

Non-Paper

– Policy Options to Mitigate the Impact of Natural Gas Prices on Electricity Bills –

Background

The European Council of 20 October called on the Commission to urgently submit concrete decisions on a series of Energy market related steps. This includes a temporary EU framework to cap the price of natural gas in electricity generation, including a cost-benefit analysis subject to a number of conditions, namely, not to modify the merit order of electricity generation, to prevent an increase of gas consumption, to address the financing and distributional impacts and to address impacts on flows beyond the EU's borders. In addition, the European Council has asked the Commission to speed up the work on the structural reform of the electricity market design.

This non-paper summarises the cost-benefit analysis and puts a potential Europe-wide introduction of the Iberian subsidy mechanism in the wider context of previous crisis related electricity market interventions and the upcoming electricity market design reform.

Policy Context

The Commission has, since the start of the energy crisis and the first toolbox Communication in October 2021, provided Member States with a number of tools to intervene in the functioning of electricity markets and mitigate the impact of high energy prices on consumers' bills.

The most recent step in this respect is Council Regulation 2022/1854 of 6 October 2022. In addition to imposing a target to reduce electricity demand, this Regulation has already altered the functioning of European electricity markets through the introduction of the so-called inframarginal cap. This cap has created a situation where the market remuneration of renewables, nuclear and certain other technologies will no longer be dependent on the highest price on the market, typically natural gas. These inframarginal forms of generation will, in principle, earn a maximum remuneration of 180 Euros per MWh. The revenues are channelled to reduce electricity bills bringing thus the benefits of lower cost renewables and other low-cost technologies directly to consumers, households and businesses alike.

This revenue limitation, and the alteration of the market functioning which it implies, is a first step towards the longer-term evolution of electricity market design aiming at decoupling electricity price from gas price.

Mechanism Proposed by Several Member States

This chapter provides an assessment of the implications of introducing a mechanism at EU level that is inspired by the Iberian subsidy scheme. To better accommodate the situation in different EU Member States, a possible European measure would need to combine the following elements:

- Member States would be obliged to pay their gas-fired power plants a subsidy which covers the difference between the actual gas price observed on the day-ahead TTF exchange and a target gas price for power generation.
- The relevant power plants would be obliged to reduce the price at which they sell electricity into the day-ahead and intraday markets by the amount they have obtained via the subsidy (and national regulatory authorities would have to monitor this obligation).
- The rationale of the mechanism is that the subsidy not only lowers the price at which gas-fired power plants sell their electricity on the day-ahead and intraday market but also the overall clearing price in the market, thus reducing the revenues of all plants which produce electricity using different technologies (inframarginal technologies).
- Contrary to the mechanism currently in application in the Iberian Peninsula, the mechanism analysed for the purposes of this non-paper does not envisage a subsidy also for coal-fired power plants.

Summary of the Analysis

Defining the Subsidy Level

One of the most important design choices for a European mechanism is the level of the subsidy. Several Member States have proposed a subsidy level which is significantly higher than the one applied in the Iberian Peninsula and which would limit the price of gas used for power production to the equivalent of a TTF price of 100-120 EUR/MWh. This choice of subsidy level seeks to strike a balance between ensuring the effectiveness of the measure to reduce electricity prices and avoiding making gas-fired power financially so attractive that it increases their use and reduces the use of alternative generation technologies. It is to be noted that at current gas price (about 60 EUR/MWh), this measure would not produce any results.

Interaction with the Inframarginal Cap

The benefits of the measure would derive from the fact that the subsidy is only paid to gas-fired power plants but the resulting reduction of the wholesale clearing price at the same time reduces the revenues of inframarginal generators, which do not receive the subsidy. This aspect of the functioning of the measure would aim at the very same revenues of non-gas fired power producers that are also the target of the inframarginal cap recently introduced by the Council in Regulation 2022/1854 of 6 October 2022.

Adding this mechanism on top of the inframarginal cap would therefore produce a net benefit of approximately 13bn EUR¹ on top of the 70bn EUR benefit of the inframarginal cap. The resulting net benefits could have a beneficial effect on overall inflation.

¹ This estimation is based on the assumption that current day-ahead TTF prices would increase to 180 EUR/MWh and would remain at this high level for an entire year.

Implications for Gas Consumption

Another important design objective would be to avoid that EU gas consumption increases as a result of the measure. In the current context, such an increase would risk worsening the already difficult situation as regards gas security of supply. The most important element of avoiding changes to the merit order is to set the subsidised target price sufficiently high so that gas-fired power does not become more attractive (i.e. cheaper) than producing electricity from other technologies. That is what has motivated the 100-120 EUR/MWh price described above. However, gas demand is estimated to increase even at this price level between 5-9bcm, mainly on account of exports outside the EU (see next chapter).

Predicting the exact amount of extra gas consumption generated by the measure is very difficult and the overall increase can be higher than the above estimates because the factors determining the merit order between gas and coal are very volatile and the subsidy is based on an abstract market benchmark and does not reflect the true cost at which gas-fired power plants purchase their gas.

Avoidance of Increased Flows to Non-EU Countries

The effectiveness of the measure as regards both lowering electricity prices and avoiding additional gas consumption is highly dependent on the extent to which increased flows of subsidised electricity to non-EU countries can be avoided. If such increased power flows are not addressed, they would lead to an increased power production in the EU using gas-fired plants. Depending on the underlying assumptions, the relevant volume of extra gas consumption could range between 5 and 9 bcm. These effects can occur in relation to a number of EU trading partners but are likely to be most significant as regards the UK and Switzerland. Such exports would also reduce the net financial benefits of the measure, as subsidies paid in the EU would in essence reduce power prices for non-EU consumers.

To address this effect would require to agree with the relevant third countries on an extension of the scheme beyond EU borders. Alternatively, some Member States have proposed to address this via a two-step clearing process in the wholesale market. The aim of this would be to reserve the lower prices created by the measure to intra-EU trades and to export electricity at a higher price. The main challenges involved in such a two-step clearing process would be that it would amount to a very significant change also to the functioning of electricity markets in the EU market coupling process for which market operators would have to be given significant lead time; and that a number of international agreements with the EU's trading partners prohibit the creation of higher export prices (an example being the EU-UK Trade and Cooperation Agreement).

Addressing Financing and Distributional Impacts

The cost of the measure for Member States and/or electricity consumers is largely a function of the amount of gas-fired power plants present in each Member State. Member States which rely very heavily on gas-fired power generation in their electricity system would face the highest costs for the necessary subsidies. This would for example be the case as regards Germany, the Netherlands and Italy. Member

States that are net-importers of gas-fired power would benefit from electricity subsidised by other Member States. The biggest net beneficiary is estimated to be France.

Member States in which gas-fired power plants set the price less frequently (such as parts of Central and Eastern Europe) would probably also observe less benefits from the application of this measure. Finally, the effectiveness of the measure depends on the amount of electricity sold under long-term contracts. As the measure does not impact the price set out in existing long-term contracts, Member States where a large percentage of electricity generation is covered by them would observe less benefits (like for example the Nordic or the Baltic countries). It is even possible that consumers in these countries could see prices increase if the levy to finance the subsidy were set at the same level across the EU.

The most effective way to manage such distribution effects between Member States would be to create a European scheme which redistributes the costs of the measure amongst all Member States in line with the benefits it brings about. This could however be difficult to design because lack of reliable statistics and political challenges.

Possibility to National Schemes

Independently from the introduction of the Iberian subsidy mechanism as a mandatory EU-wide solution, Member States are free to notify national schemes of this type to the European Commission. As was the case for the Iberian mechanism, such national interventions have to comply with EU State aid rules and ensure that cross-border trade between Member States is not restricted.

Lasting Ways to Mitigate the Impact of High Gas Prices on Electricity Bills

The Commission has also started preparing a longer-term and more structural method to mitigate the effect of high gas prices on power prices. By bringing this reform forward, the benefits of lower cost renewables could be brought to consumers on a lasting way. Such a reform should address only those essential elements of the market design that can be implemented rapidly; they should focus on two different sides of the electricity market.

One Side of the Market: Remunerating Renewables and other Technologies Based on Their True Production Costs

Renewables and other types of inframarginal generators (e.g. nuclear) would be remunerated under contracts for difference, independently of the marginal price. The price of these contracts would typically be established by tendering and will be a direct function of the actual production costs of the relevant technologies.

This shift to a remuneration based on contracts for difference can be implemented very swiftly and easily for new capacity entering the market. For existing generators, the current inframarginal cap could be directly integrated into the functioning of the wholesale market to facilitate its practical

implementation and incentivise the transition of existing generators to a long-term pricing structure based on contracts for difference.

The Other Side of the Market: Effective Competition for Gas in Well-Functioning Short-Term Markets

The main role of gas-fired power generation in such a new system would be to counterbalance the effect of volatile renewable generation until alternative technologies are increasingly able to take over this role.

To achieve this aim at the least cost to consumers, the new revenue structure for inframarginal generators based on contracts for difference needs to be complemented with a well-functioning short term market, which ensures that the cheapest and more efficient technology is used at any moment in time. This can be ensured through a well integrated and interconnected market whereby any barriers for alternative technologies like storage and demand response are removed so that they compete on a level playing field and they can progressively replace gas-fired powerplants in addition to renewable and low carbon sources.

Possible way forward

Depending on co-legislators, such a targeted market design changes can be proposed and implemented quickly. It would provide a more permanent solution for the excessive dependence of European electricity bills on highly volatile natural gas markets and bring the benefits of lower cost renewables to consumers in line with their share in the electricity mix and the rapid uptake that is needed to phase out Russian gas.