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Solutions to Shield EU Industry from Elevated Gas Prices



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Introduction

In the wake of Russia's invasion of Ukraine and the subsequent global energy crisis, the restricted natural gas supply from Russia has caused energy prices in Europe to dramatically increase. High natural gas prices impact all sectors of the economy, but Europe's industrial sector is particularly sensitive because industrial products typically compete in global markets—meaning producers can't always pass high energy costs on to consumers. Some energy-intensive industries have already announced plant shutdowns in Europe and sustained high gas prices threaten more closures in the near future.¹ European Union (EU)

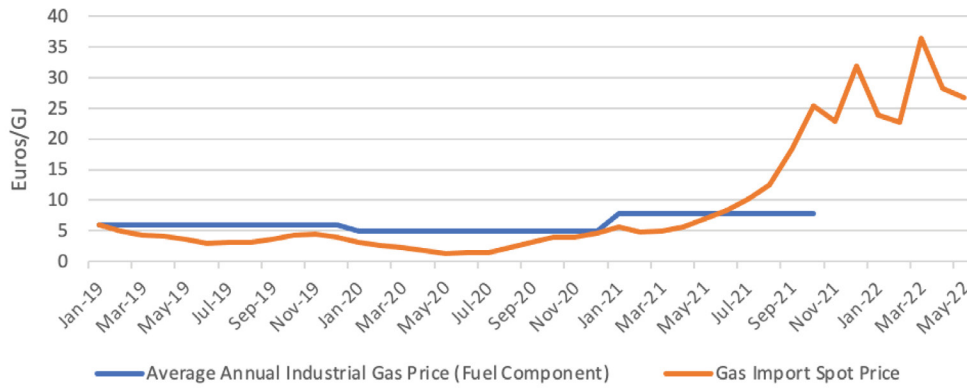
policymakers seeking to shield industrial producers from rising gas prices have a range of options—some aligned with the EU’s broader climate and energy goals, and some in opposition to those goals. In this memo, we outline the EU industrial sector’s challenge with high natural gas prices as well as strategies to reduce costs and natural gas demand for industrial consumers.

To recall, EU institutions are already working on a range of policy tools to mitigate the effects of Russia’s invasion of Ukraine on the EU energy landscape and on high energy prices. In May, the European Commission presented the REPowerEU plan, which provides a roadmap to end the EU’s dependence on Russian fossil fuels through energy savings, diversification of energy supplies, and accelerated roll-out of renewable energy to replace fossil fuels among others in industry. Additionally, in July, the Commission proposed a Council Regulation envisaging an immediate voluntary gas demand reduction of 15% this winter in all EU Member States, which was adopted by the Council in August. Possible measures listed in the Regulation include reducing gas consumed in the electricity sector and measures to encourage fuel switch in industry. Most recently, the European Commission confirmed that it is working on an emergency intervention and a structural reform of the EU electricity market that would address the high gas prices at EU level, with a possible gas price cap as one of the options supported by selected EU Member States. There will be an extraordinary Energy Council meeting on the 9th of September to discuss solutions to the soaring energy prices.

The Industrial Sector’s Exposure to Natural Gas Prices

The natural gas cost faced by industrial consumers in the EU is made up of several components. The largest component is the cost of energy and supply, for example the price of the fuel itself. The chart below shows the average annual natural gas fuel price faced by EU industrial consumers from 2019-2021.² For comparison, the chart also shows the average monthly spot price of natural gas imports to the EU.³ Because much of industrial gas demand is typically served with long-term contracts, industrial consumers are not immediately exposed to fluctuations in spot market prices. Nonetheless, as the spot price increases, industrial consumers will eventually face these higher prices and should anticipate a drastic increase in the price of gas during the rest of 2022.

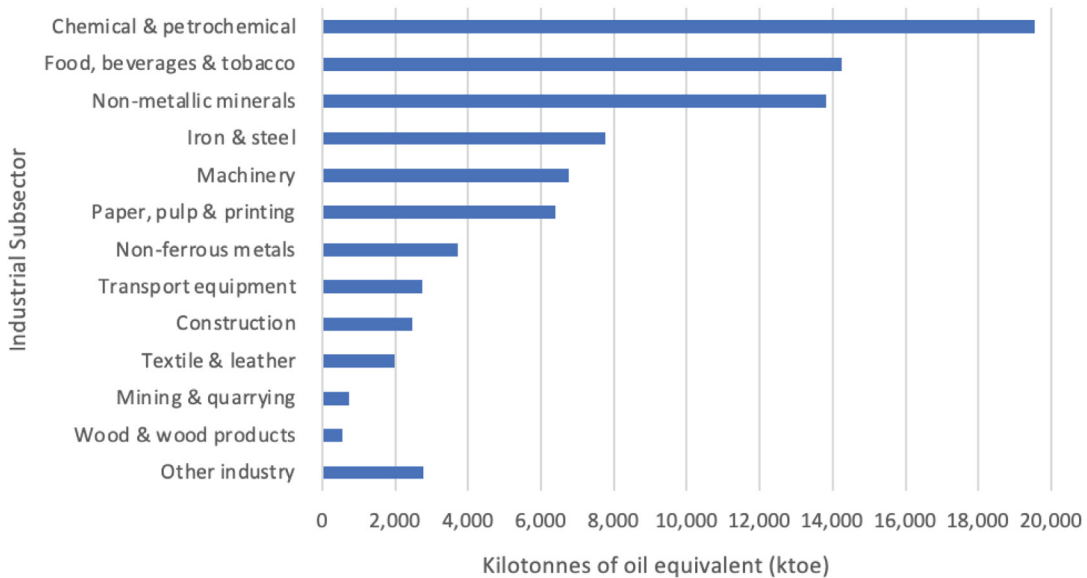
FIGURE 1. HISTORIC NATURAL GAS FUEL PRICES



Which Industries are Large Natural Gas Users?

Different industries have varying levels of energy intensity and dependence on natural gas. The figure below shows the total natural gas consumption by industry in the EU + UK in 2019.⁴ (We use 2019 as a benchmark year because it is the most recent pre-pandemic year, and the last year for which EUROSTAT has compiled detailed energy balances).

FIGURE 2. FINAL CONSUMPTION OF NATURAL GAS BY SUBSECTOR



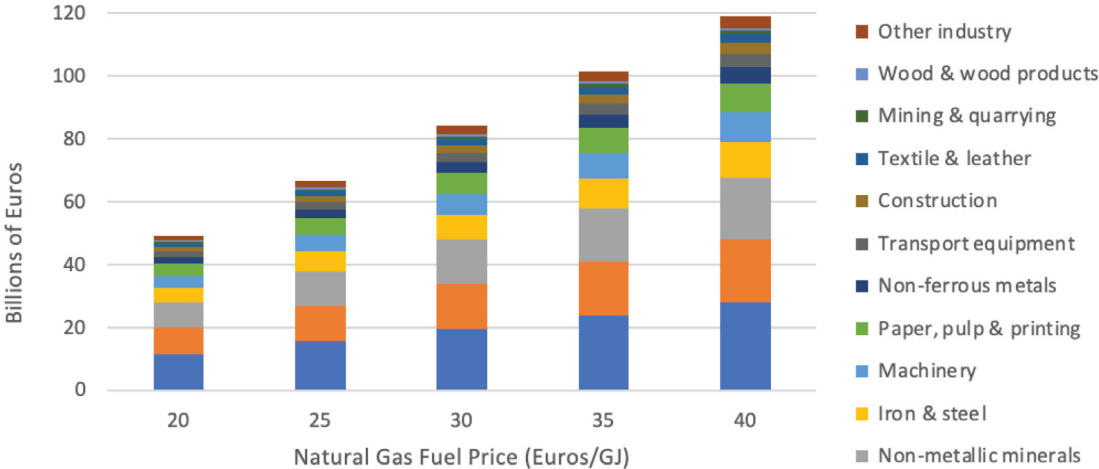
Strategies to Reduce Costs and Natural Gas Consumption

- Direct Subsidies
- Alternative Gas Supply
- Fuel Switching
- Energy Efficiency
- Electrification

1. Protecting Industry with Direct Subsidies

Subsidies are one available approach for governments seeking to preserve the competitiveness of domestic industry. They can take the form of tax cuts, energy price caps, or rebates. Below, we estimate the total amount of subsidization that would be needed to fully bridge the gap between the 2019 average gas supply price and the average future gas supply price paid by an industrial user. Without knowing exactly how natural gas prices will increase for industrial consumers, we used today’s spot prices as an indicator. Figure 3 below shows the total annual subsidy required at a range of natural gas prices if natural gas demand remains constant at 2019 levels.

FIGURE 3. TOTAL SUBSIDY REQUIRED TO ABSORB NATURAL GAS FUEL PRICE INCREASE RELATIVE TO 2019 AVERAGE



These values represent annual subsidies that would be required every year that natural gas prices remain elevated, making them costly to maintain. While subsidies might be effective at protecting Europe's industrial competitiveness, they're at odds with other EU policy priorities: subsidies encourage continued natural gas use in opposition with the EU's climate commitments, and they may perpetuate dependence on Russian energy imports. They also do not protect Europe's industrial sector if gas rationing is required this winter as recommended by the Council of the EU's regulation that calls for a voluntary reduction of natural gas demand by 15% this winter.

Alternatives to Subsidies

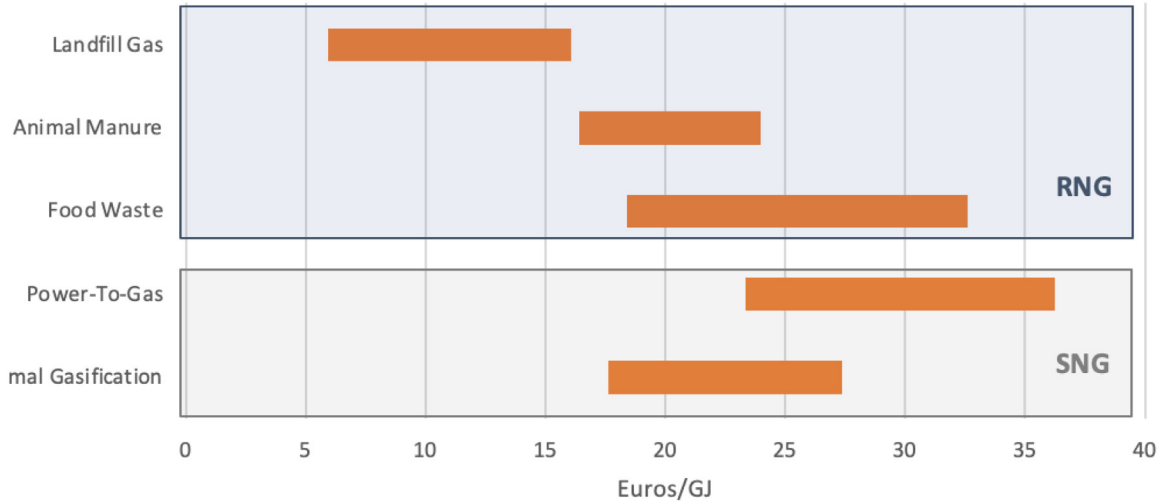
Rather than or complementary to subsidizing natural gas consumption, European governments could support their industrial sectors by financing other energy investments that avoid natural gas use and reduce industrial energy costs.

2. Alternative Gas Supply

The EU has already responded to reduced natural gas imports from Russia by increasing LNG imports and even planning new LNG terminals. Policymakers could complement that approach by encouraging the development of renewable and synthetic natural gas (RNG and SNG). Both types of natural gas have the potential to compete with imported fossil gas at today's spot prices, while also contributing to greenhouse gas emissions reductions.

The most significant limitation to RNG and SNG is rapidly expanding supply, which would require capital investment in production facilities—investment that could be supported by government incentives. Since some amount of renewable and synthetic fuel is likely to be a component of any long-term climate solution, public investment in fuel production could deliver important technological advances or price reductions with widespread benefits in the long-term. The following figure shows that various sources of RNG and SNG are competitive with fossil gas in the 20-40 Euro/GJ range.

FIGURE 4. FUEL PRICE RANGES OF LOW EMISSIONS GAS OPTIONS



3. Fuel Switching

Many industrial energy uses that consume natural gas can also be configured to run on other fuels (for example coal, biomass, or petroleum products). This is especially true for boilers, which use fuel to produce heat, and are often designed to operate on multiple fuel types to insulate against fuel price volatility. Policymakers could support investment in adapting or replacing existing industrial equipment to use fuels other than natural gas. Switching to biomass, which is produced, processed, and used in a sustainable and efficient way, is consistent with climate goals and may be cost-effective when compared to current gas prices, though biomass supply will be limited in the near-term. Any fuel switching to coal, while a solution for reducing gas demand and addressing higher energy prices, would delay emissions reductions commitment.

4. Energy Efficiency

Energy efficiency presents another opportunity to reduce industrial consumption of natural gas and corresponding costs. Given the increase in natural gas prices in Europe, incremental energy efficiency measures which were uneconomic at lower gas prices are now cost-effective. Industrial gas users may lack motivation to make energy efficiency investments, even if cost-effective, due to limited capital availability, or misalignment with standard planning and investment cycles. Energy efficiency investments also do not guarantee competitiveness—cost-effective energy efficiency will reduce industrial production costs, but not necessarily enough to achieve competitiveness. However, given that industrial energy efficiency is critical to achieving the EU’s climate targets, this period of high natural gas prices presents an opportunity to advance efficiency deployment, in line with the ongoing revision of the Energy Efficiency Directive, that will deliver long-term climate benefits.

5. Electrification

Electrification is a final alternative to natural gas consumption. Like energy efficiency, it's a key piece of the EU's long-term climate strategy—a large share of industrial energy demand will ultimately need to be converted to electricity to meet emissions targets. Investments in industrial electrification today will provide important pilot opportunities for technologies that will be needed at scale in the coming decades.

The challenge to electrification in the near-term is that high natural gas prices are also straining Europe's electricity sector—if new electric load is met by increased operation of coal or gas power plants, it's unlikely to deliver economic benefits or align with the EU's climate objectives. Industrial gas users may be unwilling to allocate capital to electrification when electricity prices are volatile, making electrification another appropriate area for government support.

Advancing the EU's Energy Priorities

Policymakers considering strategies to insulate European industry from natural gas price shocks should think beyond direct subsidies for natural gas consumption, which are likely to be costly and don't align with the EU's climate commitments. **Alternate (non-fossil) supplies of natural gas, fuel switching, energy efficiency, and electrification are all strategies that could be pursued in tandem to lower industrial energy costs while advancing industrial decarbonization.** Each of these approaches is likely required at scale to meet 2050 emissions targets, and public investment today has the potential to lower cost and technology barriers to facilitate future decarbonization. These considerations should be reflected in the urgent EU policy responses to the energy crisis in the near term, but also over the medium term, including in the finalization of negotiations of the Fit for 55 package. Overall, there are many strategic actions the EU can take to free up natural gas supply in the near-term while supply is constrained, better protect its residents from volatile natural gas prices, and limit dependence on Russian energy imports in the long-term.

ENDNOTES

1. <https://www.bloomberg.com/opinion/articles/2022-06-27/factory-closures-from-aluminum-to-chicken-farming-are-going-to-become-common#xj4y7vzkg>
2. Eurostat non-household gas energy and supply prices, https://ec.europa.eu/eurostat/web/products-datasets/-/nrg_pc_203_c
3. World Bank monthly commodity prices, European natural gas (Netherlands TTF), <https://www.worldbank.org/en/research/commodity-markets>
4. For simplicity, we consider only final energy consumption of natural gas, ignoring additional energy products like heat and electricity that also use natural gas and are consumed by industry.