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EVALUATION

Evaluation Report

Accompanying the

Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast)

Proposal for a Regulation of the European Parliament and of the Council on the internal markets for renewable and natural gases and for hydrogen (recast)

{COM(2021) 803 final} - {COM(2021) 804 final} - {SEC(2021) 431 final} -
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1. Introduction

1.1. Scope of the Evaluation

The Evaluation covers two EU Directives and Regulations concerning the gas sector, which form the so-called 'Third Gas Package'. The main evaluated acts are:

- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC, OJ L 211, 14.8.2009, p. 94–136 (henceforth the Gas Directive) as amended by:
  - Directive (EU) 2019/692[1]: this amendment clarified the application of the Gas Directive with regard to interconnections with Third Countries;
  - Regulation (EU) 2018/1999[2]: The Governance Regulation integrated, amended, replaced and withdrew certain planning, reporting and monitoring obligations currently contained in sectoral energy and climate Union legislative acts to ensure a streamlined and integrated approach to the main planning, reporting and monitoring strands. In this regard, it deleted Article 5 of Directive 2009/73/EC on monitoring of security of supply, and replaced Article 52 of Directive 2009/73/EC on Reporting. According to the amended Article 52, the Commission shall monitor and review the application of the Directive and submit an overall progress report to the European Parliament and to the Council as an annex to the annual State of the Energy Union Report.
- Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, OJ L 211, 14.8.2009, p. 36–54 (henceforth Gas Regulation) as amended by:
  - Commission Decision 2010/685/EU[3]
  - Commission Decision 2012/490/EU[4]
  - Regulation (EU) No 347/2013[5]

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1 Directive (EU) 2019/692 of the European Parliament and the Council of 17 April 2019 amending Directive 2009/73/EC concerning common rules for the internal market in natural gas: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.117.01.0001.01.ENG

2 Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R1999

3 2010/685/EU: Commission Decision of 10 November 2010 amending Chapter 3 of Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks: https://eur-lex.europa.eu/eli/dec/2010/685/oj

4 2012/490/EU: Commission Decision of 24 August 2012 on amending Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks: https://eur-lex.europa.eu/eli/dec/2012/490/oj

– Commission Decision (EU) 2015/715[6]
The Commission decisions amended Annex I of the Gas Regulation by introducing more detailed rules on congestion management procedures and including transparency obligations to be published on a single EU wide platform to provide all interested stakeholders with information, *inter alia*, on capacity contracted and available at relevant points, e.g. interconnection points between Member States.

The Third Energy Package sets the legal basis for establishing more detailed common European rules in the form of gas network codes and framework guidelines, with the aim to harmonise and coordinate the different processes of energy markets and systems. Since the entry into force of Regulation 715/2009 in 2011, four network codes have been adopted, covering capacity allocation mechanisms (CAM NC[7]), gas balancing rules (BAL NC[8]), interoperability between gas systems (IO NC[9]), and transmission tariff structures (TAR NC[10]). Additionally, the Guidelines on congestion management procedures (CMP) and Transparency annexed to the Gas Regulation, have been detailed out with several amendments[11]. The harmonisation of these technical rules has both enhanced the market functioning at national level (in particular BAL NC) and further advanced the interconnection of national gas markets. Notably, CAM NC has fully harmonised the procedure and the calendar for the booking of transmission capacity, which fosters competition and accessibility of national markets. The most recently adopted TAR NC has introduced extensive publication requirements on gas tariff parameters and calculations, which provides additional transparency and tariff predictability for network users across the EU, while highlighting potential tariff outliers. Whereas the implementation of network codes is far advanced across Member States[12], the continued enforcement of these rules by the Commission remains crucial for the completion of the internal energy market.

By Directive 2019/692 of 17 April 2019, Directive 2009/73/EC was amended to clarify its applicability to gas interconnector pipelines between Member States and third countries. In

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5 Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009: https://eur-lex.europa.eu/eli/reg/2013/347/oj

6 Commission Decision (EU) 2015/715 of 30 April 2015 amending Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks: https://eur-lex.europa.eu/eli/dec/2015/715/oj

7 Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013: https://eur-lex.europa.eu/eli/reg/2017/459/oj

8 Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a network code on gas balancing of transmission networks: https://eur-lex.europa.eu/eli/reg/2014/312/oj

9 Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules: https://eur-lex.europa.eu/eli/reg/2015/703/oj

10 Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas: https://eur-lex.europa.eu/eli/reg/2017/460/oj

11 Commission Decision 2010/685/EU of 10 November 2010, Commission Decision 2012/490/EU of 24 August 2012 and Commission Decision (EU) 2015/715 of 30 April 2015.

12 Cf. ACER Implementation Reports on individual network codes at https://acer.europa.eu/Official_documents/Publications/Pages/Publication.aspx.

addition to this clarification of the scope, the amendment added a derogation regime for existing interconnectors with third countries and procedural rules on the consultation of authorities of third countries on regulatory issues. Due to the recent entry into force (the deadline for transposition into national law expired on 24 February 2020), these amended provisions are excluded from the scope of the present Evaluation.

The revision of the Electricity Directive[13] and Electricity Regulation[14] adopted in 2019 as part of the Clean Energy Package reinforced the institutional framework of the Third Package to make it fit-for-purpose for the changes in the electricity sector (integration of renewables, decentralised electricity production, regionalisation, etc.). However, this has created differences in the institutional set-up between the electricity and gas sectors, which might lead to detrimental regulatory divergence and unnecessary complexity that could affect consumers, industry and regulators alike. Furthermore, some of the reasons for changes in the electricity sector, based on experience with applying the Third Package legislation, equally apply to the parallel provisions in the gas sector and justify similar changes to those provisions.

The Recast Internal Electricity Market Directive reinforced ACER's powers in order to diminish the fragmentation of the regulatory oversight at the EU level. To foster the independence of National Regulatory Authorities (NRAs), new requirements for board members or top managers must ensure that their appointment is based on objective, transparent and published criteria. The appointment follows an independent and impartial procedure, aimed at selecting candidates with the necessary skills and experience for each position[15]. For the same reasons, the directive requires that board members or top management can only be dismissed based on transparent criteria[16] and that specific provisions on conflict of interests are in place and confidentiality obligations extend beyond the mandate of board members or top management[17].

The Electricity Regulation[18] and ACER Regulation[19] adapted the procedures for establishing detailed regulatory rules on the operation of the market and networks (i.e. network codes and guidelines) to the requirements of the Treaty on Functioning of the European Union. They also introduced provisions reflecting the increasing link between the distribution and transmission network levels in the regulatory framework (e.g. requirements for cooperation on network planning, Electricity Regulation Article 57).

The Electricity Regulation adapted the mission, tasks and the rules by the European Network for Transmission System Operators for Electricity (ENTSO-E) governing its transparency and

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13 Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (hereinafter Electricity Directive), OJ L 158, 14.6.2019, p. 125–199.

14 Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, OJ L 158, 14.6.2019, p. 54–124.

15 Art. 57(5)e Electricity Directive.

16 Art. 57(5)g Electricity Directive.

17 Art. 57(5)f Electricity Directive.

18 Art. 58-60 Electricity Regulation.

19 Art. 5 ACER Regulation, Agency for the Cooperation of Energy Regulators.

oversight by ACER. It also formalised the role of Distribution System Operators (DSOs)[20] at European level by creating a single European DSO entity, rendering their participation effective and independent[21], The aim was to facilitate distributed resources to participate in the market by – among others – enabling DSOs to become more active at the European level and have increased responsibilities and tasks (similar to those of the Transmission System Operators (TSOs)).

The main market principles as set out in the electricity network codes and guidelines were also lifted-up into the Electricity Regulation to increase transparency and reliability of the legal framework.

The Evaluation is based on several comprehensive **monitoring reports** on the functioning of the implemented market legislation[22], as well as on a number of specific **public consultations** issued by the Commission to verify the effects of its legislation[23]. Furthermore, some external studies also included assessments of specific elements of the implemented market legislation[24]. Other consultations via public events such as forums and conferences have also contributed to gather feedback from stakeholders on the functioning of the Third Energy Package. The Madrid Forum was set up to discuss the creation of true internal gas markets in Europe[25]. The participants include NRAs, EU national governments, transmission system operators, gas suppliers and traders, consumers, network users, and gas exchanges. The Third Gas Package and its implementation was discussed in this stakeholder forum at several occasions[26].

1.2. Purpose of the Evaluation

This Evaluation provides the basis for the Impact Assessment for the initiative to review the existing EU gas market design rules meanwhile also known as the 'Hydrogen and gas markets

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20 Transmission System Operators (TSOs) maintain high pressure grids which transport gas over long distances. Distribution System Operators (DSOs) are usually smaller networks, often at regional or local level, mainly for the distribution to end customers. Unbundling requirements exist also for DSOs (basically legal, functional and accounting unbundling for all DSOs with more than 100 000 customers).

21 Art. 52-55 Electricity Regulation.

22 See the 'Progress report on the internal market' annexing the '2020 report on the State of the Energy Union pursuant to Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action' COM(2020) 950 final.

23 Powering a climate-neutral economy: An EU Strategy for Energy System Integration, COM(2020) 299 final, Brussels, 8.7.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0299&from=EN; A hydrogen strategy for a climate-neutral Europe, COM(2020) 301 final, Brussels, 8.7.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0301&from=EN; EU renewable energy rules – review, EU renewable energy rules – review (europa.eu).https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0301&from=EN; EU renewable energy rules – review, .https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0301&from=EN; EU renewable energy rules – review, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0301&from=EN; EU renewable energy rules – review.

24 Potentials of sector coupling for decarbonisation: Assessing regulatory barriers in linking the gas and electricity sectors in the EU, December 2019, Potentials of sector coupling for decarbonisation: Assessing regulatory barriers in linking the gas and electricity sectors in the EU | Energy (europa.eu).

25 The participants are NRAs, Member States, the European Commission, transmission and distribution system operators, gas traders, consumers, network users, and gas exchanges. The Forum convenes once or twice a year.

26 Madrid forums | Energy (europa.eu).

decarbonisation package'[27]. It seeks to contribute to the formulation of an adequate and effective policy response to the challenges gas markets are currently facing in contributing to the climate objectives of the EU.

The Evaluation will assess whether the abovementioned EU rules introduced in 2009 have been successful in meeting their stated objectives, in particular achieving a better-functioning internal gas market. The evaluation will analyse the effectiveness, efficiency, coherence, relevance and EU added value of the relevant measures in relation to the objectives strived for by the Third Gas Package. In view of the increased climate ambition of the EU, the evaluation will also analyse the possible contribution of EU gas market regulation and verify to what extent the gas market rules adopted in 2009 and the EU internal energy market framework are still able to respond to the energy sector's new challenges and to meet current and future expectations on decarbonising the European economy.

2. Background to the evaluated initiatives

1.3. Objectives of the Third Gas Package

Prior to the EU's liberalisation initiatives, gas was produced, purchased, transported and sold mostly by domestic, state-controlled monopoly companies. Competition in gas markets was almost absent. This, however, led to manifold problems in terms of cost-efficiency and security of supply.

The EU has taken the initiative to gradually liberalise EU energy markets and to create an internal gas market. The process started with the adoption of the First Gas Directive in 1998[28]. The liberalisation initiative brought some first successes, but progress remained limited. In 2003, a Second Gas Package was therefore adopted to stimulate the development of competition in gas markets[29].

Despite good progress in some individual countries, the Commission's systematic **sector inquiry** into the energy sector from 2005-2007[30] revealed that **significant obstacles** to

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27 Impact Assessment report for the hydrogen and decarbonised gas markets package.

28 Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas: http://data.europa.eu/eli/dir/1998/30/oj. The Directive provided for a partial market opening, giving suppliers a possibility to transport their gas on networks owned by the incumbent companies, under conditions to be negotiated with the incumbent (so-called 'negotiated Third Party Access'). The biggest consumers (e.g. industrial consumers) were given the right to choose their supplier. Knowing about the incentives of suppliers to use their grids to avoid competition, the Directive also required network owners to create separate accounting for their network business, and to nominate a dedicated management for their network which should not be active in production/supply businesses ('management and accounting unbundling'). Member States were obliged to provide for basic regulatory oversight of these rules.

29 Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC: http://data.europa.eu/eli/dir/2003/55/oj The Second Package replaced the right for network owners to negotiate network access rules freely with potential users and introduced regulated Third Party Access rules. For this purpose, every Member State had to create national energy regulators to determine network access tariffs and other access conditions, and to better detect discriminating practices by incumbents. The new Package also reinforced the existing loose unbundling rules by imposing a legal separation between network and production/supply business ('legal unbundling'). It also prescribed a mandatory path for full market opening until 2004 (for non-household customers) and 2007 (for household customers).

30 http://ec.europa.eu/competition/sectors/energy/2005_inquiry/index_en.html

competitive cross-border markets remained, and that consumers could still not fully benefit from liberalisation. Incumbent companies – mostly still state owned – had managed to maintain their dominant positions and tried to avoid competition from domestic and foreign companies. They notably used their control over their networks to avoid competition from new energy suppliers. The results of the sector inquiry triggered the Commission's proposal for a comprehensive Third Energy Package. The new legislation mainly aimed at addressing the problems identified in the Sector Inquiry[31], namely:

- market concentration and market power in wholesale and retail markets;
- vertical foreclosure (in particular the inadequate unbundling of network and supply);
- lack of market integration (cross border and national);
- lack of transparency;
- insufficient independent regulatory oversight;
- distorted price formation mechanisms (regulated prices and cross-subsidies);
- downstream market foreclosure (access to consumers).

The identified problems harmed competition, leading to unnecessarily high prices and limiting choice for consumers. Incomplete and inefficient unbundling rules for TSOs[32] prescribed by the Second Directive resulted in structural conflict of interest. Insufficient unbundling of networks from the competitive parts of the sector (vertical integration) resulted in lack of investment in infrastructure and discriminatory conduct on the supply and production markets downstream and upstream from network activities. Consequently, the Commission recommended taking urgent action with regard to some key areas of the regulatory framework[33].

The overarching objective of the Third Energy Package was to complete the internal market for electricity and gas. Within this objective the EU intended to **improve competition** in the gas sector through better regulation and unbundling aimed at removing obstacles resulting from the fact that most established national incumbent gas suppliers were vertically integrated[34] and could use the control over their networks to fend off potential new competitors.

The Third Energy Package's objectives in the area of retail markets and consumer empowerment were: (i) to enable effective consumer choice and boost competition through the availability of transparent, comparable and reliable information on prices, costs, energy consumption, fuel mix and environmental impact of gas suppliers; and (ii) to

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31 See also: Impact Assessment for the Third Package (SEC(2007) 1179/2) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52007SC1179

32 See in this context also the numerous antitrust investigations of the Commission between 2006 and 2009, identifying systematic problems of network foreclosure and ineffective unbundling rules see e.g. Case COMP/39.402 — RWE https://ec.europa.eu/commission/presscorner/detail/en/MEMO_07_186 or Case COMP/ 39.315 ENI https://ec.europa.eu/commission/presscorner/detail/en/MEMO_09_120 https://ec.europa.eu/commission/presscorner/detail/en/MEMO_09_120

33 COM(2006) 841, Communication from the Commission, Prospects for the internal gas and electricity market.

34 In a vertically integrated company multiple steps in the typical distribution process are consolidated. In other words, a vertically integrated company performs tasks of a producer, distributor and retailer.

enable/incentivize energy savings through sufficiently frequent feedback to consumers about (the cost of) their energy consumption. In order to guarantee consumer choice, the Third Package provides that all customers shall be free to buy electricity/natural gas from the supplier of their choice as from 1 July 2007[35].

At the same time, the Third Energy Package sought to ensure protection of vulnerable consumers. This objective was put in place to facilitate the decision by Member States to proceed with electricity and gas market liberalisation, as it was recognised by the legislators that actions to protect vulnerable consumers were needed in the context of liberalising the European energy market.

In a broader context, the Third Energy Package also served the overall goals as formulated in the EU's 2020 Strategy (or so-called 'Lisbon strategy') for **smart**, **sustainable** and **inclusive growth**[36].

1.4. Description of the Third Gas Package

The Third Gas Package followed up on the liberalisation steps in the two 'packages' from 1998 and 2003. It built upon key concepts established in the previous packages (e.g. Third Party Access (TPA) to networks, unbundling, regulatory oversight, right to choose a supplier) and developed these further in order to create a regulatory framework that would allow for integrated and competitive EU gas wholesale and retail markets, to the benefit of consumers.

The legislation of the Third Gas Package covers five main areas:

1. unbundling energy suppliers from network operators;
2. strengthening the independence of regulators;
3. establishment of the Agency for the Cooperation of Energy Regulators (ACER);
4. cross-border cooperation between transmission system operators and the creation of European Networks for Transmission System Operators;
5. open and fair retail markets and consumer protection.

(1) **Unbundling** is the separation of energy supply and generation from the operation of transmission or distribution networks. It is based on the observation that if a single company operates a transmission or distribution network and generates or sells energy at the same time, it will have an incentive to obstruct competitors' access to infrastructure or the market. This prevents fair competition in the market and can lead to higher prices for consumers. Under the Third Package, unbundling for Transmission System Operators must take place in one of three ways, depending on the preferences of individual EU countries:

– Ownership unbundling where integrated energy companies sell off their gas and electricity networks. In this case, no supply or production company is allowed to hold a majority share or interfere in the work of a transmission system operator;

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35 Article 37 of the Gas Directive.

36 COM(2010) 2020, Communication from the Commission, Europe 2020, A strategy for smart, sustainable and inclusive growth.

- Independent System Operator (ISO) where energy supply companies may still formally own gas or electricity transmission networks but must leave the entire operation, maintenance, and investment in the grid to an independent company;
- Independent Transmission System Operator (ITO) where energy supply companies may still own and operate gas or electricity networks but must do so through a subsidiary. All important decisions must be taken independent of the parent company.

The relevant provisions concerning Distribution System Operators require legal unbundling of those operators that serve more than 100 000 customers. Member States may decide not to apply unbundling rules to DSOs serving less than 100 000 customers, in which cases only accounting unbundling applies. It is at the discretion of Member States whether or not to apply this threshold or to set a lower threshold.

(2) A competitive internal energy market cannot exist without **independent regulators** who ensure the application of the rules. The Commission's assessment of the role of regulators in 2007 showed a number of deficiencies: The effectiveness of regulators was frequently constrained by a lack of independence from government and insufficient powers. Consequently, under the Third Package, the requirements for national regulators have undergone a number of changes. Specifically:

- Regulators must be independent from both industry interests and government. They must be their own legal entity and have authority over their own budget. National governments must also supply them with sufficient resources to carry out their operations;
- Regulators can issue binding decisions to companies and impose penalties on those that do not comply with their legal obligations;
- Gas network operators and suppliers are required to provide accurate data to regulators;
- Regulators from different EU countries must cooperate with each other to promote competition, the opening-up of the market, and an efficient and secure energy network system. In order to support the implementation of the Directive, the Commission issued an interpretative note on the energy regulatory authorities[37].

(3) In order to help the different national regulators cooperate and ensure the smooth functioning of the internal energy market, the EU established the **Agency for the Cooperation of Energy Regulators (ACER)**. ACER is independent from the Commission, national governments, and energy companies. Its work involves:

- drafting guidelines for the operation of cross-border gas pipelines and electricity networks;
- reviewing the implementation of EU-wide network development plans;
- deciding on cross-border issues if national regulators cannot agree or if they ask it to intervene;

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[37] Interpretative note on Directive 2009/72/EC concerning common rules for the internal market in Electricity and Directive 2009/73/EC concerning common rules for the internal market in natural gas, available at: https://ec.europa.eu/energy/sites/ener/files/documents/2010_01_21_the_regulatory_authorities.pdf

– monitoring the functioning of the internal market including retail prices, network access, and consumer rights.

The functioning, role, and structure of ACER was most recently addressed in the recast of the ACER Regulation, and will not be part of this report except where specifically relevant to the evaluation of other areas.

(4) The Third Gas Package also created a framework for the co-operation of TSOs by creating the **European Network for Transmission System Operators for Gas (ENTSOG)**. Before the reform, national transmission system operators were responsible for ensuring that natural gas is effectively transported through pipelines in a secure manner, without any legal framework for the coordination of their activities on European level. Due to the cross-border nature of Europe's energy market, they must work together to ensure the optimal management of EU networks. ENTSOG supports the development of network codes to harmonise the flow of gas and enable efficient cross-border trade across different transmission systems. It also coordinates the planning of new network investments and monitors the development of new transmission capacities. This includes publishing every two years a European-wide ten-year network development plan (TYNDP) to help identify infrastructure gaps. These plans provide the basis for identifying the projects of common interest (PCIs) for enhancing cross-border network development under the framework of the Trans-European Network for Energy (TEN-E) Regulation[38].

The TEN-E Regulation also mandates both ENTSOG and ENTSO-E to jointly develop energy-system wide scenarios to be used in their respective TYNDPs. For this purpose, the two organisations are requested to submit consistent and interlinked market and network models for both electricity and gas transmission infrastructure as of the end of 2016. However, ACER notes in its opinion on the ENTSOG TYNDP 2020 'that the implementation of the interlinked model is mostly limited to a joint ENTSO-E and ENTSOG TYNDP scenario development'[39].

(5) In order to pursue the objective of consumer empowerment, the Third Gas Package contains provisions on a number of aspects related to gas supplies, such as **switching and contract termination fees, billing** of electricity and gas consumption, the **right to receive information on energy consumption**, and to **quickly and cheaply resolve disputes**.

With regard to consumer protection, the Third Gas Package prescribes the Member States to define the concept of vulnerable consumers at national level, adopt the measures to protect such consumers and to address energy poverty.

An important tool to enable competition and consumers' choice in the retail sector is the default prohibition of applying regulated prices[40]. Regulated prices are unlawful under the

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38 Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009.

39 ACER Opinion No. 02/2021.

40 A regulated supply price is considered as a price subject to regulation or control by public authorities (e.g. governments, NRAs), as opposed to being determined exclusively by supply and demand. This definition includes

current Gas Directive as interpreted by the Court of Justice[41], unless they form part of a public service obligation (PSO) imposed on undertakings in the gas sector and fulfil specific conditions prescribed by the Third Package.

Smart metering is an important measure to allow taking informed decisions by consumers. In recognition hereof, provisions were included in the Gas Directive 2009/73/EC and in the Electricity Directive 2009/72/EC, as well as the Energy Efficiency Directive 2012/27/EU[42], fostering the smart metering roll-out and **targeting the active participation of consumers in the energy supply market,** through:

- transparency provided by the meter (timely and accurate information on consumption: predictability of costs, awareness);
- third party access to data and interoperability (facilitate competitive offers at the customer end, lower cost); and,
- due regard to best practises (for instance installation of in-home displays, connection to home automation)[43].

The intervention logic table from the Impact Assessment for the Third Package[44] illustrates the relationship between the measures and the structural problems addressed by the respective measures.

Table 1: Intervention logic table

Problems **Measures**	**Market concentration**	**Vertical foreclosure**	**Lack of market integration and cooperation** (cross-border and national)	**Lack of trans-parency** (insufficient info e.g. on generation & capacities)	**Distorted price formation** (e.g. regulated prices, cross-subsidies)	**Downstream market foreclosure** (access to customers)	**Secure grid investments & cross-border connections**

many different forms of price regulation, such as setting or approving prices, standardisation of prices or combinations thereof.

41 The Court of Justice has ruled that supply prices must be determined solely by supply and demand as opposed to State intervention as from 1 July 2007 (Case C-265/08 *Federutility and Others* v *Autorità per l'energia elettrica e il gas* EU:C:2009:640; the continuing applicability of this approach to the Third Energy Package is confirmed in C-121/15 *ANODE* v *Premier Ministre*, para. 35). The Court based its interpretation on the provision stating that Member States must ensure that all customers are free to buy electricity/natural gas from the supplier of their choice as from 1 July 2007 (Article 33 of the Electricity Directive 2009/72/EC and Article 37 of the Gas Directive) interpreted in light of the very purpose and the general scheme of the directive, which is designed progressively to achieve a total liberalisation of the market in the context of which, in particular, all suppliers may freely deliver their products to all consumers.

42 Articles 9(2), 12(2b) of the Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, EUOJ L315, 14.11.2012, pp. 1-56.

43 These provisions were then complemented with provisions under the Energy Performance in Buildings Directive 2010/31/EU, and the Energy Efficiency Directive 2012/27/EU which amongst others added demand response as a specific means for energy efficiency benefits via novel energy services based on smart metering data, and of particular relevance to the electricity sector.

44 SEC(2007) 1179/2 Commission Staff Working Document, Accompanying the legislative package on the internal market for electricity and gas COM(2007) 528 final, COM(2007) 529 final, COM(2007) 530 final, COM(2007) 531 final, COM(2007) 532 final, SEC(2007) 1180, Impact Assessment, page 91-92.

TSO unbundling	improves TPA and thus market entry	tackles problem at the root	facilitates TSO cooperation and mergers	eliminates preferential information flows	eliminates cross subsidies	N/A	promotes e.g. inter-connection investment
Strengthen NRA	to ensure level playing field;	to better monitor unbundling obligations	to monitor management of inter-connection capacity	to monitor transparency obligations	to monitor cross-subsidies and determine tariffs	to monitor access to customer data	to monitor investment in grid & generation
ACER	indirect effect	indirect effect	closes regulatory cross-border gap, oversees ETSO+/GTE+	oversees ETSO+/GTE+	indirect effect	indirect effect	to assess cross-border Art. 22 requests
ENTSOG	to improve interconnection and create larger markets	to develop common rules on TPA and grid connection	to develop market and technical codes, coordinate grid operation	to develop market and technical codes, rules on trading & transparency	to improve interconnection and thus liquidity	N/A	10-year investment plan, security and reliability rules
Transparency obligations	to facilitate market entry	to overcome information advantage of integrated groups	to facilitate market entry	tackles problem at the root	to reveal cause of price deformation	to overcome information advantage of integrated groups	to increase network security & reliability
DSO unbundling	to improve market entry	strengthen resources of DSOs		NRA to monitor transparency obligations	to strengthen compliance officers, NRA to monitor cross-subsidies	to eliminate brand confusion; NRA to monitor access to customer data	N/A

N/A meant that a certain measure was not deemed not to have a direct effect on respective fundamental problem
Shaded fields indicated that more detailed measures were envisaged to tackle the respective problem

3. Evaluation logic

The evaluation logic is framed under five different evaluation categories: Effectiveness, Efficiency, Relevance, Coherence and EU added Value (Figure 1). **Effectiveness** considers how successful the initiatives have been in achieving or progressing towards their objectives. This will be done by comparing the objectives with the actual effects generated by the initiatives (outputs, results, and impacts). **Efficiency** considers the relationship between the resources used (inputs) and the effects generated by the Directives (outputs, results, and impacts). **Relevance** looks at the relationship between the needs and problems of the gas sector and the objectives of the current legislation. **Coherence** looks for evidence of synergies or inconsistencies between the Directives and other EU policies that are expected to work together. **EU added value** assesses whether action continues to be justified at the EU level and looks for changes, which it can reasonably be argued, are due to EU intervention, rather than any other factors. For each of these categories a series of questions guide the evaluation. These questions are presented under Section 6 for each category.

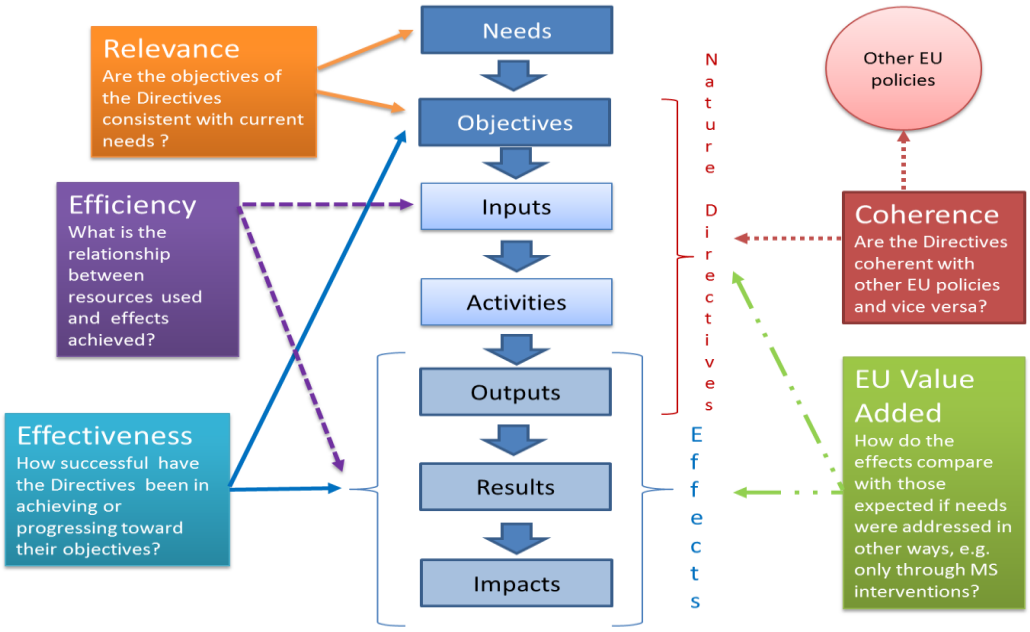

Figure 1: Fitness Check evaluation logic

4. Evaluation method

Detailed evaluations of the functioning of the Internal Gas Market were carried out over the last years, such as the Commission study 'Potentials of sector coupling for decarbonisation: Assessing regulatory barriers in linking the gas and electricity sectors in the EU' in which the Commission identified a number of market failures that a future reform may need to address[45]. The Commission analysed as well the regulatory framework for Liquified Natural Gas (LNG) terminals in the EU in which a number of market failures and barriers have been identified that might be addressed to improve the LNG regulatory framework in the EU. In 2020, a comprehensive regulatory study has been conducted to identify and assess options for a potential EU regulatory framework for dedicated hydrogen networks and markets[46]. Other EU institutions, notably ACER, are also regularly reviewing the functioning of the EU's gas markets and, in its 'Bridge beyond 2025', carried out an assessment of shortcomings of the current gas market design[47].

Since 2001, the European Commission has reported on the progress and implementation of the internal gas market. Indeed, since the adoption of the Gas Directive, Article 52 legally obliges the Commission to monitor the application of the Directive and to submit an overall progress report to the European Parliament and the Council. Such monitoring and reporting has been

45 https://ec.europa.eu/energy/studies/potentials-sector-coupling-decarbonisation-assessing-regulatory-barriers_en

46 Sector integration – Regulatory framework for hydrogen, final Report.

47 https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/SD_The%20Bridge%20beyond%202025/The%20Bridge%20Beyond%202025_Conclusion%20Paper.pdf

conducted yearly[48]. The findings and conclusions of these reports have fed into the present Evaluation. Moreover, several studies have been conducted by external experts on behalf of the European Commission to assess in detail different aspects of the implications of the Third Energy Package on the gas market[49].

The Governance Regulation (EU) 2018/1999[50] helps the EU meet its climate and energy policy goals until 2030 and beyond. An important tool are the integrated National energy and climate plans (NECPs) prepared by Member States. The plans cover the five dimensions[51] of the Energy Union, based on a common template, including market integration. Member States report on the current situation of their energy markets, relevant objectives and targets in the context of reaching the decarbonisation objective, as well as appropriate policies and measures. The provided information supports the Evaluation of the effectiveness of the Third Gas Package and the identification of issues for which the current rules are no longer sufficiently relevant. In line with the Regulation, Member States are also obliged to report biannually to the Commission on the status of implementation of their NECP by means of an integrated progress report covering all five dimension of the Energy Union including market integration.

Key data (such as raw market data) are based on data provided by ACER, which acts as primary collector of market data from EU Member States and carries a responsibility to make the data comparable across time and geographies. ACER publishes annually a report on the results of the monitoring on the electricity and natural gas markets where it identifies any barriers to the completion of the internal markets for electricity and natural gas[52]. The provided information supports the Evaluation of the effectiveness of the Third Gas Package.

The Commission ran multiple consultations to inform the EU Communications on Energy System Integration and the Hydrogen Strategy, respectively. The consultation responses covered aspects relevant for the revision of the gas market regulatory framework and for the integration of the gas sector into an integrated energy system[53]. The consultation in May and

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48 Until 2014, the European Commission published an annual progress report on the internal energy market for electricity and gas, and the implementation of EU law, which can be found at: https://ec.europa.eu/energy/en/topics/markets-and-consumers/single-market-progress-report. From 2015, it was superseded by reports on the Energy Union, which can be found at: https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en?redir=1 https://ec.europa.eu/energy/en/topics/markets-and-consumers/single-market-progress-report. From 2015, it was superseded by reports on the Energy Union, which can be found at: https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en?redir=1

49 See a full list of the studies with published reports carried out for the European Commission in the field of energy, including markets, at: https://ec.europa.eu/energy/studies_main/final_studies_en https://ec.europa.eu/energy/studies_main/final_studies_en

50 https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ:L:2018:328:TOC&uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG

51 https://ec.europa.eu/info/strategy/priorities-2019-2024_en

52 ACER Market Monitoring webpage: https://www.acer.europa.eu/en/Gas/Pages/Market-Monitoring.aspx

53 The Commission consulted on specific questions via a dedicated website with a functional mailbox between 14 April and 8 June 2020 (https://ec.europa.eu/info/news/preparing-future-eu-strategy-energy-sector-integration-2020-apr-14_en) and on the roadmap of the strategy via the have-your-say website from 11 May to 8 June 2020. These consultations were open to the public. Additionally, the Commission organised five targeted workshops in March and April 2020 to gather experts' input on different elements of the strategy and discussed the topic in a dedicated

June 2020 on 'An EU Smart Sector Integration Strategy'[54], based on a roadmap, received 156 responses.

The Commission also organised a stakeholder consultation[55] on the review of the Renewable Energy Directive (Directive 2018/2001/EU) between 17 November 2020 and 09 February 2021.

The Commission's public consultation on the Inception Impact Assessment[56] for the 'Revision of EU rules on Hydrogen and Gas Market Decarbonisation Package'[57] was open between 10 February and 10 March 2021 and received altogether 128 replies on the 'Have your say' platform of the European Commission. These were divided between 113 business/industry representatives (companies and associations), five NGOs, two think-thanks, two NRA representatives (one national regulatory authority and the European association of NRAs), one European consumer association (BEUC), one national authority (non-EU Member State)[58], one research entity, one national trade union and the Energy Community Secretariat and one EU citizen. Within the industry group, we received responses from 30 national industry and business associations and 26 European industry and business associations (representing gas infrastructure operators, energy companies, industrial gas end-users, gas end-use appliance manufacturers, hydrogen industry and traders). Gas infrastructure operators were the group strongest represented (15 gas TSOs and their associations, five gas DSOs and their associations and one gas storage system operator).

Stakeholders expressed general agreement with the Commission's plan to revise the gas legislation (Gas Directive and Gas Regulation) and consider legislative proposals for the regulation of hydrogen infrastructure as a key element for achieving the increased greenhouse gas emissions reduction targets and to implement the European Green Deal.

In addition, a specific stakeholder consultation[59] was open between 26 March and 18 June 2021 in the form of a questionnaire on the future initiative on gas market design. This wide public consultation gathered the views of EU and Member States' authorities, energy market participants and their associations, SMEs, energy consumers, NGOs, academia, international organisations, representatives of civil societies and citizens. The public consultation on the revision of the gas market regulatory framework aimed at obtaining stakeholder's views on how fit the current regulatory framework is to meet the energy transition challenges that the

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session during the European Sustainable Energy Week. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12383-Strategy-for-smart-sector-integration

54 https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12383-Strategy-for-smart-sector-integration

55 Consultation on the Review of Directive 2018/2001/EU on the promotion of the use of energy from renewable sources, available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review/public-consultation_en

56 Available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12911-Gas-networks-revision-of-EU-rules-on-market-access_en

57 Proposal for a Gas Directive (PLAN/2020/8564) and for a Gas Regulation (PLAN/2020/8563).

58 Norway, Ministry of Petroleum and Energy.

59 Open Public Consultation on the Hydrogen and Gas Market Decarbonisation Package, available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12911-Revision-of-EU-rules-on-Gas/public-consultation_en

market faces and on how the issues may need to be addressed in a revision of the European gas market regulation.

5. Implementation of the initiatives and state of play

Given the complex nature of the Third Energy Package, the Commission has assisted Member States in the process of the implementation of the new rules, e.g. by discussing draft legislative measures and implementation solutions with the national governments and regulators (as well as with ACER, ENTSOG and other stakeholders) on an on-going basis since its adoption. This intensive implementation cooperation has proven efficient to prevent deficiencies at national level at an early stage as well as to resolve existing incompatibilities between national and EU legislation. In order to facilitate the implementation of the Third Energy Package, the Commission has also issued a number of interpretative notes, providing guidance to national authorities and stakeholders concerned[60].

In a first step ('**transposition checks'**), the Commission opened 19 infringement proceedings against 19 Member States to ensure full transposition of the Gas Directive between September and November 2011. Non-resolved cases were followed up in 2012-2013 by sending reasoned opinions and referrals to Court. At present, all of the infringement proceedings for partial transposition of the Gas Directive have been closed as the Member States achieved full transposition in the course of the proceedings.

In a second step ('**non-conformity checks'**), focus has been put on possible incorrect transpositions or EU law incompatible application of the Third Gas Package. Priority was given to violations having the highest impact on the functioning of the internal market, e.g. incomplete unbundling of transmission activities from production or supply, violations of the principle of independence of national regulators, or disregard of consumer protection rules. On this basis, the Commission opened so-called 'EU-Pilot' cases against a number of Member States[61]. In parallel, it carried out a structured dialogue with the Member States so as to resolve the identified implementation problems. In many cases, such dialogue with national governments has brought satisfactory solutions and the 'EU-Pilot' cases could be closed. However, as of 9 November 2020, seven of these EU Pilot cases have resulted in infringement procedures where, *inter alia*, violation of EU gas market rules is at stake.

In parallel to these systematic non-conformity procedures, the Commission has also acted on an *ad hoc* basis, following up on specific non-conformity problems of which the Commission became aware through complaints from individuals or undertakings, or emanating from contacts with National Regulators or based on the Commission's own assessment. Here again, the Commission first opened EU-Pilot cases against the respective Member States. If the issue raised was not resolved at the EU-pilot phase, the Commission opened an infringement procedure. As of 9 November 2020, four of such infringement procedures are still pending.

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60 Interpretative notes are available at http://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation.

61 EU Pilot is a scheme designed to resolve compliance problems without having to resort to infringement proceedings. It is based on a website that the Commission and national governments use to share information on the detail of particular cases, and give governments a chance to remedy any breaches through voluntary compliance.

At the time of writing, some type of price intervention for household consumers exists in 15 Member States[62]. A regulated end-user price is considered as a price subject to regulation or control by public authorities (e.g. governments, NRAs), as opposed to being determined exclusively by supply and demand. This definition includes many different forms of price regulation, such as setting or approving prices, standardisation of prices or combinations thereof.

Price regulation for *non-households* has been challenged via infringements while price regulation for *households*[63] has not been yet subject to infringement procedures. Price regulation for non-households has been challenged by the Commission as a priority due to the more important market distortion that the regulation of prices for large and potentially most active consumers represents – after all these consumers cover an important amount of energy sold on the market.

Regulation in Member States is often justified by social policy objectives and/or lack of conditions for fair competition. Deregulating household prices may be politically unpopular as refocussing the support only to those in need (such as energy poor) would reduce the access of middle and high income groups to the discounted prices. Therefore, an informal approach via bilateral consultations with Member States was initially preferred to discuss reasonable and sustainable alternatives to price regulation and accompanying measures. However, in the follow-up to informal consultations, the Commission will assess if the conditions for opening infringement actions against price regulation for households are present.

The Commission published a detailed report on its enforcement activities in relation to the Third Energy Package (see the document 'Enforcement of the Third Internal Energy Market Package (SWD(2014) 315 final'[64]).

The regulatory framework of the Third Package has also created new Commission competences to verify the implementation of EU market rules. It created a competence for the Commission to provide an opinion on draft decisions of national regulators who have to decide whether national TSOs can be considered as compliant with unbundling rules (so-called 'certification' of TSOs, Articles 10 and 11 of the Gas Directive and Article 3 of the Gas Regulation). The Commission has provided opinions on more than 60 preliminary certifications of TSOs for gas since 2012. The Third Package gave the Commission also the competence to decide on the compatibility of national exemptions from EU rules in case of investments into major new infrastructure (see Article 36 Gas Regulation). To the extent pertinent, the experience gained from these ex-ante approval procedures will be fed into the Evaluation (see 'Effectiveness' Section).

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62 Hungary, Romania, Croatia, Bulgaria, Slovakia, Poland, France, Italy, Spain, Portugal, Belgium, Luxembourg, Lithuania, Latvia, Estonia. See in this regard, retail market barrier study juncto https://extranet.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Current-edition.aspx

63 And other comparable customers such as SMEs, schools, hospitals etc.

64 https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex6_0.pdf. Figures presented here are updated, to the extent necessary.

The transposition deadline of Directive 2019/692 of 17 April 2019, that amended Directive 2009/73/EC to clarify its applicability to gas interconnector pipelines between Member States and third countries, expired on 24 February 2020. In the first step ('transposition check'), the Commission opened 13 infringement proceedings against 13 Member States to ensure full transposition.

6. Answers to the Evaluation questions

This section summarises the main findings in relation to the analysis of each of the key areas of the Evaluation. Guiding questions indicate the focus of the Evaluation at the beginning of each section.

1.5. Effectiveness

The effectiveness evaluation aims at verifying whether the Third Gas Package has been achieving its objectives. This is being done by comparing the intended objectives with the actual effects generated in the various areas under consideration.

Two aspects were analysed in particular, namely to what extent the new legislation removed competition problems, contributed to increased market integration, better coordination and stimulated grid investments (6.1.1.) and to what extent the new provisions improved the situation for consumers in terms of consumer protection (6.1.2.).

1.5.1. *Market integration, competition and investments*

- To what extent have **wholesale markets** become more competitive?
- To what extent has **market integration** already been achieved? To what extent has **cooperation** between TSOs and regulators evolved?
- What **factors** contributed hereto in particular or prevented this?

Reduced competition and foreclosure problems through strengthened unbundling

In order to further promote competition on the energy gas markets, the Third Energy Package strengthened the unbundling rules to completely remove any conflict of interest between producers and suppliers on the one hand and transmission system operators on the other hand. With the aim of ensuring structural independence of network operation, the Directive foresees three unbundling models: ownership unbundling, the independent system operator (ISO) and the independent transmission operator (ITO).

Following the expiry of the transposition deadline on 3 March 2011, the Commission has systematically assessed all national transposition measures. As of 1 January 2020, regarding gas, 25 Member States had implemented the mandatory ownership unbundling. In addition, ten Member States had implemented also the ITO framework, and two Member States the ISO framework.

Compliance with unbundling requirements is monitored at national level by the NRAs, under a procedure set out in Articles 10 and 11 of the Gas Directive and Article 3 of the Gas Regulation. Under this procedure, NRAs are required to submit their draft decisions on the certification of transmission system operators to the Commission. The Commission then adopts an Opinion on the draft decision within a period of two months. NRAs are obliged to take utmost account of the Commission's Opinion when adopting the final certification decision. This notification procedure ensures a high degree of consistency in the interpretation

of the rules on unbundling for transmission system operators, and thereby increases legal certainty for Member States, transmission system operators and other stakeholders. The certification procedure pursuant to Article 10 of the Gas Directive has been successfully implemented in practice. In the period of 3 March 2012[65] until March 2021, the Commission has issued 145 Opinions on draft certifications of NRAs from 25 Member States[66]. Of these, 65 Opinions concerned transmission system operators for gas, and 80 concerned transmission system operators for electricity[67].

The positive impact of the reinforced unbundling rules was confirmed by a specific evaluation, as required by Article 52(3) of the Gas Directive. In its report on the ITO model from October 2014[68], the Commission analysed in detail to what extent the new rules were capable of sufficiently and adequately ensuring the effective separation of transmission networks from generation and supply interests. According to the Commission's initial assessment, most requirements related to the ITO model seem to work in practice and can be (but are not always), sufficient and adequate to ensure effective separation of the transmission business from production and supply activities in the day-to-day business. This assessment was notably based on the view of national regulators, the network users and compliance officers within the ITOs. The report confirmed that problems of network foreclosure, which had been an ongoing concern prior to the adoption of the Third Package[69], had become less frequent after the introduction of the reinforced unbundling rules. However, both the ITO and (to lesser extent) the ISO models depend on behavioural safeguards which create additional regulatory costs for operators and NRAs. Moreover, such behavioural safeguards are more reliant on the monitoring by national authorities than structural separation (as in the ownership unbundling model), which eliminates incentives for anti-competitive behaviour altogether.

With regard to DSO unbundling, the intervention mainly aimed at the unbundling of vertical integrated distribution companies with the objective to ensure non-discriminatory and

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65 The application date for the unbundling requirements, as set out in Article 9 of the Gas Directive.

66 This includes draft certifications by which a transmission system operator previously certified under the ITO or ISO model was re-certified under the ownership unbundling model.

67 The Commission Opinions are available on the website of DG Energy under the following link: https://ec.europa.eu/energy/sites/default/files/documents/certifications_decisions_0.pdf

68 Report on the ITO Model SWD(2014) 312 final: https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf

69 See e.g. Communication from the Commission, Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (final report), COM(2006) 851 final, 10.1.2007 http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52006DC0851
and DG Competition report on energy sector inquiry (SEC (2006)1724, 10.1.2007 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52006SC1724
Cases COMP/39.388 – German Electricity Wholesale Market and COMP/39.389 – German Electricity Balancing market). http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52009XC0213(02)
Case COMP/B-1/39.402 – RWE Gas Foreclosure http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2009.133.01.0010.01.ENG&toc=OJ:C:2009:133:TOC
Case COMP/39.315 – ENI http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2010.352.01.0008.01.ENG&toc=OJ:C:2010:352:TOC
Case COMP/39.386 – Long Term Electricity Contracts France http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1439992538223&uri=CELEX:52010XC0522(01)

transparent third party access in distribution networks, in order to promote competition in the energy market. There is no evidence that the intervention within the boundaries of the unbundling requirements, did not achieve the objective of promoting competition in the market.

According to CEER[70] the number of DSOs varies from one or two in some Member States to several hundred in other countries. In 2019 there were 1 317 gas DSOs in the EU (data for 27 Member States). From these 1 200 fall under the 100 000 rule and according to Article 26(4) for these DSOs Member States are not obliged to implement unbundling provisions under Article 26 of the Gas Directive. That means that only 117 DSOs across EU have the obligation to be unbundled according to the rules included in the Gas Directive.

Increased liquidity and competition leading to fairer prices on wholesale markets

The Commission's[71] and ACER's[72] analyses of the development of the gas market showed that the set of the different measures of the Third Gas Package had a positive effect on liquidity and competition in the wholesale market.

The number of active suppliers and traded volumes increased, while market concentration and price spreads between markets decreased. Developments on wholesale markets also benefitted European consumers. ACER estimates that since 2013, benefits for European consumers stemming from positive wholesale market developments are in the range of several billions per year[73]. The main share of these gains are caused by a move away from oil-price indexation to gas-to-gas competition. While the Third Gas Package and subsequent network codes proofed to be efficient and effective in delivering on identified issues such as lack of market integration, high market concentration and market power, its relevance for the efforts to implement the European Green Deal are not focusing on how to extend the benefits of liquidity and competition to a decarbonised gas system.

Cooperation between TSOs increased…

The creation of ENTSO-E and ENTSOG has intensified the cooperation between EU TSOs across Europe and within regions. The European Network for Transmission System Operators (ENTSOs) have notably worked intensively on developing draft text proposals for so-called 'network codes', i.e. implementing legislation for more coordinated network operation and trading rules. Based on the ENTSOs work and other stakeholders' input, the Commission was in a position to adopt a large number of implementing Regulations under comitology rules since 2009[74]. ENTSOG has also delivered the required input for a more coordinated infrastructure planning[75]. According to the results of the Commission's stakeholder

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70 CEER 2019.

71 https://ec.europa.eu/energy/data-analysis/market-analysis_en

72 https://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Current-edition.aspx

73 https://www.acer.europa.eu/en/Electricity/Market%20monitoring/Documents/MMR2018presentation19nov2019.pdf

74 The network codes which have been adopted or on in preparation can be found at: https://ec.europa.eu/energy/topics/markets-and-consumers/wholesale-energy-market/gas-network-codes_en

75 Joint Scenario Report develop by ENTSOG and ENTSO-E: https://2020.entsos-tyndp-scenarios.eu/

consultations on the ENTSO's work on network codes (see the Consultation on the establishment of the annual priority lists for the development of network codes and guidelines[76]) and the ENTSOs role in general, stakeholders consider the creation of the ENTSOs as a step into the right direction for more TSO cooperation. Also recent reports from ACER[77] confirm that both ENTSOs have achieved a good level of performance since their establishment by the Third Package. Implementing legislation adopted under the new Third Package provisions on 'network codes' have further strengthened cooperation between TSOs. These network codes oblige TSOs to find common solutions for problems that require action of several neighbouring TSOs (e.g. allocation of bundled capacity, scheduling and coordination of maintenance).

Consumer gas prices vary significantly for non-market related reasons, and have risen steadily for households

With regards to retail markets, gas prices still vary significantly from Member State to Member State for nonmarket reasons, and prices have risen steadily for households since 2009[78] (Figure 2), primarily as a result of a significant increases in non-contestable charges in recent years (network charges, taxes and levies), but also a more recent increase of the energy component[79]. The taxes and levies component has been the most significant driver of retail price developments over the last decade[80]. The next section analyses in greater detail which specific policies and fiscal instruments were driving this increase.

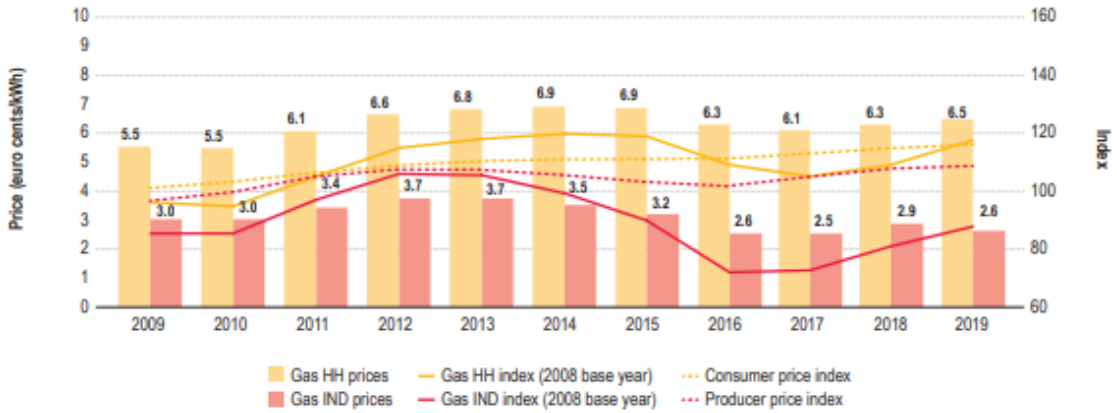

Figure 2: Average household gas price increase

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76 Priority list for the development of gas network codes and guidelines for 2021, available at: https://ec.europa.eu/energy/consultations/priority-list-development-gas-network-codes-and-guidelines-2021_en

77 The above mentioned ACER Report 'Energy Regulation: A Bridge to 2025 Conclusions Paper', 19 September 2014 and 'The Bridge beyond 2025 Conclusions Paper', 19 November 2019. See also recent annual activity reports of ACER: http://www.acer.europa.eu/official_documents/publications/pages/publication.aspx

78 2020 Energy Prices and Costs Report SWD, p. 66.

79 Ibid., p. 66.

80 Ibid., p. 66.

The first observation on **gas consumer prices is that these vary significantly between different Member States**. Household gas prices in 2019 remained lowest in Romania (3.4 euro cents/kWh post-tax), and highest in Sweden (11.8 euro cents/kWh), where considerably higher taxes and charges are levied. A wide range of factors contribute to this, including the sources and kinds of energy consumed, the level of regulatory intervention in price setting, differing levels of competition and the different taxes and levies applied[81].

The second observation is that **industrial consumers pay, in general, two to three times less for their gas than household consumers do**[82]. This is due to a number of factors, including industry's greater ability to benefit from scale economies (higher levels of consumption), the fact that industry is less burdened by non-contestable charges, and the fact that industry may benefit from better market information and bargaining power vis-à-vis suppliers than household consumers.

The third pertinent observation, illustrated in the figures below (Figure 3), is that **gas prices for household consumers rose steadily between 2010 and 2019**. Post-tax prices for gas supplied to households increased on average by 2.1%[83]. An analysis of the price components reveals the main drivers of rising household prices in the period 2010-2019. Data show that household gas prices were greatly influenced by non-contestable charges (i.e. taxation and network charges) in most Member States during this period (Figure 3).

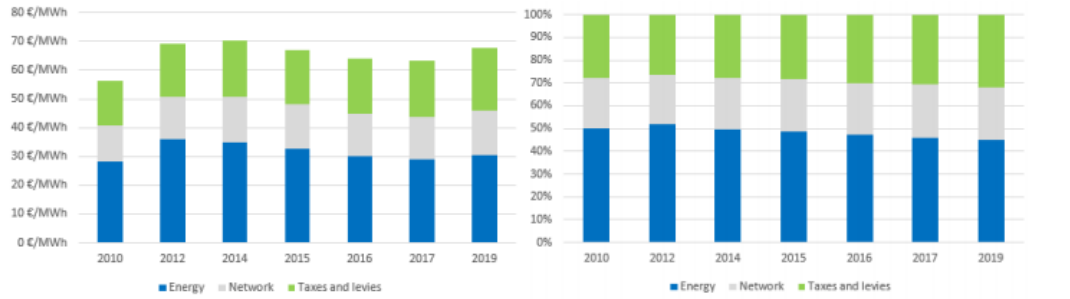

Figure 3: Composition of the EU household gas price (DC)

81 2019 ACER Market Monitoring Report – Energy Retail and Consumer Protection Volume, pp. 20-23.
82 2020 Energy Prices and Costs Report SWD, p. 66.
83 Ibid., p. 28.

The composition of gas prices changed from 2010 until 2019. The energy component increased at an annual rate of 0.8% and reached 30 EUR/MWh in 2019, whilst the network charges and taxes increased annually for household gas consumers by 2.6% and 3.6%, respectively[84]. In 2019, these non-contestable charges make up, on average, 55% of the total household gas bill. Taxes and levies remain as such the most important cause of differences in retail prices across Member States due to the varied nature of Member States' policies and fiscal instruments affecting the taxation of gas consumption[85].

Retail gas markets for households remain concentrated in most Member States

Overall, the average market share of the three largest supplier seems to show a downward trend. However, performances by the Member States are rather differentiated[86].

Member States like Germany, Italy, Czech Republic and Romania have a high number of suppliers with a market share below 1% on the gas market. For some Member States such as Germany and Italy, this implies the numerous presence of local or regional suppliers. However, for countries such as Czech Republic and Romania, such a logic does not hold, as all of the suppliers are active nationwide.

The cumulative market shares of the three largest gas suppliers for households is more than 70% in the majority of countries, including those with a large number of nationwide suppliers[87]. As a result, the retail household market for small competitors is above 30% in only five out of 25 countries in gas, while the rest of the market is held by three dominant suppliers. CR3[88] values above 70% and low numbers of main suppliers are indicative of possible competition problems.

As regards the general trend, data suggests that there has been little change in these CR3 values since 2009, with decreases of 10% or more recorded only in the Czech Republic's and Spanish gas household markets. The comparable CR3 data for retail markets for non-households show that non-household markets are much less concentrated than household markets in many Member States.

To summarize, retail gas markets for households are highly concentrated in more than 2/3 of Member States – a situation that has remained largely unchanged for the last years. In the non-household sector, market concentration is less pronounced, although still generally high.

Whilst the variety of products is improving in some dimensions, it is lagging in others

Although low prices are the most commonly thought of way for firms to attract consumers, firms may also seek to distinguish their products by other means. Whilst challenging to quantify precisely, the data suggest that 'choice' for consumers in European capitals widened

84 2020 Energy Prices and Costs Report SWD, p. 27.
85 Ibid., pp. 28 and 66.
86 2017 CEER Retail Markets Monitoring Report, p. 15.
87 See Annex 4, Figure 1.
88 Measures the total market shares of the three largest suppliers in one market.

between 2012-2014[89] and 2018-2019[90]. The increasing diversity and variety of offers is a sign of more innovation in the sector, and helps raise consumer interest in the market.

Although fixed, mixed, variable, online and green offers are still the most available products on the European gas markets, recent data suggests a downwards trend between 2018 and 2019 in availability of these products. The type of pricing of the offer (i.e. fixed, spot-based or variable) remains one of the most visible features of energy products. Whilst there is diversity in this dimension, there is certainly scope for improvement. Fixed-price offers still account for the majority of all gas offers in Europe.

Furthermore, there are positive developments observable in terms of availability of offer type in the Member States. There were ten more types of offers available in 2019 in comparison to 2018, with social offers being increasingly available in Member States (from two to eight Member States by 2019). In addition, Member States have also reported the introduction of offers with different pricing options, monetary or additional service[91].

Many Member States still practice some form of price regulation[92]

Today, regulated offers are present in 15[93] out of 27 gas markets[94]. The regulation of gas prices limits consumer choice, restricts competition, and discourages investments. This is particularly true for markets where retail end-user prices are set below costs (i.e. without taking into consideration wholesale market prices and other supply costs). In general, EU gas markets show a higher penetration of price regulation among residual customers and low mark-ups of the regulated offer because regulated prices are more commonly set below competitive levels[95]. Data shows that the combination of the high share of the customers with regulated price and the low margin of the regulated offer may lead to market foreclosure in Latvia, Hungary, Romania, Croatia, Bulgaria, Slovakia and Poland. In five countries, price regulation leaves some space for market competition but may prevent entry by reducing the contestable part of the market[96].

Infringement procedures have been launched to address the most serious market distortions created by the regulation of prices in favour of larger and potentially most active consumers, including industry sector and commercial and public services, who use the majority of the energy sold on the European market (53% of the total gas consumption in 2017)[97]. In parallel,

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89 2014 ACER market monitoring report, annual report on the results of monitoring the internal electricity and gas markets in 2014, pp. 39-40.

90 2019 ACER Market Monitoring Report, Energy Retail and Consumer Protection Volume, p. 54.

91 2019 ACER Market Monitoring Report, Energy Retail and Consumer Protection Volume, p. 54.

92 Transmission and distribution tariffs are addressed in separate parts of this Evaluation. The analysis in this section focuses on the regulation of the energy component of retail prices and does not address network tariffs.

93 2019 ACER Market Monitoring Report, Energy Retail and Consumer Protection Volume, p. 47. An up-date on the number of Member States with regulated price may be available when the next ACER report will be published (foreseen in September 2021).

94 Annex 4, Figure 4.

95 Retail market barrier study, final report, p. 50.

96 Ibid., p. 50. See also Annex 4, Figure 5.

97 In 2019, the industry sector and commercial and public services 1 663 352.818 Gigawatt-hour out of the total 2 565 547.259 Gigawatt-hour electricity consumption (64.83%) – Eurostat data, 2019; and in 2017, the industry sector and commercial and public services 1 486 314 Gigawatt-hour out of the total 2 783 059 Gigawatt-hour of

the Commission has opted initially for an informal approach via bilateral consultations with Member States to discuss reasonable and sustainable alternatives to price regulation and accompanying support for vulnerable consumers. However, infringement actions against price regulation for households are not excluded in the follow-up to informal consultations.

Investments (pipelines)

The 2011 Impact Assessment for the TEN-E Regulation identified an investment need for gas networks in the period 2011-2020 of EUR 89 billion, with EUR 67.8 billion not yet having received a final investment decision even though the projects are very important to enhancing the security of gas supply. (Significantly) more than EUR 10 billion worth of projects were at risk. The study supporting the Impact Assessment for the revision of the TEN-E Regulation found that the total amount of funding realised for gas PCI projects summed up to EUR 1 500 million[98].

The reasons for investing into infrastructure are different and ranged from market driven investments, to security of supply required investment (e.g. to enable physical reverse flow or to reach the N-1 infrastructure standard) to investments identified in national network development plans as required for the system on the basis of gas demand and supply scenarios that were expected to materialise.

While there is little indication for underinvestment, some stakeholders rather point to an overestimation of gas demand, which led to overinvestments including a risk of future stranded assets. In any case, the rules on network investment effectively prevented underinvestment.

Investments (renewable and decarbonised gases)

Investments in biogas and biomethane

Investments in biogas production has seen a significant growth in the last 10 years in Europe, mainly driven by favourable renewable energy sources (RES) support schemes in place in several European Union Member States. The EU energy and climate policies, together with positive policy framework conditions, programmes, administrative procedures and financial support (feed-in tariffs, investment support, etc.), have generally encouraged the development of biogas markets. This have favoured in several Member States the development of biogas plants for energy production. As a matter of fact, most of the biogas in the EU is currently used as a fuel for electricity generation, in electricity only or in combined heat and power plants with the effort toward the maximum use of heat aiming to increase the income and to improve the economics of the biogas plants. A combination of factors, including the advancement of biogas upgrading technology, poor economics of electricity biogas plants and the new opportunities for the use in the transport sector, has resulted in a shift from electricity and heat production to upgrading biogas to biomethane. This has created new opportunities

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gas consumption – Eurostat data, 2017 (https://www.eea.europa.eu/data-and-maps/daviz/final-energy-consumption-of-fuel-1#tab-chart_1).

98 Ecorys et al. (2020) Support to the Evaluation of Regulation (EU)No 347/2013 on guidelines for trans-European energy infrastructure, p. 67.

and opened the competition between various biogas uses. Biomethane could be used as fuel in Natural Gas-powered Vehicles (NGVs) or injected into the natural gas grid as a substitute for natural gas to supply traditional end-users (power plants, industries and households). However, there is no harmonized EU framework enabling direct participation of biomethane production on the gas market as well as there is no obligation upon gas networks operators to connect and accept biomethane or other renewable or low-carbon gases. Therefore, in so far investments in biogas and biomethane have been driven by national policies based on renewable energy targets with no EU rules on how to enable direct renewable gases penetration of the gas market.

Conclusions

Overall, the Third Package partially fulfilled its original mission and created a stable market-based approach on which however further legislation should be built. In particular, it can be concluded that:

- The strengthening of unbundling rules has had a positive effect on competition with new players entering the market, except in some Member States where the incumbent still holds a dominant position;
- Market integration has improved; however, obstacles to further integration still exist. While tariff structures and the methodology has become more transparent, structural differences as well as tariff pancaking affects the cost for cross-border trade. Missing definitions or clear rules on the integration of DSOs has delayed and in some cases prevented access on a level playing field to the wholesale market;
- Cooperation between TSOs and between regulators has improved, but needs to evolve further;
- Retail level competition has progressed in some Member States, while it remains limited in others, mainly where price regulation is still in place with negative impact also on lower switching and consumer satisfaction. Overall, the linkage between wholesale and retail markets could be improved to enable the pass-through of the price signals to the consumers and trigger demand response;
- The largely unchanged high concentration in the more than 2/3 of Member States' retail gas markets for households over last years has resulted in the rising of gas prices for household consumers who pay on average two to three times more than industrial consumers.

1.5.2. *Consumer empowerment and protection*

- To what extent have consumers been properly empowered, including been given **effective freedom of choice** to purchase gas from their supplier of choice;
- Are consumers sufficiently **protected**, what is the level of consumer satisfaction?

This Evaluation addresses four aspects of the existing acquis that cover consumer engagement and protection: the measures for easy and timely access to the appropriate tools and information for consumers to get actively engaged in the market; the provisions to protect vulnerable and energy poor consumers; the measures on fees related to switching energy suppliers; and the measures on billing.

Consumer satisfaction and engagement in gas markets has improved in the last years

Although subjective, consumer satisfaction is a valuable indicator on the extent to which competition in the market is working for customers and whether suppliers are responding adequately to changing consumer preferences. According to the new Market Monitoring Survey (MMS)[99], in the gas services market a strong majority of EU27 consumers (82%) **trust** their providers. This is in line with the average across all surveyed markets (81%, in the electricity market trust counts 77%). This figure varies to an extent by Member State, from a high of 93% (in Greece) to a low of 70% (in Italy and Romania).

89% of EU consumers report positive experiences of making purchases in the gas market, with no notable differences between countries or sociodemographic subgroups. This percentage is below the average of other markets (92%), and above the 86% of the electricity services market. Such 89% positive opinion by consumers on their gas provider ranks this market 12th out of 22 surveyed markets for services across the EU. There seems to be thus a negative trend if compared to the MMS 2018, where it ranked 9th out of then 25 markets, though the criteria of the two surveys do not entirely coincide so any comparison is only relatively reliable.

89% of consumers say that **price** is important to them when choosing gas services. In comparison, **78% say the likely environmental impact** of services is important. (For electricity, it is 77%.)

Across all surveyed markets, 9% of EU27 consumers **have experienced a problem** (either with the product/service bought or with the retailer/provider/operator) that they felt gave cause for complaint. This percentage is of 7% for gas services. The figure is highest in Italy (14%) and Portugal (13%), and lowest in Estonia (1%). Looking at experience of problems more generally, whether or not these gave grounds for complaint, the most common is difficulties accessing support from providers (e.g. difficulties getting in contact with them), reported by 10% of consumers who have purchased gas services. This is closely followed by incorrect or unclear pricing, and inaccurate or misleading information about services both reported by 9% of consumers.

Of all those who have experienced a problem, approaching a third (31%) suffered financial detriment as a result and 80% suffered other, non-financial impacts. The non-financial impacts were most commonly a loss of time (75%) or anger/frustration (60%). Two-thirds (66%) of all those who have experienced a problem in the market have gone on to make a complaint – most commonly to the service provider (53%). Just over half (55%) of all those who have made a complaint report being satisfied with the outcome.

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99 https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy/market-monitoring_en
Starting in 2020, the new Market Monitoring Survey assesses the performance of a range of goods and service markets across the European Union, the UK, Iceland and Norway. It looks at consumers' experiences and perceptions of the markets using a small set of core indicators to allow consistent and comparable monitoring across markets, countries and survey waves, as well as additional indicators that are specific to a particular market or survey wave. The main differences from the previous Market Monitoring Survey are a more targeted selection of markets to monitor, the higher frequency of the surveys, and the increased emphasis on indicators that are market-specific.

Consumers have demonstrated an interest in **bundled products** in recent years (offers increased for gas in the 2018-2019 period). From the MMS survey, 22% of EU27 consumers have purchased gas services in combination with other, similar services (such as electricity services). This figure ranges from a high of 60% in Belgium to a low of 8% in Slovenia. 8% of EU27 consumers have bought gas services in combination with other, non-similar products or services.

Slow and uneven deployment of smart metering

The Third Energy Package promoted the rollout of smart metering for gas[100], to assist the active participation of consumers and the modernisation of the energy market. The aim of the co-legislators was not to enforce an EU-wide smart metering deployment, but to encourage it only in those situations where it is economically reasonable, cost-effective and beneficial, and therefore appropriate[101]. The related provisions instructed: (i) the deployment potentially subject to a Cost-Benefit-Analysis; but also (ii) the function of the systems to be rolled-out, namely to be interoperable, with due regard to standards and able to support the active participation of consumers in the energy market. Complementary functional requirements were also introduced in the Energy Efficiency Directive[102] for the metering systems to make a substantial contribution to energy efficiency and serve consumers' needs and their active participation. To guide Member States in their choices and assist them in meeting these obligations in the field, the Commission also tabled guidelines in non-binding Recommendations[103,104] and issued related standardisation mandates[105].

To date, the implementation of gas smart metering in the EU is progressing in a rather conservative manner, at different speeds and operational environments across the Member States that are the ones deciding whether, and under which conditions, they proceed with deployment. Member States do that usually following a Cost-Benefit-Analysis[106,107] which in many cases turns out unfavourable for a large-scale implementation given that **the business case for gas smart metering** is **more challenging** to make **than that for electricity**[108]. Accordingly, no penetration target is set in the legislation so far, nor a fixed timeline for deployment, unlike electricity[109].

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100 Articles 3(8) and Annex I.2 of the Gas Directive 2009/73/EC.

101 Recital (52) of the Gas Directive 2009/73/EC.

102 Articles 9(2), 10(2), 12(2b) of the Energy Efficiency Directive (EED) 2012/27/EU.

103 Commission Recommendation 2012/148/EU on preparations for the roll-out of smart metering systems, OJ L 73, 13.03.2012, p. 9-22.

104 Commission Recommendation 2014/724/EU on the Data Protection Impact Assessment Template for Smart Grid and Smart Metering Systems, OJ L 300, 18.10.2014, p. 63–68.

105 See standardisation mandates M/441 and M/490 to CEN-CENELEC-ETSI.

106 COM(2014) 356 and accompanying SWD(2014) 188 and SWD(2014) 189.

107 Tractebel Impact: 'Benchmarking smart metering in EU-28 report' (2019): https://ec.europa.eu/energy/studies_main/final_studies/benchmarking-smart-metering-deployment-eu-28_en.

108 The fact that gas can be held in storage while the supply and prices of gas do not vary much over short time periods, makes the expected advantages of smart metering more modest than for electricity (source: SWD(2014) 189 and EP briefing (September 2015) on smart electricity grids and meters in the EU Member States).

109 Provisions for timeline/target for smart metering rollout in the case of electricity can be found in Annex I.2 in the former Electricity Directive 2009/72/EC, and Annex II in the new Electricity Directive (EU) 2019/944.

The rollout of gas smart metering in Europe reached only a 27% penetration rate in the EU-28 by 2020[120], despite Member States' earlier announcements[119] and following the lowering of targets in a number of occasions and changes in national deployment programmes[120], In this slow-paced deployment[110], few Member States only are currently proceeding with large-scale rollouts, namely France, Italy, Luxembourg and the Netherlands[111]. Installations of gas smart meters have also started in other countries but at different speed and level of ambition, namely in Germany, Estonia, Ireland[112] and Poland. The rest of the Member States concluded for now that the costs outweigh the benefits; others intend to install gas smart metering only under certain conditions or have reached no decision yet[113].

The successful rollout is to large extent controlled by Member States that decide on the deployment conditions and the respective arrangements. This calls for setting up well in advance clear roles and responsibilities. In most cases, the DSOs are (or expected to be) the responsible party for the implementation, ownership of smart meters as well as the **data handling** when countries proceed with a rollout. These are extra responsibilities for DSOs. They should be performed in a transparent and non-discriminatory way, given the increasing importance of metering data, and with due respect to applicable rules, such as the General Data Protection Regulation[114] when data is identified as personal. This is clearly instructed in the new Electricity Directive[115]; there is nothing similar currently enforced for gas. However, the Third Energy Package entitles consumers to receive their **consumption data** from electricity and gas undertakings, and allow **access to it by a third party of their choice**, free of charge[116]. In addition, NRAs must provide an easily understandable and harmonised framework for accessing the respective data[117].

With the introduction of smart meters, this data is more granular and further enriched, enabling service providers to offer to consumers broader value propositions beyond energy supply. To do that, they need to access/exchange the data in an easy, safe and secure way. In this context, the new Electricity Directive[118] sets a comprehensive framework for data management[119] Such **clear rules for handling (smart) meter data** and data required to run certain processes, are **currently lacking in the gas provisions.**

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110 ACER Market Monitoring Report 2020 – Energy Retail and Consumer Protection Volume.

111 See Figures 35 and 36 in the Tractebel report 'Benchmarking smart metering in EU-28' (2019).

112 In Ireland, smart ready gas meters are being provided by default as part of a meter replacement programme, with smart gas meter functionality due to go live at the end of 2024 (source: 9th ACER/CEER Market Monitoring Report).

113 See Figure 28 and Table 22 (source: Tractebel report 'Benchmarking smart metering in EU-28' (2019)).

114 General Data Protection Regulation – GDPR: Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, OJ L 119 4.5.2016, p.1-78; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02016R0679-20160504

115 Article 23, and Article 34 of the Electricity Directive (EU) 2019/944.

116 Annex I.1(h) of Directive 2009/73/EC; and Annex I.1(h) of Directive 2009/72/EC (replaced the 1/1/2021 by Directive (EU) 2019/944).

117 Article 41(1)(q) of the Gas Directive 2009/73/EC.

118 Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, OJ L158, 14.06.2019, p. 125–199; https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0944&from=EN

119 Article 23 of Directive (EU) 2019/944.

Equipped with the right tools (smart meters) and with access to timely and accurate data, consumers can actually get actively involved in the gas market, if they wish so. Prior to that though they need to trust and feel at ease with such a perspective. **Consumer acceptance** of smart metering is a prerequisite for this, and a key element for the success of a rollout. To this respect, pilot projects confirm the need for tailored-made **communication campaigns** with targeted messages[120]. These could help increase the effectiveness of the respective smart metering provisions.

Switching and exit fees

The **switching rate**[121] is an important indicator of consumer engagement and of the choice available on the retail market. Although switching is affected by multiple factors such as regulated prices[122], the difference in price between offers on the market and trust in new suppliers, the switching rate is an **important quantitative indicator** of the effectiveness of the Gas Directive provisions.

Even though consumer rights related to switching were already strengthened to an extent through the Third Energy Package[123], these still lag behind the electricity sector. In recent years, the switching rates **have increased overall** and consumer trust and experience with regard to the gas sector has generally improved[124]. Nevertheless, switching remains inconsistent among countries and still forms one of the main retail barriers[125] **with conflicting data about consumer satisfaction with the switching process**. To facilitate further consumer engagement in the gas market and improve consumer experience, it is necessary to strengthen consumer rights related to switching.

According to the new **Market Monitoring Survey 2020 on gas services**, 12% of consumers in the gas services market have **switched** provider in the last year[126]. Switching rates are driven by consumer engagement and incentives in the way of competitive offers[127]. However, despite an overall increase in recent years, **external as well as internal switching rates** for household consumers vary significantly across Member States[128]. Countries such as the UK, Belgium, Finland, Ireland, the Netherlands and Portugal had around 10-20% switching rate[129]. However, there are countries, like Poland, Luxembourg, and Croatia where the **switching**

120 ASSET study on consumer satisfaction KPIs for the roll-out of smart metering in the EU Member States – external study launched by the Commission (2018); ANEC position paper 'Monitoring the success of smart metering deployment from a consumer perspective' (2015).

121 That is, the percentage of consumers who change suppliers in any given year.

122 As noted by CEER in its Monitoring Report on the Performance of European Retail Markets in 2018, 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.

123 See Annex 4, Section 5 'Switching' for more details.

124 Commission Market Monitoring Survey 2020 for Gas services, https://ec.europa.eu/info/sites/default/files/gass-services-mms20-ppt_en.pdf

125 European Barriers in Retail Energy Markets Project: Final Report; European Commission, 2021, p. 58.

126 Market Monitoring Survey 2020, Gas Services Dashboard, European Commission.

127 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume, p. 59.

128 See Annex 4, Section 5 'Switching'.

129 European Commission 2018, Consumer study on precontractual information and billing in the energy market, final report.

rate still remains below 1%[130]. The inconsistent data among switching rates across Member States points to a need to strengthen consumer rights with regard to switching and incentivise consumer engagement in the market.

Across Member States, the **number of types of gas offers**, where fixed ones prevail, is **generally lower than for electricity products**. Nevertheless, the trend is positive in this segment. Data from 2018 collected by CEER shows that consumers in 14 out of 23 countries had the choice between five or more different types of offers, compared with 11 countries in 2017. To further illustrate the positive trend, ten types of offers were made available in more MS in 2019 than in 2018[131].

With regard to **customer satisfaction** with the switching process, there is clear room for improvement. While consumer satisfaction and trust in the gas sector in general has improved, consumers report issues with the switching process. In the 'Market Monitoring Survey 2020', customers reported a **positive experience with the gas services in general**[132].

At the same time, data collected in the 'Barriers in retail energy market study' shows consumer **dissatisfaction with the switching process** in the gas sector and **difficulties with switching** (see below Figure 4). On average, approximately **60% of the customers had a bad experience or expressed a negative opinion on the switching process** in both markets. In the gas markets, seven countries had high barriers (close to or above 9 points), while two countries (Belgium and Netherlands) had low barriers (ca. 3 points)[133].

130 Consumer study on precontractual information and billing in the energy market, final report, p. 91 https://ec.europa.eu/info/sites/default/files/final_report_2_july_2018.pdf

131 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume.

132 Market Monitoring Survey 2020, Gas Services Dashboard, European Commission; see also below Annex 4, Section 5 'Switching'.

133 European Barriers in Retail Energy Markets Project: Final Report; European Commission, 2021, p. 57.

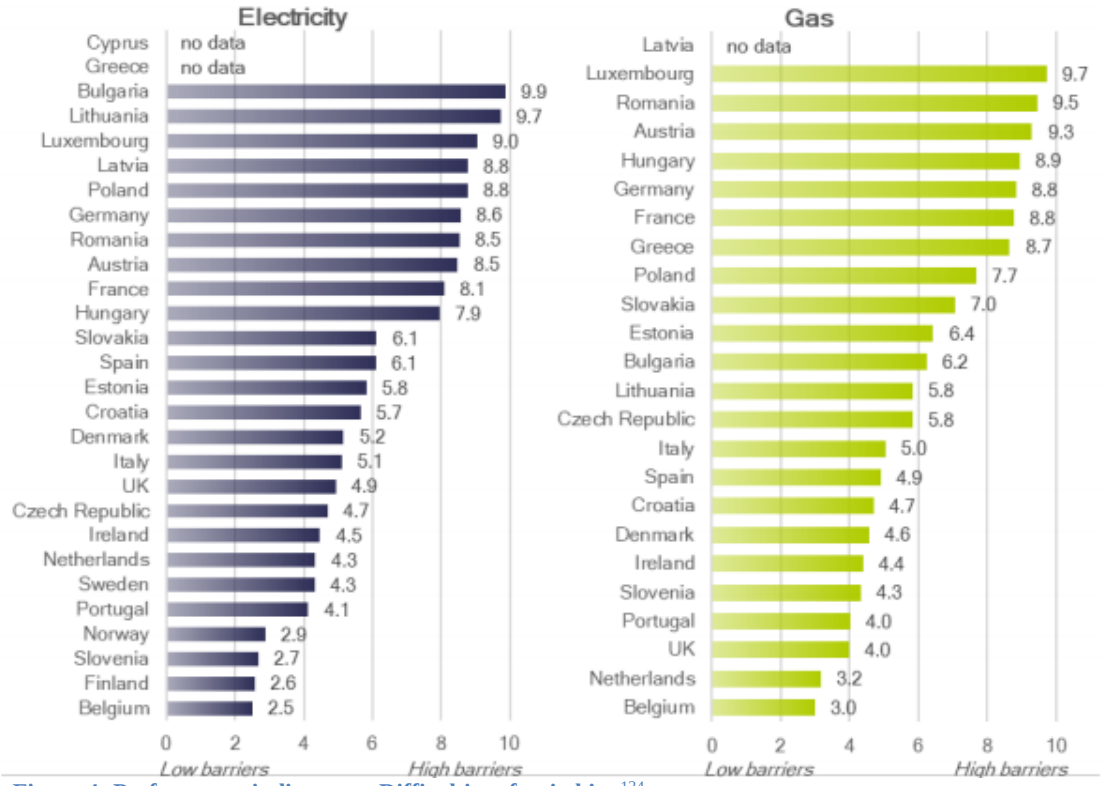

Figure 4: Performance indicators – Difficulties of switching[134]

Reasons for consumers not to switch vary, ranging from regulatory barriers (such as regulated prices) to behavioural aspects (e.g. lack of trust in new suppliers or perceived time-consuming procedures)[135]. An important factor that enables consumer empowerment and improves switching behaviour is the **availability of clear and transparent information** of energy supply prices and **effective tools to compare offers**. Data suggests that comparison websites cover both the electricity and gas markets, and the offers are communicated in a similar way.

Price Comparison Tools (PCTs) have risen across the EU in 2018: Almost **64% of European consumers had used a comparison tools to switch suppliers**[136]. However, European countries show **heterogeneous results in terms of uptake of PCTs in the gas sector**. As an example, in four countries (Bulgaria, Cyprus, Hungary and Malta) consumers do not have access to comparison tools for energy offers, while in others, several PCTs are in place. In the Netherlands 25 prices comparison tools were reported[137].

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134 The comparability of offers is measured by combining two approaches. The customer's opinion is explored based on a survey commissioned by the DG Justice and Consumers. The supply side is quantified with a checklist indicator which covers the availability of comparison websites, based on their number and functionalities.

135 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume, p. 95.

136 Market Monitoring Survey 2020, Gas Services Dashboard, European Commission; see also below Annex 4, Section 5 'Switching'.

137 Consumer study on precontractual information and billing in the energy market, final report, p. 51.

Consumer experience with comparability of prices is generally positive. Three in five (61%) consumers report finding it easy to compare the services of different gas providers, though the figure **varies widely by Member State**, from a high of 82% in Portugal to a low of 31% in Denmark. Among consumers who report finding it difficult to compare services, 45% say the total price of different services is not always clear and a similar proportion say it is difficult to know how services compare on aspects other than price (42%), or that service specifications are either not provided, are unclear or differ between providers (41%)[138].

Studies also showed that **vulnerable groups** of consumers were more likely to state that **comparing offers had been difficult**. 35% of those in the group with respondents for whom it was not easy at all to make ends meet, answered that it had been very or rather difficult to compare the information on contract duration, while among those who stated that it was very easy to make ends meet, 28% expressed this view[139].

Respondents' evaluations of the ease of comparing offers varied by the type of channel they had used to compare offers. Respondents **who had used PCTs** to look for alternative deals tended to be most likely to **think that comparing energy offers had been easy**, while respondents who had received offers via door-to-door and other channels were less likely to describe comparisons as easy[140].

Contract exit fees represent a salient potential barrier to switching, since they tend to increase the threshold for consumers to switch due to the perceived diminished potential savings available. Concerning **switching fees**, current provisions already ensure that the switching process itself is mostly free for consumers[141]; however, contractual conditions may differ and include additional charges, such as termination fees or administrative costs. PCTs that do not cover termination fees are therefore incomplete[142].

From the MMS 2020 survey**,** among consumers who report finding it difficult to compare services – 45% say the **total price of different services is not always** clear and a similar proportion say it is difficult to know **how services compare on aspects other than price** (42%), or that service specifications are either not provided, are unclear or **differ between providers** (41%).

Technical switching times

Most Member Stats have legal maximum durations for switching in place, usually within three weeks[143]. In 2019, eight countries did not have a specification on the timeframe (max. three weeks) of the switching period in their national legislation and five countries reported a

138 Market Monitoring Survey 2020, Gas Services Dashboard, European Commission, available at: EURO_COMMISSION_Dashboard_20_19-036243-01-12_Finale_Slide 2 (europa.eu)

139 Consumer study on Precontractual information and billing in the energy market, final report, p. 38.

140 Ibid., p. 35.

141 Ibid., p. 93; see also below Annex 4, Section 5 'Switching'.

142 Ibid., p. 45.

143 The legal and practical switching rates are within 15 working days in most Member States and comparable to those for electricity. ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume, p. 58, Figure 38.

timeframe of one month[144]. The **duration for technical switching of supplier is available in 9** Member States and range from one to 15 days[145].

In comparison to the Electricity Directive, according to which the process of technical switching should take no longer than 24 hours by 2026[146], the Gas Directive does not set a limit for technical switching.

Collective switching

Collective switching can serve as a powerful tool to stimulate switching, as well as to improve competition on the market by removing barriers for new entrants. The right to collective switching is **currently not granted in the Gas Directive** in comparison to the already established consumer right in electricity. Consumers could benefit from collective switching rights explicitly granted for their gas supply so that they can choose the best offer.

Billing

Transparent bills and billing information are essential to enabling consumers to regulate their consumption, compare offers and switch suppliers. Certain rights related to billing and contractual conditions are already provided by the Gas Directive and Energy Efficiency Directive[147]. However, these are elementary compared to the current electricity market provisions, as set out in the Electricity Directive, and bills and billing information remain the most common consumer concern[148].

The composition of the final gas bill for household consumers continues to vary greatly across the EU, and consumers in many Member States have expressed low satisfaction with the comparability and clarity of gas billing information[149]. The Gas Directive entitles consumers to have access to relevant data, but it does not specify **minimum requirements for the content of bills for** gas supply[150] alike regarding frequency of bills.

Vulnerable and energy poor consumers

Energy poverty continues to be a major challenge for the Union and one of the biggest concerns in view of the upcoming reinforcement of climate and energy legislation to meet the 2050 climate targets, in view of the decarbonisation's distributional impacts on vulnerable low and middle income households that will be hit hardest.

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144 Investigating the benefits of aligning EU consumer protection and information rules in the gas and electricity sectors, final report, p. 47

145 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume, p. 58.

146 Article 12 Directive 944/2019 (EU).

147 Annex 4, Section 6 'Billing'.

148 European Consumer Complaints Registration System, which gathered data from EU Member States from 2006 to 2018, shows that the majority of complaints reported between 2011 and 2016 concerned billing available at: https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy/consumer-complaints-statistics_en

149 Investigating the benefits of aligning EU consumer protection and information rules in the gas and electricity sectors, final report, p. 50-51.

150 In comparison, Annex I to Directive 944/2019 (EU) provides a comprehensive list of key information – see below Annex 4, Section 6 'Billing'.

Article 3(3) and (4) of the Gas Directive sets out provisions for the protection of vulnerable consumers. Member States are required to establish a definition of vulnerable consumers and to adopt appropriate protection measures and safeguards. In particular, Member States are required to take appropriate measures to protect final customers in remote areas who are connected to the gas system. In order to adequately address energy poverty, including in the broader context of poverty, Article 3 of the Gas Directive states that Member States shall take appropriate measures, such as formulating national energy action plans[151], providing social security benefits to ensure the necessary gas supply to vulnerable customers, or providing for support for energy efficiency improvements.

Given the absence of a common EU definition of consumer vulnerability and energy poverty, however, the implementation of the consumer protection provisions has resulted in an uneven level of consumer protection across the EU Member States. Some Member States have defined in their legislation the concept of the 'vulnerable consumer' and have adopted corresponding measures to protect those belonging to this category. Such measures have tended to be predominantly at the level of welfare provision and social policy, and not so much at the level of specific energy policy measures. They were nonetheless successful in making more visible and effective the fight against energy poverty in the concerned Member States.

State of play indicators and definition

Income levels belong to the defining criteria of vulnerability in 19 and 14 Member States in electricity and gas respectively, followed by critical dependency for health reasons in 11 and six MS and age in nine and seven Member States. Many NRAs reported a combination of the listed determinants as well as specific ones, such as mental and/or physical disabilities, larger family size, unemployment or remote locality. Especially in Member States with implicit definitions of the concept of vulnerable consumers, e.g. Austria, determining criteria are closely bound to eligibility criteria for ear-marked social benefits.

Since precise data on the topic remains limited, levels of energy poverty remain significant and a lack of clarity on the most appropriate means of tackling consumer vulnerability and energy poverty persists and constitutes to be a barrier to the further deepening of the internal energy market. In particular, the need to address the problem seems pressing given that some form of retail energy price regulation, in some cases intended to protect vulnerable and energy poor consumers[152], still exists in some Member States[153], and levels of market concentration remain high in some liberalised markets. As much as well-targeted direct interventions in the

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151 Elaborated according to Article 3 of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action).

152 General social policy measures targeting low-income or poor households in general, which may include support to help them pay their energy bills.

153 According to the European Barriers in Retail Energy Markets study from 2020, the amount is 12 out of 24 Member States, including Latvia, Hungary, Romania, Croatia, Bulgaria, Slovakia, Poland, France, Italy, Spain, Portugal and Belgium. The ACER Market Monitoring Report 2019 concludes on 15 Member States, p. 47. ACER Report survey: Only six countries in electricity (out of 13 that responded), and three countries in gas (out of 13 responding), replied that some type of intervention exits in the price setting for energy poor or vulnerable consumers.

price of supply of energy to energy-poor/vulnerable consumers (e.g. Belgium, Spain, and Portugal) can be good practices, badly designed interventions can distort markets. The same applies for energy vouchers, credit line sand subsidies or tax exemptions or reductions for structural solutions[154].

Switching rates are inconsistent among countries and data show dissatisfaction with the switching process and difficulties with switching. PCTs, an important factor to enable consumers to switch, show inconsistent uptake among Member States. Consumer experience with PCTs is generally positive, but contract termination and switching fees continue to be an obstacle. Some countries still do not have in place a maximum timeframe of 3 weeks for switching and, compared to the electricity sector, some rights such as technical switching times or collective switching are missing.

Bills remain one of the largest consumer concerns and the composition of the final gas bills is not consistent among Member States. Minimum requirements and frequency of billing, as e.g. provided for in the Electricity Directive, are missing in the gas sector.

1.6. Efficiency

- In qualitative terms, to what extent are the costs proportionate to the benefits achieved?
- Are there areas where there is potential to reduce inefficiencies particularly regulatory burden and simplify the intervention?
- Are there areas where the current regulatory framework for the EU's gas markets could be streamlined and optimised?

Undoubtedly, the detailed rules for TSOs, DSOs, and suppliers, and in particular the respective monitoring obligations for national regulators, led to some additional administrative costs for undertakings (e.g. for unbundling compliance monitoring and reporting obligations towards the NRAs and for NRAs (e.g. through increased tasks in monitoring and deciding on implementation details of the Third Package). This constituted a significant additional burden given the moderate size of many NRAs. Half of the 28 NRAs have less than 100 staff members[155]. This ratio did not change structurally. In 2019, the number of NRAs with less than 100 staff dedicated to energy regulation was 14 out of 24 NRA reporting data[156]. Generally, the level of resources available to different NRAs varies considerably. As underlined by the Court of Auditors[157] in 2015, the number of people dealing with energy issues in NRAs visited during their audit ranged from 21 (Estonia) to

154 Namely to support building renovation and energy efficiency.

155 See overview per Member state in 'EU Energy Markets in 2014'. http://ec.europa.eu/energy/sites/ener/files/documents/2014_energy_market_en.pdf

156 See CEER Report 'Monitoring NRAs Independence', Ref. C20-RBM-23-04, https://www.ceer.eu/documents/104400/-/-/3daa9416-edc7-c741-6042-c71d4ed50bb0

157 Special Report 16/2015 by the European Court of Auditors, Improving the security of energy supply by developing the internal energy market: more efforts needed, 2015 http://www.eca.europa.eu/en/Pages/DocItem.aspx?did=34751

more than 200 at the time. In 2019, these numbers ranged from 16 (Cyprus) to more than 350[158].

Certain regulatory measures contained in the Third Package have had a cost for gas stakeholders. The implementation of the unbundling requirements for all TSOs certainly entailed costs for these companies. However, these are difficult to quantify and no detailed aggregated data on the cost of these organisational changes required by the unbundling measures exist. The Commission's report on the impact of its unbundling reform from October 2014[159] showed that cost effects did not play a significant role for stakeholders. The possibility for a Member State to choose between three unbundling models has provided some flexibility which may have contributed to keep the costs related to the organisation changes relatively limited. Indeed, it may be assumed that the Member States have opted for the unbundling model which was the closest to the existing organisational structure of their TSOs.

ENTSOG is financed almost exclusively by fees collected from its members i.e. the TSOs. ENTSOG also holds as observers TSOs from the Energy Community from countries which are not part of the EU. The fees paid by the TSOs to ENTSOG appear to be of an acceptable level and justified by the benefits that the TSOs enjoy from the existence of such an organisation whose task is, *inter alia*, to defend their interests.

Overall, it can be concluded that the new rules of the Third Energy Package have generated additional administrative costs for undertakings and regulators. However, these are not perceived as too heavy by stakeholders and appear to be counterbalanced by the benefits they generate notably through the increase in competition in the sector.

1.7. Relevance

The Evaluation of the effectiveness and efficiency of the Third Electricity Package showed that the new rules clearly had a positive effect on markets and for consumers. However, with a view to some fundamental changes in gas markets since 2009, the Evaluation needs to assess if the Third Package framework is still sufficient to deal effectively with future challenges of the sector.

With the 2030 Climate Target Plan[160], the Commission proposed in September 2020 to raise the EU's ambition on reducing GHG emissions to **at least 55% below 1990 levels by 2030,** delivering on the commitment made in the Communication on the European Green Deal[161], which sets out a renew growth strategy to make Europe the first climate neutral continent in the world by 2050. In June 2021, the European Parliament and the European Council approved the first European Climate law, which embeds into EU law legally binding targets for net zero greenhouse gas emissions by 2050 and sets targets to reduce EU emissions by 55% by 2030.

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158 See CEER Report 'Monitoring NRAs Independence', Ref. C20-RBM-23-04, https://www.ceer.eu/documents/104400/-/-/3daa9416-edc7-c741-6042-c71d4ed50bb0

159 Report on the ITO Model (SWD(2014) 312 final), available at: https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf

160 COM/2020/562 final.

161 COM/2019/640 final.

The transition to a climate-neutral society requires from energy markets to adapt in support of the decarbonisation of the whole energy system, while remaining affordable, safe, competitive, and secure. A fully integrated and well-functioning internal energy market is the most efficient means of ensuring affordable energy prices, necessary price signals for investments in green energy, securing energy supplies and enabling the least cost path to climate neutrality.

The surge of the COVID-19 pandemic has further demonstrated the crucial role of the energy sector in the EU's economic recovery. The Commission's recovery plan[162] presented on 27 May 2020 highlights the need to better integrate the energy system as part of its efforts to unlock investment in key clean technologies and value chains and increase economy-wide resilience.

1.7.1. *The 2009 market design is not fully adapted to the decarbonisation of our economy …*

Whilst the Third Energy Package applies to all gases that can safely be injected into the gas network, it is not necessarily suited for the decarbonisation of gases and their local production and it neither applies to networks transporting pure hydrogen.

Hydrogen is generally perceived as a promising energy carrier and feedstock to support the EU's decarbonisation efforts if decarbonised. This is a new development and **significant uncertainties remain as to the actual deployment of clean hydrogen** in terms of production pathways (electrolysis-based vs. gas-based with carbon capture and storage or usage technologies), geographical location of hydrogen production, sectors and geographical location of hydrogen consumption, and the predominant means of its transportation (pipelines, ships, etc).

Although no developed hydrogen market exists yet in Europe, working on a transparent, contestable market framework based on clear rules is expected to be beneficial already at an early stage of development. This is because:

- all decarbonisation scenarios show that clean hydrogen, in particular renewable, will play an important role in the not too distant future[163] – it is thus not a question of whether but a question of when precisely this will happen;
- investment decisions are expected to be taken in the years towards 2030; national strategies including on clean hydrogen are currently being developed and Member States are looking to the Commission for guidance[164];
- setting the principles and objectives of regulation early on provides for investment security;

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162 'Europe's moment: Repair and Prepare for the Next Generation', COM(2020) 456 final.

163 Due to the uncertainty regarding the pace and scale of deployment in each market segment, the overall expectations for the scale-up of renewable hydrogen production differ substantially, ranging from 30 to 175 TWh by 2030, and between 800 and 2 250 TWh by 2050. This would require around 7 to 40 GW of electrolysers to come on stream by 2030, and between 100 to 300 GW of installed electrolyser capacity in 2050 with the LTS foreseeing an important surge shortly after 2030.

164 Indeed, the recently published German hydrogen strategy explicitly sets out a German perspective on the EU policy agenda.

– the draft 'EU Hydrogen Strategy for a climate-neutral economy' recognises the need for planning transportation infrastructure already in the first phase of building a hydrogen economy i.e. before 2025 and the first availability of this infrastructure already in the second phase i.e. between 2025 and 2030[165];
– the use of pipelines and possibly other type of hydrogen infrastructure such as large scale storage and import terminals, requires rules securing competition[166] as they can constitute a natural monopoly; setting basic rules now can avoid the costly ex-post interventions that were needed in the gas and electricity markets;
– if the Commission proposes rules for a regulatory framework on clean hydrogen late 2021 at the earliest, usually such rules could be expected to become binding in Member States not earlier than 2024/2025, i.e. at the start of phase 2 and when important investment decision to prepare this phase need to have been taken already.

Important developments are also expected for other **renewable gases**. The most significant production of renewable gases in the EU is currently provided by biogas and biomethane[167] with some 17 bcm annually (against around 400 bcm of total market). There were 16 859 biogas installations in 2019[168] and currently some 550 biomethane plants in the EU are connected to the gas grid. Biogas is mainly used today for producing electricity and heat supported by support schemes[169]. However, once support schemes end, it is foreseeable that existing biogas plants may decide to invest into upgrading biogas to biomethane for injection into the gas grid.[170]

Investments in new plants are expected to increase biogas and biomethane production significantly. Estimates range from 33 to 50 bcm by 2030 and 50 to 140 bcm by 2050[171]. A 2016 study by DG ENER[172] found that until 2030 the production of 18 bcm renewable gases could be doubled if the potential is optimally utilized. One of the main recommendations of this study for EU regulation was to ensure that EU rules enable biomethane cross-border trade.

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165 The phases and their timing in the hydrogen strategy are highly educational but unlikely to reflect the variety between Member States, some of which will enter stage 2 earlier.

166 Currently existing pipelines normally secure delivery point-to-point to large, sophisticated buyers. The future network looks set to be meshed and non-replicable, thus conferring market power if operated by vertically integrated suppliers. Moreover, buyers are likely to be of a different nature whereas entrants are unlikely to consider entry in a vertically integrated manner.

167 Biogas is about 60% methane, 40% CO2 + some impurities. Upgrading biogas to biomethane level requires removal of CO2 and impurities. If used and, more importantly, stored the CO2 obtained in production of biomethane from biogas is sometimes argued to create 'negative' emissions.

168 EBA (2020), EBA statistical report 2020.

169 This is due to subsidy schemes as well as the additional costs required for upgrading biogas to biomethane for grid injection.

170 In Austria, for instance, 74 out of 301 biogas plants could be connected with an expected 100 m EUR investment, injecting 16 813 Nm3/h (ÖVGW, 2019).

171 Different ranges taken from LTS EC (2018), Ecofys (2018), Trinomics (2018), Navigant (2019), Guidehouse (2020), GreenGas Project (2014). Note: in some studies biogas and biomethane is treated as the same, while others focus only on biomethane. Not all biomethane is expected to be injected into the grid.

172 https://ec.europa.eu/energy/sites/ener/files/documents/ce_delft_3g84_biogas_beyond_2020_final_report.pdf

The current gas market design cannot fully accommodate the increasingly important role that renewable gases will play in the system. The vast majority of today's biomethane plants are connected at the distribution level without the possibility to inject gas from the distribution to the transmission level. As distribution grids have limited possibilities for physical balancing, in practice, an injection at the distribution level requires consumption by consumers connected to that local grid. In cases of high over-supply at distribution level and lack of arrangements between DSOs and TSOs allowing 'virtual' trade, biomethane producers are deprived of access to wholesale markets and cross-border trade. This distorts the level playing field vis-à-vis other gas producers and is a barrier to scaling up renewable gas production.

1.7.2. *…nor to changing market realities*

Decarbonisation of the gas sector will need to happen across Member States. In this process, both fuel switching and the development of renewable and decarbonised gases could benefit from a pooling of supply and demand beyond existing market areas. Particularly for the upscaling of renewable and decarbonised gas production, larger market areas provide better conditions because they allow the exploitation of economies of scale through easier trading and access to a larger consumer base. Additionally, overall gas demand is expected to decrease, which requires a larger area to be covered to reach comparable demand supporting a liquid market.

Gas quality management

In the current framework, **gas quality standards** are not binding on EU-wide scale and therefore gas quality differences can be a barrier to (cross-border) trade. Injection of growing volumes of decarbonised gases, in particular biogas and the blending of hydrogen into the existing gas network as well as further diversification of supply sources, including LNG, will change the quality of gas consumed in Europe. This will affect the design of gas infrastructure and end-user applications, as well as industrial processes using gas as feedstock.

Such changes have important repercussions on the role and responsibilities of different actors (e.g. system operators, producers and network users) along the value chain in measuring, managing, and ensuring gas quality. At present, the process to manage cross-border restrictions due to gas quality differences[173] is lengthy and not effective. With more gas injected at distribution level the process will become even more complex, involving new actors and additional quality measurement and management. The future regulatory framework needs to address fundamental issues of gas quality and its standardisation, such as the acceptance of gases with diverging gas quality injected into the grid at transmission and distribution levels and their cross-border tradability.

The possible integration of growing volumes of **hydrogen blended into the gas network** would change the quality of gas transported in the pipeline network. The design of any future hydrogen regulatory framework containing rules on hydrogen blending levels – be it at Member State or at EU-level – will strongly influence gas qualities in the network and

[173] Art. 15 Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules.

consequently the discussion on gas quality standardisation in the EU. Hydrogen blending obligations will aggravate the issue of technical feasibility of adjusting the quality and increase the cost of handling the differences in gas quality specification.

Role of LNG

LNG in Europe has helped diversify supply, thereby strengthening our security of supply, and bringing price competition and flexibility in the supply of gas. This is especially relevant due to the significant increase of LNG imports to the EU in the recent years. At the same time, the existing capacity of LNG terminals is not being used to its full potential.

The Third Energy Package regulatory framework for LNG leaves a wide margin of discretion to Member States (e.g. no strict unbundling provisions – Member States designate the LNG System Operators, access negotiated or regulated, with possible exemptions). At the same time, LNG terminals are used inefficiently with sometimes high booking ratios but low rate of utilisation/accessibility as utilisation rate stands currently at 27%[174] in Europe. Rules on capacity allocation, utilisation of unused capacity and congestions management (set in network codes – CAM and CMP) are not applicable to the LNG facilities. In accordance with the tariff network code (TAR NC), discounts may be applied by the regulators to the transmission tariffs on the entry points from LNG facilities to the respective entry exit zones of the Member States.

There are still some barriers and gaps that could be addressed in order to ensure the optimal use of existing LNG terminals, notably with regards to capacity allocation, tariff structures, transparency, products flexibility, and exemption regime. Improving these areas of the exiting framework would positively impact on terminal utilisation rates and competition on the gas market. These regulatory improvements have also the potential to further support the decarbonisation of the EU gas market by enhancing the liquidity, transparency and flexibility in the internal gas market and ensuring a more efficient usage of existing infrastructure.

Overall, the rules of the Third Energy Package appear to be insufficient to meet the new climate targets and to ensure an effective and cost-efficient transition to a cleaner energy system. Different rules appear to be needed to ensure in particular a level playing field for the market up-take of renewable and low carbon gases and to unlock the potential of emerging market realities. The Third Package does not provide regulatory certainty for the development and deployment of hydrogen.

1.7.3. *The Third Package does not provide regulatory certainty for the development and deployment of hydrogen*

To achieve the EU decarbonisation goals by 2050, it will be necessary to gradually replace natural gas with renewable and low-carbon gases. A large potential to achieve this objective lies with hydrogen. As a gaseous energy carrier, hydrogen can be deployed in hard-to-decarbonize sectors for which low carbon and renewable alternatives are scarce or non-existent and where direct electrification is currently challenging. In addition, hydrogen can

174 Trinomics 2020.

contribute to energy system integration by linking the electricity and gas system. It can be used to manage a European electricity system increasingly based on renewables by offloading electricity grids in times of abundant electricity supply and by providing an option for large scale and long term (electricity) storage.

In order to realize climate neutrality in 2050, the share of hydrogen in Europe's energy mix is projected to grow. In the strategic vision for a climate-neutral EU[175], the share of hydrogen in Europe's energy mix is expected to increase from the current less than 2%[176] to 13-14% by 2050[177]. According to the Climate Target Plan Impact Assessment, which outlines the policy options to cut greenhouse gas emissions by at least 55% by 2030, hydrogen will have to represent a significant share of gases in the energy mix in any of the more pertinent policy scenarios. Alongside these projections, Member States have developed national strategies on the deployment of hydrogen and have requested the European Commission to create regulatory guidance[178].

The European Commission has set out its vision on actions needed to realize an integrated energy system and the further development and deployment of hydrogen in its Communications on Energy System Integration and Hydrogen[179].

EU Member States have a different potential for the production of renewable and low carbon hydrogen. Consequently, an internal market for hydrogen and a suitable European market framework to support it may well be necessary for hydrogen to play its role as an energy carrier and enabler of energy system integration in the EU. However, the Third Gas Package applies to all gases that can be safely injected into the gas network, which include hydrogen blended safely into the natural gas system but does not apply to dedicated hydrogen infrastructure. Gas market rules apply therefore neither to newly build hydrogen networks nor to natural gas networks that could be retrofitted in the future to transport pure hydrogen. Thus, the current framework cannot facilitate the large deployment of hydrogen as an independent energy carrier via dedicated pure hydrogen networks.

At the same time, Member States may take national initiatives based on national strategies, but these efforts are likely to be dispersed, resulting in uncoordinated and weak cross-border integration and network development. In the absence of infrastructure and well-functioning markets, some Member states will have no or limited access to hydrogen storage and import facilitates as geographical and geological circumstances are vary among Member States.

Moreover, the existing provisions do not include rules on unbundling the network-related activities between natural gas and pure hydrogen infrastructure. The level of separation between network activities, i.e. to what extent these regulated activities can be kept within the

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175 A Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy, COM(2018) 773.

176 FCH JU (2019) Hydrogen Roadmap Europe. This includes the use of hydrogen as feedstock

177 Considering hydrogen consumption for energy purposes only, the shares in different scenarios range from less than 2% to more than 23% in 2050.

178 Council Conclusions 'Towards a hydrogen market for Europe', available at: st13976-en20.pdf (europa.eu)

179 Communication on a Strategy for Energy System Integration COM(2020) 299 and Communication on a hydrogen strategy for a climate-neutral Europe COM (2020) 301.

same asset base, is expected to be an important aspect of the regulatory framework for hydrogen. Different regimes can influence the re-purposing of existing natural gas assets and the potential synergies between the natural gas and the hydrogen sectors. Important consequences are also expected to materialize in the cost-reflectivity of network tariffs (i.e. distributional effect of cross-subsidisation) and in the cross-border integration of dedicated hydrogen networks.

Already in earlier phases of hydrogen deployment, pipelines are expected to be the most cost-effective means for hydrogen transportation with high potential cost savings in the repurposing of existing natural gas networks. However, the tendency towards insufficient competition, which results from the existence of natural monopolies in energy networks, can be expected to arise equally within a future hydrogen market and significantly hamper the entry of new players in upstream (hydrogen production) and downstream (hydrogen consumption) parts of the hydrogen value chain and the achievement of competitive market outcomes. To avoid market foreclosures and inefficiencies, early regulatory intervention – along the principles of an open and competitive market as laid down in the current gas market framework, (e.g. neutrality of network operation, third party access, cost reflective prices and network planning) – may therefore be needed.

Tailoring the current gas market rules towards the option of pure hydrogen networks creates regulatory certainty and clarity that is needed for investments in the development of hydrogen. In addition, it prevents costly ex-post harmonization interventions and mitigates the risks of sunk-investments. The following elements of the Third Gas Package could help to enable the development of a competitive and liquid cross-border hydrogen market. The Impact Assessment that is published alongside this Evaluation provides for a deeper and wider analysis on the options for a regulatory framework for hydrogen[180].

- *Unbundling supply and production from the operation of networks and network access.* The Third Gas Package further pursued the separation of energy supply and generation activities from the operation of networks. Applying unbundling principles to the hydrogen chain, namely separating hydrogen production, trade and supply activities from network-related activities, could ensure fair competition and avoid foreclosures in a future hydrogen market. Similar considerations may exist for other types of hydrogen infrastructure, such as large-scale storage and import terminals;
- *Tariffs-setting:* According to the Third Gas Package, energy network access charges should be cost-reflective (e.g. tariffs should reflect the actual network costs caused by each network user) and applicable to all users on a non-discriminatory basis. In addition, tariffs should be remunerative for network operators in order to invest adequately in (new) infrastructure. However, applying the same levels of regulatory intervention to hydrogen tariffs can be counterproductive for such an infant market, especially in its early phases. Tariff principles will need to be carefully developed for the future hydrogen market, striking a balance between the impacts of regulatory

[180] Impact Assessment for the hydrogen and decarbonized gas package.

interventions on market structures – particularly in regards of price transparency and cost reflectivity – and investments incentives for new hydrogen infrastructure;

- *Network planning:* Network Planning on European level was meant to ensure greater transparency. Additionally, projects could apply for PCI status only if included in the Community plan, which builds upon national plans where these are required. National plans are required for ITO and ISO certified TSOs and meant to avoid underinvestment. Including hydrogen infrastructure in network planning processes could facilitate the cost-effective roll out of hydrogen networks in areas where hydrogen supply and demand will arise. The proposed revision of the TEN-E Regulation aims to create a support framework for developing an EU-wide infrastructure in the long-run by making hydrogen projects eligible for a PCI status;
- *Creation of regulatory oversight:* A competitive internal hydrogen market governed by rules such as may result from the above consideration cannot exist without independent regulators who ensure the application of market rules.

Price regulation continues to be possible under current EU acquis, including for non-household customers despite its distortive effects in the gas market

Under current Article 3 of the Third Gas Package, price regulation continues to be allowed, under specified conditions and in accordance with Federutility case-law. Concordantly, distortive retail price regulation continues to remain in place in different forms across various Member States in the EU[181].

In the context of supplier of last resort (SoLR) schemes, all but seven Member States out of 23 screened Member States intervene in the price setting in some fashion[182]. Whilst primarily focussed on households in most Member States[183], there are some countries such as Italy and Hungary with schemes in place that target enterprises.

In general, it is recommended that price regulation shall be avoided all together because it is considered as a major barrier for the completion of the internal energy market. More information on the effectiveness of price regulation can be found under Section 6.1.1. on market integration, competition and investments.

1.7.4. *Decarbonisation and the integration of renewable and decarbonised gases into the market*

Today, natural gas supply (imported and indigenous production) flows from the transmission system directly to large consumers and to distribution systems, from where it reaches decentralised end-consumers. The current market organisation and the generally accepted ACER Gas Target Model[184] follow the logic of these physical flows.

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181 See Section 6.1.1.

182 See Annex 4, Figure 7.

183 Data shows that a large share of households are supplied by SoLRs. See 2014 CEER/ACER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2014, p. 114.

184 This model organises the trade of gas on the Virtual Trading Points (Hubs) established in the Entry/Exit zones, allowing each supplier crossing the border of a zone to use the entire gas network of the given zone. The design of an Entry/Exit zone is not harmonised in the EU, the Gas Target Model does not apply at distribution level and there

With increasing production of renewable and decarbonised gases, more production facilities could be connected at the distribution level. The current market organisation does not necessarily foresee participation of the distribution level in the wholesale market. The tradability of decentrally produced gases is hence limited, blocking (smaller) facilities from becoming active components of the energy system.

Although Article 8 of the Gas Directive and Article 20 of the RED II are requiring that transmission and distribution operators publish technical and financial conditions to connect to the networks, the current EU market organisation does not require inclusion of the plants connected at the distribution level to the wholesale market. Rules on the flow from the distribution to the transmission level, i.e. physical reverse flow, do not exist at EU level either. However, such rules exist in those Member States most successful in the role-out and scaling-up of biomethane and biogas. In Denmark and Germany, the distribution level is part of the entry-exit system and the balancing zone.

1.7.5. *Consumers participation and protection*

Several consumer related provisions of the Gas Directive have been surpassed by developments and could benefit from being updated in order to align consumer protection in gas with electricity sector and tackle new emerging challenges of the sector. In the gas sector, measures at the national level are not consistent across member States with regards transparency and clarity of information of energy bills, creating unbalanced protection of consumers across the EU. Moreover, the increase in the amount of information provided in gas bills has not necessarily translated into more clarity of the energy bills[185]. In addition, comparison tools have been set up in several Member States, however, uptake remains inconsistent across countries.

Similarly, there is also diversity in national practices when it comes to easy, safe and secure access to consumption data by final customers (and third parties of their choice), and therefore to necessary tools for their empowerment and active participation in the market. This becomes more pertinent with the introduction of gas smart meters, usually owned by DSOs, and the enriching of the respective metering data, calling for clear, transparent and non-discriminatory rules for access to data, independently of the data management model used. At the same time, the existing gas smart metering provisions remain relevant, although parts of them could benefit from being revisited/updated. For example, one could consider introducing a requirement to revise at regular intervals, or in response to technological and market developments, those negative assessments for the rollout of smart metering, given the noted positive trend on accrued benefits and lower costs, or to set a penetration target for the positively assessed cases.

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are no obligations to include the distribution level into the efficient operations of the network of a zone. Opposite to electricity market, Gas Target Model implies explicit booking of cross-border capacities when selling the gas on the market.

185 European Commission 2018, Consumer study on pre-contractual information and billing in the energy market, final report.

Overall, the decarbonisation, rapid digitalization, and technology developments are reshaping the functioning of the sector. Member States and their regulatory bodies, service providers, consumer organizations and consumers are thus being forced to adapt to all these changes and redefine their roles. An intervention to up-date current rules looks, therefore, highly relevant.

Since 2000, expenditure on energy services for the poorest households in the EU has increased by 50%, reaching almost 9% of their total budget on average. And in 2014, the gap in the share of expenditure spent on domestic energy services between the average and the poorest households increased to 3%. These developments have provoked strong political interest in the issues of consumer vulnerability and energy poverty, and may suggest that the existing provisions on these topics in the acquis need to be revisited to be relevant in the current context. Consumer vulnerability will remain relevant as some drivers of vulnerability are permanent. Energy poverty problem is likely to grow in the future if no policy measures are adopted. About 34 million Europeans reported an inability to keep their homes adequately warm in 2018, and 6.9% of the Union population have said that they cannot afford to heat their home sufficiently in a 2019 EU-wide survey[186].

1.8. Coherence

Under this section the Evaluation aims at verifying both internal and external coherence of the Third Energy Package. The former (internal coherence) includes consistency and interdependence of various regulatory measures adopted under the Third Package:

- network codes and guidelines:
  - Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013[187];
  - Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a network code on gas balancing of transmission networks[188];
  - Commission Decision 2010/685/EU of 10 November 2010 on amending Chapter 3 of Annex I to Regulation (EC) 715/2009 (Transparency)[189];
  - Commission Decision 2012/490/EU of 24 August 2012 on amending Annex I to Regulation (EC) No 715/2009 (Congestion Management Procedures)[190];
  - Commission Decision (EU) 2015/715 of 30 April 2015[191] Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules[192];

186 Data from 2018; Eurostat, SILC [ilc_mdes01]).
187 https://eur-lex.europa.eu/eli/reg/2017/459/oj
188 https://eur-lex.europa.eu/eli/reg/2014/312/oj
189 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32010D0685
190 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012D0490
191 https://eur-lex.europa.eu/eli/reg/2015/703/oj
191 https://eur-lex.europa.eu/eli/reg/2017/460/oj
191 https://eur-lex.europa.eu/eli/reg/2019/942/oj
191 https://eur-lex.europa.eu/eli/reg/2017/1938/oj
191 https://eur-lex.europa.eu/eli/dir/2018/2001/oj
192 https://eur-lex.europa.eu/eli/reg/2015/703/oj

- Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas[193];
- Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators (ACER Regulation)[194].

The latter (external coherence), in turn, means checking coherence of the Third Package with other pieces of legislation relevant for the energy sector namely:

- Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 (Gas SoS Regulation)[195];

- Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (RED II)[196];

- Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency (Energy Efficiency Directive)[197].

1.8.1. *Internal Coherence*

- Are the various measures comprised in the **Third Package properly working together** or not?
- Does the **ineffectiveness of certain measures compromise the effectiveness** of other components?

General speaking, the Third Energy Package provisions have worked together well. ENTSOG and ACER monitoring reports on the network code implementation do not identify that the norms and rules contained in the different network codes are not working jointly. Rather, they complement each other. For example, the network code on interoperability sets out communication standards and protocols, which support the implementation of the network code on capacity allocation or rules for the allocation of gas quantities, which are necessary for the network code on balancing. The network code on transmission tariff structures, on the other hand, is relevant to provide the starting price for the capacity auction as detailed out in the network code on capacity allocation.

193 https://eur-lex.europa.eu/eli/reg/2017/460/oj
194 https://eur-lex.europa.eu/eli/reg/2019/942/oj
195 https://eur-lex.europa.eu/eli/reg/2017/1938/oj
196 https://eur-lex.europa.eu/eli/dir/2018/2001/oj
197 https://eur-lex.europa.eu/eli/dir/2018/2002/oj

However, the Commission has spotted several provisions which would need to be either deleted because they are obsolete or were never used, or modified because they are unclear or confusing.

More precisely, regarding ACER, the report prepared by ACER in 2014, 'Energy Regulation: A Bridge to 2025 Conclusions Paper'[198] recommends that the Agency be given adequate powers to fulfil effectively the important monitoring responsibilities assigned to it in the ACER Regulation, in particular, in respect of information gathering. There seemed to be a mismatch between the monitoring tasks and the powers of the Agency to request information from NRAs, TSOs, and ENTSOs.

The recast ACER Regulation strengthens the Agency's powers to request information, both in the electricity and in the gas sectors.

With regard to protection of vulnerable consumers, the main discrepancy between the Electricity and Gas Directive arises from Universal Services (Article 3(3) of the Electricity Directive). The right to universal service does not exist for gas. This limits some provisions related to the protection of vulnerable consumers in the gas sector. Member States are not obliged to ensure certain protection to all vulnerable consumers, but only to those already connected to the gas system. The reason is that a piped gas network for consumers is not available throughout every EU MS.

The Third Package's provision on allowing regulated prices in specific cases adhere to difficulties with carrying out the overarching objectives of the EU regulatory framework: introducing competition and enabling consumer choice.

The 2019 revision of the Electricity Directive, Electricity Regulation and ACER Regulation strengthened the comprehensive institutional framework, including reinforcing ENTSO-E's governance, ensuring the involvement of electricity DSOs in relevant processes and adapting the roles and responsibilities of NRAs to the new electricity market design. However, the majority of these changes were limited to the electricity sector legislation, creating a regulatory divergence between the regulatory framework for electricity and for gas. This might lead to detrimental effects and to unnecessary complexity affecting market participants, end-consumers and authorities alike.

1.8.2. *External Coherence*

Coherence with Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 **(Gas SoS Regulation);**

198 http://www.acer.europa.eu/official_documents/acts_of_the_agency/sd052005/supporting%20document%20to%20acer%20recommendation%2005-2014%20-%20%20energy%20regulation%20a%20bridge%20to%202025%20conclusions%20paper.pdf

Guaranteeing the security of gas supply in a spirit of solidarity is one of the principles inspiring the provisions of the Third Package (see Recital 1 of gas directive and gas Regulation).

Guaranteeing the **security of gas supply is a guiding objective** behind quite a number of new provisions introduced by the Third Package in 2009, such as:

- the need for common minimum standards for public service requirements, which take into account, in particular, the security of supply concerns (Recital 44 Gas Directive);
- creating the conditions for new investments needed to guarantee the security of gas supply (Articles 17, 22 Gas Directive);
- the need for increased cooperation between Member States, NRAs and TSOs, essential for the SoS;
- the need to assess the independence of network operation, the level of the Community's and individual Member States' dependence on energy supply from third countries, and the treatment of both domestic and foreign trade and investment in energy in a particular third country (see Recital 22; Article 11 Gas Directive);
- the need to take into account the expected the impact of new infrastructures on the security of supply, which would justify granting exemptions to the mandatory third party access to certain cross border infrastructures (Article 36 Gas Directive).

At the time of the legislative proposal (in 2007), Member States had just finalised the transposition and implementation of **Directive 2005/67** of 26 April 2004 concerning measures to safeguard security of natural gas supply (transposition deadline was 19 May 2006). This directive had established the grounds for Member States coordination within a 'Gas Coordination Group' and had defined a 'Community mechanism' in case of supply disruption.

Directive 2004/67 was later repealed and replaced by Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply, which in turn was repealed and replaced by the current rules on security of gas supply, the Gas SoS Regulation.

The Explanatory Memorandum to the Third Package refers to the scope of the obligations contained in Directive 2004/67/EC, which required Member States to report on the security of gas supply situation and on the regulatory framework to enhance investment in infrastructure. On this basis, the Third Package strengthened these basic obligations, e.g. by foreseeing the need for ENTSOG to make system adequacy forecasts for every summer and winter as well as for the long term (winter and summer outlooks and TYNDP).

The Third Package recognised the limitations of Directive 2004/67, which set up a coordination platform, but did not foresaw regional cooperation in case of severe supply disruptions. In view of the fact that the Directive's effectiveness was still to be examined (as per Article 10 of Directive 2004/67), the Third Package did not envisage amending it, but limited itself to introduce the obligation for Member States to cooperate in order to promote regional and bilateral solidarity (**Article 6, on 'Regional solidarity').**

Such regional cooperation was meant to cover situations resulting or likely to result in the short term in a severe disruption of supply affecting a Member State and would cover: **(a) coordination of national emergency measures; (b) identification and development of the necessary energy interconnections; (c) the conditions and practical modalities for**

mutual assistance. In addition, the Commission might adopt *Guidelines for regional cooperation in a spirit of solidarity*. These guidelines were never adopted.

Instead, the **Gas SoS Regulation** translated into concrete provisions what such regional solidarity would mean in practice, by identifying the main gas supply corridors and – on this basis – creating joint risk groups within which Member States work together to identify and assess all risk factors related to the relevant gas supply corridor. The starting point of the work of the joint risk groups is the EU wide simulation to be carried out by ENTSOG (which plays an important role under the Gas SoS Regulation as well)[199].

The Gas SoS Regulation also introduced the concept of '**solidarity protected customer'** (Article 2(6)) and put in place a mechanism to guarantee that in case of emergency, the scarce gas available be shared to guarantee the needs of households and other users considered as solidarity protected. The **legal, technical and financial arrangements** to make 'solidarity gas' possible are to be agreed bilaterally between Member States[200]. During the discussions of these arrangements (currently still under preparation) Member States encountered a number of difficulties, in particular related to the interaction between the normal functioning of the internal market rules and the introduction of *ad hoc* measures resulting from the solidarity arrangements, as well as on finding the appropriate price mechanism for the 'solidarity gas'.

Another difficulty raised concerns the **role and responsibility of the National Regulatory Authority** in monitoring the respect of the bilateral solidarity arrangements in case of emergency. The role of the NRA and ACER on security of supply is not clearly defined in the Third Package, but Article 41(1) requires the NRA to be responsible for (a) fixing or approving, in accordance with transparent criteria, transmission or distribution tariffs or their methodologies; (b) ensuring compliance of transmission and distribution system operators, and where relevant, system owners, as well as of any natural gas undertakings, with their obligations under the gas Directive and other relevant Community legislation, including as regards cross-border issues; (c) cooperating in regard to cross-border issues with the regulatory authority or authorities of the Member States concerned and with the Agency; and (d) monitoring the implementation of rules relating to the roles and responsibilities of TSOs, DSOs, suppliers and customers and other market parties pursuant to Regulation (EC) No 715/2009; at the same time, the Gas SoS Regulation requires Member States to designate a 'Competent authority' for the implementation of the Regulation, which only in some cases is the NRA.

The Gas Directive kept some provisions that existed already in the Second Package (and in earlier texts) that were directly meant to accommodate the need for *ad hoc* action to prevent potential gas supply disruptions and to manage emergencies.

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199 See Article 7 and Annex I of the Regulation.

200 See Commission Recommendation (EU) 2018/177 of 2 February 2018 on the elements to be included in the technical, legal and financial arrangements between Member States for the application of the solidarity mechanism under Article 13 of Regulation (EU) 2017/1938 of the European Parliament and of the Council concerning measures to safeguard the security of gas supply (C/2018/0551) http://data.europa.eu/eli/reco/2018/177/oj

This is the case of **Article 5 ('Monitoring of security of supply'),** which, to the extent that it included reporting obligations, was deleted in 2018 by Regulation (EU) 2018/1999 (Governance Regulation). As explained in the Fitness check that preceded the Commission's proposal, this reporting obligation was considered as overlapping with the obligations under the gas SoS Regulation[201].

Special attention deserves **Article 46 of the Gas Directive, on 'Safeguard measures'[202].** This article reflects the consideration that, in case of crisis, Member States should be able to derogate to the internal market rules, subject to some requirements. The provisions of this article were also superseded by the evolution of the *lex specialis* on security of supply, which foresees the ex-ante identification in the national emergency plans of any non-market based measure to be applied in case of emergency, as well as the appropriate governance for notifying such measures in case of emergency and monitoring the impact and justification of such measures (see Articles 10, 11 and 12 of the Gas SoS Regulation). Under **Article 41(1)(t),** the NRA shall have the duty to monitor the implementation of these safeguard measures.

The provisions of the Third Package on security of supply in general, and on emergency preparedness in particular, are therefore based on a legal set up that evolved dramatically – based on the experience – already at the end of 2010 and which strengthened in 2017 the regional approach to security of gas supply, and translated into concrete obligations the solidarity principle that in the meantime has been enshrined in the Treaty itself.

On their turn, the current rules on Security of Gas Supply (in the sense of emergency preparedness), rely on the consideration that the security of gas supply is, as a matter of principle, guaranteed by well-functioning, competitive, transparent, integrated and well interconnected gas markets. This is clearly stated in its Article 1: *'This Regulation establishes provisions aiming to safeguard the security of gas supply in the Union by ensuring the proper and continuous functioning of the internal market in natural gas ('gas'), by allowing for*

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201 'The obligation in Article 5 of the Gas Directive to monitor the security of gas supply was assessed by the study to result in mediocre median annual costs for MS of EUR 16 503, which are mainly due to costs for equipment and software (EUR 15 000) 121 and on median 10 man-days per year are needed for the fulfilment of the obligation. The benefits were evaluated as high but he study also identified overlaps of the indicators reported for this obligation with MS reporting obligations to Eurostat 122 as well as overlaps with the reporting obligation contained in Article 41(1e) of the directive. Nevertheless and due to the comparatively lower costs and high benefits of the obligation reported, the study assessed a high score for all Better Regulation criteria but EU added value with a medium result. The internal interviews by the Commission did not entirely support these good results concerning benefits but confirmed the significant overlaps with the reports provided under Article 41(1e) of the directive as well as with the obligations under the Security of Gas Supply Regulation. Furthermore, the public consultation also identified overlaps of the obligation with the Security of Gas Supply Regulation.' Fitness check accompanying the proposal https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0397&from=EN

202 '1. In the event of a sudden crisis in the energy market or where the physical safety or security of persons, apparatus or installations or system integrity is threatened, a Member State may temporarily take the necessary safeguard measures.
2. Such measures shall cause the least possible disturbance to the functioning of the internal market and shall be no wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.
3. The Member State concerned shall, without delay, notify those measures to the other Member States, and to the Commission, which may decide that the Member State concerned must amend or abolish such measures, insofar as they distort competition and adversely affect trade in a manner which is at variance with the common interest.'

exceptional measures to be implemented when the market can no longer deliver the gas supplies required, including solidarity measure of a last resort, and by providing for the clear definition and attribution of responsibilities among natural gas undertakings, the Member States and the Union regarding both preventive action and the reaction to concrete disruptions of gas supply.'

To achieve its objectives, the Regulation introduces minimum standards on infrastructure and supply, and adds to the internal market rules those tools that are needed to identify risks (national and regional risk assessments), prevent them from happening (preventive action plans) and take the appropriate measures to remove or limit the impact in case of crisis (emergency plans). A main novelty of the 2017 Regulation was the so called solidarity mechanism, which obliges Member States – under some conditions, where a neighbouring country is in emergency state – to reduce the consumption of gas by non-solidarity protected customers in order to supply the necessary gas to the solidarity protected customers of the neighbouring Member State.

The rationale behind the current EU gas SoS rules is summarised in Recital 31 of the Gas SoS Regulation, as follows: *'This Regulation lays down security of supply standards that are sufficiently harmonised and cover at least the situation that occurred in January 2009 when gas supply from Russia was disrupted. Those standards take account of the difference between Member States, public service obligations and customer protection measures, as referred to in Article 3 of Directive 2009/73/EC. Security of supply standards should be stable, so as to provide the necessary legal certainty, should be clearly defined, and should not impose unreasonable and disproportionate burdens on natural gas undertakings. They should also guarantee equal access for the Union natural gas undertakings to national customers. Member States should establish measures that will, in an effective and proportionate manner, ensure that natural gas undertakings comply with such a standard, including the possibility to establish fines on suppliers, where they consider it to be appropriate.'*

While the Gas SoS Regulation takes duly into account the existence of the Third Package rules, the fact is that the latter – and in particular the subsequent network codes and guidelines – does no longer reflect the mechanisms of the security of supply rules.

A total of 21 definitions in Article 2 of the Gas SoS Regulation refer to those in Article 2 of Directive 2009/73. Only five definitions are new; they are needed for some notions that were introduced by the SoS rules in 2010 and 2017 (therefore not taken into account in the Gas Directive). These five 'new' definitions concern: **'essential social service' (Article 2(4)), 'protected customer' (Article 2(5)), 'solidarity protected customer' (Article 2(6)), 'competent authority' (Article 2(4)) and 'emergency supply corridors'.** These *ad hoc* notions seem therefore meant only for the purposes of the security of supply Regulation, but – to the extent that some of them may justify some intervention in the market –, they might need to be taken into consideration within the internal market rules, and – in particular – when developing network codes and guidelines.

This is the case e.g. of the definition of **protected customers**, that determines that appropriate preventive measures are foreseen to guarantee the supply to these customers in specific cases that may impact the gas supply (so called '**supply standard**')[203]. Article 2(5) leaves some room for manoeuver to Member States when identifying the group of protected customers. The definition of these at national level is important, though, because it may determine the declaration of an 'emergency state' by a Member State and the introduction of 'non-market based measures'. The Regulation requires that such measures be clearly defined, transparent, proportionate, non-discriminatory and verifiable, shall not unduly distort competition or the effective functioning of the internal market in gas and shall not endanger the security of gas supply of other Member States or of the Union (Article 8(1)). But these requirements are mainly appropriate for an *ex-ante* check of the relevant national preventive action plans and preventive plans. In case of market tightness, the different scope of the group of 'protected customers' in different Member States may imply the introduction of non-market based measures at an early stage.

Closely linked to the supply standard (as well as to the infrastructure standard defined in Article 5) is also the notion of **public service obligation**. The Regulation (Recital 31) refers to the provisions in Article 3 of the Gas Directive. Member States have to indicate in their National Preventive Action Plans the existing PSOs related to the security of supply and briefly describe them. This should include clearly who has to comply with such obligations and how, as well as how and when those PSOs would be triggered, if applicable. In its opinions on some national plans, the Commission has highlighted its doubts on some preventive measures, their potential impact on cross border trade and on the internal market in general and their potential lack of justification from the security of supply point of view.

Article 11 of the Gas SoS Regulation deals with the procedure for declaring a crisis, and in particular the **three crisis levels**: early warning, alert level and emergency level; as mentioned, the latter justifies the adoption of non-market based measures. The declaration of **emergency level by one Member State may trigger the solidarity mechanism** (Article 13), which may lead a neighbouring Member State to reduce the gas supply to its non-solidarity protected customers and share the available gas with the solidarity protected customers in a first Member State. The needed 'solidarity gas' may be obtained through market based mechanisms, such as ad hoc tenders or interruptibility contracts; if needed, non-market based measures should be applied, including enforced load shedding.

Several provisions thus of the Gas SoS Regulation may therefore have an impact on the normal functioning of the internal market, where the security of supply is at stake. They require clear responsibilities at national level and clear technical rules in order for everyone to be able to react when needed.

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[203] (a) extreme temperatures during a 7-day peak period occurring with a statistical probability of once in 20 years; (b) any period of 30 days of exceptionally high gas demand, occurring with a statistical probability of once in 20 years; (c) for a period of 30 days in the case of disruption of the single largest gas infrastructure under average winter conditions (Article 6(1)).

Despite the close link between security of supply, market rules and system operation, **the Third Package and the network codes and guidelines developed over the past years do not duly take into consideration the evolution of the security of supply rules since 2009.**

Commission Regulation (EU) No 312/2014 establishing a network code on gas balancing of Transmission Networks sets out gas balancing rules, including network-related rules on nomination procedures, imbalance charges, settlement processes associated with the daily imbalance charge and operational balancing between transmission system operators' networks. It applies to balancing zones within the borders of the Union. However, its Article 2(4) clarifies that *'this Regulation shall not apply in emergency situations where the transmission system operator shall implement specific measures defined under the applicable national rules and on the basis of Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply, as appropriate.'*

Only Commission Regulation (EU) 2015/703 establishing a Network code on interoperability and data exchange rules contains, in its Article 6 (on 'Rules for flow control', point 14) a reference to the fact that '*a transmission system operator may decide to alter the quantity of gas or the gas flow direction or both, if this is needed, in order to: (a) comply with provisions laid down in national or Union safety legislation applicable to the interconnection point; (b) comply with requirements laid down in Emergency Plans and Preventive Action Plans developed in accordance with Regulation (EU) No 994/2010 of the European Parliament and of the Council (7); (c) react in case the operator's system is affected by an exceptional event*.'

Conclusion

The Third Package, and in particular its Article 6, on regional solidarity, represented an important step forward that contained the embryo of subsequent EU rules on security of gas supply. Its provisions were quickly superseded by Regulation (EU) No 994/2010 and further developed by the Gas SoS Regulation (EU) 2017/1938.

Coherence with Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (**Renewable Energy Directive**)

Recast RES Directive has introduced more detailed rules for the authorisation, certification and licensing of renewable energy that that should be implemented in objective, transparent, non-discriminatory and proportionate manner and should take into account particularities of individual renewable energy technologies. Directive 2012/27/EU on energy efficiency provides for guarantees of origin for proving the origin of electricity produced from high-efficiency cogeneration plants. Guarantees of origin issued for the purposes of this Directive have the sole function of showing to a final customer that a given share or quantity of energy was produced from renewable sources. Guarantees of origin which are currently in place for renewable electricity are under recast Directive extended to cover also renewable gases. Extending the guarantees of origin system to energy from non-renewable sources is an option for Member States. This should provide a consistent means of proving to final customers the origin of renewable gas such as biomethane and should facilitate greater cross-border trade in such gas. It is now also possible to create guarantees of origin for other renewable gas, such as hydrogen. Furthermore, the directive introduces a legal framework for

renewable energy communities empowering SMEs, local authorities and citizens located in proximity of the production installations to take control over their renewable energy production and supply.

Coherence with Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency (**Energy Efficiency Directive**)

Provisions under Articles 9-11 (for electricity) of the EED have been transferred to the Electricity Directive as part of the Clean Energy for all Europeans Package in 2018, which allowed to address the existing overlaps in relation to metering and billing rules between the two Directives. The amended EED requires assessing the need to do the same by end 2021 where appropriate for the provisions related to gas.

1.9. EU value added

This section aims to determine value resulting from the Third Package (as determined by 'Effectiveness' and 'Efficiency' Sections) compared to what could have been achieved by Member States at national and/or regional levels. It includes the added value of the institutional bodies established at EU level by the Third Package: ENTSOG and ACER.

1.9.1. *Value added of EU market framework*

- What is the additional value **resulting from the Third Package** compared to what could be achieved by Member States at national and/or regional levels?

Unbundling

The legal and functional unbundling of TSOs that were vertically integrated with production and supply activities, provided for under the Second Package, did not succeed in ensuring equal access to the networks for all suppliers. Reinforced common rules on TSO unbundling introduced by the Third Package in order to foster competition on the network could only be adopted at EU level. Common unbundling rules were needed to ensure a level playing field.

With regard to DSOs, the large majority of the Member States have not set unbundling requirements beyond those of the Gas Directive, demonstrating that the intervention was necessary in order to structure the EU energy sector in such way so as to pursue the wider objectives of the internal market, to promote competition and economic growth.

Access to cross-border infrastructure

At the time the Third Package was adopted, the legal framework did not allow for a proper and efficient regulation of the cross border issues relating to gas network access. The fact that access to cross border interconnectors was often granted in a preferential manner showed that rules were insufficient despite the principle of non-discriminatory access which was already included in Article 18 of the Second Package. This is why the Third Package aimed at a modification of existing EU legislation and at the creation of new frameworks for cross-border co-operation which could legally and practically only be achieved at the European level. The challenges could not be addressed as efficiently by individual Member States. Fostering a more efficient and integrated EU gas market and ensuring a more co-ordinated policy response to security of supply clearly required harmonised and coordinated approaches by all Member States.

The reduction of price spreads between Member States as a result of an increase of cross-border trade clearly shows that the Third Package has meant a major step in regulating cross-border interconnectors. This is clearly an issue that could only be regulated at EU level. Additionally, the requirement to have at least a virtual reverse flow possibility, meaning that gas could be traded in both directions even if this was not possible from a physical perspective efficiently led to additional cross-border capacity without significant investment needs[204].

Similarly, as Member States' networks became increasingly interconnected via infrastructure, there was a need for more cooperation between neighbouring TSOs. This could only be achieved by supranational measures. This is especially true as regards the need for a coordinated approach to infrastructure development in particular with relevance for security of supply. This has called for the development of ENTSOG and the establishment of a TYNDP. The coordination rules for TSOs and NRAs introduced by the Third Package were needed to avoid fragmented uncoordinated decisions, which could hamper the effective functioning of the internal market.

In addition, the more technical network codes led to a further harmonisation on access to cross-border infrastructure by introducing a harmonised allocation methodology by way of auctions to allocate capacity and by requiring the standardised offer of so-called bundled capacity products that enabled a transport of gas between the market areas' virtual trading points instead of virtually stopping at the border and handing the gas over there.

Price regulation

The regulation of retail prices of gas for industrial consumers has been largely successfully tackled since the Second Package. Furthermore, a considerable amount of Member States have liberalised price regulation for households and SMEs. In turn, the phase out of price regulation has contributed to increased competition at the retail market level, a decline in the average share of the three largest suppliers and a widening of consumer choice. However, despite considerable progress made, price regulation continues to be in place in many Member States (see Section 6.1.1.).

Consumer empowerment and protection

Metering and billing; access to data and switching

In a single market for energy, there is a strong case for suppliers being subject to similar if not identical obligations and rules, and for consumers to enjoy the same basic rights and be provided with comparable and recognisable information wherever they live and wherever they purchase their energy from. More generally, the delivery of a New Deal for energy consumers[205] as part of the Energy Union includes providing consumers with frequent access

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204 Virtual reverse flow means a netting of nominations between both flow directions. In case it is not possible to use an interconnector physically in both directions, network users could use the interconnection point up to a level of the usage on the main direction. Only the net sum of the transport wishes of all network users would then be transported by the respective transmission system operators.

205 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0339

to partially standardised, meaningful, accurate and understandable **information on consumption and related costs**. Guaranteeing certain minimum standards in terms of the frequency and content of billing and billing information therefore contributes to realising the Energy Union and meeting EU goals on energy efficiency and greenhouse gas reductions. In addition to minimum standards for billing, the guarantee of equal standards regarding further rights that facilitate switching (e.g. transparent comparison tools, minimum switching times or absence of termination fees) would bring considerable benefits to consumers across the EU.

The provisions addressing consumer information, and **access to data**, in the Gas Directive are essential for protecting consumers in the internal energy market at the retail level, and empowering them at the same time by enabling for them choices. They play an important role in ensuring the benefits of the internal market in energy can be enjoyed by all consumers, and help to create a level playing field for suppliers and other retail market actors across the EU. Whereas there are currently still very few if any examples of cross-border supply in the retail market, a common base of energy consumer rights is a precondition for that to develop over time. The delivery of such **cross-border services** could be further facilitated by setting up, and accordingly mandating that as it is currently the case for electricity, **interoperable arrangements** within the EU for the easy, safe and secure **access and exchange of data** among eligible parties, while fostering the development of novel energy services and products that benefit EU consumers and businesses alike.

While some Member States had already been protecting their vulnerable energy customers and energy poor households prior to the EU intervention, others have taken action as a result of the EU intervention. The introduction of the concept of the 'vulnerable customer' and 'energy poverty' by some Member States has been clearly instrumental to the adoption of measures contributing to addressing the issue.

Conclusions

Overall, it can be concluded that the subjects covered by the examined legislation such as unbundling, cross-border cooperation, interconnectors, are topics that legally and practically could only be regulated at EU level. Similarly, cooperation between neighbouring TSOs and NRAs needed to avoid fragmented uncoordinated decisions. Regulation could only happen at supranational level.

Only a common EU legislative approach to metering and billing and overall to consumer protection and empowerment provisions would consistently safeguard the level playing field for suppliers and provide equal rights for energy consumers. It also facilitates providing cross-border services.

- What is the **value added of ENTSOG and ACER**?

The regulatory framework and rule-making process for energy policy has been enriched in the Third Energy Package by creating ACER and ENTSOG. ACER provides a framework for institutionalised cooperation between national regulators. ENTSOG, in turn, constitutes a cooperation platform for transmission system operators.

Both ACER and ENTSOG have become important partners in discussions on regulatory issues and fulfil a useful task in the coordination of NRAs and TSOs, respectively. They are both crucial actors in the development process of the network codes. In its Communication *Delivering the internal electricity market and making the most of public intervention*[206], the Commission underlined that ACER and the ENTSOs have played a key role in the progress towards a functioning internal energy market. In 2014, the Commission made an Evaluation on the first years of the functioning of ACER and has concluded that the agency has become a credible and respected institution playing a prominent role in the EU regulatory arena and focusing on the right priorities[207].

An external evaluation of ACER was conducted in 2014[208], followed in 2016 by the Evaluation of the internal energy market[209] and the Impact Assessment[210] for the Clean Energy Package, which further assessed the impacts of the ACER regulation. These reports concluded that ACER's governance and management structure is widely considered to be appropriate for the Agency's current role. The analyses also concluded that the Agency's working methods represent significant value added thanks to numerous informal interactions with associations and other stakeholders. Also their on-going publishing of all relevant documents is highly appreciated from the market participants. In 2014 the vast majority of stakeholders consulted for this ACER Evaluation reported the Agency to be understaffed. However, the Agency was able to carry out most of the activities planned in the work plans. These reports also concluded that deliverables produced by ACER bring value to all stakeholders by informing them of key market and regulatory developments. Stakeholders' view that ACER is understaffed was highlighted again in 2020 by a report from the European Court of Auditors[211].

The Commission[212] assessed in 2021, based on a report by an independent expert, whether the financial and human resources available to ACER allow it to fulfil its role under the ACER Regulation of working towards an internal energy market and of contributing to energy security to the benefit of consumers in the Union. This assessment[213] stated that for ACER to be properly resourced for its tasks under current EU legislation, 25 additional posts are needed for strengthening its legal expertise, reinforce teams working on electricity market integration and for implementing Regulation (EU) 1227/2011 (REMIT). The required additional financial

206 https://ec.europa.eu/energy/sites/ener/files/documents/com_2013_public_intervention_en_0.pdf

207 https://ec.europa.eu/energy/sites/ener/files/documents/20140122_acer_com_evaluation.pdf

208 Commission Evaluation of 22.01.2014 of the activities of the Agency for the Cooperation of Energy Regulators (ACER) under Article 34 of Regulation (EC) 713/2009 – C(2014) 242 final.

209 SWD/2016/0412 final - 2016/0379.

210 SWD/2016/0410 final - 2016/0379.

211 European Court of Auditors 2020 Special Report: Future of EU agencies – Potential for more flexibility and cooperation.

212 The revised ACER Regulation (Article 33(10) of the ACER Regulation 2019/942) introduced the obligation that the Commission shall assess whether the financial and human resources available to ACER allow it to fulfil its role under this Regulation of working towards an internal energy market and of contributing to energy security to the benefit of consumers in the Union.

213 Commission Opinion of 05.10.2021 on the draft programming document of the European Union Agency for the Cooperation of Energy Regulators for the period 2022 – 2024 and on the sufficiency of the financial and human resources available to the Agency – C(2021)7024.

resources, including for 15 of the 25 additional posts, can be covered by income from fees for ACER tasks under (REMIT).

As regards ENTSOG, improving security of supply by strengthening incentives for investment in transmission and distribution capacities required a tighter cooperation between national TSOs. Through the setting up of ENTSOG, the Third Package made this cooperation easier and smoother. Such an EU-wide structure could only be created thanks to EU intervention.

However, the implementation of the Third Package has highlighted the existence of a number of shortcomings concerning the framework applicable to ACER and the ENTSOs. See notably Section 6.1.1. (reference to increased TSO cooperation Section) on the need to reinforce the independence and transparency requirements applicable to ENTSOG and the possible conflict of interest in ENTSOG's role.

In some instances, fragmented national regulatory oversight has proved to be inefficient for cross-border issues related to the gas system. The lack of a stronger governance and regulatory framework for cross-border issues constituted a barrier for the integration of the energy markets[214]. In this regard, there was consensus among market parties and stakeholders that ACER should indeed be enabled to more efficiently oversee the development of the internal energy market and deal with cross-border issues, both in the electricity and gas sectors. Therefore, ACER's oversight role was strengthened in the recast ACER Regulation and recast Electricity Directive as far as ENTSO-E, the EU DSO entity and the Regional Coordination Centres are concerned.

Overall, ACER and ENTSOG have become key partners in discussions on regulatory issues and fulfil a useful task in the coordination of NRAs and TSOs, respectively. However, a number of shortcomings concerning their framework have been identified which need to be resolved.

1.9.2. *Assessing the case for continuing EU-intervention*

- To what extent do the **objectives** addressed by the Third Package **continue** to require EU-intervention?

Despite the positive developments generated by the examined legislation, there is still limited coordination between national TSOs, often restricted to very specific subjects or situations. Similarly, without further harmonisation and legislation at EU level, existing regulatory

214 Study for the ITRE Committee of the European Parliament 'Energy Union: Key Decisions for the Realisation of a Fully Integrated Energy Market', 15 March 2016 'In several regional or EU-level projects (e.g. market coupling projects, (…)) national authorities, TSOs, regulators and energy exchanges of different Member States need to cooperate. However, as they are primarily responsible for their own national gas and electricity system and market they are not always sufficiently motivated to also take supranational interests into account. […] This leads to complex and slow decisional and implementation processes for most cross-border projects, resulting in delayed implementations (e.g. the intra-day markets' coupling project).' In this context, different stakeholders argue for stronger **governance at the EU level**. For example, EPEX Spot states the need to accompany the electricity target model by appropriate governance architecture at European level, applicable on Market Coupling activities, which will be crucial to ensure an efficient day-to-day operation of such complex mechanisms. http://www.europarl.europa.eu/RegData/etudes/STUD/2016/578968/IPOL_STU(2016)578968_EN.pdf

barriers and uncertainties are likely to lower the use of renewable gases and their cross-border trade, which might be compensated by higher natural gas imports.

Indeed, the increasing contribution that decentralised production of renewable gas can provide to the decarbonisation of the gas system calls for continued EU action to improve the functioning of the internal gas market and enable maximum cross-border trading and cost-efficient integration to happen also for decentrally produced gases.

In view of the current efforts at European and national level to promote use of renewable hydrogen as a replacement for fossil fuels, Member States could be incentivised to adopt rules on the transport of hydrogen dedicated pipelines at national level. This creates the risk of a fragmented regulatory landscape across the EU, which could hamper the integration of national hydrogen networks and markets, thereby preventing reaping the cost benefits of trade in hydrogen. Harmonising rules for hydrogen networks at a later stage (i.e. after national legislation is in place) would lead to increased administrative burden for Member States and higher regulatory costs for companies, especially where long-term investments in hydrogen production and transport infrastructure are concerned.

National policy interventions in the gas sector have direct impact on neighbouring Member States. This even more than in the past as the increasing cross-border trade, the spread of decentralised generation and more enhanced consumer participation increases spillover effects. No State can effectively act alone and the externalities of unilateral action have become more important. This clearly calls for a continuation of EU action to reach the objectives of the Third Energy Package.

7. Conclusions

In this Evaluation, the Commission services have assessed if the Third Gas Package is fit for purpose by examining its performance against five criteria: relevance, effectiveness, efficiency, coherence and EU added value. The results of the Evaluation will be used by the Commission to inform future decisions in relation to EU energy policy. In particular, this Evaluation provides the basis for the Impact Assessment for the initiative to review the existing EU gas market rules.

The main results of the Evaluation can be summarised as follows:

Effectiveness

The various public consultations conducted, as well as the studies used, provide a good picture of the effectiveness of the analysed legislation. Based on these elements it can be concluded that the reinforcement of unbundling requirements has had a positive effect on competition with new players entering the gas market. However, in some Member States the incumbent still holds a dominant position. Market integration has improved with a clear increase in cross-border trade since 2009. Cooperation between TSOs and regulators in the cross-border context has improved, but might prove to be insufficient in view of future challenges towards the decarbonisation of the gas sector, notably in regards of cross-border gas quality management and market mergers. On the retail side, competition still needs to significantly improve to ensure that the full benefits of market integration are passed on to EU consumers. Our Evaluation has identified price regulation as one of the major reasons for status quo or little progress in this area. Moreover, consumers are still deprived from the necessary tools to get actively involved in the market, as gas smart metering remains limited, and still challenging to prove its economic feasibility, and the current measures

ineffective when it comes to non-discriminatory access to data and to sufficient information sharing. Consumer protection provisions in the analysed legislation prove to only be partially fit for purpose. Member States have defined the notion of vulnerable consumers and adopted measures to protect them. However, their protection is uneven between Member States. Energy poverty is growing across the EU.

Efficiency

There is limited quantitative information available at the EU scale to underpin an assessment of administrative burden and, more generally, of efficiency of the legislation analysed. Overall, it can be concluded that the new rules of the Third Energy Package have generated additional administrative costs for undertakings and regulators. However these are not perceived as too heavy by stakeholders and appear to be counterbalanced by the benefits they generate notably through the increase in competition in the sector and welfare gains mainly based on change to gas-to-gas competitive pricing.

Relevance

Gas markets have changed significantly in the last twelve years. The market-oriented rules of the Third Energy Package are still highly pertinent to cope effectively with the challenges of the new market. Market-based energy prices that are able to take into account the rapid changes of demand enable more market based and hence more efficient allocation of resources as well as gas flow changes in case of scarcity, improving security of supply.

However, the existing rules are not able to cater to the decarbonisation of the energy system nor to the emergence of new promising energy carriers and market realities. Different or additional rules are needed to ensure in particular the emergence of markets and infrastructure for renewables and low carbon gases, notably hydrogen. Given the expected similarities between the characteristics of the future hydrogen market and the existing gas market, its future regulatory framework can build upon the existing principles that regulate the current gas market. Regarding the institutional framework, it appears that the challenges the EU energy system will be facing in the medium to long term cannot be addressed and optimally managed by individual TSOs focusing on a single energy vector, rendering the current legal framework concerning system planning unsuitable.

In the area of retail markets and consumer empowerment, the objective of enabling consumers to actively participate in the market will remain the key multi-dimensional challenge. Firstly, further progress is needed in the area of billing information, comparison tools and consumers' ability to easily switch suppliers or easily and safely access their consumption data or make it available to third parties of their choice. In consequence, smart metering deployment – a key development facilitating consumer empowerment in the above-mentioned areas – remains a very relevant policy area, but nevertheless its cost-effectiveness and overall feasibility continues to be more challenging than for electricity. Also, the functions of DSOs need further definition and enhanced regulatory oversight in order to deploy, *inter alia,* non-discriminatory management of consumer data. Progress towards lifting regulated prices blocking competition and consumers' choice should also continue. Last, but not least, consumer vulnerability will remain relevant as some drivers of vulnerability are permanent.

Coherence

General speaking, the Third Energy Package provisions are working together well. However, the Commission has spotted several provisions which would need to be either deleted because obsolete or never used or modified because unclear or confusing. Intervention will be for instance required to harmonise the different provisions concerning energy security in the gas sector.

Amendments will also prove necessary in view of a further alignment and harmonisation of Gas rules with the regulatory framework developed in the Clean Energy Package for the Electricity sector.

EU-added value

Overall, the needs and rationale for EU level action through the gas legislation remain valid. The transnational nature of the subjects covered such as cross-border cooperation and interconnectors justify EU level action as an effective way to achieve the objectives of the Third Energy Package. These are topics which legally and practically could only be regulated at EU level. Similarly cooperation between neighbouring TSOs and NRAs are needed to avoid fragmented uncoordinated decisions. ACER and ENTSOG have become key partners in discussions on regulatory issues and fulfil a useful task in the coordination of NRAs and TSOs, respectively. EU-wide framework for introducing competition on retail markets and enabling consumers' choice is beneficial for providing level playing field for energy producers and suppliers as well as to benefit the consumers. It also facilitates providing cross-border services.

The current regulatory framework for gas does not anticipate the deployment of hydrogen as an independent energy carrier via dedicated hydrogen networks. There are no rules on the operation of new hydrogen networks or the repurposing of natural gas networks for the future transport of hydrogen. Apart from a potential use of the regulated natural gas network for hydrogen transport, similarities between the expected hydrogen market and the existing gas market (large number of producers and consumers; reliance on networks for transport and market access, consumption and production in different Member States), provides a useful indication for the types of competition concerns and possible market failures that may arise in a cross border hydrogen network, and that justify EU regulation.

8.

ANNEX 1 – PROCEDURAL INFORMATION

For a detailed description of the procedural information, please refer to Annex 1 of the Impact Assessment.

ANNEX 2 – STAKEHOLDER CONSULTATION

For a detailed description and summary of the stakeholder consultations used for this Evaluation, please refer to Annex 2 of the Impact Assessment.

***ANNEX 3* – TABLE OF SYNERGIES BETWEEN EVALUATION AND IMPACT ASSESSMENT AS WELL AS RELEVANT CONNECTED LEGAL ACTS WHICH REQUIRE REVISION**

Areas	Articles in existing acts	Where covered in the Evaluation	Where covered in the Impact Assessment	Relevant Legal Act to be revised
Subject matter, scope and definitions	**Directive 2009/73/EC** Article 1: Scope – Include new gases Article 2: Definitions **Regulation 715/2009** Article 1: Scope Article 2: Definitions	Chapter 1, paragraph 1.1 Chapter 6, paragraphs 6.3.1, 6.3.3	Chapter 1, paragraphs 1.2,1.4,1.5 Chapter 4, paragraphs 4.1, 4.2 Chapter 7, paragraph 7.5	**Gas Directive and Gas Regulation**
Promotion of market integration for renewable and low carbon gases	**Directive 2009/73/EC** Article 13: review the tasks of transmission, storage and/or LNG system operators Article 25: review tasks of DSOs Article 47 and 48 – level playing field – PSOs , take-or-pay delete **Regulation 715/2009** Article 4 , 5 , 8: review ENTSOG-DSOs tasks Article 13: tariffs for access to network, cross-subsidisation	Chapter 1, paragraph 1.1 Chapter 6, paragraphs 6.3.1, 6.3.4	Problem Area II Chapter 2, paragraphs 2.1, 2.2 Chapter 5, paragraphs 5.1, 5.2 Chapter 6, paragraphs 6.1, 6.2, 6.7 Chapter 7, paragraphs 7.1, 7.2, 7.7 Chapter 8, paragraphs 8.1, 8.2, 8.5 Chapter 9, paragraphs 9.1, 9.2	**Gas Directive and Gas Regulation** **TEN-E Regulation** **Renewables Energy Directive** **Energy Effiency Directive**

Areas	Articles in existing acts	Where covered in the Evaluation	Where covered in the Impact Assessment	Relevant Legal Act to be revised
Security of supply and risk preparedness	**Directive 2009/73/EC** Article 3: PSOs (links to SOS, regulated prices and RES PSOs) Article 5 and 6: Alignment with SOS Regulation Article 41(1)t: Duties and powers of the regulatory authority – monitoring the implementation of safeguard measures Article 46: Safeguard measures **Regulation 715/2009** Article 8: review tasks of ENTSOG on cybersecurity	Chapter 1, paragraph 1.1 Chapter 3, paragraph 3.2.1; Chapter 6, paragraphs 6.3.4, 6.4.2	Problem Area III Chapter 2, paragraphs 2.2, 2.3 Chapter 5, paragraphs 5.2.1, 5.3 Chapter 6, paragraphs 6.2 Chapter 7, paragraph 7.5.1 Chapter 8, paragraph 8.2	**Gas Directive and Gas Regulation** **Security of Supply Regulation** **Renewables Energy Directive**
Regional cooperation and market mergers	**Directive 2009/73/EC** Article 7.4: unbundling and market mergers, NRAs oversight and certification in merged markets **Regulation 715/2009** Article 12: regional cooperation of TSOs	Chapter 6, paragraphs 6.1.1, 7.3.2	Problem Area III Chapter 2, paragraph 2.2.1.2 Chapter 6, paragraph 6.7	**Gas Directive and Gas Regulation** **Electricity Directive**
Gas quality	**Directive 2009/73/EC**	Chapter 1, paragraph 1.1	Problem Area I, II	**Gas Directive and Gas**

Areas	Articles in existing acts	Where covered in the Evaluation	Where covered in the Impact Assessment	Relevant Legal Act to be revised
	Article 8: technical rules – gas quality Article 13: review tasks of TSOs Article 25: review tasks of DSOs Article 41: review duties and powers of the regulatory authority **Regulation 715/2009** Article 8: review tasks of ENTSOG and areas for network codes Article 18: review TSO level transparency requirements and include DSO level transparency related to gas quality	Chapter 6, paragraph 6.3.2	Chapter 6, paragraphs 6.1.2, 6.2	**Regulation**
LNG	**Directive 2009/73/EC** Article 13: review tasks of system operators Article 36: Include new criteria for LNG new infrastructure **Regulation 715/2009** Article 15 – TPA for Storage and LNGs Article 18, 19: transparency of	Chapter 6, paragraph 6.3.2	Problem Area II Chapter 2, paragraph 2.2.1.5 Chapter 5, paragraph 5.2	**Gas Directive and Gas Regulation** **Renewables Energy Directive**

Areas	Articles in existing acts	Where covered in the Evaluation	Where covered in the Impact Assessment	Relevant Legal Act to be revised
	LNG and storages DSOs – include transparency platforms			
Network Planning	**Directive 2009/73/EC** Article 14, 18, 20, 21, 22, 23, 35 and 41: Network planning of ISO and ITO amend and expand to other TSOs, connection rules, refusal of access	Chapter 1, paragraph 1.1 Chapter 6, paragraph 6.3.3	Problem Area III Chapter 2, paragraph 2.3 Chapter 5, paragraphs 5.1, 5.3 Chapter 6, paragraph 6.3 Chapter 7, paragraph 7.3 Chapter 8, paragraph 8.3	TEN-E Regulation Renewables Energy Directive Electricity Directive
Consumer empowerment and protection	**Directive 2009/73/EC** Article 3: PSO Article 45: consumers, energy poverty Article 28 – closed networks, energy communities Annex I – consumer protection	Chapter 6, paragraphs 6.1.2, 6.3.5	Problem Area IV Chapter 2, paragraph 2.4 Chapter 5, paragraph 5.4 Chapter 6, paragraph 6.4 Chapter 7, paragraph 7.4 Chapter 8, paragraph 8.4	Gas Directive and Gas Regulation Electricity Directive
Regulatory oversight **('mirroring')**	**Directive 2009/73/EC** Article 40, 41, 42, 43, 44 – powers of NRAs Gas Directive **Regulation 715/2009** Article 9 – ACER	Chapter 2, paragraphs 2.1, 2.2 Chapter 6, paragraph 6.5.1	Chapter 4, paragraph 3.2, 3.3 Chapter 9, paragraph 9.5	Gas Directive, Gas Regulation and ACER Regulation

ANNEX 4 – SPECIFIC ASPECTS OF RETAIL MARKET COMPETITION AND CONSUMER GAS PRICES, PRODUCTS AND SERVICES

1. Market concentration

The figures below show a high concentration in retail gas markets for households in the majority of the Member States, measured by the concentration ratio CR3[215].

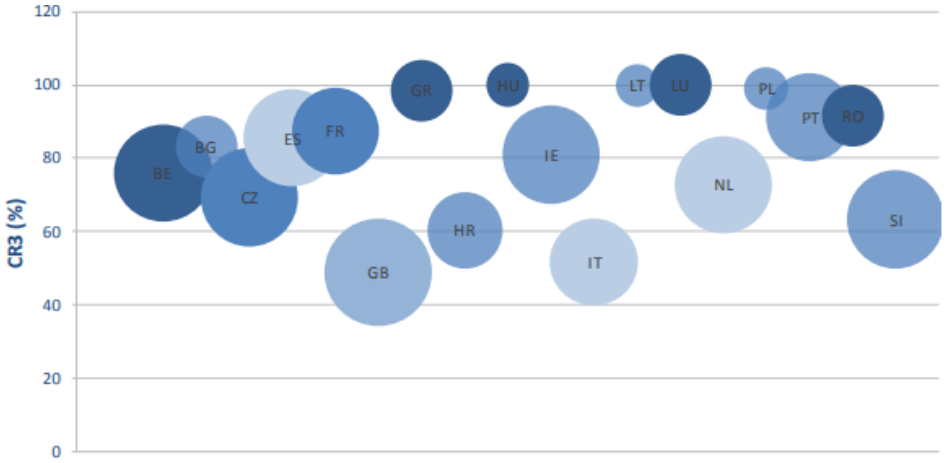

Figure 5: Market shares of three largest gas suppliers for households by metering points and number of suppliers for households with a market share above 5% by metering points

The decline in average market share of the three largest supplier has declined continuously between 2011 and 2015 from 87.1% to 84.5%, with a slight increase in 2016 to 84.6%.

Figure 6: Market share of the three largest suppliers in the market for households – Gas (by metering points, in %)

215 2017 CEER Retail Markets Monitoring Report, p. 27.

2. Market services and products

Although low prices are the most commonly thought of way for firms to attract consumers, firms may also seek to distinguish their products by other means. These may include quality of service, convenience, an environmentally sustainable product, or any other non-price aspect that adds value for consumers. The diversity of products available in a market is therefore also a good indication of the health of competition.

By the end of 2014, in total, almost one quarter of gas offers were marketed as green. Dual-fuel offers (electricity and gas), comprised more than 35% of all offers on PCTs in Amsterdam, Brussels, Dublin, Lisbon, London and Paris – capitals with traditionally higher consumption of gas. And at the end of 2014, 12% of all gas offers presented in the PCTs across Europe included an additional service[216], up from 4% and 7% respectively from just the previous year[217].

Despite these early strides made by green offers on the gas market by the end of 2014, more recent data suggests a downwards trend between 2018 and 2019 in availability of fixed, mixed, variable, online and green offers (Figure 7).

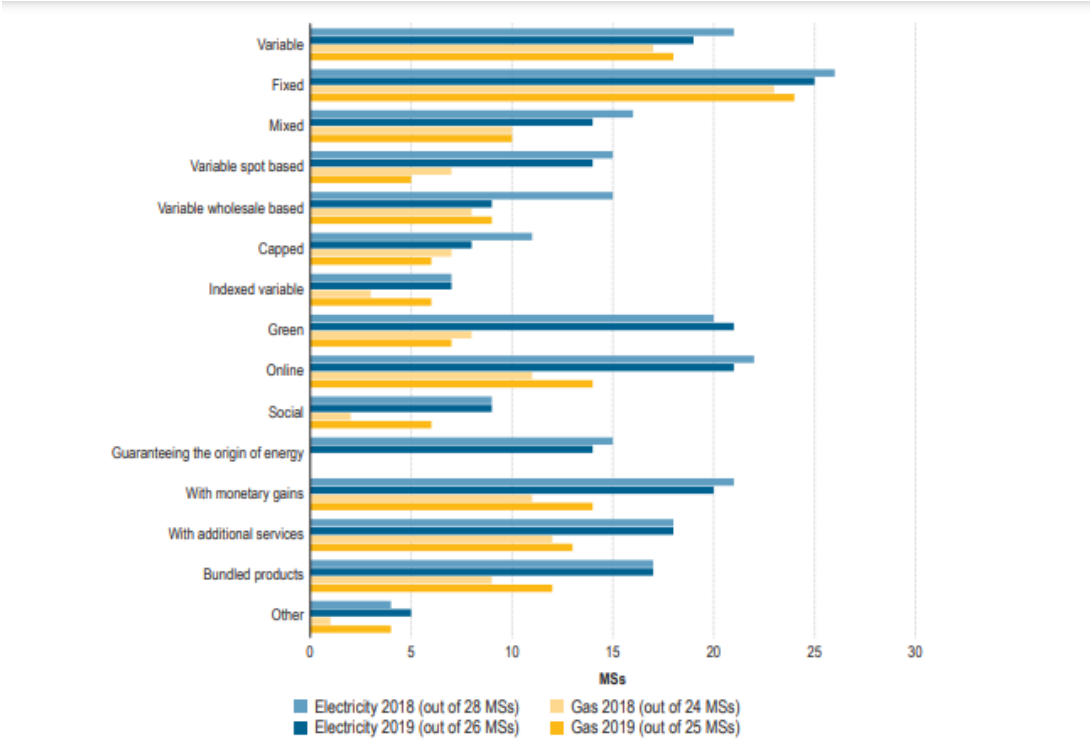

Figure 7: Number of Member States where the offer is available

216 Free-of-charge services and/or products enticing consumers into a contract (i.e. supermarket points or similar, membership points, air miles, gifts in kind, free insurance cover, maintenance services); or payable services and/or products complementing the electricity and gas offers against additional payment (insurance, boiler maintenance, home insulation, etc.).

217 Source: ACER Database.

3. Retail price regulation

Distortive retail price regulation continues to remain in place in different forms across various Member States in the EU, with some Member States intervening in consumers' energy prices. Figure 8 shows the level of price intervention in both electricity and gas across the EU.

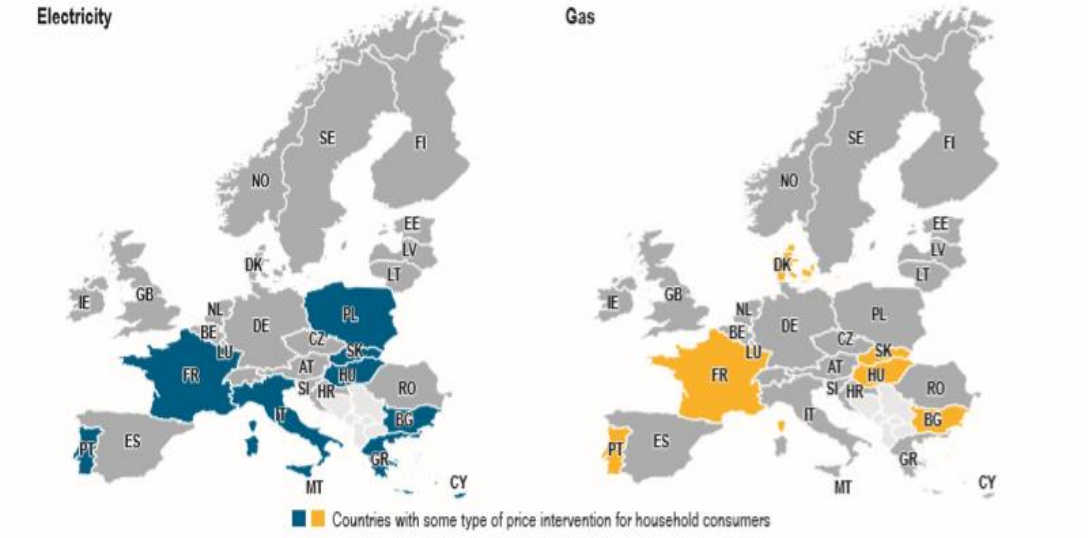

Figure 8: Existence of price intervention in electricity and in natural gas in 2019

Artificially low regulated prices (even without pushing them below costs) limit market entry and innovation, prompt consumers to disengage from the switching process and consequently hinder competition in retail markets. In addition, they may increase investor uncertainty and impact the long-term security of supply. Furthermore, regulated prices (even when set above costs) can act as a pricing focal point which competing suppliers are able to cluster around and – at least in markets featuring strong consumer inertia – can also considerably dilute competition and foreclose markets as indicated in Figure 9 below.

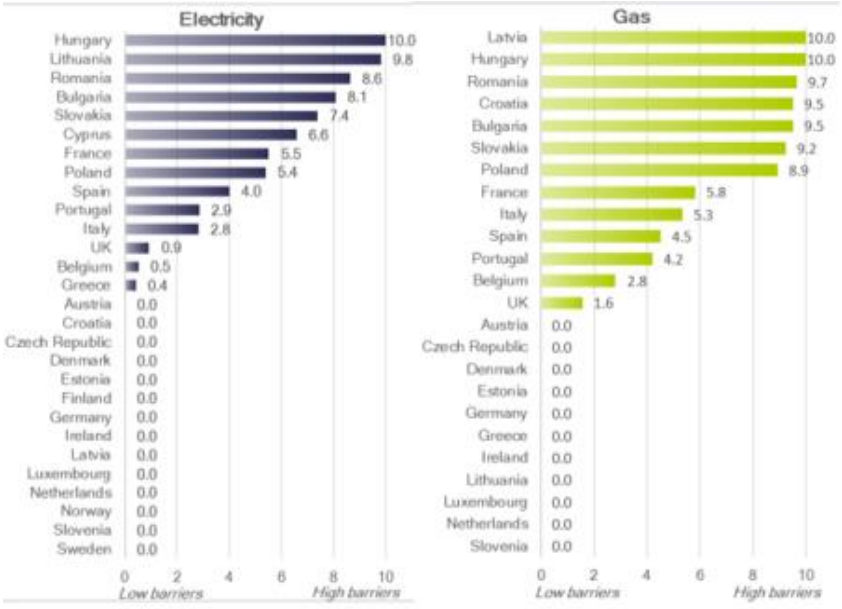

Figure 9: Performance indicators – Market foreclosure by price regulation

4. Supplier of last resort schemes

In case of supplier's bankruptcy, consumers tend to pay more than before they were served by a SoLR. Indeed, Figure 10 below confirms that gas prices in the context of a SoLR scheme tend, on average, to be higher than the prices paid by consumers served by non-SoLR suppliers in the majority of Member States[218].

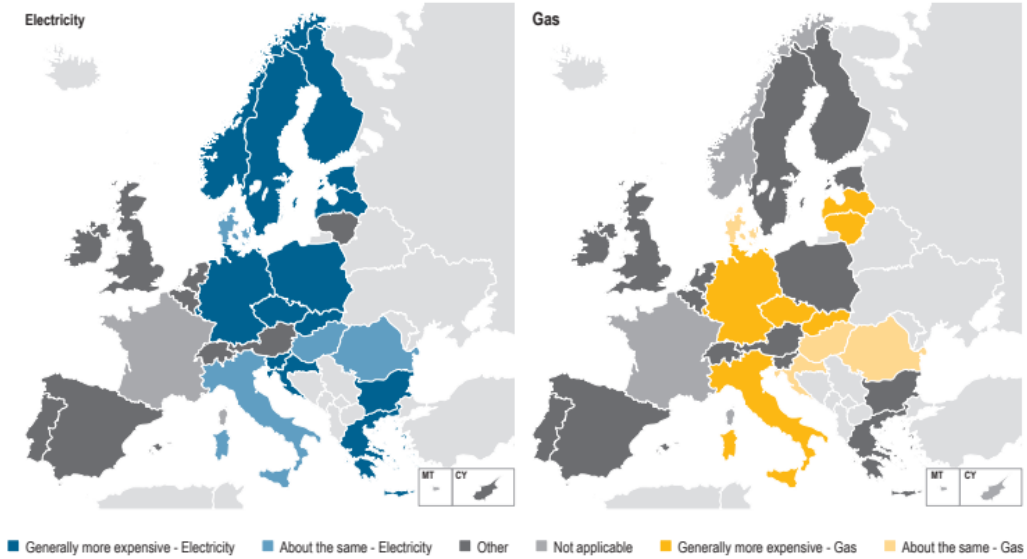

Figure 10: SoLR energy price compared to conventional energy prices in EU Member States and Norway – 2018

In addition, all but seven Member States intervene in price setting of the SoLR in some fashion (Figure 11).

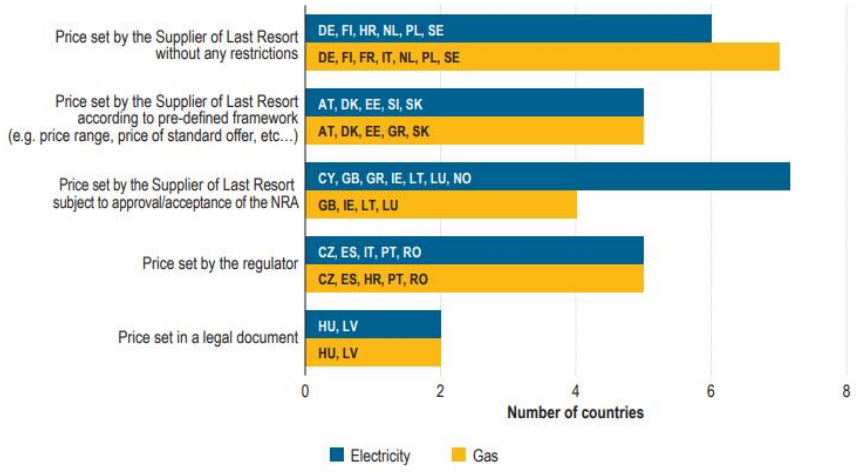

Figure 11: Entity determining the energy price for SoLR in EU Member States and Norway – 2018 (number of Member States)

218 2018 ACER Market Monitoring Report – Consumer Empowerment Volume, p. 13.

5. Switching

Existing consumer rights

Consumer rights related to switching were already strengthened to an extent through the Third Energy Package. The Gas Directive currently grants consumers the right to **switch suppliers within three weeks** (Article 3(6)) and **free of charge** (Annex I, point 1(e)). Customers can **freely withdraw from contracts** if they do not accept modified contractual conditions (Annex I, point 1(b)). Members States must ensure that eligible customers are able to **easily switch to new a supplier** (Recital 3).

Switching rates

The following figure shows that while **external switching rates have generally increased since 2013**, the **comparison does not show a clear trend**. In some countries, switching rates for gas household customers in 2018 were higher than the average from 2013 to 2017, while in others it is the other way around.

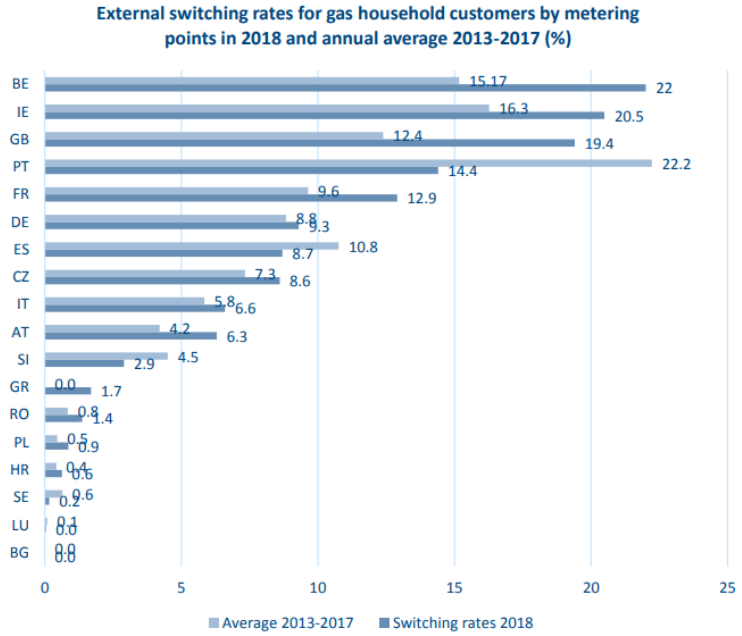

Figure 12: Switching rates for gas household customers in 2018 and annual average 2013-2017 (%; by metering points) for selected countries[219]

With regard to **internal switching**[220], less data is available but CEER's 2018 Market Monitoring Report suggests that, as for external switching, **rates across MS differ considerably**[221].

219 Monitoring Report on the Performance of European Retail Markets in 2018, p. 31.

220 Change of product or contract with the same supplier (renegotiation/choosing a different option).

221 CEER Monitoring Report on Performance of European Retail Markets in 2018. https://www.ceer.eu/documents/104400/-/-/5c492f87-c88f-6c78-5852-43f1f13c89e4

Consumer satisfaction

In the *Market Monitoring Survey 2020*, 82% of consumers indicated trust in gas services market and 89% reported a positive **experiences** of making purchases in the market, with no notable differences between countries[222].

Price comparison tools

Regarding the **comparability of utility offers for natural gas**, the following graph from the *European Barriers in Retail Energy Markets* study shows that the top performer is Portugal, as many reliable comparison websites are available, and this is reflected in customers' opinions as well. Austria, Ireland, France, Estonia and Germany are also amongst the best performers[223].

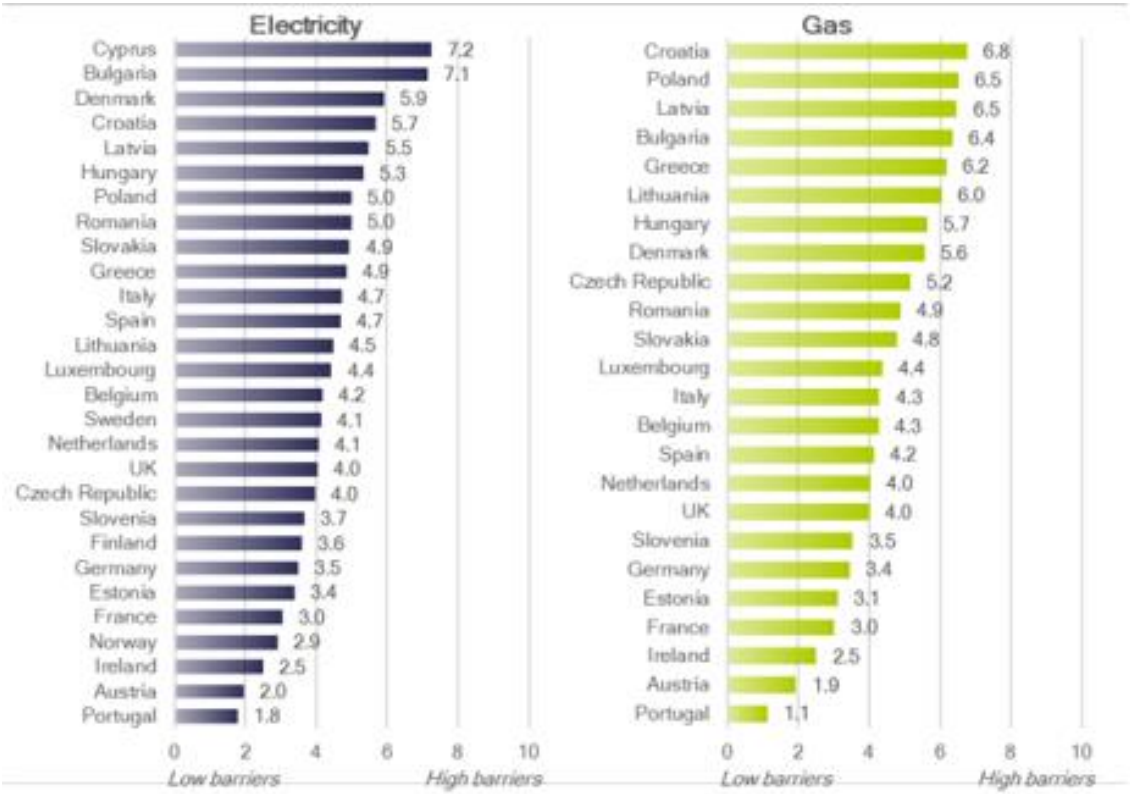

Figure 13: Performance indicators – comparability of offers

Technical switching times

Although the duration of 24 hours may not be viable in the gas sector due to its technical specificities, a shorter period could be considered and embedded in the Gas Directive to speed up the process of switching.

222 Market Monitoring Survey 2020, Gas Services, available at: EURO_COMMISSION_Dashboard_20_19-036243-01-12_Finale_Slide 2 (europa.eu)

223 Market barrier retail study, p. 56.

6. Billing

The information to be provided in consumer bills is **partly regulated in the Gas Directive**. These requirements are of general nature, as they do not address comprehensively all the information that consumers should receive in their bills for gas supply. Under the Directive, consumers are currently entitled to **receive all relevant consumption data** (Article 3(6)) and **transparent information on applicable prices and tariffs and on standard terms and conditions,** in respect of access to and use of gas services (Annex I, point 1(c)). **A wide choice of payment methods** should be available to consumers (Annex I, point 1(d)(2)).

Additional requirements **relating to natural gas** are included in the **Energy Efficiency Directive**[224]**, which grants final customers the right to receive all their bills and billing information for** energy free of charge, as well **as access to their consumption data** in an appropriate way and free of charge (Article 11). It requires bills and billing information to be reliable, accurate and based on actual consumption. Annex VII of the EED provides minimum requirements for billing and billing information for natural gas.

In comparison, electricity bills and billing information must display, among others, a **breakdown of the price, availability and the benefits of switching, information on customers' rights with regard to dispute settlement, on historical consumption**[225]**, disclosure of energy source and a link to PCTs**. These measures are essential for enabling consumer engagement, incentivising energy savings and boosting market competition.

7. Vulnerable customers and energy poverty

The uneven level of protection regarding energy poverty across the EU Member States was more pronounced when the Third Energy Package was fully in force where obligations for measures in the Gas Directive suffer from caveats and are not accompanied by any common definition or a requirement for defining the concept at national level. Essentially, the Third Energy Package referred to energy poverty as a type of consumer vulnerability. This categorisation led for several years to an incorrect expectation that a single set of policy measures from Member States can address both problems simultaneously.

In 2019, the co-legislators agreed to make energy poverty a key concern of the Clean Energy for all Europeans Package, designed to facilitate a fair energy transition. It build on the requirements of the Gas Directive to push for an increase in structural remedies to the problem and ensure that energy poverty is addressed as exhaustively and as comprehensively as possible in the mix of energy policy measures implemented under the NECPs, as required by new governance framework[226].

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224 Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency.

225 Though information on historical consumption is to be included in bills for natural gas, according to the Energy Efficiency Directive Art. 10, as specified in the previous paragraph.

226 SWD(2020) 960 final EU Guidance on Energy poverty accompanying the Commission Recommendation, dated 14 October 2021.

Articles 28 and 29 of the new Electricity Directive follow the same wording as Article 3(3) and (4) of the Gas Directive, however, a significant new element is that it requires the number of households in energy poverty to be quantified and suggests possible criteria[227].

In light of the role of the Governance framework in tracking of energy poverty policies and measures across Member States, a first assessment of the final NECPs gives a recent overview of situations as recorded in 2020.

The iterated EU-wide assessment issued on 17 September 2020[228] concluded that, overall, energy poverty could have figured more prominently. The more pressing requirement was the need to start energy poverty assessments by indicating the number of households in energy poverty as well as their main characteristics (composition, income levels, etc.) and their potential geographic concentration. In concrete areas of energy policy, Member States were recommended to further elaborate on the role of public bodies' buildings and explore more deeply the ways in which energy efficiency policies could address energy poverty in the final plans. Furthermore, Member States were communicated that national strategies to tackle energy poverty could benefit from a more structured approach ensuring better safeguards for consumer empowerment, protection and awareness. Some NECPs did not include the mention of an existing, or plans for the future design of, a dedicated regulatory framework addressing the issue of energy poverty.

Elaborating on the assessments carried out of each individual the plans, the Commission's Energy Poverty Guidance[229] summarised that Member States have adopted different approaches to the definitions of energy vulnerability and energy poverty. Most have not defined energy poverty; public interventions (such as helping households that receive subsistence allowances to pay their energy bills) are based on criteria unrelated to energy. However, several countries have used indicators described as 'proxies', to define the problem. At the same time, many of them take the view that there is not necessarily an energy poverty issue. Accordingly, they treat energy poverty not as an energy policy issue, but rather as part of general poverty, which they tackle through general social policy measures, with varying degrees of importance being attached to energy efficiency. These countries include Denmark, Estonia, Finland, Germany, Luxembourg, the Netherlands, Slovenia and Sweden.

227 Low income, high expenditure of disposable income on energy, and poor energy efficiency of dwellings.

228 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 – An EU-wide assessment of National Energy and Climate Plans – Driving forward the green transition and promoting economic recovery through integrated energy and climate planning (COM/2020/564 final).

229 SWD(2020) 960.

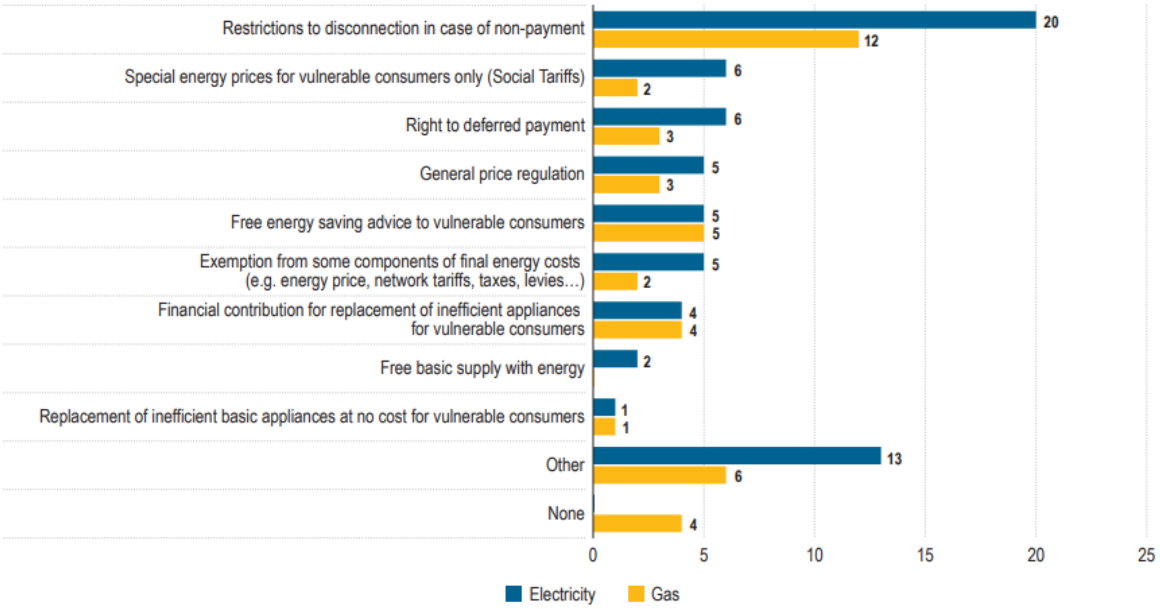

Figure 14: Measures in place to protect vulnerable consumers in EU MS and Norway – 2019 (number of MS)[230]

MS most frequently apply restrictions to disconnection due to non-payment in order to protect vulnerable consumers. Some MS also maintain special energy prices for such groups. Other measures – such as (non)earmarked social benefits to cover energy costs, exemptions from parts of the energy costs (especially funding contributions to renewable energy or energy efficiency) or (partial) grants for replacing old appliances with new, more energy efficient ones – have gained popularity in a few countries.

230 ACER Market Monitoring Report 2019 – Energy Retail and Consumer Protection Volume.