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European Union Agency for the Cooperation of Energy Regulators

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Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019

Snapshot

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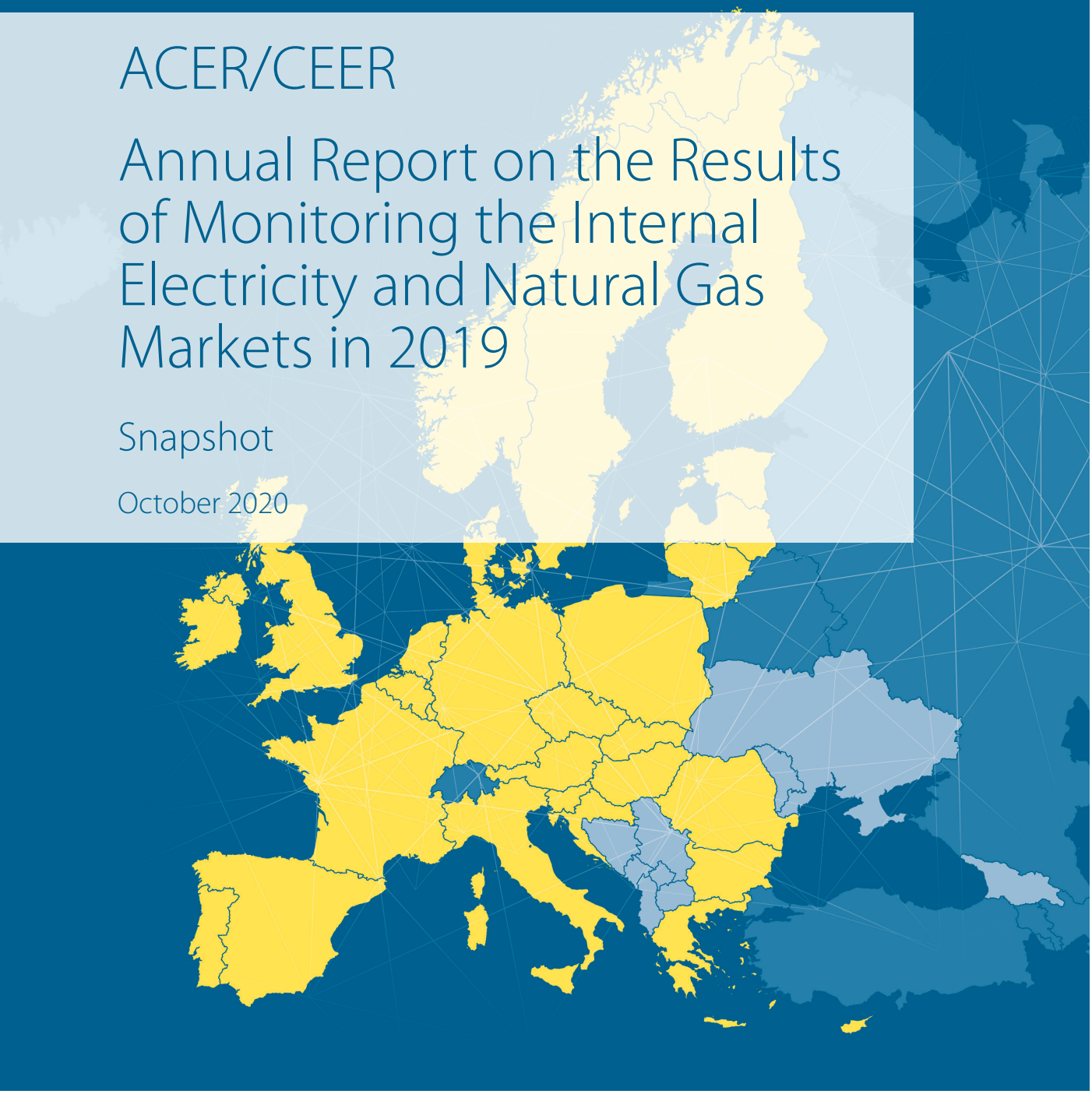


Introduction

Since 2012, the European Union Agency for the Cooperation of Energy Regulators (ACER) has presented the results of its monitoring activities in the annual Market Monitoring Reports (MMRs). These reports are produced and published in cooperation with the Council of European Energy Regulators (CEER). The 2019 MMR consists of three volumes, respectively on the Electricity Wholesale Market, the Gas Wholesale Market and Energy Retail and Consumer Protection. The MMR covers EU Member States and, for some topics, Norway, Switzerland and the Energy Community (EnC) Contracting Parties (CPs). This snapshot provides an overview of the highlights of the MMR covering 2019, with some additions looking into effects of the COVID-19 pandemic during the first part of 2020.

Impact of COVID-19 on EU electricity and gas markets

The COVID-19 pandemic has, among its many impacts on society, resulted in lower levels of economic output with adverse effects on the income of many citizens of the EU. In response, national energy regulatory authorities are imposing a range of additional measures to protect energy consumers from disconnection of their energy supply.

The pandemic has also resulted in an unprecedented negative demand shock to electricity and gas markets in the EU. However, during this period, the EU internal markets for electricity and gas have continued to function and there have been no disruptions to cross-border energy flows or trade.

In response to the economic shock caused by COVID-19, achieving a sustainable and resilient recovery will be a priority. In this context, a cost-efficient integration of the internal energy market supported by an exhaustive market monitoring becomes more relevant than ever. To that end, the policy targets set for the EU within the Clean Energy for All Europeans Package adopted in 2019 remain key. These include a fully integrated internal energy market, security of supply, improved energy efficiency, innovation, and the development of new and renewable forms of energy to better align and integrate climate change mitigation goals into energy markets.

As stated in the introduction, this edition of the MMR focuses on 2019 but some insight into EU energy markets in the first half of 2020 and therefore the impact of COVID-19 to date is included.

Electricity wholesale markets

Electricity wholesale markets continue to integrate in the EU as price convergence increased and the available cross-border capacity was used more efficiently in 2019. However, some significant challenges remain: the available cross-border capacity is insufficient and a more coordinated approach to ensure security of supply is needed.

Impact of COVID-19 pandemic on electricity wholesale markets.

- The COVID-19 pandemic has been having a significant impact on EU electricity markets: demand dropped by 7% in the first half of 2020 compared to 2019. A resulting significant reduction in the production of electricity from fossil fuels (-19%) was observed. At the other end, the production of electricity from renewable energy sources increased by 12%. Despite the pandemic, market integration continued at pace. Intraday liquidity continued to increase. In particular, the continuous intraday volumes traded in the first half of 2020 increased by more than 25% compared to the same period of 2019.

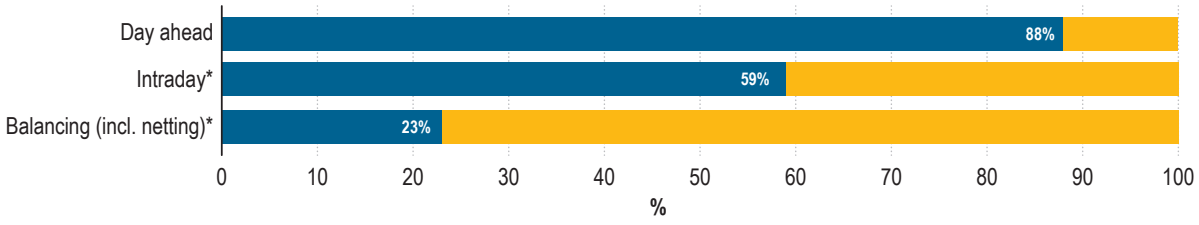
Progress towards market integration observed in several areas in 2019.

- The efforts of Member States towards market integration in recent years continued to bear fruit in 2019. For example, due to market coupling[1], the integration of day-ahead markets, which are the main reference for trading electricity close to real time, progressed significantly over the last decade. Consequently, the level of efficiency in the use of cross-zonal capacity (88%) in day-ahead markets was the highest across all short-term timeframes in 2019 (see Figure i).
- Accomplishing market coupling in all timeframes across EU borders would deliver welfare benefits of more than 1.5 billion euros per annum.

A number of significant concerns and implementation delays remained in 2019.

- The level of network capacity available for cross-zonal[2] trade remained insufficient in 2019. As identified in the Clean Energy Package, the lack of sufficient cross-zonal capacity is one of the main barriers to electricity markets integration. This led to the establishment of a minimum target of 70% capacity[3] available for cross-zonal trade, which is applicable since 1 January 2020. ACER is currently working towards publishing a dedicated report on the margin available for cross-zonal trade, covering the first semester of 2020. This report will be regularly updated.
- The implementation of the flow-based market coupling project in the Core region, which involves thirteen Central European Member States, continued to face delays in 2019. ACER stresses the need to urgently finalise this project, which is crucial for the electricity markets integration process: a fully coordinated flow-based approach to capacity calculation will maximise the level of capacity available for cross-zonal trade, thus increasing cross-zonal competition and EU welfare. The same

Figure i: Level of efficiency in the use of interconnectors in Europe in the different timeframes (% use of available commercial capacity in the 'right economic direction') – 2019



Source: ACER calculations based on NRAs, ENTSO-E and Vulcanus data.

Note: For the purpose of this figure, efficient use is defined as the percentage of available capacity (NTC) 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.

1 In the electricity sector, market coupling simplifies trade across electricity markets, thereby reinforcing market integration. Market coupling uses the capacity available across markets to allow a given market player to access a neighbouring market.

2 The electricity market is divided into "bidding zones". A bidding zone is a geographical area within which internal trade are considered unrestricted, while commercial exchanges between bidding zones are limited to available cross-zonal capacity calculated by transmission system operators.

3 Broadly, 70% of the theoretical maximum technical capacity of the physical network, i.e. the theoretical maximum transfer of electricity between bidding zones that the interconnected systems can accommodate.

observation applies to the pending incorporation of Greece to market coupling and the pending integration of the various market coupling projects that still coexist in Europe[4].

The Clean Energy Package sets out multiple options to achieve the 70% cross-zonal capacity target.

- The Clean Energy Package offers a portfolio of short and long-term instruments to achieve the 70% cross-zonal capacity target. In the short term, Member States should apply remedial actions[5], including non-costly ones such as network topology actions, and costly ones such as the activation of re-dispatching and countertrading. In the medium term, they may improve the configuration of bidding zones, while in the long term, Member States may expand or reinforce networks. Should these instruments not be available or effective enough to reach the 70% target, Member States may opt for transitory measures, such as derogations or action plans. However, transitory measures cannot go beyond the end of 2025 after which the European Commission can decide on the most appropriate measure to meet the 70% target.

- Network investments have proven challenging, e.g. the latest ACER's report on projects of common interest[6] reveals that network infrastructure projects are often subject to delays. The same report also identified that the objective of getting on the projects of common interest list to be eligible for quick implementation and grants is sometimes in conflict with submitting a realistic project plan.

Effective coordination among transmission system operators and clear cost-sharing rules when applying remedial actions are key to ensuring that the 70% capacity target is met. The economic and technical efficiency of remedial actions is maximised if their use is coordinated across borders.

- This edition of the MMR shows a reduction of the costs of remedial actions in 2019 in comparison with 2018, partly explained by circumstantial factors, such as the historically low gas prices and the related changes in flow patterns, e.g. between Germany and neighbouring Member States. The costs associated with remedial actions are expected to significantly increase in the coming years, as meeting the 70% minimum target in the context of growing intermittent renewable energy supply will likely require more remedial actions.

- ACER is currently approving a number of regional methodologies for coordinated re-dispatching and countertrading. The urgent adoption and implementation of these methodologies is an absolute prerequisite to meet the 70% minimum target.

- ACER further recommends that regional capacity calculation methodologies are amended as soon as possible in order to take into account the requirements of the Clean Energy Package, with particular emphasis on ensuring that the 70% capacity target is met.

A bidding zone review process is ongoing, as prescribed by the Clean Energy Package. The recent split of the German/Austrian/Luxembourgish bidding zones illustrates some of the effects of a bidding zone change.

- On the one hand, the split of the German/Austrian/Luxembourgish bidding zones has resulted in a reduction of loop flows[7] together with an increase of the amount of available cross-border capacity at the borders impacted by these flows. The benefits from the latter increase will possibly remain limited until flow-based market coupling is implemented across the whole Core region. On the other hand, it has affected market liquidity. The liquidity of forward markets has remained mostly unchanged in Germany, but it has been rather limited in Austria. Overall, the bidding zone split does not appear to negatively affect short-term markets liquidity.

- The Clean Energy Package defines a methodology, assumptions and alternative bidding zone configurations to be considered for the bidding zone review. The regulatory discussions leading to the approval of these three aspects of the review are currently ongoing. ACER will decide on their approval still in 2020, just before the upcoming bidding zone review starts, aiming for a sound, technically grounded and neutral review so that Member States are put in the best possible position to take informed decisions. ACER recommends that transmission system operators perform an unbiased, sound, technical and neutral bidding zone review.

4 For more details see http://www.nemo-committee.eu/sidc.

5 Remedial actions are any measure applied by a transmission system operator or several transmission system operators, manually or automatically, in order to maintain operational security.

6 The report is available here.

7 Electricity trading inside one bidding zone may cause electricity flows across neighbouring zones, called loop flows.

Electricity systems face unprecedented technical and political changes that challenge an efficient guarantee of security of supply. The Clean Energy Package calls for adequacy assessments to underpin the use of Capacity Mechanisms (CMs).

- The Clean Energy Package aims at addressing the system adequacy needs in a coordinated manner with a view to maintaining the desired security of supply levels at the lowest possible cost for end-consumers. In particular, the Clean Energy Package requires a thorough assessment of the adequacy needs in light of the resources available within and beyond one's jurisdiction, meaning by having access to resources in neighbouring Member States, the overall cost of ensuring sufficient resources will be lower. ACER plays a crucial role in this respect, as it will approve the methodologies underlying this assessment and it will monitor their proper implementation. The approval process of the methodologies is currently ongoing.

- The secure supply of energy is a national priority for Member States which ACER agrees with. However, in line with the Clean Energy Package, Member States must strive to improve market functioning to ensure improved price signals before resorting to CMs in order to address adequacy-related issues.

- The MMR shows that a variety of national CMs remained in 2019 across Europe. Further, CMs remain in eight Member States where the ENTSO-E's 2019 Mid-term Adequacy Forecast (MAF) results continued to show, for the 'base case' scenario, no adequacy issues (see Figure ii). Overall, the costs of CMs reached 3.9 billion euros in 2019, representing a 73% increase compared to 2018. These are costs which will eventually be paid by electricity consumers.

- The lack of a consistent framework for identifying resource adequacy concerns, emphasises the need for enhanced adequacy assessments, which should, among other aspects, adequately consider the contribution of demand side response and interconnections to adequacy. Addressing adequacy at pan-European level would yield annual benefits of approximately 3 billion euros[8].

Figure ii: Perceived need for CMs based on the MAF 2019 results – 2019

Source: ACER.

Note: In Greece, CM auctions have been postponed since March 2019 and no CM has been in place since November 2019. In Portugal**, the CM in place has been postponed since 2018. In Spain***, the CM used to comprise "investment incentives" and "availability payments"; the availability payments were removed in June 2018 and the investment incentives apply only to generation capacity installed before 2016.*

8 For more information, please see https://ec.europa.eu/energy/sites/ener/files/documents/20130902_energy_integration_benefits.pdf, page 89, where the benefits are estimated in the range of 1.5 to 3 billion euros in 2015, and in the range of 3 to 7.5 billion euros by 2030.

Gas wholesale markets

Gas markets in West Europe and parts of Central Europe, which account for three-quarters of EU gas consumption, have become strongly integrated since the process of establishing an EU internal gas market started. The integration process is also gradually advancing in other parts of the EU but regional differences persist.

Impact of COVID-19 pandemic on gas wholesale markets.

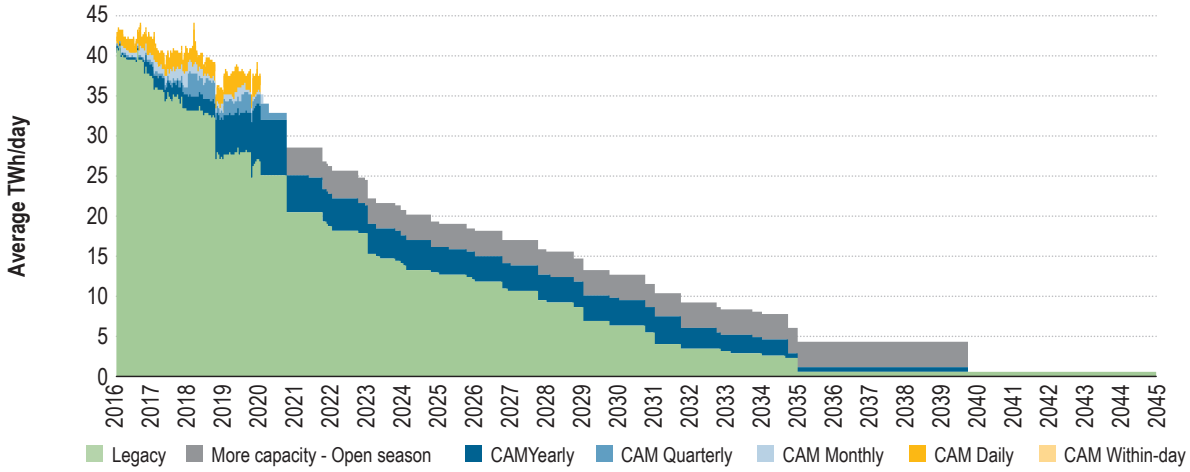
- The COVID-19 pandemic has caused a severe drop in gas demand; it fell by 8% compared to the previous year up to May 2020. While it has yet to return to pre-lockdown levels, it has picked up since the beginning of the summer. Some trends that started in 2019 have further accelerated as a result of the pandemic: EU gas hub prices plummeted to new record lows (in June spot prices on the reference TTF hub in the Netherlands were down by 52% compared to the previous year and by 77% when compared to June 2018); hub trading activity, supported by additional hedging needs, rose by more than a fifth up to June 2020 compared with the same period last year; and record volumes of gas are being held in storage.

An interconnected internal gas market has emerged even in the absence of formal cross-border market mergers.

- A combination of market and regulatory factors – including the implementation of gas network codes (NCs) – 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.
- Despite this progress, regional differences persist. These are due to the speed at which some Member States have embraced gas market liberalisation, the varying degrees of support given to the hub[9] trading model by relevant stakeholders as well as the relative gas market isolation of some Member States. This is to the detriment of consumers in these markets as without meaningful competition, incumbent suppliers have more market power to set prices.
- As evidence of these discrepancies, during 2019 price convergence was lower in markets that are more reliant on long-term supply contracts, where prices did not fall as sharply as at Western European hubs, where unprecedented volumes of liquefied natural gas (LNG) from a globally oversupplied market drove prices to record lows.

Common, market-oriented rules governing access and operation of EU gas transportation systems – the gas network codes – have contributed to high levels of gas price integration between Member States, increased competition and helped boost liquidity of trading hubs over the period of the last five years.

Figure iii: Evolution of capacity booked by capacity type – 2016–2045 – TWh/day



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

Note: Includes all EU interconnection points' sides and directions, also with third countries, which are in the scope of the EU regulation on transportation capacity allocation (CAM network code). From 2020, the new products' categories only include volumes allocated in auctions held until 31/12/2019. The legacy capacity for 2020 has been interpolated in the absence of data. The category "More capacity – Open Season" includes specifically the long-term capacity allocated in 2017 via auctions in an ad-hoc open season for two interconnection points located along the onshore routes for further transport from Nord Stream II: Lubmin II and Deutschneudorf-EUGAL. This capacity was assigned before the incremental capacity amendments to the CAM network code entered into force.

9 Gas hubs are physical or virtual trading points on the gas grid, where the exchange of gas between buyers and sellers can take place.

- To facilitate market access and competition, the Capacity Allocation Mechanism (CAM) NC enables market participants to book cross-border transportation capacity more efficiently and transparently. As a result, cross-border interconnectors are being used with increasing efficiency. However, the situation between interconnectors differs depending on prevailing transportation contracts and the kind of function they are mostly used for (for instance transit, baseload supply, seasonal flexibility or locational price arbitrage). Similarly, LNG and underground gas storage have become short-term flexibility tools, used for optimisation of portfolios and short-term price hedging.

- While most long-term capacity contracts currently in place still precede the entering into force of the CAM NC, this will change in the coming years. More than half of contracted transportation capacity valid at the start of 2020 had been booked before 2015, but in the coming years, expiration of legacy long-term contracts will accelerate and they will almost completely disappear by 2035 (see Figure iii). In most Member States, expired long-term capacity contracts had been largely or fully replaced by shippers booking new CAM shorter-term products. However, it is uncertain if this trend will continue, as LNG could displace some cross border pipeline flows while the current levels of natural gas consumption are incompatible with EU decarbonisation objectives.

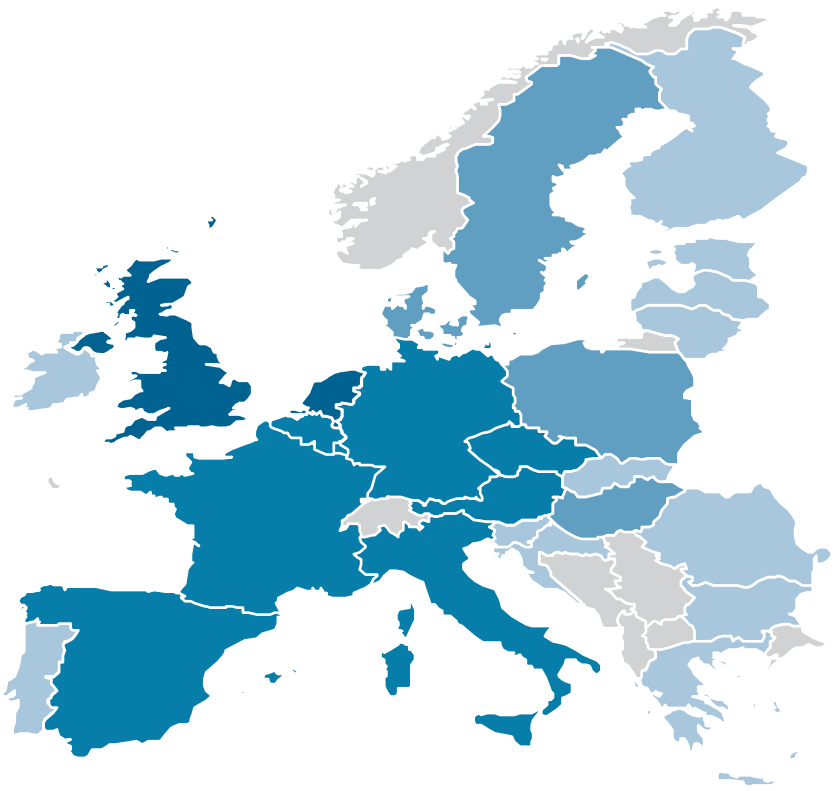
- New reference price methodologies (RPMs)[10] set in accordance with the tariff network code are progressively being implemented, improving network tariffs' transparency and cost-reflectivity.

- The analysis of gas balancing markets reveals how an ambitious implementation of the balancing network code reduces the active role of transmission system operators in balancing activities in various Member States, which also benefits spot markets' liquidity. The results of the analysis show significant differences across Member States in terms of the role of the transmission system operator. It also detects the need to remove a series of national measures – directly and indirectly related to balancing design – which currently hinder its effectiveness in various markets.

Trading activity at hubs continued to advance in 2019 and has become central to most gas markets. However, some Member States are yet to attract meaningful liquidity to their virtual trading points.

- The volume of natural gas traded at EU hubs was at an all-time high in 2019, rising by 20% year-on-year. The record influx of LNG was one of the main drivers for that by altering the supply balance and prompting price movements that led market participants to readjust their open positions.

Figure iv: Ranking of EU hubs based on monitoring results – 2019



Established hubs
- Broad liquidity
- Sizeable forward markets which contribute to supply hedging
- Price reference for other EU hubs and for long-term contracts indexation

Advanced hubs
- High liquidity
- More reliant comparatively on spot products
- Progress on supply hedging role but relatively lower liquidity levels of longer-term products

Emerging hubs
- Improving liquidity from a lower base taking advantage of enhanced interconnectivity and regulatory interventions
- High reliance on long-term contracts and bilateral deals

Illiquid-incipient hubs
- Embryonic liquidity at a low level and mainly focused on spot
- Core reliance on long-term contracts and bilateral deals
- Diverse group with some jurisdictions having
  - organised markets in early stage
  - to develop entry-exit systems

Source: ACER based on ICIS Heren and REMIT data.

10 Most of EU gas transmission system operators' allowed revenue is recovered through capacity tariffs. RPMs are methodologies by which capacity tariffs are obtained; they are used to allocate the allowed or targeted transmission revenue among network points.

- 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. A level below are other NWE and some Mediterranean and CEE hubs where spot markets are liquid and competitive but forward liquidity is limited compared to TTF and NBP. However, various Member States, chiefly located in the CEE and SSE regions, still have weak or no hub dynamics. This year notable positive developments were observed in Hungary, resulting in its hub no longer being classified as illiquid.

- Structural competition aspects – including diversity of supply sources, upstream supply concentration or network capacities not controlled by the largest supplier – impact how well hubs can perform. Strongly interconnected NWE markets and markets attracting flexible LNG – Spain, Italy – were the most structurally competitive hubs in 2019, while a growing number of markets are coming close to the levels that ACER recommends in its Gas Target Model by reducing their historical supply dependency.

New supply of renewable or decarbonised gas could contribute decisively to the EU climate strategy, with the added benefit of further rebalancing the current market power asymmetry between European gas buyers and third-country suppliers.

- Renewable or decarbonised gases account for a relatively minor share of EU gas consumption of around 4%, which are mostly not injected into the gas grid, and are far from being competitive at current prices, despite some promising prospects.

- Given the ambitious framework of the European Green Deal for reducing emissions by 2030, as well as the resources that have been earmarked for climate projects, the low uptake of renewable or decarbonised gases will need to accelerate. In doing that, ACER recommends that any upgrading of internal gas market rules aimed at decarbonising the sector be built on foundations of the current market design, so that the transition to renewable and decarbonised gas does not lead to market fragmentation along national borders and keeps the significant benefits for consumers in place. Furthermore, a number of essential and interrelated aspects will need to be addressed:
    - defining technical rules for gas quality, blending and interoperability aspects, with a certain level of standardised criteria necessary to ramp up production;
    - defining the market framework which will determine the activities and the conditions that the various market participants will be allowed to invest in, while also defining the supportive mechanisms that will incentivise efficient investments, including locational signals; and
    - determining network access conditions for new gasses, where tariffs will be a key element.

- ACER has already issued recommendations that would, if followed, promote an effective transition to decarbonised and renewable gases in its Bridge Beyond 2025 paper and is currently working with CEER to shape proposals for energy sector integration, hydrogen markets and decarbonisation from a regulatory perspective.

Energy Retail and Consumer Protection

Retail energy prices continue to vary across the Member States signalling that some markets are not operating at an efficient level. Energy prices increased in 2019 while price intervention continues in Member States. Such intervention is hampering the entry of new suppliers offering wider consumer choice. Smart meter rollout is key to ensuring consumers are provided clear and real time information regarding their energy use. However, the rollout of smart meters continues to vary across Member States limiting the provision of real time information to energy consumers.

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

- In response to the impact that COVID-19 is having on the energy consumers, national regulatory authorities imposed a range of responsive measures to protect energy consumers from disconnection of their energy supply.

Electricity and gas retail prices increased in 2019 in comparison to 2018.

- Electricity prices for EU consumers increased slightly in 2019 for both household and industrial consumers. Average household electricity prices increased in 2019 by 3.7%, to 21.6 euro cents/kWh, in comparison to 2018 prices, while average industrial consumers' electricity prices increased in 2019 by 7.8%, to 11.0 euro cents/kWh, in 2019 compared to 2018 prices.

- In the Energy Community Contracting Parties (EnC CPs), average household prices in 2019 totalled 7.55 euro cents/kWh, a decrease of 1.6% compared to 2018. However, average industry electricity prices increased to 7.27 euro cents/kWh in 2019, i.e. by 11% compared to 2018.

- Large differences in electricity prices continue for household and industrial consumers across the EU, Norway and the EnC CPs, ranging from 29.8 euro cents/kWh in Germany to 9.8 euro cents/kWh in Bulgaria. Even greater variations were recorded in the industrial market, with industrial electricity consumers in Denmark paying 22.2 euro cents/kWh in 2019 or more than four times more than the electricity price paid by industrial consumers in Luxembourg in 2019 (the cheapest at a price of 4.9 euro cents/kWh).

- In EnC CPs excluding Ukraine, the average electricity price for household consumers was 7.66 euro cents/kWh in 2019. This is 2.8 times less than the average EU electricity price for households in 2019. Household consumers in Ukraine paid on average 1.7 times less than household consumers in the other EnC CPs, only 4.4 euro cents/kWh in 2019.

- In gas, average prices across the EU increased by 3.1% for household consumers to 6.5 euro cents/kWh, with notable price increases in some countries[11]. However, industrial consumers[12] observed a gas price decrease of 8.5% and paid on average 2.6 euro cents/kWh in 2019. The highest decreases were recorded in Ireland (-23.3%) and Sweden (-21.7%). Bulgaria recorded a large increase in the industrial price year-on-year (+19.1%).

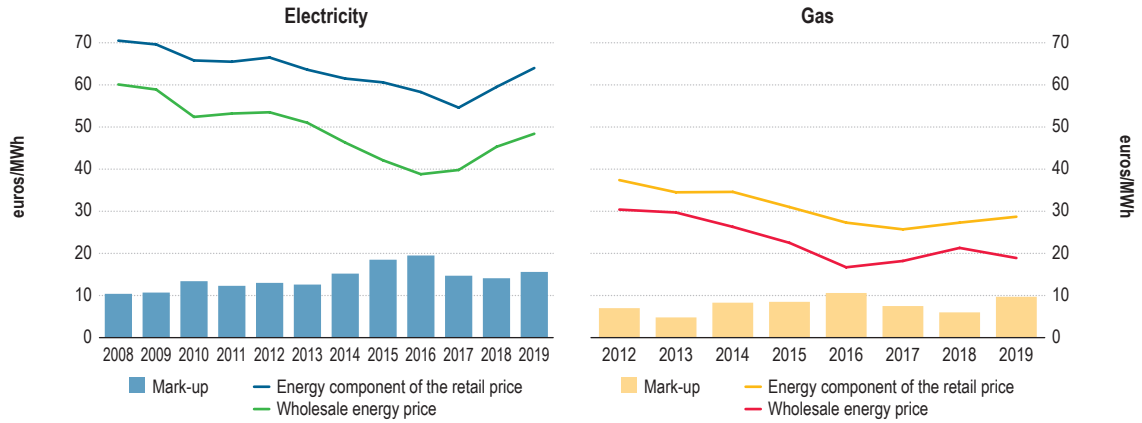
- In EnC CPs, household gas prices remained broadly in line with the 2018 prices at a cost of 2.15 euro cents/kWh in 2019. Industrial gas prices increased by 43% in 2019 compared to the 2018 prices and averaged 3.08 euro cents/kWh across the EnC CPs (excluding Ukraine). Ukraine recorded a household gas price increase of 225%[13]. However, in contrast to the trends observed in the EU, industrial gas prices were, on average, higher than household gas prices in 2019.

- As with the electricity market, variations were observed in the EU gas market in 2019. Household gas consumers in Sweden paid 11.8 euro cents/kWh in 2019, which was almost three times the price paid by household gas consumers in Romania in 2019 (3.4 euro cents/kWh). In the industrial market, gas consumers in Denmark paid almost three times (6.0 euro cents/kWh) the price paid by gas consumers in France (2.1 euro cents/kWh).

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 (mark-up) widened in 2019 (see Figure v). A strong correlation between retail and wholesale energy prices is observed when wholesale energy prices increase. However, a weaker correlation is observed with regard to the rate of reduction in retail

Figure v: Responsiveness of the energy component of retail prices to changes in wholesale prices and evaluation of mark-ups in household markets from 2008 to 2019 for electricity and from 2012 to 2019 in gas (euros/MWh)



Source: ACER Retail Database, Eurostat, NRAs, 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 the ACER Retail Database up to the year 2016 and from Eurostat for 2017, 2018 and 2019 except for Finland, Germany and Spain due to unavailability in Eurostat. Prices in nominal terms.

11 Spain (14.1 %) and the Netherlands (12.5 %).

12 ACER calculations based on Eurostat, Band D2: 20–200 GJ (household gas consumption) and Band I5: 1,000,000–4,000,000 GJ (industrial gas consumption) - (June 2020).

13 Gas household prices in Ukraine have been changing since 2014, following the Cabinet of Ministers' resolution to stepwise increase gas household prices in line with an agreement made with the International Monetary Fund.

prices following a fall in wholesale energy prices (a phenomenon known as downward sticky prices). Such "sticky prices" can result in energy consumers paying higher than needed prices for their energy consumption. While it is not expected that retail costs will fall immediately in line with wholesale price reductions, enhanced participation on the part of energy consumers 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 of switching supplier.

- The composition of the final energy bills for household consumers continued to vary greatly across Member States. As the energy system evolves in the coming years, it is expected that the breakdown of consumers' electricity bills will change. Network expenditure is likely to increase in the coming years to enable additional renewable penetration, enable energy communities, cater for increased electricity demand and provide consumers with smart meters to enable active participation on the part of energy consumers.

- On average, 37% of the final electricity price consisted of the energy component (contestable charges), while the remaining 63% of the electricity bill consisted of non-contestable charges, i.e. the sum of network costs, taxes, levies and other charges. The highest share of network charges in the final price was in Luxemburg, where they accounted for 42% of consumers' bills, and the lowest share was in Greece, Italy and Portugal accounting for 13% and 15% of the final price, respectively. Renewable energy source (RES) charges accounted for more than 20% of consumer's bills in Germany and Great Britain.

- From 2012 to 2019 the share of RES charges across Member States has more than doubled from 6% to 14%. RES charges in EnC CPs remained low with the RES charges amounting to 1% of the final household electricity price in Bosnia and Herzegovina and Serbia, and 7% in North Macedonia. In EnC CPs, the share of the energy component in the final bill was the highest in Albania (63%) and the lowest in Serbia (34%) while the share of network costs in the total household electricity price ranged between 20% in Albania and 49% in Kosovo.

- In gas, on average, less than half of the final price paid in 2019 by end consumers covered the energy component of their annual gas bill, while the rest covered the sum of the network costs, taxes, levies and other charges.

Retail competition, consumer activity and empowerment tools

- While the average number of nationwide suppliers in the EU increased in 2019, there are still major differences among Member States. While in some Member States there are very few suppliers at all, in others the suppliers mainly operate on a regional level. Indicators of market structure such as market concentration and the Herfindahl-Hirschman Index (HHI)[14] are still improving too slowly.

- Some countries, such as Belgium, Great Britain and Norway, recorded very high switching rates over the past years (>20%). The switching rate of consumers is one of the key indicators of well-functioning energy retail markets. Many consumers still do not switch their energy supplier citing a variety of reasons, ranging from regulatory barriers to behavioural aspects. Regulatory barriers can refer to regulated prices in the first place. This is especially the case if regulated prices are set below cost levels, such that the development of competitive retail markets is hampered and no economic incentive for switching exists.

- Enhancing switching rates among energy consumers increases competition amongst suppliers and can deliver lower energy costs for consumers. When energy consumers fail to switch supplier (and to switch regularly)[15] they pay more for their energy than they need to. In many Member States, comparison tools are available to assist the consumer in switching their energy provider. However, instances of price intervention have increased in 2019, with 80% of the Member States reporting that the reason for public price intervention in the price setting is the protection of the consumers against price increase. Such intervention represents a barrier to competition in the energy markets and also a barrier to the active participation on the part of the energy consumer.

- Comparison tools (CTs) exist in 20 and 15 Member States for electricity and gas, respectively. Many of the criteria now listed in the latest European legislation have already been met by CTs across Europe. A shared challenge for many Member States will be the inclusion of dynamic electricity price contracts into these tools. In 2019, only four Member States had CTs that fulfilled this criterion.

Smart meters are a vital tool in assisting energy consumers to become more informed regarding their energy consumption

14 The Herfindahl-Hirschman Index is a commonly used indicator to measure the degree of market concentration. Based on the guidance from the European Commission , a HHI above 2000 signifies a highly concentrated market. In general, a high number of suppliers and low market concentration are viewed as indicators of a competitive market structure.

15 On an annual basis.

- The smart meter rollout is continuing across the EU but varies across Member States. Smart meters are essential to enable active participation on the part of energy consumers. The current lack of information available to energy consumers represents a significant barrier to their participation in energy markets. A smart meter will provide the energy consumer with real time information and will enable them to become a more active participant in energy markets. Such participation could lead to increased switching rates, driving increased competition between suppliers, and thus placing downward pressure on the price that the energy consumer pays[16]. 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.
- Information on citizen energy communities and demand side response is limited at this stage but is expected to gain traction and importance in the coming years.

Vulnerable consumers and energy poverty

- Member States shall take appropriate measures to address energy poverty. However, while efforts are under way to provide comparative measures of energy poverty across Europe, energy poverty is still only defined officially in eight Member States across the EU. To effectively combat energy poverty, comparative measures of energy poverty across Europe are needed to enable proper understanding of the key features and the common elements of energy poverty across Europe and how to effectively address it.

16 The electricity smart-meter rollout is under way in Europe, with nine Member States, including Italy, Spain and the Nordics, having completed their roll out. However, roll-out plans and actual roll-out statistics diverge widely, suggesting that a delay in smart-meter roll out is likely.

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European Union Agency for the Cooperation of Energy Regulators

CEER
Council of European Energy Regulators

Energy Community

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