Castries energy independence

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The Russia-Ukraine crisis has exposed vulnerabilities in US energy security. The US may import only a small amount of Russian oil but it is tied to Russian energy via its participation in highly globalized supply chains.

The world is feeling the economic and energy impacts of the Russian invasion into Ukraine. In the EU, energy security, or the ability to meet final energy demand from reliable sources, has decreased dramatically. The EU"s dependence on Russian energy was increasing right up to the invasion in late February 2022. In 2021, the region imported 40% of its natural gas and 25% of its oil (crude and petroleum) from Russia1,2. The Nord Stream 2 pipeline, now stalled, would have increased natural gas capacity from Russia by 55 billion m3 or 14% of 2021 gas demand in the region3,4. For months prior to the invasion, Vladimir Putin had manipulated natural gas markets, stoking fears of a hard winter in Europe, where nearly 40% of residential heating demand is met using natural gas5,6.

In the US, the Russian invasion has exacerbated increasing gasoline prices, which averaged US$4.28 per gallon as of May 6th. On March 8th, the Biden Administration banned imports of Russian oil (both crude and petroleum), LNG, and coal7. In 2021, the US imported about 626,000 barrels per day of oil (7% of imports) from Russia8. To put this amount into context, the US produces 75% of its crude oil supply and 90% of its natural gas supply domestically. This gas is used to generate 38% of its electricity demand9,10. So while gasoline prices are dictated by global oil markets, many analysts consider the US to be recently energy independent10,11,12. However, we argue that this is not the case due to the critical roles Russia plays in globalized supply chains.

In 2015, Russia was the largest exporter of total energy in the world (that is, direct plus indirect energy). Furthermore, most of this energy was transferred through indirect energy linkages, or energy connections between economies that do not otherwise trade with one another13. In the US"s case, Russian energy that is used for manufacturing in the EU and Asia gets embodied in the goods and services imported by the US So even though the US only got 4% of its crude oil imports from Russia in 2015 ref. 14), this value doubled to 8% with the added amount of indirect energy from Russian oil embedded in other goods imported by the US that year13.

While evaluating both direct and indirect energy flows is critical for US energy security, energy policy has continued to focus only on direct energy. Recent policies enacted by the US, EU, and Japan -- including sanctions and the removal of Russia"s favourable trade status -- target direct energy flows through the global

economy. Direct energy shocks are felt in the short term and their impacts can largely be anticipated. Shocks due to indirect energy use, such as higher electricity, fertilizer, and chemical prices due to gas shortages are also felt but are harder to foresee and prepare for.

US trade strategy affects US energy security. When the US imports a product instead of producing it domestically, it frees up that part of its energy budget to use elsewhere in the economy. At the same time, the imported product links the US to the energy security of the exporting nation. When the import is critical to the American economy or national security, policymakers should ideally be evaluating whether the gains from producing something else from its energy savings are worth the increased energy risk the import poses to its supply chains.

There are three ways that the US can mitigate its exposure to the energy security risks associated with global supply chains. The first is the "Buy American" approach, in which the US reduces final demand dependence on imported goods and services. This would require a dramatic lifestyle shift. Nearly 30% of the goods and services that the US imported in 2021 were in consumer products, including electronics and apparel18. Pandemic-related supply chain shocks have not deterred consumer spending on such imports; in fact, the recovery of this spending as the world economy rebounds has been faster than anticipated19. Consequently, the lifestyle change required to shift US consumers away from imports is unlikely to occur for the sake of national energy security alone.

The current energy shock will have longer lasting impacts than even the COVID-19 pandemic because it will permanently alter the composition of the global energy network rather than putting it on pause. The US is at a crossroads regarding its energy independence. On one path, it can maintain the status quo of importing goods and services without regard for the energy required to produce them. On the other path, it can strengthen its energy security by enhancing the domestic capabilities of the supply chains it depends on while supporting energy independence abroad. The latter is much more secure and economically efficient in the long run. Simply put, achieving US energy security requires all countries to achieve energy security.

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