The Keynote Address By Amara Ashfaq

For my keynote address at the Energy Tech Summit, I'm going to be discussing a topic that has been in the headlines for quite a while now: as we all know, the global spotlight is on the Russia-Ukraine crisis, which has been responsible for wreaking havoc on global fossil fuel markets.

In this presentation, I am going to explore the possible effects of the sanctions that have been placed on Russian energy by the West and offer my perspective on whether Europe will be able to liberate itself of its historic dependency on Russian oil and gas.

Let's talk about this dependency for a bit. Russian oil provided more than a quarter of total oil imports in the EU in 2020, and we can see just how many billions of USD countries like Germany and Poland spent on Russian oil in 2021.

Europe's dependence on Russian gas is even greater. As made evident from the pie chart, Russian gas made up nearly half of the total gas imports in the EU in 2020.

There are actually three reasons for Europe's persistent dependence on Russian gas. Firstly, Europe's own natural gas production started to decline rapidly post-2010, before which Europe's domestic gas production provided between 50-60% of Europe's demand, with the UK and the Netherlands heading the productions. But earthquakes related to gas production decreased the Netherlands' gas output, and UK production also started to decline. Secondly, Europe's demand for gas has levelled off in the past five years, so there's a demand-supply gap that needs to be addressed. Lastly, despite successful attempts to expand Europe's LNG regasification capacity, alternative supplies still fall short of closing the growing import gap.

So, we've established that Europe is extremely reliant on Russian fossil fuels, now let's move on to how fossil fuel markets were impacted by the crisis. As the charts show, oil prices were at their highest since 2008. To address these significant market and supply disruptions, member countries of the International Energy Agency committed to release 60 billion barrels

of crude oil from strategic reserves, but the pressure on gasoline prices continues to mount. We can also see that, since January 2022, gas prices in the EU have risen by 144%, adversely impacting the residential and industrial users. Further major restrictions on Russian energy exports, coupled with limited opportunities to switch energy suppliers in the short run, could place a further burden on consumers.

Let's move on to what sanctions and restrictions have been placed on Russian energy thus far. First of all, the U.S. is banning all Russian oil, gas, and energy imports. The UK, on the other hand, will phase out Russian oil imports by the end of 2022. The UK Prime Minister, Boris Johnson, accepted that the move would not hit Russia immediately but added, "what it will do is add to the pressure we're already seeing on Russia and don't forget that the economic impact of the sanctions that the UK has led has been extreme".

The EU stopped imports of Russian coal, and now faces pressure from its allies to place sanctions on Russian oil and gas. Again, Europe's dependence on Russian oil and gas makes EU countries reluctant to place restrictions on them. So far, there has been a long-term commitment by the EU to switch to alternative supplies and make Europe independent from Russian energy "well before 2030".

Additionally, the operating license for Nord Stream II has been put on hold by Germany. The Nord Stream II is a 1200 km pipeline under the Baltic Sea, which runs from Russia to Germany. If the pipeline becomes operable, Nord stream I and II will be able to deliver 110 bcm of gas to Europe every year, rendering Europe even more dependent on Russian gas.

So, what do these sanctions imply for Russia and its economy? Overall, if all sanctions are considered, according to the Bloomberg forecast, Russian GDP will fall by 9.6% in 2022 with a peak quarterly GDP decline reaching negative 15.7% of annual growth rates. Since oil and gas are the backbone of Russia’s budget- and around half of its oil exports and three-quarters of its gas exports are accounted for by the European Market- EU sanctions on oil and gas will send a very strong signal to Russia. So far, I've focused on how Europe depends on Russia for its energy. But it is equally true that Russia depends on Europe for a large chunk of its budget.

A huge concern surrounding the sanctions is that they will be ineffective- harming the EU more than Russia, because while the EU will have to do without its main sources of gas and oil, Russia may easily direct its supplies to China. However, the size of the European market, and the constraints of the transportation infrastructure- given the fact that the bulk of Russia's pipelines are concentrated in Europe- make it impossible for Russia to simply substitute its oil and gas supplies to China and other countries. Besides presenting a united western front to Russia, EU sanctions on oil and gas may also induce China into joining the West in admonishing Russia. A study employing ENVISAGE, a computable general equilibrium model, estimated that by 2030 the cumulative loss in real income for Russia would exceed US$1.1 Trillion, while cumulative export revenue losses from reductions in fossil fuel exports would total almost US$1.4 Trillion.

Now, let's move on to see how countries placing or thinking of placing these sanctions will be affected. Approximately 8% of U.S. oil and refined product imports come from Russia. As discussed before, the conflict had already sent petrol prices to record highs in the U.S, and U.S. sanctions on Russian energy will obviously affect Americans too. However, Venezuela

is set to increase its oil production to replace Russian oil. Even though the country has faced heavy U.S sanctions in the past, talks to raise production to as much as 1.2 million barrels a day, are taking place, which will supply some of the shortfall. Russia makes up about 6% of the UK's oil imports, which makes Russian oil important enough for the UK to not impose immediate sanctions on it. The UK Prime Minister, Boris Johnson, accepted that phasing out oil imports by the end of 2022 would not impact Russia immediately.

The EU is much more reliant on Russian energy and is, ergo, far more reluctant to impose energy sanctions on Russia. So far, the EU has only ended imports of Russian coal- with a four-month transition period to wind down under way. European Commission President Ursula von der Leyen said the action on coal would amount to US$4.4 Billion a year. The EU is now under immense pressure by its allies to stop Russian oil imports. However, a number of the EU27 are ill-equipped to deal with the economic consequences of cutting off Russian oil imports, what with Russia being the EU's largest oil supplier. Germany has played a major role in resisting an EU-wide oil embargo on Russia, despite pressure from the other EU-states to do so. Germany gets 34% of its oil from Russia and leading German economic institutes have said that an immediate embargo would result in a 2.2% decline in Germany's GDP in 2023, amounting to 220 billion euros in 2022 and 2023. Deutsche Bundesbank, the central bank of Germany, has estimated that an oil and gas embargo on Russia would trigger a deep recession in Germany, but that the slump would probably be less severe than the impact of COVID-19.
Thus, despite the pressure to make a decision, an EU-wide oil embargo on Russia is yet to be decided. So far, putting an end to Russian gas imports has not been entertained at all, because they remain too critical to important European economies, particularly Germany. However, the International Energy Agency has released a ten-point plan that outlines ways in which reliance on Russian gas may be reduced. According to the IEA, the measures implemented in 2022 could bring down the EU's imports of Russian gas down by over one-third. So, let's take a look at them. This ten-point plan stresses a number of short-term measures that can be enacted immediately to reduce dependence. I'm going to discuss a few of them. For example, accelerating energy efficiency improvements in buildings and industry would reduce gas consumption for heat by close to an additional 2 billion cubic meters within a year. Points 4 and 5 stress the hastened deployment of new wind and solar projects, as well maximizing generation from alternatives like nuclear and bio energy. Point 4 could lead to an additional 35 TWh of generation from new renewable projects over the next year and bring down gas use by 6 bcm. Point 5 would add 70 TWh of power generation from existing dispatchable low emissions sources, reducing gas use for electricity by 13 bcm.

I'm now going to move on to assessing the viability of Europe seeking energy independence from Russia. We're firstly going to cover some potential roadblocks, both short and long term. In the event of a gas embargo on Russia, Europe faces an immediate problem: The EU Strategic Reserves for gas are not ready: as many as 14 of the 27 EU countries have reserves for less than a month of average imports. Additionally, as we have discussed, Germany gets 34 percent of its oil from Russia. A key challenge will be not only to find alternative suppliers to make up for that, but also to line up sufficient land transport for oil heading to two of its refineries that are transported by Russian pipelines.

The IEA's ten-point plan describes some measures to increase the immediate deployment of some renewable alternatives. In the long term, however, if Europe is to completely replace Russian gas, an additional 370 giga watts of wind must be installed (on top of 215 GW installed as of 2020). So far, we have discussed supply side measures to increase the supply

of oil and gas to Europe in the event of sanctions. However, it must be stressed that reducing demand for energy, at least in the short term, is as important. For example, turning down the thermostat for buildings' heating by just 1°C would reduce gas demand by some 10 billion cubic meters a year.

Researchers at Purdue University were interested in seeing how European economies would react to the imposition of increasing tariff barriers on Russia's natural gas, crude oil, and petroleum products. They estimated that the impact of cutting Russia's fossil fuel exports would have non-trivial consequences in the short term but would be modest for Europe in the long term. This translates into a slowdown in the income growth rate of only 0.04% per year – instead of growing at 2.18% per year, the EU's real income would be growing at 2.14% per year over the period 2022-2030. They also found substantial environmental and health co-benefits of such a move: they estimated that carbon dioxide emissions would drop by 3.1% in 2022. So, restrictions on Russian fossil fuels would also promise advancements in the EU green deal.

There are also a number of ways in which the negative effects of restricting Russian fossil fuels in Europe may be cushioned: for example, Russian gas could be replaced by Europe's coal-fleet in the power sector. This would obviously be a set-back in terms of climate policy but is a viable option in case of an emergency. Russian oil can be replaced with emergency stocks. IEA member countries decided to make an additional 120 million barrels available from their emergency oil stocks, over a six-month period.

In the short-run and taking the EU as an aggregate, the bloc will likely be able to survive a dramatic disruption to Russian gas imports. But involving individual entities across the EU, countries that are vastly different economically as well as politically, makes the end result far more uncertain and complex. For example, the central and eastern European pipeline system is designed to bring imports from the east to final consumers. If too much gas were to come from the west, pipeline bottlenecks could prevent sufficient deliveries to the easternmost parts of the EU or Ukraine. Ultimately, therefore, solidarity between EU countries is absolutely vital in order to move away from Russian fossil fuel.