

Working Group Paper #2

Energy Sanctions Roadmap: Recommendations for Sanctions against the Russian Federation

The International Working Group on Russian Sanctions

May 9, 2022

<https://fsi.stanford.edu/working-group-sanctions>

[The International Working Group on Russian Sanctions](#)¹ aims to provide expertise and experience to governments and companies around the world by assisting with the formulation of sanctions proposals that will increase the cost to Russia of invading Ukraine and support democratic Ukraine in the defense of its territorial integrity and national sovereignty. As a follow-up to our first [Action Plan](#), this second working paper provides new ideas about energy sanctions, which have been informed by additional memos and papers [on our website](#).²

Russia's economy and budget are underpinned by revenues from the sale of oil and gas, primarily to Europe. Since the start of the war, the European Union (EU) has paid the Kremlin around \$800 million daily to import Russian oil and gas. These payments finance Putin's war against Ukraine. This working paper recommends policy options to deny Russia this revenue from energy sales, while at the same time minimizing disruption to markets and the global economy.

We endorse the European Commission's decision to introduce a complete import ban on all Russian oil.³ We also recognize the Commission's intention to phase in the ban in an orderly fashion over a number of months in order to minimize the impact on global markets and allow member states to secure alternative supply routes. Our proposals are in line with those communicated thus far by the EU and include specific mechanisms designed to enable an orderly phase in of the import ban while also minimizing Russian oil export revenues during the phase-in period.

To achieve this aim, the paper sets out proposals for immediate European action to reduce Russia's oil and gas revenues rapidly, combined with longer-term actions to eliminate Russian oil and gas sales to Europe and the Russian threat to European energy security. Several proactive strategies are proposed. In addition, mitigation strategies to counter potential weaponization of energy resources and to anticipate retaliatory actions in the gas sector are offered. As the critical objective is the maximal reduction of Russian export earnings, our goals remain to:

- (1) Choke off Russian revenue from European energy imports via “smart embargoes” on Russian oil and gas**, including an immediate embargo on Russian oil imports, as now proposed by the European Commission, and a graduated embargo on Russian gas imports; and
- (2) Rapidly make Europe independent of Russian energy resources.**

We propose two policy options – mechanisms can be implemented independently or in tandem – that countries could use to help achieve these goals:

- (1) Impose a tax on the sellers of Russian energy into Europe** in order to confiscate the funds that the Russian government currently captures in the form of export taxes; and

¹ All members of this working group participate in their private capacities, but we have consulted with numerous government officials, particularly with the Government of Ukraine.

² Our aim was not to produce a consensus document, but instead to provide a menu of possible additional measures to be considered by governments, multilateral institutions, and private actors. The implications of every sanction have not been thoroughly analyzed, and not everyone agrees with every specific sanction or action proposed.

³ “Speech by President von der Leyen at the EP Plenary on the social and economic consequences for the EU of the Russian war in Ukraine – reinforcing the EU's capacity to act,” *European Commission*, May 4, 2022, https://ec.europa.eu/commission/presscorner/detail/en/speech_22_2785/

- (2) Create an escrow regime to capture the balance of Russian export earnings** so that they remain outside of Russian governmental control (in much the same way that existing sanctions have impacted Russian central bank reserves).

This paper focused heavily on gas, partly as a reflection of the increased consensus on the way forward for oil, following the European Commission's proposal of a full embargo on European imports of Russian oil.⁴ But it also signifies the importance of denying Russia revenues from gas exports, since Europe has paid Russia far more for gas than for oil during the war. If Europe can cut its purchases of Russian gas, the associated gas export earnings would be eliminated, since Russia has nowhere else to sell its gas, whereas Moscow can for now sell the oil embargoed in Europe to Asia, albeit at a deep discount. Encouragingly, we see substantial progress in the effort to reduce European reliance on Russian gas, such as the recent German announcement that floating liquefied natural gas (LNG) terminals will be operational by year end⁵, which brings the date of a full EU embargo on Russian gas closer.

Finally, although this white paper mainly discusses European actions, a European embargo should be part of a coordinated strategy with the United States that involves diplomatic action with other countries and engagement with private sector stakeholders.

⁴ Based on currently available information - an import ban for crude oil and petroleum products, with a transition period of 6-8 months.

⁵ Vera Eckert, "Germany ramps up capacity for LNG imports to replace Russian gas," *Reuters*, May 5, 2022, <https://www.reuters.com/business/energy/germany-ramps-up-capacity-lng-imports-replace-russian-gas-2022-05-05/>

I. Introduction

[The Action Plan on Strengthening Sanctions against the Russian Federation](#) outlined a comprehensive list of sanctions for many sectors and individuals, including several recommendations for expanding oil and gas sanctions, in recognition of the critical role that Russia's energy sector plays in financing its war against Ukraine. This document aims to continue that discussion and detail other important considerations in light of recent developments. It recommends several policy options to deny the Russian Federation revenue from its energy sales and its ability to access these funds, while minimizing disruption to energy markets and the global economy. Outlined proposals rely on the following principles:

- A. **Rapidly reduce the inflow of Russian energy revenues**, thereby constraining its capacity to continue financing the war.
 1. **Avoid further upward pressure on energy prices or disruption to the global energy market**, to the extent possible.
 2. **Propose immediate and short-term policy options** that are also mindful of long-term considerations.
- B. **Seek to achieve European independence** from Russian hydrocarbons to support national and energy security objectives.
 1. **Recognize the interdependence of economic and security considerations**, so that measures do not prioritize either economic or security outcomes at the expense of the other.
 2. **Recommend mitigation measures** in anticipation of an abrupt stop to oil and gas deliveries from Russia to Europe, or similarly coercive Russian behavior.
- C. **Maintain global cohesion** and expand the coalition opposing Russia through management of global energy demand and avoidance of excessive price increases.
 1. **Coordinate energy sector sanctions** with sanctions on other sectors.
 2. **Limit reliance on secondary sanctions** through enhanced coordination among partner countries.
 3. **Ensure unity and coordination across the sanctions regime** as much as possible to increase the effectiveness of implementation.

The overall strategy should encompass both **proactive measures** to reduce revenue inflows to Russia and **mitigation measures** to address the potential impact of predictable retaliatory measures, including an abrupt termination of Russian energy deliveries and/or irreversible loss of critical energy infrastructure. It is also imperative that the sanctions coalition stay united in addressing the overall Russian threat to Ukraine and Europe. Recognizing that European energy sanctions are likely to be less strict compared to U.S. policies, European actions should be treated as an exception under U.S. primary or secondary sanctions.

II. Proactive Strategy for Oil

Consistent with recently announced EU aspirations, the primary objective of our recommendations is to reduce oil export revenues to the Putin regime to the maximum extent

possible and as fast as possible, with the additional aims of minimizing energy supply shocks and safeguarding European energy security.

To achieve these objectives, we propose the implementation of a "smart embargo" that bans to the greatest extent possible the European import of crude oil and oil products from Russia and Belarus. For any remaining interim volumes that are purchased during the Russian oil phase out process, we propose using a special interim regime that could augment the capabilities of the path to full embargo, while depriving the Russian Federation of energy revenues immediately, as outlined below. The following mechanisms can be implemented as a part of such a special regime, separately or together:

- A. **An adjustable import tax (or tariff) designed to transfer substantial funds away from Russian and/or Belarusian exporters for the purpose of sharply reducing export revenues for the war and providing monies for Ukraine reparations (the "value-transfer mechanism")**⁶. Under this mechanism, Russian and Belarusian exporters may sell to EU buyers, provided the buyers remit all payments to a designated EU Payment Authority. The Payment Authority will net out any tariff or tax assessed, which will be allocated to a special account to fund Ukrainian reparations. It can be administered by the EU (the "Controlled Sales Regime").
- B. **Separate value-transfer mechanisms will be maintained for each category of imported crude oil and oil products.** The EU will find it easier to substitute some categories of oil imports, such as sour crude, than others, such as diesel. To provide targeted incentives for products in short supply, the Payment Authority will maintain a separate value-transfer mechanism for each major category of oil imports (e.g., Urals blend, Siberian light, fuel oil, diesel, and others). Thus, the EU can increase or decrease the net payments on any particular category based on prevailing market conditions at any given time. Such a mechanism can be implemented either in the form of a simple value- or price- based tax, or as a more nuanced system.
- C. **A special escrow account will hold net proceeds due to exporters.** The Payment Authority could deposit any net sale proceeds into a special escrow account in approved European banks for the benefit of the exporter. Those proceeds could remain in escrow until an appropriate time following the cessation of hostilities. A portion of escrowed funds may be accessed sooner, such as for humanitarian purposes, at the EU's discretion.
- D. **Targeted sanctions against material-service providers enabling seaborne exports aimed at circumventing the Controlled Sales Regime.** To discourage any large-scale efforts to circumvent the Controlled Sales Regime, the EU (in conjunction with the United States and the United Kingdom) should impose sanctions on service providers enabling seaborne exports to non-EU consumers. These service providers could include, but are not limited to, maritime insurers, banks, commodities traders, vessel chartering firms, commercial certification providers, technical support and maritime engineering firms, and offshore vessel tethering and ship-to-ship transfer support services providers. Most of these service providers for the Russian-oil seaborne trade have traditionally been based in Europe.

⁶ Please note possible misinterpretation, because tariffs are usually imposed on the importer (buyer, seller or trader) and thus add to the cost of goods paid by the consumer. The idea described in the paper is to tax the proceeds to the seller rather than to "add" a cost to the importer (the same way that withholding taxes are used in many countries).

- E. **Further sanctions on Russia's oil sector.** Existing sanctions on oil-field services and technologies should be expanded to include all oil-field services and technologies for any oil-exploration and production projects within Russia, not just shale, deep-water, and Arctic offshore projects. EU and U.S. nationals working in senior executive positions in the Russian oil and gas sector should be subject to individual sanctions.

There is major uncertainty about the impact of an EU or Group of Seven (G7) embargo on Russian oil, and the extent to which Russia will succeed in diverting its volumes to Asia and other markets. We anticipate two scenarios:

- If the market adjusts smoothly to a full EU ban – in line with what has occurred to date⁷ – then we favor further rapid progress to a full embargo;
- Should a supply shock start to materialize, producing higher prices and market disruption, then we would favor the Controlled Sales Regime⁸. This approach would allow ongoing oil exports to European markets, mitigate the risk of a supply shock, and constrain Russian access to oil revenues.

In both scenarios, Ukraine and its allies will have options – as the market adjusts and the risk of a supply shock recedes – to target weaknesses in the Russian export model, including its limited transport capacity to Asia and reliance on Western logistics and insurance.

III. Mitigation Strategy for Oil

Smart energy policies should anticipate retaliatory actions that Russia may take, while setting out short- and medium-term steps that make it possible to implement the revenue-reduction strategies in parallel with non-energy sector sanctions. We recommend the following measures to ensure energy reliability and to maintain other strategic responses.

- A. **Increase European ownership over critical infrastructure.** A vigilant focus on infrastructure dependency in Europe is necessary to safeguard national security and energy policy. Ownership by Russian state-owned enterprises of European critical infrastructure poses a security risk that needs to be addressed before Europe's moment of maximum vulnerability next heating season. Across Europe, Gazprom owns critical gas storage facilities, while Rosneft owns refineries. Classifying facilities as national security infrastructure and requiring Russian divestment will mitigate risks to energy security and ensure greater European control. The EU-wide investment controls' mechanism needs to be strengthened.
- B. **Reduce demand for fossil fuels.** The International Energy Agency (IEA)'s [10-Point Plan to Cut Oil Use](#) proposes 10 demand-restraint measures to offset the reduction of Russian oil supply. The IEA estimates that full implementation of these measures in

⁷ With sharply reduced EU offtake, Russian oil production had decreased by approximately 1 mbopd by late April, and there is a large discount on Urals, but at the time of this writing global oil prices were around the same level they were at the time of the invasion.

⁸ Note that the import taxes recommended as part of the Controlled Sales Regime could be adjusted as often as necessary to confiscate not only the excess rents currently received by the Russian government in the form of export taxes, but also any excess value resulting from market price increases.

OECD countries alone could cut oil demand by 2.7 million barrels a day within the next four months, relative to current levels.

- C. **Further release emergency reserves.** The release of 240 million barrels of emergency reserves by the IEA countries would make a material difference to market supply. But when Allied forces started their air campaign against Iraq in 1991, the IEA activated a pre-agreed plan to release 2.5 million barrels a day. IEA Member Countries hold 1.5 billion barrels in public reserves and about 575 million barrels under obligations with industry. A further tranche of releases should be considered if prices rise from current levels. It will also be necessary to ensure that, even if reserves are tapped, there is a sufficient global strategic reserve to prevent market panic or physical shortfalls.
- D. **Tap into OPEC+ spare capacity.** OPEC now has a spare capacity of approximately 3.7 million barrels per day (MBD), which increases to 5.9 million barrels per day if Iran and Venezuela are included.⁹ OPEC appears to be continuing its agreed 400k per month pace of quota increases, which implies a 2 million barrels per day rise in quotas by September 2022. Saudi Arabia and the United Arab Emirates, in particular, have 3 million barrels a day in spare capacity, as well as some headroom within their quota. They should be encouraged to put this oil on the market rapidly to mitigate disruption.
- E. **Encourage increased non-OPEC production.** Additional countries should be encouraged to lift regulatory limits on production for the duration of Russia's war on Ukraine, with particular efforts focused on U.S. shale output, given its proven capacity to quickly increase production.
- F. **Support Kazakh and Libyan production.** The Caspian Pipeline Consortium (CPC), which delivers oil to Novorossiysk (Russia) on the Black Sea, transports about 1.4 million barrels of oil per day. While the loading of this Kazakh oil at Novorossiysk has resumed,¹⁰ Russian control over the CPC remains an ongoing vulnerability. We therefore urge the use of an alternative route for Kazakh oil. Spare capacity of around 700,000 barrels of oil per day (BOPD) could be transported on the Baku-Tbilisi-Ceyhan pipeline from Baku. There is additional pipeline and rail capacity through the Caucasus, which could accommodate shut-in Kazakh output, if Russian exit routes such as the CPC, are closed or sanctioned. In addition, Libya's General Khalifa Haftar has shut 500,000 barrels in the country's production, ostensibly as part of a dispute over revenues with the internationally-recognized government in Tripoli. Intervention with Haftar and provision of security over oil production in Libya has the scope to increase supply rapidly, while reducing Russian influence over oil markets.
- G. **Rely on higher European margins to replace Russian diesel.** Since European refineries almost always operate in the maximized diesel production mode, the loss of Russia's substantial diesel supply to Europe represents a particular challenge. Market experience, however, thus far implies that even a total loss of Russian oil-product exports to the EU would not precipitate a severe shortage. By earning a high enough premium, U.S., Middle East, or Indian refineries will choose to redirect their products to Europe. In

⁹ *Oil Market Report - April 2022* (International Energy Agency, Paris), <https://www.iea.org/reports/oil-market-report-april-2022>.

¹⁰ During the war, up to 1 mbopd was removed from global supply, in actions which may have been influenced by Russia. Significant Kazakh production was locked in for several weeks in March-April as the Caspian Pipeline Consortium "suffered storm damage and had to be closed for repairs." Reports say CPC damage at Novorossiysk has been repaired and oil is loading again, but some CPC producers are anxious Russia could shut it down again.

particular, energy loadings from the U.S. Gulf Coast increased by almost 50% m-o-m in March, to 910 kb/d, the highest level since August 2020.¹¹ Oil products that are purchased from the Russian Federation can potentially be substituted through heavier reliance on Asian and U.S. refining capacities, and increased refining throughput in Europe, which remains below 2019 levels.

IV. Proactive Strategy for Natural Gas

Pipeline Natural Gas

European countries are much more reliant on Russian gas than Russian oil. At the same time, Russia cannot readily replace European demand for its gas at present or in the future. For Europe, including Ukraine, losing Russian gas supplies also represents a significant cost, particularly for countries that are quite reliant. Various macroeconomic estimates suggest that a cut-off of Russian gas would produce a hit to German GDP of 0.5-5% relative to a “do-nothing” baseline, therefore resulting in a German recession with a year-on-year GDP drop of up to 2.5%, and somewhat smaller GDP losses for other EU countries.¹²

We expect Russia to exploit what it perceives to be its asymmetrical advantage with respect to gas and its consequent ability to drive wedges among European countries, as witnessed in its selective retaliation via cut-offs in Poland and Bulgaria. Russia's energy weaponization in the gas sector could encompass a range of malign actions, from increasing prices and creating regional energy shortfalls to switching off exports to individual countries, buyers, or Europe entirely. Our proactive strategy, guided by the objective of full independence from Russian gas, would begin with channeling Russian pipeline-gas flows to Europe through Ukraine's pipeline system, known as the Ukrainian Gas Transmission System (GTS).¹³

At the same time, the EU should develop an unequivocal position on the gas-for-rubles payment scheme. Regulatory, legal, and sanctions-aimed actions taken by global democracies should immediately forbid payment schemes designed to support the value of the Russian ruble, indicating a firm and unequivocal rejection of the Russian presidential decree issued in March 2022 mandating that Russian energy payments be made in rubles. Given the urgency of the current situation, the EU should appoint a common EU gas negotiator to eliminate Russia's ability to seek to divide and conquer.¹⁴ We recommend the following policy options for a “smart embargo” of Russian gas:

- A. Require that all sales of Russian gas to the EU be channeled through the Ukrainian GTS. This approach would suspend deliveries via Nord Stream 1, Yamal-Europe, and TurkStream Line 2 (for EU exports). It also would effectively neutralize Russia's strategy

¹¹ *Oil Market Report - April 2022* (International Energy Agency, Paris), <https://www.iea.org/reports/oil-market-report-april-2022>

¹² For more information, see: https://benjaminmoll.com/RussianGas_Literature/ and <https://cfmsurvey.org/surveys/effects-embargo-russian-gas>.

¹³ GTS maximum capacity is 120-140 bcma, whereas total average annual imports of EU from RF is ~155 bcma, and the demand is falling. With the elimination of volumes to Poland and Bulgaria, this gap is already negligible.

¹⁴ Agata Loskot-Strachota, Georg Zachmann, and Simone Tagliapietra, “EU risks letting Putin's gas divide-and-rule strategy win,” *Euractiv*, April 29, 2022, <https://www.euractiv.com/section/energy/opinion/eu-risks-letting-putins-gas-divide-and-rule-strategy-win/>

of diverting gas deliveries to Europe away from Ukraine and constrain Russia's ability to discriminate selectively in its allocations of gas supply. Announce the near-term decommissioning date for Gazprom's Nord Stream 1, TurkStream Line 2 (for EU exports), and Yamal-Europe pipelines.

- B. With the dual objective of cutting off Russian export revenues and achieving European energy independence, the following options can be implemented independently or in combination:
1. **Controlled Sales Regime.** Impose a levy on Gazprom for sales into the EU and retain the balance of payments in escrow accounts in a manner similar to the one described in the section on oil above. (As described in the oil section, the import tax would be levied on the supplier, thus confiscating the revenues that the Russian government otherwise extracts from export taxes. These funds would be directed by the EU to finance Ukrainian reconstruction. The balance of revenues would be held in escrow accounts in European banks pending a resolution of the conflict.)
 2. **Cease EU purchases of Russian gas.**
 - a. **Pause EU purchases of natural gas** for a short period, e.g. until the European Council in June, in order to squeeze revenues at this critical period in Ukraine's war effort. Such a measure would be unnecessary if the Controlled Sales Regime can be implemented quickly.
 - b. **End purchases of Russian gas from the least dependent countries.** Some countries have already announced that they will no longer purchase Russian gas, including Belgium, France, Portugal, Romania, Sweden, Spain, and Slovenia. In addition, Poland and Bulgaria have recently stopped receiving Russian gas, while Finland and the Netherlands have announced plans to stop purchases in 2022.
 3. **Support Ukrainian reconstruction.** Impose a reconstruction levy, to be funded by Gazprom, on all gas transiting Ukraine.

Liquified Natural Gas

The measures described for waterborne oil exports could be similarly applied to Russian LNG exports, e.g. limiting access to freight and other services in order to prevent circumvention of the "smart embargo".

V. Mitigation Strategy for Natural Gas

Russia has recently undertaken several disruptive measures related to the energy markets, perhaps most notably Gazprom's decision to halt gas supplies to Poland and Bulgaria, which are both highly dependent on Russian gas for domestic energy consumption. The measures enumerated below will lower the demand and eventually facilitate complete European independence from Russian gas. Moreover, rapid implementation will mitigate the negative impact if Russia decides to cut off its gas supply to Europe abruptly and will further send a

signal of united European strength by stopping the current flow of billions of euros to the Russian government. Reducing reliance on Russian gas should also go together with broader European clean energy objectives, as referenced in the European Green Deal. The costs of the transition towards more secure and green energy in Europe will be higher as a result of the current emergency, which needs to be communicated to voters. Below, we outline measures to mitigate these costs:

- A. **Set out a base-case and contingency plan.** Each European state, and the EU as a whole, should plan to replace Russian gas in the near-to-medium term and create a contingency plan in the case of an immediate and permanent supply cutoff. Governments can protect specific companies that are highly dependent on pipeline gas based on a careful review of strategic and economic importance. In addition, each European state and the EU as a whole should provide support and resources to industrial gas consumers to facilitate substitution with alternative fuels.
 1. **Lift restrictions on domestic production of gas for the duration of the war.** This recommendation applies especially to the giant Groningen field in the Netherlands – currently scheduled to shut down, given concerns about seismic activity – and the Danish, British, and Norwegian sectors of the North Sea. Encourage investment in projects to increase European production.
 - a. Consider the development of shale-gas.
 - 1) The U.S. Energy Information Administration (EIA) estimated that Europe’s technically-recoverable shale-gas resources amount to roughly 17 tcm, with Poland (4.2 tcm), France (3.9 tcm), Ukraine (3.6 tcm), and Romania (1.4 tcm), possessing by far the largest quantities. This resource has the potential to cover Europe’s total natural gas consumption, at 2021 levels, for roughly 40 years.
 - 2) Because this resource requires further appraisal to prove commerciality, and ultimately to develop, it would not be available for several years, even in the most aggressive scenario. Moreover, extracting these shale gas reserves would require hydraulic fracturing (or “fracking”), which is unpopular in Europe and restricted by law in a number of countries.
 2. **Develop other European gas reserves,** including making a final investment decision in 2022 on the development of the gas fields in Cyprus (Aphrodite) and Romania (Neptun Deep). In addition to ensuring European control over gas storage facilities currently owned by Gazprom, evaluate other possibilities for strategic storage.
 3. **Eliminate European bottlenecks.** Make final investment decisions in 2022 on key measures to de-bottleneck European gas flows, including the France-Spain interconnector as well as flows to Germany, on the assumption that Nord Stream 1 and Yamal may no longer again transit gas.
 4. **Expand existing pipeline flows** to Europe, including from Norway, Algeria, Libya, Azerbaijan, and the wider Caspian region.

- a. Encourage larger imports from Norway or Algeria.¹⁵ Norway and Algeria are the second and third-largest suppliers of natural gas to EU countries, accounting for 15-16% and 8-10% of total imports in recent years, respectively. Both largely export via pipelines, with LNG making up around 5% of Norwegian and 20% of Algerian deliveries. While some analysts argue that Norway could step up production by around 13 bcm in 2022, Prime Minister Jonas Gahr Støre has stated that additional exports are not possible. Similarly, Algeria's capacity to provide additional quantities in the short term remains constrained.
 - b. Reassess the Southern Gas Corridor and Central Asia. A pipeline system connecting Azerbaijan's natural gas fields to Europe without running through Russian or Iranian territory has long been an important project for the EU; it has materialized in a system of three separate pipelines that constitute the so-called Southern Gas Corridor: the South Caucasus Pipeline (SCP), the Trans-Anatolian Pipeline (TANAP), and the Trans Adriatic Pipeline (TAP). However, the system's 16 bcm capacity is currently maxed out and, even if it were raised, there are doubts about Azerbaijan's ability to step up production materially. For Central Asia, pressure from Russia and domestic policy considerations have prevented exports to Europe, and gas is largely used for domestic consumption, but the inclusion of additional volumes from Turkmenistan should be re-evaluated.
- B. **Reduce demand.** Russia currently supplies 35% of the European gas market, providing substantial volumes (155 bcma) that cannot be fully replaced without significant investment over several years. The only realistic way to prepare for the eventuality of the loss of Russian gas is through substantial demand reduction.
1. **Use the price mechanism.** One of the most effective means known to prompt a rapid market response is prices. To a substantial extent, the market itself has already gone a long way toward sending the pricing signals necessary to precipitate demand destruction.
 - a. The high price environment is already expected to lower the EU demand for natural gas by 6% or by around 23 bcm in 2022, with use of gas for power squeezed out by relatively cheaper coal and renewables.
 - b. The demand for heating of residential and commercial buildings is also expected to lower, assuming average weather conditions, while industrial demand is hurt by the high price environment.
 - c. Governments should begin large-scale conservation campaigns to focus attention on the importance of energy to national security.
 2. **Adjust fiscal policy.** Governments can reduce demand through tax policy if necessary.
 - a. The unpopularity of these measures could be mitigated through targeting, e.g., at consumption above some base level, and by the redistribution of proceeds to households and enterprises most impacted by higher energy costs.

¹⁵ [Europe's National Gas Conundrum.pdf](#)

- b. The combination of high domestic and industrial gas prices and compensatory payments would encourage rapid substitution of fossil fuels to reduce costs, while compensatory payments could help facilitate fuel transition or be retained in such a manner that many households and businesses would benefit.
- C. **Curtail gas-to-power.** Reducing the use of gas for power is a strong starting point, given the availability of substitutes.
 - 1. **Substitute other fuels as interim measures.** In most European energy systems, there are a fleet of plants – coal, lignite, nuclear, biomass, oil – which can be used more intensively to reduce the role of gas.
 - a. For instance, Germany has multiple options to curb the use of gas for power. Its current around 30GW of gas-fired power plants could be largely replaced with around 6GW of nuclear – which would involve keeping open the nuclear plants scheduled for closing in 2022 (Emsland, Isar, Neckarwestheim), and reopening those that were closed at the end of 2021 (Gundremmingen, Brokdorf, Grohnde) – and reopening or not decommissioning around 15 GW of coal and lignite plants, including the 7.2 GW of lignite plants, and 6.1 GW of coal plants scheduled to shut by end-2022, and the modern 1.6GW Marburg coal plant in Hamburg, currently in preservation.
 - b. While increased use of nuclear energy would reduce carbon emissions compared to gas, increased use of coal and lignite would increase emissions until substitute generation capacity (e.g., wind or solar) can be brought online. This drawback should be weighed against the consequences of a dramatic loss of gas supplies on home-heating and industrial capacity.
 - 2. **Accelerate wind and solar deployment.** In addition to increasing the utilization rate of nuclear, coal and biomass plants, the EU should promote the acceleration of wind and solar deployment, including by addressing delays with permitting.
 - a. The financial incentives for rooftop photovoltaic systems installation would reduce both consumer bills and demand for gas in the residential sector.
 - b. Accelerating the adoption of renewables will reduce gas consumption in a manner fully consistent with long-term EU objectives and will allow for the faster (and permanent) retirement of the coal fleet called into short-term service.
- D. **Install floating storage and regasification units (FSRUs) to allow additional LNG supply with a wartime level of investment and approval speed to ensure increased capacity of LNG to flow to European gas storage before the next heating season.**
 - 1. Consider the rapid development of FSRUs at locations currently proposed for LNG import facilities, including Gdansk in Poland, and Wilhelmshaven and Brunsbuettel in Germany, as well as at locations where existing infrastructure could be leveraged.
 - 2. Take development steps to convert and repurpose the current Nord Stream 1 and 2 landing site facilities at Lubmin, Germany to instead link to FSRU-based non-Russian LNG imports.

3. According to Uniper, Germany will charter two large FSRUs from the Greece-based Dynagas, which can replace 30% of its Russian gas imports.
- E. **Increase reliance on LNG.** Replacing Russian natural gas imports with LNG — including from Algeria, Nigeria, Qatar, and the United States — poses a multifaceted challenge that involves import terminal and pipeline infrastructure, as well as availability of LNG production and liquefaction.
1. Based on 2021 numbers, European LNG terminals would be able to handle an additional 94 bcm, or roughly 50% of total capacity, which would go a long way to cover the loss of Russian supply.
 2. Moreover, for the first time, European gas prices (e.g., at the Dutch Title Transfer Facility) now trade at a premium to Asian prices (Japan-Korea Marker), which is currently supporting high LNG inflows to Europe.
 3. However, major challenges include the limited supply. Global liquefaction capacity is almost fully utilized, and LNG vessels are in high demand as well. While high prices are likely to trigger additional LNG investment and expand supply, a typical liquefaction plant takes three to five years to construct, implying the tight supply situation will only ease gradually.
 4. The regional distribution of terminals and the structure of European pipeline infrastructure would not necessarily allow gas to flow smoothly to where it is needed, with Germany and Eastern Europe often lacking access to LNG flows and generally more dependent on Russian imports.
 5. Further, LNG is still largely sold via long-term contracts, meaning that European buyers would compete for cargoes on the smaller spot market, which covers around 40% of the whole LNG market. Relatedly, some of Russia's long-term LNG contracts (e.g., Yamal LNG to Spain) might be phased out more slowly than Russia's other gas supplies to Europe.
 6. Additional demand of 94 bcm, which represents roughly 20% of the existing global LNG market, would put strong further upward pressure on prices. As a short-term measure, efforts could be undertaken in parallel with other large LNG importers to make substitutions in other markets that would free up some volumes for Europe. This action should be done in conjunction with potential allocation swaps to optimize freight transport in order to avoid pressure on the global fleet of LNG tankers.
 7. Finally, to ensure a more balanced gas market in the medium term, Europe should move to a final investment decision in 2022 on multiple LNG receiving terminals around Europe. It should provide long term commitments to a number of global LNG projects, particularly in North America and Africa, to ensure they progress to a final investment decision in 2022.
- F. **Accelerate the transition to renewable energy and use of other technologies.**
1. The IEA's [10-Point to Reduce the European Union's Reliance](#) report on Russian natural gas suggests significant potential to scale up biogas and biomethane supply, accelerate the deployment of new wind and solar projects, increase reliance on bioenergy, and increase production of low-carbon hydrogen.
 2. Clean hydrogen production has become much more competitive with natural gas after recent gas price increases.
 - a. Increase the pace of deployment of hydrogen technologies.

- 1) The EU and the UK have adopted very ambitious hydrogen strategies.
 - 2) There are already successful pilot projects, such as steel production using low-carbon hydrogen in Sweden and renewable-based hydrogen for ammonia production in Spain.
 - 3) The EU also leads in electrolyser capacity deployment, with 40% of global installed capacity.
3. The targets for hydrogen deployment could be made more ambitious as hydrogen can directly substitute for – and potentially ultimately replace – natural gas in the gas pipeline system, and in some industrial processes.

G. Manage the costs of shortages through the market.

1. Most of these measures will only impact the situation over the medium-to-long-term, and many feasible short-term actions represent modest volumes compared to current Russian gas deliveries.
2. In the spirit of using price mechanisms rather than rationing by government agencies to allocate scarce gas, the German Federal Network Agency BNetzA has recently suggested auctioning gas permits.¹⁶
3. Similar market-based mechanisms are a sensible way to manage shortages.

¹⁶ “Bundesnetzagentur-Chef erwägt Versteigerung von Gasverbrauchsrechten,” *Spiegel*, May 1, 2022, <https://www.spiegel.de/wirtschaft/bundesnetzagentur-chef-erwaegt-versteigerung-von-gasverbrauchsrechten-a-8281954c-e0cb-4bd2-862a-2a66777a1dc7>.

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