Options for dealing with **Europe's energy price** crisis

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Executive summary

On September 30th 2022, EU Member States agreed a Regulation "on an emergency intervention to address high electricity prices" that obliges Member States to adopt specific measures regarding:

(i) electricity demand reduction,

(ii) a mandatory cap on market revenues of infra-marginal generators (aimed at capturing 'windfall' revenues of generators such as renewable electricity/nuclear, which benefit from high electricity prices but do not have to pay the underlying high gas costs), and

(iii) a profit claw-back on oil and gas companies.

This Regulation has positive elements insofar as it brings predictability and transparency to the fractured EU regulatory electricity market resulting from the myriad of different Member State measures that exist today. Nonetheless, many problems remain:

- *Member States may and will nonetheless adopt different versions of these 'standardised' mechanisms, and huge differences will remain in the ability of countries to subsidise customers (domestic and industrial). The Internal Energy Market will remain fractured.*

- *Whilst the greater level of predictability resulting from the Regulation will help, the level of remaining regulatory uncertainty will make it difficult for renewable electricity ('RES') producers to invest, at a time when the rapid upscaling of RES investment is essential as the 'first line of defence' to replace Russian gas. Any company - supplier or purchaser - of renewable electricity will remain concerned that whatever price they might agree in a PPA, it would later be amended through future regulatory changes.*

- *The amounts raised from the mechanisms established in the Regulation will deliver, at best, a small proportion of the revenues needed by Member States to subsidise citizens and industry. They do not address, and will not affect, the high gas price at the root cause of these problems. Energy intensive industry in the EU is shutting production at today's gas prices, which will produce increasing supply chain problems, as well as longer-term industrial and employment concerns.*

This explains why 13 or more Member States now support the imposition of an EU-wide cap on gas wholesale prices. Such a cap can be designed, based for example on imposing a maximum 'bid-in' price on all EU wholesale markets combined with an obligation for EU TSOs to offer unlimited 'balancing' volumes at this maximum price.

The introduction of such a price cap is challenging, from both a political and technical viewpoint. Suppliers of pipeline gas to the EU may regret the loss of revenue that would result, but would still receive multiple(s) of previous prices, and so are reasonably likely to continue to supply at maximum available volumes. A big question is 'how would Russia react?'. However, concerns that it would cut all supplies to the EU are mitigated by the fact that it is currently supplying a very small proportion of previous levels, and that (rationally) in the event of a general price cap it may choose to continue to supply (or even increase supplies) to maintain revenue. It is notable, however, that the Member States vocally supporting the price cap are not those that are dependent on Russian supplies.

Indeed, a key challenge to be faced in designing a gas wholesale price cap is that it may help to alleviate the price problem, but it is likely to create or exacerbate a scarcity problem in certain countries. Lower prices mean higher demand, and countries previously dependent on Russian supplies would potentially be unable to physically source enough gas at the maximum capped price to meet demand. As there would be no price signal, and these 'gas poor' Member States would not be able to compete on price to attract needed supply, how to allocate scarce molecules between Member States?

This 'solidarity' issue is central to agreeing an EU-wide gas wholesale price cap. A first step would be to trigger the EU 'Alert' leading to the obligatory 15% gas saving obligation under the 2022 EU Regulation on the reduction of natural gas demand, but this alone will not be enough. (Iberia has a partial exemption, given the lack of interconnection capacity with the rest of the EU).

Various options exist for introducing an EU level wholesale gas price cap, none of which are simple or ideal, including:

- *A cap could be placed on EU gas wholesale prices, based on regulatory intervention. TSOs may be tasked with supplying unlimited balancing gas. To enable this to work in practice, and to avoid a secondary market developing whereby traders would push up the 'real' EU price through OTC trades, these would also need to be regulated/prohibited. This would aim to have the effect of 'capping' the price at which all pipeline gas supplied into the EU would be sold.*

  In order to address the 'solidarity' issue, price competition for LNG could be allowed to continue to exist between Member States (rather than for pipeline supplies), and Member States would be free to provide contracts for differences between the global LNG price and the capped EU wholesale price for gas sold into their market. However, this would result in inter-EU competition for LNG continuing, pushing global LNG prices upwards.

  Equally, as there would be no mechanism to 'share' scarce pipeline gas, simply enabling price competition for LNG may not suffice to address the solidarity issue, especially for those Member States that were dependent on Russian supplies but have limited access to LNG.

- *Should a more ambitious approach be aimed at, an active 'solidarity' mechanism could be agreed, providing common curtailment rules/other solidarity mechanism(s) across the EU, so that all customers/countries are treated (more or less) the same and gas therefore flows to 'where it is needed'. This would be required, for example, in the event that the cap was set at 'Global LNG prices plus a margin', to attract all non-contracted global LNG, subject to infrastructure constraints.*

In substantive terms, this approach is attractive, but the political difficulties of agreeing a common EU curtailment protocol or other effective solidarity mechanism (which would in any event be an indirect curtailment mechanism) should not be underestimated.

- *The most ambitious approach would be the above, plus an EU single LNG buyer that would purchase available LNG on global markets and then distribute the gas according to agreed criteria (prompting the same 'allocation' problems and the added institutional difficulty of who might perform such a task). This would have the effect of reducing inter-EU Member States competition for LNG, helping to ease global prices.*

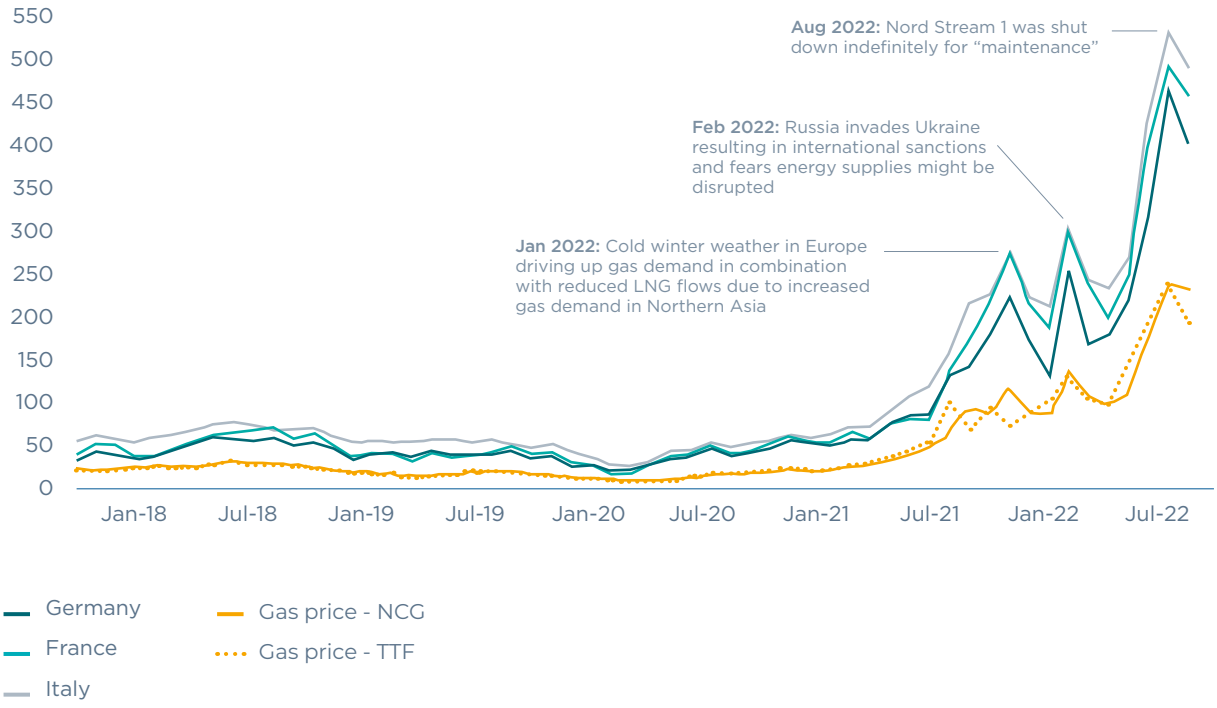
In practical terms, one option would be to immediately implement the first option above, whilst detailed work on further solidarity mechanisms proceeded.

Despite these challenges, there is a growing consensus that such a mechanism may be inevitable. Alternative additional measures, such as making the 'Iberian model' available to other Member States, are being considered by the Commission, but this would not actually address the underlying problem of high gas prices. Solving these issues is surely not beyond the EU, but it would represent one of the most complex and ambitious legal and policy measures ever negotiated and agreed at EU level.

1. Introduction

Since the roughly 10-fold increase in gas prices, and as a consequence electricity prices (although other factors have contributed to the electricity price increase), Member States, and thus the Commission, have come under increasing pressure to 'find a solution' to the economic and social consequences. As can be seen from the following graph, EU natural gas prices have increased by a factor of 10 or more since 2020, which results in evident problems for citizens and businesses in terms of heating buildings.

Figure 1
Development of wholesale power prices



As mentioned, the high gas prices have also had a huge effect on electricity prices. Natural gas is, generally speaking, the marginal generation unit in EU Member States, and thus sets the price on electricity exchanges. At the same time, supply of electricity in the EU has been constrained by the low availability of water for hydro production and reduced nuclear production for reasons of maintenance and politically driven closures. This has resulted in electricity prices following gas prices, with similar price increases on exchanges of a factor of up to x10.

The problems facing the EU from this energy price 'perfect storm' are becoming ever clearer:

- Social problems, resulting in the inability of citizens to pay energy bills at multiples of 'normal' levels. When defined in terms of percentage of disposal income spent on energy, a greater proportion of citizens risk falling into the category of 'energy poor', causing potential major hardship. Many customers have until recently been protected from the increase in wholesale electricity prices because they had fixed-price contracts. However, these contracts are now expiring, putting huge pressure on governments to find solutions. In Spain, where the electricity wholesale price is directly linked to the bills of 'protected' customers, this pressure was felt earlier than in other countries.

- Industry, and in particular energy intensive industry, is finding it difficult to cope with the actual and anticipated price increases. Their competitors (for example in the US) have energy (and in particular gas) costs far lower than in the EU, and it is becoming increasing impossible to compete with imports. EU energy-intensive industry is now gradually being forced to mothball capacity, unless governments are able to pay massive subsidies.

  This gives rise to the obvious problem of lost economic activity and employment in the EU, and the fact that once mothballed, some plants may never reopen.

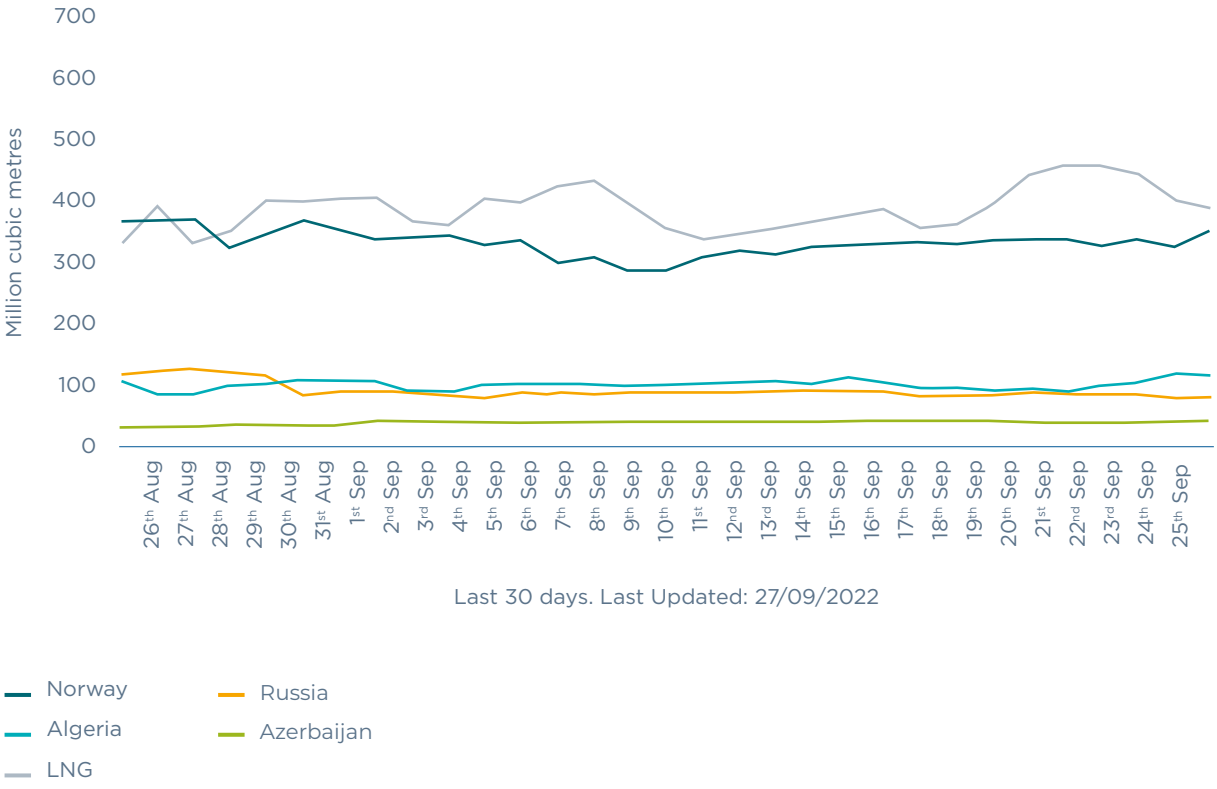
  In addition, it gives rise to the risk of supply-chain shortage. For example, energy costs (notably natural gas) make up a very high percentage of the cost of producing fertiliser. More than 70% of EU fertiliser production has closed[1], as they cannot compete with imports. There are important questions whether it will be physically possible to import enough fertiliser to make up for the lost EU volumes. The potential effect on EU food price inflation and reduced yields is self-evident. This example of fertiliser also applies to many other energy intensive sectors, giving rise to the concern of widespread supply-chain security issues and inflationary pressure. Whilst some energy industry relies predominantly on electricity (such as aluminium), most use gas as an energy source/feedstock, and thus simply addressing high electricity prices will not solve this issue.

- In determining how to address this challenge it is sensible to plan on the basis that this is unlikely to be a short-term problem - even if the future cannot be predicted. The driver underlying the high gas prices is not that Russia is charging 'high' prices, but a lack of molecules. Russia has gone from the EU's largest supplier of gas to a marginal one, with gas flowing only via Turkstream 2 and via the Ukraine route:[2]

[1] https://www.fertilizerseurope.com/wp-content/uploads/2022/08/Fertilizers-Europe-Press-release_Europe-fert-industry-victim-of-EU-energy-chaos-1.pdf

[2] Source: https://www.bruegel.org/dataset/european-natural-gas-imports

Figure 2
Daily gas imports by Russian routes, Norway, Algeria and LNG



Sources: Entsog, https:transparency.entsog.eu/#/map
Note: most recent daily data can face revision

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The recent sabotage of the Nord Stream pipelines effectively takes these pipelines out of the EU's potential supply picture for the foreseeable future. The recent announcement of disagreement between Ukrenergo and Gazprom is ominous for future supply via the Ukraine. The likelihood that the war in Ukraine will be rapidly over is impossible to judge, but the prospect of a large-case resumption of supplies from Russia in the next three years looks a distant possibility.

The EU imported about 40% of its total gas consumption[3] from Russia in 2020. The Russian gas supplied to the EU can, to a very large extent, not be evacuated to other markets through pipelines and LNG, and this will not change over the next few years (not least due to the difficulty for Russia to build LNG gasification terminals as a result of Western sanctions). According to Keisuke Sadamori, the IEA's Director of Energy Markets and Security, *"the outlook for gas markets remains clouded, not least because of Russia's reckless and unpredictable conduct, which has shattered its reputation as a reliable supplier. But all the signs point to markets remaining very tight well into 2023.[4]"*

In its initial reaction to the energy consequences of the war - the 'REPowerEU' Communication[5], the Commission proposed as a priority action a massive and rapid increase in investment in energy efficiency, renewable energy and hydrogen. This is obviously correct, but this acceleration will not be able to make a significant contribution to replacing this 'stranded' gas over the next few years.

The Commission also proposed a focus on gas supply diversification - increasing pipeline supplies form Norway, Algeria and Azerbaijan and LNG imports. This has had some success, with volumes from Norway having increased, and the Commission President signing an MoU to import an additional 10bcm per annum

[3] https://ec.europa.eu/info/news/focus-reducing-eus-dependence-imported-fossil-fuels-2022-apr-20_en#:~:text=In%202021%2C%20the%20EU%20imported,of%20coal%20imports%20from%20Russia

[4] Natural gas markets expected to remain tight into 2023 as Russia further reduces supplies to Europe - News - IEA

[5] https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

from Azerbaijan in the medium term[6]. Germany has committed to increasing its LNG regasification capacity, and the EU (because of the high prices that it is willing to pay) is currently attracting pretty much all non-contracted LNG to Europe.

However, it is an unfortunate and unavoidable fact that without Russian gas, at least over the next 2-3 years (and thereafter to a lessening extent, as RES and energy efficiency investments pay off and additional LNG volumes and capacity come on-stream) without any regulatory solutions the EU is highly likely to continue to suffer from very high energy prices, caused basically by Russia's reduction in gas volumes and its continual actions to create a perception of risk of future supply.

2. Initial **measures** implemented by Member States with the Commission's approval: **price caps, State aid and regulated prices.**

The Commission's approach to this issue was initially cautious. Because of EU legal limitations on the freedom of action by Member States in terms of regulated prices, State aid, and regulatory changes to the electricity market functioning at national level, Commission/EU approval of measures taken to address high gas and electricity prices by Member States has been required.

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- In its Communication of 13 October 2021[7], the Commission presented a conservative 'toolbox' of measures that could be adopted by Member States in accordance with EU law, notably regarding subsidies to vulnerable customers.
- In its Communication of 8 March 2022[8], the Commission provided guidance on how Member States could introduce regulated prices in the retail electricity market in a way that is compatible with EU law. It also provided guidance – and strict conditions – on how Member States could introduce fiscal measures such as 'claw-backs' to redistribute part of the profits made by electricity producers during the energy price crisis. Since then a number of Member States have introduced 'claw-back' schemes.
- In its Communication of 23 March 2022[9], the Commission analysed the benefits and drawbacks of several policy options to address rising prices on the electricity market. The Commission advocated for continuing to minimise the harmful

[6] https://www.euronews.com/my-europe/2022/07/18/von-der-leyen-heads-to-azerbaijan-to-secure-new-gas-import-deal
[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A660%3AFIN&qid=1634215984101
[8] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A108%3AFIN
[9] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0138

effects of high prices through retail-level measures, and implicitly argued for maintaining the *status quo* on the wholesale electricity market (i.e. not making any changes to its design).

In taking these steps, the Commission has consistently and strongly defended the marginalist pricing system on which the Internal Electricity Market is based. This has also been the systematic approach of ACER. EU law requires the non-distorted use of the marginalist pricing system as the basis for EU electricity markets, and this continues to be the case. For example, the new legislation on energy prices adopted by the Council on September 30th focuses on measures that can be taken but nonetheless maintain the integrity of the marginalist pricing system and protect the fundamentals of the Internal Electricity Market. In the explanatory Memorandum to the Commission proposal, for example, the Commission states *"The role of the internal energy market in helping mitigate the impact of the current energy crisis cannot be overlooked… As the cap will apply on the revenues per MWh of electricity produced, price formation in electricity wholesale markets will not be affected. The dispatch of power plants will continue to take place based on their level of efficiency, with those with lower marginal costs being dispatched first, and the cross-border trade of electricity will not be affected…."* Recital 8 to the Regulation states *"Safeguarding the integrity of the internal electricity market is therefore crucial to preserve and enhance the necessary solidarity between Member States."*

Notwithstanding this, the Commission has accepted mechanisms that at least significantly affect the functioning of the marginalist pricing system. On 18 May 2022, the Commission presented, alongside the REPowerEU plan, a Communication entitled 'Short-term energy market interventions and long-term improvement to the electricity market design[10]'. Whilst the Commission underlined the importance of maintaining the marginalist pricing system, it accepted – but *de facto* solely for the Iberian peninsula – a 'gas reference price model'. The mechanism has subsequently been implemented and approved under the State aid rules for an initial 12-month period[11].

Commission/EU approval of measures taken to address high gas and electricity prices by Member States has been required.

3. The Regulation on High Electricity Prices

On 30th September 2022, the Energy Council reached a political agreement on a Council Regulation[12] on an emergency intervention to address high electricity prices. This was adopted under Article 122 of the EU Treaty, which provides that *"Without prejudice to any other procedures provided for in the Treaties, the Council, on a proposal from the Commission, may decide, in a spirit of solidarity between Member States, upon the measures appropriate to the economic situation, in particular if severe*

[10] https://ec.europa.eu/commission/presscorner/detail/en/QANDA_22_3141
[11] https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3550
[12] See the text of the Council Regulation here.

difficulties arise in the supply of certain products, notably in the area of energy." The adoption is by qualified majority.

The Regulation will enter into force as soon as formally adopted by the Council and published in the Official Journal, which should be in November/December 2022. It requires that Member States adopt measures in three key areas, (i) electricity demand reduction, (ii) the mandatory adoption of a 'mandatory cap on market revenues of infra-marginal generators' (i.e. a variation on the above-described 'Greek model', and (iii) a ' Fossil Fuel Solidarity Contribution'.

Demand Reduction

Articles 3-5 of the Regulation requires Member States to *"seek to implement measures"* to reduce their total monthly gross electricity consumption by at least 10% until March 31, 2023 (i.e. a non-obligatory measure). It also introduces a binding obligation to reduce consumption during defined peak price hours, by an average of 5% per hour.

Whilst of course such a measure is helpful and should be welcomed, it may be observed that given the very high electricity prices, and consequent demand destruction of industrial electricity consumption, as well as energy savings measures taken by citizens (because they cannot afford to use as much electricity), the 5% obligatory target may well be met without Member States actually having to do anything.

The Commission advocated for continuing to minimise the harmful effects of high prices through retail-level measures, and implicitly argued for maintaining the status quo on the wholesale electricity market.

Mandatory Cap on Market Revenues

The Regulation introduces an obligatory type of 'profit claw-back' mechanism on 'infra-marginal' generation, which is based on a 'Greek model' already introduced in that country[13]. 'Infra-marginal generation' is defined as (a) wind energy; (b) solar energy (solar thermal and solar photovoltaic); (c) geothermal energy; (d) hydropower without reservoir; (e) biomass fuel (solid or gaseous biomass fuels), excluding bio-methane; (f) waste; (g) nuclear energy; (h) lignite; (i) crude petroleum products; (j) peat.

Member States are required to 'claw-back' revenues from these generators between €180/MWh and whatever price the wholesale market delivers. This is intended to capture the 'excess' profits that these generators are considered to be making, because they may benefit from the very high electricity wholesale price but do not have to pay the high gas price which is the basis for the marginal electricity price.

It should be noted that the 'trigger' of €180/MWh is far higher than the Greek equivalent cap of €85 per MWh for renewables introduced in the existing national scheme. This reflects the Commission's recognition of the need to ensure that RES generators are guaranteed a sufficient return to continue to justify investment, given the need to upscale RES investment levels in the EU in the short to medium term. On the other hand, RES PPA contracts, existing and future, will not be affected by the claw-back so long as their net revenues do not exceed the €180/MWh cap.

Furthermore, the Regulation provides that Member States may implement a lower cap than €180/MWh and differentiate the cap according to technology (as the Greek model does[14]). They can also set a higher cap than €180/MWh for inframarginal producers whose investments and operating costs exceed thus figure (potentially biomass, for example).

Article 7a(2) sets out the conditions that must be met when such amendments to the abovementioned €180/MWh 'default approach' are implemented by Member States. They must *"(a) be proportionate and non-discriminatory; (b) not jeopardise investment signals; [and] (c) ensure that the investments and operating costs are covered;"*

The adoption of such a measure is mandatory; it must be adopted by all Member States by 1 December 2022.

Fossil Fuel Solidarity Contribution

Article 13-17 of the Regulation requires Member States to implement a temporary "solidarity contribution" for fossil fuel companies to cover 2022 and 2023, equivalent to 33% of 'additional profits.' 'Additional profits' are defined as any profits over 20% above the average of the previous four fiscal years 2018–2021. Member States are required to introduce this contribution unless they have enacted equivalent national measures.

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[13] https://www.reuters.com/business/energy/greece-gets-eus-initial-nod-cap-power-prices-minister-2022-05-23/

[14] Each month the Greek authorities set a maximum price that each power production technology can receive: (in September 2020 €112 per MWh for hydropower facilities, €85 per MWh for renewables, €253.98 per MWh for natural gas-fuelled power stations, and €206.71 per MWh for lignite-fired power stations).

The Regulation introduces an obligatory type of 'profit claw-back' mechanism on 'infra-marginal' generation.

The Regulation requires that this profit claw-back be imposed on companies or permanent establishments *"generating at least 75% of their turnover from economic activities in the field of the extraction, mining, refining of petroleum or manufacture of coke oven products…*[15]*"*

This raises the question of the applicability of the solidarity contribution to companies active in the natural gas sector, as it seems that this definition does not strictly cover the extraction and mining of natural gas (notwithstanding the evident intent that they be covered). This is difficult to understand, and it may well be that this is clarified when the Regulation is legally adopted. The Council reached a 'Political Agreement' rather than the adoption of the specific text - the Regulation will now be reviewed by lawyers, and a specification on such issues can be resolved before its formal adoption which will take place a few weeks after the Political Agreement.

Member States must implement such a claw-back by 1 December 2022.

[15] Article 2(17).

The companies really making money from the high prices are outside EU jurisdictions.

Analysis of these measures

According to the Commission, Member States may be able to collect up to €117 billion from the proposed temporary revenue cap on 'inframarginal' electricity producers on an annual basis[16]. However, Member States may actually raise less than expected. Most renewable electricity is sold on forward contracts, with specific price formulas. Many of these are unlikely to exceed €180/MWh. New PPAs will not be priced above €180/MWh - if revenues above those figures are in any event captured by the government, neither the purchaser nor seller has any interest in concluding a contract above this amount.

Furthermore, the profit claw-back on oil and gas companies may not raise huge sums - the companies really making money from the high prices are outside EU jurisdictions.

In any event, even if the mechanisms would bring in significant revenues, they would be a tiny fraction of what is needed to subsidise the costs of increased electricity and gas prices for all citizens, SMEs and industry. By way of example, the new UK measure to cap household bills at £2,500 per year (already a historically high figure) plus limited help to industry, will require annual public borrowings of up to £150 billion[17]. On September 29, Germany announced[18] funding of €200 billion for a 'price shield' mechanism to protect companies and consumers against the impact of soaring energy prices.

4. The **Spanish** gas reference price **model:** a 'gas cap for generation'

The Spanish 'gas reference price model' can be summarised as follows:

- In May 2022, Spain and Portugal adopted a 'gas reference price' of €40/MWh for the first six months, increasing by €5/MWh each month until it hits €70/MWh in May 2023. Gas generators must bid into the electricity pool at prices based on these lower gas prices. Gas generators are compensated

If the mechanisms would bring in significant revenues, they would be a tiny fraction of what is needed to subsidise the costs of increased electricity and gas prices for all citizens, SMEs and industry.

[16] https://ec.europa.eu/commission/presscorner/detail/en/QANDA_22_5490
[17] https://edition.cnn.com/2022/09/08/business/liz-truss-energy-price-cap-europe/index.html#:~:text=%E2%80%9CThe%20support%20package%20for%20households,150%20billion%2C%E2%80%9D%20he%20added.&text=Britons%20desperately%20need%20the%20support,to%20%C2%A31%2C971%20(%242%2C263).
[18] https://www.reuters.com/business/energy/germanys-measures-protect-consumers-rising-energy-prices-2022-09-29/

for the difference between the reference gas price and the daily gas exchange price.

- This mechanism leads to a reduction in the overall electricity pool price, not just for electricity produced from gas, but also for all electricity produced from other sources. As gas makes up only 26% of the Spanish electricity production and 33% of the Portuguese electricity production, the limited subsidy for gas generation is repaid by a larger overall reduction in the electricity price, covering all forms of generation.
- The measure is financed (i) by contributions levied on the buyers of electricity in the Iberian wholesale electricity market, and (ii) by congestion income obtained through monthly auctions of the interconnection capacity between Spain and France.
- In relation to imports/exports, this measure obviously changes the relative costs of the Iberian market and the French one, favouring exports from Spain. This has led to an increase in congestion income on the border, which also contributes to financing the measure (Spain in fact subsidising French customers through cheaper exports).

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- Forward contracts signed before 26 April 2022 are exempted from this charge, as they do not benefit from the measure and are based on price formulas established prior to 26 April 2022, which in many cases are based on fixed prices far lower than current pool levels.
- Lastly, the following activities are exempted from the obligation to pay the contribution: (i) pumped hydro storage generators when in pumping mode, (ii) systems of energy storage (including batteries), and (iii) provision by power plants of ancillary services.

From the Spanish Government's viewpoint, the positive elements of the scheme are that it has somewhat succeeded in reducing Spanish electricity pool prices from peak levels. Furthermore, at least until now, the model has been largely or completely 'self-financing' (based on the consumer charge and additional congestion revenues.). However the actual effect on wholesale prices, whilst significantly reduced compared to a short peak, has been limited (see the following graph of day ahead prices, taken from IBEX):

Figure 3
Day-ahead Market Price

Indeed, at the beginning of October, net Spanish wholesale prices (taking account of the charge that consumers pay to contribute to the cost of paying gas generators for the difference between the reference gas price and the actual one) were equal to that in neighbouring countries not operating the model.

The negative elements of the scheme result from the likely effects on the market for future forward (or fixed price) power purchase agreements (PPAs). It is very difficult to determine an appropriate price formula for any such contract, given the regulatory intervention and the risk of additional, currently unforeseeable measures by the Spanish Government. This equally makes it difficult to finance new renewable electricity ('RES') investments.

From a company perspective, for a gas producer, the revenue should in principle be neutral with or without the measure. From an RES/nuclear company perspective, however, the scheme entails a significant loss of revenue compared to the *status quo.*

A Commission 'Non-paper' provided to the Energy Council for discussion at the same meeting, notably on the possibility of a gas wholesale price cap, indicates that *"based on Member States' experience, the Commission stands ready to discuss the development of a temporary EU framework to limit the influence of high gas prices on electricity price formation. One option could be to cap the price of gas in electricity generation at a level that helps bring down electricity prices without leading to overall increased gas consumption. The cost differential between the capped and market prices would be borne by the electricity system within the Member States, building on the emergency intervention in the electricity market proposed on 14 September."*

On the basis of this text in the Non-paper, it appears that the Commission may be considering this Iberian model as generally applicable for all Member States.

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However, given that the level of gas generation differs considerably between Member States, with Italy for example producing around 49% of its electricity from natural gas in 2020 , the 'value' of the model will be very different across countries. In Italy, for example, implementing a reference price for gas generation means that the charge on consumers to pay for the difference between the gas reference price and the real one will need to cover almost half of generation. The cost of these subsidies will therefore be high, and will logically result in a higher price for the final electricity in countries that have a high level of gas in the generation mix compared to 'low gas' countries. Thus, the cost/benefit ratio of the mechanism will be far lower for Italy than for countries with lower amounts of gas in their energy mix.

This means that the price of electricity across Member States would differ significantly depending on the role of gas in the electricity mix. This will create important distortions of the Internal Electricity Market, and logically result in exports from cheap 'low gas' countries to more expensive 'high gas' ones. This would be an important, and rather illogical distortion of the Internal Electricity Market, as it would require customers in some countries to subsidise others, and to a considerable extent where interconnection capacity is significant. Spain is currently subsidising France in this manner, but the effect is relatively limited due to low levels of interconnection capacity with France.

In addition, such a mechanism would not address the underlying problem of very high gas prices. This, it remains to be seen whether the Commission will table such a proposal for use by all Member States, and, if so, whether it would be accepted by the Council.

5. Possible future **measures.** an EU cap on wholesale gas prices?

As mentioned above, the energy crisis is likely to last a few years. It is at best questionable whether governments will be able to provide such subsidies over a multi-year period. It is equally questionable whether they will be able to finance the subsidies required to energy intensive industry to remain open/competitive. Thus, the most important unanswered problem of these measures is that they try to address the symptoms of the high gas prices, and not the root cause - high gas prices.

In light of this, 13 Member States (Italy, Spain, Poland, Greece, Belgium, Malta, Lithuania, Latvia, Portugal, Slovenia, Slovakia, Croatia and Romania)[19] have written to the Commission requesting it to table a legislative proposal that would cap gas wholesale prices in the EU. This has been requested by a group of Member States for some time now; for example, the Energy Council of 9 September requested the Commission, by mid-September to "[p]*ropose emergency and temporary intervention, including gas price cap. Specific measures in this regard should also help limiting the impact of high gas prices on EU electricity markets and energy prices for customers. Such measures should aim at benefiting European consumers to alleviate social and economic consequences of the current high energy prices, and European companies in order not to endanger their competitiveness, while preserving the incentive to reduce gas and electricity consumption and the market signal for decarbonisation".*

To date, the Commission has not proposed such a mechanism. However, it tabled a 'non-paper' for the Energy Council on September 30th where, rather than proposing such a measure, in the annex to the non-paper it underlined the difficulties in implementing it. However, there are a number of fundamental drivers that make it likely that the Commission will need to table a proposal to cap EU gas wholesale prices in the coming weeks or month(s):

[19] Countries ramp up pressure on Brussels to propose a gas price cap – POLITICO

- The agreed electricity cap on infra-marginal generation and the oil and gas profit claw-back measures will not solve the underlying problems resulting from high electricity prices. The wholesale electricity price will be unaffected by the cap on infra-marginal power generation, but will give governments a certain level of revenue to subsidise customers. However, as explained above, depending on the treatment of forward contracts, the revenue for redistribution raised may be less significant than expected, and the sums raised will be just a small fraction of the money needed to help citizens and industry over a sustained period.
- Although the gas and electricity savings measures, if fully implemented by Member States, might have some potential effect on gas prices (by reducing demand), given Gazprom's continued supply tightening actions, it is questionable whether they will have a significant effect.
- As the EU enters the heating season, the effect of high gas prices will increasingly be felt by citizens and SMEs, putting additional political pressure at both Member State and EU level to 'do something'.
- The price measures implemented will have no effect on EU gas prices. Continued very high gas prices are starting to have a major effect on EU energy-intensive industries, with increasing numbers of plant closures/mothballing. Aside from the consequences in terms of unemployment, this can result in huge supply chain issues for EU industry and agriculture and further drive inflation. The subsidies needed to meet the energy costs of these companies will be very substantial indeed.

Continued very high gas prices are starting to have a major effect on EU energy-intensive industries, with increasing numbers of plant closures/ mothballing.

- One of the main (but not the only) reasons against setting an EU wholesale gas price cap is that it would likely lead Russia to completely cut supplies to the EU. Whilst this has not yet happened (some supplies continue through Ukraine and Turkstream 2), there is no current prospect of a wider recommencement of supplies and the sabotage of Nord Stream 1 and 2, together with the emerging dispute between Naftogaz and Gazprom[20], make the future expectation of supplies from Russia, even at current levels, questionable. Nonetheless, the (reduced) supplies via Ukraine remain important to Germany.
- As mentioned above, there is a widespread assumption that the current gas crisis, and the war in Ukraine, will not end soon. This argument leans towards a structural solution to the issue, notwithstanding the risks.

5.1. Difficulties to be addressed in implementing a gas wholesale price cap

Despite these drivers, a number of important challenges will need to be faced by any gas wholesale price cap set at EU level:

[20] https://english.nv.ua/business/fears-of-conflict-between-gazprom-and-naftogaz-raise-gas-prices-by-nearly-20-ukraine-news-50273147.html

A price level must be set that will continue to attract the maximum possible level of available and non-contracted LNG.

- The reason why EU gas prices are so high is a physical lack of supply (notably in Germany and South/Eastern Member States), and the risk perception of an even greater shortage in the future. In such circumstances, a mechanism is needed to 'distribute' the limited resources available.

  Until now, this has been done through the price mechanism (i.e. Germany needs gas the most and is willing to pay the highest prices, so a lot of non-contracted gas flows there).

  In the event that the EU would implement a common wholesale gas price cap, this price-based 'scarcity allocation mechanism' would no longer exist. In these circumstances, how would one allocate available gas? In an ideal world, this would be done through a coordinated approach between Member States. However, the debate on the (far less ambitious) Regulation on coordinated demand-reduction measures for gas, where many Member States requested derogations, demonstrates that an agreement on such an allocation mechanism will be tremendously difficult to reach.

- When setting a gas price cap for wholesale markets, the question arises as to how to deal with the possibility for bilateral/'over the counter' trades. Even if wholesale prices are capped, customers in 'gas poor/money rich' countries would be incentivised to offer to buy gas at higher prices on the secondary bilateral market in the event that they could not source 'enough' gas at the lower capped price. This would push the real price of EU traded gas back upwards, possibly reducing or even eliminating the effect of the wholesale price cap.

- A price level must be set that will continue to attract the maximum possible level of available and non-contracted LNG. This would require that, in the event that the 'Asian LNG attraction price' exceeds the EU wholesale price cap, either (i) that the EU price cap (or band) is increased, or (ii) that LNG prices are allowed to float independently of the wholesale prices, which would thus be based on pipeline supplies. In this context it is worth noting that the Commission President has indicated[21] that the Commission is examining whether the TTF is a relevant benchmark for setting a wholesale price cap, as she considered that the "Title Transfer Facility is no longer representative of the imported gas", and that the Commission would start work on a "complementary' benchmark for LNG.

- A wholesale price cap would have significant political consequences:

  - Although Norway has indicated that it is 'open' to discussions on an EU gas price cap, President Putin has indicated (admittedly in relation to a cap solely on Russian gas) that such a measure would lead to a complete cut in Russian gas exports to the EU. This being said, gas revenues remain important to Russia, which has maintained income through lower volumes and higher prices. A logical response from Russia to a generalised EU wholesale price cap would thus be to initially cut supplies completely to

[21] https://www.euronews.com/my-europe/2022/10/05/energy-crisis-ursula-von-der-leyen-opens-the-door-for-an-eu-cap-on-gas-prices-but-with-cav

test the EU's resolve, and if the cap is maintained, to actually increase supplies to maintain revenues, given that it had lost the ability to control EU gas prices through supply manipulation. This assumes, however, a logical response on the part of Russia.

- Whilst Algeria would no doubt argue against such a cap, as the higher prices are a welcome boost to its challenging budget situation, they have nowhere else to sell the gas, since they lack adequate LNG infrastructure.
- Azerbaijan, where the Commission President signed an MoU with President Ilham Aliyev to double supplies by 2027 (an extra 10 bcm per year) would also require strong political efforts to prevent the unravelling of the deal.
- The US would constitute a particularly difficult political challenge, as shale gas producers are evidently making huge profits from sales to the EU. However, setting a cap sufficiently high, possibly combined with separating the LNG market through permitting bilateral trades, may enable this to be overcome.

In conclusion, there are important technical, commercial and political issues that will need to be overcome before the EU will be able to implement a gas price cap.

5.2. Models proposed for establishing a wholesale price cap

European Commission 'Non-papers'

In a Commission non-paper on 'emergency wholesale price cap instruments for natural gas'[22], and another on 'TTF and representative benchmarks for wholesale natural gas'[23] that was leaked in early September (which was discussed with Member States during a workshop on 7th September), the Commission discusses some options without reaching any conclusions.

The Commission identifies a number of options, including having a common wholesale price cap on all EU gas exchanges, or having a price cap only for markets that have a physical deficit of gas ('red' and 'green' zones, with red zones being priced just above the green ones, so that gas would flow from markets 'adequately supplied' to deficit ones).

It also considers whether pipeline gas supplies and LNG could be split into different markets (the latter being dealt with through bilateral agreements driven by a separate 'LNG index' such as the one currently offered by Platts).

The paper was clearly at an early stage of development and should not be considered as any indication of any possible proposal for a price cap that might be developed at EU level.

In another Non-paper[24], prepared for discussion at the Energy Council on September 30th, the Commission does not go so far as to propose price caps, but rather identifies the challenges in implementing them. In particular, it focuses on the issue of how to ensure that gas is properly distributed to fulfil EU demand once a price cap is established. The identification of the problem and possible solutions are described as follows:

The Commission identifies the challenges in implementing price caps. In particular, it focuses on the issue of how to ensure that gas is properly distributed to fulfil EU demand once a price cap is established.

"When the price cap level is hit, it means, by definition, that there is more demand for gas than available supply. As the cap is likely to be hit in multiple Member States at the same time, there would be no market incentive to ensure cross border flows through price differentials. In a context of scarcity, there is a risk that prices would be pushed to the cap so that it becomes the price floor.

For such measure to work, in the absence of such price differentials, there would be a need to:

1. *Create an entity to replace the market and to take over many tasks of the transmission system operators to distribute gas across Member States. In the absence of market-based flows, alternative mechanisms would have to be found to allocate and ship scarce gas supplies between different Member States and consumer categories.*

[22] https://www.euractiv.com/wp-content/uploads/sites/2/2022/09/25082025_Non-paper_emergency_price_cap_instruments_for_gas__clean_.pdf
[23] https://elperiodicodelaenergia.com/wp-content/uploads/2022/09/25082025_Non-paper_on_TTF_and_rrepresentative_benchmarks_for_wholesale_natural_gas.pdf
[24] https://www.politico.eu/wp-content/uploads/2022/09/04/Emergency-Measures-Non-Paper-Presidency.pdf

2. *Introduce a significantly more drastic demand reduction framework, including curtailment, to address the increase in demand due to a lower price.*

3. *Find significant financial resources to attract gas to Europe if the global gas prices would be higher than the cap (it would require a central coordination and compensation framework).*

4. *Design and establish proper monitoring and enforcement systems.*

Deciding on gas flows administratively is without precedent in Europe and there is currently no body at EU level, equivalent to TSOs at national level, which has this experience and technical capability to undertake this task. Consumption patterns change from day to day and from hour to hour, which requires suppliers' portfolios to be readjusted on a continuous basis. Under market conditions, this readjustment takes place in the form of commercial transaction (day-ahead, intra-day, balancing, etc. transaction). Engaging in such a measure would require an upfront political decision on the method to allocate gas to Member States and the criteria to be used.

Establishing the appropriate level for the cap would be a challenging exercise due to internal and global market dynamics and entailing risks from the point of view of security of supply."

Establishing the appropriate level for the cap would be a challenging exercise due to internal and global market dynamics and entailing risks from the point of view of security of supply.

Italian proposal

On 7 September 2022, Italy tabled a paper for a Commission meeting with Member States on a gas wholesale price cap. The proposal seeks to provide (high level) answers to the difficulties of a wholesale price cap as set out above:

- The cap would cover all physical and financial transactions at the EU hubs, included OTC or on exchanges; hence, it would be in the form of a EU Regulation to be enforced and not simply a cap on exchanges.
- *"The cap should be high enough vs pre-war levels in order to be attractive for producers and exporters. This would be a price cap decided by political authorities at EU level, taking into consideration's international LNG prices, temporary and regularly reviewed."*
- The measure should be complemented by a contract for differences mechanism or other public compensation mechanisms to refund importers the difference between international prices above the cap and the cap for marginal resources required to ensure security of supply, such as spot LNG supplies. Over the medium term, overall LNG deliveries could be separated from pipeline ones with a dedicated trading platform.
- A specific regulation should be included to avoid arbitrage opportunities when reaching the cap level (extra-EU transactions).
- An appropriate and coordinated framework for demand management and allocation criteria should be included to be triggered both: (i) in the case of achievement of the cap level, but without situations of physical shortage of gas supply; (ii) in the case of physical shortage of natural gas supply. Whilst far from resolving all problems (and not addressing the political issues), the 'Italian model' represents a robust attempt to design a workable mechanism.

However, the main unanswered question is how to allocate scarce molecules between Member States. This remains possibly the most difficult element of any wholesale price cap.

'EPICO' paper

The recent paper (27 September 2022) published by the climate think tank/NGO EPICO[25], prepared by some leading German energy academics, considers that the introduction of a wholesale price cap, whilst complex and difficult, is 'unavoidable'. In terms of its design, it builds on the 'Italian model' as follows:

- The paper proposes a price limit for the EU's domestic gas wholesale market in the form of a limit of the TSOs imbalance price. TSOs would be tasked with acquiring gas and selling unlimited volumes of 'imbalance gas' at the wholesale price cap. In this manner, gas producers would therefore *"have to reduce the price at which they offer new contracts to levels at, or below, the price limit, in order to continue to profit from sales in the EU gas market. Such a measure would provide clarity about price developments in case of supply interruptions, and thus can largely reduce risk premia on forward prices."*
- With regard to LNG imports, the paper proposes that Council should consider combining an EU scale price limit with a premium system, or a contract for difference, in order to continue maintaining sufficient volumes of LNG shipments to the EU as a back-up measure.
- The paper argues that the reduction of the wholesale price level will reduce price-based incentives for gas savings. Therefore, a price limit needs to be combined with a binding EU agreement on gas saving targets. *"This would provide the basis for national governments to implement programs and measures to reliably achieve gas savings."*

The paper probably constitutes 'state of the art' current academic thinking regarding how a wholesale gas price cap could be implemented. However, it addresses the issue of how to deal with allocation of scarce molecules through energy efficiency measures, rather than intrusive regulatory solutions as discussed by the Commission above. Given the concerns expressed by the Commission on this point in the Non-Paper that was issued subsequent to this study, it may be seen by the Commission as providing a good foundation for such a price cap mechanism, but possibly not all the answers.

Florence School of Regulation paper

In this paper[26], Alberto Pototschnig and Ilaria Conti propose a two-stage approach: firstly to cap EU wholesale prices, and secondly with respect to LNG.

Regarding the cap on EU wholesale prices, they propose two models that could be operated as alternatives or in parallel: (i) give government instructions to the EU gas exchange operators to cap technical control limits that already exist on gas exchanges and *"steer the price on the gas platforms downwards"*, or (ii) as with the EPICO proposal, mandate TSOs to provide unlimited gas balancing volumes at the specified price.

[25] https://epico.org/en/publications/what-to-cap-emergency-interventions-in-the-european-electricity-and-gas-market

[26] https://fsr.eui.eu/publications/?handle=1814/74868

With respect to the need to ensure that maximum volumes of LNG reach the EU, the FSR proposes that the main instrument would be the acquisition of the LNG by TSOs, which would then be sold as balancing gas- TSOs acting as quasi national LNG single buyers: *"These 'missing volumes' of gas could be procured on the international LNG market through auctions. These auctions could be run by the TSOs or, more appropriately, by a EU Single Buyer entity. Such an entity could organise auctions in which external LNG suppliers bid a price premium above the prevailing price of EU pipeline gas, to supply LNG to the EU. The Single Buyer entity would buy this gas at the prices, including the premium, resulting from the auctions and sell it to the TSOs, according to their needs, at the predefined price or within the predefined price range. The price premia paid by the Single Buyer entity would have to be recovered through regulation."*

The paper does underline the difficulty of ensuring very effective coordination between TSOs in the event they were entrusted with the task of procuring LNG.

The paper does not go into considerable detail regarding the question of how to allocate scarce molecules, but does underline the difficulty of ensuring very effective coordination between TSOs in the event they were entrusted with the task of procuring LNG: *"Setting up a Single Buyer entity might take some time and therefore, if a gas price cap had to be implemented as an immediate measure, a temporary role of TSOs in procuring LNG on the global market would be inevitable. This begs the question of how TSOs could act in a coordinated way, in order to avoid competing against each other when accessing the global LNG market."*

6. Commentary and **conclusions** about wholesale gas price cap

The measures currently adopted by Member States are a kaleidoscope of different regulated prices, subsidies, inframarginal price caps, profit claw-backs, and gas reference prices. They provide a divergent set of approaches to solve the current energy price crisis.

Whilst providing a limited amount of revenue to Member States to subsidise energy consumers (and notably vulnerable citizens), the negative consequences of this set of constantly changing measures are considerable. The most important measures that are needed to deal with the consequences of reduced Russian supplies are increased investments in renewable electricity and energy efficiency. The constantly changing regulatory framework applicable to them and the concern about 'what is next' - especially in Spain, makes it very difficult for renewable energy producers to invest. Any supplier or purchaser of renewable electricity would at present be reasonably concerned that whatever price they might agree in a PPA would later be amended through future regulatory changes.

In addition, if the crisis lasts longer than a single year, the EU is likely to face an increasing and impossible situation regarding government borrowing.

Thus, the new Regulation, whilst not without its difficulties, at least provides a common European framework for measures on the electricity market and a certain level of stability and predictability for investors. Equally, it retains the basis of the marginalist system underlying the EU's electricity market (because prices are still set in each country based on the marginal unit) and enables reasonably undistorted trade between Member States to be maintained.

However, as explained above, the current measures - a combination of (i) the EU Regulation on price mechanisms and (ii) State aid measures that allow Member States a wide margin of discretion in providing energy subsidies - do not really deal with the root cause of the problem facing Europe, which is high gas prices. Aside from the Iberian model, they do not lower the electricity price but 'claw-back' profits above a defined level from infra-marginal generators to help pay for subsidies. They equally do nothing to lower the ruinous gas price paid by citizens and, above all, energy intensive industry.

As explained above, whilst these measures will provide Member States with some revenue to finance subsidies, it will not be enough to cover the support needed for citizens and industry. In addition, if the crisis lasts longer than a single year, the EU is likely to face an increasing and impossible situation regarding government borrowing (to pay for subsidies), both socially and economically.

For these reasons, it is reasonable to argue that a Commission proposal for a wholesale price cap is inevitable. Whilst Germany and some other 'rich' Member States can afford large subsidies for one year, 'poorer' ones will not be able to do so. Even rich Member States will be concerned at borrowing such vast sums over multiple years, and what happens if gas prices go even higher?

The general structure of such a wholesale price cap has been outlined with a good degree of detail and robustness, for example in the 'EPICO' and FSR papers and other studies.

The main political and supply danger behind such a cap is the potential reaction of the EU's pipeline suppliers. In the Commission's non-paper for the Energy Council, it suggests the following: *"The EU should engage with reliable supply partners to achieve, within a reasonable timeframe, a common understanding to reduce prices whilst safeguarding security of supply and developing stable long-term energy partnerships through the energy transition. While a mutually agreed approach with trusted partners is the preferred option, the key objective for the EU is to ensure lower prices for EU consumers already this winter. The EU should therefore be ready to introduce measures to limit prices."*

As explained above, it is reasonable to assume that Norway, Algeria and Azerbaijan will continue to supply pipeline gas to the EU under a capped (but still historically high) wholesale gas price. The currently limited supplies from Russia may be completely cut as a consequence of its imposition, but this is unpredictable and may happen anyway. Furthermore, a case exists that supplies may rationally be increased as a result of the measure to enable Russia to maintain current levels of income from gas sales. This risk may well

The current measures do not really deal with the root cause of the problem facing Europe, which is high gas prices. They equally do nothing to lower the gas price paid by citizens and, above all, energy intensive industry.

be a 'price worth paying' to ensure a much lower EU gas price - an academic paper by EPICO[27] calculates the net welfare benefit of a price cap at €50/MWh at roughly €1000bn per annum.

Equally, approaches exist to ensure that within the framework of a wholesale price cap, the EU would continue to attract the maximum level of uncontracted LNG moving forward - if necessary paying higher prices for LNG than the capped 'European Price'. The options vary from

(i) contracts for difference between the EU price and the prevailing global LNG price,

(ii) setting the EU price at the global LNG price based on an existing LNG index at LNG price + x%, and

(iii) appointing an EU single buyer for LNG purchases.

However, the key 'unsolved' issue centres around the allocation of scarce molecules. As mentioned above, the reason why the EU has such high gas prices is not because producers are 'charging' high prices, but because of the physical lack of molecules

[27] https://epico.org/uploads/images/What-to-cap_-Policy-Report-_-EPICO_final.pdf

to fulfil EU demand in certain areas in Europe with physical restrictions. This lack of molecules is due to Russian reductions in supplies and the creation of uncertainty and risk that further disruptions may occur.

Allocating this 'scarce' capacity between demand that is greater than available supply (i.e. between Member States) is carried out today by price competition for the 'marginal molecule', that in turn sets the wholesale price. This is particularly the case for available LNG. It is, *inter alia,* this competition between companies/traders in different Member States (demand from Germany is understandably intense) that is pushing global LNG prices up.

However, if an EU wholesale price cap exists, this 'price competition - allocation of scarce capacity mechanism' no longer exists. All EU customers would pay the same price and be effectively prohibited from competing for available supplies by offering high(er) prices. LNG would be sold into the EU market at the wholesale price cap, if necessary with subsidies from Member States to cover the difference between the global LNG price and the EU capped price (e.g. via contracts for differences). Put differently, German industry would not be able to attract needed supplies by offering higher prices and German energy subsidies would not attract the needed volumes.

In the absence of a price allocation mechanism, how to ensure that the (limited) available molecules to the EU flow to where they are most needed?

It is notable that the 13 Member States that have written to the Commission to request an EU proposal for a price cap are those that are reasonably well supplied with gas from Norway and Algeria, and/or with strong LNG capacity/bookings. They do not face the same challenges as Germany and other 'Russian gas dependent' states in meeting demand and keeping energy intensive industry supplied. These former countries have more of a problem of price

than of volume. Therefore, they would experience limited potential downsides from the imposition of an EU-wide wholesale price cap.

Germany and its neighbours that were significantly dependent on Russian supplies, however, have more to lose. They have a problem of price and of volume, that threatens to become more severe as a result of a price cap (in particular if Russia cuts all supplies). In the absence of any price signal enabling these countries to attract more volume, a price cap without parallel measures to ensure that available volumes are 'fairly' distributed may leave these countries in an impossible position.

On August 4th 2022, the EU adopted a Regulation on coordinated demand-reduction measures for gas[28] that legally requires Member States to save 15% of gas compared to 2021 in the event that the EU declares a 'Union Alert'. The fact that no Alert has so far been declared should raise concern in 'Russian gas dependent' Member States that the 'voluntary' sharing of scarce molecules will not happen.

In the absence, therefore, of clear and binding rules on (i) gas saving, and (ii) agreed and common rules on solidarity (including, for example, a common approach on curtailment (a common approach to determining the priority of which EU industries receive gas)), it is not unreasonable that 'Russian dependent Member States consider that a wholesale price cap may help them on price but hurt them on volume (the most expensive energy is the energy you do not have).

The introduction of an EU wholesale price cap would therefore logically require some measures on gas sharing/solidary to ensure that not only 'Russian dependent' countries have to curtail industrial production as supplies are limited but prices drop, but that the 'pain is shared'. Logically, if a gas price cap is successful, EU gas demand will increase.

Thus, the Commission's non-paper can be read as stating that in order to have a price cap that will obviously benefit 'gas secure' EU Member States, clear and binding rules would be needed on gas saving, solidarity, and common curtailment principles. This may be considered to be the 'missing piece' of the wholesale price cap puzzle.

The options for dealing with these difficulties can be divided into three rough categories. These may be characterised as follows, with the attendant challenges:

- **Option 1:** The 'LNG Free Market' approach.'

  Under this model, the EU would set a price cap for wholesale gas sold in the EU, combined with, for example, the obligation for TSOs to provide unlimited balancing gas at this price. This common EU price would be set at a regulated level, based at what the EU considered 'fair' for pipeline suppliers (i.e. the minimum price it expects that pipeline suppliers would continue to deliver).

Germany and its neighbours that were significantly dependent on Russian supplies, have a problem of price and of volume.

[28] https://www.consilium.europa.eu/en/press/press-releases/2022/08/05/council-adopts-regulation-on-reducing-gas-demand-by-15-this-winter/#:~:text=15%3A30-,Council%20adopts%20regulation%20on%20reducing%20gas%20demand%20by%2015%25%20this,demand%20by%2015%25%20this%20winter.

The introduction of an EU wholesale price cap would therefore logically require some measures on gas sharing/solidary.

However, the 'scarce capacity' issue remains valid here. What happens if a TSO, obliged to supply unlimited 'balancing gas' at the regulated price, cannot physically source enough gas to meet demand? The issue of 'burden sharing' and solidarity actions between Member States therefore remains pertinent.

With respect to LNG, the scarcity/allocation issue could be resolved. The regulated wholesale price would logically be lower than the global LNG 'spot' price. Member States would continue to be able to 'compete' for LNG, by offering contracts for difference to purchases sold on their market at the regulated price. This would at least solve part of the 'allocation of scarce molecules' problem of a regulated gas price, at least for LNG. However, it would continue the current situation that EU countries risk 'bidding up' the global LNG price due to inter-Member State competition, and would evidently give rise to greater costs (via the need to finance contracts for differences) for the countries that are largely reliant in LNG, compared to those that are well-served with pipeline gas.

In addition to this, it may be appropriate to declare the Union Alert, triggering the 15% obligatory gas saving measures under the 2022 Regulation on coordinated demand-reduction measures for gas. Whilst this reduction would not replace the 'missing' energy resulting from the cut of Russian gas, it would be an important first step. This would also help the price-allocation concern.

However, today, 'gas poor' Member States can also 'out compete' customers for access to non-contracted pipeline supplies delivered in neighbouring countries through sales on the secondary OTC market (subject to available pipeline capacity). If TSOs were unable to supply enough 'balancing gas' to meet demand (which is likely in 'gas poor' countries), curtailed customers that were denied gas may seek to buy it from non-curtailed customers in neighbouring markets at the 'capped wholesale price plus x'. This would risk undermining the entire capped price system. Such trades would therefore need to be regulated, even forbidding such OTC trades.

This nonetheless illustrates that even with the freedom to compete for LNG, the seemingly simple mechanism would still give rise to issues of allocation of scarce molecules, as the wholesale price cap would remove any allocation based on price competition for pipeline gas. This could only be resolved through common curtailment mechanisms and/or new solidarity arrangements.

It remains to be seen whether a cap, freedom to compete for LNG, and the declaration of the Union Alert triggering enforced gas saving, would be sufficient to persuade 'gas poor' Member States to proceed to a wholesale price cap on this basis without additional common curtailment/solidarity measures.

- **Option 2:** would be based on fixing the EU regulated price at the prevailing global LNG price plus a small margin (LNG indexes exist, as indicated in the Commission's Non-paper). In this scenario, no contract for difference arrangement is required to attract global LNG.

  However, this exacerbates the problem of allocation of scarce molecules ('gas poor' countries could not out-compete gas rich ones for LNG supplies). Under this scenario, a gas volume allocation methodology would presumably be

Same issues arise regarding the difficulty of agreeing curtailment/allocation criteria. A further complication is the issue of identifying which body could carry out this function.

unavoidable as demand at the resultant reduced price would no doubt outstrip EU demand.

This may, for example, take the form of the agreement of common EU rules on curtailment, for example within a framework similar to the EU's Regulation (EU) 2017/1938 on measures to safeguard the security of gas supply[29]. This regulation, *inter alia* provides for the possibility of 'solidarity arrangements' between Member States to ensure that vulnerable customers are always supplied. The cooperation mechanisms within the context of regional groupings may facilitate this.

The idea here is that all Member States would agree to a common curtailment protocol, notably defining which industries would be supplied in order or priority (i.e. firstly vulnerable customers, secondly all houses, thirdly SMEs, fourthly industry based on an agreed prioritisation.) This could ensure that all countries would be 'treated equally' making available gas between Member States.

Whilst theoretically an option, it is questionable whether Member States would be able and willing to agree such common curtailment rules and their consequences, or a sufficiently robust and binding solidarity mechanism, in the time available. For example, would France agree to close a factory that is 'low' on the curtailment list to ensure that companies 'higher up' on the list in Germany could continue to operate at the regulated lower gas price?

- **Option 3:** An EU 'single buyer' could be appointed to procure LNG for Member States and allocate it between countries on the basis of agreed criteria (based logically on some form of the above-mentioned common curtailment criteria). A variant of this is that Member States could continue to secure LNG though existing companies, but would intervene on the basis of the abovementioned allocation rules to oblige companies within their territory to 'redirect' cargos/landed volumes to other Member States. An additional variant would be that participation in the 'LNG Single Buyer' mechanism would be voluntary, with an agreed allocation mechanism should the Single Buyer fail to acquire all the LNG requested by participants.

  The same issues arise here regarding the difficulty of agreeing curtailment/allocation criteria. A further complication is the issue of identifying which body could carry out this function, which requires considerable gas trading experience.

This brief overview of some of the options available highlights the difficulty in dealing with this challenge. Finding a solution here would put the EU and its institutions in uncharted waters. As illustrated above, for example, who might be appointed as a 'single buyer'? Would it really be possible to agree a common curtailment protocol in the short term? Who would allocate and ship volumes on the basis of curtailment criteria (NGOs)? What would be the legal basis used to ensure 'enforced' redistribution of gas that is the property of

[29] https://energy.ec.europa.eu/topics/energy-security/secure-gas-supplies_en

private companies? This illustrates the real complexity and challenges associated with agreeing a wholesale gas price cap.

A possible option may be a 'stepwise' approach. First (i) introduce a cap, (ii) at the same time trigger the Union Alert resulting in the obligatory 15% gas saving obligation, and (iii) combined with the approach of allowing Member States to compete for LNG by subsidising purchases at national level through their own contracts for differences system.

Whilst this may be sub-optimal, and keep global LNG prices at inflated level due to (unnecessary) price competition for LNG between EU countries that could be avoided through an equitable common approach, it may represent the 'least worst' option currently available to the EU at least in the short-term. This may complemented, for example, by a voluntary EU LNG single buyer, but the difficulties of identifying the body with the skills to do this, and agreeing the 'allocation mechanism' in the absence of adequate LNG supplies contracted to match demand would remain, in terms of introducing a mechanism in the short-term.

It is increasingly agreed that an EU price cap is needed for gas. Solving these issues is surely not beyond the EU, but it would represent one of the most complex and ambitious legal and policy measures negotiated and agreed at EU level.

This brief overview of some of the options available highlights the difficulty in dealing with this challenge. Finding a solution here would put the EU and its institutions in uncharted waters.

Options for dealing with Europe's energy price crisis

Naturgy Foundation