Price caps on wholesale gas markets lead to significant negative side effects without having the desired results

The role of gas prices:

- On spot markets, gas prices reflect the fundamental physical situation. They are essential for short-term adjustment.
- On futures markets, gas prices reflect the expection of the future physical situation. They are essential for hedging price risks and guiding investment decisions.
- Market prices are the core of the allocation function of the market. When determined under transparent conditions, like on an exchange market, they connect sellers and buyers.

Why caution before intervention is warranted:

A **gas price cap[1] undermines the basic economic principle of price signals** and leads to significant unintended negative side effects such as:

1. Move towards less transparent trading: OTC-transactions could be concluded at a different price than on the exchange. A shadow gas market with shadow gas prices might arise.
2. Impair the negotiating position of European actors: A wholesale gas price cap would make EU-destinations less attractive for very price-sensitive LNG.
3. Distortion of the short-term price signal and the market as allocation mechanism: It would bring inefficient distribution of physical/financial resources, distorted incentive for energy efficient consumption behaviour, loss of efficient allocation mechanism.
4. Negative impact on long-term gas price signal and hedging function: Traders would not be able to transparently hedge against price and counterparty risk.
5. Disincentivise decarbonisation: Renewable energy, including renewable gases, needs high-price periods to improve their competitiveness.
6. Uncertainty around execution of contracts already entered into: Capping prices undermines forward contract conditions leading to an increase of political risk.

What needs to be done:

- Prioritize short- to medium-term framework conditions to diversify supply and ensure an adequate level of stored gas and;
- Support vulnerable households to cope with the situation on the retail-level.

Until there is an actual physical shortage of gas, the market is the most efficient and effective allocation mechanism based on flexible market price signals. Capping wholesale market prices may even lead to physical supply shortage.

[1] In the frame of this position paper, gas price caps are understood as a fixed, politically-set limit to wholesale gas market prices stable over the medium to long term.

Price caps on wholesale gas markets lead to significant negative side effects without having the desired results

In recent months, various factors on the physical supply and demand side of the natural gas markets brought the gas prices worldwide to new highs. Geopolitical tension, low storage levels and the Russian invasion of Ukraine have further contributed to increased prices and volatility. Rightly so, corresponding political intervention is sought to limit the negative effects on those companies or households who cannot bear the costs.

However, this does not mean that the wholesale gas markets or their design are malfunctioning: gas prices reflect the physical fundamental situation and the expectation of it. Doing so, supply and demand have been covered at any time.

Price intervention in form of a gas price cap undermines the basic economic principle of price signals and leads to significant unintended negative side effects. High-price periods on energy markets provide important incentives to increase supply or for investments in alternative energy sources and energy effienciency. Without this, necessary investments might not materialize or supply might shrink with negative consequences for security of supply.

Price caps may harm or even destroy the allocation and transparency function of the gas market. In a worst case, supply and demand are unable to meet each other (figure 1). In practice, it is to be expected that in particular tense situations, markets dry out over time, with less and less companies supplying gas and buyers being unable to cover demand at any time.

Further, a price cap creates intransparency about the actual market situation. However, when a market comes under stress and reaches price levels under which the price cap would kick in if implemented, this is exactly when transparency is needed most.[2]

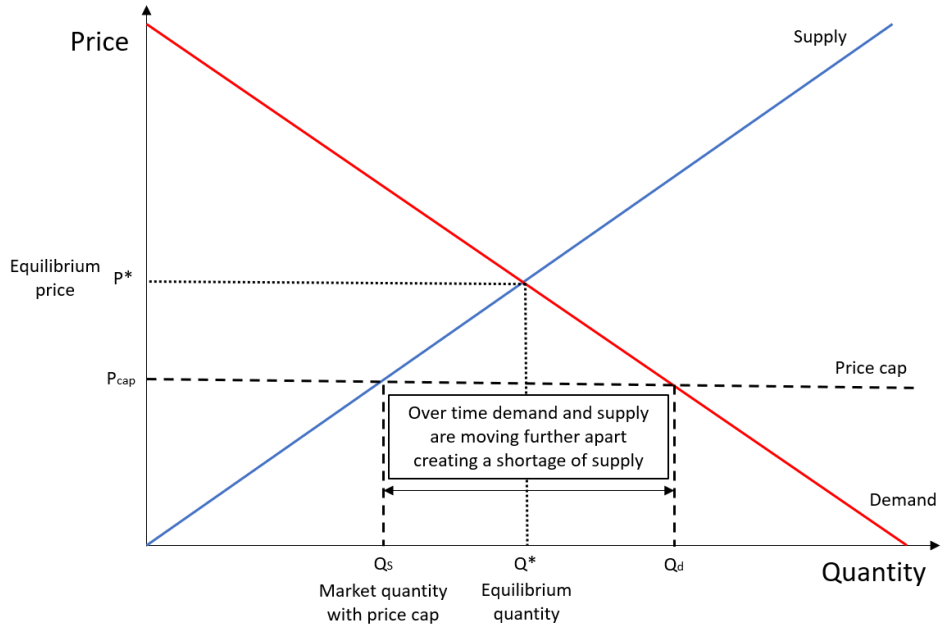

Figure 1: Supply and demand curves with price caps

[2] Also refer to "The importance of keeping energy markets open in times of turmoil", EEX, 3 October 2022

The critical role of wholesale gas markets

On cleared **wholesale gas markets**, market participants such as gas suppliers or industrial consumers can cover their demand or supply. Dependening on their goals, they trade short-term contracts on the spot market or longer-term contracts on the futures market.

The **gas spot markets** help traders to adjust their gas supply or purchase very short term. Among the trading participants are gas grid operators and/or market area managers[3] using the spot market to keep the grid stable and reliable at any time. Executing their activities on regulated exchanges enables them to trade under transparent conditions and to be protected against defaulting counterparties.

On the **gas futures market,** market participants trade up to years in advance and by doing so receive protection against future price changes and the risk of counterparty defaults.

The **gas prices** resulting from these actions serve multiple purposes. At any time, they are the valuation of gas according to available supply and demand. It includes the actual physical situation as well as an anticipation or interpretation of the impact of potential political action such as an embargo on Russian gas. Especially in the past weeks, uncertainty on the latter translated into high volatility. Market prices on future markets are also used to assess the financial viability of investments in low-carbon projects and are thus key for the energy transition.

The importance of picking the right policy tool

The European Commission's communication from 8 March 2022[4] calls for a rapid diversification of physical natural gas sources and the greatest possible independence from Russian gas imports. The Commission aims at accelerating the expansion of renewable energy and energy efficiency, a switch to alternative gas sources and mandatory minimum filling levels for gas storage facilities. These come on top of the immediate short term actions highlighted in **the Commission's October 2021 toolbox[5]** on how to support vulnerable consumers on a national level.

All these measures help either in the short or in the medium run and leave energy markets mainly intact: Price formation and the allocation function of markets are not severely distorted.

This is different from wholesale gas price caps. They harm the allocation function of the wholesale gas market once the price level of the cap has been reached. They lead to significant uncertainty on the legal and, most critically, practical implementation. Especially in the gas sector, with its possibilities for intertemporal shifting, a price cap would immediately lead to a demand surplus on the wholesale market and may even deteriorate supply of natural gas. As a result, supply and demand could no longer be brought into balance and market clearing would become eventually impossible. In such a scenario, and having lost the important information and coordination function of the price mechanism, gas rationing executed by a public authority together with a highly complex prioritization process would be necessary. Consequently, the scarce resource – gas – will likely not to be allocated according to the areas of its highest economic value.

[3] Market Area Managers are market actors providing important services for the stability of the gas grid, e.g. including the purchase of gas for the purpose of keeping the pressure in the grid stable. In many EU-Member States gas grid operators are also market area managers.
[4] REPowerEU: Joint European Action for more affordable, secure and sustainable energy.
[5] Link: Tackling rising energy prices: a toolbox for action and support.

Specifically, the negative effects of wholesale price caps can include the following:

1. **Move towards less transparent trading**

   Where possible, market participants would seek their counterparties in the less transparent market segments. Then, over-the-counter (OTC) -transactions could be concluded at a different price than on the regulated exchange.[6] This would lead to a situation where no clear price reference would be available.

   Prices are more difficult to be capped or controlled in the environment of the OTC market. And crucially, risks are not mitigated by a central clearinghouse. If no control on the gas price cap is done within the OTC-market, a shadow gas market with shadow gas prices might arise.

2. **Impair the negotiating position of European actors**

   Natural gas is a globally traded and transported commodity. Specifically liquefied natural gas (LNG) is very price-sensitive. Following the ambition to diversify the supply sources for natural gas, LNG will become more important for European market participants. A wholesale price cap would make EU-destinations less attractive.

3. **Distortion of the short-term gas price signal and the gas market as allocation mechanism**

   A wholesale gas price cap will lead to an inefficient distribution of physical and financial resources as the actual market situation becomes impossible to know.

   In particularly tense situations when the price level of the cap would be reached, the market as allocation mechanism would not function fully. Gas distribution companies and consumers would not be able to conclude transactions at any time because suppliers would cease their market activity. Also network operators and/or market area managers being active on the market to balance the grid would not be able to buy or sell gas on the exchange.

   On the demand side, a gas price cap would restrict the exposure of demand to the price signal. This diminishes incentives to reduce gas demand. In expectation of the price cap being reached and a potential supply shortage this could lead to anticipatory activities e.g. gas hoarding.

   In the worst case, alternative allocation mechanism, e.g. centrally controlled through public institutions would have to take this task to ensure security of supply.

4. **Negative impact on long-term gas price signal and risk management function**

   In the case a gas price cap would only be introduced on the short term spot markets, market participants would not be able to manage their risks to anticipate the volatile and tense periods. Also long-term markets would be affected since futures are based on the underlying spot market.

   If long-term gas prices were capped instead of short-term prices, market participants would be unable to manage their future risks in case the supply and demand situation causes high prices. In essence, future markets would become like a flood insurance that does not pay out when the house is flooded.

5. **Disincentivise decarbonisation**

   Through artificially cheapening gas costs and thereby harming the gas price signal, consumers would lose their incentive to increase energy efficiency or to invest in the use of renewable gas. In a situation where energy saving is particularly necessary, some of the most important solutions to counter the current tense context would be put in harm´s way. As a result, the role of fossil power gerneration would be cemented and incentives for alternative approaches to resolve scarcity such as storage, load flexibility and renewables weakened.

[6] Under normal circumstances, there are no big gaps between exchange and OTC-prices.

Renewable gases benefit from high-price periods to become cost-competitive. Today, because of the high prices, we see particularly biomethane or biogas producers can market their production on multilateral markets without subsidies.

6. **Uncertainty around execution of contracts already entered into**

   The majority of gas trades happen on a forward basis, with delivery at a future point in time, sometimes with a long delivery period. Capping gas prices would undermine the contract conditions of many of those contracts which are already agreed upon.

   On the other side, potential new contract partners such as from the LNG-ecosystem would perceive a gas price cap as an increase of political risk when concluding transactions with partners in the EU. They would thus likely refrain from entering into long-term delivery contracts.

Concluding remarks

Capping gas market prices is like capping a thermometer: Even if the display is capped at a maximum, the temperature may nevertheless rise in the background without anyone noticing.

It would have **serious consequences** for the efficiency and effectiveness of the gas market as allocation mechanism, raise numerous questions and lead to unintended and severe side-effects.

Putting in place the right short-term to medium-term framework conditions to calm down the gas prices should be prioritised. This includes the quick diversification of gas supply and a market-based procurement of gas to fill Europe´s storage capacity. Vulnerable households should be supported to cope with the situation on the retail-level.

Should the gas market dry out because of a shortage in physical supply of gas in Europe, other mechanisms would kick in. These include for example the cut off of single gas consumers to protect the most vulverable ones and the allocation of gas through the government or national regulatory authorities. **A gas price cap can not prevent this from happening. It could however speed up such a situation unintendedly.**

When there is no physical gas supply shortage, the gas market remains the most efficient and effective allocation mechanism.

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Annex: Background on the interaction between physical and financial gas market layers

On many energy exchanges, the clearing house does not only handle financial settlement and securitization, but also **physical settlement**.
In the case of EEX Group, the clearing house ECC ensures the physical settlement of all respective transactions. Physical settlement does not mean that ECC stores physical gas in its premises, but they conclude so-called **balancing group bookings** with one of the European grid or transmission system operator. This is comparable with an energy account booking. For any activity on a European gas market, market participants need to possess of at least one balancing group. With this respect, ECC closely cooperates with European grid operators or TSOs and Hub Operators or Market Area Managers for power and natural gas.

The European natural gas and power markets are divided into:

- the **physical flow layer**, where physical entries respectively production and consumption volumes are managed by the grid operator having own balancing measures and
- the commercial rights layer on the so-called **Virtual Trading Points (VTPs)**.

Power and natural gas transactions cleared by ECC are related to Virtual Trading Points. Balancing groups need to be in balance at any time (i.d. sales and purchase need to be in an equilibrium as these translate into demand for physical gas and supply of physical gas).

If any imbalance on the commercial side occurs, the relevant and individual rules and costs of each TSO or hub operator will apply. In case of an imbalance on the physical layer, TSO, Hub Operators or Market Area Managers become active and purchase or sell energy.