



# The policy angle

## The Case for an **Electricity Market Reform**

Europe is in the midst of the worst energy crisis in decades. The conflict in Ukraine has triggered significant reductions in the supply of Russian gas. This was first made manifest by mid-2021 when gas storage by Gazprom in Europe was well below its historical average. **By June 2022, gas flows from Russia to Europe were less than one-third of the previous five-year average.** This withholding strategy pushed gas prices to record highs – above 300€/MWh in some European gas hubs, as shown in Figure 1. In particular, gas prices at the dutch exchange (TTF) surged above €310/MWh in late August 2022. Prices in the Iberian gas market (MIBGAS) remained below the European average due to Iberia's large regasification capacity and limited interconnection capacity. This multiple-fold increase in gas prices – relative to their historical average of around 20€/MWh – reflects a growing fear that gas supply during winter might not be enough to avoid curtailments.

In turn, **the increase in gas prices has been fully passed on to wholesale electricity markets, in which gas-fired generation sets market prices.** The heat wave across Europe, the low hydro and wind generation, and the extended outages in the





french nuclear fleet (that has been operating at only 40% of its capacity) have also contributed to the price rise. Some European electricity wholesale markets registered record-high spot prices above 700€/MWh, well above their historical average of around €40/MWh, as shown in Figure 2. Forward markets also expect electricity prices to remain high at least until 2024-2025.

Spanish households were the first to suffer from these exorbitant electricity

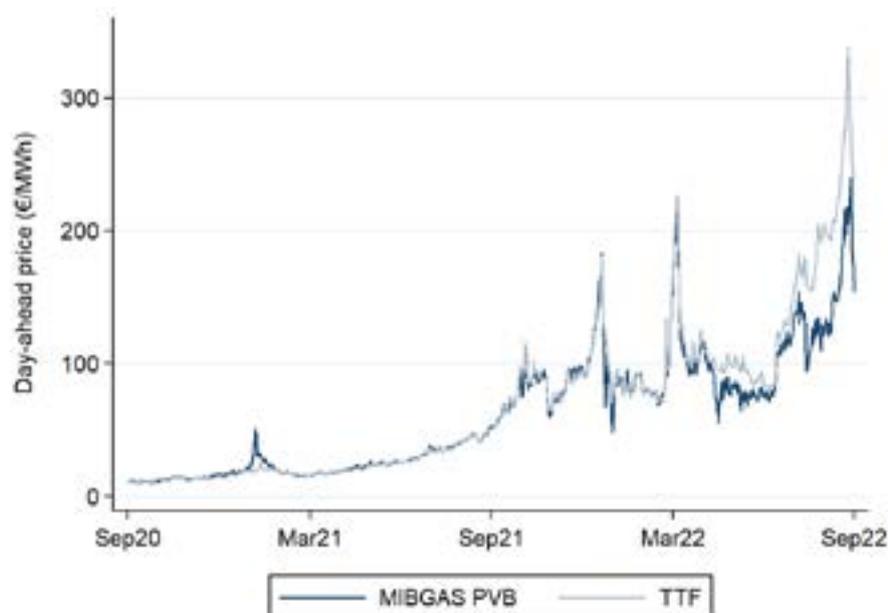
prices because the default retail tariffs for households are computed as a pass-through of wholesale market prices. However, even if not exposed to wholesale prices, **all European consumers will eventually suffer from the electricity price increase as soon as their contracts are renewed.**

The sharp increase in energy prices has been the major contributor to rising inflation in the Euro area. August inflation has hit a record high of 9.1% – the highest since the euro was created in 1999 – with almost

half of it coming from the increase in energy prices. As the surging energy costs get propagated across the economy, core inflation has also climbed to 5.5%. In turn, inflation has pushed the European Central Bank to strengthen its monetary policy, despite early signs of economic weaknesses.

High inflation and a tight monetary policy put our economies at risk. Households lose purchasing power, European companies lose competitiveness, investments halt, and overall eco-

Figure 1: Evolution of gas prices in TTF and MIBGAS





conomic activity slows down. Social and political unrest inevitably follows.

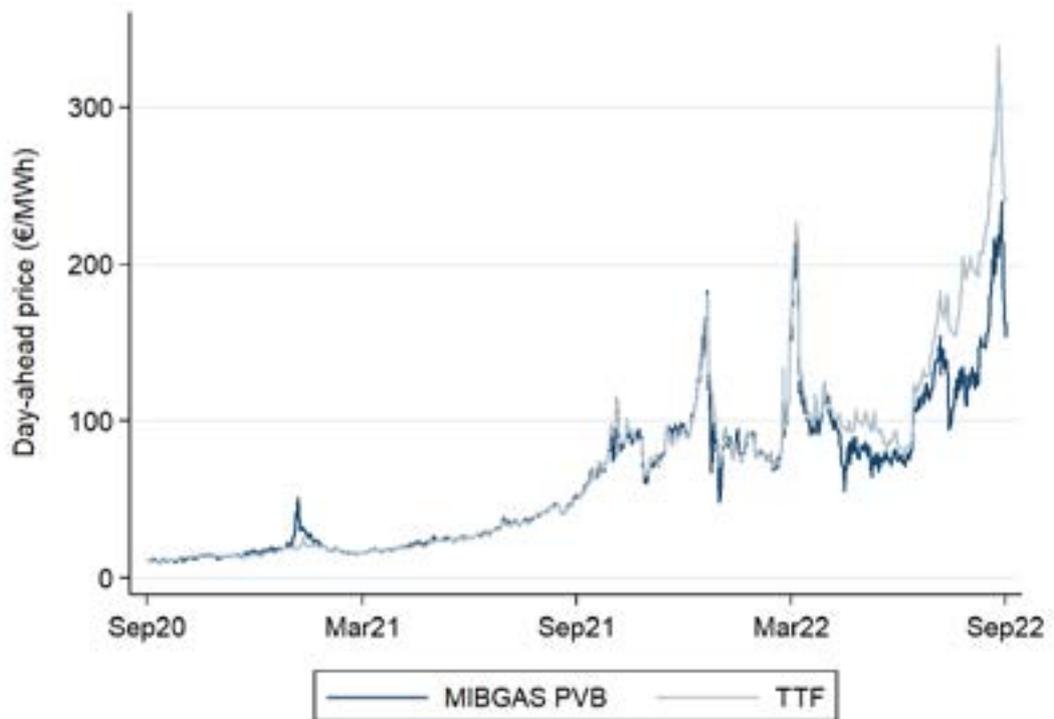
**Europe cannot afford this crisis. The urgent need to control inflation without knocking the economic recovery requires a drastic reduction in energy prices.** Oil and gas prices are set in international markets, over which European authorities have no direct control – yet, there is an intense policy debate as to whether Europe could affect gas prices by committing not to buy gas above a certain cap. In any event, there is scope to limit inflation by mitigating the increase in electricity prices, which are not in line with the production costs. Only the costs of fossil-fueled generation have increased, while the costs of the other generation technologies (mainly nuclear, hydro and renewables) have largely remained unchanged. Despite this, all technologies have received inflated prices reflecting the cost of gas-fired generation, not their own.

It follows that **a necessary condition to tackle inflation is to address the root cause of the increase in electricity prices.** Not all the blame can be placed on the gas price increase: the market design has to perform well under all conditions, including emergencies. Instead, the root cause is the inadequacy of the current electricity market

arrangements to reflect the actual electricity generation costs. Electricity market design is at the core of the problem because it establishes that all generation technologies should be paid at the price offered by the most expensive plant needed to cover demand. This is true even when a fraction of total electricity is traded through bilateral contracts, outside the pool. The reason is that all contracts tend to converge to the underlying market's price, which is the pool.

This conclusion is at odds with the textbook electricity market model, which concludes that technology-neutral electricity markets maximise efficiency and consumer surplus while generators break even. However, this conclusion rests on an assumption that does not apply in practice: the free entry (and exit) condition. Under this assumption, firms make zero profits as, otherwise, entry or exit would take place until the zero profits condition holds. However, **in real-world markets, various entry and exit barriers prevent profit adjustments (including legal obstacles and constraints on the availability of resources or locations), or at least not at the speed necessary.** The long run can be, socially and politically, too long. In the absence of free entry, no mechanism assures that a

FIGURE 2: Evolution of wholesale electricity prices in European markets



technology-neutral price reflects the costs of all generation technologies.

Indeed, the performance of electricity markets shows that it does not. Using Eurostat (2020)'s data on the energy mix

**The wedge between the marginal costs of gas-fired generation and the average costs of the remaining plants has led to excessive profits at the expense of consumers.**

in Europe and the International Energy Agency (2020)'s average cost estimates (LCOEs in the industry jargon), it is possible to compute the price-cost markups of non-fuel generators when paid at 300€/MWh – a proxy of current electricity wholesale prices: 1,000% for nuclear, 750% for hydro and onshore wind, and 700% for utility-scale solar. Multiplying these profit margins times their generation in 2020 delivers an astonishing figure of

approximately 400,000 Million € of excess profits for electricity generation in Europe over a year. The aim of reporting this admit-

tedly rough estimate is only to illustrate the orders of magnitude of the problem.

In sum, **the wedge between the marginal costs of gas-fired generation and the average costs of the remaining plants has led to excessive profits at the expense of consumers.** To mitigate this, member states have put in place several short-lived market interventions – ranging from windfall taxes on generators' profits to introducing a reference price for gas to lower the electricity market price. These measures have temporarily alleviated the pressure on electricity prices but have broadly left the market arrangements unchanged. Similarly, the European Commission has devised emergency measures for intervening in electricity markets (including a 180€/MWh price cap on the inframarginal plants and a windfall tax on oil and gas companies). The European Commission has invited stakeholders and national regulatory authorities to propose measures to redesign electricity markets.

**At EnergyEcoLab we will do our best to follow and contribute to this key policy debate •**