 2022. https://www.bloomberg.com/news/articles/2022-11-03/saudi-arabia-lowers-oil-prices-for-asia-as-economies-weaken.

Verma, Nidhi. “India’s Iraqi Oil Imports Fall to Lowest in 20 Months - Trade Sources.” Reuters. November 11, 2022. https://www.reuters.com/business/energy/indias-iraqi-oil-imports-fall-lowest-20-months-trade-sources-2022-11-10/.

Yergin, Daniel. “Daniel Yergin on Russia Losing Its Status as an ‘Energy Superpower.’” The Economist. March 19, 2022. https://www.economist.com/by-invitation/2022/03/19/daniel-yergin-on-russia-losing-its-status-as-an-energy-superpower

Zawya. “Projects: Dubai Achieves a MENA-First with Green Hydrogen Project.” May 20, 2021. https://www.zawya.com/en/projects/projects-dubai-achieves-a-mena-first-with-green-hydrogen-project-sgcz3nwa.

Gulf Research Center

Knowledge for All

www.grc.net