ACER

European Union Agency for the Cooperation of Energy Regulators

CEER

Council of European Energy Regulators

ACER/CEER

Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020

Snapshot of the 10th Market Monitoring Report

November 2021

Introduction

Since 2012, the Agency for the Cooperation of European Energy Regulators (ACER) has presented the results of its monitoring activities in the annual Market Monitoring Reports. These reports are produced and published in cooperation with the Council of European Energy Regulators (CEER). The 2020 Market Monitoring Report consists of three volumes, on the Electricity Wholesale Market, the Gas Wholesale Market and the Consumer Protection and Energy Retail Markets respectively. The Market Monitoring Report covers the EU Member States and, for some topics, the United Kingdom, Norway, Switzerland and the Energy Community (EnC) Contracting Parties (CPs).

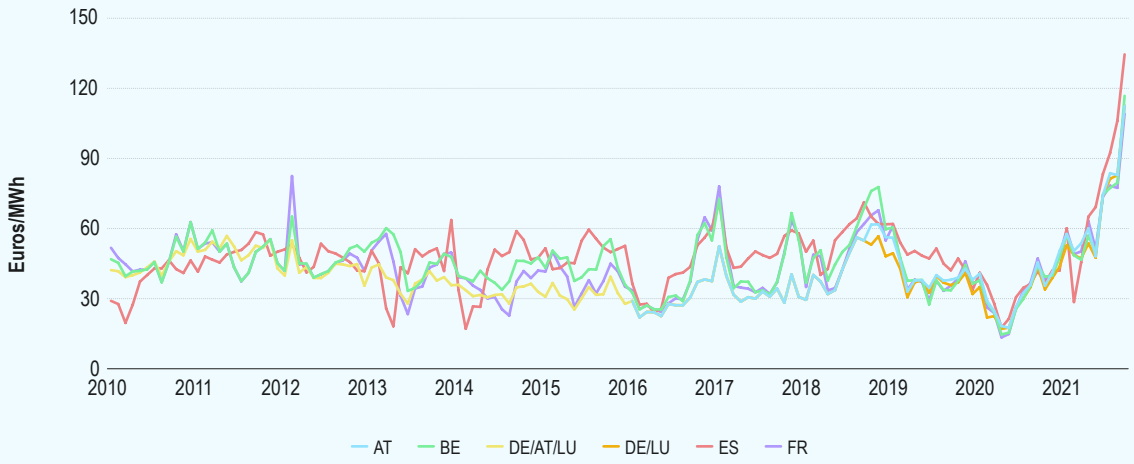
This snapshot provides a combined overview of the highlights of the Market Monitoring Report, looking back at the year 2020. Given the significant developments on the European energy markets in 2021, we have added a mini-spotlight below ahead of the main sections of the Market Monitoring Report, on the highlights of the high energy price situation affecting Europe in the second part of 2021.

"What a difference a year makes": Main drivers of high EU electricity and gas prices in 2021

Europe's energy prices have reached unprecedented heights, drawing significant political attention at both national and EU level. Citizens and businesses face the economic impacts and broader economic variables may also be affected, e.g. rates of inflation and economic recovery trajectories.

Whereas, in 2020 the mild winter and COVID-19 containment measures contributed to an annual drop in EU electricity demand (4.1 %) and prices (32 % on average across the EU), in 2021, electricity wholesale prices rose to unprecedented heights.

Figure i: Evolution of monthly average day-ahead electricity wholesale prices in a selection of EU Member States – 2010 – 2021 (euros/MWh)



Source: ACER calculations based on ENTSO-E data.

Gas prices in October 2021 are 400 % more expensive than in January 2021. Power prices have increased by 200 % over the same period.

The current situation has triggered calls for assessing the main drivers, dynamics and likely forward outlook for energy prices in Europe as well as the possible implications for the EU wholesale electricity market design and certain gas supply elements.

The European Commission, in its "toolbox" Communication of 13 October 2021[1], tasked the EU Agency for the Cooperation of Energy Regulator (ACER) with conducting an assessment of the benefits and drawbacks of the current wholesale electricity market design by April 2022. As an initial step, ACER (as requested in the aforementioned 'toolbox' Communication by mid-November) provided a preliminary assessment [2].

In its note ACER provides a data-driven analysis of the drivers of the current record-high energy prices.

In brief, the main driver is the soaring gas price driven by global demand and supply dynamics for liquefied natural gas (LNG) as a result of the global economic recovery from the COVID-19 pandemic. Other factors such as Europe's lower-than-average gas storage stocks; limited additional pipeline gas imports to the EU; rising Emissions Trading System (ETS) allowance prices; and particular weather patterns impacting Europe (both for generation and demand) play a secondary role. ACER's Note in October also looked at the resulting impact on electricity prices. It concluded with a few select policy considerations including possible measures to alleviate price pressures on vulnerable households; the current wholesale electricity market design in light of the increasing capacity in low marginal cost generation; certain gas supply intervention options; and challenges around price volatility going forward.

ACER aims to tackle in its broader assessment due in April (as requested in the European Commission's 'toolbox' Communication) an analysis of:

- the benefits and drawbacks of the current wholesale electricity market design and related issues such as;
- the issue of sufficient revenue certainty in electricity markets in view of the massive investment needs up ahead; and
- options for cushioning perceived excessive price volatility for vulnerable consumers without adversely impacting market functioning.

1 Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - Tackling rising energy prices: a toolbox for action and support - COM/2021/660 final.

2 ACER's Preliminary Assessment of Europe's high energy prices and the current wholesale electricity market design, November 2021.

Electricity wholesale markets in 2020

The integration of European wholesale electricity markets aims to deliver welfare gains to European consumers and industries. A key feature of the EU electricity market is that prices and trades of electricity are determined through a coordinated process to set prices known as 'market coupling'. The integration of Europe's national markets via market coupling decreases price volatility and optimises the use of resources across Europe. The market coupling of short-term electricity markets increases cross-border competition and ensures that end consumers have access to the cheapest available sources of electricity. When wholesale market integration is achieved in all timeframes, the benefits are multi-fold such as using resources more efficiently across Europe, having more relevant investment signals e.g. for new power generation (a better match between investments and future needs), an improved security of supply, and enhanced integration of renewable generation resources.

The output of renewable sources such as wind and solar generation can vary considerably over short periods. This variability challenges the stability of the electricity system. The challenge increases with larger shares of variable sources connected to the electrical grid. Increasing cross-border trade of electricity mitigates instability as it enables Member States to access more diversified generation portfolios in other Member States. In turn, competition increases, prices lower and the renewable generation gains access to a bigger market, lowering offtake risk for the generator. The value of cross-border trade is even broader. It is a measure to balance supply and demand that avoids relying on fossil fuel generation as a backup resource, but also supports more efficient decarbonisation efforts in the shorter term.

In 2019 the Clean energy for all Europeans package[3] set a binding target of 32 % for renewable energy sources in the EU's energy mix by 2030; in line with this objective, the package included a revision of the electricity market design, more market-based and better suited to the integration of a greater share of renewables. These reforms support an ambitious economy-wide decarbonisation of the energy sector at lower cost, likely driven by significantly increasing shares of electrification. Currently, the EU is working on the revision of its climate, energy and transport-related legislation under the so-called 'Fit for 55 package[4] to reach climate neutrality by 2050, which calls to increase the binding renewable target to 40% by 2030.

In its monitoring report, ACER evaluates the progress and difficulties in integrating European wholesale electricity markets to achieve a clean, competitive, affordable and reliable energy system.

In 2020, despite a difficult context, the efforts to integrate electricity wholesale markets in Europe continued, yielding tangible results. For example, we observed further integration of short-term markets (day-ahead, intraday and balancing). However, a number of challenges remain, often related to implementation delays due to enforcement difficulties. Moreover, the share of physical capacity available for cross-border trade is insufficient and a more coordinated approach to ensure security of supply is needed.

Impact of COVID-19 pandemic on electricity wholesale markets.

- In 2020, due to the COVID-19 pandemic, the trends observed in previous years continued, i.e. a drop in EU electricity demand and prices, and changes in the electricity generation mix. For the first time, renewable energy sources generated more electricity than fossil fuels.

Progress towards market integration observed in several areas in 2020.

- The efforts of the Member States towards market integration in recent years continued to bear fruit in 2020. For example, due to market coupling[5], the integration of day-ahead markets, which are the main reference for the physical trading of electricity, progressed significantly over the last decade. This is key to accessing the cheapest available sources of electricity across Europe. The integration of intraday markets is also progressing at a good pace. By accommodating short-term forecasts and quick turn transactions, intraday markets are essential for the integration of variable renewable generation.

- Overall, integrating short-term markets enables the efficient use of the share of cross-zonal capacity that is available for trade. Among the vari-

3 Clean Energy for All Europeans, European Union, March 2019. See https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en.

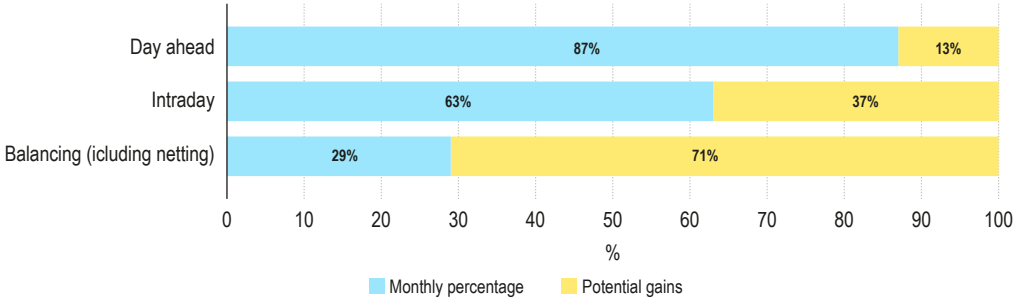
4 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality - COM/2021/550 final – See EUR-Lex - 52021DC0550 - EN - EUR-Lex (europa.eu).

5 In the electricity sector, market coupling refers to process that simultaneously determines prices and electricity exchanges across all market areas (i.e. bidding zones) in Europe. It ensures that the electricity flows from the areas with lower prices to the areas with higher ones.

ous short-term markets, which include day-ahead, intraday and balancing, the day-ahead markets are the ones that are currently integrated the most. Consistently, the level of efficiency in the use of cross-zonal capacity (87 %) in day-ahead markets was the highest across all short-term timeframes in 2020 (see Figure ii).

- According to ACER calculations, the integration of short-term electricity markets will deliver additional welfare benefits of more than 1.5 billion euros per annum. The areas depicted in yellow in Figure ii represent the efforts still needed to complete market coupling in each timeframe. Finalising this integration requires to address some implementation delays that are described below.

Figure ii: Level of efficiency in the use of interconnectors in Europe in the different timeframes (% use of available commercial capacity in the 'right economic direction') – 2020



Source: calculations based on national regulatory authorities, ENTSO-E and Vulcanus data.

Note: For the purpose of this figure, the efficient use is defined as the percentage of available net transfer capacity used in the 'right economic direction' in the presence of a significant (>1 euro/MWh) price differential. Intraday and balancing values are based on a selection of EU borders[6].

Some barriers to market integration remained in 2020. The level of cross-zonal capacity remained insufficient and delays in essential market integration continued to be observed.

- ACER's observations and recommendations in 2020 are largely identical to those expressed in the previous edition of the report. In particular, two issues remain as outstanding barriers to market integration.

- The first issue is the amount of cross-zonal capacity available for trade. The possibilities for cross-zonal trade depend on two factors: the amount of physical capacity, which can only be increased by reinforcing existing network infrastructure or building new ones, and the share of physical capacity that is made available for trade, which has remained low in recent years. To tackle the low share of capacity available for trade, the Clean Energy for All Europeans Package established the so-called minimum 70 % cross-zonal capacity target[7].

- The second issue is the recurrent delays in some projects that are essential for the progress of market integration. An outstanding example is the implementation of the so-called flow-based approach in the Core region, which involves thirteen Central European Member States. This approach aims to maximise the level of capacity available for cross-zonal trade and to optimise its allocation across market participants thus increasing cross-zonal competition and EU welfare. The implementation of the flow-based market coupling continued to face delays in 2020 and it remains a remarkably missing element for the completion of single day-ahead and single intraday market coupling. ACER stresses the need to finalise urgently the implementation of the flow-based project in the Core region. Similarly, the implementation of the flow-based approach is also experiencing some delays in the Nordic area.

Member States must focus on ensuring that 70 % of cross-zonal capacity is available for cross-border trade. The Clean Energy Package sets multiple options to meet this goal.

- A key measure for enhanced electricity market integration and thus reaping the benefits of power trade across borders is the actual availability of capacity for such trade. In 2020 there were no significant improvements in the amount of cross-zonal capacity made available for trade in most Member States. ACER's latest report on the margin available for cross-zonal trade[8] observes that significant improvements are needed to meet the 70 %

6 The EU borders used for the calculation of the Intraday efficiency were the following: BE – FR, CH – DE/LU, CH – FR, CH – IT, DE/LU – FR, DK1 – DK2, DK1 – NO2, ES – FR, ES – PT, FR – GB, FR – IT, GB – NL, NL – NO2, SE1 – SE2, SE2 – SE3.

7 The CEP sets a binding minimum 70 % target for electricity interconnector capacity for cross-zonal trading. ACER produces regular reports on the results of monitoring of the margin available for cross-zonal trade. See Cross-zonal capacity - 70% target.

8 See footnote 7.

target set in the CEP that applies since 1 January 2020. In this regard, the Member States may opt for transitory measures, including derogations or action plans, which allow to achieve progressively the target by the end of 2025.

- The CEP offers a portfolio of short and long-term tools to achieve the 70 % cross-zonal capacity target. As a short-term solution TSOs may apply remedial actions, e.g. re-dispatching and counter-trading. In the medium to long term, the Member States may improve the configuration of bidding zones, or reinforce the networks.

- Remedial actions are ad-hoc measures taken by transmission operators to adapt generation, load or network topology, to relieve physical congestion and ensure network security. This edition of the Market Monitoring Report shows an increase in the costs of remedial actions in 2020 by 6 % in comparison to 2019. This increase in costs of remedial actions is largely the result of a growing penetration of variable renewable energy sources. Traditionally, generation was located close to demand; however, renewable energy sources are located where natural resources are available. With increasing distances between supply and demand, and increasing intermittency, network congestions are expected to increase, which in turns intensifies the need for remedial actions to address these constraints.

- The cost of remedial actions is a helpful indicator of the need to take actions, other than remedial actions, to address congestions in an efficient manner; when the costs raise, this suggests that alternative, enduring and possibly more cost-efficient, solutions to address network congestions should be sought, such as network investments or bidding zone reconfigurations. The relevance of selecting the most efficient tools to address congestions is likely to increase in the upcoming years; in light of the 70 % minimum target, TSOs will not be allowed any longer to tackle congestions by reducing the amount of cross-zonal capacity available for trade.

- A robust and coordinated monitoring and implementation of the 70 % minimum target is essential to ensuring that all market participants have access to trading opportunities on equal footing across the EU.

Significant barriers remain with regard to the efficient formation of electricity wholesale prices and to the easy entry of new and small market participants.

- The changes in generation patterns currently observed are likely to increase in the coming years, with further penetration of variable renewable energy sources. Distributed energy resources, such as electric vehicles, or rooftop solar photovoltaic systems, are expected to influence significantly generation and consumption patterns in the next coming years or decades. Distributed energy resources, including demand response, can also be aggregated and participate in electricity markets. An efficient integration of all these new resources is key to efficiently accommodating the increasing amounts of variable generation.

- Efficient price formation is essential to ensuring that market price signals drive cost-efficient investments. Ensuring the easy entry of new market players is key to attracting innovative and potentially more efficient capacity and energy providers. Together, efficient prices and the entry of new players are important to lower the overall cost of the energy transition. As required by the CEP, the report includes a first assessment of barriers to price formation and entry and participation of new and small market players. An assessment of eleven potential barriers through a set of indicators reveals the existence of such barriers, to varying degrees, in most Member States, in 2020.

- Regarding efficient price formation, a number of issues stand out as common barriers in most Member States, including insufficient cross-zonal capacity and liquidity. The report identifies several main barriers affecting new and small players. Firstly, most Member States lack a legal framework to enable the entry and participation of new and small players in the various market segments. Secondly, in some Member States, new and small players face requirements restricting their participation in balancing markets. Thirdly, some Member States lack sufficient competition in retail markets or insufficient incentives for consumers to participate in such markets more actively.

In the context of the current surge in prices, it is crucial to protect consumers, while preserving price signals that align market participants' behaviour with the policy goals.

- In some Member States, there is a practice of end-user price interventions, e.g. price regulation. In principle, some of these practices may represent an important barrier to efficient price formation and market entry. At the same time, in the current context of unusually high prices, end-user price intervention may be considered as an instrument to protect the most vulnerable consumers from undesirable economic consequences. Nevertheless, end-user price interventions for energy poor and vulnerable households are allowed under EU legislation only in exceptional situations and under strict conditions, as set in Article 5 of the Electricity Directive. As such, these types of interventions reinforce the dilemma on how, on the one hand,

best to protect the most vulnerable from these consequences, whilst, on the other hand, preserving the role and value of price signals to drive certain behaviour also deemed desirable from policy-makers. All in all, notwithstanding the aim of such measures, they can constitute a barrier to efficient price formation and market entry and thus should be part of the broader overview assembled here. This does not take away from the ensuing policy discussion of which interventions amongst those outlined are deemed legitimate and proportionate versus those that are not.

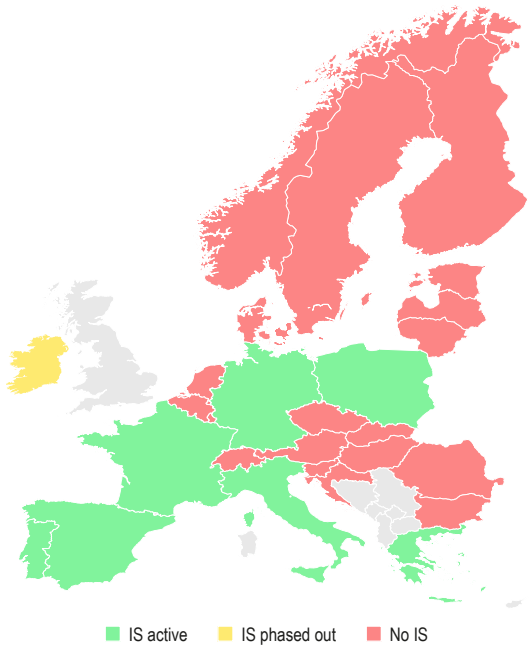
ACER advocates for robust and coordinated assessments to resource adequacy to increase efficiency and enable market entry. ACER identifies room for further alignment in this area.

- The Clean Energy Package aims at addressing system adequacy needs in a coordinated manner to maintain the desired security of supply levels at the lowest possible cost for end-consumers. In doing so, it helps facilitate a more shared approach amongst the Member States to adequate generation and demand-responsive resources, thereby allowing the Member States to reap the benefits of interdependence. Accordingly, in 2020, ACER approved a series of methodologies setting the framework for ensuring the proper identification and quantification of resource adequacy concerns[9]. A proper approach to adequacy minimises risks, including under or over estimations of adequacy needs and the risk of hampering market entry or participation of flexible resources.

- The report shows that a variety of national capacity mechanisms designed to ensure adequacy remained across Europe in 2020. Overall costs of capacity mechanisms across the EU (excluding Great Britain) remained similar to those in 2019, at 2.6 billion euros. These costs will increase further to the extent more Member States will wish to use market-wide capacity mechanisms. As such, given the aforementioned implications for the further evolution of electricity markets in Europe of such developments, this warrants attention.

- Interruptibility schemes normally refer to national programmes that provide services on different time scales: from a planned reduction of consumption during times of scarcity, to an automatic response to unexpected immediate needs of the network. The report identified four interruptibility scheme services: adequacy, balancing, congestion management and contingency reserves[10]. The overlap of interruptibility schemes with already existing procurement channels for the relevant services may lead to market fragmentation, with regard to the participation of demand-side response; such fragmentation may lead to a suboptimal use of the available resources. For a more efficient integration of demand-side response, interruptibility schemes should preferably be integrated within existing markets, in particular when these markets include cross-border participation. Dedicated interruptibility schemes should only be left to cases where no parallel procurement channels exist, or when there is a need to kick-start the development of new demand-side response products or services. In other contexts, a level-playing field will maximise competition and ensure that the most suitable option meets the need for flexibility at the best price. Figure iii provides an overview of interruptibility schemes in Europe.

Figure iii: Interruptibility schemes in Europe - 2020



Source: ACER based on information provided by the national regulatory authorities and, in case of France, by the TSO[11].

Note: The Irish schemes were phased out in 2016 and 2018. The Spanish and Greek schemes were phased out in July 2020 and September 2021 respectively. The Portuguese and German schemes expire in November 2021 and July 2022 respectively, with renewal under consideration in both cases. In Poland, the interruptibility scheme was terminated in November 2020 and replaced by a demand-side response scheme as of April 2021.

9 Information on the work and decisions of ACER in the context of security of supply can be found here.

10 The categorisation of the CMs is based on the taxonomy in the EC's staff working document accompanying the document Final Report of the Sector Inquiry on Capacity Mechanisms sector inquiry, available here.

11 The data was provided to ACER by all national regulatory authorities except for France. Regarding France, ACER's information could only be based on the applicable national legislation. Source: Arrêté du 22 décembre 2015 pris en application de l'article L. 321-19 du code de l'énergie, available here.

Gas wholesale markets

Hub-based pricing and the shift away from oil-indexed long-term gas contracts has yielded significant benefits for Europe the past decade. Market integration facilitates structural supply competition and improves security of supply to the benefit of EU gas consumers. Since 2010, the development of increasingly liquid and competitive organised gas trading hubs has allowed both gas producers and consumers to gradually abandon the bilateral contracting of gas on a long-term oil-indexed basis, instead using hub-price indexes or even contracting gas volumes directly on spot and forward markets. According to the International Gas Union[12], that adaptation has entailed a share of hub-price based imports of more than 80% on average across Europe today, which is a percentage circa three times higher than in 2010.

In 2020, the EU internal gas market continued to advance in terms of market integration. This progress is illustrated by an enhanced price convergence across national markets, a growing (and supra-national) hub trading activity and an overall more flexible and efficient use of cross border transportation capacity in response to price signals. Closer market integration prevailed. Overall, price convergence between EU gas hubs has remained very strong, first, during 2020, despite a series of supply and demand imbalances that affected the EU gas market, due to the impact of COVID-19 pandemic with a reduced gas demand and excess liquefied natural gas supply, then during the economic recovery of 2021. This shows the high level of gas market integration in Europe. Had European gas markets been less integrated, parts of the EU would have paid significantly higher prices for their gas.

Low-carbon gas production remained limited; however, the gas industry is foreseeing their gradual and significant expansion, which would enable gas to play a more relevant role in EU's decarbonisation trajectory.

Impact of COVID-19 pandemic and rising global interdependence of EU gas wholesale markets.

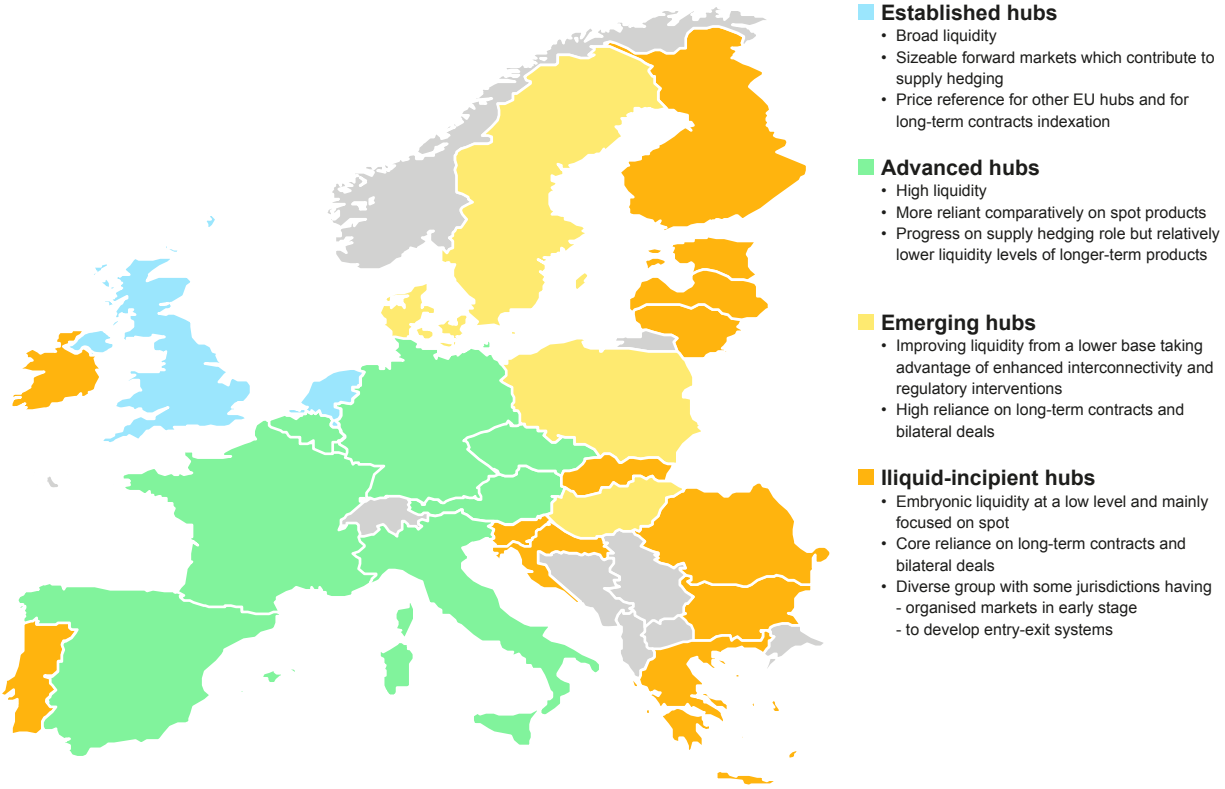
- EU gas markets were significantly affected by the reduction in economic activity triggered by COVID-19, which caused a substantial reduction of gas consumption in the second quarter of 2020 (-20 % year-on-year at peak weeks). The exceptional demand drop, coupled with ample liquefied natural gas (LNG) deliveries and high underground storage stocks, drove gas hub prices to an all-time low of 4 euros/MWh in May.
- Nonetheless, demand for gas gradually recovered from the third quarter of 2020 onwards and ended the year healthy in comparison to other fuels. The demand recovery and a marginal reduction in supply led to an increase in gas prices and, by the end of the year, they had surpassed 2019 highs. Furthermore, from the third quarter of 2021 EU gas prices have reached historical high-levels of about 90 euros/MWh. These large price shifts illustrate the rising exposure of EU gas markets to international developments, chiefly across the vector of more volatile LNG imports. The large price shifts also reveal that short-term gas-on-gas price formation has gained more relevance, as a result of the promotion of the hub-trading model, the lessening role of long-term supply contracts and revised price indexations of these contracts into hubs.

An interconnected EU internal gas market has emerged. Increasingly liquid and competitive organised gas trading hubs are easily accessible to market participants, relying on transparent price signals, to the benefit of final consumers.

- A combination of market and regulatory factors, including the implementation of gas network codes, has created the conditions for the price of gas to converge to a significant extent across EU markets and for substantial cross-border trading activity to take root. This enhanced interrelation limits the power that individual suppliers can exert at Member State level and promotes a fairer and more equivalent price formation to all EU gas consumers.
- The well-interconnected EU gas transportation systems and the increasingly liquid hubs accommodated flows and trade in response to short-term signals. Despite the progress, some regional differences persist due to, among other reasons, the varying degree of support given to the hub trading model across the Member States. Nonetheless, some of the lesser developed hubs such as those in the Baltic or the Balkan regions showed promising signs of progress in 2020.

12 See the International Gas Union Global Wholesale price survey.

Figure iv: Ranking of EU hubs based on monitoring results – 2020



Source: ACER based on ICIS Heren and REMIT data.

- The unprecedented volumes of LNG deliveries and the start of gas exports from alternative supply origins like Azerbaijan helped to increase competition and liquidity in 2020 and to decrease upstream supply concentration in the South Eastern European and Central European gas markets.

- The volume of natural gas traded at hubs was at an all-time high in 2020, with 14 % more volume changing hands compared with 2019. Market participants continuously re-adjusted their positions due to a changing supply balance and high price volatility. TTF in the Netherlands and NBP in the UK continue to be the two most liquid and competitive trading hubs, accounting for the bulk of forward gas trading activity in the EU.

Decarbonised gases could support EU climate goals while further rebalancing market power asymmetry between European gas buyers and third-country suppliers. The report highlights key aspects for their evolution in the mid-term.

- Renewable or decarbonised gases account for a minor share of EU gas consumption to date, as their cost are overall still not competitive. Production efforts have been mainly focused on biogas and biomethane, which accounted for 4 % of total consumption. Electrolysers still produce less than 3 % of the EU's commercial hydrogen volumes, whilst sourced with a minor input of renewable electricity supply. Moreover, there is still no large-scale hydrogen transport infrastructure, apart from a number of non-regulated distribution networks at industrial clusters.

- However, the industry perceives decarbonised gases as a strategic opportunity to contribute to the EU's decarbonisation trajectory, to promote domestic production and to diversify revenue streams. This is accompanied by ambitious investment strategies, underpinned by expectations that the competitiveness of such solutions will improve due to technological developments and economies of scale; possibly also via the prospect of potentially expanding subsidies.

- The regulatory framework governing the gas decarbonisation shift needs further evolution. A number of aspects need to be clarified; a process, which in turn is likely to drive industry business models. Those can be grouped into areas such as setting the technical rules, determining the activities and the conditions at which market participants will be allowed to invest, identifying and mobilising ad-hoc support and setting up the new low-carbon gas market rules.

- The overarching ambition is to ensure viable, efficient and future-proof decarbonisation efforts; and thus one that is anchored in well-functioning, well-integrated and competitive markets. A key element is to ensure a level playing field between relevant energy carriers to achieve decarbonisation at lowest cost. Part of this revolves around keeping the benefits of market integration, avoiding too divergent approaches that risk leading to market fragmentation.

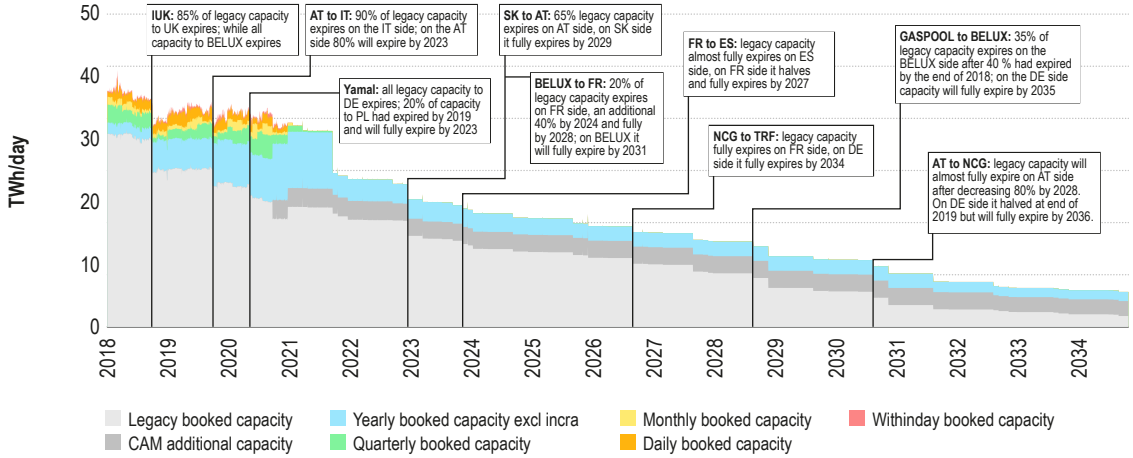
- ACER alongside CEER has provided a number of considerations for the European Commission as it develops its legislative proposals for further decarbonisation of the gas sector, expected by the end of 2021.

The gas network codes – common, market-oriented rules governing access and operation of EU gas transportation systems – keep contributing to ease market access and to enable better levels of price integration.

- The capacity allocation mechanism network code is facilitating more efficient and flexible booking of gas transportation capacity. That enables EU gas shippers to better adjust their capacity needs in shorter-terms, while making gas flows in turn more responsive to hub price signals. The situation still may vary per border, depending on the prevailing transportation contracts and the kind of supply function that the interconnectors primarily take on. According to the findings in the report, almost all prevailing contracts preceding the capacity allocation mechanism network code will have expired by 2035. Similarly, LNG and underground gas storage are in last year's increasingly rising their role as short-term supply flexibility tools, used for optimisation of portfolios and short-term price hedging.

- While this shorter-term orientation in the use of gas infrastructure is overall deemed positive to promote their more efficient and price responsive use - at the same time as it also backs hub trading activity - the unprecedented high price levels observed since the third quarter of 2021 are opening some discussions about the most appropriate balance of their use. In fact, a likely higher appetite to hedge prices could cause larger gas volumes and higher LNG and pipeline capacities to be contracted on longer-term basis, whilst some security of supply concerns could lead to a reintroduction or rise of storage capacity obligations.

Figure v: Evolution of capacity booked by capacity type – 2016–2045 (TWh/day)



Source: ACER based on ENTSOG and gas booking platforms data.

- The Tariff NC implementation has improved the gas networks' tariff transparency and cost-reflectivity. The new methodologies set in accordance with the code have brought some relevant changes in the tariff levels of selected gas systems. While assessing the impact that those changes bring is not straightforward, so far, the rises in absolute tariffs that have occurred at selected interconnectors have not worsened hub price convergence.

- The report also reveals that the balancing network code turned many transmission system operators into residual balancing actors and network users more actively managed their imbalances through the markets, benefitting spot market liquidity. This is particularly positive to kick-off trading activity in less liquid markets and provide opportunities to new market players. However, significant differences across the Member States are observed.

- Finally, under the Interoperability NC subsection, the report outlines the technical challenges that need to be addressed to develop a more harmonised technical framework that enables the injection of large quantities of biomethane and hydrogen. Any actions to address these challenges should neither create a barrier to cross-border trade nor negatively affect final consumers.

Energy Retail Markets and Consumer Protection

Retail prices vary significantly across the European Union, signalling that some markets are not operating at an efficient level. While energy prices decreased in 2020 in response to enhanced gas supplies and an unprecedented reduction in gas and electricity demand, prices in 2021 have increased significantly. The price extremities in terms of increase and decrease of prices in 2020 and 2021, are somewhat interlinked and can provide some valuable lessons.

Firstly, 2020 and 2021 show that in extreme situations, extraordinary measures are needed to shield vulnerable users from unexpected and unmanageable economic impacts. These impacts can include severe income losses or acute energy price increases, both of which can result in great hardship and challenges for consumers to pay for their energy needs.

Secondly, looking back to 2020, retail energy markets show room for further improvement. On the supply side, market concentration rates are still significant, while on the demand-side consumers do not play the role they should as smart meters are not available to all consumers. Only a small proportion of consumers are engaging in energy markets; this is demonstrated by a minority of consumers switching to alternative suppliers when better options are available to them. National regulatory authorities and Members States could play a role here. Regulators could support more the development or use of price comparison tools by energy consumers to enhance knowledge. Members States and national regulatory authorities could also increase engagement by ensuring the speedy roll-out of smart meters and also help consumers' understanding of their energy consumption and market price formation. The roll-out of smart meters will enable the further uptake of dynamic price contracts. Such contracts can offer significant benefits for the individual customer and also the wider energy system. However, they increase consumers' exposure to wholesale price volatility, which needs to be recognised. The balance of risk placed on consumers versus suppliers should be examined. It is also key that consumers are fully aware of the benefits and drawbacks to such contracts.

Finally, as we move forward, it is vital that a careful balance is struck between protecting vulnerable groups against dramatic price rises, whilst enabling price signals to encourage efficient consumption choices and decisions. Price signals can help drive consumption behaviours in a desired direction, like incentivising efficiency improvements (such as insulating one's home) or making new investments viable (such as renewable generation to compete via more attractive price offerings).

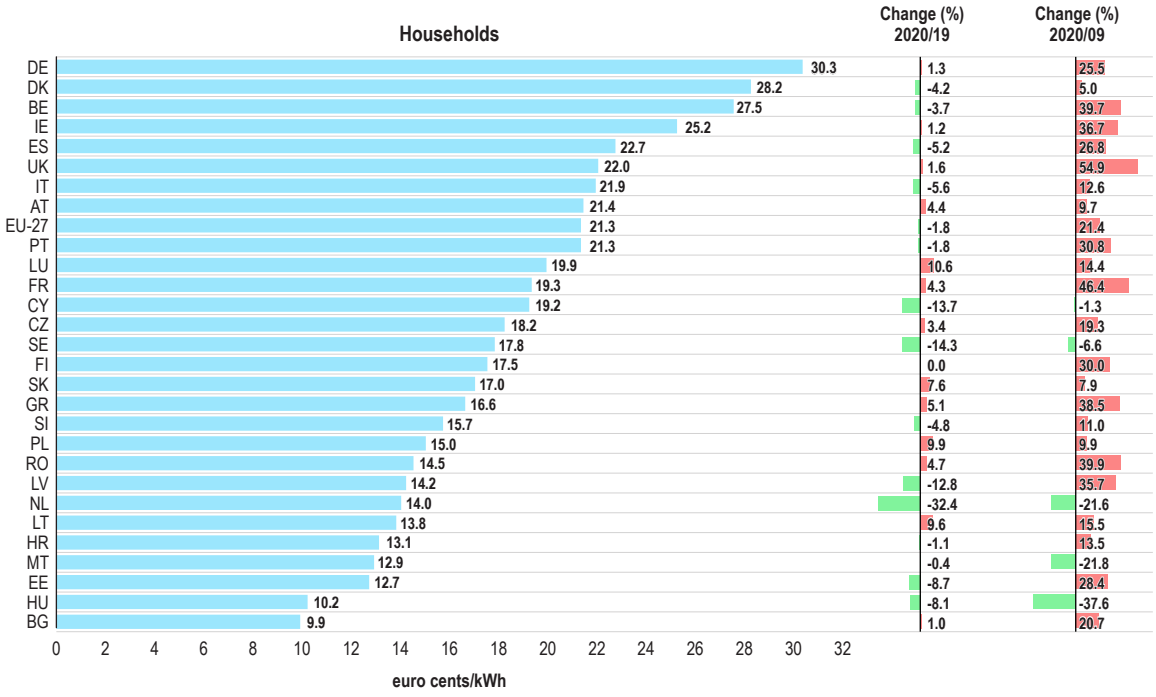
Impact of COVID-19 pandemic on energy retail markets and energy consumers.

- COVID-19 affected energy consumers in an unprecedented manner in 2020. The economic downturn affected both businesses and households. In response, national regulatory authorities imposed a range of responsive measures to protect energy consumers from disconnection of their energy supply as some consumers were at risk due to loss of income. Measures were also implemented to protect energy suppliers from the risks associated with the inability of businesses to pay their energy bills. 2021 is presenting an equally unprecedented challenge, which must be addressed as well. Rising wholesale energy prices in the third quarter of 2021 may expose some energy suppliers due to the hedging strategy they have implemented. This may cause some suppliers to go bankrupt, thus leading their consumers to contract the last resort supplier appointed to them. This outcome would likely cause increases in energy prices for the energy consumers. Regulatory authorities should ensure that these energy consumers have a full understanding of their new contract, its prices and the possible risks of non-delivery in relation to this contract.

Electricity and gas retail prices decreased in 2020 in comparison to 2019.

- Electricity prices for EU consumers decreased in 2020 for household consumers and increased slightly for industrial consumers. Looking back over a longer period of time, average electricity prices have increased by 30 % in nominal terms since 2010. However, it is important to note that the European Member States with more electricity consumers are now less reliant on imported fossil fuels and meet a higher proportion of their electricity needs via renewable energy, as an outcome.

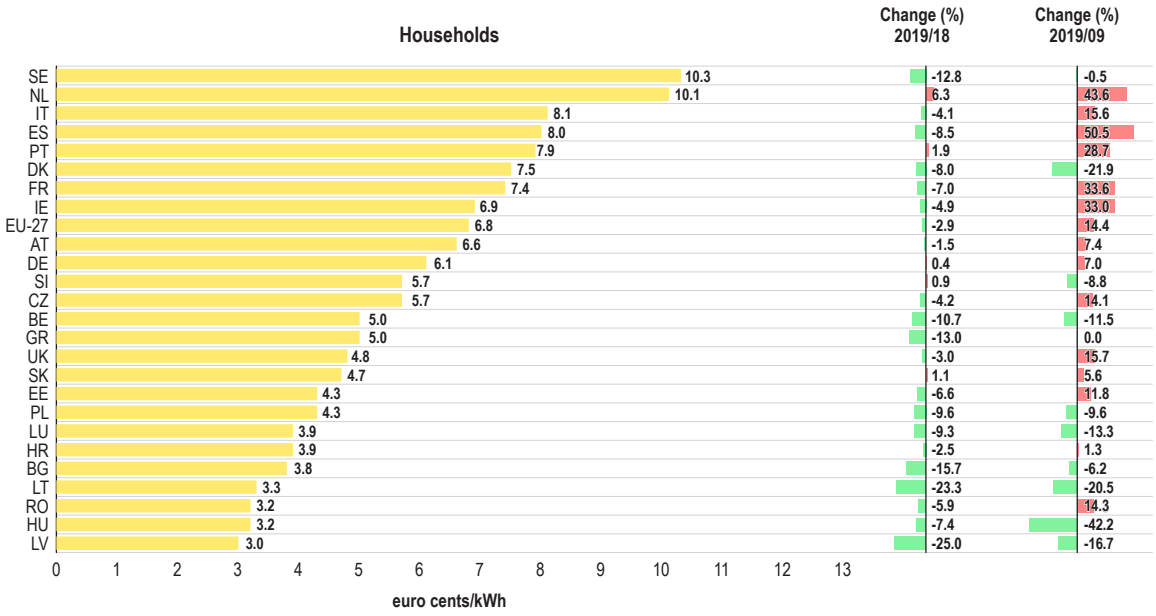
Figure vi: Average household electricity prices – 2020 (Euro cents/kWh)(left), year-on-year evolution of average household electricity prices - 2019/2020 (middle), year-on-year evolution of average household electricity prices – 2010/2020 (right)



Source: ACER calculations based on Eurostat, Band DC: 2,500–5,000 kWh (household electricity consumption) and Band IE: 20,000– 70,000 MWh (industrial electricity consumption) (June 2021).

Note: Prices in nominal terms.

Figure vii: average household gas prices average – 2020 (Euro cents/kWh)(left), year-on-year evolution of average household gas prices – 2019/2020 (middle), year-on-year evolution of average household gas prices – 2010/2020 (right)



Source: Eurostat, Band D2: 20–200 GJ (household gas consumption).

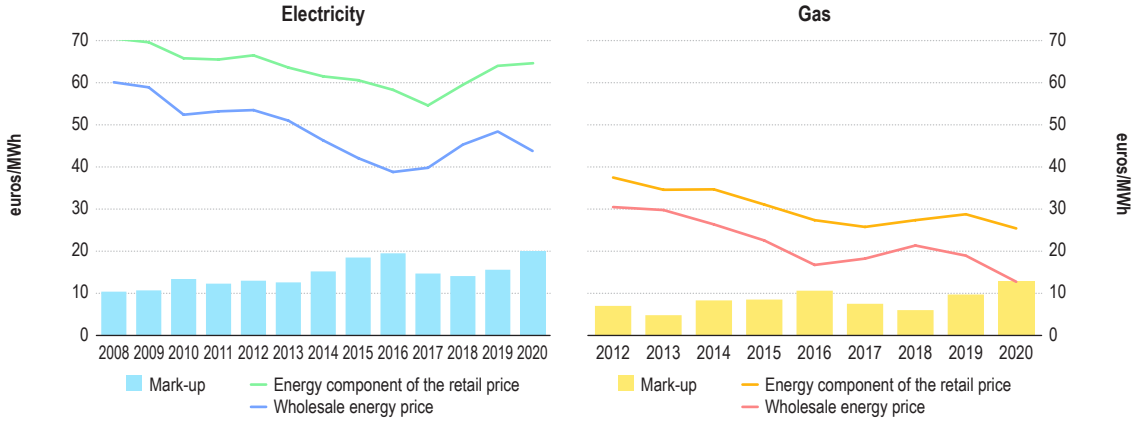
- As shown in Figure vi and Figure vii average household electricity prices decreased in 2020[13] in comparison to 2019, while average industrial consumer electricity prices increased in 2020[14]. In the Energy Community Contracting Partners (EnC CPs), average household[15] and industrial[16] prices increased last year, when compared to 2019, although only slightly for household prices. Prices in the Energy Community Contracting Partners remain lower than the electricity price level in the EU.

- In gas, prices decreased in 2020 in comparison to 2019 for both household[17] and industrial[18] consumers, attributed to the significant impact demand decrease and economic decline caused by COVID-19[19]. In the Energy Community, contrary to trends observed in the EU, the industrial gas prices were, on average, higher than household prices in 2020.

"Up like a rocket; down like a feather": Retail energy prices correlate well with wholesale energy prices when wholesale prices increase, however, the correlation is weaker when wholesale prices decrease.

- The difference between wholesale energy prices and retail energy prices widened in 2020 (see Figure viii). A strong correlation between retail and wholesale energy prices is observed when wholesale energy prices increase. A weaker correlation is observed with regard to the rate of reduction in retail prices following a fall in wholesale energy prices. This weak correlation is known as downward "sticky prices". As a consequence of "sticky prices", energy consumers pay higher prices than needed. While it is not expected that retail prices will fall immediately in line with wholesale price reductions, the active participation of energy consumers in the retail markets could exert pressure on suppliers to decrease retail prices more rapidly. To achieve this, energy consumers need to be informed of wholesale price reductions, have access to a variety of suppliers, and be easily capable to compare supplier offers in order to switch supplier.

Figure viii: Responsiveness of the energy component of retail prices to changes in wholesale prices and evaluation of mark-ups in electricity household markets from 2008 to 2020 (left) and in gas household markets from 2012 to 2020 (right) (euros/MWh)



Source: ACER Retail Database, Eurostat, European power exchanges data, Eurostat Comext, ICIS Heren and ACER calculations.

Note: The EU average mark-up is assessed as the arithmetic average of Member States mark-ups. Gas data available only from 2012 onwards. Data about the energy component of gas retail prices are obtained from Eurostat. Prices in nominal terms.

13 -1.8% to 21.3 euro cents/kWh.

14 +2.8% to 11 euro cents/kWh.

15 +0.9 %.

16 +15.6% to 7.5 euro cents/kWh.

17 -2.9% with an average price of 6.8 euro cents/kWh.

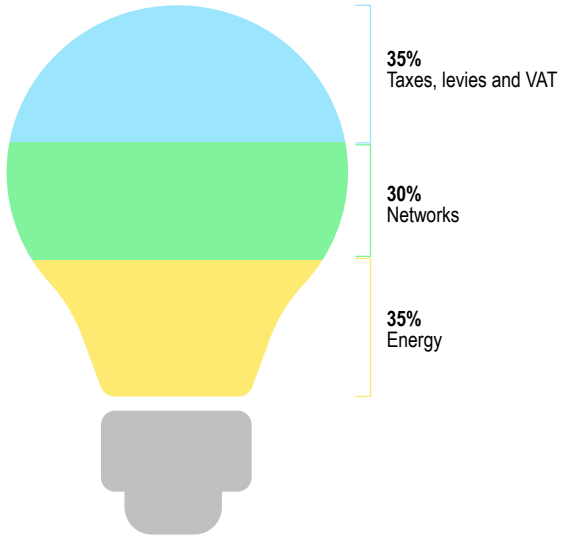
18 -18.5% with such consumers paying 2.2 euro cents/kWh.

19 For more information on gas demand trends in 2020, refer to ACER Market Monitoring Report 2020 – Gas Wholesale Market Volume.

The bill breakdown varies significantly across the EU with consumers paying varying amounts for energy, network, and taxes across the EU.

- On average, 31 % of the final price consisted of the energy component, known as contestable charges, which are charges where the consumer could achieve a price reduction. The remaining 69 % of the electricity bill consisted of non-contestable charges, i.e. the sum of network costs (29 %), taxes, levies and other charges (39 %). In response to the implementation of policies, the breakdown has changed since 2012 when the energy component made up approximately 41 % of consumers electricity bills. The network and taxes components have both increased in this period from 27 % and 31 % respectively. As we continue in the transition towards a decarbonised energy system, it is expected that the energy cost component will continue to decrease with a corresponding increase in the network costs. Taxes to be placed on energy consumption are individually determined by the Member State. It is noteworthy that some Member States reduced energy taxes to decrease the burden placed on energy consumers following price increases.

Figure ix Average electricity breakdown



Source: Eurostat, Band DC: 2,500–5,000 kWh (household electricity consumption) (May 2021).

- In gas, on average, less than half of the final price paid in 2020 by end consumers covered the energy component of their annual gas bill. The rest of the bill covered the sum of the network costs, taxes, levies and other charges. The energy component of gas decreased in 2020 compared to 2019, driven by a reduction of gas wholesale prices, as explained earlier. In turn, this led to non-contestable components to rise in relative terms.

Establishing appropriate empowerment tools in retail markets will engage consumer activity.

- A clear bill enables consumer understanding of their energy use. Importantly, energy bills must be presented clearly to the consumer without overloading them with unnecessary information, in line with the requirements of Directive (EU) 2019/944.

- Market concentration levels in electricity markets remain high[20], indicating that consumer choice was limited, in many markets, to a small number of suppliers. Non-household markets were less concentrated, but the concentration levels call for improvement. High concentration levels limit consumer choice and may cause the consumer to be either a "price taker" and unable to use its bargaining power; or, in the absence of competing supply options, to be exposed to higher prices, as the supplier knows that the consumer has no or limited switching options.

- The uptake of electric vehicles will increase as the transportation sector decarbonises. National regulatory authorities should be cognisant of the interaction electric vehicles will have with distribution systems and to ensure that their optimal use considers measures, which enable consumers to receive appropriate price signals.

- The switching rate of consumers is one of the key indicators of well-functioning energy retail markets. Switching rates in 2020 vary across the Member States with the highest switching rates (21 %) were observed in Belgium and Norway for both electricity and gas. Low switching rates were observed in Poland and Hungary for electricity and in Romania and Slovakia for gas (1 %). Switching rates have remained in line with switching rates observed in previous years, indicating that a large percentage of energy consumers do not switch. Such lack of engagement can cause a large proportion of energy consumers to pay more than they need to for their energy needs. In periods of high energy prices and in particular tight supply, assessing the available options in the market can assist consumers managing their exposure to further price increases depending on the tightness of the market, which in itself limits the number of these available options. This may not apply to consumers with dynamic electricity contracts that are tied to minimum limits. Overall, consumers, by examining potential options can unlock saving opportunities made available by the market.

20 16 out of 25 electricity retail markets with HHI above 2,000.

- Many consumers do not switch their energy supplier. Consumers are citing a variety of reasons, ranging from regulatory barriers to behavioural aspects. Regulatory barriers such as regulated prices limit the incentive to seek alternative suppliers, especially when regulated prices are set below cost levels. Such prices hamper the development of competitive retail markets.[21] In markets where consumers have free choice of supplier, a large percentage of consumers do not switch suppliers regularly, this exposes them to additional and unnecessary costs. Consumer behaviour and lack of engagement needs to improve to overcome this. When energy consumers fail to switch supplier or switch irregularly[22] they pay more for their energy than they need to. Other household expenses such as mortgage, rental, vehicle, and insurance may take priority for householder and may explain why some consumers show limited interest in switching energy supplier. Notwithstanding this, regulatory authorities should take a proactive approach in encouraging energy consumers to assess the options available to them in their market via the utilisation of comparison tools.

- Comparison tools support switching and are used in most Member States[23]. The comparison tools are operated either by public bodies (e.g. national regulatory authorities) or commercial companies, sometimes certified by public bodies. By exercising their right to choose a supplier, consumers have saving opportunities available of 200 euros to 300 euros per annum[24]. Comparison tool websites can help consumers find alternative suppliers. National regulatory authorities should ensure that all consumers have access to and are aware of national comparison tools to unlock the savings available from switching supplier. While switching alone is unlikely to eradicate the recent energy price increases given the unprecedented magnitude of the latter, it can potentially mitigate some of the increase.

- Smart meters assist energy consumers in becoming more informed regarding their energy consumption. Smart meter roll-out is continuing across the EU and varies across Member States. Smart meters are essential to enable active participation of energy consumers. In 11 Member States, electricity consumers can choose real-time or hourly energy pricing. The lack of smart meters represent a significant barrier to the provision of information to consumers, which is vital for them to better understand their energy consumption and energy bills. At present, consumers receive such information at best once every two months. Better understanding of energy consumption and energy prices could lead to higher switching rates, driving increased competition between suppliers, and thus placing downward pressure on the energy price paid by the consumer. In gas, the rollout of gas smart meters is still very limited. Only Germany, Estonia, France, Great Britain, Ireland, Italy, Luxembourg, Poland and the Netherlands have commenced the roll out of smart gas meters.

Dynamic electricity price offers, real-time pricing and other more advanced services are still limited across the EU.

- Dynamic contracts/offers can bring benefits to both the consumers and wider network from an operational point of view. For more flexible consumers, dynamic contracts may offer price savings if they adjust, to the extent this is possible for them, their consumption pattern as prices change. It is of course important to note that consumers on such contracts are influenced immediately by changes in wholesale market prices, such as the price increases observed in the second half of 2021. Conversely, they also benefit from wholesale energy price reductions when these occur, as was the case during 2020. All in all, these highly unusual developments over the past two years show that consumers should be fully informed of the potential benefits and downsides to such contracts and be fully aware of what is required to unlock the benefits that such offers can provide.

- Member States shall take appropriate measures to address energy poverty and support vulnerable users. While efforts are under way to provide comparative measures of energy poverty across Europe, only eight Member States across the EU defined officially energy poverty. To effectively combat energy poverty, comparative measures of energy poverty across Europe are needed to understand properly the key features and the common elements of energy poverty and to effectively address it.

21 This is the case in the electricity markets of Hungary and Poland during 2020.

22 Every two to three years.

23 Comparison tools exist in 25 Member States for electricity and 19 for gas.

24 See European Commission's Quarterly Report on European Electricity Markets – Quarter 4 2020.

ACER
European Union Agency for the Cooperation of Energy Regulators

CEER
Council of European Energy Regulators

The support of the Energy Community Secretariat in coordinating the collection and in analysing the information related to the Energy Community Contracting Parties is gratefully acknowledged.

If you have any queries relating to this report, please contact:

ACER

Mr David Merino
T +386 (0)8 2053 417
E press@acer.europa.eu

Trg republike 3
1000 Ljubljana
Slovenia

CEER

Mr Charles Esser
T +32 (0)2 788 73 30
E brussels@ceer.eu

Cours Saint-Michel 30a, box F
1040 Brussels
Belgium

Legal notice