

ENERGY SUPPLY, GEOPOLITICAL EVENTS, AND THE ECONOMY:

Russia's Invasion of Ukraine and Initiatives to Consider

by Scott Johnson | April 8, 2022

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Introduction

Russia's invasion of Ukraine has dominated headlines as a humanitarian crisis in Eastern Europe, which it is, first and foremost. It also has sweeping implications for the global energy industry and is affecting everyone on the planet, and it will continue to do so. With Russia playing a major role in the global supply of crude oil and natural gas (as well as other commodities), what can we expect for the near-term and long-term impacts of its invasion and for the accompanying responses from companies and governments across the world?

The impacts are substantial, and most businesses and individuals will need to make significant adjustments. For many, now is likely to be the best time to evaluate and/or pursue additional or replacement financing. It is virtually inevitable that the cost of both debt and equity capital will rise over the coming year, and terms will be more difficult, while additional liquidity will likely become more valuable. Those outside the energy industry will also see substantial effects from the conflict and corresponding global market disruption.

Impacts to date: Russia's invasion and the global response

Players across the globe have taken decisive action in response to the invasion and to related threats. The US has provided the largest military support in its history to a country where it is not actively engaged. The US, Canada, and Great Britain have banned Russian oil and gas imports (both direct and indirect), and many regions and companies have imposed curtailments of their own, relating to oil and gas as well as other products. For oil, those curtailments have reduced Russian exports by 3 million barrels per day (mm b/d), which together with the conflict has moved prices dramatically. At the same time, NATO countries have sent unprecedented amounts of military aid and equipment to Ukraine to support the country's efforts to resist the invasion and protect its citizens. We're also seeing numerous countries begin to think ahead in terms of their energy needs, considering alternative supplies to oil and gas—with Europe, in particular, expected to accelerate renewable energy projects and to seek other sources of oil and gas.

The second largest oil exporter

Russia is one of the world's top producers of both oil and gas. Let's look at oil first to quantify the potential impact. Liquid petroleum products (sometimes called "oil") include crude oil, which has not been refined into other products; condensate, which are liquids produced along with natural gas production; and natural gas liquids (NGLs), which are higher value products extracted from natural gas in a plant and often transported in liquid form.

Russia's role as the world's third largest oil producer presents sweeping implications for markets across the globe and especially Europe. In January 2022, Russia's oil production was 11.3 million b/d, including 10 mm b/d of crude oil, 960,000 barrels per day (960 k b/d) of condensates, and 340 k b/d of natural gas liquids (NGLs). That production made Russia the third largest oil producer after the US (17.6 mm b/d) and Saudi Arabia (12 mm b/d).

Trade

Russia is also the second largest oil exporter after Saudi Arabia, at 7.8 mm b/d in December 2021 (including crude oil, condensate, and NGLs). Of those oil exports, in November 2021, 4.5 mm b/d or nearly 60% headed for OECD Europe and amounted to 34% of OECD Europe's oil imports. Another 20% went to China. In 2021, Russia also exported 2.8 mm b/d of refined oil products, which include diesel and gasoline.

Russia's oil and gas products are exported to multiple regions, including the European Union. Typically, the EU imports more than 95% of the crude oil and petroleum products it consumes. More than 25% of its oil comes from Russia as well as nearly 40% of its natural gas. In addition, much like with the risks to the Nord Stream natural gas pipeline, it is possible we could see crude supply restricted through the Druzhba oil pipeline. Part of the pipeline goes through Ukraine, and this southern branch carries about 250 k b/d of Russian oil.

Natural gas: Major disruptions in Europe

Supply

Russia has been the world's second largest natural gas producer, holds the world's largest gas reserves, and is the largest exporter behind the United States. In 2021, it produced 762 billion cubic meters (bcm) of natural gas and exported about 210 bcm. Natural gas is transported either by pipeline or in ships after super cooling it to convert it into a liquid form called liquified natural gas (LNG).

Russia's exports account for approximately 26% of the international pipeline natural gas trade and 8% of the total LNG trade. While these exports have numerous destinations, one region commands the bulk of Russian natural gas supply. An estimated 77% of Russian natural gas exports go to European countries, and that gas comprised almost 40% of the European Union's total natural gas consumption in 2021. Last year, the United States, Qatar, and Russia accounted for about 70% of Europe's total LNG imports, and the United States became the largest source of LNG in 2021 at 26%. In January, the United States supplied more than half of all LNG imports into Europe. Though Russia's LNG exports may be reduced over time, Europe's existing LNG trade with the US provides a relatively stable component. The US's ban on Russian supplies has already forced Russia to seek out other buyers for its oil and gas, but so far financial sanctions and voluntary actions have limited much of that potential trade. That said, it seems likely that exports to countries including China and India may offset some of the recent curtailments.

Because of the concentration in exports to Europe, the region will likely feel much stronger near-term impacts than other regions. Gas prices have risen

substantially, and natural gas supply may also be constrained by pipeline capacity. Permitting and startup of the completed Nord Stream 2 natural gas pipeline was suspended early in the Ukraine conflict, and there is no clarity on when or if that suspension might be lifted. In addition, Ukraine in particular may see lost supply within its borders, as it is a transit country for piped gas through the Nord Stream pipeline, and combat presents risks of damage to pipelines and surrounding areas. Germany has already begun an emergency plan to manage natural gas supplies and possibly to ration electric power if Russia continues to demand payment in rubles.

In summary, Russia's oil and natural gas reserves and exports are each significant on a global scale and vital to Europe which has been the destination of a majority of both Russia's oil exports and its natural gas exports. Sanctions, armed conflict, and retaliatory actions have thrown global supply into limbo. Of the various Russian oil and gas products, curtailed Russian natural gas exports, for which Europe has been the dominant destination, are likely far more threatening, are harder to replace in the near term, and could have a more serious impact, especially in Europe.

WHERE TO NOW?

The supply gap: Where will missing supply come from?

Clearly, to the extent Russian oil and gas supplies are restricted, there will be interest in securing an alternative supply. While oil markets and supply will certainly be disrupted, the nature, duration, and scope of both sanctions and voluntary supply curtailments will determine the degree of impact on the crude oil market.

Recent curtailment of 3 mm b/d of Russian oil is significant. Against global demand of about 99 mm b/d in the fourth quarter of 2021, those figures are meaningful since an extended imbalance of 2% to 3% between supply and demand have historically often led to a meaningful change in price in the short term.

Governments as well as private oil and gas companies are broadly focused on adjustments to their operations. In January 2022, the International Energy Agency (IEA) had predicted that demand in 2022 might rise as much as 3.3 mm b/d from the prior year and that OPEC+ might seek to expand oil production in 2022 to meet global demand and provide some spare capacity. But so far OPEC is sticking to a gradual increase in its production goals, with a next increase of 432 k b/d in May. It seems OPEC is content for now with unusually high prices, which naturally fill its coffers. Some apparent political distancing from the US and the West—which happens to follow criticism of Saudi Arabia's active role in the conflict in Yemen and of the murder of journalist Jamal Khashoggi—together with China's position as Saudi Arabia's largest oil customer may not be coincidental. It is entirely possible that OPEC is shifting or at least balancing its

relationship with the US and Europe with those with China, Russia, and India. Consequently, OPEC may be slow to come to the rescue of economies struggling with high oil prices.

Outside of OPEC, operators are working at close to maximum capacity already and are unable to just “open the tap” significantly on short notice. Doing so requires both time and capital to drill wells and (in some cases) to build out more infrastructure such as pipelines and port facilities capable of accommodating greater production rates. It's certainly possible to do so, but investors and companies are acting cautiously when it comes to new capital investment. Many investors in private oil companies lack confidence in long-term markets for oil and gas products and fear that the energy transition will dramatically reduce the need and demand for oil and gas within the next decade. Though we do not agree with that assessment, it is widely held. Changing this belief will require a shift in thinking and endorsement by the public and the government regarding the need for oil and gas during a period when we are also making the shift to cleaner energy as soon as practical.

In addition, any substantial adjustment to natural gas supply sources is likely to require much more time than changes in oil supply sources. Oil production depends on OPEC and private investment appetite, neither of which are pointing toward rapid expansion. However, at least oil can be delivered by ship almost anywhere in the world. In contrast, delivering additional natural gas requires all of 1) expanded well production, 2) pipelines, 3) LNG ships in many cases, and 4) large facilities for both export (gasification) and for import (liquefaction) of LNG. Those facilities and ships require major capital investment and years to build, and the existing facilities are near full utilization. So, while the US is now politically supporting expanded LNG exports to Europe, it will take an extended period to fully realize this transition.

If Russian natural gas remains seriously constrained, it is not clear where the replacement can come from in the meantime.

Prices and the economy

Oil prices are based on global supply and demand, with the largest suppliers being government-controlled entities. Russian export supply has been a substantial part of the supply.

A couple of bright notes: First, beyond supply imbalances, war conflicts also increase the perception of risk, which can have a major effect on prices. If hostilities do abate, that could remove that risk premium and lead to somewhat moderated prices in the near term. Also, there is some interest in expanded capacity. For example, ExxonMobil and Chevron are increasing their spending, and some other companies are pointing to the Permian Basin especially as a potential medium-term source of production increases after years of constrained capital spending.

In addition, the US federal government has decided to release roughly 180 mm barrels of crude oil from the national Strategic Petroleum Reserve (SPR) over six months, which amounts to 1 mm b/d of additional supply for that period, or 1% of global demand. This may have a small but temporary impact on oil prices. Other countries have pledged to make some additional releases of strategic oil reserves, but so far in unspecified and apparently much smaller quantities. None of this is a long-term solution, and at some point the buying of oil to refill the reserves tends to push prices back up.

In light of the recent strong demand recovery as the pandemic has waned, we see a significant potential for already-high energy prices to stay high or possibly

creep even higher in coming months. Unfortunately, in addition to creating inflation, abnormally high oil and gas prices over a sustained period typically lead to a recession—and an accompanying drop in oil and gas demand and lower prices. With this in mind, the predominant mindset among oil investors is to be cautious and to invest only on the basis of long-term average prices (if at all), since there is a strong possibility that we will see much lower prices long before any capital that is invested now can be returned to those investors.

The risks of recession are further amplified by serious continuing supply chain problems, which appear to be about to get significantly worse. Instead of shortages largely in parts and shipping, we are now looking at shortages in numerous minerals, metals, wheat, and other food products, and the list goes on. We don't see a realistic path to avoid a global recession.

What to do now

There are many cues to be taken from all of these dramatic developments, and the best course for an enterprise and any individual will depend on their particular situation and available choices. Here are a few thoughts:

- 01 Countries need to work diligently to broaden their energy supply sources,** with particular attention to security of supply. There has already been some shifting, but much of this may take years.
- 02 Think even harder about both supply chain and price pressures and prepare.** Prices will change substantially, but unevenly, over many sectors. Some sectors may benefit in the near term from inflation (oil and gas for example, but others as

well). Others will see costs rise without the ability to immediately pass it through in prices. Every company needs to consider its margin outlook as well as that for suppliers and customers. In some cases, companies may want to aggressively build inventory, which requires capital.

- 03 Prepare for recession.** Take action to trim costs and adjust to be sustainable with a temporary reduction in business. Both growing companies and those in transition will need to make these assessments now.
- 04 Recapitalize and/or trim assets.** The time to strengthen balance sheets is now. The cost of debt and the cost of equity will rise significantly, and terms of financing will likely get tougher. If companies have any lender who is uncomfortable, consider a replacement. If a company can arrange more liquidity, whether through the expansion of a debt facility, a sale of some equity, or a sale of non-core assets, this is the time to do it.
- 05 The Ukraine conflict has shown the world what happens when we are suddenly short on energy supplies:** painful inflation, necessities that become unaffordable for many, and very likely a recession. The current crisis has demonstrated that the alternative to greater investment in oil and gas—as well as green energy—in at least the next decade or two will be widespread suffering and deprivation. With looming food shortages as well as high inflation, we may see more of that than we would like in the near term. Neglect of the priority of adequate energy supplies will have dire economic, social, and political

consequences. Europe is beginning to acknowledge this reality. Ironically, after the Greens party in Germany had pressed Chancellor Merkel to shut down its nuclear power industry, which in turn made Germany greatly dependent on Russia for natural gas, now the German Minister of Economic Affairs and Climate Action Robert Habeck, a politician in the Greens party, is calling for rapid expansion of LNG import capacity.

- 06 As a global community, we need to broaden the mix of energy sources.** We need to aggressively pursue renewable energy and other forms of clean energy, including nuclear power and large-scale energy storage, which is one of the places where hydrogen may play a role. The energy mix must also include oil and gas in the foreseeable future and natural gas on a longer-term basis than oil. Meghan O'Sullivan, Director of the Geopolitics of Energy Project at Harvard's Kennedy School stated, "What the last month has told us is that if there is no energy security today, the appetite for taking hard steps on the path of transition will evaporate."
- 07 Natural gas needs to take a leading role in energy transition.** Over the coming decades, substantial use of natural gas is absolutely essential to achieving the world's carbon reduction goals. The developed world can afford to spend large sums on the energy transition, but in much of the world, there are huge populations living in energy poverty without any electric power at all. Until they greatly improve that condition, power from any source, including large numbers of coal-fired electric plants, will

take priority over carbon reduction in those countries. It is essential to our climate goals that hundreds of planned coal-fired plants in the developing world be built instead as natural gas-fired plants or possibly as nuclear plants. There is no practical alternative that will meet the magnitude of that need.

08 The US needs to lead the expansion of LNG trade. The US is uniquely positioned to be a major—and perhaps leading—player in that effort. We need to dramatically expand our LNG export capacity along with related infrastructure. That will require the US government to endorse that plan as a national and global priority and to pave the way for pipelines and LNG export facilities, as well as long-term contracts, to make it possible. Otherwise, the world as a whole will be decades delayed in reaching its carbon reduction targets. And in the climate discussion, the world as a whole is all that matters. If we focus on accelerating the race to reduce carbon by blocking LNG exports so that the US carbon footprint looks better, then the world will suffer from the reverse: a much higher level of global emissions and the impacts that will have on our planet.

Conclusion

The impact of supply disruption as evidenced during the Ukraine crisis showcases the dramatic negative effects on economies and livelihoods around the world when needed energy sources are in short supply. Events like these can also heighten tension between developed and under-developed economies in future periods if the world continues to under-invest in fossil fuels in the near term. While the Energy Transition is fully underway, Russia's invasion of Ukraine highlights the fragility of the global energy mix. We need to maximize both the transition to green energy and investment in fossil fuels so long as we are highly dependent upon them.

With the US as one of the leading producers of oil and gas and one not limited by OPEC guidance, American investors and American energy companies will need to step in to assume the crucial role of meeting the world's energy needs. The right path, and the one that has worked time and again, involves government-led incentives and perhaps penalties, mostly of an economic nature, and a market-based system otherwise mostly left to do what it does best. Quotas and mandates tend to be highly inefficient and destructive to creativity, innovation, and motivation, as has been demonstrated both in free market economies such as ours and in government-dominated economies, including Russia's parent, the Former Soviet Union.

Capital flows into the energy complex—focused on both existing sources and from new sources of energy—must accelerate rapidly, and American producers of natural gas and crude oil should be encouraged to increase their fossil fuel activity while at the same time we continue to expand investments aggressively into renewable and clean alternatives.